Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold /alue	Secondary Malfunction		Enable onditions		R	Time equired	Mil Illum.
Transmission Control Module (TCM)	P0601	Transmission Electro-Hydraulic Control Module Read Only Memory	Incorrect program/calibrations checksum	= TRUE	Boolean		<u> </u>	odistorio		>= 5	Fail Counts	One Trip
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0601 ECM: None					
Transmission Control Module (TCM)	P0603	Transmission Electro-Hydraulic Control Module Long-Term Memory Reset	Non-volatile memory (static or dynamic) checksum failure at Powerup	= TRUE	Boolean					Runs Continou		One Trip
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0603 ECM: None					
Transmission Control Module (TCM)	P0604	Transmission Electro-Hydraulic Control Module Random Access Memory	RAM Read/Write Failure (Single Word)	= TRUE	Boolean					>= 5	Fail Counts Sample Counts	One Trip
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0604 ECM: None					
Transmission Control Module (TCM)	P062F	Transmission Electro-Hydraulic Control Module Long Term Memory Performance	TCM Non-Volatile Memory bit Incorrect flag at Powerdown	= TRUE	Boolean					Runs Continou		One Trip
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P062F ECM: None					
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1 Substrate Temperature	>= 142.101562	25 °C					>= 5	Fail Time (Sec	One Trip
			Fail Case 2 Substrate Temperature Ignition Voltage Note: either fail case can set the DTC	>= 50 >= 18	°C Volts					>= 2	Fail Time (Sec	-
						Ignition Voltage Lo	>= {	3.5996094	Volts			
						Ignition Voltage Hi Substrate Temp Lo Substrate Temp Hi Substrate Temp Between Temp Range for Time	<= (5) >= (= >= >=	31.999023 0 170 0.25	Volts °C °C Sec			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum
5,000		5556, p. 6.			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 T
					P0658 Status is not High Side Driver 1 On	=	Test Failed This Key On or Fault Active True	Boolean	of			
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
ransmission Control Module TCM)	P0667	TCM Internal Temp (substrate) Sensor Circuit Range/Performance	If transmission oil temp to substrate temp Δ									Two
			If TCM substrate temp to power up temp Δ	Refer to Table 20 in Supporting documents								
			Both conditions above required to increment fail counter Note: table reference temp = to 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 of	875	(100ms loop) Sample Counts (100ms loop)	
					Engine Torque Signal Valid Accelerator Position Signal Valid Ignition Voltage Lo	= = >=	TRUE TRUE 8.5996094	Boolean Boolean Volts				
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi	<= >=	31.999023 400 7500	Volts RPM RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshol Value	d	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
-,	1 200			12340		Engine Speed is within the			Sec		
						allowable limits for	>=	5	Sec		
						Brake torque active	=	FALSE			
						Below describes the brake					
						torque entry criteria					
						Engine Torque	>=	90	N*m		
						Throttle	>=	30.000305	Pct		
						Transmission Input Speed	<=	200	RPM		
						Vehicle Speed	<=	8	Kph		
						Transmission Range	<i>≠</i>	Park			
						Transmission Range	≠	Neutral			
						PTO	=	Not Active			
						Set Brake Torque Active		7			
						TRUE if above conditions are met for:	>=	7	sec		
						Below describes the brake					
						torque exit criteria					
						Brake torque entry criteria	=	Not Met			
						brake torque entry criteria	=	Clutch			
								Hydraulic			
						Clutch hydraulic pressure	≠	Air Purge			
								Event			
								CeTFTD_e			
						Clutch used to exit brake	=	_C3_RatlE			
						torque active		nbl			
						The above clutch pressure is		TIDI			
						greater than this value for one	>=	600	kpa		
						loop		000	при		
						Set Brake Torque Active					
						FALSE if above conditions are	>=	20	Sec		
						met for:					
								Test Failed			
								This Key			
						P0667 Status is	≠	On or			
								Fault			
								Active			
					Disable	MIL not Illuminated for	TCM: P0658	, P0668, P0669,	P06AD,		
					Conditions:	DTC's:	P06AE, P07	16, P0712, P071	3, P0717,		
								3, P0962, P0963			
								0, P0971, P2150	C, P2720,		
							P2721, P272	.9, P2730			
								1, P0102, P0103			
								8, P0171, P0172			
								11, P0202, P0203			
								6, P0207, P0208			
								2, P0303, P0304			
							PU306, P030	7, P0308, P0401	I, P042E		
				CeTFTI_e_Vo							Two
ransmission Control Module	P0668	TCM internal temperature (substrate)	Type of Sensor Used								Trips
TCM)		thermistor failed at a low voltge								i e	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Т	hreshold Value	_	Secondary Malfunction		Enable Conditions				me uired	Mil Illum
System	Code	Description	If TCM Substrate Temperature		raiue		mananonon		JUNUMUNIS		\vdash	neq	uneu	mull
			Sensor = Direct Proportional and	<= -249	°C									
			Temp		_									
			If TCM Substrate Temperature											
			Sensor = Indirect Proportional and	>= -249	°C									
			Temp											
			Either condition above will satisfy								>=	60	Fail Timer (Sec)	\
			the fail conditions										Tull Tillier (See)	4
							Ignition Voltage Lo	>=	8.5996094	Volts				
							Ignition Voltage Hi Engine Speed Lo	<=	31.999023 400	Volts RPM				
							Engine Speed Lo Engine Speed Hi	>= <=	7500	RPM				
							Engine Speed is within the	\						
							allowable limits for	>=	5	Sec				
							anovable minto lei		Test Failed					
									This Key					
							P0668 Status is	≠	On or					
									Fault					
									Active					
						Disable	MIL not Illuminated for DTC's:	TCM: None						
						Conditions:	DICS:	ECM: None						
								ECIVI: NOTIE						
				CeTFTI_e	Vo									T۱
smission Control Module	P0669	TCM internal temperature (substrate)	Type of Sensor Used											Tri
M)		thermistor failed at a high voltage	31	р										
			If TCM Substrate Temperature											
			Sensor = Direct Proportional and	>= 249	°C									
			Temp											
			If TCM Substrate Temperature											
			Sensor = Indirect Proportional and	<= 249	°C									
			Temp Either condition above will satisfy											-
			the fail conditions								>=	60	Fail Timer (Sec))
			the fair conditions				Ignition Voltage Lo	>=	8.5996094	Volts				1
							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	>=		366				
									Test Failed					
								,	This Key					
							P0669 Status is	≠	On or					
									Fault					
							For Hybrids, below conditions		Active					1
							must also be met							1
							Estimated Motor Power Loss	>=	0	kW				1
							Estimated Motor Power Loss							1
							greater than limit for time	>=	0	Sec				1
							Lost Communication with							
							Hybrid Processor Control	=	FALSE					1
				ì							1			1
							Module							1
							Module Estimated Motor Power Loss	=	FALSE					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum
5,5 00		2000, gane.		Disable Conditions	MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723 ECM: None		
Fransmission Control Module TCM)	P06AC	TCM Power-up Temp Sensor Circuit Range/Performance	If TCM power-up temp to substrate temp Δ If transmission oil temp to power up temp Δ	supporting documents Refer to Table 18 in				Two Trips
			Both conditions above required to increment fail counter Note: table reference temp = to the median temp of trans oil temp, substrate temp and power up temp. Non-continuous (intermittent) fail				>= 3000 Fail Counts (100ms loop) Out 3750 Sample Counts (100ms loop) Pass Counts	
			conditions will delay resetting fail counter until				>= 700 Pass Counts (100ms loop) Out 875 Sample Counts of (100ms loop)	
					Engine Torque Signal Valid Accelerator Position Signal Valid Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed Hi Engine Speed Hi Engine Speed Hias allowable limits for Brake torque active	= TRUE Boolean = TRUE Boolean >= 8.5996094 Volts <= 31.999023 Volts >= 400 RPM <= 7500 RPM >= 5 Sec = FALSE		
					Below describes the brake torque entry criteria Engine Torque Throttle Transmission Input Speed Vehicle Speed Transmission Range Transmission Range PTO Set Brake Torque Active TRUE if above conditions are met for:	>= 90 N°m >= 30.000305 Pct <= 200 RPM <= 8 Kph ≠ Park ≠ Neutral = Not Active >= 7 Sec		
					Below describes the brake torque exit criteria Brake torque entry criteria	= Not Met		

Component/	Fault	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		ime quired	Mil Illum
System	Code	Description	Criteria	value	INIAITUNCTION	Conditions	Rec	quirea	ıılum.
						Hydraulic			
					Clutch hydraulic pressure	≠ Air Purge			
						Event			
						CeTFTD_e			
					Clutch used to exit brake	= _C3_RatlE			
					torque active	nbl			
					The above clutch pressure is				
					greater than this value for one	>= 600 kpa			
					loop				
					Set Brake Torque Active				
					FALSE if above conditions are	>= 20 Sec			
					met for:	T . F " .			
						Test Failed			
					DOVAC Chahua la	This Key			
					P06AC Status is	≠ On or Fault			
						Active			
						Active			
				Disable	MIL not Illuminated for	TCM: P0658, P0668, P0669, P06AD,			
				Conditions:		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			
ansmission Control Module	P06AD	TCM power-up thermistor circuit	Power Up Temp	<= -59 °C			>= 60	Fail Time (Sec)	Two
CM)	PUGAD	voltage low	Power up Temp	<= -59 *C			>= 00	Fall Time (Sec)	Trips
					Ignition Voltage Lo	>= 8.5996094 Volts			
					Ignition Voltage Hi	<= 31.999023 Volts			
					Engine Speed Lo	>= 400 RPM			
					Engine Speed Hi	<= 7500 RPM			
					Engine Speed is within the allowable limits for	>= 5 Sec			
					allowable limits for	Test Failed			
						Test Failed This Key			
					P06AD Status is	≠ On or			
					1 OUND Status is	Fault			
						Active			
					For Hybrids, below conditions	. 30			
			1		must also be met				
							ı		I
					Estimated Motor Power Loss	>= 0 kW			
					Estimated Motor Power Loss Estimated Motor Power Loss				
					Estimated Motor Power Loss greater than limit for time	>= 0 kW >= 0 Sec			
					Estimated Motor Power Loss greater than limit for time Lost Communication with	>= 0 Sec			
					Estimated Motor Power Loss greater than limit for time Lost Communication with Hybrid Processor Control				
					Estimated Motor Power Loss greater than limit for time Lost Communication with Hybrid Processor Control Module	>= 0 Sec			
					Estimated Motor Power Loss greater than limit for time Lost Communication with Hybrid Processor Control	>= 0 Sec			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction		Enable Conditions			Tii Requ	me uired	Mil Illum.
Gyete		5556, past.			Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, ECM: None		2, P0723				
Fransmission Control Module	P06AE	TCM power-up thermistor circuit	Power Up Temp	>= 164 °C						>=	60	Fail Time (Sec)	Two
(TCM)		voltage high				Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for P06AE Status is	>= <= >= <= >=	8.5996094 31.999023 400 7500 5 Test Failed This Key On or Fault Active	Volts Volts RPM RPM Sec			<u>, , , , , , , , , , , , , , , , , , , </u>	Trips
				(Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Fransmission Fluid Femperature Sensor (TFT)	P0711	Trans Fluid Temp Sensor Circuit Range/Performance	If transmission oil temp to substrate temp Δ	Refer to Table 19 in °C supporting documents									Two Trips
			If transmission oil temp to power up temp Δ	Refer to Table > 18 in °C supporting documents									
			Both conditions above required to increment fail counter Note: table reference temp = to							>=	3000	Fail Counts (100ms loop)	
			the median temp of trans oil temp, substrate temp and power up temp.							Out of	3750	Sample Counts (100ms loop)	
			Non-continuous (intermittent) fail conditions will delay resetting fail counter until							>=	700	Pass Counts (100ms loop)	
										Out of	875	Sample Counts (100ms loop)	
						Engine Torque Signal Valid Accelerator Position Signal Valid Ignition Voltage Lo Ignition Voltage Hi	= = >= <=	TRUE TRUE 8.5996094 31.999023	Boolean Boolean Volts Volts				
						Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for Brake torque active	>= <= >= =	400 7500 5 FALSE	RPM RPM Sec				

Component/	Fault	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	Criteria	value	Below describes the brake	Conditions	Kequirea	ilium.
					torque entry criteria			
					Engine Torque	>= 90 N*m		
					Throttle	>= 30.000305 Pct		
					Transmission Input Speed	<= 200 RPM		
					Vehicle Speed	<= 8 Kph		
					Transmission Range	≠ Park		
					Transmission Range PTO	≠ Neutral = Not Active		
					Set Brake Torque Active	= Not 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 ≠ Air Purge		
						Event		
						CeTFTD_e		
					Clutch used to exit brake	= _C3_RatIE		
					torque active	nbl		
					The above clutch pressure is			
					greater than this value for one	>= 600 kpa		
					loop			
					Set Brake Torque Active			
					FALSE if above conditions are	>= 20 Sec		
					met for:	Test Failed		
						This Key		
					P0711 Status is	≠ On or		
					107110111011	Fault		
						Active		
				Disable		TCM: P0658, P0668, P0669, P06AD,		
				Conditions:	DIC's:	P06AE, P0716, P0712, P0713, P0717,		
						P0722, P0723, P0962, P0963, P0966,		
						P0967, P0970, P0971, P215C, P2720, P2721, P2729, P2730		
						1 2721,1 2727,1 2730		
						ECM: P0101, P0102, P0103, P0106,		
						P0107, P0108, P0171, P0172, P0174,		
						P0175, P0201, P0202, P0203, P0204,		
						P0205, P0206, P0207, P0208, P0300,		
						P0301, P0302, P0303, P0304, P0305,		
						P0306, P0307, P0308, P0401, P042E		
	-			CeTFTI_e_Vo				Two
Transmission Fluid	P0712	Transmission fluid temperature	Type of Sensor Used					Trips
Temperature Sensor (TFT)	1 0/12	thermistor failed at a low voltage	Type of Sellsof Oseu	p				ilips
			If Transmission Fluid Temperature	r				
			Sensor = Direct Proportional and	<= -74 °C				
			Temp					
			If Transmission Fluid Temperature					
			Sensor = Indirect Proportional and	>= -74 °C				
Ì	1	l	Temp	I				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			ime quired	Mil Illum.
oyo.o	0000	2000.1540.1	Either condition above will satisfy				>=	60	Fail Time (Sec)	
			the fail conditions				>=	00	rali Time (Sec)	
					Ignition Voltage Lo	>= 8.5996094 Volts				
					Ignition Voltage Hi	<= 31.999023 Volts				
					Engine Speed Lo	>= 400 RPM <= 7500 RPM				
					Engine Speed Hi	<= 7500 RPM				
					Engine Speed is within the allowable limits for	>= 5 Sec				
					allowable littlics for	Test Failed				
						This Key				
					P0712 Status is	≠ On or				
						Fault				
						Active				
					For Hybrids, below conditions					
					must also be met					
					Estimated Motor Power Loss	>= 0 kW				
					Estimated Motor Power Loss	>= 0 Sec				
					greater than limit for time					
					Lost Communication with	541.05				
					Hybrid Processor Control	= FALSE				
					Module Estimated Motor Power Loss					
					Fault	= FALSE				
					rault					
				Disabl	e MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723				
				Conditions						
						ECM: None				
Transmission Fluid		Transmission fluid temperature		CeTFTI_e_Vo						Two
Temperature Sensor (TFT)	P0713	thermistor failed at a high voltage	Type of Sensor Used	_						Trips
Tomporataro consor (TTT)		and at a riight voltage		р						
			If Transmission Fluid Temperature	474 00						
			Sensor = Direct Proportional and	>= 174 °C						
			Temp If Transmission Fluid Temperature							
			Sensor = Indirect Proportional and	<= 174 °C						
			Temp	174 C						
			Either condition above will satisfy							
			the fail conditions				>=	60	Fail Time (Sec)	
					Ignition Voltage Lo	>= 8.5996094 Volts				i
					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					
						Test Failed				
					D0713 Clai !-	This Key ≠ On or				
					P0713 Status is	≠ On or Fault				
						Active				
						Active				
				Disabl	e MIL not Illuminated for	TCM: P0713, P0716, P0717, P0722,				
										1
				Conditions	:: DTC's:	P0723				
				Conditions	DTC's:	P0723				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
Transmission Input Speed Sensor (TISS)		Input Speed Sensor Performance	Transmission Input Speed Sensor Drops		900	RPM					>=	0.8	Fail Time (Sec)	One Trip
							Engine Torque is Engine Torque is Engine Speed Engine Speed Engine Speed is within the allowable limits for Vehicle Speed is Throttle Position is	>= <= >= >=	0 8191.875 400 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 been satisfied for Throttle Position Signal Valid Engine Torque Signal Valid Ignition Voltage Ignition Voltage	= = >= <=	8191.875 0 TRUE TRUE 8.5996094 31.999023 Test Failed This Key On or Fault Active	RPM/Loop Sec Boolean Boolean Volts Volts				
						Disabl Conditions			7, P0752, P0973					
Transmission Input Speed Sensor (TISS)	P0717	Input Speed Sensor Circuit Low Voltage	Fail Case 1 Transmission Input Speed is	<	33	RPM					>=	4.5	Fail Time (Sec)	One Trip
			Fail Case 2 When P0722 DTC Status equal to Test Failed and Transmission Input Speed is	<	653.125	RPM	Controller uses a single power supply for the speed sensors Engine Torque is Engine Torque is Vehicle Speed Engine Torque Signal Valid Ignition Voltage	= >= <= >= = >=	1 120 8191.875 12 TRUE 8.5996094	N*m N*m Kph Boolean Volts				
							Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	<=	31.999023 400 7500 5	Volts RPM RPM Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres			Secondary Malfunction		Enable Conditions				ime Juired	Mil Illum.
								P0717 Status is not	=	Test Failed This Key On or Fault Active					
						Di Condii	sable ions:	MIL not Illuminated for DTC's:		2, P0723 1, P0102, P0103					
Transmission Output Speed Sensor (TOSS)	P0722	Output Speed Sensor Circuit Low Voltage	Transmission Output Speed Sensor Raw Speed	<=	35	RPM						>=	4.5	Fail Time (Sec)	One Trip
Sensu (1033)		vonage	Jensui ivaw speeu					P0722 Status is not Transmission Input Speed Check Engine Torque Check Throttle Position Transmission Fluid	= = = >= >=	Test Failed This Key On or Fault Active TRUE R.0001831	Boolean Boolean Pct °C				
								Temperature Disable this DTC if the PTO is active 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	>= = = = >= <= >= <= >=	1 TRUE TRUE 8.5996094 31.999023 400 7500 5	Boolean Boolean Boolean Volts Volts RPM RPM Sec				
								Enable_Flags Defined Below The Engine Torque Check is TRUE, if either of the two following conditions are TRUE Engine Torque Condition 1 Range Shift Status OR	≠	Range shift completed	ENUM				
								Transmission Range is Engine Torque is Engine Torque is Engine Torque Condition 2 Engine Torque is Engine Torque is	= >= <= >= <=	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		Thre Va	shold lue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
5,							The Transmission Input Speed (TIS) Check is TRUE, if either of the two following conditions are TRUE					- 1		
							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 Engine Speed with the brake	>=	3200	RPM				
							applied is Engine Speed with the brake applied is	>= <=	3200 8191.875	RPM RPM				
							Controller uses a single power supply for the speed sensors	=	1	Boolean				
							Powertrain Brake Pedal is Valid	=	TRUE	Boolean				
						Disable Conditions:	DTC's:		1, P0102, P010					
Transmission Output Speed	D0722	Output Speed Sensor Circuit	Transmission Output Speed		105	DDM						0	Enable Time	One Trip
Sensor (TOSS)	P0723	Intermittent	Sensor Raw Speed Output Speed Delta	>=	105 8192	RPM RPM					>=	0	(Sec) Enable Time	
			Output Speed Drop		650	RPM					>=	1.5	(Sec) Output Speed Drop Recovery	
			AND		Driven range								Fail Time (Sec)	
			Transmission Range is	=	(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 Test Failed	Seconds				
							P0723 Status is not	=	This Key On or Fault Active					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	M Illu
		p			Disable this DTC if the PTO is			Deelee		
					active	=	1	Boolean		
					Ignition Voltage is	>=	8.5996094	Volts		
					Ignition Voltage is	<=	31.999023	Volts		
					Engine Speed is	>=	400	RPM		
					Engine Speed is	<=	7500	RPM		
					Engine Speed is within the			0		
					allowable limits for	>=	5	Sec		
					Enable_Flags Defined Below					
					_ 0					
					Transmission_Input_Speed_E					
					nable is TRUE when either TIS					
					Condition 1 or TIS Condition 2					
					is TRUE:					
					15 11(02)					
					TIS Condition 1 is TRUE when					
	1 1				both of the following conditions	>=	0	Enable Time		- 1
					are satsified for	/-	U	(Sec)		
					Input Speed Delta	<=	4095.875	RPM		
								RPM		
	1 1				Raw Input Speed	>=	500	KPIVI		
	1 1				TIO O IIII O I TOUE I					
	1 1				TIS Condition 2 is TRUE when					
	1 1				ALL of the next two conditions					
					are satisfied					
					Input Speed	=	0	RPM		
					A Single Power Supply is used	=	TRUE	Boolean		
					for all speed sensors	_	TRUL	Doolean		
					Neutral_Range_Enable is					
	1 1				TRUE when any of the next 3					
					conditions are TRUE					
					Transmission Range is	=	Neutral	ENUM		
					3					
							Reverse/N			
	1 1				Transmission Range is	=	eutral	ENUM		
							Transitonal			
	1 1						Neutral/Dri			
							ve			
					Transmission Range is	=	Transitiona	ENUM		
					And when a drop occurs		ı			
					And when a drop occurs					
					Loop to Loop Drop of	>	650	RPM		
					Transmission Output Speed is	>	000	KPIVI		
					Dongo Dischle is TDUE when					-
					Range_Disable is TRUE when					
					any of the next three					
					conditions are TRUE					
					Transmission Range is	=	Park	ENUM		
							Park/Reve			
					Transmission Danes is			ENUM		
					Transmission Range is	=	rse	EINUIVI		
	1 1						Transitonal			
	1 1						ON (Fully			
					Input Clutch is not	=	Applied)	ENUM		

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

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold /alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
- Oystelli	Code	Description	If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter	<u>v</u>				Jonations		>=	2	TCC Stuck Off Fail Counter	
			increment rail 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 Engine Torque Hi	>= <=	50 8191.875	N*m N*m				
						Throttle Position Lo	<= >=	8.0001831	Pct				
						Throttle Position Hi	<=	99.998474	Pct				
						2nd Gear Ratio Lo 2nd Gear Ratio High	>= <=	2.1948242 2.5251465	Ratio Ratio				
						3rd Gear Ratio Lo	>=	1.4228516	Ratio				
						3rd Gear Ratio High	<=	1.637085	Ratio				
						4th Gear Ratio Lo	>=	1.069458 1.2304688	Ratio Ratio				
						4th Gear Ratio High 5th Gear Ratio Lo	<= >=	0.7905273	Ratio				
						5th Gear Ratio Hi	<=	0.9095459	Ratio				
						6th Gear Ratio Lo	>=	0.6230469	Ratio Ratio				
						6th Gear Ratio High Transmission Fluid	<=	0.7169189					
						Temperature Lo	>=	-6.65625	°C				
						Transmission Fluid	<=	130	°C				
						Temperature Hi PTO Not Active	=	TRUE	Boolean				
						Engine Torque Signal Valid	=	TRUE	Boolean				
						Throttle Position Signal Valid	=	TRUE	Boolean				
						Dynamic Mode	=	FALSE Test Failed	Boolean				
								This Key					
						P0741 Status is	≠	On or					
								Fault Active					
								Active					
					Disable Conditions:	MIL not Illuminated for	TCM: P0716 P0742, P27		, P0723,				
					Conditions.	DICS.	PU/42, P2/	03, P2/04					
								1, P0102, P010					
								08, P0171, P017					
								01, P0202, P020 06, P0207, P020					
							P0301, P03	02, P0303, P030	04, P0305,				
							P0306, P03	07, P0308, P040	1, P042E				
Torque Converter Clutch	DC- ::	T00.0 1 01 101			2014								One Trip
(TCC)	P0742	TCC System Stuck ON	TCC Slip Speed		RPM								,p
			TCC Slip Speed	<= 13	RPM					Ι.	1 5	Foil Time (Cas)	
			If Above Conditions Have been							>=	1.5	Fail Time (Sec)	
			Met, and Fail Timer Expired,							>=	6	Fail Counter	
1		l	Increment Fail Counter										

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	п
System	Code	Description	Criteria	value	TCC Mode		Off		Required	+"
						=	OII			
					Enable test if Cmnd Gear =	=	1	Boolean		
					1stFW and value true					
					Enable test if Cmnd Gear =	=	0	Boolean		
					2nd and value true					
					Engine Speed Hi	<=	6000	RPM		
					Engine Speed Lo	>=	500	RPM		
					Vehicle Speed HI	<=	511	KPH		
					Vehicle Speed Lo	>=	1	KPH		
					Engine Torque Hi	<=	8191.875	Nm		
					Engine Torque Lo	>=	80	Nm		
					Current Range	≠	Neutral	Range		
					Current Range	<i>+</i> ≠	Reverse	Range		
						7	Reverse	Range		
					Transmission Sump	<=	130	°C		
					Temperature					
					Transmission Sump	>=	18	°C		
					Temperature	-				
					Throttle Position Hyst High	>=	5.0003052	Pct		
					AND					
					Max Vehicle Speed to Meet			KBII		
					Throttle Enable	<=	8	KPH		
					Once Hyst High has been met,					
					the enable will remain while	>=	2.0004272	Pct		
					Throttle Position		2.0004272	1 61		
							75	Pct		
					Disable for Throttle Position	>=	/5	PCI		
					Disable if PTO active and	=	1	Boolean		
					value true					
					Disable if in D1 and value true	=	1	Boolean		
					Disable if in D2 and value true	=	1	Boolean		
					Disable if in D3 and value true	=	1	Boolean		
					Disable if in D4 and value true	=	1	Boolean		
					Disable if in D5 and value true	=	1	Boolean		
					Disable if in MUMD and value					
					true	=	1	Boolean		
					Disable if in TUTD and value					
						=	1	Boolean		
					true		E41.0E			
					4 Wheel Drive Low Active	=	FALSE	Boolean		
					Disable if Air Purge active and	=	0	Boolean		
					value false					
					RVT Diagnostic Active	=	FALSE	Boolean		
					Ignition Voltage	>=	8.5996094	V		
					Ignition Voltage	<=	31.999023	V		
					Vehicle Speed	<=	511	KPH		
					Engine Speed	>=	400	RPM		
					Engine Speed	<=	7500	RPM		
					Engine Speed is within the	~-				
					allowable limits for	>=	5	Sec		
							TDUE	Deelees		
					Engine Torque Signal Valid	=	TRUE	Boolean		
					Throttle Position Signal Valid	=	TRUE	Boolean		
					1		Test Failed			
					1		This Key			
					P0742 Status is	≠	On or			
					1		Fault			
					1		Active			
					1					
										- 1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enal Condi				ime Juired	Mil Illum
System	Code	Description	Criteria	Value Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0741, P2763, P2764 ECM: P0101, P0102 P0107, P0108, P0177 P0175, P0201, P0202 P0205, P0206, P0203	P0722, P0723, P0103, P0106, , P0172, P0174, , P0203, P0204, , P0208, P0300,		Rec	uirea	illum
						P0301, P0302, P0303 P0306, P0307, P0308					Two
Mode 2 Multiplex Valve	P0751	Shift Solenoid Valve A Stuck Off	Commaned Gear Slip								Trip
				<= 1.209594727 >= 1.094360352				>= =	0.2 5	Fail Tmr Fail Counts	
			, , , , , , , , , , , , , , , , , , ,					≠	0	Neutral Timer (Sec)	
								>=	0.3	Fail Timer (Sec)	
					Ignition Voltage Lo	>= 8.599	6094 Volts	>=	8	Counts	-
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi	<= 31.99 >= 40 <= 75	9023 Volts 0 RPM				
					Engine Speed is within the allowable limits for Transmission Fluid	>= 5					
					Temperature Range Shift State	Rai = Sł Comp	ge ift ENUM				
					TPS OR	>= 0.500	4883 %				
					Output Speed Throttle Position Signal Valid	>= 6 = TR					
					from ECM Engine Torque Signal Valid from ECM, High side driver is	= TR					
					enabled High-Side Driver is Enabled Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	= TR = FAI = FAI = TR	SE Boolean SE Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum
System	Code	Description	Gildia	Disable Conditions		TCM: P0716, P0717, P0722, P0723,	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		
lode 2 Multiplex Valve	P0752	Shift Solenoid Valve A Stuck On	Gear Box Slip	>= 400 RPM				One ⁻
			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				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 % Range	>= 5 Counts	
					Range Shift State Transmission Fluid Temperature Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	= Shift Completed >= -6.65625 °C = FALSE Boolean = FALSE TRUE		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions			Time Require		Mil Illum
				Disat Condition	le MIL not Illuminated for	P182E ECM: P0101, P0107, P010 P0175, P020 P0205, P020 P0301, P030	P0717, P0722 P0102, P0103 8, P0171, P017 1, P0202, P020 6, P0207, P020 2, P0303, P030	, P0106, 2, P0174, 3, P0204, 8, P0300, 4, P0305,		•		
Mode 2 Multiplex Valve	P0756	Shift Solenoid Valve B Stuck Off		b >= 400 RPM 1		P0306, P030	7, P0308, P040	1, P042E	Please I to Table Suppoi Docum	e 5 in rting	Neutral Timer (Sec)	One Tr
			ii die abore parameters die dee		Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for Output Speed	>= <= >= <= >= >=	8.5996094 31.999023 400 7500 5 67	Volts Volts RPM RPM Sec RPM	>= 1 >= 3		sec counts	-
					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	= >= = =	Range Shift Completed -6.65625 TRUE TRUE FALSE FALSE TRUE	enum °C Boolean Boolean Boolean Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mi
System	Code	Description	Criteria	Disable	MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723,	Required	illul
				Conditions:	DTC's:			
				ochamons.	5.00.	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		
iable Bleed Solenoid (VBS)	P0776	Pressure Control (PC) Solenoid B	Fail Case 1 Case: Steady State 3rd Gear					One
(,		Stuck Off [C35R]						
			Commanded Gear Gearbox Slip					
			Gearbox Stip	2- 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					
			Commanded Gear	= 5th Gear				
							Please Refer	
							to Table 5 in Neutral Timer	
			Gearbox Slip	>= 400 Rpm			>= Supporting (Sec)	
							Documents	
			Intrusive Test: Command 6th Gear					
				Please refer to Table 3 in				
			If attained Gear=6th gear Time	>= to Table 3 in supporting Shift Time (Sec)				
				documents				
			It the above condiations are true,				>= 3 5th Gear Fail	
			Increment 5th gear fail counter				Counts	
							Or OF Chitch	
			and C35R Fail counter				>= 14 3-5R Clutch Fail Counts	
					PRNDL State defaulted	= FALSE Boolean	i dii Coulits	1
					inhibit RVT	= FALSE Boolean		
					IMS fault pending indication	= FALSE Boolean		
					TPS validity flag	= TRUE Boolean		
					Hydraulic System Pressurized Minimum output speed for	= TRUE Boolean		
					iviinimum output speed for RVT	>= 67 RPM		
					A OR B			
					(A) Output speed enable	>= 67 RPM		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Tin Requ		Mil Illum.
System	Code	Description	Oriteria	value	(B) Accelerator Pedal enable	>= 0.5004883 Pct	Kequ	u	mann.
					Common Enable Criteria	5.000.000			
					Ignition Voltage Lo	>= 8.5996094 Volts			
					Ignition Voltage Hi	<= 31.999023 Volts			
					Engine Speed Lo	>= 400 RPM			
					Engine Speed Hi	<= 7500 RPM			
					Engine Speed is within the allowable limits for	>= 5 Sec			
					Throttle Position Signal valid	= TRUE Boolean			
					HSD Enabled	= TRUE Boolean			
					Transmission Fluid				
					Temperature	>= -6.65625 °C			
					Input Speed Sensor fault	= FALSE Boolean			
					Output Speed Sensor fault	= FALSE Boolean			
					Default Gear Option is not	= TRUE			
					present				
				Disable	MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723,			
				Conditions:	DTC's:				
						. 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			
Variable Blood Coloneid (VBC)	D0777	Pressure Control (PC) Solinoid B	Fail Case 1 Case Steady State 1st				†		One Trip
Variable Bleed Solenoid (VBS)	P0777	Stuck On [C35R] (Steady State)	Case: Steady State 1st						
			Attained Gear slip						
				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					
				>= 1.455444336					
			If the above parameters are true						
							>= 1.1	Fail Timer (Sec)	
								Fail Count in	
							>= 2	1st Gear	
								or	
							>= 3	Total Fail	
							>= 3	Counts	
			Fail Case 2 Case: Steady State 2nd gear						
				Table Based					
			May Dalta Ordanit Casad	value Please					
			Max Delta Output Speed Hysteresis						
			nysteresis	supporting					
				documents					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Tin Requ	
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,			Min Delta Output Speed Hysteresis	Table Based value Please Refer to 3D Table 2 in rpm/sec				
				supporting documents Table Based Time Please				
			If the Above is True for Time	>= Refer to Table Sec 17 in Supporting documents				
				<= 1.608642578 >= 1.455444336				
			If the above parameters are true	2- 1.100 TT1000			>= 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 documents				
			Min Delta Output Speed Hysteresis	Table Based value Please Refer to 3D Table 2 in rpm/sec				
			rysiciosis	supporting documents Table Based				
			If the Above is True for Time	supporting				
				documents <= 0.89465332				
			Gear Ratio If the above parameters are true	>= 0.809448242			>= 1.1	Fail Timer (Sec)
							>= 3	Fail Count in 4th Gear
							>= 3	or Total Fail Counts

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				ime Juired	П
		<u> </u>		Table Based								Γ
			May Dalta Output Spand	value Please								
			Max Delta Output Speed Hysteresis	>= Refer to 3D rpm/sec								
			nysteresis	supporting								
				documents								
				Table Based								
				value Please								
			Min Delta Output Speed	Refer to 3D								
			Hysteresis									
			-	supporting								
				documents								ı
				Table Based								ı
				Time Please								ı
			If the Above is True for Time	>= Refer to Table Sec								ı
				17 111								ı
				supporting documents								
			Intrusive test:	uocuments								Т
			(CB26 clutch exhausted)									ı
				<= 0.89465332					>=	1.1	Fail Timer (Sec)	
			Gear Ratio	>= 0.809448242					>=	3	counts	ı
			If the above parameters are true									
									>=	1.1	Fail Timer (Sec)	1
									>=	3	Fail Count in	
											6th Gear or	
											Total Fail	
									>=	3	Counts	
					PRNDL State defaulted	=	FALSE	Boolean				1
					inhibit RVT	=	FALSE	Boolean				
					IMS fault pending indication	=	FALSE	Boolean				ı
					output speed	>=	0	RPM				ı
					TPS validity flag	=	TRUE	Boolean				
					HSD Enabled	=	TRUE	Boolean				ı
					Hydraulic_System_Pressurize	=	TRUE	Boolean				ı
					A OR B							
					(A) Output speed enable	>=	67	Nm				
					(B) Accelerator Pedal enable	>=	0.5004883	Nm				Т
					Ignition Voltage Lo	>=	8.5996094	Volts				Т
					Ignition Voltage Hi	<=	31.999023	Volts				1
					Engine Speed Lo	>=	400	RPM				Т
					Engine Speed Hi	<=	7500	RPM				
					Engine Speed is within the	>=	5	Sec				
					allowable limits for		-	***				Т
					if Attained Gear=1st FW Accelerator Pedal enable	>=	5.0003052	Pct				
					if Attained Gear=1st FW							
					Engine Torque Enable	>=	5	Nm				
					if Attained Gear=1st FW							
					Engine Torque Enable	<=	8191.875	Nm				1
					Transmission Fluid		/ /5/05	0.0				1
					Temperature	>=	-6.65625	°C				1
	1 1		I		Input Speed Sensor fault	=	FALSE	Boolean	I			1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thres Val		Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Describtion	Gineria	val	uo	Output Speed Sensor fault	= FALSE Boolean	Nequileu	muil.
					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		
		Draccure Central (DC) Salanaid B	Primary Offgoing Clutch is						One T
riable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solenoid B StuckOn [C35R] (Dymanic)	exhausted (See Table 12 in 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	<= 40	RPM				
			If the above conditions are true						
			run appropriate Fail 1 Timers Below:						
			fail timer 1 (3-1 shifting with Closed Throttle)	>= 0.5	Fail Time (Sec)				
			fail timer 1	>= 0.299804688	Fail Time (Sec)				
			(3-2 shifting with Throttle) fail timer 1						
			(3-2 shifting with Closed Throttle)	>= 0.5	Fail Time (Sec)				
			fail timer 1 (3-4 shifting with Throttle)	>= 0.299804688	Fail Time (Sec)				
			fail timer 1 (3-4shifting with Closed Throttle)	>= 0.5	Fail Time (Sec)				
			fail timer 1	>= 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 (5-3 shifting with Closed Throttle)	>= 0.5	Fail Time (Sec)				
			fail timer 1 (5-4 shifting with Throttle)	>= 0.299804688	Fail Time (Sec)				
			fail timer 1 (5-4 shifting with Closed Throttle)	>= 0.5	Fail Time (Sec)				
			fail timer 1	>= 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		eshold alue	Secondary Malfunction	Enable Conditions	Tim Requi		Mil Illum.
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers					Total Fail Time = (Fail 1) + Fail 2) See Enable Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2	sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter							
			3rd gear fail counter					>= 3	3rd gear fail counts OR	
			5th gear fail counter Total fail counter					>= 3	5th gear fail counts OR total fail counts	
						TUT Enable temperature Input Speed Sensor fault Output Speed Sensor fault Command / Attained Gear High Side Driver ON output speed limit for TUT input speed limit for TUT PRNDL state defaulted IMS Fault Pending Service Fast Learn Mode HSD Enabled Default Gear Option is not present	>= -6.65625 °C = FALSE Boolean = FALSE Boolean = TRUE Boolean >= TRUE Boolean >= 100 RPM >= 150 RPM = FALSE Boolean = FALSE Boolean = FALSE Boolean = TRUE Boolean = TRUE Boolean			
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E			
							ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E			
Variable Bleed Solenoid (VBS	P0796	Pressure Control (PC) Solenoid C Stuck Off [C456] (Steady State)	Fail Case 1 Case: Steady State 4th Gear Gear slip	>= 400	RPM			>= Neutral Time	Neutral Timer (Sec)	One Tr
			Intrusive test: commanded 5th gear					Cal		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Requir		Illu
Oystem	Jour	Beschption	If attained Gear ≠5th for time	Please refer		Conditions		Roqui		
			if the above conditions have been	Documents						
			met Increment 4th Gear Fail Counter					>= 3	4th Gear Fail Count	
			and C456 Fail Counters					>= 14	OR C456 Fail Counts	
			Fail Case 2 Case: Steady State 5th Gear						Counts	1
			Gear slip	>= 400 RPM				Please See Table 5 For Neutral Time Cal	Neutral Timer (Sec)	
			Intrusive test: commanded 6th gear	Please Refer				Cal		
			If attained Gear ≠ 6th for time	to Table 2 in						
			if the above conditions have been met							
			Increment 5th Gear Fail Counter					>= 3	5th Gear Fail Count OR	
			and C456 Fail Counters					>= 14	C456 Fail	
			Fail Case 3 Case: Steady State 6th Gear						Counts	1
			Gear slip	>= 400 RPM				>= Neutral Time	Neutral Timer (Sec)	
			Intrusive test: commanded 5th gear					Cal		
			If attained Gear ≠5th for time	Please refer to Table 3 in Supporting Documents Shift Time (Sec)						
			if the above conditions have been met	Boodinionio						
			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 Boolean			
					IMS fault pending indication TPS validity flag		Boolean Boolean			
					Hydraulic System Pressurized		Boolean			
					Minimum output speed for RVT	>= 67	RPM			
					A OR B (A) Output speed enable (B) Accelerator Pedal enable	>= 67 >= 0.5004883	RPM Pct			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Reguired	Mil Illum.
System	Code	Description	Criteria	Value		Seconditions	Required	Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204,		
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Steady State)	Fail Case 1 Case: Steady State 1st			P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		One Trip
			Attained Gear slip If the Above is True for Time Intrusive test: (CBR1 clutch exhausted)	Table Based Time Please Refer to Table Enable Time >= 4 in (Sec) supporting documents				
			Gear Ratio	<= 1.209594727 >= 1.094360352			>= 1.1 Fail Timer (
			Fail Case 2 Case Steady State 2nd				>= 2 Fall Court 1st Gea or >= 3 Total Fa	r il
			Max Delta Output Speed Hysteresis	Table Based value Please Refer to 3D				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		me uired
-,	1 2 2 2 2	ipnen		Table Based			1	
				value Please				
			Min Delta Output Speed	Refer to 3D ,				
			Hysteresis					
			, and the second	supporting				
				documents				
				Table Based				
				Time Please				
			If the Above is True for Time	>= Refer to Table Sec				
			If the Above is True for Time	>= 17 in Sec				
				supporting				
				documents				
			Intrusive test:					
			(CB26 clutch exhausted)					
				<= 1.209594727				
				>= 1.094360352				
			If the above parameters are true				1	
							>= 1.1	Fail Timer (Sec)
							1	Fail Count in
							>= 3	2nd Gear
							1	or
							>= 3	Total fail counts
			Fail Case 3 Case Steady State 3rd					
				Table Based				
				value Please				
			Max Delta Output Speed	>= Refer to 3D rpm/sec				
			Hysteresis	Table I III				
				supporting				
				documents				
				Table Based				
				value Please				
			Min Delta Output Speed	>= Refer to 3D rpm/sec				
			Hysteresis	Table 2 in				
				supporting documents				
				Table Based				
				Timo Dioaco			1	
				Pofor to Table				
			If the Above is True for Time	>= 17 in Sec				
				supporting				
				documents				
			Intrusive test:					
			(C35R clutch exhausted)				1	
				<= 1.209594727			1	
				>= 1.094360352			1	
			If the above parameters are true					
							>= 1.1	Fail Timer (Sec)
							>= 3	Fail Count in 3rd Gear
							OR	Jiu Geai
								Total Fail
							>= 3	Counts
					PRNDL State defaulted	= FALSE Boolear	. 1	Sound

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold lue	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
System	Code	Description	Criteria	Va	iue	inhibit RVT	=	FALSE	Boolean	Required	mum.
						IMS fault pending indication	=	FALSE	Boolean		
						output speed	>=	0	RPM		
						TPS validity flag	=	TRUE	Boolean		
						HSD Enabled	=	TRUE	Boolean		
						Hydraulic_System_Pressurize					
						d	=	TRUE	Boolean		
						A OR B					
						(A) Output speed enable	>=	67	Nm		
						(B) Accelerator Pedal enable	>=	0.5004883	Nm		
						Ignition Voltage Lo	>=	8.5996094	Volts		
						Ignition Voltage Hi	<=	31.999023	Volts		
						Engine Speed Lo	>=	400	RPM		
						Engine Speed Hi	<=	7500	RPM		
						Engine Speed is within the					
						allowable limits for	>=	5	Sec		
						if Attained Gear=1st FW					
						Accelerator Pedal enable	>=	5.0003052	Pct		
						if Attained Gear=1st FW					
						Engine Torque Enable	>=	5	Nm		
						if Attained Gear=1st FW					
						Engine Torque Enable	<=	8191.875	Nm		
						Transmission Fluid					
						Temperature	>=	-6.65625	°C		
								FALSE	Boolean		
						Input Speed Sensor fault	=	FALSE	Boolean		
						Output Speed Sensor fault Default Gear Option is not	=	FALSE	Duoiean		
							=	TRUE			
						present					
					Disable	MIL not Illuminated for		, P0717, P0722	, P0723,		
					Conditions:	DTC's:	P182E				
							ECM: P0101	, P0102, P0103	3, P0106,		
							P0107, P010	8, P0171, P017	72, P0174,		
							P0175, P020	1, P0202, P020)3, P0204,		
							P0205, P020	6, P0207, P020	08, P0300,		
							P0301, P030	2, P0303, P030	04, P0305,		
							P0306, P030	7, P0308, P040)1, P042E		
			Delmony Offgraing Clutch is								One Tri
		Procesure Control (PC) Coloneld C	Primary Offgoing Clutch is								One Tri
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C	exhausted (See Table 11 in	= TRUE	Boolean						
		Stuck On [C456] (Dynamic)	Supporting Documents for								
			Exhaust Delay Timers)								
			Primary Oncoming Clutch	= Maximum							
			Pressure Command Status	pressurized							
			Primary Offgoing Clutch Pressure	Clutch							
			Command Status	= exhaust							
			and old do	command							
			Range Shift Status	≠ Initial Clutch							
			-	Control							
			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	Mi Illur
			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					
			(4-2 shifting with throttle) fail timer 1	>= 0.299804688 Fail Time (Sec)				
			(4-2 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (4-3 shifting with throttle)	>= 0.299804688 Fail Time (Sec)				
			fail timer 1 (4-3 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1	>= 0.299804688 Fail Time (Sec)				
			(5-3 shifting with throttle) fail timer 1					
			(5-3 shifting without throttle) fail timer 1	>= 0.5 Fail Time (Sec)				
			(6-2 shifting with throttle)	>= 0.299804688 Fail Time (Sec)				
			fail timer 1 (6-2 shifting without throttle)	>= 0.5 Fail Time (Sec)				
							Total Fail	
							Time = (Fail 1 + Fail 2) See	
							Enable	
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers				>= Timers for Fail sec	
							Reference Supporting	
							Table 15 for	
							Fail Timer 2	
			If fail timer is greater than threshold increment corresponding					
			gear fail counter and total fail counter					
			4th gear fail counter				>= 3 Fail Counter	
			ini godi idi oodiilo				From 4th Gea	ir
			5th gear fail counter				Fail Counter	
							From 5th Gea	
			6th gear fail counter				>= 3 Fail Counter From 6th Gea	
							OR	
			Total fail counter				>= 5 Total Fail Counter	
					TUT Enable temperature Input Speed Sensor fault	>= -6.65625 °C = FALSE Boolean		
					Output Speed Sensor fault	= FALSE Boolean		
					Command / Attained Gear High Side Driver ON	≠ 1st Boolean = 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	Thres Va		Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
System	Code	Description	Gilleria	Val	lue	Manufectori		Conditions			кец	ulled	- munn
					Disable Conditions:	MIL not Illuminated for DTC's:		P0717, P0722	, P0723,				
							P0107, P0108 P0175, P0201 P0205, P0206 P0301, P0302	P0102, P0103 B, P0171, P017 I, P0202, P020 6, P0207, P020 2, P0303, P030 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					>=	4.4	Fail Time (Sec)	Two Trips
										out of	5	Sample Time (Sec)	
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	8.5996094 31.999023 400 7500 5	Volts Volts RPM RPM Sec			V. V.	
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
/ariable Bleed Solenoid (VBS)	P0962	Pressure Control (PC) Solenoid A Control Circuit Low Voltage (Line Pressure VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>=	1.5	Fail Time (Sec)	One Ti
										out of	1.875	Sample Time (Sec)	
						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				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
		Dracoura Cantral (DC) Calar -1-1 A											Two Trips
/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)	
										out of	5	Sample Time (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		reshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
- Cystem	Jour	Southern				Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	<= >= <= >=	31.999023 400 7500 5	Volts RPM RPM Sec		1134		
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P0966	Pressure Control (PC) Solenoid B Control Circuit Low Voltage (C35R VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>= out	0.3	Fail 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 Test Failed This Key On or Fault Active	Volts Volts RPM RPM Sec	of		(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 Tr
										out of	0.375	Sample Time (Sec)	
						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/	Fault Code	Monitor Strategy Description	Malfunction Criteria		Γhreshold Value	Secondary Malfunction		Enable Conditions				ime Juired	Mil Illum.
System		Pressure Control (PC) Solenoid C	The HWIO reports a low voltage	TOU		Manunction		Conditions					One Tri
Variable Bleed Solenoid (VBS)	P0970	Control Circuit Low Voltage (C456/CBR1 VBS)	(ground short) error flag	= TRU	E Boolean					>=	0.3	Fail Time (Sec)	
										out of	0.375	Sample Time (Sec)	
								Test Failed This Key					
						P0970 Status is not	=	On or					
								Fault Active					
						Ignition Voltage	>=	8.5996094	Volts				
						Ignition Voltage Engine Speed	<= >=	31.999023 400	Volts RPM				
						Engine Speed	<=	7500	RPM				
						Engine Speed is within the allowable limits for	>=	5	Sec				
					Disable	MIL not Illuminated for	TCM: None						
					Conditions:	DTC's:	I CIVI: 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	= TRU	E Boolean					>=	0.3	Fail Time (Sec)	One Tr
		(C400/CDR VD3)								out of	0.375	Sample Time (Sec)	
								Test Failed					
						P0971 Status is not	=	This Key On or					
								Fault					
						Ignition Voltage	>=	Active 8.5996094	Volts				
						Ignition Voltage	<=	31.999023	Volts				
						Engine Speed	>=	400	RPM				
						Engine Speed Engine Speed is within the	<=	7500	RPM				
						allowable limits for	>=	5	Sec				
					Disable	MIL not Illuminated for	TCM: None						
					Conditions:	DTC's:	ECM: None						
Shift Solinoid	P0973	Shift Solenoid A Control Circuit Low (Mode 2 Solenoid)	The HWIO reports a low voltage (ground short) error flag	= TRU	E Boolean					>=	1.2	Fail Time (Sec)	One Tr
		(wiode 2 Soletiola)	(ground short) endi hag							out of	1.5	Sample Time (Sec)	
								Test Failed This Key		UI		(350)	
						P0973 Status is not	=	On or Fault					
								Active					
						Ignition Voltage	>=	8.5996094	Volts				
						Ignition Voltage Engine Speed	<= >=	31.999023 400	Volts RPM				
						Engine Speed		7500	RPM	I			I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				ne ıired	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 1.5	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				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Mode 3 Multiplex Valve	P0977	Shift Solenoid B Control Circuit High (Mode 3 Solenoid)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>= out of	1.2 1.5	Sec Sec	One Trip
					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	OI			
Internal Mode Switch (IMS)	P182E	Internal Mode Switch - Invalid Range	<u>Fail Case 1</u> Current range	Transition 1 = (bit state 1110)	Range		ECIVI. NUTIE						One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	1	Threshold Value	Secondary Malfunction		Enable Conditions		Tir Requ		
Jystein	Soue	Description	Ontona	CeTRGF		man arrows.		Jonations		noqu		+
			Previous range									
			1 Toylous range	6	zc range							
				CeTRGF	? e							
			Previous range									1
			T revious runge	, ΓΚΙΝΒ <u>Ε_</u> Ι	Dilve Runge							
				_ Range S	Shift							Т
			Range Shift State	= Comple	ted ENUM							
			Absolute Attained Gear Slip		rpm							
			Attained Gear	<= Sixth								
			Attained Gear	>= First								
			Throttle Position Available	= TRUE								Т
			Throttle Position	>= 8.000183	3105 pct							Т
			Output Speed		rpm							Т
			Engine Torque	>= 50	Nm							ı
			Engine Torque	<= 8191.7	75 Nm							
			If the above conditions are met						>=	1	Fail Seconds	
			then Increment Fail Timer						1	•	. an occorius	
			If Fail Timer has Expired then						>=	5	Fail Counts	
			Increment Fail Counter	. 70					-			4
			Fail Case 2 Output Speed	<= 70	rpm							
			The following PRNDL sequence events occur in this exact order:									
				Drivo 4	(hit							
			PRNDL state	= Drive 6 state 01								1
			PRNDL state = Drive 6 for									1
			I MADE State - DINE 0 101	Transitio								
			PRNDL state									
			1	0111								
			DDMD	Drive 6	/hit							
			PRNDL state	= state 01								
												Т
				Transitio								
			PRNDL state		te Range							
				1110)							
			Above sequencing occurs in		Sec							
			Neutral Idle Mode	= Inactiv	/e							
			If all conditions above are met									
			Increment delay Timer									
			If the below two conditions are						>=	3	Fail Seconds	
			met Increment Fail Timer	1	Soc							
			delay timer	>= 1	Sec							
			Input Speed If Fail Timer has Expired then	>= 400	Sec							
			Increment Fail Counter						>=	2	Fail Counts	
			Fail Case 3	Transitio	n 12			CeTRGR_	-			+
			Current range		ite Range	Previous range	≠	e_PRNDL				
			Current range	0010		i revious range	7	_Drive2				
				0010	,			CeTRGR_				1
			Engine Torque	>= -8192	2 Nm	Previous range	≠	e_PRNDL				
			Engine Torque	0172	. 19111	r revious range	7	_Drive1				
			1	1				DIIVOI				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Tim Requ		II
			If the above conditions are met then, Increment Fail Timer		1 then the "previous range" 1 then the "previous range" criteria above must also be satsified when the "current range" = "Transition 12"		>=	0.225	Seconds	
			If Fail Timer has Expired then Increment Fail Counter				>=	15	Fail Counts	
			Fail Case 4 Current range	Transition 8 = (bit state Range 0111)	Disable Fail Case 4 if last positive range was Drive 6 and current range is transition 8					
			Inhibit bit (see definition)	= FALSE	Set inhibit bit true if PRNDL = 1100 (rev) or 0100 (Rev-Neu transition 11) Set inhibit bit false if PRNDL = 1001 (park)					
			Steady State Engine Torque Steady State Engine Torque If the above conditions are met then Increment Fail Timer		Too r gany		>=	0.225	Seconds	
			If the above Condtions have been met, Increment Fail Counter				>=	15	Fail Counts	
			Fail Case 5 Throttle Position Available The following PRNDL sequence events occur in this exact order:	= TRUE Boolean						
			PRNDL State	= Reverse (bit state 1100) Range Transition 11						
			PRNDL State	0100) Noutral (bit						
			PRNDL State	state 0101) Transition 11						
			PRNDL State Above sequencing occurs in	0100)						
			Then delay timer increments Delay timer							
			Range Shift State	= Range Shift Complete						
			Attained Gear	<= Sixth >= First						
			Output Speed If the above conditions are met	>= 8.000183105 pct >= 200 rpm			>=	20	Seconds	
			Increment Fail Timer Fail Case 6 Current range		A Open Circuit Definition (flag set false if the following				2 2 3 3 1 1 2	
			and	1000 or 0001)	conditions are met): Current Range	Transition 11 (bit ≠				
			A Open Circuit (See Definition)	= FALSE Boolean	or	state 0100)				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value	Secondary Malfunction		Enable Conditions			Tii 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										
			Previous PRNDL state	= PRNDL (circuit 1111 Range								
			Input Speed	>= 150	RPM								
			Reverse Trans Ratio Reverse Trans Ratio										
			If the above Condtions are met then, Increment Fail timer							>=	6.25	Seconds	
			then, increment rail timer										1
			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	>= <= >= <= >=	8.5996094 31.999023 400 7500 5	Volts Volts RPM RPM Sec				
					Disable	Engine Torque Signal Valid	= TOM DOZ1	TRUE	Boolean				
					Disable Conditions:	MIL not Illuminated for DTC's:		6, P0717, P0722 7BF, P077C, P07					
							P0107, P01 P0175, P02 P0205, P02 P0301, P03	01, P0102, P010 08, P0171, P017 01, P0202, P020 06, P0207, P020 02, P0303, P030 07, P0308, P040	72, P0174, 03, P0204, 08, P0300, 04, P0305,				
Internal Mode Switch (IMS)	P1915		PRNDL State is	≠ Park Neutr									One Trij
		Start	The following events must occur Sequentially										
			Initial Engine speed	<= 50	RPM					>=	0.25	Enable Time (Sec)	
			Then Engine Speed Between Following Cals										
ı			Engine Speed Lo Hist	>= 50	RPM								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		nreshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
			Engine Speed Hi Hist	<= 480	RPM					>=	0.06875	Enable Time (Sec)	
			Then Final Engine Speed Final Transmission Input Speed	>= 525 >= 100	RPM RPM					>=	1.25	Fail Time (Sec)	
						DTC has Ran this Key Cycle?	=	FALSE	Boolean				
						Ignition Voltage Lo Ignition Voltage Hi	>= <=	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 Test Failed	V rpm				
						P1915 Status is	≠	This Key On or Fault Active					
					Disable Conditions		TCM: P0722, ECM: None	P0723					
Transmission Control Module	P2534	Ignition Switch Run/Start Position	TCM Run crank active (based on	= FALSE	Boolean								One Trip
(TCM)	. 2001	Circuit Low	voltage thresholds below) Ignition Voltage High Hyst (run crank goes true when above this value)	5	Volts					>=	280	Fail Counts (25ms loop)	
			Ignition Voltage Low Hyst (run crank goes false when below this value)	2	Volts					Out of	280	Sample Counts (25ms loop)	
						ECM run/crank active status available	=	TRUE	Boolean				1
						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)	= TRUE	Boolean								One Trip
			Ignition Voltage High Hyst (run crank goes true when above this value)	5	Volts					>=	280	Fail Counts (25ms loop)	
			Ignition Voltage Low Hyst (run crank goes false when below this value)	2	Volts					Out of	280	Sample Counts (25ms loop)	
						ECM run/crank active status available	=	TRUE	Boolean				
						ECM run/crank active status	=	FALSE	Boolean				

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction	Enable Conditions	Time Poguired	Mi
System	Code	Description	Criteria	Value	waitunction	Conditions	Required	IIIui
				Disable	MIL not Illuminated for	TCM: None		
				Conditions:	DTC's:	T GIVI. INOTIC		
				oonamens.	5.00.	ECM: None		
riable Bleed Solenoid (VBS)	P2714	Pressure Control (PC) Solenoid D	Fail Case 1 Case: Steady State 2nd Gear					One
lable block colonela (* bo)		Stuck Off [CB26]	Substitution of the substi				Diagram Co.	
							Please See Table 5 For Neutral Time	.
	Gear slip	>= 400 RPM			>= Neutral Time (Sec)	'		
					Cal			
	Intrusive test:							
	commanded 3rd gear							
		Table Based						
		K W 1 10 0 16 T	Time Please >= see Table 2 in Supporting Documents Supporting					
			If attained Gear = 3rd for Time	>= See Table 2 in (Sec)				
				Documents				
		If Above Conditions have been	Documents					
			met					
			Increment 2nd gear fail count				>= 3 2nd Gear Fai	ı
			increment zna gear fail count				Count	
							or	
			and CB26 Fail Count				>= 14 CB26 Fail	
			Fail Case 2 Case: Steady State 6th Gear				Count	-
			rail case 2 case. Steady State of Gear				Please See	
			Commodition	400 DDM			Table 5 For Neutral Time	r
			Gear slip	>= 400 RPM			>= Neutral Time (Sec)	
							Cal	
			Intrusive test:					
			commanded 5th gear					
				Table Based Time Please				
			If attained Gear = 5th For Time	>= see Table 2 in Supporting (Sec)				
			ii ditaned codi ciii i oi i iiii o	Supporting (Sec)				
				Documents				
			If Above Conditions have been				5th Gear Fai	Ш
			met, Increment 5th gear fail				>= 3 Stil Geal Fail	
			counter					
							or CB26 Fail	
			and CB26 Fail Count				>= 14 Count	
					PRNDL State defaulted	= FALSE Bo	olean	
					inhibit RVT		olean	
					IMS fault pending indication		olean	
					TPS validity flag		olean	
					Hydraulic System Pressurized Minimum output speed for		olean	
				RVT	>= 0 F	PM		
				A OR B				
				(A) Output speed enable	>= 67 F	PM		
					(B) Accelerator Pedal enable		Pct	
					Common Enable Criteria			
					Ignition Voltage Lo		olts	
					Ignition Voltage Hi		olts	
					Engine Speed Lo	>= 400 F	PM	- 1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				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:	<= 7500 RPM >= 5 Sec = TRUE Boolean = 1 TRUE Boolean >= -6.65625 °C = FALSE Boolean = FALSE Boolean = TRUE TRUE TRUE TRUE TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300,		
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 13 in Supporting Documents for Exhaust Delay Timers) Primary Oncoming Clutch Pressure Command Status Primary Offgoing Clutch Pressure Command Status Range Shift Status Attained Gear Slip	Control		P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		One Trip
			If above coditons are true, increment appropriate Fail 1 Timers Below: fail timer 1 (2-1 shifting with throttle) fail timer 1 (2-1 shifting without throttle) fail timer 1 (2-3 shifting with 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 (6-4 shifting with throttle) fail timer 1 (6-4 shifting with throttle) fail timer 1 (6-4 shifting with throttle) fail timer 1	>= 0.299804688 Fail Time (Sec) >= 0.5 Fail Time (Sec) >= 0.299804688 Fail Time (Sec) >= 0.5 Fail Time (Sec) >= 0.299804688 Fail Time (Sec) >= 0.5 Fail Time (Sec) >= 0.299804688 Fail Time (Sec) >= 0.5 Fail Time (Sec) >= 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				>= 3 Fail Counter	
			2nd gear fail counter 6th gear fail counter				>= 3 From 2nd Gear OR >= 3 Fail Counter From 6th Gear OR	
			total fail counter				>= 5 Total Fail Counter	
					TUT Enable temperature Input Speed Sensor fault Output Speed Sensor fault 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	>= 100 RPM >= 150 RPM		
				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, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS) P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Steady State)	Fail Case 1 Case: Steady State 1st					One Trip
		Stuck Off [CB20] (Steady State)	Attained Gear slip	>= 400 RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	III
oystem.	3000	Description		Table Based		•••••••			Ť
				Time Please					1
			1011 At 1 T 6 T	Refer to Table Enable Time					
			If the Above is True for Time	>= 4 in (Sec)					
				supporting					ı
				documents					
			Intrusive test:						
			(CBR1 clutch exhausted)						
				<= 2.482177734					
				>= 2.245849609					ı
			If the above parameters are true						ı
							>= 1.1	Fail Timer (Sec)
								Fail Count in	
							>= 5	1st Gear	
								or	ı
								Total Fail	ı
							>= 5	Counts	
			Fail Case 2 Case: Steady State 3rd Gear	T. 1. 5					1
				Table Based					ı
			Max Delta Output Speed	value Please Refer to 3D					1
			Max Delta Output Speed Hysteresis	>= Refer to 3D Table 1 in rpm/sec					
			riysteresis	supporting					
				documents					
				Table Based					ı
				value Please					
			Min Delta Output Speed	Refer to 3D ,					
			Hysteresis						
				supporting					
				documents					
				Table Based					
				Time Please					
			If the Above is True for Time	>= Refer to Table Sec 17 in					
									ı
				supporting documents					
			Intrusive test:	documents					
			(C35R clutch exhausted)						
				<= 2.482177734					
				>= 2.245849609					1
			If the above parameters are true						
							>= 1.1	Fail Timer (Sec	
									Ί
							>= 3	Fail Count in 3rd Gear	
								or Or	1
								Total Fail	ı
							>= 5	Counts	
			Fail Case 3 Case: Steady State 4rd Gear						1
				Table Based					1
				value Please					
			Max Delta Output Speed	>= Refer to 3D rpm/sec					ı
			Hysteresis	Table 1 in Thirisec					ı
				supporting					1
				documents					П

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Tii Requ	me uired
System	Code	Description	Criteria	Table Based	Walturiction	Conditions	Requ	uirea
				value Please				
			Min Dolto Output Spood					
			Min Delta Output Speed					
			Hysteresis	Table 2 In				
				supporting				
				documents				
				Table Based				
				Time Please				
			If the Above is True for Time	>= Refer to Table Sec				
				17 111				
				supporting				
				documents				
			Intrusive test:					
			(C1234 clutch exhausted)					
				<= 0.700317383				
				>= 0.633666992				
			If the above parameters are true					
							>= 1.1	Fail Timer (Sec)
							[
							>= 3	Fail Count in
								4th Gear
								or
							>= 5	Total Fail
			Fall Case A Case Charle Chair Ett C					Counts
			Fail Case 4 Case: Steady State 5th Gear	Table Daned				
				Table Based				
			Mari Dalla O 1 10 1	value Please				
			Max Delta Output Speed	>= Refer to 3D rpm/sec				
			Hysteresis	Table I III				
				supporting				
				documents				
				Table Based				
				value Please				
			Min Delta Output Speed	>= Refer to 3D rpm/sec				
			Hysteresis	Table 2 III				
				supporting				
				documents				- 1
				Table Based				1
				Time Please				
			If the Above is True for Time	>= Refer to Table 17 in Sec				
				17 111				
				supporting				1
			Index of the Art	documents				
			Intrusive test: (C35R clutch exhausted)					
				<= 0.700317383 >= 0.633666992				1
				>= U.033000992				- 1
			If the above parameters are true					1
							>= 1.1	Fail Timer (Sec)
								Fail Count in
							>= 3	5th Gear
								or Or
								Total Fail
							>= 5	Counts
	1 1				PRNDL State defaulted	= FALSE Boolea	n	Coulits
	1		1		PRINDL State defaulted inhibit RVT	= FALSE Boolea = FALSE Boolea		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum
Oyoteiii	Joue	Description	551M	•		IMS fault pending indication	=	FALSE	Boolean		itoq		
						output speed	>=	0	RPM				
						TPS validity flag	=	TRUE	Boolean				
						HSD Enabled	=	TRUE	Boolean				
						Hydraulic_System_Pressurize							
						d	=	TRUE	Boolean				
						A OR B							
						(A) Output speed enable	>=	67	Nm				
						(B) Accelerator Pedal enable	>=	0.5004883	Nm				
						Ignition Voltage Lo	>=	8.5996094	Volts				
						Ignition Voltage Hi	<=	31.999023	Volts				
						Engine Speed Lo	>=	400	RPM				
						Engine Speed Hi	<=	7500	RPM				
						Engine Speed is within the							
						allowable limits for	>=	5	Sec				
						if Attained Gear=1st FW							
						Accelerator Pedal enable	>=	5.0003052	Pct				
						if Attained Gear=1st FW							
						Engine Torque Enable	>=	5	Nm				
						if Attained Gear=1st FW							
						Engine Torque Enable	<=	8191.875	Nm				
						Transmission Fluid							
							>=	-6.65625	°C				
						Temperature		FALCE	Dooloon				
						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	, P0102, P0103 8, P0171, P017	2, P0174,				
								1, P0202, P020					
								6, P0207, P020					
								2, P0303, P030					
							P0306, P030	7, P0308, P040	11, P042E				
		December (DO) Colored D											O T
riable Bleed Solenoid (VBS)	P2720	Pressure Control (PC) Solenoid D Control Circuit Low (CB26 VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Ti
										out of	0.375	Sample Time (Sec)	
								Test Failed					
								This Key					
						P2770 Status is not	=	On or					
								Fault					1
								Active					1
						Ignition Voltage	>=	8.5996094	Volts				1
						Ignition Voltage	<=	31.999023	Volts				1
						Engine Speed	>=	400	RPM				1
								7500	DD14				
						Engine Speed	<=	7500	RPM				
						Engine Speed Engine Speed is within the allowable limits for	\	7500 5	Sec				

Component/	Fault	Monitor Strategy Description	Malfunction Criteria	Thresi Valu		Secondary Malfunction		Enable Conditions			Time Require	d	Mil Illum.
System	Code	Description	Criteria	vait	ie	Wallunction		Conditions			Require	a	mum.
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P2721	Pressure Control (PC) Solenoid D Control Circuit High (CB26 VBS)	The HWIO reports a high voltage (open or power short) error flag		Boolean					out		fail Time (Sec) Sample Time (Sec)	One Tri
						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			(44)	
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P2723	Pressure Control (PC) Solenoid E Stuck Off	Fail Case 1 Case: Steady State 1st Gear Gear slip Intrusive test: commanded 2nd gear If attained Gear ≠ 2nd for Time	>= 400	RPM Shift Time (Sec)					>= Table	se See 9 5 For I al Time Cal	Neutral Timer (Sec)	One Tri
			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 Slip Gear slip Intrusive test:		RPM					>= Table	se See e 5 For I al Time Cal	Neutral Timer (Sec)	
			commanded 3rd gear lf 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	Time Require	
System	Code	Description	If Above Conditions have bee		mununouon	CONTUNIONS		
			met, Increment 2nd gear fa				>= 3	2nd Gear Fail
			counte					Count
								or
			and C1234 fail counte	er			>= 14	C1234 Clutch
								Fail Count
			Fail Case 3 Case: Steady State 3rd Gea	ar			Please See	
							Table 5 For	Neutral Timer
			Gear sli	p >= 400 RPM			>= Neutral Time	(Sec)
							Cal	(===)
			Intrusive tes	t:				
			commanded 4th gea	ar				
				Please refer				
			If attained Gear ≠ 4th for tim	e >= to Table 3 in Shift Time (Sec)				
				Supporting				
			If Above Conditions have bee	Documents				
			met, Increment 3rd gear fa				>= 3	3rd Gear Fail
			counte				7- 3	Count
			Count					or
			and C1224 fall assumb				. 14	C1234 Clutch
			and C1234 fail counte				>= 14	Fail Count
			Fail Case 4 Case: Steady State 4th Gea	ar				
							Please See	
			Gear sli	p >= 400 RPM				Neutral Timer
				`			>= Neutral Time Cal	(Sec)
			Intrusive tes	_t .			Cal	
			commanded 5th gea					
			communace our got	Please refer				
			K 11 10 51 5 T					
			If attained Gear = 5th For Time	e >= to Table 3 in Supporting Shift Time (Sec)				
				Documents				
			If Above Conditions have bee					4th Gear Fail
			met, Increment 4th gear fa				>= 3	Count
			counte	er				
								or C1234 Clutch
			and C1234 fail counter	er			>= 14	Fail Count
					PRNDL State defaulted	= FALSE Boolean		. an ocan
					inhibit RVT	= FALSE Boolean		
					IMS fault pending indication	= FALSE Boolean		
					TPS validity flag	= TRUE Boolean		
					Hydraulic System Pressurized	= TRUE Boolean		
					Minimum output speed for	>= 0 RPM		
					RVT A OR B			
					(A) Output speed enable	>= 67 RPM		
					(B) Accelerator Pedal enable	>= 0.5004883 Pct		
					Common Enable Criteria	1.130.1000		
					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		
			I	1	allowable limits for	>= 3 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		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
ariable Bleed Solenoid (VBS)	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 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 with throttle) fail timer 1 (4-5 shifting with throttle) fail timer 1 (4-5 shifting with throttle) fail timer 1 (4-5 shifting with 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	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 2nd gear fail counter				>= 3 Fall Counter	
			and gear fail counter.				>= 3 From 2nd Geal >= 3 Fail Counter From 3rd Gear	
			4th gear fail counter				>= 3 Fail Counter From 4th Gear	
			total fail counter		TUT Enable temperature	>= -6.65625 °C	>= 5 Total Fail Counter	
					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 = FALSE Boolean ≠ 1st Boolean = TRUE Boolean >= 100 RPM >= 150 RPM		
				Disable Conditions:		TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204,		
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Steady State)	Fail Case 1 Case: 5th Gear			P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		One Tri

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	III
				Table Based		****	. 1	
				value Please				
			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				
			,	supporting				
				documents				
				Table Based				
				Time Please				
				Pofor to Table				
			If the Above is True for Time	>= 17 in Sec				
				supporting				
				documents				
			Intrusive test:					
			(C35R clutch exhausted)					
			Gear Ratio	<= 1.209594727				
			Gear Ratio	>= 1.094360352				
			If the above parameters are true					
			· ·				1.1	-1
							>= 1.1 Fail Timer (Se	C)
							Fail Count in	
							>= 3 5th Gear	
							OR	
							>= 3 Total Fail	
							>= 3 Counts	
			Fail Case 2 Case: 6th Gear					
				Table Based				
				value Please				
			Max Delta Output Speed	>= Refer to 3D rpm/sec				
			Hysteresis	Table 1 in				
				supporting				
				documents				
				Table Based				
				value Please				
			Min Delta Output Speed	>= Refer to 3D rpm/sec				
			Hysteresis	Table 2 In				
				supporting				
				documents				
				Table Based				
				Time Please				
			If the Above is True for Time	>= Refer to Table Sec				
			ii die Above is Trae for Time	17 111				
				supporting				
				documents				
			Intrusive test:					
			(CB26 clutch exhausted)					
				<= 1.209594727				
				>= 1.094360352				
			If the above parameters are true					
					1		- 11 Fall Times (Ca	٥)
	1 1				1		>= 1.1 Fail Timer (Se	L)

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			ime quired	IIIu
Gyatelli	Code	Description	Onteria	• ulue		CONGREGATION	+		Fail Count in	1
							>=	3	6th Gear	
									OR	
							>=	3	Total Fail	
							>=	3	Counts	
					PRNDL State defaulted	= FALSE Boolean				
					inhibit RVT	= FALSE Boolean				
					IMS fault pending indication	= FALSE Boolean				
					output speed	>= 0 RPM				
					TPS validity flag HSD Enabled	= TRUE Boolean = TRUE Boolean				
					Hydraulic_System_Pressurize	= TRUE BOOIEAIT				
					nyuraunc_system_rressunze	= TRUE Boolean				
					A OR B					
					(A) Output speed enable	>= 67 Nm				
					(B) Accelerator Pedal enable	>= 0.5004883 Nm				
					Ignition Voltage Lo	>= 8.5996094 Volts				
					Ignition Voltage Hi	<= 31.999023 Volts				
					Engine Speed Lo	>= 400 RPM				
					Engine Speed Hi	<= 7500 RPM				
					Engine Speed is within the	>= 5 Sec				
					allowable limits for)				
					if Attained Gear=1st FW	>= 5.0003052 Pct				
					Accelerator Pedal enable	5 0.000002 1 0.				
					if Attained Gear=1st FW	>= 5 Nm				
					Engine Torque Enable					
					if Attained Gear=1st FW	<= 8191.875 Nm				
					Engine Torque Enable					
					Transmission Fluid Temperature	>= -6.65625 °C				
					Input Speed Sensor fault	= FALSE Boolean				
					Output Speed Sensor fault	= FALSE Boolean				
					Default Gear Option is not					
					present	= TRUE				
					procont					
				Disable	MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723,				
				Conditions	DTC's:	P182E				
						ECM: P0101, P0102, P0103, P0106,				
						P0107, P0108, P0171, P0172, P0174,				
						P0175, P0201, P0202, P0203, P0204,				
						P0205, P0206, P0207, P0208, P0300,				
						P0301, P0302, P0303, P0304, P0305,				
						P0306, P0307, P0308, P0401, P042E				1
		Pressure Control (PC) Solenoid E	TI 19490				t			Or
able Bleed Solenoid (VBS)	P2729	Control Circuit Low	The HWIO reports a low voltage	= TRUE Boolean			>=	0.3	Fail Time (Sec))
		(C1234 VBS)	(ground short) error flag							
							out	0.375	Sample Time	1
							of	0.373	(Sec)	
						Test Failed				1
						This Key				1
					P2729 Status is not	= On or				1
						Fault				1
	I					Active	1			ı

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
5,000	9949	Journal				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	= TRU	JE Boolean					>= out	0.3	Fail Time (Sec)	One Tri
						P2730 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	Volt Volt RPM RPM Sec	of	0.375	(Sec)	
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P2763	Torque Converter Clutch Pressure High	The HWIO reports a low pressure/high voltage (open or power short) error flag	= TRU	JE Boolean					>= out of	4.4	Fail Time (Sec) Sample Time (Sec)	Two Trips
						P2763 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for High Side Driver Enabled	= >= <= >= >=	Test Failed This Key On or Fault Active 8.5996094 31.999023 400 7500 5 TRUE	Volt Volt RPM RPM Sec Boolean	31		(200)	
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0658 ECM: None	, P0659					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions			Tir Requ		Mil Illum.
Variable Bleed Solenoid (VBS)	P2764	Torque Converter Clutch Pressure Control Solenoid Control Circuit Low	The HWIO reports a high pressure/low voltage (ground short) error flag	=	TRUE	Boolean					>= out	4.4 5	MPH MPH	One Trip
							P2764 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the allowable limits for High Side Driver Enabled	= >= <= >= <= >= = =	Test Failed This Key On or Fault Active 8.5996094 31.999023 400 7500 5 TRUE	Volt Volt RPM RPM Sec Boolean	of			
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0658 ECM: None	, P0659					
Communication	U0073	Controller Area Network Bus Communication Error	CAN Hardware Circuitry Detects a Low Voltage Error Delay timer	=	TRUE 0.1125	Boolean					>= Out	62 70	Fail counts (≈ 10 seconds) Sample Counts	
							Stabilization delay Ignition Voltage Ignition Voltage Power Mode	>= >= <= =	3 8.5996094 31.999023 Run	sec Volt Volt	of		(≈ 11 seconds)	
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Communication	U0100	Lost Communications with ECM (Engine Control Module)	CAN messages from ECM are not received by the TCM	=	TRUE	Boolean					>=	12	sec	One Trip
OUTO							Stabilization delay Ignition Voltage Ignition Voltage Power Mode	>= >= <= =	3 8.5996094 31.999023 Run	sec Volt Volt				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: U0073 ECM: None						

Component/	Fault	Monitor Strategy	Malfunction			shold	Secondary		Enable		Tin		Mil
System Transmission Control Madula	Code	Description	Criteria		Va	alue	Malfunction		Conditions		Requ	ired	Illum.
Transmission Control Module (TCM)	C1251	The lateral accleration signal is stuck at a high magnitude in range	Lateral accleration magnitude	<=	3.85	g's							Special No MIL
(1 Givi)		at a mgn magnitude in range	Lateral accleration magnitude	>=	0.53	g's							INO WILL
			Lateral accleration magnitude is			-							
			within the range above for	>=	120	Sec							
			•										1
							Lateral accleration magnitude	<=	3.85	g's			
							Lateral accleration magnitude	>=	0.53	g's			
							Lateral accleration magnitude is within the range above for	>=	90	Sec			
							Diagnostic shifting override						
							command	=	FALSE	Boolean			
									1st				
							Attained Gear State	=	through				
							A		6th	DDM			
							Attained Gear Slip	<=	100 Clutch to	RPM			
									Clutch				
							Transmission Type	=	Transmissi				
									on				
							High Side Driver 1 On	=	TRUE	Boolean			
							Vehicle Speed	>=	15	kph			
							Lateral acceleration stuck in	=	TRUE	Boolean			
							range diagnostic enable Battery Voltage		31.999023				
							Battery Voltage	<= >=	31.999023 9	Volts Volts			
							Battery voltage is within the	/-					
							allowable limits for	>=	0.1	Sec			
							Ignition Voltage	<=	31.999023	Volts			
							Ignition Voltage	>=	9	Volts			
							Service Fast Learn (SFL)	=	FALSE	Boolean			
							Mode		171202	Doolouii			
							Ignition voltage and SFL conditions met for	>=	0.1	Sec			
							conditions met for						
						Disable	MIL not Illuminated for	TCM: If calib	rated to illumin	ate the MIL			
						Conditions:	DTC's:		17, P0721, P07				
									C0, P077B, P07	77C, P077D,			
								P215C, U00	/3)				
								ECM: None					
								LOWI. INDITE					
Transmission Control Module	D0/01	Transmission Electro-Hydraulic	Incorrect program/calibrations		TDUE	Dealean						Fail Counts	One Trip
(TCM)	P0601	Control Module Read Only Memory	checksum	=	TRUE	Boolean					>= 5	Fail Counts	1
1													
						B: 11		TOM DOVO					
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0601					
						Conunions:	DIC 2:	ECM: None					
								LOWIN INDING					
Transmission Control Madel		Transmission Electro-Hydraulic	Non-volatile memory (static or								Dum-		One Trip
Transmission Control Module (TCM)	P0603	Control Module Long-Term Memory	dynamic) checksum failure at	=	TRUE	Boolean					Runs Continously		1
(TOW)		Reset	Powerup								Continuusiy		
1													1
	l	ı İ	l					l			I		I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum
System	Code	Description	Gilleria		Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0603	Conditions			iteq	uneu	
					Containon	2.00.	ECM: None						
Fransmission Control Module TCM)	P0604	Transmission Electro-Hydraulic Control Module Random Access	RAM Read/Write Failure (Single Word)	= TRU	JE Boolean					>=	5	Fail Counts	One T
		Memory								=	16	Sample Counts	i
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0604						
					Conditions.	DIC 3.	ECM: None						
Fransmission Control Module TCM)	P062F	Transmission Electro-Hydraulic Control Module Long Term Memory Performance	TCM Non-Volatile Memory bit Incorrect flag at Powerdown	= TRL	JE Boolean					С	Runs continously	1	One Ti
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P062F ECM: None						
							ECIVI. IVOIIC						
Fransmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1 Substrate Temperature	>= 142.101	5625 °C					>=	5	Fail Time (Sec)	One T
			Fail Case 2 Substrate Temperature Ignition Voltage	>= 50 >= 18						>=	2	Fail Time (Sec)	Ī
			Note: either fail case can set the DTC										
						Ignition Voltage Lo Ignition Voltage Hi Substrate Temp Lo	>= <= >=	8.5996094 31.999023 0	Volts Volts °C				
						Substrate Temp Hi Substrate Temp Between Temp Range for Time	<= >=	170 0.25	°C Sec				
								Test Failed This Key					
						P0634 Status is	≠	On or Fault Active					
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
gh Side Driver 1 F	P0658	Actuator Supply Voltage Circuit Low	The HWIO reports a low voltage	= TRI	JE Boolean					>=	4	Fail Counts	One Tr
		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	(open or ground short) error flag							out of	6	Sample Counts	;
						P0658 Status is not	=	Test Failed This Key On or Fault		51			

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction		Enable				me	III
System	Code	Description	Criteria	Value			Conditions	Deeleen	-	Req	uired	- "
					High Side Driver 1 On	=	True	Boolean				
				Disable	MIL not Illuminated for	TCM: None						
				Conditions:	DTC's:	I CIVI. INOTIE						
				Conditions.	D1C 3.	ECM: None						1
						LCIVI. INOTIC						
				Refer to Table					1			Т
ansmission Control Module		TCM Internal Temp (substrate)	If transmission oil temp to	10 %								T
CM)	P0667	Sensor Circuit Range/Performance	substrate temp Δ									Ι΄
				documents								
				accamente								
				Refer to Table								
			If TCM substrate temp to power	00.1								ı
			up temp Δ									
			- T	documents								
												L
			Both conditions above required to						>=	3000	Fail Counts	1
			increment fail counter						>=	3000	(100ms loop)	L
			Note: table reference temp = to									L
			the median temp of trans oil temp,						Out	3750	Sample Counts	L
			substrate temp and power up						of	3730	(100ms loop)	ı
			temp.									
			Non-continuous (intermittent) fail								Pass Counts	ı
			conditions will delay resetting fail						>=	700	(100ms loop)	ı
			counter until								•	ı
									Out	875	Sample Counts	L
									of	0.0	(100ms loop)	ı
												ı
					Engine Torque Signal Valid	=	TRUE	Boolean				L
					Accelerator Position Signal	=	TRUE	Boolean				ı
					Valid		0.500/004	17-11-				ı
					Ignition Voltage Lo	>=	8.5996094	Volts				ı
					Ignition Voltage Hi	<=	31.999023	Volts				L
					Engine Speed Lo Engine Speed Hi	>=	400 7500	RPM RPM				ı
						<=	/500	KPIVI				ı
					Engine Speed is within the allowable limits for	>=	5	Sec				ı
					Brake torque active	=	FALSE					ı
					Below describes the brake	-	FALSE					1
					torque entry criteria							ı
					Engine Torque	>=	90	N*m				ı
					Throttle	>=	30.000305	Pct				ı
					Transmission Input Speed	<=	200	RPM				
					Vehicle Speed	<=	8	Kph				L
					Transmission Range	<i>≠</i>	Park					ı
					Transmission Range	<i>,</i> ≠	Neutral					1
					PTO	=	Not Active					1
					Set Brake Torque Active							П
					TRUE if above conditions are	>=	7	sec				П
					met for:		•					L
					Below describes the brake							1
					torque exit criteria							L
	l	1		l	Brake torque entry criteria	=	Not Met		I			1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	GIREFIA	value	Clutch hydraulic pressure	Clutch Hydraulic ≠ Air Purge	кецинец	muin.
					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		
					P0667 Status is	Test Falled This Key ≠ On or Fault Active		
				Disable Conditions		TCM: P0658, P0668, P0669, P06AD, P06AE, P0716, P0712, P0713, P0717, P0722, P0723, P0962, P0963, P0966, P0967, P0970, P0971, P215C, P2720, P2721, P2729, P2730		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Transmission Control Module (TCM)	P0668	TCM internal temperature (substrate) thermistor failed at a low voltge	Type of Sensor Used	CeTFTI_e_Vo = ItageDirectPro p				Two Trips
			If TCM Substrate Temperature Sensor = Direct Proportional and Temp	<= -249 °C				
			If TCM Substrate Temperature Sensor = Indirect Proportional and Temp	>= -249 °C				
			Either condition above will satisfy the fail conditions				>= 60 Fail Timer (Se	c)
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= 8.5996094 Volts <= 31.999023 Volts >= 400 RPM <= 7500 RPM >= 5 Sec Test Failed		
					P0668 Status is	This Key ≠ On or Fault Active		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction		Enable Conditions			Tin Requ		Mil Illum.
					Disable onditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None				4	-	
Transmission Control Module (TCM)	P0669	TCM internal temperature (substrate) thermistor failed at a high voltage	Type of Sensor Used If TCM Substrate Temperature Sensor = Direct Proportional and Temp If TCM Substrate Temperature Sensor = Indirect Proportional and Temp Either condition above will salisfy	p >= 249 °C									Two Trips
			the fail conditions			Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed Hi Engine Speed Is within the allowable limits for P0669 Status is For Hybrids, below conditions must also be met Estimated Motor Power Loss Estimated Motor Power Loss greater than limit for time Lost Communication with Hybrid Processor Control Module Estimated Motor Power Loss Fault	>= <= >= <= >= >= =	8.5996094 31.999023 400 7500 5 Test Failed This Key On or Fault Active 0 0 FALSE FALSE	Volts Volts RPM RPM Sec	>=	60	Fail Timer (Sec)	
				Cc	Disable onditions:	MIL not Illuminated for DTC's:	TCM: P0716	P0717, P0722,	P0723				
Transmission Control Module (TCM)	P06AC	TCM Power-up Temp Sensor Circuit Range/Performance	If TCM power-up temp to substrate temp Δ If transmission oil temp to power	supporting documents Refer to Table 18 in oc									Two Trips
			up temp Δ Both conditions above required to increment fail counter	documents						>=	3000	Fail Counts (100ms loop)	

System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				ime Juired	
			Note: table reference temp = to the median temp of trans oil temp, substrate temp and power up						Out of	3750	Sample Counts (100ms loop)	
			temp. Non-continuous (intermittent) fail									-
			conditions will delay resetting fail counter until						>=	700	Pass Counts (100ms loop)	
									Out of	875	Sample Counts (100ms loop)	
					Engine Torque Signal Valid Accelerator Position Signal	=	TRUE	Boolean				
					Valid	=	TRUE	Boolean				
					Ignition Voltage Lo Ignition Voltage Hi	>= <=	8.5996094 31.999023	Volts Volts				
					Engine Speed Lo Engine Speed Hi	>= <=	400 7500	RPM RPM				
					Engine Speed is within the	>=	5	Sec				
					allowable limits for Brake torque active	=	FALSE					
					Below describes the brake torque entry criteria							
					Engine Torque	>=	90	N*m				
					Throttle Transmission Input Speed	>= <=	30.000305 200	Pct RPM				
					Vehicle Speed	<=	8	Kph				
					Transmission Range Transmission Range	≠ ≠	Park 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 Air Purge					
					Clutch used to exit brake		Event CeTFTD_e					
					torque active	=	_C3_RatIE nbl					
					The above clutch pressure is greater than this value for one	>=	600	kpa				
					Set Brake Torque Active FALSE if above conditions are met for:	>=	20	Sec				
					metion.		Test Failed					
					P06AC Status is	≠	This Key On or Fault Active					

Component/	Fault	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		me	Mil Illum
System	Code	Description	Сгиегіа	Value Disable	MIL not Illuminated for		Requ	инеа	ıııum
				Conditions:		P06AE, P0716, P0712, P0713, P0717,			
				Conditions.	DICS.	P0722, P0723, P0962, P0963, P0966,			
						P0967, P0970, P0971, P215C, P2720,			
						P2721, P2729, P2730			
						FOLA BOARD BOARD BOARD			
						ECM: P0101, P0102, P0103, P0106,			
						P0107, P0108, P0171, P0172, P0174,			
						P0175, P0201, P0202, P0203, P0204,			
						P0205, P0206, P0207, P0208, P0300,			
						P0301, P0302, P0303, P0304, P0305,			
						P0306, P0307, P0308, P0401, P042E			
									_
ransmission Control Module (CM)	P06AD	TCM power-up thermistor circuit voltage low	Power Up Temp	<= -59 °C			>= 60	Fail Time (Sec)	Two Trips
CIVI)		voltage low			Ignition Voltage Lo	>= 8.5996094 Volts			Imps
					Ignition Voltage Ed	<= 31.999023 Volts			
					Engine Speed Lo				
					Engine Speed Hi	<= 7500 RPM			
					Engine Speed is within the	>= 5 Sec			
					allowable limits for				
						Test Failed			
						This Key			
					P06AD Status is	≠ On or			
						Fault			
						Active			
					For Hybrids, below conditions				
					must also be met				
					Estimated Motor Power Loss	>= 0 kW			
					Estimated Motor Power Loss	. 0 500			
					greater than limit for time	>= 0 Sec			
					Lost Communication with				
					Hybrid Processor Control	= FALSE			
					Module				
					Estimated Motor Power Loss				
					Fault	= FALSE			
					rudit				
				Disable	MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723			
				Conditions:	DTC's:				
						ECM: None			
ransmission Control Module	P06AE	TCM power-up thermistor circuit	Power Up Temp	>= 164 °C			>= 60	Fail Time (Sec)	Two
CM)		voltage high			Ignition Voltage Le	>= 0 E004004 Valla	1	,,,,	Trips
					Ignition Voltage Lo	>= 8.5996094 Volts <= 31.999023 Volts			I
					Ignition Voltage Hi				
					Engine Speed Lo	>= 400 RPM			
					Engine Speed Hi	<= 7500 RPM			1
					Engine Speed is within the	>= 5 Sec			1
					allowable limits for				
						Test Failed			
					_	This Key			1
					P06AE Status is	≠ On or			1
						Fault			1
						Active			
									1
						l e e e e e e e e e e e e e e e e e e e	1		1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				me uired	M IIIu
System	Code	Description	Ontona	Disable	MIL not Illuminated for	TCM: None	Conditions			ricq	uncu	
				Conditions:	DTC's:							
						ECM: None						
												L
ansmission Fluid		Trans Fluid Town Conser Circuit	If transmission oil town to	Refer to Table								T 1T
mperature Sensor (TFT)	P0711	Trans Fluid Temp Sensor Circuit Range/Performance	If transmission oil temp to substrate temp Δ									'
imperature Sensor (11-1)		range/r chomance	Substrate temp 4	documents								
				Refer to Table								
			If transmission oil temp to power	> 18 in °C								
			up temp Δ	Supporting								
				documents								
			Both conditions above required to						>=	3000	Fail Counts	1
			increment fail counter						>=	3000	(100ms loop)	
			Note: table reference temp = to									
			the median temp of trans oil temp,						Out of	3750	Sample Counts	
			substrate temp and power up temp.						OI		(100ms loop)	
			Non-continuous (intermittent) fail								D 0 .	
			conditions will delay resetting fail						>=	700	Pass Counts	
			counter until								(100ms loop)	
									Out	875	Sample Counts	
									of		(100ms loop)	
					Engine Torque Signal Valid	=	TRUE	Boolean				1
					Accelerator Position Signal		TRUE					
					Valid	=		Boolean				
					Ignition Voltage Lo	>=	8.5996094	Volts				
					Ignition Voltage Hi	<=	31.999023 400	Volts RPM				
					Engine Speed Lo Engine Speed Hi	>= <=	7500	RPM				
					Engine Speed is within the							
					allowable limits for	>=	5	Sec				
					Brake torque active	=	FALSE					
					Below describes the brake							
					torque entry criteria Engine Torque	\	90	N*m				
					Throttle	>= >=	30.000305	Pct				
					Transmission Input Speed	<=	200	RPM				
					Vehicle Speed	<=	8	Kph				
					Transmission Range	≠	Park					
					Transmission Range	≠	Neutral					
					PTO Set Brake Torque Active	=	Not Active					1
					TRUE if above conditions are	>=	7	sec				
					met for:		,	300				
					Below describes the brake							1
					torque exit criteria							
	1				Brake torque entry criteria	=	Not Met					1
							Clutch					1
					Clutch hydraulic pressure	<i>≠</i>	Hydraulic Air Purge					
	1						Event					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Clutch used to exit brake torque active	CeTFTD_e = _C3_RatlE nbl		
					The above clutch pressure is greater than this value for one loop	>= 600 kpa		
					Set Brake Torque Active FALSE if above conditions are met for:	>= 20 Sec		
					P0711 Status is	Test Failed This Key ≠ On or Fault Active		
				Disable Conditions		TCM: P0658, P0668, P0669, P06AD, P06AE, P0716, P0712, P0713, P0717, P0722, P0723, P0962, P0963, P0966, P0967, P0970, P0971, P215C, P2720, P2721, P2729, P2730		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Transmission Fluid Temperature Sensor (TFT)	P0712	Transmission fluid temperature thermistor failed at a low voltage	Type of Sensor Used If Transmission Fluid Temperature	CeTFTI_e_Vo = ItageDirectPro p				Two Trips
			Sensor = Direct Proportional and Temp If Transmission Fluid Temperature					
			Sensor = Indirect Proportional and Temp Either condition above will satisfy the fail conditions	>= -74 °C			>= 60 Fail Time (Sec))
			are fail contained.		Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the	>= 8.5996094 Volts <= 31.999023 Volts >= 400 RPM <= 7500 RPM >= 5 Sec		
					allowable limits for P0712 Status is	Test Failed This Key ≠ On or		
					For Hybrids, below conditions must also be met	Fault Active		
					Estimated Motor Power Loss Estimated Motor Power Loss greater than limit for time	>= 0 kW >= 0 Sec		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	Onteria	Value	Lost Communication with	Oonations	itequileu	man.
					Hybrid Processor Control	= FALSE		
					Module			
					Estimated Motor Power Loss	= FALSE		
					Fault	- Incoe		
				Disable	MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723		
				Conditions:	DTC's:	1000.10710,10717,10722,10720		
						ECM: None		
				0.757				
Transmission Fluid	D0712	Transmission fluid temperature	Tune of Concer Head	CeTFTI_e_Vo				Two
Temperature Sensor (TFT)	P0713	thermistor failed at a high voltage	Type of Sensor Used	= ItageDirectPro p				Trips
			If Transmission Fluid Temperature					
			Sensor = Direct Proportional and					
			Temp					
			If Transmission Fluid Temperature					
			Sensor = Indirect Proportional and	<= 174 °C				
			Temp Either condition above will satisfy					-
			the fail conditions				>= 60 Fail Time (Sec	c)
			the fall conditions		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	Test Failed		
						This Key		
					P0713 Status is	≠ On or		
						Fault		
						Active		
				Disable	MIL was Illuminated for	TOM DOZIO DOZI/ DOZIZ DOZO		
				Conditions:	DTC's:	TCM: P0713, P0716, P0717, P0722,		
				Conditions.	D103.	1 0/23		
						ECM: None		
Transmission Input Speed	P0716	Input Speed Sensor Performance	Transmission Input Speed Sensor	>= 900 RPM			>= 0.8 Fail Time (Sec	One Tri
Sensor (TISS)	1 0/10	input speed sensor renormance	Drops	7- 700 KT W			>- 0.0 Tall Time (Sec	
					Engine Torque is	>= 0 N*m		-
					Engine Torque is	<= 8191.875 N*m		
					Engine Speed	>= 400 RPM		
					Engine Speed	<= 7500 RPM		
					Engine Speed is within the	>= 5 Sec		
					allowable limits for			
	1				Vehicle Speed is	>= 10 Kph	1	
					Throttle Position is	>= 0 Pct		
					Transmission Input Speed is	>= 0 RPM		
					The previous requirement has			
					been satisfied for	>= 0 Sec		
	1	ī l	1	I		1	i .	

Component/	Fault	Monitor Strategy	Malfunction Criteria		Thresho		Secondary Malfunction	 _	Enable Conditions				me uired	Mil Illum.
Component/ System	Fault	Monitor Strategy Description	Malfunction Criteria		Thresho Value		Secondary Malfunction The change (loop to loop) in transmission input speed is The previous requirement has been satisfied for Throttle Position Signal Valid Engine Torque Signal Valid Ignition Voltage Ignition Voltage	< >= = = >= <= = = = = = = = = = = = = =	Conditions	RPM/Loop Sec Boolean Boolean Volts Volts		Ti Reqi		Mil Illum.
						Disable Conditions:	MIL not Illuminated for DTC's:		1, P0102, P0103					
Transmission Input Speed Sensor (TISS)	P0717	Input Speed Sensor Circuit Low Voltage	Fail Case 1 Transmission Input Speed is	< 3	3 RI	PΜ					>=	4.5	Fail Time (Sec)	One Trip
			Fail Case 2 When P0722 DTC Status equal to Test Failed and Transmission Input Speed is	< 653.	.125 RI	PM	Controller uses a single power supply for the speed sensors	=	1	Boolean				-
						Disable Conditions:	Engine Torque is Engine Torque is Vehicle Speed Engine Torque Signal Valid Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for P0717 Status is not		100 8191,875 12 TRUE 8,5996094 31,999023 400 7500 5 Test Failed This Key On or Fault Active	N'm N'm Kph Boolean Volts Volts RPM RPM				
Transmission Output Speed Sensor (TOSS)	P0722	Output Speed Sensor Circuit Low Voltage	Transmission Output Speed Sensor Raw Speed	<= 3	5 RI	PM					>=	4.5	Fail Time (Sec)	One Tri
							P0722 Status is not	=	Test Failed This Key On or Fault Active					
							Transmission Input Speed Check	=	TRUE	Boolean				
							Engine Torque Check	=	TRUE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	III
		<u> </u>			Throttle Position	>=	8.0001831	Pct		
					Transmission Fluid	>=	-40	°C		
					Temperature	-	10	Ü		
					Disable this DTC if the PTO is	=	1	Boolean		
					active Engine Torque Signal Valid	=	TRUE	Boolean		
					Throttle Position Signal Valid	=	TRUE	Boolean		
					Ignition Voltage is	>=	8.5996094	Volts		
					Ignition Voltage is	<=	31.999023	Volts		
					Engine Speed is	>=	400	RPM		
					Engine Speed is	<=	7500	RPM		
					Engine Speed is within the	>=	5	Sec		
					allowable limits for	-	3	300		
					Enable_Flags Defined Below					
					The Engine Torque Check is					
					TRUE, if either of the two					
					following conditions are TRUE					
					Engine Torque Condition 1					
							Range			
					Range Shift Status	≠	shift	ENUM		
					OR		completed			
							Park or			
					Transmission Range is	=	Neutral			
					Engine Torque is	>=	8191.75	N*m		
					Engine Torque is	<=	8191.75	N*m		
					Engine Torque Condition 2					
					Engine Torque Condition 2 Engine Torque is	>=	50	N*m		
					Engine Torque is	<=	8191.75	N*m		
					The Transmission Input Speed					
					(TIS) Check is TRUE, if either					
					of the two following conditions					
					are TRUE					
					TIS Check Condition 1					
					Transmission Input Speed is	>=	653.125	RPM		
					Transmission Input Speed is	<=	5350	RPM		
					TIS Check Condition 2					
					Engine Speed without the	>=	3200	RPM		
					brake applied is					
					Engine Speed with the brake applied is	>=	3200	RPM		
					Engine Speed is	<=	8191.875	RPM		
					Controller uses a single power					
					supply for the speed sensors	=	1	Boolean		
					Powertrain Brake Pedal is		TRUE	Boolean		
					Valid	=	IKUE	DOOLGALI		
					1					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshol Value	d	Secondary Malfunction		Enable Conditions				me uired	Mil Illum
Зумен	Code	Description	OTRO-10		value	Disable Conditions:	MIL not Illuminated for DTC's:					ivedi	иноч	mulli
								P0122, P01						
ransmission Output Speed ensor (TOSS)	P0723	Output Speed Sensor Circuit Intermittent	Transmission Output Speed Sensor Raw Speed	>= 10)5 RP	M					>=	0	(Sec)	One T
			Output Speed Delta	<= 81	92 RP	М					>=	0	Enable Time (Sec)	
			Output Speed Drop	> 65	50 RP	M					>=	1.5	Output Speed Drop Recovery Fail Time (Sec)	
			AND										Tun Time (Occ)	
			Transmission Range is	= Driven (R,										
							Range_Disable OR	=	FALSE	See Below				
							Neutral_Range_Enable And	=	TRUE	See Below				
							Neutral_Speed_Enable are TRUE concurrently	=	TRUE	See Below				
							Transmission_Range_Enable	=	TRUE	See Below				
							Transmission_Input_Speed_E nable	=	TRUE	See Below				
							No Change in Transfer Case Range (High <-> Low) for	>=	5	Seconds				
							3, (3 , 7 , 7		Test Failed					
							P0723 Status is not	=	This Key On or					
									Fault Active					
							Disable this DTC if the PTO is active	=	1	Boolean				
							Ignition Voltage is	>=	8.5996094	Volts				
							Ignition Voltage is Engine Speed is	<= >=	31.999023 400	Volts RPM				
							Engine Speed is	<=	7500	RPM				
							Engine Speed is within the allowable limits for	>=	5	Sec				
							Enable_Flags Defined Below							
							Transmission_Input_Speed_E							
							nable is TRUE when either TIS Condition 1 or TIS Condition 2 is TRUE:							
							TIS Condition 1 is TRUE when		0	Enable Time				
							both of the following conditions are satsified for	>=	0	(Sec)				
							Input Speed Delta	<=	4095.875	RPM				
							Raw Input Speed	>=	500	RPM				

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary		Enable		Time	
System	Code	Description	Criteria	Value	Malfunction		Conditions		Required	III
					TIS Condition 2 is TRUE when					
					ALL of the next two conditions					
					are satisfied					
							0	DDM		
					Input Speed	=	0	RPM		
					A Single Power Supply is used	=	TRUE	Boolean		
					for all speed sensors	=	INUL	boolean		
					Noutral Danga Enabla is					
					Neutral_Range_Enable is					
					TRUE when any of the next 3					
					conditions are TRUE					
					Transmission Range is	=	Neutral	ENUM		
					Transmission range is		recutat	LIVOIVI		
							Reverse/N			
					Transmission Range is	=	eutral	ENUM		
					Transmission Range is	=		EINUIVI		
							Transitonal			
							N . 1/D !			
				1	1		Neutral/Dri			- 1
				1	Transmission Daniel		ve	ENUM		
					Transmission Range is	=	Transitiona	ENUM		
							I			
					And when a drop occurs					
					Loop to Loop Drop of	>	650	RPM		
					Transmission Output Speed is		030	IXI IVI		
					Range_Disable is TRUE when					
					any of the next three					
					conditions are TRUE					
					Transmission Range is	=	Park	ENUM		
					Ü					
							Park/Reve			
					Transmission Range is	=	rse	ENUM		
							Transitonal			
							Hansional			
							ON (Fully			
					Input Clutch is not	=	Annlind)	ENUM		
					·		Applied)			
					Neutral_Speed_Enable is					
				1	TRUE when All of the next					- 1
				1	three conditions are satsified	>	1.5	Seconds		- 1
				1						
				1	for					
				1	Transmission Output Speed	>	130	RPM		
				1				***		- 1
				1	The loop to loop change of the		20	DD#4		- 1
				1	Transmission Output Speed is	<	20	RPM		
				1						
				1						
				1	The loop to loop change of the	>	-10	RPM		
				1	Transmission Output Speed is		-10	IXI IVI		
				1						
					Transmission_Range_Enable					
				1	is TRUE when one of the next					- 1
				1						
				1	six conditions is TRUE					
				1	Transmission Range is	=	Neutral	ENUM		
				1	[Reverse/N	·		
				1	1					
				1	Transmission Range is	=	eutral	ENUM		
				1	Transmission range is	_	Transitiona	2140111		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Requir		Mil Illum.
•					Transmission Range is	Neutral/Dri ve ENUM Transitiona I		·		
					Time since a driven range (R,D) has been selected	Table Based Time Please Sec Refer to Table 21 in supporting documents				
					Transmission Output Speed Sensor Raw Speed Output Speed when a fault was detected	>= 500 RPM >= 500 RPM				
				Disable Conditions		TCM: P0973, P0974, P0976, P0977 ECM: P0101, P0102, P0103, P0121, P0122, P0123				
Torque Converter Clutch (TCC)	P0741	TCC System Stuck OFF	TCC Pressure Either Condition (A) or (B) Must be Met	>= 750 Kpa			>=	2	Enable Time (Sec)	Two Trips
			(A) TCC Slip Error @ TCC On Mode	Refer to Table 1 in RPM Supporting Documents			>=	5	Fail Time (Sec)	
			(B) TCC Slip @ Lock On Mode If Above Conditions Have been				>=		Fail Time (Sec) TCC Stuck Off	
			Met, and Fail Timer Expired, Increment Fail Counter				>=	2	Fail Counter	
					TCC Mode Ignition Voltage Lo Ignition Voltage Hi Engine Speed Engine Speed is within the allowable limits for Engine Torque Lo Engine Torque Hi Throttle Position Lo Throttle Position Hi 2nd Gear Ratio Lo 2nd Gear Ratio Lo 3rd Gear Ratio High 4th Gear Ratio Lo 4th Gear Ratio Lo	5 Sac				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold 'alue	Secondary Malfunction]	Enable Conditions				me uired	Mil Illum.
System	Code	Description	Griteria		aiut	5th Gear Ratio Hi	<=	0.9095459	Ratio	 	Req	uneu	muni.
						6th Gear Ratio Lo	>=	0.6230469	Ratio				
						6th Gear Ratio High	<=	0.7169189	Ratio				
						Transmission Fluid	>=	-6.65625	°C				
						Temperature Lo	>=	-0.03023	C				
						Transmission Fluid	<=	130	°C				
						Temperature Hi							
						PTO Not Active Engine Torque Signal Valid	=	TRUE TRUE	Boolean Boolean				
						Throttle Position Signal Valid	=	TRUE	Boolean				
						Dynamic Mode	=	FALSE	Boolean				
						Dynamio modo		Test Failed	Doolouii				
								This Key					
						P0741 Status is	≠	On or					
								Fault					
								Active					
					Disable	MIL not Illuminated for			., P0723,				
					Conditions:	DIC's:	P0742, P276	3, P2/64					
							ECM. DO10	1, P0102, P010	2 D0104				
								1, P0102, P010 08, P0171, P017					
)1, P0202, P020					
)6, P0207, P020					
								02, P0303, P030					
								7, P0308, P040					
Torque Converter Clutch (TCC)	P0742	TCC System Stuck ON	TCC Slip Speed	>= -50	RPM								One Trip
(100)			TCC Slip Speed	<= 13	RPM								
										>=	1.5	Fail Time (Sec))
			If Above Conditions Have been										
			Met, and Fail Timer Expired,							>=	6	Fail Counter	
			Increment Fail Counter										
						TCC Mode	=	Off					
						Enable test if Cmnd Gear = 1stFW and value true	=	1	Boolean				
						Enable test if Cmnd Gear =							
						2nd and value true	=	0	Boolean				
						Engine Speed Hi	<=	6000	RPM				
						Engine Speed Lo	>=	500	RPM				
						Vehicle Speed HI	<=	511	KPH				
						Vehicle Speed Lo	>=	1	KPH				
						Engine Torque Hi	<=	8191.875	Nm				
						Engine Torque Lo	>=	80	Nm				
						Current Range	<i>≠</i>	Neutral	Range				
						Current Range	≠	Reverse	Range				
						Transmission Sump	<=	130	°C				
						Temperature							
	1					Transmission Sump Temperature	>=	18	°C				
	1					Throttle Position Hyst High	>=	5.0003052	Pct				
	1					AND		0.0000002	1 61				
	1	I								1			1
						Max Vehicle Speed to Meet	<=	8	KPH				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum
Gyatelli	Code	Description	O REFIE	value	Once Hyst High has been met,		CONTRICTIONS			rreq		
					the enable will remain while	>=	2.0004272	Pct				
					Throttle Position		2.000 1272					
					Disable for Throttle Position	>=	75	Pct				
					Disable if PTO active and							
					value true	=	1	Boolean				
					Disable if in D1 and value true	=	1	Boolean				
					Disable if in D2 and value true	=	1	Boolean				
					Disable if in D3 and value true	=	1	Boolean				
					Disable if in D4 and value true	=	1	Boolean				
					Disable if in D5 and value true	=	1	Boolean				
					Disable if in MUMD and value		_					
					true	=	1	Boolean				
					Disable if in TUTD and value							
					true	=	1	Boolean				
					4 Wheel Drive Low Active	=	FALSE	Boolean				
					Disable if Air Purge active and							
					value false	=	0	Boolean				
					RVT Diagnostic Active	=	FALSE	Boolean				
					Ignition Voltage	>=	8.5996094	V				
					Ignition Voltage	<=	31.999023	V				
					Vehicle Speed	<=	511	KPH				
					Engine Speed	>=	400	RPM				
					Engine Speed	<=	7500	RPM				
					Engine Speed is within the	\						
					allowable limits for	>=	5	Sec				
					Engine Torque Signal Valid	=	TRUE	Boolean				
					Throttle Position Signal Valid	=	TRUE	Boolean				
					Throttie Position Signal Valid	-	Test Failed	Doolean				
					DOZAS Status is	≠	This Key					
					P0742 Status is	7	On or Fault					
							Active					
				B		TOM DOT4	, DOTAT DOTO	D0700				
				Disable				, P0/23,				
				Conditions	DIC's:	P0741, P27	63, P2/64					
							1, P0102, P010					
							08, P0171, P017					
							01, P0202, P020					
							06, P0207, P020					
							02, P0303, P030					
						P0306, P03	07, P0308, P040	11, P042E				
	-								-			т
ode 2 Multiplex Valve	P0751	Shift Solenoid Valve A Stuck Off	Commaned Gear Slip	>= 400 RPM								Two
•			· ·									Trips
			Commanded Gear							0.0	E - 9 T	l
				<= 1.209594727					>=	0.2	Fail Tmr	
				>= 1.094360352					=	5	Fail Counts	
			If the above parameters are true								Non-trad Theory	
									≠	0	Neutral Timer	
											(Sec)	
									>=	0.3	Fail Timer (Sec)	
									>=	8	Counts	
	1	i	ı		1				>=	O	COUITS	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thres Val		Secondary Malfunction		Enable Conditions		Tim Requi		M Illu
						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	~-	3	500			
						Transmission Fluid	>=	-6.65625	°C			
						Temperature		0.00020				
								Range				
						Range Shift State	=	Shift	ENUM			
						range ormit olate		Completed	Litoini			
						TPS	>=	0.5004883	%			
						OR						
						Output Speed	>=	67	RPM			
						Throttle Position Signal Valid	=	TRUE	Boolean			
						from ECM						
						Engine Torque Signal Valid						
						from ECM, High side driver is	=	TRUE	Boolean			
						enabled						
						High-Side Driver is Enabled	=	TRUE	Boolean			
						Input Speed Sensor fault	=	FALSE	Boolean			
						Output Speed Sensor fault	=	FALSE	Boolean			
						Default Gear Option is not	=	TRUE				
						present						
					Disable	MII wat III. waiwata difan	TOM D071/	D0717 D0700	D0700			
						MIL not Illuminated for		, P0/1/, P0/22	., P0723,			
					Conditions:	DTC's:	P182E					
							ECM. D0101	D0102 D0102	D010/			
								, P0102, P0103				
								8, P0171, P017				
								1, P0202, P020				
								6, P0207, P020				
								2, P0303, P030				
							FU3UU, FU3U	7, P0308, P040	71, FU42E			
2 Multiplex Valve	P0752	Shift Solenoid Valve A Stuck On	Gear Box Slip	>= 400	RPM							On
			Commanded Gear	= 3rd	Gear							
			Commanded Gear has Achieved									
			1st Locked OR 1st Free-Wheel	= TRUE	Boolean							
			OR 2nd with Mode 2 Sol.	- INOL	Doolcan							
			Commanded On									1
			If the above parameters are true									1
										Please Refer		
											Neutral Timer	
										Supporting	(Sec)	1
										Documents		
			Command 4th Gear once Output	<= 400	RPM							
			Shaft Speed		TXL IVI							1
				>= 3.825683594								1
			And Gear Ratio	<= 4.228393555								1
										>= 1.5	Fail Timer (Sec)	, I
												1
	1	I								>= 5	Counts	1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thre: Va		Secondary Malfunction		Enable Conditions		Tim Requi		Mil Illum.
5,5.5						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	<=					
						allowable limits for	>=	5	Sec			
						High-Side Driver is Enabled	=	TRUE	Boolean			
						Throttle Position Signal Valid	=	TRUE	Boolean			
						from ECM						
						Output Speed OR	>=	67	RPM			
						TPS	>=	0.5004883	%			
						11.5			70			
						Range Shift State	=	Range Shift	ENUM			
						Range Shiit State	=	Completed	EINUIVI			
						T		Completed				
						Transmission Fluid Temperature	>=	-6.65625	°C			
						Input Speed Sensor fault	=	FALSE	Boolean			
						Output Speed Sensor fault	=	FALSE	Boolean			
						Default Gear Option is not	=	TRUE				
						present	_	INUL				
					Disable	MIL not Illuminated for	TCM: D071	6 D0717 D0722	D0723			
					Conditions:	DTC's:		0, F0/1/, F0/22	., FU123,			
					Contantionion	5.00.	1022					
								1, P0102, P0103				
								08, P0171, P017				
								01, P0202, P020 06, P0207, P020				
								02, P0303, P030				
								07, P0308, P040				
Mode 2 Multiplex Valve	P0756	Shift Solenoid Valve B Stuck Off	Fail Case 1 Commanded Gear	= 1st Locked								One Trip
										Please Refer		
			Gear Box Slip	>= 400	RPM					>= to Table 5 in Supporting	Neutral Timer (Sec)	
										Documents	(360)	
			Intrusive Shift to 2nd									
			Commanded Gear Previous		Gear							
			Gear Ratio									
			Gear Ratio									
			If the above parameters are true							>= 1	sec	
				1						>= 1	counts	
						Ignition Voltage Lo	>=	8.5996094	Volts	, , , ,	Joanno	1
						Ignition Voltage Hi	<=	31.999023	Volts			
						Engine Speed Lo	>=	400	RPM			
1				1		Engine Speed Hi	<=	7500	RPM			
						Engine Speed is within the allowable limits for	>=	5	Sec			
						Output Speed	>=	67	RPM			
1				1		OR		**	***			
1	1			1		TPS	>=	0.5004883	%			

Reage Shift State	Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Fail Case 2 Case: Steady State 5th Gear	System	Code	Description Pressure Control (PC) Solenoid B	Criteria Case: Steady State 3rd Gear Commanded Gear Gearbox Slip Command 4th Gear once Output Shaft Speed If Gear Ratio And Gear Ratio And Gear Ratio It the above condiations are true, Increment 3rd gear fail counter	Value	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	Conditions Range Shift ENUM Completed >= -6.65625 °C = TRUE Boolean = TRUE Boolean = FALSE Boolean = FALSE Boolean = TRUE TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0301, P0302, P0303, P0304, P0305,	Please Refer to Table 16 in Neutral Timer Supporting (Sec) >= 3 Fail Timer (Sec) >= 3 Gear Fail Counts or 3.5B Clutch	One Trip
Fail Case 2 Case: Steady State 5th Gear								Counts or 3-5R Clutch	
				Fail Case 2 Case: Steady State 5th Gear	r			Fail Counts	-
Gearbox Slip >= 400 Rpm >>								Please Refer to Table 5 in Neutral Timer Supporting (Sec) Documents	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
- Cystem	Code	Description	If attained Gear=6th gear Time	Please refer		Constitution		
			It the above condiations are true, Increment 5th gear fail counter				>= 3 5th Gear Fail Counts or	
			and C35R Fail counter				>= 14 3-5R Clutch Fail Counts	
					PRNDL State defaulted inhibit RVT	= FALSE Boolean = FALSE Boolean		
					IMS fault pending indication	= FALSE Boolean = FALSE Boolean		
					TPS validity flag	= TRUE Boolean		
					Hydraulic System Pressurized Minimum output speed for	= TRUE Boolean		
					RVT	>= 67 RPM		
					A OR B (A) Output speed enable	>= 67 RPM		
					(B) Accelerator Pedal enable	>= 0.5004883 Pct		
					Common Enable Criteria Ignition Voltage Lo	>= 8.5996094 Volts		
					Ignition Voltage Hi	<= 31.999023 Volts		
					Engine Speed Lo Engine Speed Hi	>= 400 RPM <= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					Throttle Position Signal valid	= TRUE Boolean		
					HSD Enabled Transmission Fluid	= TRUE Boolean		
					Temperature	>= -6.65625 °C		
					Input Speed Sensor fault Output Speed Sensor fault	= FALSE Boolean = FALSE Boolean		
					Default Gear Option is not			
					present	= TRUE		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300,		
						P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS) P0777	Pressure Control (PC) Solinoid B	Fail Case 1 Case: Steady State 1st					One Trip
		Stuck On [C35R] (Steady State)	Attained Gear slip	>= 400 RPM Table Based				
			W	Time Please Refer to Table Enable Time				
			If the Above is True for Time	>= 4 in (Sec) supporting				
	1		Intrusive test:	documents				1
	1		(CBR1 clutch exhausted)					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			me uired	II
Gystelli	Code	Description		<= 1.608642578		Conditions		ived		Ħ
			Gear Ratio	>= 1.455444336						
			If the above parameters are true							
							>=	1.1	Fail Timer (Sec))
									Fail Count in	
							>=	2	1st Gear	
									or Or	ı
								2	Total Fail	ı
							>=	3	Counts	
			Fail Case 2 Case: Steady State 2nd gear							ı
				Table Based value Please						ı
			Max Delta Output Speed	Defeate 2D						ı
			Hysteresis							ı
			,	supporting						ı
				documents						I
				Table Based						I
			Affin Dolla Outrot Connell	value Please						1
			Min Delta Output Speed Hysteresis	>= Refer to 3D Table 2 in rpm/sec						I
			Trystoresis	supporting						l
				documents						ı
				Table Based						ı
				Time Please						ı
			If the Above is True for Time	>= Refer to Table Sec						ı
				>= 17 in Set supporting						ı
				documents						ı
			Intrusive test:	accumonts						ı
			(CB26 clutch exhausted)							ı
				<= 1.608642578						ı
				>= 1.455444336						ı
			If the above parameters are true							ı
							>=	1.1	Fail Timer (Sec))
								3	Fail Count in	
							>=	3	2nd Gear	
									or	I
							>=	3	Total Fail Counts	
			Fail Case 3 Case: Steady State 4th gear						Courits	1
			Saso. Steady State 4th year	Table Based						I
				value Please						1
			Max Delta Output Speed	>= Refer to 3D rpm/sec						
			Hysteresis	Table I III						۱
				supporting documents						۱
				Table Based						۱
				value Please						
			Min Delta Output Speed	Refer to 3D						1
			Hysteresis							ı
				supporting						1
	1 1			documents	1 1					Т

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required	1
		·	If the Above is True for Time Intrusive test: (C1234 clutch exhausted) Gear Ratio	Table Based Time Please Refer to Table >= 17 in Supporting documents					·	
			If the above parameters are true						1 Foil Timor (Soc	2)
									Fail Timer (Sec Fail Count in 4th Gear	
								>=	or Total Fail	
			Fail Case 4 Case: Steady State 6th gear		+				Counts	+
			Max Delta Output Speed Hysteresis	Table 1 in supporting documents Table Based						
			Min Delta Output Speed Hysteresis	Table 2 in supporting documents Table Based Time Please						
			If the Above is True for Time	supporting						
			Intrusive test: (CB26 clutch exhausted)	documents						
			Gear Ratio	<= 0.89465332				>= '	1.1 Fail Timer (Sec	:)
			Gear Ratio If the above parameters are true	>= 0.809448242				>=	3 counts	
								>= ′	.1 Fail Timer (Sec	;)
								>=	Fail Count in 6th Gear	
								>=	or Total Fail Counts	
					PRNDL State defaulted inhibit RVT IMS fault pending indication output speed	= FALSE = FALSE = FALSE >= 0	Boolean Boolean Boolean RPM			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold lue	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
						Hydraulic_System_Pressurize	=	TRUE	Boolean		
						d	_	INUL	Doolean		
						A OR B		67	Nm		
						(A) Output speed enable (B) Accelerator Pedal enable	>= >=	0.5004883	Nm Nm		
						Ignition Voltage Lo	>=	8.5996094	Volts		
						Ignition Voltage Hi	<=	31.999023	Volts		
						Engine Speed Lo	>=	400	RPM		
						Engine Speed Hi	<=	7500	RPM		
						Engine Speed is within the allowable limits for	>=	5	Sec		
						if Attained Gear=1st FW					
						Accelerator Pedal enable	>=	5.0003052	Pct		
						if Attained Gear=1st FW		-	Non		
						Engine Torque Enable	>=	5	Nm		
						if Attained Gear=1st FW	<=	8191.875	Nm		
						Engine Torque Enable	,-	0171.070			
						Transmission Fluid Temperature	>=	-6.65625	°C		
						Input Speed Sensor fault	=	FALSE	Boolean		
						Output Speed Sensor fault	_	FALSE	Boolean		
					Disable	MIL not Illuminated for		6, P0717, P0722	2, P0723,		
					Conditions:	DTC's:	P182E				
							FCM: P010	1, P0102, P0103	3 P0106		
								08, P0171, P01			
								01, P0202, P02			
								.06, P0207, P02			
								02, P0303, P03			
							P0306, P03	607, P0308, P04	01, P042E		
	1		Primary Offgoing Clutch is								One Tri
	D0777	Pressure Control (PC) Solenoid B	exhausted (See Table 12 in	TOUT							
/ariable Bleed Solenoid (VBS)	P0777	StuckOn [C35R] (Dymanic)	Supporting Documents for	= TRUE	Boolean						
			Exhaust Delay Timers)								
			Primary Oncoming Clutch	= Maximum							
			Pressure Command Status	pressurized Clutch							
			Primary Offgoing Clutch Pressure	= exhaust							
			Command Status	command							
			Danga Chiff Chakua	Initial Clutch							
			Range Shift Status	Control							
			Attained Gear Slip	<= 40	RPM						
			If the above conditions are true								
			If the above conditions are true run appropriate Fail 1 Timers								
	1		Below:								
			fail timer 1	. 0.5	Fall Time (Co.)						
			(3-1 shifting with Closed Throttle)	>= 0.5	Fail Time (Sec)						
			fail timer 1	>= 0.299804688	Fail Time (Sec)						
	1	1	(2.2 abiffing with Throttle)				•			i e	
			(3-2 shifting with Throttle) fail timer 1		, ,						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Ш
			fail timer 1 (3-4 shifting with Throttle) fail timer 1	>= 0.299804688 Fail Time (Sec)				
			(3-4shifting with Closed Throttle) fail timer 1	>= 0.5 Fail Time (Sec)				
			(3-5 shifting with Throttle) fail timer 1	>= 0.299804688 Fail Time (Sec)				
			(3-5 shifting with Closed 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 with Closed Throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (5-4 shifting with Throttle)	>= 0.299804688 Fail Time (Sec)				
			fail timer 1 (5-4 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (5-6 shifting with Throttle)	>= 0.299804688 Fail Time (Sec)				
			fail timer 1 (5-6 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers				Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail >= Timer 1, and Reference Supporting Table 15 for Fail Timer 2	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail					
			counter				>= 3 3rd gear fail	
			3rd gear fail counter				>= 3 counts OR	
			5th gear fail counter				>= 3 5th gear fail counts	
			Total fail counter				OR >= 5 total fail count:	ts
					TUT Enable temperature Input Speed Sensor fault Output Speed Sensor fault Command / Attained Gear High Side Driver ON output speed limit for TUT input speed limit for TUT PRNDL state defaulted IMS Fault Pending Service Fast Learn Mode HSD Enabled Default Gear Option is not present	>= -6.65625 °C = FALSE Boolean = FALSE Boolean = FALSE Boolean = TRUE Boolean >= 100 RPM >= 150 RPM = FALSE Boolean = FALSE Boolean = FALSE Boolean = TRUE Boolean = TRUE Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	d	Secondary Malfunction	Enable Conditions	Tim Requi		Mil Illun
System	Code	Description	Griteria	value	Disable		TCM: P0716, P0717, P0722, P0723,	Requi	ieu	mun
					Conditions:	DTC's:				
					Conditions.	D103.	1 1020			
							ECM: P0101, P0102, P0103, P0106,			
							P0107, P0108, P0171, P0172, P0174,			
							P0175, P0201, P0202, P0203, P0204,			
							P0205, P0206, P0207, P0208, P0300,			
							P0301, P0302, P0303, P0304, P0305,			
							P0306, P0307, P0308, P0401, P042E			
iable Bleed Solenoid (VBS)	P0796	Pressure Control (PC) Solenoid C	Fail Case 1 Case: Steady State 4th Gear					1		One
able bleed Solelloid (VBS)	F0/90	Stuck Off [C456] (Steady State)	Case. Steady State 4th Geal							
								Please See		
			Gear slip	>= 400 RPI	M				Neutral Timer	
			Joan Silp	100				Neutral Time	(Sec)	
								Cal		
			Intrusive test:							
			commanded 5th gear	DI (
				Please refer						
			If attained Gear ≠5th for time	>= to Table 3 in Supporting Shir	ift Time (Sec)					
			if the charge conditions have been	Documents						
			if the above conditions have been							
			met						4th Gear Fail	
			Increment 4th Gear Fail Counter					>= 3	Count	
									OR	
									C456 Fail	
			and C456 Fail Counters					>= 14	Counts	
			Fail Case 2 Case: Steady State 5th Gear							1
								Please See		
			Gear slip	>= 400 RPI	10.0			Table 5 For	Neutral Timer	
			Geal Slip	>= 400 KPI	IVI			>= Neutral Time	(Sec)	
								Cal		
			Intrusive test:							
			commanded 6th gear							
				Please Refer						
			If attained Gear ≠ 6th for time	>= to Table 3 in Supporting Shirt	ift Time (Sec)					
			ii ditalied deal / dirioi time		int Time (Sec)					
				Documents						
			if the above conditions have been							
			met							
			Increment 5th Gear Fail Counter					>= 3	5th Gear Fail	
			1						Count	1
									OR	1
			and C456 Fail Counters					>= 14	C456 Fail	1
			Fail Case 3 Case: Steady State 6th Gear					+	Counts	1
			Case: Steady State off Gear					Please See		1
								Table 5 For	Neutral Timer	1
			Gear slip	>= 400 RPI	M			>= Neutral Time	(Sec)	1
								Cal	(366)	
			Intrusive test:					Cai		1
			commanded 5th gear							
	ı	ı	Lommanueu sur gear	ı		l l		I		1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum
Зуменн	Code	Description	If attained Gear ≠5th for time	Please refer		Continues	Nequieu	indiii
			if the above conditions have been met Increment 6th Gear Fail Counter and C456 Fail Counter				>= 3 6th Gear Fail Count	
			and C456 Fail Counter				OR C456 Fail Counts	
					PRNDL State defaulted inhibit RVT IMS fault pending indication TPS validity flag Hydraulic System Pressurized Minimum output speed for RVT A OR B (A) Output speed enable (B) Accelerator Pedal enable Common Enable Criteria Ignition Voltage Lo Ignition Voltage Lo Ignition Voltage Hi Engine Speed is within the allowable limits for Throttle Position Signal valid HSD Enabled Transmission Fluid Temperature Input Speed Sensor fault OutputSpeed Sensor fault	= FALSE Boolean = FALSE Boolean = FALSE Boolean = TRUE Boolean = TRUE Boolean >= 67 RPM >= 67 RPM >= 0.5004883 Pct >= 8.5996094 Volts <= 31.999023 Volts >= 400 RPM <= 7500 RPM >= 5 Sec = TRUE Boolean = TRUE Boolean = TRUE Boolean = FALSE Boolean = FALSE Boolean	County	
				Disable Conditions		= TRUE TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
riable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C	Fail Case 1 Case: Steady State 1st					One
(*50)		Stuck On [C456] (Steady State)	Attained Gear slip	>= 400 RPM				1

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable		Time	Τ.
System	Code	Description	Criteria	Value	Malfunction	Conditions	Re	equired	1
				Table Based					
				Time Please					
				Pofor to Table Enable Time					
			If the Above is True for Time	>= 4 in (Sec)					
				supporting					
				documents					ı
			Intrusive test:						ı
			(CBR1 clutch exhausted)						ı
				4 000504707					ı
				<= 1.209594727					
			Gear Ratio	>= 1.094360352					ı
			If the above parameters are true						ı
									ı
							>= 1.1	Fail Timer (Sec)	(
	1 1						>= 2	Fail Count in	1
	1 1							1st Gear	1
	1 1							or	1
	1 1							Total Fail	1
	1 1						>= 3		1
	1 1							Counts	4
	1 1		Fail Case 2 Case Steady State 2nd						1
	1 1			Table Based					ı
	1 1			value Please					
	1 1		Max Delta Output Speed	D-f1- 2D					
	1 1		Hysteresis						
			Hysteresis	Table I III					н
				supporting					н
				documents					
				Table Based					
				value Please					
			Min Dalla Outrat County	Defende 2D					н
			Min Delta Output Speed	>= Refer to 3D rpm/sec					
			Hysteresis	>= Table 2 in Tpin/sec					ı
				supporting					ı
				documents					
				Table Based					
				Time Please					
			If the Above is True for Time	>= Refer to Table Sec					
			If the Above is True for Time	>= 17 in Sec					н
				supporting					н
									н
	1 1		1	documents					
	1 1		Intrusive test:						ı
	1 1		(CB26 clutch exhausted)						1
	1 1		Gear Ratio	<= 1.209594727					ı
	1 1			>= 1.094360352					
	1 1								1
	1 1		If the above parameters are true						
	1 1						>= 1.1	Fail Timer (Sec))
	1 1						7- 1.1	1 dii 1 ii ii (360)	1
	1 1							Fail Count in	1
	1 1						>= 3	2nd Gear	1
	1 1								1
	1 1							or	
	1 1						>= 3	Total fail counts	ا
	1 1						7- 3	rotar fall Coulits	1
	1 1								ı
	1 1		Fail Case 3 Case Steady State 3rd						1
	1 1		Gase Steady State Stu	Toble Beend					1
	1 1			Table Based					1
	1 1			value Please					1
	1 1		Max Delta Output Speed	Refer to 3D					1
	1 1		Hysteresis						1
	1 1		Hystoresis	supporting					1
	1 1			documents					1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				me uired	IIIu
			Min Delta Output Speed Hysteresis	Table Based 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 <= 1.209594727								
			Gear Ratio If the above parameters are true	>= 1.094360352								
									>=	1.1	Fail Timer (Sec)	
									>=	3 OR	Fail Count in 3rd Gear	
									>=	3	Total Fail Counts	
					PRNDL State defaulted inhibit RVT	=	FALSE FALSE	Boolean Boolean				
					IMS fault pending indication	=	FALSE	Boolean				
					output speed TPS validity flag	>= =	0 TRUE	RPM Boolean				
					HSD Enabled	=	TRUE	Boolean				
					Hydraulic_System_Pressurize	=	TRUE	Boolean				
					A OR B (A) Output speed enable	>=	67	Nm				
					(B) Accelerator Pedal enable Ignition Voltage Lo	>= >=	0.5004883 8.5996094	Nm 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 if Attained Gear=1st FW Accelerator Pedal enable	>=	5 5.0003052	Sec Pct				
					if Attained Gear=1st FW	>=	5	Nm				
					Engine Torque Enable if Attained Gear=1st FW Engine Torque Enable	<=	8191.875	Nm				
					Transmission Fluid Temperature	>=	-6.65625	°C				
					Input Speed Sensor fault	=	FALSE	Boolean				1
					Output Speed Sensor fault Default Gear Option is not	=	FALSE	Boolean				
					present	=	TRUE					1

Component/	Fault	Monitor Strategy	Malfunction		shold	Secondary	Enable	Time	Mil
System	Code	Description	Criteria	Va	lue	Malfunction	Conditions	Required	Illum.
					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		
			Delman, Offician Clutch is						One Tr
		Pressure Control (PC) Solenoid C	Primary Offgoing Clutch is exhausted (See Table 11 in						One Ir
'ariable Bleed Solenoid (VBS)	P0797			= TRUE	Boolean				
		Stuck On [C456] (Dynamic)	Supporting Documents for Exhaust Delay Timers)						
			Primary Oncoming Clutch Pressure Command Status	= Maximum					
			Pressure Command Status	= pressurized Clutch					
			Primary Offgoing Clutch Pressure	ovhoust					
			Command Status						
				command					
			Range Shift Status	≠ Initial Clutch					
				Control	DDM				
			Attained Gear Slip	<= 40	RPM				
			If the above conditions are true						
			increment appropriate Fail 1						
			Timers Below:						
			fail timer 1						
			(4-1 shifting with throttle)	>= 0.299804688	Fail Time (Sec)				
			fail timer 1						
			(4-1 shifting without throttle)	>= 0.5	Fail Time (Sec)				
			fail timer 1						
			(4-2 shifting with throttle)	>= 0.299804688	Fail Time (Sec)				
			fail timer 1						
			(4-2 shifting without throttle)	>= 0.5	Fail Time (Sec)				
			fail timer 1						
			(4-3 shifting with throttle)	>= 0.299804688	Fail Time (Sec)				
			fail timer 1						
			(4-3 shifting without throttle)	>= 0.5	Fail Time (Sec)				
			fail timer 1						
			(5-3 shifting with throttle)	>= 0.299804688	Fail Time (Sec)				
			fail timer 1						
			(5-3 shifting without throttle)	>= 0.5	Fail Time (Sec)				
			fail timer 1						
			(6-2 shifting with throttle)	>= 0.299804688	Fail Time (Sec)				
			fail timer 1						
			(6-2 shifting without throttle)	>= 0.5	Fail Time (Sec)			I	1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction	Enable Conditions		Tir Requ		Mil Illum.
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers					Tin + >= Tir >= Ti F S	Total Fail me = (Fail 2) See Enable mers for Fa mer 1, and Reference Supporting able 15 for ail Timer 2	e il sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter								
			4th gear fail counter					>=	3	Fail Counter From 4th Gear OR	
			5th gear fail counter					>=	3	Fail Counter From 5th Gear OR	
			6th gear fail counter					>=	3	Fail Counter From 6th Gear OR	
			Total fail counter					>=	5	Total Fail Counter	
						TUT Enable temperature 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	t = FALSE Boolean f ≠ 1st Boolean i = TRUE Boolean >= 100 RPM >= 150 RPM d = FALSE Boolean g = FALSE Boolean FALSE Boolean				
					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, P0308, P0401, P042E				
Tap Up Tap Down Switch (TUTD)	P0815	Upshift Switch Circuit	Fail Case 1 Tap Up Switch Stuck in the Up Position in Range 1 Enabled Tap Up Switch Stuck in the Up	=	Boolean Boolean						Special No MIL
			Position in Range 2 Enabled Tap Up Switch Stuck in the Up Position in Range 3 Enabled	_ 1	Boolean						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold Ilue	Secondary Malfunction		Enable Conditions		Time equired	Mil Illun
			Tap Up Switch Stuck in the Up	= 1	Boolean						
			Position in Range 4 Enabled	= 1	DUUIEdII						
			Tap Up Switch Stuck in the Up	₌ 1	Boolean						
			Position in Range 5 Enabled	- 1	boolean						
			Tap Up Switch Stuck in the Up	· 1	Boolean						
			Position in Range 6 Enabled	- 1	boolean						
			Tap Up Switch Stuck in the Up	₌ 1	Boolean						
			Position in Neutral Enabled	- '	Doolean						
			Tap Up Switch Stuck in the Up	. 1	Boolean						
			Position in Park Enabled		Doolcan						
			Tap Up Switch Stuck in the Up	= 1	Boolean	1					
			Position in Reverse Enabled								
			Tap Up Switch ON =	= TRUE	Boolean				>= 1	Fail Time (Sec)	
			Fail Case 2 Tap Up Switch Stuck in the Up	= 1	Boolean	1					
			Position in Range 1 Enabled		Dooroun						
			Tap Up Switch Stuck in the Up $_{=}$	· 1	Boolean						
			Position in Range 2 Enabled		Dooroun						
			Tap Up Switch Stuck in the Up	· 1	Boolean						
			Position in Range 3 Enabled		Dooroun						
			Tap Up Switch Stuck in the Up	· 1	Boolean						
			Position in Range 4 Enabled		Dooroun						
			Tap Up Switch Stuck in the Up	= 1	Boolean						
			Position in Range 5 Enabled			1					
			Tap Up Switch Stuck in the Up	= 1	Boolean						
			Position in Range 6 Enabled								
			Tap Up Switch Stuck in the Up	= 1	Boolean						
			Position in Neutral Enabled								
			Tap Up Switch Stuck in the Up	= 1	Boolean						
			Position in Park Enabled Tap Up Switch Stuck in the Up								
			Position in Reverse Enabled	= 1	Boolean						
			Tap Up Switch ON	TRUE	Boolean	1					
			NOTE: Both Failcase1 and	IRUE	DUUIEdII						
			Failcase 2 Must Be Met						>= 600	Fail Time (Sec)	
			Falicase 2 Must be intel			+					1
						1					
						1					
						Time Since Last Range		Enable Time			1
						Change	>=	1 (Sec)			
						Ignition Voltage Lo	>=	8.5996094 Volts			
						Ignition Voltage Ed	>= <=	31.999023 Volts			
						Engine Speed Lo	>=	400 RPM			
						Engine Speed Hi	<=	7500 RPM			
						Engine Speed is within the					1
	1 1					allowable limits for	>=	5 Sec	1		1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value	Secondary Malfunction	Enable Conditions		Time Required		Mil Illum.
Gystem	Code	Description	O. C. I.		vuide	P0815 Status is	Test Failed This Key ≠ On or Fault Active		Required		
					Disable Conditions:		TCM: P0816, P0826, P182E, P1876, P1877, P1915, P1761				
							ECM: None				
Tap Up Tap Down Switch (TUTD)	P0816	Downshift Switch Circuit	Fail Case 1 Tap Down Switch Stuck in the Down Position in Range 1 Enabled	= 1	Boolean						Special No MIL
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled		Boolean						
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled		Boolean						
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	= 1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled		Boolean						
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled		Boolean						
			Tap Down Switch Stuck in the Down Position in Range Neutral Enabled	= 1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range Park Enabled	= 1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range Reverse Enabled	= 1	Boolean						
			Tap Down Switch ON	= TRU	E Boolean			>=	1	sec	
			Fail Case 2 Tap Down Switch Stuck in the Down Position in Range 1 Enabled	= 1	Boolean						-
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	= 1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	= 1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	= 1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled		Boolean						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable onditions				me uired	Mil Illum.
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Neutral Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Park Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Reverse Enabled	=	1	Boolean								
			Tap Down Switch ON NOTE: Both Failcase1 and Failcase 2 Must Be Met	=	TRUE	Boolean					>=	600	sec	-
							Time Since Last Range	>=	1	Enable Time				
							Change Ignition Voltage Lo Ignition Voltage Hi	>=	3.5996094 31.999023	(Sec) Volts Volts				
							Engine Speed Lo Engine Speed Hi	>= <=	400 7500	RPM RPM				
							Engine Speed is within the allowable limits for	>=	5	Sec				
							P0816 Status is		Test Failed This Key On or					
							. 30 70 0.000	ŕ	Fault Active					
						Disable Conditions:	MIL not Illuminated for	TCM: P0815, P0 P1877, P1915,		, P1876,				
						Conditions	2100.	ECM: None	1701					
Tap Up Tap Down Switch (TUTD)	P0826	Up and Down Shift Switch Circuit	TUTD Circuit Reads Invalid Voltage	=	TRUE	Boolean					>=	60	Fail Time (Sec)	Special No MIL
							Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo		3.5996094 31.999023 400	Volts Volts RPM				
							Engine Speed Engine Speed Hi Engine Speed is within the	<=	7500	RPM				
							allowable limits for	>=	5 Fest Failed	Sec				
							P0826 Status is		This Key On or					
							. 5525 514145 15	,	Fault Active					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
·					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P1761 ECM: None				·		
Variable Bleed Solenoid (VBS)	P0961	Pressure Control (PC) Solenoid A Control Circuit Rationality Test (Line Pressure VBS)	The HWIO reports an invalid voltage (out of range) error flag	= TRUE	Boolean					>=	4.4	Fail Time (Sec)	Two Trips
										out of	5	Sample Time (Sec)	
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	8.5996094 31.999023 400 7500 5	Volts Volts RPM RPM Sec			(555)	
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P0962	Pressure Control (PC) Solenoid A Control Circuit Low Voltage (Line Pressure VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>=	1.5	Fail Time (Sec)	One Tri
		,								out of	1.875	Sample Time (Sec)	
						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				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
													Two Trips
Variable Bleed Solenoid (VBS)	P0963	Pressure Control (PC) Solenoid A Control Circuit High Voltage (Line Pressure VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>=	4.4	Fail Time (Sec)	
										out of	5	Sample Time (Sec)	
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	8.5996094 31.999023 400 7500	Volts Volts RPM RPM Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold 'alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P0966	Pressure Control (PC) Solenoid B Control Circuit Low Voltage (C35R VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>= out of	0.3	Fail Time (Sec) Sample Time (Sec)	One Tri
						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	UI		(SEC)	
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
'ariable Bleed Solenoid (VBS)	P0967	Pressure Control (PC) Solenoid B Control Circuit High Voltage (C35R VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Ti
						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	out of	0.375	Sample Time (Sec)	
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
/ariable Bleed Solenoid (VBS)	P0970	Pressure Control (PC) Solenoid C Control Circuit Low Voltage (C456/CBR1 VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Tr
		(C. CON OBINITY PROJ								out of	0.375	Sample Time (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
System	Code	Description	GRETA	v	auc	P0970 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed 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		гед	urred	munt.
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P0971	Pressure Control (PC) Solenoid C Control Circuit High Voltage (C456/CBR1 VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>= out of	0.3 0.375	Fail Time (Sec) Sample Time (Sec)	One Trip
						P0971 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	= >= <= >= <= >=	Test Failed This Key On or Fault Active 8.5996094 31.999023 400 7500 5	Volts Volts RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Shift Solinoid	P0973	Shift Solenoid A Control Circuit Low (Mode 2 Solenoid)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>= out of	1.2 1.5	Fail Time (Sec) Sample Time (Sec)	One Tri
						P0973 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	= <= >= <= >=	Test Failed This Key On or Fault Active 8.5996094 31.999023 400 7500 5	Volts Volts RPM RPM Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
бузавш	Code	Description	one in	v	Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None	Conditions			i.eq		
Shift Solinoid	P0974	Shift Solenoid A Control Circuit High (Mode 2 Solenoid)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>= out of	1.2	Fail Time (Sec) Sample Time (Sec)	Two Trips
						P0974 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	= >= <= >= >=	Test Failed This Key On or Fault Active 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 of	1.2 1.5	Sec Sec	One Tr
						P0977 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	Volts Volts RPM RPM Sec	, oi			
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Tap Up Tap Down Switch (TUTD)	P1761	Tap Up and Down switch signal circuit (rolling count)	Rolling count value received from BCM does not match expected value	= TRUE	Boolean					>=	3	Fail Counter	Specia No MII
						Tap Up Tap Down Message Health Engine Speed Lo Engine Speed Hi	= >= <=	TRUE 400 7500	Boolean RPM RPM	>	10	Sample Timer (Sec)	

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria		reshold /alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
System	Code	Description		J. Mel Id	· · ·	uiuc	Engine Speed is within the			C:		requ	anod	1111111
							allowable limits for	>=	5	Sec				
						Disable	MIL not Illuminated for	TCM: None						
						Conditions:	DTC's:	TOWN NOTICE						
								ECM: None						
ap Up Tap Down Switch	-		Fail Case 1	Tap Up Switch Stuck in the Up										Specia
TUTD)	P1765	Upshift Switch Circuit #2	raii Case i	Position in Range 1 Enabled	= 0	Boolean								No MI
				Tap Up Switch Stuck in the Up	= 0	Boolean								
				Position in Range 2 Enabled	_ 0	Boolcan								
				Tap Up Switch Stuck in the Up Position in Range 3 Enabled	= 0	Boolean								
				Tap Up Switch Stuck in the Up	= 0	Dooloon								
				Position in Range 4 Enabled	= 0	Boolean								
				Tap Up Switch Stuck in the Up Position in Range 5 Enabled	= 0	Boolean								
				Tap Up Switch Stuck in the Up										
				Position in Range 6 Enabled	= 0	Boolean								
				Tap Up Switch Stuck in the Up	= 1	Boolean								
				Position in Neutral Enabled Tap Up Switch Stuck in the Up										
				Position in Park Enabled	= 1	Boolean								
				Tap Up Switch Stuck in the Up	= 0	Boolean								
				Position in Reverse Enabled									- " T' (O)	
				Tap Up Switch ON	= TRUE	Boolean					>=	1	Fail Time (Sec)	
			Fail Case 2											1
				Tap Up Switch Stuck in the Up	= 1	Boolean								
				Position in Range 1 Enabled	- '	Doolcan								
				Ton Un Cruitah Chrak in the Un										
				Tap Up Switch Stuck in the Up Position in Range 2 Enabled	= 1	Boolean								
				Tap Up Switch Stuck in the Up	= 1	Roolean								
				Position in Range 3 Enabled	= 1	Boolean								
				Tap Up Switch Stuck in the Up Position in Range 4 Enabled	= 1	Boolean								
				Tap Up Switch Stuck in the Up										
				Position in Range 5 Enabled	= 1	Boolean								
				Tap Up Switch Stuck in the Up	= 1	Boolean								
				Position in Range 6 Enabled Tap Up Switch Stuck in the Up										
				Position in Neutral Enabled	= 0	Boolean								
				Tap Up Switch Stuck in the Up	= 0	Boolean								
				Position in Park Enabled	= 0	Boolean								
				Tap Up Switch Stuck in the Up Position in Reverse Enabled	= 0	Boolean								
				Tap Up Switch ON	= TRUE	Boolean								
				NOTE: Both Failcase1 and	=						>=	600	Fail Time (Sec)	J
				Failcase 2 Must Be Met			Thus Charallest D			Ebl- Ti	>=	000	i all Tille (Sec)	1
							Time Since Last Range Change	>=	1	Enable Time (Sec)				
	1					l	Ignition Voltage Lo	>=	8.5996094	Volts				1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold 'alue	Secondary Malfunction		Enable Conditions			Time Require		Mil Illum.
Jystem	Code	Description	- Gridia		•	unio	Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the	<= >= <= >=	31.999023 400 7500	Volts RPM RPM Sec		require	u	
							allowable limits for P1765 Status is	≠	Test Failed This Key On or Fault					
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P1767	Active	E, P1915				
								ECM: None						
Tap Up Tap Down Switch (TUTD)	P1766	Downshift Switch Circuit #2	Fail Case 1 Tap Down Switch Stuck in the Down Position in Range 1 Enabled	=	0	Boolean								Special No MIL
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled		0	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled		0	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled		0	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled		0	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	-	0	Boolean								
			Tap Down Switch Stuck in the Down Position in Range Neutral Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range Park Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range Reverse Enabled		0	Boolean								
			Tap Down Switch ON	=	TRUE	Boolean					>=	1	sec	
			Fail Case 2 Tap Down Switch Stuck in the Down Position in Range 1 Enabled		1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled		1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled		1	Boolean								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction	Enable Conditions				me uired	Mil Illum.
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	= 1	Boolean							
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	= 1	Boolean							
			Tap Down Switch Stuck in the Down Position in Neutral Enabled	= 0	Boolean							
			Tap Down Switch Stuck in the Down Position in Park Enabled	= 0	Boolean							
			Tap Down Switch Stuck in the Down Position in Reverse Enabled	= 0	Boolean							
			Tap Down Switch ON NOTE: Both Failcase1 and Failcase 2 Must Be Met	= TRUE	Boolean				>=	600	sec	
						Time Since Last Range Change	>= 1	Sec				
						Ignition Voltage Lo Ignition Voltage Hi		Volts Volts				
						Engine Speed Lo Engine Speed Hi	>= 400 <= 7500	RPM RPM				
						Engine Speed is within the allowable limits for	>= 5	Sec				
							Test Failed This Key					
						P1766 Status is	≠ On or Fault Active					
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P1767, P1761, P182E ECM: None	, P1915				
Tap Up Tap Down Switch	P1767	Up and Down Shift Switch Circuit #2	TUTD Circuit Reads Invalid	= TRUE	Boolean				>=	60	Fail Time (Sec)	Special
(TUTD)	1 1707	op and bown Shint Switch Circuit #2	Voltage	- INOL	Doolean	Ignition Voltage Lo	>= 8.5996094	Volts	-		Tail Tille (Sec)	No MIL
						Ignition Voltage Hi Engine Speed Lo	<= 31.999023 >= 400	Volts RPM				
						Engine Speed Hi Engine Speed is within the	<= 7500	RPM				
						allowable limits for	>= 5 Test Failed	Sec				
							This Key					
						P1767 Status is	≠ On or Fault Active					
					Disable	MIL not Illuminated for	TCM: P1761					
					Conditions:	DTC's:	ECM: None					
Internal Mode Switch (IMS)	P182E	Internal Mode Switch - Invalid Range	<u>Fail Case 1</u> Current range	= Transition 1 = (bit state 1110)								One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Т	hreshold Value	Secondary Malfunction		Enable Conditions			Tir Requ		II
Oystelli	Code	Description	Oritoria	CeTRGR				Conditions			rtoqu	iii Cu	十二
			Previous range										
			i revious range	6	nive italige								
				CeTRGR									
			Previous range		rive Range								
				5									
			Range Shift State	_ Range S									
			Kange Shiit State	Complet	ed ENOW								
			Absolute Attained Gear Slip	<= 50	rpm								П
			Attained Gear	<= Sixth	•								
			Attained Gear	>= First									
			Throttle Position Available	= TRUE									
			Throttle Position	>= 8.000183									
			Output Speed	>= 0.000103	rpm								
			Engine Torque	>= 50	Nm								
			Engine Torque	<= 8191.7	5 Nm								
			If the above conditions are met			1				>=	1	Fail Seconds	1
			then Increment Fail Timer			1				I .	•		1
			If Fail Timer has Expired then			1				>=	5	Fail Counts	1
			Increment Fail Counter								J	7 dii Courits	
			Fail Case 2 Output Speed	<= 70	rpm					I			1
			The following PRNDL sequence										
			events occur in this exact order:										
				_ Drive 6	bit _								1
			PRNDL state	= state 01	Range								1
			PRNDL state = Drive 6 for		Sec								1
			T INDE State - BING O'IOI	Transitio									
			PRNDL state	= (bit sta									
			FRINDL State	0111)									
			PRNDL state	= Drive 6									
				state 01	10)								
				Transitio									
			PRNDL state	= (bit sta									
				1110)									
			Above sequencing occurs in	<= 1	Sec								
			Neutral Idle Mode	= Inactiv	е								
			If all conditions above are met			_				I			1
			Increment delay Timer			_				I			1
			If the below two conditions are			1				I			1
			met Increment Fail Timer			_				>=	3	Fail Seconds	1
			delay timer	>= 1	Sec	_				I			1
			Input Speed	>= 400	Sec	_				I			1
			If Fail Timer has Expired then	- 400	300	1				I			1
			Increment Fail Counter							>=	2	Fail Counts	1
			Fail Case 3	Transition	. 12	+		CeTRGR_		1			1
						Desidence en en	_			I			1
			Current range	= (bit sta		Previous range	≠	e_PRNDL		I			1
				0010)		_		_Drive5		I			
						1 . 1		CeTRGR_		I			1
			Engine Torque	>= -8192	Nm	Previous range	≠	e_PRNDL		I			1
								_Drive5		I			1
			Engine Torque	<= 8191.7	5 Nm	IMS is 7 position configuration	=	0	Boolean	I			1
						If the "IMS 7 Position config" =				I			
			If all and the state of the sta			1 then the "previous range"				I			1
			If the above conditions are met			criteria above must also be				>=	0.225	Seconds	1
			then, Increment Fail Timer			satsified when the "current				I			1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	1
			If Fail Timer has Expired then				>= 15	Fail Counts	
			Increment Fail Counter						
			Fail Case 4	Transition 8	Disable Fail Case 4 if last				Т
			Current range	= (bit state Range	positive range was Drive 6 and				ı
				0111)	current range is transition 8				ı
					Set inhibit bit true if PRNDL =				
					1100 (rev) or 0100 (Rev-Neu				ı
			Inhibit bit (see definition)	= FALSE	transition 11)				1
					Set inhibit bit false if PRNDL =				ı
					1001 (park)				ı
			Steady State Engine Torque	>= 30 Nm					
			Steady State Engine Torque						
			If the above conditions are met				>= 0.22	25 Seconds	ı
			then Increment Fail Timer				>= 0.22	20 Seconds	ı
			If the above Condtions have been				1		1
			met, Increment Fail Counter				>= 15	Fail Counts	1
				TOUE 5			_		4
			Fail Case 5 Throttle Position Available The following PRNDL sequence	= TRUE Boolean			1		1
			events occur in this exact order:						ı
				Reverse (bit Dongs					ı
			PRNDL State	= Reverse (bit state 1100) Range					ı
				Transition 11					1
			PRNDL State	= (bit state Range					1
				0100)					1
			DDNDI Ctoto	Moutral (bit					
			PRNDL State	state 0101) Range					ı
				Transition 11					ı
			PRNDL State	= (bit state Range					ı
				0100)					ı
			Above sequencing occurs in	<= 1 Sec					ı
			Then delay timer increments	>= 5 sec					
			Delay timer	>= 5 sec Range Shift					ı
			Range Shift State	= Complete					ı
			Absolute Attained Gear Slip						ı
			Attained Gear Ship						ı
				>= First					
				>= 8.000183105 pct					
			Output Speed :	>= 200 rpm					
			If the above conditions are met				>= 20) Seconds	ı
			Increment Fail Timer				>= 20) Seconds	
			Fail Case 6	Illegal (bit	A Open Circuit Definition (flag		1		1
			Current range	= state 0000 or	set false if the following				
				1000 or 0001)	conditions are met):	Torrellor	1		1
			1			Transition			ı
			and		Current Range	≠ 11 (bit ≠ state			
			1			state 0100)	1		
			A Open Circuit (See Definition)	= FALSE Boolean	or	0100)			
			A Open Circuit (See Delinition)	- FALSE DUURUH	Of	Neutral (bit			
			1		Last positive state	≠ state			
					Last positive state	0101)	1		
					or	3101)			П

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions				me uired	Mil Illum.
			If the above Condtions are met		Previous transition state Fail case 5 delay timer	Transition ≠ 8 (bit state 0111) = 0	sec				
			then, Increment Fail timer	DDNIDL sizovit				>=	6.25	Seconds	
			Fail Case 7 Current PRNDL State and Previous PRNDL state Input Speed	= PRNDL circuit ABCP = 1101 Range PRNDL circuit ABCP = 1111 Range >= 150 RPM							
			Reverse Trans Ratio Reverse Trans Ratio Reverse Trans Ratio If the above Condtions are met then, Increment Fail timer					>=	6.25	Seconds	
			P182E will report test fail when any of the above 7 fail cases are met								
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the	>= 8.5996094 <= 31.999023 >= 400 <= 7500 >= 5	Volts Volts RPM RPM Sec				
					allowable limits for Engine Torque Signal Valid		Boolean				
				Dis Conditi		TCM: P0716, P0717, P0722 P07C0, P07BF, P077C, P0					
						ECM: P0101, P0102, P010 P0107, P0108, P0171, P01 P0175, P0201, P0202, P02 P0205, P0206, P0207, P02 P0301, P0302, P0303, P03 P0306, P0307, P0308, P04	72, P0174, 03, P0204, 08, P0300, 04, P0305,				
Tap Up Tap Down Switch	P1876	Tap Up and Down Enable Switch	Current range	Park or = Reverse or Range State							Special No MIL
(ТИТО)		Circuit	TUTD Enable Switch is Active	Neutral = TRUE Boolean				>= >=	3 5	Fail Time (Sec) Fail Counts	1
					Ignition Voltage Lo Ignition Voltage Hi Vehicle Speed Lo Engine Speed E Engine Speed Hi Engine Speed is within the allowable limits for	>= 8.5996094 <= 31.999023 <= 511 >= 400 <= 7500 >= 5	Volts Volts KPH RPM RPM Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	1		shold alue	Secondary Malfunction		Enable Conditions			Tin Requ		Mil Illum.
7							P1876 Status is	<i>≠</i>	Test Failed This Key On or Fault Active					
						Disable Conditions:		TCM: P0815 P1825, P183 ECM: None	5, P0816, P0826 77, P1915, U010	, P1761, 10				
nternal Mode Switch (IMS)	P1915	Internal Mode Switch Does Not Indicate Park/Neutral (P/N) During Start	PRNDL State is	≠	Park or Neutral	Enumeration								One Tri
			The following events must occur Sequentially Initial Engine speed	<=	50	RPM					>=	0.25	Enable Time (Sec)	
			Then Engine Speed Between Following Cals Engine Speed Lo Hist	>=	50	RPM								
			Engine Speed Hi Hist		480	RPM					>=	0.06875	Enable Time (Sec)	
			Then Final Engine Speed Final Transmission Input Speed	>= >=	525 100	RPM RPM					>=	1.25	Fail Time (Sec)	
							DTC has Ran this Key Cycle?	=	FALSE	Boolean				
							Ignition Voltage Lo Ignition Voltage Hi Ignition Voltage Hyst High (enables above this value) Ignition Voltage Hyst Low (disabled below this value) Transmission Output Speed	>= <= >= <= <=	6 31.999023 5 2 90 Test Failed This Key	V V V rpm				
						Disable	P1915 Status is MIL not Illuminated for	≠ TCM: P0722	On or Fault Active					
						Conditions:	DTC's:	ECM: None						
ransmission Control Module FCM)	P2534	Ignition Switch Run/Start Position Circuit Low	TCM Run crank active (based on voltage thresholds below) Ignition Voltage High Hyst (run	=	FALSE	Boolean							Fail Counts	One Tr
			crank goes true when above this value) Ignition Voltage Low Hyst (run		5	Volts					>=	280	(25ms loop)	
			crank goes false when below this value)		2	Volts					Out of	280	Sample Counts (25ms loop)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold alue	Secondary Malfunction		Enable Conditions			Tin Requ		Mil Illum.
Gystein	Code	Description	Ontona	,	iiuc	ECM run/crank active status			Boolean		поци	iicu	
						available	=	TRUE					
						ECM run/crank active status	=	TRUE	Boolean				
					Disable	MIL not Illuminated for	TCM: None						
					Conditions:								
							ECM: None						
Transmission Control Module		Ignition Switch Run/Start Position	TCM Run crank active (based or										One Tri
(TCM)	P2535	Circuit High	voltage thresholds below		Boolean								
,		j.	Ignition Voltage High Hyst (run									Fail Counts	
			crank goes true when above this		Volts					>=	280	(25ms loop)	
			value) Ignition Voltage Low Hyst (rur									(
			crank goes false when below this	2	Volts					Out	280	Sample Counts	
			value							of		(25ms loop)	
						ECM run/crank active status	=	TRUE	Boolean				
						available ECM run/crank active status		FALSE					
						ECIVITUII/CIAIIK ACTIVE STATUS	=	FALSE	Boolean				
					Disable		TCM: None						
					Conditions:	DTC's:	ECM: None						
							ECM: None						
Variable Bleed Solenoid (VBS)	P2714	Pressure Control (PC) Solenoid D	Fail Case 1 Case: Steady State 2nd Gear										One Tri
variable bleed Soleriold (VBS)	P2/14	Stuck Off [CB26]	Case. Steady State 211d Geal										
											lease See	Noutral Times	
			Gear slip	>= 400	RPM						able 5 For eutral Time	Neutral Timer (Sec)	
										1	Cal	(500)	
			Intrusive test										
			commanded 3rd gear										
				Table Based	1								
			If attained Gear = 3rd for Time	>= see Table 2 i	Enable Time (Sec)								
				Documents									
			If Above Conditions have beer me										
												2nd Gear Fail	
			Increment 2nd gear fail coun	i						>=	3	Count	
												or or	
			and CB26 Fail Coun	t						>=	14	CB26 Fail Count	
			Fail Case 2 Case: Steady State 6th Gear									Count	1
											lease See		
			Gear slip	>= 400	RPM							Neutral Timer	
			Godi Sili							N∈	eutral Time	(Sec)	
			Intrusive test								Cal		
			commanded 5th geal							1			

Component/	Fault	Monitor Strategy	Malfunction	Thresho		Secondary	· · · · · · · · · · · · · · · · · · ·	Enable				me	Mi Illur
System	Code	Description	Criteria	Value)	Malfunction		Conditions		 	Req	uired	illur
				Table Based									
			If attained Gear = 5th For Time	Time Please E	nable Time								
			If attained Gear = 5th For Time	>= see Table 2 in	Sec)								
				Supporting	occ)								
				Documents									
			If Above Conditions have been										
			met, Increment 5th gear fail							>=	3	5th Gear Fail	
											3	Count	
			counter										
												or	
			and CB26 Fail Count							>=	14	CB26 Fail	
			and CB20 Fall Count							>=	14	Count	
						PRNDL State defaulted	=	FALSE	Boolean				1
						inhibit RVT	=	FALSE	Boolean				
						IMS fault pending indication	=	FALSE	Boolean				
						TPS validity flag	=	TRUE	Boolean				
						Hydraulic System Pressurized	=	TRUE	Boolean				l
	1					Minimum output speed for		0	DDM	1			
	1					RVT	>=	0	RPM	1			
						A OR B							
						(A) Output speed enable	>=	67	RPM	1			
	1					(A) Output Speed enable				1			
						(B) Accelerator Pedal enable	>=	0.5004883	Pct				
						Common Enable Criteria							
						Ignition Voltage Lo	>=	8.5996094	Volts				
						Ignition Voltage Hi	<=	31.999023	Volts				
						Engine Speed Lo	>=	400	RPM				
						Engine Speed Hi	<=	7500	RPM				
							<=	7300	Krivi				
						Engine Speed is within the	>=	5	Sec				
						allowable limits for	, -	3	300				
						Throttle Position Signal valid	=	TRUE	Boolean				
						HSD Enabled	=	TRUE	Boolean				
						Transmission Fluid							
							>=	-6.65625	°C				
						Temperature		E41.0E	Б				
						Input Speed Sensor fault	=	FALSE	Boolean				
						Output Speed Sensor fault	=	FALSE	Boolean				
						Default Gear Option is not		TOUE					
						present	=	TRUE					
						present							
					Disable	MIL not Illuminated for		, P0717, P0722	, P0723,				
					Conditions:	DTC's:	P182E						
							ECM: D0101	, P0102, P0103	D0106				
								8, P0171, P017					
							P0175, P020	1, P0202, P020)3, P0204,				
	1						P0205, P020	6, P0207, P020	8, P0300,	1			
								2, P0303, P030					
								7, P0308, P040					
							1 0300, FU3U	7, 1 UJUO, FU4U	71, I U4ZE				
	1		D: 0" : 0::::							-			
			Primary Offgoing Clutch is										One
ble Bleed Coloneid A/DC	D2715	Pressure Control (PC) Solenoid D	exhausted (See Table 13 in	TOUT D	ooloon					1			
ble Bleed Solenoid (VBS) P2715	Stuck On [CB26] (Dynamic)	Supporting Documents for	= TRUE B	oolean					1			l
	1		Exhaust Delay Timers)							1			
	1			Maximo						1			l
	1		Primary Oncoming Clutch	= Maximum						1			l
			Pressure Command Status	pressurized						•			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	ı
			Primary Offgoing Clutch Pressure	Clutch				Т
			Command Status	= exhaust				
				command , Initial Clutch				
			Range Shift Status	≠ Control				
			Attained Gear Slip					
			/ Mainou Goal Gilp					
			If above coditons are true,					
			increment appropriate Fail 1					
			Timers Below:					
			fail timer 1	>= 0.299804688 Fail Time (Sec)				
			(2-1 shifting with throttle) fail timer 1					
			(2-1 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1					
			(2-3 shifting with throttle)	>= 0.299804688 Fail Time (Sec)				
			fail timer 1	>= 0.5 Fail Time (Sec)				
			(2-3 shifting without throttle)) - 0.5 Tall Time (300)				
			fail timer 1 (2-4 shifting with throttle)	>= 0.299804688 Fail Time (Sec)				
			(2-4 Shilling with throttle) fail timer 1					
			(2-4 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1	0.200004/00 Fail Time (Cas)				
			(6-4 shifting with throttle)	>= 0.299804688 Fail Time (Sec)				
			fail timer 1	>= 0.5 Fail Time (Sec)				
			(6-4 shifting without throttle)	z= 0.5 Tail Time (See)				
			fail timer 1 (6-5 shifting with throttle)	>= 0.299804688 Fail Time (Sec)				
			(8-5 Shifting with throttle) fail timer 1					
			(6-5 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			(3					
							Total Fail	
							Time = (Fail 1	
							+ Fail 2) See	
							Enable	
			If Attained Gear Slip is Less than				>= Timers for Fail sec	
			Above Cal Increment Fail Timers				Timer 1, and	
							Reference Supporting	
							Table 15 for	
							Fail Timer 2	
			If fail timer is greater than					
			threshold increment corresponding					
			gear fail counter and total fail					
			counter					
			2nd goar fail counter				>= 3 Fail Counte	
			2nd gear fail counter				From 2nd Ge	ear
							OR	
			6th gear fail counter				>= 3 Fail Counte	
			Ĭ				From 6th Ge OR	aг
							Total Fail	
			total fail counter				>= 5 Counter	
					TUT Enable temperature	>= -6.65625 °C	Sunte	1
					Input Speed Sensor fault	= FALSE Boolea	an	
	1 1				Output Speed Sensor fault	= FALSE Boolea	an l	

Component/	Fault	Monitor Strategy	Malfunction Critoria	Threshold Value	Secondary Malfunction	Enable Conditions		Time	Mil Illum.
System	Code	Description	Criteria	vaiue	Command / Attained Gear	# 1st Boolean	Re	equired	ıııum.
					High Side Driver ON	= TRUE Boolean			
					output speed limit for TUT	>= 100 RPM			
					input speed limit for TUT	>= 150 RFM			
					PRNDL state defaulted	= FALSE Boolean			
					IMS Fault Pending	= FALSE Boolean			
					Service Fast Learn Mode	= FALSE Boolean			
					HSD Enabled	= TRUE Boolean			
					1135 Eliabica	- INOL Boolean			
				Disable	MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723,			
				Conditions:	DTC's:				
						ECM: P0101, P0102, P0103, P0106,			
						P0107, P0108, P0171, P0172, P0174,			
						P0175, P0201, P0202, P0203, P0204,			
						P0205, P0206, P0207, P0208, P0300,			
						P0301, P0302, P0303, P0304, P0305,			
						P0306, P0307, P0308, P0401, P042E			
ariable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D	Fail Case 1 Case: Steady State 1st						One Tr
aliable bleed Soleliold (VBS)	P2/13	Stuck On [CB26] (Steady State)	· ·						
			Attained Gear slip						
				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)	0.400477704					
			Gear Ratio	<= 2.482177734					
			Gear Ratio	>= 2.245849609					
			If the above parameters are true						
							>= 1.1	Fail Timer (Sec))
							>= 5	Fail Count in 1st Gear	
								or Tatal Fall	
							>= 5	Total Fail Counts	
			Fail Case 2 Case: Steady State 3rd Gear	Table Deced					
				Table Based value Please					1
			Mary Dalta Ordand Connect						
			Max Delta Output Speed	>= Refer to 3D rpm/sec					
			Hysteresis	Table I in					
				supporting documents					
				Table Based					1
				value Please					
			Min Dolta Output Spood						
			Min Delta Output Speed	>= Refer to 3D rpm/sec					1
			Hysteresis	Table 2 in					
	1	l		supporting documents			l		1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time equired	III
-,				Table Based			<u> </u>	• * * **	T
				Timo Dioces					
			If the Aberra is Torra for Time	Refer to Table					
			If the Above is True for Time	>= 17 in Sec					
				supporting					
				documents					ı
			Intrusive test:						ı
			(C35R clutch exhausted)						ı
				<= 2.482177734					
				>= 2.245849609					ı
			If the above parameters are true						ı
							>= 1.1	Fail Timer (Sec))
									Ί
							>= 3	Fail Count in	ı
								3rd Gear	ı
								or Total Fail	ı
							>= 5	Total Fail Counts	
			Fail Case 3 Case: Steady State 4rd Gear		 			Counts	1
			- a sase s	Table Based					
				value Please					
			Max Delta Output Speed	Pofor to 3D					
			Hysteresis	>= Table 1 in rpm/sec					
			,	supporting					
				documents					ı
				Table Based					ı
				value Please					ı
			Min Delta Output Speed	>= Refer to 3D rpm/sec					ı
			Hysteresis	>= Table 2 in rpm/sec					
				supporting					ı
				documents					ı
				Table Based					ı
				Time Please					ı
			If the Above is True for Time	>= Refer to Table Sec 17 in					ı
			ii tile / Bete le Tide lei Time						ı
				supporting					ı
				documents					
			Intrusive test:						
			(C1234 clutch exhausted) Gear Ratio	<= 0.700317383					
			Gear Ratio						
			If the above parameters are true	>= 0.033000992					ı
			ii the above parameters are true						
							>= 1.1	Fail Timer (Sec))
								Fail Count in	
							>= 3	4th Gear	
								or	
							>= 5	Total Fail	
							>= 5	Counts	
			Fail Case 4 Case: Steady State 5th Gear						1
				Table Based					
				value Please					ı
			Max Delta Output Speed	>= Refer to 3D rpm/sec					
			Hysteresis	Table I III					
				supporting					
	1 1			documents	1		I		1

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

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
System	Code	Description	Griefia	•	Disable Conditions:	MIL not Illuminated for DTC's:			P0723,		Keq	uneu	
							P0107, P0100 P0175, P020 P0205, P0200 P0301, P0300	P0102, P0103, 8, P0171, P0172 1, P0202, P0203 6, P0207, P0208 2, P0303, P0304 7, P0308, P040	2, P0174, 3, P0204, 8, P0300, 4, P0305,				
/ariable Bleed Solenoid (VBS)	P2720	Pressure Control (PC) Solenoid D Control Circuit Low (CB26 VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Trip
		V								out of	0.375	Sample Time (Sec)	
						P2770 Status is not	=	Test Failed This Key On or Fault Active					
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	8.5996094 31.999023 400 7500 5	Volts Volts RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
/ariable Bleed Solenoid (VBS)	P2721	Pressure Control (PC) Solenoid D Control Circuit High (CB26 VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Trip
										out of	0.375	Sample Time (Sec)	
						P2721 Status is not	=	Test Failed This Key On or Fault Active					
						Ignition Voltage 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				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P2723	Pressure Control (PC) Solenoid E Stuck Off	Fail Case 1 Case: Steady State 1st Gear										One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	ı
O JOLOIII	Joue	Description	oriu	- 4.40			Please See	Ť
			Coordin	>= 400 RPM			Table 5 For Neutral Timer	r
			Gear slip	>= 400 RPM			>= Neutral Time (Sec)	
							Cal	
			Intrusive test:					
			commanded 2nd gear					
				Please refer				
			If attained Gear ≠ 2nd for Time	>= to Table 3 in Supporting Shift Time (Sec)				
				Documents				П
			If Above Conditions have been	Bocuments				
			met, Increment 1st gear fail				>= 3 1st Gear Fail	
			counter				Count	П
							or	П
			and C1234 fail counter				>= 14 C1234 Clutch	1
							>= 14 Fail Count	╝
			Fail Case 2 Case: Steady State 2nd Gear					1
							Please See	
			Gear slip	>= 400 RPM			>= Table 5 For Neutral Timer	
]				>= Neutral Time (Sec) Cal	
			Intrusive test:				Cui	1
			commanded 3rd gear					
			3	Please refer				
			If attained Gear ≠ 3rd for Time	>= to Table 3 in Supporting Shift Time (Sec)				
			ii attairied Geal 7 Sid foi Tiirie					
				Documents				П
			If Above Conditions have been				2nd Gear Fail	Ш
			met, Increment 2nd gear fail				>= 3 Zilu Geal Fall	П
			counter				or	
							C1234 Clutch	, [
			and C1234 fail counter				>= 14 Fail Count	1
			Fail Case 3 Case: Steady State 3rd Gear				Tun obun	1
							Please See	П
			Gear slip	>= 400 RPM			Table 5 For Neutral Timer	ſ
			Gear sup	>= 400 KHW			Neutral Time (Sec)	
							Cal	ı
			Intrusive test:					
			commanded 4th gear	Please refer				
			If attained Gear ≠ 4th for time	>= to Table 3 in Supporting Shift Time (Sec)				П
				Documents				П
			If Above Conditions have been				2-4 C F-1	
			met, Increment 3rd gear fail				>= 3 3rd Gear Fail Count	
			counter					
							or	
			and C1234 fail counter				>= 14 C1234 Clutch	1
							>= 14 Fail Count	4
			Fail Case 4 Case: Steady State 4th Gear				Diogeo Soo	
							Please See Table 5 For Neutral Timer	.
			Gear slip	>= 400 RPM			>= Neutral Time (Sec)	1
							Cal	
			Intrusive test:					
	1 1		commanded 5th gear					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thresh Value		Secondary Malfunction		Enable Conditions			Tin Requ		Mil Illum
Зузівш	Code	Description	If attained Gear = 5th For Time	Please refer	Shift Time (Sec)	mananan		Conditions			кеци		mulli
			If Above Conditions have been met, Increment 4th gear fail counter	Documents						>=	3	4th Gear Fail Count	
			and C1234 fail counter							>=	14	or C1234 Clutch Fail Count	
						PRNDL State defaulted inhibit RVT IMS fault pending indication TPS validity flag	= = =	FALSE FALSE FALSE TRUE	Boolean Boolean Boolean Boolean				
						Hydraulic System Pressurized Minimum output speed for RVT	= = >=	TRUE 0	Boolean RPM				
						A OR B (A) Output speed enable (B) Accelerator Pedal enable Common Enable Criteria	>= >=	67 0.5004883	RPM Pct				
						Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo	>= <= >=	8.5996094 31.999023 400	Volts Volts RPM				
						Engine Speed Hi Engine Speed is within the allowable limits for	<= >=	7500 5	RPM Sec				
						Throttle Position Signal valid HSD Enabled Transmission Fluid Temperature	= = >=	TRUE TRUE -6.65625	Boolean Boolean °C				
						Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	= =	FALSE FALSE TRUE	Boolean Boolean				
						ргезеп							
					Disable Conditions:	MIL not Illuminated for DTC's:		, P0717, P0722	2, P0723,				
							P0107, P010 P0175, P020	, P0102, P0103 08, P0171, P013 01, P0202, P020	72, P0174, 03, P0204,				
							P0301, P030	06, P0207, P020 02, P0303, P030 07, P0308, P040	04, P0305,				
able Bleed Solenoid (VBS	S) P2724	Pressure Control (PC) Solenoid E Stuck On (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 10 in Supporting Documents for Exhaust Delay Timers)	= TRUE E	Boolean								One
			Primary Oncoming Clutch Pressure Command Status	= Maximum pressurized									

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	ı
			Primary Offgoing Clutch Pressure	Clutch				
			Command Status	= exhaust				
				command Initial Clutch				
			Range Shift Status	≠ Control				
			Attained Gear Slip					
			If the above conditions are true					
			increment appropriate Fail 1					
			Timers Below:					
			fail timer 1	>= 0.299804688 sec				
			(2-6 shifting with throttle) fail timer 1					
			(2-6 shifting without throttle)	>= 0.5 sec				
			fail timer 1	0.200004/00				
			(3-5 shifting with throttle)	>= 0.299804688 sec				
			fail timer 1	>= 0.5 sec				
			(3-5 shifting without throttle)					
			fail timer 1 (4-5 shifting with throttle)	>= 0.299804688 sec				
			fail timer 1					
			(4-5 shifting without throttle)	>= 0.5 sec				
			fail timer 1	>= 0.299804688 sec				
			(4-6 shifting with throttle)	0.277004000 300				
			fail timer 1 (4-6 shifting without throttle)	>= 0.5 sec				
			(4-6 Shirting without throttle)					
							Total Fail	
							Time = (Fail 1	
							+ Fail 2) See Enable	
			If Attained Gear Slip is Less than				Timers for Fail	
			Above Cal Increment Fail Timers				>= Timer 1, and sec	
							Reference	
							Supporting	
							Table 15 for Fail Timer 2	
							Fall Timel 2	
			If fail timer is greater than					
			threshold increment corresponding gear fail counter and total fail					
			gear fail counter and total fail counter					
							₂ Fail Counter	
			2nd gear fail counter				>= 3 From 2nd Ge	
			3rd gear fail counter				>= 3 Fail Counter	
							From 3rd Ge	ar
							Fail Counter	
			4th gear fail counter				>= 3 From 4th Ge	
			total fail counter				>= 5 Total Fail	
			total fall Counter		TUTE	/ /5/05	Counter	4
					TUT Enable temperature	>= -6.65625 °C		
					Input Speed Sensor fault Output Speed Sensor fault	= FALSE Boolean = FALSE Boolean		
					Command / Attained Gear	≠ 1st Boolean		
					High Side Driver ON	= TRUE Boolean		
					output speed limit for TUT	>= 100 RPM		

Component/	Fault Code	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Tin Requ		Mil Illum
System	Code	Description	Criteria	value	input speed limit for TUT	>= 150 RPM	Requ	irea	illum
					PRNDL state defaulted	= FALSE Boolean			
					IMS Fault Pending	= FALSE Boolean			
					Service Fast Learn Mode	= FALSE Boolean			
					HSD Enabled	= TRUE Boolean			
				Disable	MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723,			
				Conditions:	DTC's:				
				Conditions.	D10 3.	1 102E			
						ECM: P0101, P0102, P0103, P0106,			
						P0107, P0108, P0171, P0172, P0174,			
						P0175, P0201, P0202, P0203, P0204,			
						P0205, P0206, P0207, P0208, P0300,			
						P0301, P0302, P0303, P0304, P0305,			
						P0306, P0307, P0308, P0401, P042E			
		Pressure Control (PC) Solenoid E	Fail Case 1				 		One T
ariable Bleed Solenoid (VBS)	P2724	Stuck On (Steady State)	Case: 5th Gear						0110 1
				Table Based					
				value Please					
			Max Delta Output Speed	>= Refer to 3D rpm/sec					
			Hysteresis	Table I III					
				supporting documents					
				Table Based					
				value Please					
			Min Delta Output Speed	Refer to 3D					
			Hysteresis						
				supporting					
				documents					
				Table Based					
				Time Please					
			If the Above is True for Time	Refer to Table Sec					
				17 in supporting					
				documents					
			Intrusive test:	documents					
			(C35R clutch exhausted)						
				<= 1.209594727					
				>= 1.094360352					
			If the above parameters are true						
							>= 1.1	Fail Timer (Sec)	
								Fail Count in	
							>= 3	5th Gear	
								OR	
							>= 3	Total Fail	
			F-11 0 2				,	Counts	
			Fail Case 2 Case: 6th Gear	Table Based					
				value Please					
			Max Delta Output Speed	Defeate 2D					
			Hysteresis	>= Refer to 3D rpm/sec					
]	supporting					
	1			documents					

Component/	Fault	Monitor Strategy	Malfunction	Threshold Value	Secondary Malfunction		Enable Conditions				ime	IIIu
System	Code	Description	Criteria	Table Based	INAHUNCTION		Conditions		-	Kec	quired	IIIU
				value Please								
			Min Delta Output Speed	Refer to 3D								
			Hysteresis	>= Table 2 in rpm/sec								
			Hystorosis	supporting								
				documents								
				Table Based								
				Time Dlesse								
				Pofor to Table								
			If the Above is True for Time	>= 17 in Sec								
				supporting								
				documents								
			Intrusive test:									
			(CB26 clutch exhausted)									
			Gear Ratio	<= 1.209594727								
			Gear Ratio	>= 1.094360352								
			If the above parameters are true									
									>=	1.1	Fail Timer (Sec)	/
										1.1		1
									>=	3	Fail Count in	
										5	6th Gear	1
											OR	
									>=	3	Total Fail	
							==		Ĺ		Counts	4
					PRNDL State defaulted	=	FALSE	Boolean				
					inhibit RVT	=	FALSE	Boolean				
					IMS fault pending indication	=	FALSE	Boolean				
					output speed	>=	0	RPM				
					TPS validity flag	=	TRUE	Boolean				
					HSD Enabled	=	TRUE	Boolean				
					Hydraulic_System_Pressurize	=	TRUE	Boolean				
					a A OR B							
					(A) Output speed enable		67	Nm				
					(B) Accelerator Pedal enable	>= >=	0.5004883	Nm				
					Ignition Voltage Lo	>=	8.5996094	Volts				1
		I			Ignition Voltage Hi	>= <=	31.999023	Volts				1
					Engine Speed Lo	>=	400	RPM				1
					Engine Speed Ed	<=	7500	RPM				1
					Engine Speed is within the							1
					allowable limits for	>=	5	Sec				1
					if Attained Gear=1st FW		F 000000	ь.				1
					Accelerator Pedal enable	>=	5.0003052	Pct				1
		I			if Attained Gear=1st FW		-					
					Engine Torque Enable	>=	5	Nm				1
					if Attained Gear=1st FW		0101 075	N				
					Engine Torque Enable	<=	8191.875	Nm				1
					Transmission Fluid		4 (5/05	°C				
					Temperature	>=	-6.65625	٣.				1
		I			Input Speed Sensor fault	=	FALSE	Boolean				1
					Output Speed Sensor fault	=	FALSE	Boolean				1
					Default Gear Option is not	_	TRUE					1
		I			present	=	IKUE					1
									1			1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thresho Value		Secondary Malfunction		Enable Conditions			Ti Req	me uired	Mil Illum.
- Oystelli	Code	Description	SINGING	value	Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, F		P0723,		пец	v u	
							ECM: P0101, I P0107, P0108, P0175, P0201, P0205, P0206, P0301, P0302, P0306, P0307,	P0171, P0172 P0202, P0203 P0207, P0208 P0303, P0304	2, P0174, 3, P0204, 3, P0300, 4, P0305,				
Variable Bleed Solenoid (VBS)	P2729	Pressure Control (PC) Solenoid E Control Circuit Low (C1234 VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE B	Boolean					>=	0.3	Fail Time (Sec)	One Tri
										out of	0.375	Sample Time (Sec)	
						P2729 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	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 B	Boolean					>= out	0.3	Fail Time (Sec)	One Tri
						P2730 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	Volt Volt RPM RPM Sec	of		(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 Condition				me uired	Mil Illum.
Variable Bleed Solenoid (VBS)	P2763	Torque Converter Clutch Pressure High	The HWIO reports a low pressure/high voltage (open or power short) error flag	= TRUE	Boolean	manufoton	Condition	•	>= out	4.4	Fail Time (Sec) Sample Time	Two
					Disable Conditions:	P2763 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for High Side Driver Enabled MIL not Illuminated for DTC's:		4 Volt	of	5	(Sec)	
Variable Bleed Solenoid (VBS)	P2764	Torque Converter Clutch Pressure Control Solenoid Control Circuit Low	The HWIO reports a high pressure/low voltage (ground short) error flag	= TRUE	Boolean		ECM: None		>= out	4.4	Fail Time (Sec)	One Tr
						P2764 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the allowable limits for High Side Driver Enabled	Test Faile This Key On or Fault Active = 8.599609 <= 31.9902 >= 400 <= 7500 >= 5 = TRUE	4 Volt	of		(Sec)	
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0658, P0659 ECM: None					
Communication	U0073	Controller Area Network Bus Communication Error	CAN Hardware Circuitry Detects a Low Voltage Error Delay timer	= TRUE >= 0.1125	Boolean	Stabilization delay	>= 3	sec	>= Out of	62 70	Fail counts (≈ 10 seconds) Sample Counts (≈ 11 seconds)	One Tri
						Ignition Voltage Ignition Voltage Power Mode	>= 8.599609 <= 31.99902 = Run					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	eshold alue	Secondary Malfunction		Enable Conditions			Time Requir		Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:							
Communication		Lost Communications with ECM (Engine Control Module)	CAN messages from ECM are not received by the TCM	Boolean Disable Conditions:	Stabilization delay Ignition Voltage Ignition Voltage Power Mode MIL not Illuminated for DTC's:	>= <= = TCM: U0073	3 8.5996094 31.999023 Run	sec Volt Volt	>=	12	sec	One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions			Time Required	Mil Illum.
Transmission Control Module (TCM)	C1251	The lateral accleration signal is stuck at a high magnitude in range	Lateral accleration magnitude < Lateral accleration magnitude is Lateral accleration magnitude is within the range above for	3.85 = 0.53 = 120	g's g's Sec							Special No MIL
			within the range above to			Lateral accleration magnitude Lateral accleration magnitude Lateral accleration magnitude is within the range above for Diagnostic shifting override command Attained Gear State Attained Gear Slip	<= >= >= = = <=	3.85 0.53 90 FALSE 1st through 6th 100 Clutch to	g's g's Sec Boolean			
						Transmission Type High Side Driver 1 On Vehicle Speed Lateral acceleration stuck in range diagnostic enable Battery Voltage Battery Voltage Battery voltage is within the allowable limits for Ignition Voltage Ignition Voltage Service Fast Learn (SFL) Mode Ignition voltage and SFL conditions met for	= >= >= = >= >= >= >= >= >= >=	Clutch Transmissi on TRUE 15 TRUE 31.999023 9 0.1 31.999023 9 FALSE	Boolean kph Boolean Volts Volts Sec Volts Volts Boolean Sec			
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: If calibra (P0716, P0711 P07BF, P07C0 P215C, U0073 ECM: None	7, P0721, P07), P077B, P07	22, P0723,			
Transmission Control Module (TCM)	P0601	Transmission Electro-Hydraulic Control Module Read Only Memory	Incorrect program/calibrations checksum	= TRUE	Boolean Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0601 ECM: None			>= 5	Fail Counts	One Triţ
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					Rur Contino		One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Т	hreshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
oystem	Code	Description	Ontena		Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0603	Conditions			Req	uneu	
		Transmission Electro-Hydraulic					ECM: None						One Ti
Fransmission Control Module (TCM)	P0604	Control Module Random Access Memory	RAM Read/Write Failure (Single Word)	= TRUE	Boolean					>=	5	Fail Counts	
										=	16	Sample Counts	
					Disable Conditions:	MIL not Illuminated for DTC's:							
		Tanana la la Chata Hadaadh					ECM: None						O T-
Transmission Control Module (TCM)	P062F	Transmission Electro-Hydraulic Control Module Long Term Memory Performance	TCM Non-Volatile Memory bit Incorrect flag at Powerdown	= TRUE	Boolean					С	Runs continously	1	One T
					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	Fail Case 1 Substrate Temperature	>= 142.1015	625 °C					>=	5	Fail Time (Sec)	One T
			Fail Case 2 Substrate Temperature		°C					>=	2	Fail Time (Sec)	1
			Ignition Voltage Note: either fail case can set the DTC	>= 18	Volts								
						Ignition Voltage Lo Ignition Voltage Hi Substrate Temp Lo	>= <= >=	8.5996094 31.999023 0	Volts Volts °C				
						Substrate Temp Hi Substrate Temp Between Temp Range for Time	<= >=	170 0.25	°C Sec				
						, 3		Test Failed This Key					
						P0634 Status is	≠	On or Fault Active					
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None						
							ECM: None						
igh Side Driver 1 F	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 Ti
								Test Failed		of	U	Sample Counts	
						P0658 Status is not	=	This Key On or Fault Active					

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction		Enable		1		me	Illu
System	Code	Description	Criteria	Value			Conditions	Deeleen	_	Req	uired	IIIu
					High Side Driver 1 On	=	True	Boolean				
				Disable	MIL not Illuminated for	TCM: None						
				Conditions:	DTC's:	I CIVI. NOTIE						
				Conditions.	D1C 3.	ECM: None						
						LCIVI. INDITE						
				Refer to Table								Т
ansmission Control Module		TCM Internal Temp (substrate)	If transmission oil temp to	10 in								T
CM)	P0667	Sensor Circuit Range/Performance	substrate temp Δ									
,				documents								
				Refer to Table								
			If TCM substrate temp to power	> 20 in °C								
			up temp Δ	supporting								
				documents								
												ı
									1			1
			Both conditions above required to						>=	3000	Fail Counts	ı
			increment fail counter						1		(100ms loop)	1
			Note: table reference temp = to						01		C	ı
			the median temp of trans oil temp,						Out	3750	Sample Counts	ı
			substrate temp and power up						of		(100ms loop)	
			temp. Non-continuous (intermittent) fail									ł
			conditions will delay resetting fail						>=	700	Pass Counts	
			counter until						^-	700	(100ms loop)	ı
			counter until						Out		Sample Counts	
									of	875	(100ms loop)	
					Engine Torque Signal Valid	=	TRUE	Boolean				
					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	<=	7500	RPM				
					Engine Speed is within the allowable limits for	>=	5	Sec				
					Brake torque active	=	FALSE					ı
					Below describes the brake	_	TALSE					1
					torque entry criteria							
					Engine Torque	>=	90	N*m				
					Throttle	>=	30.000305	Pct				ı
					Transmission Input Speed	<=	200	RPM	1			1
					Vehicle Speed	<=	8	Kph				1
					Transmission Range	≠	Park	•	1			
					Transmission Range	≠	Neutral					ı
					PTO	=	Not Active		1			1
					Set Brake Torque Active				1			1
					TRUE if above conditions are	>=	7	sec				1
					met for:							1
					Below describes the brake							1
					torque exit criteria				1			1
		ſ			Brake torque entry criteria	=	Not Met		1			1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
әуѕтет	Code	Description	GIREFIA	value	Clutch hydraulic pressure	Clutch Hydraulic ≠ Air Purge	vednisa	illulli.
					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		
					P0667 Status is	This Key ≠ On or Fault Active		
				Disable Conditions		TCM: P0658, P0668, P0669, P06AD, P06AE, P0716, P0712, P0713, P0717, P0722, P0723, P0962, P0963, P0966, P0967, P0970, P0971, P215C, P2720, P2721, P2729, P2730		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Transmission Control Module (TCM)	P0668	TCM internal temperature (substrate) thermistor failed at a low voltge	Type of Sensor Used	CeTFTI_e_Vo = ItageDirectPro p				Two Trips
			If TCM Substrate Temperature Sensor = Direct Proportional and Temp	l ·				
			If TCM Substrate Temperature Sensor = Indirect Proportional and Temp	>= -249 °C				
			Either condition above will satisfy the fail conditions				>= 60 Fail Timer (Se	c)
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= 8.5996094 Volts <= 31.999023 Volts >= 400 RPM <= 7500 RPM >= 5 Sec Test Failed		
					P0668 Status is	This Key ≠ On or Fault Active		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
					Disable ditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Transmission Control Module (TCM)	P0669	TCM internal temperature (substrate) thermistor failed at a high voltage	Type of Sensor Used If TCM Substrate Temperature Sensor = Direct Proportional and Temp If TCM Substrate Temperature Sensor = Indirect Proportional and Temp Either condition above will satisfy							>=	60	Fail Timer (Sec)	Two Trips
			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				
						For Hybrids, below conditions must also be met Estimated Motor Power Loss Estimated Motor Power Loss greater than limit for time Lost Communication with Hybrid Processor Control Module Estimated Motor Power Loss Fault	>= >= =	0 0 FALSE	kW Sec				
					Disable litions:	MIL not Illuminated for DTC's:	TCM: P0716 ECM: None	, P0717, P0722,	P0723				
Transmission Control Module (TCM)	P06AC	TCM Power-up Temp Sensor Circuit Range/Performance	If TCM power-up temp to substrate temp Δ If transmission oil temp to power up temp Δ	Refer to Table 20 in Supporting documents Refer to Table 18 in Supporting documents									Two Trips
			Both conditions above required to increment fail counter							>=	3000	Fail Counts (100ms loop)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				ime Juired	III
			Note: table reference temp = to the median temp of trans oil temp, substrate temp and power up						Out of	3750	Sample Counts (100ms loop)	
			temp. Non-continuous (intermittent) fail								Pass Counts	-
			conditions will delay resetting fail counter until						>=	700	(100ms loop)	
									Out of	875	Sample Counts (100ms loop)	
					Engine Torque Signal Valid Accelerator Position Signal	=	TRUE	Boolean				
					Valid Ignition Voltage Lo	= >=	TRUE 8.5996094	Boolean Volts				
					Ignition Voltage Hi Engine Speed Lo	<= >=	31.999023 400	Volts RPM				
					Engine Speed Lo Engine Speed Hi Engine Speed is within the	<=	7500	RPM				
					allowable limits for	>=	5	Sec				
					Brake torque active Below describes the brake	=	FALSE					1
					torque entry criteria Engine Torque Throttle	>= >=	90 30.000305	N*m Pct				
					Transmission Input Speed	<=	200	RPM				
					Vehicle Speed Transmission Range	<= ≠	Park	Kph				
					Transmission Range PTO	≠ =	Neutral Not Active					
					Set Brake Torque Active TRUE if above conditions are met for:	>=	7	sec				
					Below describes the brake							1
					torque exit criteria Brake torque entry criteria	=	Not Met Clutch					
					Clutch hydraulic pressure	≠	Hydraulic Air Purge Event					
					Clutch used to exit brake torque active	=	CeTFTD_e _C3_RatIE 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					
					Pubac Status is	7	On or Fault Active					

Component/	Fault	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum
System	Code	Description	Сгиегіа	Value Disable	Malfunction MIL not Illuminated for	TCM: P0658, P0668, P0669, P06AD,	1	requirea	illum.
				Conditions:		P06AE, P0716, P0712, P0713, P0717,			
				Conditions.	DIC s.	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			
ansmission Control Module	P06AD	TCM power-up thermistor circuit	Power Up Temp	<= -59 °C			>= 6	0 Fail Time (Sec	Two
CM)	FUUAD	voltage low	Fower op Temp	<= -59 C			>= 0	o raii riirie (Sec	¹ Trips
					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				1
					allowable limits for	>= 5 Sec			
						Test Failed			
						This Key			
					P06AD Status is	≠ On or			
					FUOAD Status is				
						Fault			
						Active			
					For Hybrids, below conditions				
					must also be met				
					Estimated Motor Power Loss	>= 0 kW			
					Estimated Motor Power Loss	0 000			
					greater than limit for time	>= 0 Sec			
					Lost Communication with				
					Hybrid Processor Control	= FALSE			
					Module	171202			
					Estimated Motor Power Loss				
					Fault	= FALSE			
					rduil				
				Disable	MII mat Illumimated for	TOM: 0071/ 00717 00722 00722			
						TCM: P0716, P0717, P0722, P0723			
				Conditions:	DTC's:	FOM Nove			
						ECM: None			
ansmission Control Module		TCM power-up thermistor circuit					-		Two
CM)	P06AE	voltage high	Power Up Temp	>= 164 °C			>= 6	0 Fail Time (Sec)) Trips
Omj		vollage High			Ignition Voltage Lo	>= 8.5996094 Volts			Tilhs
					Ignition Voltage Hi	<= 31.999023 Volts			1
							1		
					Engine Speed Lo				
					Engine Speed Hi	<= 7500 RPM			
					Engine Speed is within the	>= 5 Sec			
					allowable limits for				
						Test Failed			
						This Key			
					P06AE Status is	≠ On or			1
		1				Fault	1		1
						Fauil			
						Active			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				me uired	M IIIu
Oystem	Code	Description	Oritoria	Disable	MIL not Illuminated for	TCM: None	Conditions			rtoq	uncu	
				Conditions:	DTC's:							
						ECM: None						
												_
ansmission Fluid		Trans Fluid Temp Sensor Circuit	If transmission oil temp to	Refer to Table 19 in								Tr Tr
mperature Sensor (TFT)	P0711	Range/Performance	Γ in transmission on temp to substrate temp Δ									'
imperature sensor (11-1)		range/r chomance	Substitute temp 2	documents								
				Refer to Table								
			If transmission oil temp to power	> 18 in °C								
			up temp Δ	Supporting								
				documents								
			Both conditions above required to						>=	3000	Fail Counts	
			increment fail counter							3000	(100ms loop)	
			Note: table reference temp = to the median temp of trans oil temp,						Out		Sample Counts	1
			substrate temp and power up						Out of	3750	(100ms loop)	
			temp.						01		(100113 100p)	
			Non-continuous (intermittent) fail								Pass Counts	1
			conditions will delay resetting fail						>=	700	(100ms loop)	
			counter until									
									Out of	875	Sample Counts (100ms loop)	
									UI		(Tooliis loop)	
					Engine Torque Signal Valid	=	TRUE	Boolean				1
					Accelerator Position Signal	=	TRUE	Boolean				
					Valid							
					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	Sec				
					allowable limits for			360				
					Brake torque active	=	FALSE					-
					Below describes the brake torque entry criteria							
					Engine Torque	>=	90	N*m				
					Throttle	>=	30.000305	Pct				
					Transmission Input Speed	<=	200	RPM				
					Vehicle Speed	<=	8	Kph				
					Transmission Range	<i>≠</i>	Park					
					Transmission Range PTO	≠ =	Neutral Not Active					
					Set Brake Torque Active	=	NOT ACTIVE					
					TRUE if above conditions are	>=	7	sec				
					met for:							
					Below describes the brake						-	1
					torque exit criteria							1
					Brake torque entry criteria	=	Not Met					
							Clutch Hydraulic					
	1				Clutch hydraulic pressure	≠	Air Purge					l
							Event					l

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Time		Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions	Requir	ed	Illum.
					Clutch used to exit brake	CeTFTD_e			
					torque active	= _C3_RatIE			
					1	nbl			
					The above clutch pressure is	400			
					greater than this value for one	>= 600 kpa			
					loop				
					Set Brake Torque Active	20 0			
					FALSE if above conditions are met for:	>= 20 Sec			
					metror.	Test Failed			
						This Key			
					P0711 Status is	≠ On or			
					1 0711 Status is	Fault			
						Active			
						Active			
				Disabl	e MIL not Illuminated for	TCM: P0658, P0668, P0669, P06AD,			
				Conditions		P06AE, P0716, P0712, P0713, P0717,			
						P0722, P0723, P0962, P0963, P0966,			
						P0967, P0970, P0971, P215C, P2720,			
						P2721, P2729, P2730			
						ECM: P0101, P0102, P0103, P0106,			
						P0107, P0108, P0171, P0172, P0174,			
						P0175, P0201, P0202, P0203, P0204,			
						P0205, P0206, P0207, P0208, P0300,			
						P0301, P0302, P0303, P0304, P0305,			
						P0306, P0307, P0308, P0401, P042E			
Transmission Fluid		Transmission fluid temperature		CeTFTI_e_Vo					Two
Temperature Sensor (TFT)	P0712	thermistor failed at a low voltage	Type of Sensor Used	u u					Trips
Tomporataro consor (TTT)		and an a low voltage		р					
			If Transmission Fluid Temperature						
			Sensor = Direct Proportional and	<= -74 °C					
			Temp						
			If Transmission Fluid Temperature	74 00					
			Sensor = Indirect Proportional and	>= -74 °C					
			Temp Either condition above will satisfy						-
			the fail conditions				>= 60	Fail Time (Sec)	
			the fall conditions		Ignition Voltage Lo	>= 8.5996094 Volts			1
					Ignition Voltage Hi	<= 31.999023 Volts			
					Engine Speed Lo	>= 400 RPM			
					Engine Speed Hi	<= 7500 RPM			
					Engine Speed is within the				
					allowable limits for	>= 5 Sec			
						Test Failed			
						This Key			
					P0712 Status is	≠ On or			
						Fault			
						Active			
					For Hybrids, below conditions				
					must also be met				
					Estimated Motor Power Loss	>= 0 kW			
					Estherated Mater Decise Land	I	1		1
					Estimated Motor Power Loss greater than limit for time				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions			Time Required		Mil Illum.
					Es	Lost Communication with Hybrid Processor Control Module stimated Motor Power Loss Fault	= FALSE					
				Сог	Disable nditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P	0723				
Transmission Fluid Temperature Sensor (TFT)	P0713	Transmission fluid temperature thermistor failed at a high voltage	Type of Sensor Used If Transmission Fluid Temperature Sensor = Direct Proportional and Temp If Transmission Fluid Temperature Sensor = Indirect Proportional and Temp	p >= 174 °C								Two Trips
			Either condition above will salisfy the fail conditions			Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for P0713 Status is	>= 8.5996094 <= 31.999023 >= 400 <= 7500 >= 5 Test Failed This Key ≠ On or Fault Active	Volts Volts RPM RPM Sec	>= (60 F#	ail Time (Sec)	
				Сог	Disable nditions:	MIL not Illuminated for DTC's:	TCM: P0713, P0716, P0717, P P0723 ECM: None	0722,				
Transmission Input Speed Sensor (TISS)	P0716	Input Speed Sensor Performance	Transmission Input Speed Sensor Drops	>= 900 RPM					>= ().8 Fa	ail Time (Sec)	One Trip
					Tr	Engine Torque is Engine Speed Engine Speed Engine Speed is within the allowable limits for Vehicle Speed is Throttle Position is ransmission Input Speed is e previous requirement has been satisfied for	>= 0 <= 8191.875 >= 400 <= 7500 >= 5 >= 10 >= 0 >= 0	N*m N*m RPM RPM Sec Kph Pct RPM Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			shold lue		Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
								The change (loop to loop) in transmission input speed is The previous requirement has been satisfied for Throttle Position Signal Valid Engine Torque Signal Valid Ignition Voltage Ignition Voltage	< >= = = >= <=		RPM/Loop Sec Boolean Boolean Volts Volts				
							isable itions:	MIL not Illuminated for DTC's:		1, P0102, P0103					
Transmission Input Speed Sensor (TISS)	P0717	Input Speed Sensor Circuit Low Voltage	Fail Case 1 Transmission Input Speed is	<	33	RPM						>=	4.5	Fail Time (Sec)	One Tri
			Fail Case 2 When P0722 DTC Status equal to Test Failed and Transmission Input Speed is	< 6	553.125	RPM		Controller uses a single power supply for the speed sensors	=	1	Boolean				
								Engine Torque is Engine Torque is Vehicle Speed Engine Torque Signal Valid Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>=	100 8191.875 12 TRUE 8.5996094 31.999023 400 7500 5 Test Failed This Key	N*m N*m Kph Boolean Volts Volts RPM RPM Sec				
							isable itions:	P0717 Status is not MIL not Illuminated for DTC's:	TCM: P072	On or Fault Active 2, P0723 1, P0102, P0103					
Mode Switch	P071D	Transmission Mode Switch B Circuit	Sport Mode Switch state	=	TRUE	Boolean		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	Volts Volts RPM RPM Sec	>=	600	Fail Time (Sec)	Specia No MII

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions				ime uired	Mil Illum
- Cystein	Ocac	Bestription	0.00.0			Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P1762 ECM: None	Containe				un ou	
Transmission Output Speed Sensor (TOSS)	P0722	Output Speed Sensor Circuit Low Voltage	Transmission Output Speed Sensor Raw Speed	<=	35	RPM					>=	4.5	Fail Time (Sec)	One Ti
	Зепзи кам эреси				P0722 Status is not Transmission Input Speed Check Engine Torque Check Throttle Position Transmission Fluid Temperature Disable this DTC if the PTO is active Engine Torque Signal Valid Throttle Position Signal Valid Ignition Voltage is Engine Speed is Engine Speed is	= = = = = = = = = = = = = = = = = = =	Test Failed This Key On or Fault Active TRUE TRUE 8.0001831 -40 1 TRUE TRUE 8.5996094 31,999023 400 7500	Boolean Boolean Pct °C Boolean Boolean Boolean Volts RPM RPM						
						Engine Speed is within the allowable limits for Enable_Flags Defined Below The Engine Torque Check is	>=	5	Sec				=	
						TRUE, if either of the two following conditions are TRUE Engine Torque Condition 1 Range Shift Status	≠	Range shift completed	ENUM					
						OR Transmission Range is Engine Torque is Engine Torque is	= >= <=	Park or Neutral 8191.75 8191.75	N*m N*m					
						Engine Torque Condition 2 Engine Torque is Engine Torque is	>= <=	50 8191.75	N*m N*m					
							The Transmission Input Speed (TIS) Check is TRUE, if either of the two following conditions are TRUE							
						TIS Check Condition 1 Transmission Input Speed is Transmission Input Speed is	>= <=	653.125 5350	RPM RPM					

Component/	Fault Code	Monitor Strategy	Malfunction Criteria		hreshold Value	Secondary Malfunction		Enable Conditions				ime uired	Mil Illum
System	Code	Description	Criteria		vaille	TIS Check Condition 2		CONGRES		 	Req	uned	mun
						Engine Speed without the							
						brake applied is		3200	RPM				
						Engine Speed with the brake		2200	DDM				
						applied is	>=	3200	RPM				
						Engine Speed is	<=	8191.875	RPM				
						Controller uses a single power		1	Boolean				
						supply for the speed sensors			Boologii				
						Powertrain Brake Pedal is Valid	=	TRUE	Boolean				
						Valid							
					Disa		TCM: P071	5, P0717, P072	3				
					Conditio	ns: DTC's:	ECM. D010	1 D0100 D010	D0101				
								1, P0102, P010	3, P0121,				
							P0122, P01	۷3					
ansmission Output Speed	P0723	Output Speed Sensor Circuit	Transmission Output Speed	>= 105	RPM					>=	0	Enable Time	One
ensor (TOSS)	1 0723	Intermittent	Sensor Raw Speed	7- 103	IXI IVI						O	(Sec)	
			Output Speed Delta	<= 8192	RPM					>=	0	Enable Time (Sec)	
												Output Speed	
			Output Speed Drop	> 650	RPM					>=	1.5	Drop Recovery Fail Time (Sec)	
			AND									raii Tiille (Sec)	
				Driven ra	inge								
			Transmission Range is	= (R,D									
								E41.0E	0 0 1				
						Range_Disable	=	FALSE	See Below				
						UK							
						Neutral_Range_Enable	=	TRUE	See Below				
						And		TRUE	OCC DCIOW				
						Neutral_Speed_Enable		TRUE	See Below				
						are TRUE concurrently							
						Transmission_Range_Enable	=	TRUE	See Below				
						Transmission_Input_Speed_E		TRUE	See Below				
						nable							
						No Change in Transfer Case Range (High <-> Low) for	>=	5	Seconds				
						ixange (riigir <-> Low) ioi		Test Failed					
								This Key					
						P0723 Status is not	=	On or					
								Fault					
								Active					
						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	1			
						Engine Speed is		7500	RPM	1			
						Engine Speed is within the							
						allowable limits for		5	Sec				
						Enable_Flags Defined Below							1
	1	1				1	I			l			1

Component/	Fault	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Condition		Time Required	Mil Illun
System	Code	Description	Criteria	value	Transmission_Input_Speed_E nable is TRUE when either TIS Condition 1 or TIS Condition 2 is TRUE:	Condition	5	requirea	illun
					TIS Condition 1 is TRUE when both of the following conditions are satsified for Input Speed Delta Raw Input Speed	>= 0 <= 4095.875 >= 500	Enable Time (Sec) RPM RPM		
					TIS Condition 2 is TRUE when ALL of the next two conditions are satisfied Input Speed A Single Power Supply is used for all speed sensors	= 0 = TRUE	RPM Boolean		
					Neutral_Range_Enable is TRUE when any of the next 3 conditions are TRUE Transmission Range is	= Neutral			
					Transmission Range is	= Reverse/ = eutral Transiton	ENUM		
					Transmission Range is	Neutral/D ve Transitior	ENHM		
					And when a drop occurs Loop to Loop Drop of Transmission Output Speed is	> 650	RPM		
					Range_Disable is TRUE when any of the next three conditions are TRUE Transmission Range is	= Park	ENUM		
					Transmission Range is	Park/Rev = rse Transiton	ENUM		
					Input Clutch is not	= ON (Full: Applied)	/ ENUM		
					Neutral_Speed_Enable is TRUE when All of the next three conditions are satsified for	> 1.5	Seconds		
					Transmission Output Speed The loop to loop change of the Transmission Output Speed is	> 130	RPM RPM		
					The loop to loop change of the Transmission Output Speed is	> -10	RPM		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum.
					Transmission_Range_Enable is TRUE when one of the next six conditions is TRUE Transmission Range is	= Neutral ENUM Reverse/N eutral ENUM Transitiona			
					Transmission Range is	l Neutral/Dri ve ENUM Transitiona I			
					Time since a driven range (R,D) has been selected	Table Based Time Please Sec Refer to Table 21 in supporting documents			
					Transmission Output Speed Sensor Raw Speed Output Speed when a fault was detected	>= 500 RPM >= 500 RPM			-
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0973, P0974, P0976, P0977 ECM: P0101, P0102, P0103, P0121, P0122, P0123			
Torque Converter Clutch (TCC)	P0741	TCC System Stuck OFF	TCC Pressure Either Condition (A) or (B) Must be Met				>= 2	Enable Time (Sec)	Two Trips
			(A) TCC Slip Error @ TCC On Mode (B) TCC Slip @ Lock On Mode	Refer to Table 1 in RPM Supporting Documents >= 130 RPM			>= 5	Fail Time (Sec)	
			If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter	>= 130 KPW			>= 5 >= 2	Fail Time (Sec) TCC Stuck Off Fail Counter	
					TCC Mode Ignition Voltage Lo Ignition Voltage Hi Engine Speed Engine Speed Engine Speed is within the allowable limits for Engine Torque Lo Engine Torque Hi	= On or Lock >= 8.5996094 Volts <= 31.999023 Volts >= 400 RPM <= 7500 RPM >= 5 Sec >= 50 N*m <= 8191.875 N*m			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		reshold Value	Secondary Malfunction		Enable Conditions			Tiı Reqı	me uired	Mil Illum.
						Throttle Position Lo	>=	8.0001831	Pct				
						Throttle Position Hi	<=	99.998474	Pct				
						2nd Gear Ratio Lo	>=	2.1948242	Ratio				
						2nd Gear Ratio High	<=	2.5251465	Ratio				
						3rd Gear Ratio Lo	>=	1.4228516	Ratio				
						3rd Gear Ratio High	<=	1.637085	Ratio				
						4th Gear Ratio Lo	>=	1.069458	Ratio				
						4th Gear Ratio High	<=	1.2304688	Ratio				
						5th Gear Ratio Lo	>=	0.7905273	Ratio				
						5th Gear Ratio Hi	<=	0.9095459	Ratio				
						6th Gear Ratio Lo	>=	0.6230469	Ratio				
						6th Gear Ratio High	<=	0.7169189	Ratio				
						Transmission Fluid	>=	-6.65625	°C				
						Temperature Lo	/-	-0.03023	C				
						Transmission Fluid	<=	130	°C				
						Temperature Hi	<=	130	C				
						PTO Not Active	=	TRUE	Boolean				
						Engine Torque Signal Valid	=	TRUE	Boolean				
						Throttle Position Signal Valid	=	TRUE	Boolean				
						Dynamic Mode	=	FALSE	Boolean				
						-		Test Failed					
								This Key					
						P0741 Status is	≠	On or					
								Fault					
								Active					
					Disable	MIL not Illuminated for	TCM: P0716	P0717 P0722	P0723				
					Conditions:		P0742, P276		., 1 0720,				
					Conditions.	5103.	1 07 12,1 270	0,12701					
							ECM: D0101	I, P0102, P010	2 D0106				
								8, P0171, P017					
								1, P0202, P020					
								6, P0207, P020					
								2, P0303, P030					
							P0306, P030	7, P0308, P040	71, PU42E				
orque Converter Clutch	P0742	TCC System Stuck ON	TCC Slip Speed	>= -50	RPM								One Tr
CC)	P0/42	TCC System Stuck ON	TCC Slip Speed	>= -50	KPIVI								
			TCC Slip Speed	<= 13	RPM								
										>=	1.5	Fail Time (Sec)	
			If Above Conditions Have been										
			Met, and Fail Timer Expired,							>=	6	Fail Counter	
			Increment Fail Counter			TOOM		Ott					ł
						TCC Mode	=	Off					
						Enable test if Cmnd Gear =	=	1	Boolean				
						1stFW and value true							
						Enable test if Cmnd Gear =	=	0	Boolean				
						2nd and value true							
						Engine Speed Hi	<=	6000	RPM				
						Engine Speed Lo	>=	500	RPM				
						Vehicle Speed HI	<=	511	KPH				
						Vehicle Speed Lo	>=	1	KPH				
						Engine Torque Hi	<=	8191.875	Nm				
						Engine Torque Lo	>=	80	Nm				
						Current Range	≠	Neutral	Range				
						Current Range	≠	Reverse	Range				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Requir		Mi Illur
					Transmission Sump	<=	130	°C			
					Temperature			-			
					Transmission Sump	>=	18	°C			
					Temperature						
					Throttle Position Hyst High	>=	5.0003052	Pct			
					AND						
					Max Vehicle Speed to Meet	<=	8	KPH			
					Throttle Enable		Ü	IXI II			
					Once Hyst High has been met,						
					the enable will remain while	>=	2.0004272	Pct			
					Throttle Position						
					Disable for Throttle Position	>=	75	Pct			
					Disable if PTO active and	=	1	Boolean			
					value true	-	ļ	Doolean			
					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			1
					Disable if in D5 and value true	=	1	Boolean			1
					Disable if in MUMD and value		1	Daalaan			
					true	=	I	Boolean			
					Disable if in TUTD and value			Б			
					true	=	1	Boolean			
					4 Wheel Drive Low Active	=	FALSE	Boolean			
					Disable if Air Purge active and						
					value false	=	0	Boolean			
					RVT Diagnostic Active	=	FALSE	Boolean			
					Ignition Voltage	>=	8.5996094	V			
					Ignition Voltage	<=	31.999023	V			
					Vehicle Speed	<=	511	KPH			
					Engine Speed	>=	400	RPM			
					Engine Speed	<=	7500	RPM			
					Engine Speed is within the	_		IXI IVI			
					allowable limits for	>=	5	Sec			
					Engine Torque Signal Valid	=	TRUE	Boolean			
					Throttle Position Signal Valid	=	TRUE	Boolean			
					Thiothe Fosition Signal Valid	-	Test Failed	boolean			
							This Key				
					P0742 Status is	≠	On or				
					P0/42 Status is	+	Fault				
							Active				
				Disable	MIL or at Illianoi la atrad fan	TOM DOT4	, DOZ4Z DOZO	D0700			
				Disable	MIL not Illuminated for			!, P0723,			
				Conditions:	DIC's:	P0741, P276	63, P2/64				
							1, P0102, P010				
							08, P0171, P017				
							01, P0202, P020				1
							06, P0207, P020				1
							02, P0303, P030		1		
						P0306, P030	07, P0308, P040	01, P042E			1
da 2 Multiplay Value	D07F1	Chiff Coloneid Volum A Chirol: Off	Commons d Commons	400 DDM							+
de 2 Multiplex Valve	P0751	Shift Solenoid Valve A Stuck Off	Commaned Gear Slip	>= 400 RPM					1		Т
			Commanded Gear						1		1
	1		Gear Patio	<= 1.209594727		l			>= 0.2	Fail Tmr	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Malfunction		Enable Conditions				ime quired	Mil Illum.
System	Code	Description	Gear Ratio	>= 1.0943			Manunction		Conditions		=	5	Fail Counts	muni.
			If the above parameters are true									-		
			·								≠	0	Neutral Timer	
											,	O	(Sec)	
											>=	0.3	Fail Timer (Sec)	
											>=	8	Counts	
							Ignition Voltage Lo	>=	8.5996094	Volts	>=	0	Counts	ł
							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 Transmission Fluid							
							Temperature	>=	-6.65625	°C				
							remperature		_					
							D 01/00/1		Range	E111114				
							Range Shift State	=	Shift Completed	ENUM				
									Completed					
							TPS	>=	0.5004883	%				
							OR Output Speed	>=	67	RPM				
							Throttle Position Signal Valid	>=						
							from ECM	=	TRUE	Boolean				
							Engine Torque Signal Valid							
							from ECM, High side driver is	=	TRUE	Boolean				
							enabled							
							High-Side Driver is Enabled	=	TRUE	Boolean				
							Input Speed Sensor fault	=	FALSE	Boolean				
							Output Speed Sensor fault Default Gear Option is not	=	FALSE	Boolean				
							present	=	TRUE					
							present							
						Disable	MIL not Illuminated for	TCM: P0716	, P0717, P0722	2, P0723,				
					Con	ditions:	DTC's:	P182E						
								FOLL DO404	D0400 D0400	D040/				
									, P0102, P0103					
)8, P0171, P017)1, P0202, P020					
									06, P0207, P020					
									02, P0303, P030					
									07, P0308, P040					
	<u> </u>													
Mode 2 Multiplex Valve	P0752	Shift Solenoid Valve A Stuck On	Gear Box Slip	>= 40	00 RPM									One Trip
			Commanded Gear	= 31	rd Coor									
			Commanded Gear has Achieved	= 31	rd Gear									
			1st Locked OR 1st Free-Wheel	_										
			OR 2nd with Mode 2 Sol.	= TR	UE Boolean									
			Commanded On											
	1	1	If the above parameters are true								1			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	Command 4th Gear once Outp Shaft Spec If Gear Rai	out - 400 RPM	manuffetty)	Conditions	Please Refer to Table 16 in Neutral Timer >= Supporting (Sec) Documents	mulli.
							>= 1.5 Fail Timer (Sec)	
					Ignition Voltage Lc Ignition Voltage H Engine Speed Lc Engine Speed H Engine Speed is within the allowable limits for High-Side Driver is Enabled Throttle Position Signal Valid from ECM Output Speed	>= 400 RPM <= 7500 RPM >= 5 Sec = TRUE Boolean = TRUE Boolean >= 67 RPM	>= 5 Counts	
					TPS Range Shift State Transmission Fluic	Range = Shift ENUM Completed		
					Temperature Input Speed Sensor faul Output Speed Sensor faul Default Gear Option is not present	= FALSE Boolean = FALSE Boolean		
				Disa Condition	ble MIL not Illuminated for ns: 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, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Mode 2 Multiplex Valve	P0756	Shift Solenoid Valve B Stuck Off	Fail Case 1 Commanded Ge Gear Box Si				>= Please Refer to Table 5 in Neutral Timer Supporting (Sec)	One Trip
				us = 1st Locked Gear tio <= 2.482177734 >= 2.245849609			>= 1 sec	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	Oriteria	Value	Mananatan	Conditions	>= 3 counts	inain.
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for Output Speed	>= 8.5996094 Volts <= 31.999023 Volts >= 400 RPM <= 7500 RPM >= 5 Sec >= 67 RPM	County	
					TPS Range Shift State Transmission Fluid	>= 0.5004883 % Range = Shift ENUM Completed		
					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	>= -6.65625 °C = TRUE Boolean = TRUE Boolean = FALSE Boolean = FALSE Boolean = TRUE		
				Disa Conditio	ons: DTC's:	ECM: P0101, P0102, P0103, P0106,		
		Pressure Control (PC) Solenoid B	Fail Case 1			P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		One T
Variable Bleed Solenoid (VBS)	P0776	Stuck Off [C35R]	Case: Steady State and Gear Commanded Gear Gearbox Slip	= 3rd Gear >= 400 RPM			Please Refer to Table 16 in Neutral Timer Supporting (Sec) Documents	One II
			Command 4th Gear once Output Shaft Speed If Gear Ratio And Gear Ratio	<= 400 RPIVI			>= 3 Fail Timer (Sec))
			It the above condiations are true, Increment 3rd gear fail counter and C35R Fail counter				>= 3 3rd Gear Fail Counts or >= 14 3-5R Clutch Fail Counts	
			Fail Case 2 Case: Steady State 5th Gear Commanded Gear				i aii coulits	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions			Tim Requi		Mil Illum.
			Gearbox Slip		Rpm					>= to S	ease Refer	Neutral Timer (Sec)	
			Intrusive Test: Command 6th Gear If attained Gear=6th gear Time It the above condiations are true, Increment 5th gear fail counter	>= Please refe to Table 3 in supporting documents	Shift Time (Sec)					>=	3	5th Gear Fail Counts	
			and C35R Fail counter					54105		>=	14	or 3-5R Clutch Fail Counts	
						PRNDL State defaulted inhibit RVT IMS fault pending indication TPS validity flag Hydraulic System Pressurized Minimum output speed for RVT	= = = = >=	FALSE FALSE FALSE TRUE TRUE	Boolean Boolean Boolean Boolean Boolean				
						A OR B (A) Output speed enable (B) Accelerator Pedal enable Common Enable Criteria Ignition Voltage Lo Ignition Voltage Hi	>= >= >= <=	67 0.5004883 8.5996094 31.999023	RPM Pct Volts Volts				
						Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for Throttle Position Signal valid	>= <= >= =	400 7500 5 TRUE	RPM RPM Sec Boolean				
						HSD Enabled Transmission Fluid Temperature Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not	= >= = =	TRUE -6.65625 FALSE FALSE TRUE	oC Boolean Boolean				
					Disable Conditions:		TCM: P0716, F		, P0723,				
							ECM: P0101, F P0107, P0108, P0175, P0201, P0205, P0206, P0301, P0302, P0306, P0307,	P0171, P017 P0202, P020 P0207, P020 P0303, P030	2, P0174, 13, P0204, 18, P0300, 14, P0305,				
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solinoid B	Fail Case 1 Case: Steady State 1st										One Tri
		Stuck On [C35R] (Steady State)	Attained Gear slip	>= 400	RPM								

Component/	Fault Code	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time equired	III
System	Code	Description	Criteria	Table Based	Manunction	Conditions	R	equireu	+"
				Time Please					
			If the Above is True for Time	Refer to Table Enable Time					
				4 III (Sec)					
				supporting					
				documents					
			Intrusive test:						
			(CBR1 clutch exhausted)						
			Gear Ratio	<= 1.608642578					ı
			Gear Ratio	>= 1.455444336					ı
			If the above parameters are true						ı
							. 11	Fail Timor (Coo)	
							>= 1.1	Fail Timer (Sec)	1
								Fail Count in	
							>= 2	1st Gear	
								or	1
								Total Fail	
							>= 3	Counts	
			Fail Case 2 Case: Steady State 2nd gear						1
			godi	Table Based					1
				value Please					
			Max Delta Output Speed	Pafar to 3D					L
			Hysteresis	>= Table 1 in rpm/sec					L
			Trysteresis	supporting					L
				documents					ı
				Table Based					ı
				value Please					ı
			Min Dolla Outsid Consul						L
			Min Delta Output Speed	>= Refer to 3D rpm/sec					ı
			Hysteresis	Table 2 III					ı
				supporting					ı
				documents					ı
				Table Based					ı
				Time Please					ı
			If the Above is True for Time	>= Refer to Table Sec					ı
			II the Above is true for time	17 in 3ec					ı
				supporting					ı
				documents					
			Intrusive test:						1
			(CB26 clutch exhausted)						1
				<= 1.608642578					1
				>= 1.455444336					1
			If the above parameters are true						1
			, , , , , , , , , , , , , , , , , , , ,					E-11.T! (C.)	1
							>= 1.1	Fail Timer (Sec))
								Fail Count in	1
							>= 3	2nd Gear	1
								or	1
								Total Fail	1
							>= 3	Counts	
			Fail Case 3 Case: Steady State 4th gear					Journs	1
			Gase. Steady State 4th year	Table Based					1
				value Please					1
			May Dalta Output Chand						1
			Max Delta Output Speed	>= Refer to 3D rpm/sec					
			Hysteresis	Table I III					
				supporting	I				1
	1 1		1	documents					1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		ime quired
		<u> </u>		Table Based				
				value Please				
			Min Delta Output Speed	>= Refer to 3D Table 2 in rpm/sec				
			Hysteresis	supporting				
				documents				
				Table Based				
				Timo Dioaso				
			If the Above is True for Time	Refer to Table				
			If the Above is True for Time	17 111				
				supporting				
			Intrusive test:	documents				
			(C1234 clutch exhausted)					
				<= 0.89465332				
				>= 0.809448242				
			If the above parameters are true					
							>= 1.1	Fail Timer (Sec)
							>= 3	Fail Count in 4th Gear
								4th Geal Or
								Total Fail
							>= 3	Counts
			Fail Case 4 Case: Steady State 6th gear					
				Table Based				
			May Dolta Output Spood	value Please				
			Max Delta Output Speed Hysteresis	>= Refer to 3D Table 1 in rpm/sec				
			11/51.01.05.15	supporting				
				documents				
				Table Based				
			.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	value Please				
			Min Delta Output Speed Hysteresis	>= Refer to 3D Table 2 in rpm/sec				
			nysteresis	supporting				
				documents				
				Table Based				
				Time Please				
			If the Above is True for Time	>= Refer to Table Sec				
				17 111				
				supporting documents				
			Intrusive test:	documents				
			(CB26 clutch exhausted)					
			i i	<= 0.89465332			>= 1.1	Fail Timer (Sec)
			Gear Ratio	>= 0.809448242			>= 3	counts
			If the above parameters are true					
							>= 1.1	Fail Timer (Sec)
							_	Fail Count in
							>= 3	6th Gear
								or
							>= 3	Total Fail
	1				PRNDL State defaulted	= FALSE Boolea		Counts

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thre: Va	shold lue	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
System	Code	Description	Onteria	***	iuc	inhibit RVT	=	FALSE	Boolean	Required	
						IMS fault pending indication	=	FALSE	Boolean		
						output speed	>=	0 TRUE	RPM		
						TPS validity flag HSD Enabled	=	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	<=	31.999023	Volts		
						Engine Speed Lo	>=	400	RPM		
						Engine Speed Hi Engine Speed is within the	<=	7500	RPM		
						allowable limits for	>=	5	Sec		
						if Attained Gear=1st FW					
						Accelerator Pedal enable	>=	5.0003052	Pct		
						if Attained Gear=1st FW					
						Engine Torque Enable	>=	5	Nm		
						if Attained Gear=1st FW		0101 075	Mari		
						Engine Torque Enable	<=	8191.875	Nm		
						Transmission Fluid	>=	-6.65625	°C		
						Temperature	>=				
						Input Speed Sensor fault	=	FALSE	Boolean		
						Output Speed Sensor fault	=	FALSE	Boolean		
					Disable			, P0717, P0722	2, P0723,		
					Conditions:	DTC's:	P 182E				
							ECM: P0101	I, P0102, P0103	3, P0106,		
							P0107, P010	08, P0171, P017	72, P0174,		
								01, P0202, P020			
								06, P0207, P020			
								02, P0303, P030			
							P0306, P030	07, P0308, P040	J1, P042E		
			Primary Offgoing Clutch is								One Trip
Variable Blood Colonaid (VBC)	D0777	Pressure Control (PC) Solenoid B	exhausted (See Table 12 in	TDUE	Dooloon						
Variable Bleed Solenoid (VBS)	P0777	StuckOn [C35R] (Dymanic)	Supporting Documents for	= TRUE	Boolean						
			Exhaust Delay Timers)								
			Primary Oncoming Clutch	Maximum							
1	1		Pressure Command Status	pressurized							
			Primary Offgoing Clutch Pressure	Clutch							
	1		Command Status	= exhaust							
	1			command , Initial Clutch							
1	1		Range Shift Status	≠ Initial Clutch Control							
			Attained Gear Slip		RPM						
			·								
			If the above conditions are true								
	1		run appropriate Fail 1 Timers								
	1		Below:								
			fail timer 1	>= 0.5	Fail Time (Sec)						
1	I	1	(3-1 shifting with Closed Throttle)		, , ,		I			1	I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Ш
			fail timer 1 (3-2 shifting with Throttle)	>= 0.299804688 Fail Time (Sec)				
			(3-2 shirting with Friotite)	O.F. Foil Time (Coo)				
			(3-2 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (3-4 shifting with Throttle)	>= 0.299804688 Fail Time (Sec)				
			fail timer 1	>= 0.5 Fail Time (Sec)				
			(3-4shifting with Closed Throttle) fail timer 1					
			(3-5 shifting with Throttle)	>= 0.299804688 Fail Time (Sec)				
			fail timer 1 (3-5 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
			(3-3 shirting with closed Throtte)	>= 0.299804688 Fail Time (Sec)				
			(5-3 shifting with Throttle)	>= 0.299004000 Fall Fille (Sec)				
			fail timer 1 (5-3 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1	>= 0.299804688 Fail Time (Sec)				
			(5-4 shifting with Throttle) fail timer 1					
			(5-4 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (5-6 shifting with Throttle)	>= 0.299804688 Fail Time (Sec)				
			fail timer 1	>= 0.5 Fail Time (Sec)				
			(5-6 shifting with Closed Throttle)	2 0.0 Tall Time (300)				
							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					
			3rd gear fail counter				>= 3 3rd gear fa counts	íl
							OR	
			5th gear fail counter				>= 3 5th gear fa counts	il
							OR	
			Total fail counter		THE Fresh's	/ / 5/05	>= 5 total fail cour	nts
					TUT Enable temperature Input Speed Sensor fault	>= -6.65625 °C = FALSE Boolea	an	
					Output Speed Sensor fault	= FALSE Boolea	an	
					Command / Attained Gear High Side Driver ON	≠ 1st Boolea = TRUE Boolea		
					output speed limit for TUT	>= 100 RPM	1	
					input speed limit for TUT	>= 150 RPM = FALSE Boolea	· · ·	
					PRNDL state defaulted IMS Fault Pending	= FALSE Boolea = FALSE Boolea		
					Service Fast Learn Mode	= FALSE Boolea	an	
			1		HSD Enabled	= TRUE Boolea	ın	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum
System	Code	Description	Griteria	value	Default Gear Option is not		Nequileu	mull
					present	= TRUE		
				Disab	MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723,		
				Condition	e MIL HOT HIGHHIATED FOR	P182E		
				o o namon	5.00.	. 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		
		Pressure Control (PC) Solenoid C	Fail Case 1					One 1
'ariable Bleed Solenoid (VBS)	P0796	Stuck Off [C456] (Steady State)	Case: Steady State 4th Gear					1
							Please See	1
			Gear slip	>= 400 RPM			>= Table 5 For Neutral Time Neutral Time (Sec)	r
							Cal (Sec)	
			Intrusive test:				ou.	
			commanded 5th gear					
				Please refer				
			If attained Gear ≠5th for time	>= to Table 3 in Supporting Shift Time (Sec)			
				Documents				
			if the above conditions have been					
			met				Ath Coor Foi	.
			Increment 4th Gear Fail Counter				>= 3 4th Gear Fai	'
							OR	
			and C456 Fail Counters				>= 14 C456 Fail	
							Counts	
			Fail Case 2 Case: Steady State 5th Gear				Please See	
			Gear slip	>= 400 RPM			Table 5 For Neutral Time	r
			Geal Silp	>= 400 KPW			iveutrai i ime (Sec)	
			Intrusive test:				Cal	
			commanded 6th gear					
			Johnnandod om god.	Dloggo Dofor				
			If attained Gear ≠ 6th for time	>= to Table 3 in Supporting Shift Time (Sec				
			ii didaned eedi / edi ioi time	Supporting Documents	'			
			if the above conditions have been	Documents				
			met					
			Increment 5th Gear Fail Counter				>= 3 5th Gear Fai	
			inc. o.n.on our court an counter				Count OR	
							C456 Fail	
			and C456 Fail Counters				>= 14 C430 Fall Counts	
			Fail Case 3 Case: Steady State 6th Gear					
							Please See	
			Gear slip	>= 400 RPM			>= Table 5 For Neutral Time Neutral Time (Sec)	
							Cal	1

Component/	Fault	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Component/ System	Fault	Monitor Strategy Description	Maltunction Criteria Intrusive test: commanded 5th gear If attained Gear ≠ 5th for time if the above conditions have been met Increment 6th Gear Fail Counter and C456 Fail Counter and C456 Fail Counter	Value Please refer	PRNDL State defaulted inhibit RVT IMS fault pending indication TPS validity flag Hydraulic System Pressurized Minimum output speed for RVT A OR B (A) Output speed enable (B) Accelerator Pedal enable Common Enable Criteria Ignition Voltage Hi Engine Speed Lo Engine Speed Lo Engine Speed Is within the allowable limits for Throttle Position Signal valid HSD Enabled Transmission Fluid Temperature Input Speed Sensor fault OutputSpeed Sensor fault	= FALSE Boolean FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE FALSE Boolean FALSE FALS	Required >= 3 6th Gear Fail Count OR C456 Fail Counts	Millium.
				Disable Conditions:	HSD Enabled Transmission Fluid Temperature Input Speed Sensor fault OutputSpeed Sensor fault Default Gear Option is not present	= TRUE Boolean >= -6.65625 °C = FALSE Boolean = FALSE Boolean = TRUE TCM: P0716, P0717, P0722, P0723,		
				Conditions.	DICS.	ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
ariable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C	Fail Case 1 Case: Steady State 1st					One 1
Dicca Solchola (VDS)	1 . 37.77	Stuck On [C456] (Steady State)	ouse. Sieddy State 1st				1	1

	Description	Criteria	Value	Secondary Malfunction	Conditions		Required	l III
Code	Description	If the Above is True for Time Intrusive test: (CBR1 clutch exhausted)	Table Based Time Please Refer to Table Enable Time >= 4 in (Sec) supporting documents					
			>= 1.094360352					
						>= 1	1 Fail Timer (Sec	:)
						>= :	or	
						>= ;		
		Fail Case 2 Case Steady State 2nd Max Delta Output Speed	Table Based value Please Refer to 3D				334113	
		Hysteresis	Table 1 in supporting documents Table Based					
		Min Delta Output Speed Hysteresis	>= Refer to 3D Table 2 in rpm/sec supporting documents Table Based					
		If the Above is True for Time	Pofor to Table					
			<= 1.209594727					
						>= 1	1 Fail Timer (Sec	:)
						>= :	Fail Count in 2nd Gear or	
						>= ;	3 Total fail counts	S
		Max Delta Output Speed	Table Based value Please Refer to 3D					
			Intrusive test: (CBR1 clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true Fail Case 2 Case Steady State 2nd Max Delta Output Speed Hysteresis Min Delta Output Speed Hysteresis If the Above is True for Time Intrusive test: (CB26 clutch exhausted) Gear Ratio Gear Ratio Gear Ratio If the above parameters are true Fail Case 3 Case Steady State 3rd Max Delta Output Speed	Intrusive test: (CBR1 clutch exhausted) Gear Ratio Gear Ratio Gear Ratio Gear Ratio If the above parameters are true Fail Case 2 Case Steady State 2nd Max Delta Output Speed Hysteresis Min Delta Output Speed Hysteresis Min Delta Output Speed Hysteresis If the Above is True for Time Intrusive test: (CB26 clutch exhausted) Gear Ratio G	If the Above is True for Time Influsive test. (CBR1 clutch exhausted) Gear Ratio = 1.094360352 Fall Case 2 Case Steady State 2nd Hysteresis Max Deta Output Speed Hysteresis Min Deta Output Speed Hysteresis Min Deta Output Speed Hysteresis If the Above is True for Time Influsive test. (CB26 clutch exhausted) Gear Ratio = 1.094360352 Fall Case 2 Table Based value Please Refer to 30 Table 11 Table Based Table T	If the Above is True for Time Intrusive lest. (CBR clutch exhausted) Generalities	If the Above is True for Time If the Above is True for Time Infection less. (CBR I class or benefit of the Best Enable Time I fine above parameters are true Fall Cases 2 Case Shouty State 7ard Table Based value Please Max Delta Output Speed Hysteresis If the Above is True for Time I the Above is True for Tim	The Plazar After the Advise is True for Time After the Advise for Time After

Component/	Fault	Monitor Strategy	Malfunction	Threshold Value	Secondary Malfunction		Enable				ime uirod	III
System	Code	Description	Criteria		Waitunction		Conditions			кеq	uired	1110
				Table Based								
			M. D. I. O	value Please								
			Min Delta Output Speed	>= Refer to 3D rpm/sec								
			Hysteresis	Table 2 III								
				supporting								
				documents								1
				Table Based								1
				Time Please								
				>= Refer to Table Sec								
			If the Above is True for Time	>= 17 in Sec								
				supporting								
				documents								ı
			Intrusive test:	documents								ı
			(C35R clutch exhausted)									ı
				1 20050 4727								ı
				<= 1.209594727								1
				>= 1.094360352								1
			If the above parameters are true									1
									>=	1.1	Fail Timer (Sec)	
									1			Ί
									>=	3	Fail Count in	1
									^-		3rd Gear	1
										OR		ı
										2	Total Fail	
									>=	3	Counts	1
					PRNDL State defaulted	=	FALSE	Boolean				1
					inhibit RVT	=	FALSE	Boolean				1
					IMS fault pending indication	=	FALSE	Boolean				1
					output speed	>=	0	RPM				1
					TPS validity flag	=	TRUE	Boolean				1
					HSD Enabled		TRUE	Boolean				1
						=	IKUE	DOOLGGII				1
					Hydraulic_System_Pressurize	=	TRUE	Boolean				1
					d		- "					1
					A OR B							
					(A) Output speed enable	>=	67	Nm				
					(B) Accelerator Pedal enable	>=	0.5004883	Nm				1
					Ignition Voltage Lo	>=	8.5996094	Volts				1
					Ignition Voltage Hi	<=	31.999023	Volts				1
					Engine Speed Lo	>=	400	RPM				1
					Engine Speed Hi	<=	7500	RPM				1
					Engine Speed is within the							1
					allowable limits for	>=	5	Sec				1
					if Attained Gear=1st FW							1
					Accelerator Pedal enable	>=	5.0003052	Pct				1
					if Attained Gear=1st FW							1
					Engine Torque Enable	>=	5	Nm				1
												1
					if Attained Gear=1st FW	<=	8191.875	Nm				1
					Engine Torque Enable							1
					Transmission Fluid	>=	-6.65625	°C				1
					Temperature							1
					Input Speed Sensor fault	=	FALSE	Boolean				1
					Output Speed Sensor fault	=	FALSE	Boolean				1
					Default Gear Option is not		TDUE					1
	1 1				present	=	TRUE		l			1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold lue	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
oystem	code	Description	OI ILEI IA	Va	Disable		TCM: P0716, P0717, P0722, P0723,	Nequireu	muni.
					Conditions:	DTC's:			
					Conditions.	DIC 3.	1026		
							ECM: P0101, P0102, P0103, P0106,		
							P0107, P0108, P0171, P0172, P0174,		
							P0175, P0201, P0202, P0203, P0204,		
							P0205, P0206, P0207, P0208, P0300,		
							P0301, P0302, P0303, P0304, P0305,		
							P0306, P0307, P0308, P0401, P042E		
		December Control (DC) Colored (C	Primary Offgoing Clutch is						One Tri
ariable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C	exhausted (See Table 11 in	= TRUE	Boolean				
		Stuck On [C456] (Dynamic)	Supporting Documents for Exhaust Delay Timers)						
			Exhaust Delay Firners) Primary Oncoming Clutch	Mavimum					
			Printary Officining Clutch Pressure Command Status	 Maximum pressurized 					
				Clutch					
			Primary Offgoing Clutch Pressure	= exhaust					
			Command Status	command					
				Initial Clutch					
			Range Shift Status	≠ Control					
			Attained Gear Slip		RPM				
			If the above conditions are true						
			increment appropriate Fail 1						
			Timers Below:						
			fail timer 1						
			(4-1 shifting with throttle)	>= 0.299804688	Fail Time (Sec)				
			fail timer 1	>= 0.5	Fail Time (Sec)				
			(4-1 shifting without throttle)	Z- U.J	raii fiilie (Set)				
			fail timer 1	>= 0.299804688	Fail Time (Sec)				
			(4-2 shifting with throttle)		` '				
			fail timer 1 (4-2 shifting without throttle)	>= 0.5	Fail Time (Sec)				
			(4-2 Stilling without throtte)						
			(4-3 shifting with throttle)	>= 0.299804688	Fail Time (Sec)				
			fail timer 1		= === (0.)				
			(4-3 shifting without throttle)	>= 0.5	Fail Time (Sec)				
			fail timer 1	>= 0.299804688	Fail Time (Cos)				
			(5-3 shifting with throttle)	>= U.ZYYOU4088	raii Tille (SeC)				
			fail timer 1	>= 0.5	Fail Time (Sec)				
			(5-3 shifting without throttle)	Z- U.J	rair fillie (Sec)				
			fail timer 1	>= 0.299804688	Fail Time (Sec)				
			(6-2 shifting with throttle)	5.277001000	. 3 (000)				
			fail timer 1	>= 0.5	Fail Time (Sec)				
			(6-2 shifting without throttle)		. (/			I	I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions				me uired	Mil Illun
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers						Tin + >= Tin Fin Fin S	Fotal Fail ne = (Fail Fail 2) See Enable ners for Fa mer 1, and Reference supporting able 15 for ail Timer 2	e ail sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter									
			4th gear fail counter						>=	3	Fail Counter From 4th Gear OR	
			5th gear fail counter						>=	3	Fail Counter From 5th Gear OR	
			6th gear fail counter						>=	3	Fail Counter From 6th Gear OR	
			Total fail counter						>=	5	Total Fail Counter	
						TUT Enable temperature 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 = FALSE = FALSE ≠ 1st = TRUE >= 100 >= 150 = FALSE = FALSE = TRUE	°C Boolean Boolean Boolean Boolean RPM RPM Boolean Boolean Boolean Boolean				
				Co	Disable onditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P072 P182E	2, P0723,				
							ECM: P0101, P0102, P010 P0107, P0108, P0171, P01 P0175, P0201, P0202, P02 P0205, P0206, P0207, P02 P0301, P0302, P0303, P03 P0306, P0307, P0308, P04	72, P0174, 03, P0204, 08, P0300, 04, P0305,				
iable 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 Boolea	an				>= out	4.4	Fail Time (Sec) Sample Time	T
						Ignition Voltage Ignition Voltage	>= 8.5996094 <= 31.999023	Volts Volts	of	5	(Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum
System	Code	Description	Griteria	<u>'</u>	aide	Engine Speed	>=	400	RPM	\vdash	Keq	uneu	illuli
						Engine Speed	<=	7500	RPM				
						Engine Speed is within the	\						
						allowable limits for	>=	5	Sec				
						allowable littles for							
					Disable	MIL not Illuminated for	TCM: None						
					Conditions:	DTC's:	T CIVI. TVOITC						
					conditions.	5103.	ECM: None						
							LOWI. TWOTIC						
		Pressure Control (PC) Solenoid A											One T
ariable Bleed Solenoid (VBS)	P0962	Control Circuit Low Voltage	The HWIO reports a low voltage	= TRUE	Boolean					>=	1.5	Fail Time (Sec))
,		(Line Pressure VBS)	(ground short) error flag									,	
		,								out	4 075	Sample Time	
										of	1.875	(Sec)	
						Ignition Voltage	>=	8.5996094	Volts			(2.2.2)	
						Ignition Voltage	<=	31.999023	Volts				
						Engine Speed	>=	400	RPM				
						Engine Speed	<=	7500	RPM				
						Engine Speed is within the		-					
						allowable limits for	>=	5	Sec				
					Disable	MIL not Illuminated for	TCM: None						
					Conditions:	DTC's:							
							ECM: None						
		Pressure Control (PC) Solenoid A	The HWIO reports a high voltage										Tw
ariable Bleed Solenoid (VBS)	P0963	Control Circuit High Voltage	(open or power short) error flag	= TRUE	Boolean					>=	4.4	Fail Time (Sec)	Trip
		(Line Pressure VBS)	(open or power short) error riag										
										out		Sample Time	
										of	5	(Sec)	
										OI OI		(360)	
						Ignition Voltage	>=	8.5996094	Volts				
						Ignition Voltage	<=	31.999023	Volts				
						Engine Speed	>=	400	RPM				
						Engine Speed	<=	7500	RPM				
						Engine Speed is within the	>=	5	Sec				
						allowable limits for		3	300				
					Disable	MIL not Illuminated for	TCM: None						
					Conditions:	DTC's:							
							ECM: None						1
		0 1 1/00/01 115								-			
	Doct	Pressure Control (PC) Solenoid B	The HWIO reports a low voltage	TOUT	Deelee						0.0	E-11.T' (0)	One
ariable Bleed Solenoid (VBS)	P0966	Control Circuit Low Voltage	(ground short) error flag		Boolean					>=	0.3	Fail Time (Sec)	1
		(C35R VBS)	(g. 2 , 51101 hag							l .			1
										out	0.375	Sample Time	1
						1 101 111		0.500100	14.5	of		(Sec)	-
						Ignition Voltage	>=	8.5996094	Volts				1
						Ignition Voltage Engine Speed	<= >=	31.999023 400	Volts RPM				1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold 'alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
•						Engine Speed Engine Speed is within the allowable limits for	<= >=	7500 5 Test Failed This Key	RPM Sec		•		
						P0966 Status is not	=	On or Fault Active					
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P0967	Pressure Control (PC) Solenoid B Control Circuit High Voltage (C35R VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>= out of	0.3	Fail Time (Sec) Sample Time	One Tr
						Ignition Voltage	>=	8.5996094	Volts	OI		(Sec)	
						Ignition Voltage Engine Speed Engine Speed	<= >= <=	31.999023 400 7500	Volts RPM RPM				
						Engine Speed is within the allowable limits for	>=	5 Test Failed This Key	Sec				
						P0967 Status is not	=	On or Fault Active					
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P0970	Pressure Control (PC) Solenoid C Control Circuit Low Voltage (C456/CBR1 VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One T
								Test Failed		out of	0.375	Sample Time (Sec)	=
						P0970 Status is not	=	This Key On or Fault Active					
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed	>= <= >= <=	8.5996094 31.999023 400 7500	Volts Volts RPM RPM				
						Engine Speed is within the allowable limits for	>=	5	Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		reshold /alue	Secondary Malfunction		Enable Conditions				ime Juired	Mil Illum.
- Cyclesiii		2005.1,940.1			Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P0971	Pressure Control (PC) Solenoid C Control Circuit High Voltage (C456/CBR1 VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>= out of	0.3	Fail Time (Sec) Sample Time (Sec)	
						P0971 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	= >= <= >= >=	Test Failed This Key On or Fault Active 8.5996094 31.999023 400 7500 5	Volts Volts RPM RPM Sec	- Oi		(500)	-
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Shift Solinoid	P0973	Shift Solenoid A Control Circuit Low (Mode 2 Solenoid)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>= out of	1.2	Fail Time (Sec) Sample Time (Sec)	
						P0973 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	Volts Volts RPM RPM Sec			, <i>,</i>	1
					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)	Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions			Tii Requ	me uired	Mil Illum.
Journ		5000, p. 000				P0974 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the	>= <=	Test Failed This Key On or Fault Active 8.5996094 31.999023 400 7500	Volts Volts RPM RPM				
					Disable Conditions:	allowable limits for MIL not Illuminated for DTC's:		5	Sec				
Mode 3 Multiplex Valve	P0977	Shift Solenoid B Control Circuit High (Mode 3 Solenoid)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>=	1.2	Sec	One Trip
										out of	1.5	Sec	
						P0977 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed Engine Speed is within the allowable limits for	<=	Test Failed This Key On or Fault Active 8.5996094 31.999023 400 7500	Volts Volts RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Mode Switch	P1762	Transmission Mode Switch Signal Circuit (rolling count)	Rolling count value received from BCM does not match expected	= TRUE	Boolean					>=	3	Fail Counter	Special No MIL
		Circuit (rolling count)	value							>	10	Sample Timer (Sec)	
					Disable Conditions:	Pattern Switch Message Health Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for MIL not Illuminated for DTC's:		TRUE 400 7500 5	Boolean RPM RPM Sec			(acc)	

Component/	Fault	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Poguired	III
System	Code	Description	Fail Case 1	Transition 1	wanuncuon	CONDITIONS	+	Required	One
rnal Mode Switch (IMS)	P182E	Internal Mode Switch - Invalid Range		= (bit state Range					UII
mai wode Switch (iws)	PIOZE	internal wode Switch - invalid Range	Current range						
				1110)					
			Draviava rama	CeTRGR_e_					
			Previous range	≠ PRNDL_Drive Range					
				6					
			D 1	CeTRGR_e_					
			Previous range	≠ PRNDL_Drive Range					
				3					
		Range Shift State	= Range Shift ENUM						
				Completed					
			Absolute Attained Gear Slip						
		Attained Gear	<= Sixth						
		Attained Gear	>= First						
			Throttle Position Available	= TRUE					
			>= 8.000183105 pct						
		Output Speed	>= 200 rpm						
			Engine Torque						
			Engine Torque	<= 8191.75 Nm					
			If the above conditions are met						
			then Increment Fail Timer				>= 1	Fail Seconds	
			If Fail Timer has Expired then				>= 5	Fail Counts	
			Increment Fail Counter					Tall Counts	
			Fail Case 2 Output Speed	<= 70 rpm					
			The following PRNDL sequence						
			events occur in this exact order:						
			PRNDL state	= Drive 6 (bit Range					
				State 0110)					
			PRNDL state = Drive 6 for						
				Transition 8					
			PRNDL state	= (bit state Range					
				0111)					
			PRNDL state	= Drive 6 (bit Range					
			T NADE State	State 0110)					
				Transition 1					
			PRNDL state						
				1110)					
			Above sequencing occurs in						
			Neutral Idle Mode	= Inactive					
	1		If all conditions above are met						1
		Increment delay Timer							
		If the below two conditions are				>= 3	Fail Seconds	1	
		met Increment Fail Timer] /- 3	i ali occollus		
	1		delay timer						1
	1		Input Speed	>= 400 Sec					
			If Fail Timer has Expired then				2	Fail Counts	
	1		Increment Fail Counter				>= 2	Fail Counts	1
	1		Fail Case 3	Transition 13		CeTRGR_			1
			Current range	= (bit state Range	Previous range	≠ e_PRNDL			
	1	I	l	0010)	ı "I	_Drive3	I		-1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Val		Secondary Malfunction		Enable Conditions			Tin Requ		II
Jysielli	Code	Description	Oi itel la		vai	uu	man direction		CeTRGR			nequ	ou	+"
	1		Engine Torque	_	-8192	Nm	Previous range	≠	e PRNDL					1
			Engine Torque	>=	-0172	INITI	Frevious fallye	+	_Drive3					
			Fueller Terrie		0101 75	Nime	INAC is 7 as although a sufficient law			Deelees				ı
			Engine Torque	<=	8191.75	Nm	IMS is 7 position configuration	=	0	Boolean				ı
							If the "IMS 7 Position config" =							1
			If the above conditions are met				1 then the "previous range"							1
			then, Increment Fail Timer				criteria above must also be				>=	0.225	Seconds	ı
			thon, morement run runer				satsified when the "current							L
							range" = "Transition 13"							ı
			If Fail Timer has Expired then								>=	15	Fail Counts	ı
			Increment Fail Counter								>=	13	rall Courits	ı
														ı
			Fail Case 4		o		51 11 5 11 6 11 11							1
					Transition 8		Disable Fail Case 4 if last							ı
			Current range	=	(bit state	Range	positive range was Drive 6 and							ı
	1			1	0111)		current range is transition 8							ı
							Set inhibit bit true if PRNDL =							
	1			1			1100 (rev) or 0100 (Rev-Neu							1
			Inhibit bit (see definition)	_	FALSE		transition 11)							
			minut bit (see demillion)	_	IALJL		Set inhibit bit false if PRNDL =							
							1001 (park)							ı
			Stoody State Engine Terrore		100	Nimo	1001 (park)							ı
			Steady State Engine Torque			Nm								ı
			Steady State Engine Torque	<=	8191.75	Nm								ı
			If the above conditions are met								>=	0.225	Seconds	ı
			then Increment Fail Timer											ı
			If the above Condtions have been											ı
			met, Increment Fail Counter								>=	15	Fail Counts	ı
														1
			Fail Case 5 Throttle Position Available	=	TRUE	Boolean								ı
			The following PRNDL sequence											L
			events occur in this exact order:											ı
			PRNDL State	_ 1	Reverse (bit	Range								ı
			1 KNDL State	_	state 1100)	Range								ı
				T	ransition 11									ı
			PRNDL State	=	(bit state	Range								ı
					0100)	-								ı
	1		DDAIRY CO.	1	Neutral (bit	D								1
			PRNDL State		state 0101)	Range								
	1				ransition 11									1
			PRNDL State			Range								ı
			. Titibe state		0100)									
			Above sequencing occurs in	<=	1	Sec								
			Then delay timer increments											ı
			Delay timer	>=	5	sec								
	1				Range Shift	306								1
	1		Range Shift State											1
			Absolute Attained Gear Slip		Complete	rnm								L
						rpm								L
	1		/ ittairiou cour		Sixth									1
	1		/ ittalifod Codi		First									1
	1		Throttle Position											ı
	1		Output Speed	>=	200	rpm								ı
	1		If the above conditions are met	1							>=	20	Seconds	1
	1		Increment Fail Timer	L			<u> </u>				_=	20	occoinos	
	1		Fail Case 6		Illegal (bit		A Open Circuit Definition (flag		-				-	1
	1		Current range	= S	tate 0000 or		set false if the following							1
			ı		000 or 0001)		conditions are met):				1			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum
- Бумені - Сумені	Code	Description	and	value	Current Range	Transition 11 (bit ≠ state 0100)	qui eu	
			A Open Circuit (See Definition)	= FALSE Boolean	or Last positive state	Neutral (bit ≠ state 0101)		
					or Previous transition state	Transition ≠ 8 (bit state 0111)		
			If the above Condtions are met then, Increment Fail timer		Fail case 5 delay timer	= 0 sec	>= 6.25 Seconds	
			Fail Case 7 Current PRNDL State and	= PRNDL circuit Range ABCP = 1101 PRNDL circuit Pages				
			Previous PRNDL state Input Speed Reverse Trans Ratio Reverse Trans Ratio	ABCP = 1111 Range = 150 RPM <= 2.845825195 ratio = 3.274169922 ratio				
			If the above Condtions are met then, Increment Fail timer				>= 6.25 Seconds	
			P182E will report test fail when any of the above 7 fail cases are					=
			met		Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for Engine Torque Signal Valid	>= 8.5996094 Volts <= 31.999023 Volts >= 400 RPM <= 7500 RPM >= 5 Sec = TRUE Boolean		
				Disable Conditions:		TCM: P0716, P0717, P0722, P0723, P07C0, P07BF, P077C, P077D		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
rnal Mode Switch (IMS)	P1915	Internal Mode Switch Does Not Indicate Park/Neutral (P/N) During Start	PRNDL State is	≠ Park or Foundation				One
			The following events must occur Sequentially					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		reshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum
			Initial Engine speed Then Engine Speed Between Following	<= 50	RPM					>=	0.25	Enable Time (Sec)	
			Cals	>= 50 <= 480	RPM RPM					>=	0.06875	Enable Time (Sec)	
			Then Final Engine Speed Final Transmission Input Speed	>= 525 >= 100	RPM RPM					>=	1.25	Fail Time (Sec)	
						DTC has Ran this Key Cycle?	=	FALSE	Boolean				ĺ
						Ignition Voltage Lo Ignition Voltage Hi Ignition Voltage Hyst High (enables above this value)	>= <= >=	6 31.999023 5	V V				
						Ignition Voltage Hyst Low (disabled below this value)	<=	2	V				
						Transmission Output Speed	<=	90 Test Failed This Key	rpm				
						P1915 Status is	≠	On or Fault Active					
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0722, F ECM: None	20723					
ansmission Control Module CM)	P2534	Ignition Switch Run/Start Position Circuit Low	TCM Run crank active (based on voltage thresholds below) Ignition Voltage High Hyst (run	= FALSE	Boolean							Fail Counts	One '
			crank goes true when above this value) Ignition Voltage Low Hyst (run crank goes false when below this	5	Volts					>= Out	280	(25ms loop) Sample Counts	
			value)	2	VOIIS					of	200	(25ms loop)	
						ECM run/crank active status available	=	TRUE	Boolean				
						ECM run/crank active status	=	TRUE	Boolean				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
ansmission Control Module CM)	P2535	Ignition Switch Run/Start Position Circuit High	TCM Run crank active (based on voltage thresholds below) Ignition Voltage High Hyst (run	= TRUE	Boolean							5 11 Q	One '
			crank goes true when above this value)	5	Volts					>=	280	Fail Counts (25ms loop)	

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions			Tim Requ		Illu
			C	Ignition Voltage Low Hyst (run rrank goes false when below this value)	2	Volts					Out of	280	Sample Counts (25ms loop)	1
				valuoj			ECM run/crank active status	=	TRUE	Boolean				
							available ECM run/crank active status	=	FALSE	Boolean				
						Disable	MIL not Illuminated for	TCM: None						
						Conditions:	DTC's:	ECM: None						
ariable Bleed Solenoid (VBS)	P2714	Pressure Control (PC) Solenoid D Stuck Off [CB26]	Fail Case 1	Case: Steady State 2nd Gear										One
				Gear slip	>= 400	RPM					_ 1	Please See able 5 For eutral Time		
				Intrusive test: commanded 3rd gear	Table Base	4						Cal		
				If attained Gear = 3rd for Time	Time Please >= see Table 2 Supporting	Enable Time in (Sec)								
				If Above Conditions have been met	Documents									
				Increment 2nd gear fail count							>=	3	2nd Gear Fail Count or	
				and CB26 Fail Count							>=	14	CB26 Fail Count	
			Fail Case 2	Case: Steady State 6th Gear								Please See		
				Gear slip	>= 400	RPM					_ 1	able 5 For eutral Time Cal		
				Intrusive test: commanded 5th gear	Table Base	d								
				If attained Gear = 5th For Time	Time Please >= see Table 2 Supporting	Enable Time in (Sec)								
				If Above Conditions have been met, Increment 5th gear fail	Documents						>=	3	5th Gear Fail Count	
				counter									or	
				and CB26 Fail Count							>=	14	CB26 Fail Count	
							PRNDL State defaulted	=	FALSE	Boolean				
							inhibit RVT IMS fault pending indication	= =	FALSE FALSE	Boolean Boolean				
							TPS validity flag Hydraulic System Pressurized	=	TRUE TRUE	Boolean Boolean				
							Minimum output speed for	>=	0	RPM				

Component/	Fault	Monitor Strategy	Malfunction Criteria	Thres Va	shold	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
System	Code	Description	Unteria ()	va	Disable Conditions:	A OR B (A) Output speed enable (B) Accelerator Pedal enable Common Enable Criteria Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for Throttle Position Signal valid 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: P0101, P0107, P0108	67 0.5004883 8.5996094 31.999023 400 7500 5 TRUE TRUE -6.65625 FALSE FALSE TRUE	, P0106, 72, P0174,	Kequired	murh.
			Primary Offgoing Clutch is				P0205, P020 P0301, P030	1, P0202, P020 6, P0207, P020 2, P0303, P030 7, P0308, P040	08, P0300, 04, P0305,		One Trip
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Dynamic)	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 Range Shift Status Attained Gear Slip 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 with utrottle) fail timer 1 (2-3 shifting with utrottle) fail timer 1 (2-3 shifting with utrottle) fail timer 1 (2-4 shifting with utrottle) fail timer 1 (2-5 shifting with utrottle) fail timer 1 (2-6 shifting with utrottle) fail timer 1 (2-7 shifting with utrottle) fail timer 1 (2-8 shifting with utrottle)	Control	Fail Time (Sec) Fail Time (Sec) Fail Time (Sec)						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			fail timer 1 (2-4 shifting without throttle) fail timer 1 (6-4 shifting with throttle)	>= 0.5 Fail Time (Sec) >= 0.299804688 Fail Time (Sec)				
			fail timer 1 (6-4 shifting without throttle) fail timer 1 (6-5 shifting with throttle)	>= 0.5 Fail Time (Sec) >= 0.299804688 Fail Time (Sec)				
			fail timer 1 (6-5 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers				Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail >= Timer 1, and Reference Supporting Table 15 for Fail Timer 2	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter					
			2nd gear fail counter				>= 3 Fail Counter From 2nd Gear OR Fail Counter	r
			6th gear fail counter				>= 3 From 6th Gear OR	
			total fail counter		TUT Enable temperature Input Speed Sensor faull Output Speed Sensor faull Command / Attained Gear High Side Driver ON output speed limit for TUT input speed limit for TUT PRNDL state defaultec 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 = FALSE Boolean = TRUE Boolean	>= 5 Total rail 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, P0308, P0401, P042E		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	R	Time Required	Mi Illui
1		Pressure Control (PC) Solenoid D	Fail Case 1	Fuluo		Conditions	<u> </u>		One
ariable Bleed Solenoid (VBS)	P2715	Stuck On [CB26] (Steady State)	Case: Steady State 1st					ļ	
			Attained Gear slip	>= 400 RPM					l
			· ·	Table Based					1
				Time Please					ĺ
			If the Above is True for Time	Refer to Table Enable Time					ĺ
			II the Above is true for Time	>= 4 in (Sec)					ĺ
				supporting					l
				documents					l
			Intrusive test:						l
		(CBR1 clutch exhausted)						ĺ	
			<= 2.482177734					1	
			>= 2.245849609					ĺ	
		If the above parameters are true						ĺ	
							>= 1.1	Fail Timer (Sec)	ĺ
									1
							>= 5	Fail Count in	1
								1st Gear	1
								or Total Fail	l
							>= 5	Counts	1
			Fail Case 2 Case: Steady State 3rd Gear					Counts	l
			ouse. Steady State Std Gear	Table Based					1
				value Please					1
			Max Delta Output Speed	Refer to 3D					1
			Hysteresis	>= Table 1 in rpm/sec					1
			,	supporting					1
				documents					1
				Table Based					1
				value Please					1
			Min Delta Output Speed	Refer to 3D rpm/sec					1
			Hysteresis	Table 2 in Tpin/sec					1
				supporting					1
				documents					1
				Table Based					1
				Time Please					1
			If the Above is True for Time	Refer to Table Sec					1
				17 III					1
				supporting documents					1
			Intrusive test:	documents					1
			(C35R clutch exhausted)						1
			<= 2.482177734					ĺ	
		>= 2.245849609					1		
	If the above parameters are true	2.2.10017007					1		
						F 11 T1 (O)	1		
					>= 1.1		ĺ		
							>= 3	Fail Count in	1
								3rd Gear	1
								or Total Fail	1
							>= 5	Counts	1
			Fail Case 3 Case: Steady State 4rd Gear		+			Counts	1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	IIIu
0,0.0	2000	2000. Ipilot.		Table Based				
				value Please				
			Max Delta Output Speed	Refer to 3D				
			Hysteresis	>= Table 1 in rpm/sec				
			1.ijotorosis	supporting				
				documents				
				Table Based				
				value Please				
			Min Delta Output Speed	Refer to 3D				
			Hysteresis	>= Table 2 in rpm/sec				
			,	supporting				
				documents				
				Table Based				
				Time Please				
				Pofor to Table				
			If the Above is True for Time	>= 17 in Sec				
				supporting				
				documents				
			Intrusive test:					
			(C1234 clutch exhausted)					
			Gear Ratio	<= 0.700317383				
			Gear Ratio	>= 0.633666992				
			If the above parameters are true					
							>= 1.1 Fail Timer (Se	~)
							>= 3 Fail Count in	
							4th Gear	
							or	
							>= 5 Total Fail	
			Fail Case 4 Case: Steady State 5th Gear				Counts	-
			Case. Steady State Still Geal	Table Based				
				value Please				
			Max Delta Output Speed	Refer to 3D				
			Hysteresis	>= Table 1 in rpm/sec				
			Hystoresis	supporting				
				documents				
				Table Based				
				value Please				
			Min Delta Output Speed	Refer to 3D				
			Hysteresis	>= Table 2 in rpm/sec				
			1,7	supporting				
				documents				
				Table Based				
				Time Please				
			If the About is Tour for Time	Pofor to Table				
			If the Above is True for Time	>= 17 in Sec				
				supporting				
				documents				
			Intrusive test:					
			(C35R clutch exhausted)					
				<= 0.700317383				
				>= 0.633666992				
			If the above parameters are true					
			,				>= 1.1 Fail Timer (Se	
							>= 1.1 Fail Timer (Se	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thre: Va	shold lue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
- Joseph	0000	200011741011	5							>=	3	Fail Count in	
											3	5th Gear	
												or Total Fail	
										>=	5	Counts	
						PRNDL State defaulted	=	FALSE	Boolean			Counts	-
						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				
						ignition voitage Hi Engine Speed Lo	<= >=	31.999023 400	RPM				
						Engine Speed Hi	<=	7500	RPM				
						Engine Speed is within the							
						allowable limits for	>=	5	Sec				
						if Attained Gear=1st FW	>=	5.0003052	Pct				
						Accelerator Pedal enable		0.0000002					
						if Attained Gear=1st FW Engine Torque Enable	>=	5	Nm				
						if Attained Gear=1st FW							
						Engine Torque Enable	<=	8191.875	Nm				
						Transmission Fluid		/ / 5/ 25	00				
						Temperature	>=	-6.65625	°C				
						Input Speed Sensor fault	=	FALSE	Boolean				
						Output Speed Sensor fault	=	FALSE	Boolean				
						Default Gear Option is not	=	TRUE					
						present							
					Disable	MIL not Illuminated for		, P0717, P0722	, P0723,				
					Conditions:	DTC's:	P182E						
							ECM: P0101	, P0102, P0103	3, P0106,				
							P0107, P010	08, P0171, P017	72, P0174,				
								01, P0202, P020					
								06, P0207, P020					
)2, P0303, P030)7, P0308, P040					
							1 0300, F030	,, i ⁻ U3U0, PU4U	71, FU4ZE				
	1	Pressure Control (PC) Solenoid D	The HIMIO reports a level relieve										One T
ariable Bleed Solenoid (VBS)	P2720	Control Circuit Low	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	
		(CB26 VBS)	(ground short) error nag										
										out	0.375	Sample Time	
	I	I	ı							of		(Sec)	I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions		R	Time equired	Mil Illum.
.,						P2770 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			
						Engine Speed Engine Speed is within the allowable limits for	>=	5	Sec			
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None					
'ariable Bleed Solenoid (VBS)	P2721	Pressure Control (PC) Solenoid D Control Circuit High (CB26 VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>= 0.3 out 0.375	Fail Time (Sec)	One Tri
						P2721 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed Engine Speed is within the allowable limits for	= >= <= >= >=	Test Failed This Key On or Fault Active 8.5996094 31.999023 400 7500 5	Volts Volts RPM RPM Sec	of U.S7S	(Sec)	
					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	>= 400	RPM					Please S Table 5 >= Neutral T Cal	For Neutral Timer	One Tr
			Intrusive test: commanded 2nd gear If attained Gear ≠ 2nd for Time	>= Please refer to Table 3 ir Supporting Documents	Shift Time (Sec)							
			If Above Conditions have been met, Increment 1st gear fail counter							>= 3	1st Gear Fail Count or	
			and C1234 fail counter							>= 14	C1234 Clutch Fail Count	

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Requir		П
System	Code	Description	Fail Case 2	Case: Steady State 2nd Gear	value	mananouon	CONGILIONS		Kequii		۳
									Please See		1
				Gear slip	>= 400 RPM				>= Table 5 For	Neutral Timer	
				Geal Slip	>= 400 KFW				Neutral Time	(Sec)	
									Cal		
				Intrusive test:							
				commanded 3rd gear	Discount						
					Please refer						
				If attained Gear ≠ 3rd for Time	>= to Table 3 in Supporting Shift Time (Sec)						ı
					Documents						ı
				If Above Conditions have been	Bootiments						ı
				met, Increment 2nd gear fail					>= 3	2nd Gear Fail	ı
				counter						Count	ı
			1							or	1
	1 1		1	and C1234 fail counter					>= 14	C1234 Clutch	1
			= " 0							Fail Count	1
			Fail Case 3	Case: Steady State 3rd Gear					Diago C.		
	1 1		1						Please See Table 5 For	Neutral Timer	1
				Gear slip	>= 400 RPM				>= Neutral Time	(Sec)	
									Cal	(000)	ı
				Intrusive test:							
				commanded 4th gear							
					Please refer						
				If attained Gear ≠ 4th for time	>= to Table 3 in Supporting Shift Time (Sec)						
					Supporting						
				If Above Conditions have been	Documents						ı
				met, Increment 3rd gear fail					>= 3	3rd Gear Fail	ı
				counter] - 3	Count	ı
										or	
				and C1234 fail counter					>= 14	C1234 Clutch	ı
									>- 14	Fail Count	1
			Fail Case 4	Case: Steady State 4th Gear					DI 0		
									Please See Table 5 For	Neutral Timer	ı
				Gear slip	>= 400 RPM				>= Neutral Time	(Sec)	
									Cal	(300)	
				Intrusive test:							
				commanded 5th gear							
			1	-	Please refer						
				If attained Gear = 5th For Time	>= to Table 3 in Supporting Shift Time (Sec)						
			1								1
	1 1		1	If Above Conditions have been	Documents				1		
	1 1		1	met, Increment 4th gear fail					>= 3	4th Gear Fail	1
			1	counter						Count	
	1 1		1	2241101					1	or	ı
				and C1234 fail counter					>= 14	C1234 Clutch	
	1 1			anu C1234 Ian Counter					>= 14	Fail Count	
	1 1		1			PRNDL State defaulted	= FALSE	Boolean	1		1
	1		1			inhibit RVT	= FALSE	Boolean	1		1
	1		1			IMS fault pending indication TPS validity flag	= FALSE = TRUE	Boolean Boolean	1		1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	Criteria	Value Disable Conditions	Minimum output speed for RVT A OR B (A) Output speed enable (B) Accelerator Pedal enable Common Enable Criteria Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine	>= 0 RPM >= 67 RPM >= 0.5004883 Pct >= 8.5996094 Volts <= 31.999023 Volts >= 400 RPM <= 7500 RPM >= 5 Sec = TRUE Boolean = TRUE Boolean = TRUE Boolean = TRUE TRUE Boolean = TRUE TRUE Boolean = TRUE TRUE Boolean = TRUE TRUE BOOLEAN >= 76.65625 °C = FALSE BOOLEAN = TRUE TCM: P0716, P0717, P0722, P0723, P182E	Required	Illum.
/ariable 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 with throttle)	Control		ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0177, P0178, P0177, P0177, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		One T

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Illu
			fail timer 1	>= 0.5 sec			·	T
			(3-5 shifting without throttle) fail timer 1					
			(4-5 shifting with throttle)	>= 0.299804688 sec				
			fail timer 1 (4-5 shifting without throttle)	>= 0.5 sec				
			fail timer 1	0.000004/00				
			(4-6 shifting with throttle)	>= 0.299804688 sec				
			fail timer 1 (4-6 shifting without throttle)	>= 0.5 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					
			2nd gear fail counter				>= 3 Fail Counter	
			Zha gear ian counter				From 2nd Gear	r
			3rd gear fail counter				>= 3 Fail Counter	
			Siù gear ian counter				From 3rd Gear	ſ
							Fail Counter	
			4th gear fail counter				>= 3 From 4th Gear	r
							_ Total Fail	
			total fail counter				>= 5 Counter	
					TUT Enable temperature	>= -6.65625 °C		1
					Input Speed Sensor fault Output Speed Sensor fault	= FALSE Boolean = FALSE Boolean		
					Command / Attained Gear	≠ 1st Boolean		
					High Side Driver ON	= TRUE Boolean		
					output speed limit for TUT	>= 100 RPM		
					input speed limit for TUT PRNDL state defaulted	>= 150 RPM = FALSE Boolean		
					IMS Fault Pending	= FALSE Boolean		
					Service Fast Learn Mode	= FALSE Boolean		
					HSD Enabled	= TRUE Boolean		
	1							
	1							

Component/	Fault	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum
System	Code	Description	Griteria	Value Disable			 	Required	ilium
				Conditions:		TCM: P0716, P0717, P0722, P0723,			
				Conditions:	DTC's:	P182E			
						FOLL DOLOG DOLOG DOLOG			
						ECM: P0101, P0102, P0103, P0106,			
						P0107, P0108, P0171, P0172, P0174,			
						P0175, P0201, P0202, P0203, P0204,			
						P0205, P0206, P0207, P0208, P0300,			
						P0301, P0302, P0303, P0304, P0305,			
						P0306, P0307, P0308, P0401, P042E			
ariable Bleed Solenoid (VBS)		Pressure Control (PC) Solenoid E	Fail Case 1 Case: 5th Gear						One T
inable bleed Solenoid (VDS)	12/27	Stuck On (Steady State)	Case. Still Geal						
				Table Based					
				value Please					
			Max Delta Output Speed	Refer to 3D					
			Hysteresis	>= Table 1 in rpm/sec					
				supporting					
				documents					
				Table Based					
			1	value Please					
			Min Delta Output Speed	Refer to 3D					
			Hysteresis	>= Table 2 in rpm/sec					
			Hysteresis	supporting					
				documents					
				Table Based					
				Time Please					
			If the Above is True for Time	>= Refer to Table Sec					
			ii iiio riboto io ritao ioi riiiio	17 111					
				supporting					
				documents					
			Intrusive test:						
			(C35R clutch exhausted)						
			Gear Ratio	<= 1.209594727					
			Gear Ratio	>= 1.094360352					
			If the above parameters are true						
			'						
							>=	1.1 Fail Timer (Se	C)
								Fail Count in	ı I
							>=	3 5th Gear	1
								OR	
			1					Total Fail	
							>=	3 Counts	
			Fail Case 2 Case: 6th Gear	 				Counts	1
			Case. Olli Gedi	Table Based					
				value Please					
			Mario Dallas Octavida O						
			Max Delta Output Speed	>= Refer to 3D rpm/sec					
			Hysteresis	Table I III					
			1	supporting					
				documents					
			1	Table Based					
				value Please					
			Min Delta Output Speed	Refer to 3D					
			Hysteresis	>= Table 2 in rpm/sec					
			11/3/0/03/0	supporting					

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary		Enable				ime	M
System	Code	Description	Criteria	Value	Malfunction		Conditions			Red	quired	Illu
				Table Based								
				Time Please								
				Refer to Table Sec								
			If the Above is True for Time	>= 17 in Sec								
				supporting								
				documents								
			Intrusive test:	documents								
			(CB26 clutch exhausted)	4 00050 4707								
				<= 1.209594727								
				>= 1.094360352								
			If the above parameters are true									
									>=	1.1	Fail Timer (Sec)	
									>=	1.1		
					- [l .	2	Fail Count in	
					1				>=	3	6th Gear	l
					1						OR	ı
					1						Total Fail	ı
					1				>=	3	Counts	ı
					PRNDL State defaulted	=	FALSE	Boolean	I		Counts	1
					inhibit RVT	=	FALSE	Boolean				
					IMS fault pending indication		FALSE					
						=		Boolean				
					output speed	>=	0	RPM				
					TPS validity flag	=	TRUE	Boolean				
					HSD Enabled	=	TRUE	Boolean				
					Hydraulic_System_Pressurize	=	TRUE	Boolean				
					d	=	TRUE	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 Ed	>=		RPM				
						<=	7500	KYW				1
					Engine Speed is within the	>=	5	Sec				
					allowable limits for							
					if Attained Gear=1st FW	>=	5.0003052	Pct				
					Accelerator Pedal enable	-	0.0000002	1 01				
					if Attained Gear=1st FW	>=	5	Nm				
					Engine Torque Enable	>=	J	INIII				l
					if Attained Gear=1st FW		0101 075	Nime				ı
					Engine Torque Enable	<=	8191.875	Nm				1
					Transmission Fluid							l
					Temperature	>=	-6.65625	°C				
					Input Speed Sensor fault	=	FALSE	Boolean				ı
					Output Speed Sensor fault		FALSE	Boolean				l
						=	FALSE	pooleau				l
					Default Gear Option is not	=	TRUE					l
					present		- 1					l
					1							l
	1				1				1			1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction	Enable Conditions		1		me uired	Mil Illum.
Jystem	Code	Description	S. No. 14		Disable Conditions:		TCM: P0716, P0717, P072	2, P0723,		rtoq	uncu	
							ECM: P0101, P0102, P010 P0107, P0108, P0171, P01 P0175, P0201, P0202, P02 P0205, P0206, P0207, P02 P0301, P0302, P0303, P03 P0306, P0307, P0308, P04	72, P0174, 03, P0204, 08, P0300, 04, P0305,				
Variable Bleed Solenoid (VBS)	P2729	Pressure Control (PC) Solenoid E Control Circuit Low (C1234 VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean				>=	0.3	Fail Time (Sec)	One Trip
									out of	0.375	Sample Time (Sec)	
						P2729 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the allowable limits for	<= 31.999023 >= 400 <= 7500	Volt Volt RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None					
Variable Bleed Solenoid (VBS)	P2730	Pressure Control (PC) Solenoid E Control Circuit High (C1234 VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean				>= out	0.3	Fail Time (Sec)	One Tri
						P2730 Status is not Ignition Voltage Ignition Voltage Engine Speed	Test Failed This Key On or Fault Active 8.5996094 31.999023 400	Volt Volt RPM	of		(Sec)	
						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					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum
Variable Bleed Solenoid (VBS)	P2763	Torque Converter Clutch Pressure High	The HWIO reports a low pressure/high voltage (open or power short) error flag	= TRUE	Boolean					>= out	4.4 5	Fail Time (Sec) Sample Time	Two Trips
						P2763 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the allowable limits for High Side Driver Enabled	= >= <= >= <= >=	Test Failed This Key On or Fault Active 8.5996094 31.999023 400 7500 5 TRUE	Volt Volt RPM RPM Sec Boolean	of	ŭ .	(Sec)	
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0658, F ECM: None	0659					
Variable Bleed Solenoid (VBS)	P2764	Torque Converter Clutch Pressure Control Solenoid Control Circuit Low	The HWIO reports a high pressure/low voltage (ground short) error flag	= TRUE	Boolean					>= out	4.4 5	Fail Time (Sec) Sample Time	One Tr
						P2764 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the allowable limits for High Side Driver Enabled	>=	Test Failed This Key On or Fault Active 8.5996094 31.999023 400 7500 5 TRUE	Volt Volt RPM RPM Sec Boolean	of		(Sec)	
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0658, P	0659					
Communication	U0073	Controller Area Network Bus Communication Error	CAN Hardware Circuitry Detects a Low Voltage Error Delay timer	= TRUE >= 0.1125	Boolean	Stabilization delay	>=	3	Sec	>= Out of	62 70	Fail counts (≈ 10 seconds) Sample Counts (≈ 11 seconds)	One Tr

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions			Time Require		Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Communication		Lost Communications with ECM (Engine Control Module)	CAN messages from ECM are not received by the TCM	RUE Boolean Disable Conditions:	Stabilization delay Ignition Voltage Ignition Voltage Power Mode MIL not Illuminated for DTC's:	>= <= =	3 8.5996094 31.999023 Run	sec Volt Volt	>=	12	sec	One Trip

16 OBDG06 Diagnostic 2D Tables - TCM

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	οС
Curve	409.00	3.40	1.40	1.30	1.20	Sec

16 OBDG06 Diagnostic 2D Tables - TCM

Table 8

Axis	-6.67	-6.66	40.00	80.00	120.00	٥С
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

Table 10

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

Table 11

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

Table 12

Axis	-40.00	-20.00	0.00	30.00	110.00	°С
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

16 OBDG06 Diagnostic 2D Tables - TCM

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	٥С
Curve	256.00	50.00	45.00	40.00	34.00	25.00	20.00	20.00	256.00	٥С

Table 20

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

Table 21

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

16 OBDG06 Diagnostic 3D Tables - TCM

3D_Table 1

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

	0.00	2.00	5.00	25.00	100.00
-6.67	8191.75	8191.75	8191.75	8191.75	8191.75
-6.66	8191.75	8191.75	8191.75	8191.75	8191.75
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