Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable onditions		Tir Requ		Mil Illum.
Transmission Control Module (TCM)	P0601	Transmission Electro-Hydraulic Control Module Read Only Memory	Incorrect program/calibrations checksum	= TRUE	Boolean					>= 5	Fail Counts	One Trip
					Disable Conditions:	MIL not Illuminated for DTC's:	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 Continously		One Tri
					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 Continously		One Tri
					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	<u>Fail Case 1</u> Substrate Temperature	>= 142.101562	5 °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	>=	8.5996094	Volts			
						Ignition Voltage Hi Substrate Temp Lo Substrate Temp Hi Substrate Temp Between Temp Range for Time	<= >= <= >=	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.
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,					P0634 Status is	<i>≠</i>	Test Failed This Key On or Fault Active					
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
High Side Driver 1	P0658	Actuator Supply Voltage Circuit Low	The HWIO reports a low voltage (open or ground short) error flag	= TRUE Boolean					>= out	4	Fail Counts Sample Counts	One Ti
					P0658 Status is not High Side Driver 1 On	=	Test Failed This Key On or Fault Active True	Boolean	of		Sample Counts	
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Fransmission Control Module TCM)	P0667	TCM Internal Temp (substrate) Sensor Circuit Range/Performance	lf transmission oil temp to substrate temp Δ									Two
			If TCM substrate temp to power up temp Δ	Refer to Table 20 in °C supporting documents								
			Both conditions above required to increment fail counter Note: table reference temp = to the median temp of trans oil temp, substrate temp and power up						>= Out of	3000 3750	Fail Counts (100ms loop) Sample Counts (100ms loop)	
			temp. Non-continuous (intermittent) fail conditions will delay resetting fail counter until						>=	700	Pass Counts (100ms loop)	
			Source unit						Out of	875	Sample Counts (100ms loop)	
					Engine Torque Signal Valid Accelerator Position Signal Valid	=	TRUE TRUE	Boolean Boolean				
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi	>= <= >= <=	8.5996094 31.999023 400 7500	Volts Volts RPM RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshol Value	d 	Secondary Malfunction		Enable Conditions		Time Required	Mil Illun
						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	Крп		
						Transmission Range	<i>+</i> ≠	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			
							,	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:					
								Test Failed			
								This Key			
						P0667 Status is	≠	On or			
						1 0007 Status is		Fault			
								Active			
								Active			
					Disable	MIL not Illuminated for					
					Conditions:			16, P0712, P071			
							P0722, P072	3, P0962, P0963	3, P0966,		
							P0967, P097	0, P0971, P2150	C, P2720,		
							P2721, P272				
							FCM- D∩1∩	1, P0102, P0103	P0104		
								8, P0171, P0172			
								11, P0202, P0203			
								6, P0207, P0208			
								2, P0303, P0304			
							P0306, P030	7, P0308, P0401	1, P042E		
	+			CeTFTI_e_Vo							Tv
smission Control Module	P0668	TCM internal temperature (substrate)	Type of Sensor Used								Tri
N)	1 0000	thermistor failed at a low voltge	Type of Jerison Useu	- HUYCDII CUI IU			1			1	1 117

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thres Val		Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
5,555		2000, p. 100	If TCM Substrate Temperature Sensor = Direct Proportional and Temp If TCM Substrate Temperature Sensor = Indirect Proportional and	<= -249	°C								
			Temp Either condition above will satisfy							>=	60	Fail Timer (Sec)	
			the fail conditions			Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= <= >= <= >=	8.5996094 31.999023 400 7500 5 Test Failed	Volts Volts RPM RPM Sec)	00	Tall Tiller (Sec)	
						P0668 Status is	≠	This Key On or Fault Active					
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Transmission Control Module TCM)	P0669	TCM internal temperature (substrate) thermistor failed at a high voltage	Type of Sensor Used If TCM Substrate Temperature Sensor = Direct Proportional and Temp If TCM Substrate Temperature Sensor = Indirect Proportional and Temp	p >= 249									Two Trips
			Either condition above will satisfy the fail conditions							>=	60	Fail Timer (Sec)	
						Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= <= >= <= >=	8.5996094 31.999023 400 7500 5 Test Failed This Key	Volts Volts RPM RPM Sec				
						P0669 Status is For Hybrids, below conditions	≠	On or Fault Active					
						must also be met Estimated Motor Power Loss Estimated Motor Power Loss greater than limit for time Lost Communication with	>= >=	0	kW Sec				
						Hybrid Processor Control Module Estimated Motor Power Loss Fault	=	FALSE					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions				me uired	Mil Illum.
System	Code	Description	Cilicila	value	Manufiction	Conditions			neq	uneu	muil.
				Disable Conditions:	DTC's:	TCM: P0716, P0717, P0722	2, 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 fall counter Note: table reference temp = to the median temp of trans oil temp, substrate temp and power up temp.					>= Out of	3000 3750	Fail Counts (100ms loop) Sample Counts (100ms loop)	
			Non-continuous (intermittent) fail conditions will delay resetting fail counter until					>=	700	Pass Counts (100ms loop)	
			counci uniii					Out of	875	Sample Counts (100ms loop)	
					Engine Torque Signal Valid Accelerator Position Signal I Valid Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for Brake torque active Below describes the brake torque entry criteria Engine Torque Throttle Transmission Input Speed Vehicle Speed Transmission Range Transmission Range PTO Set Brake Torque Active TRUE if above conditions are met for:	= TRUE = TRUE >= 8.5996094 <= 31.999023 >= 400 <= 7500 >= 5 = FALSE >= 90 >= 30.000305 <= 200 <= 8 ≠ Park ≠ Neutral = Not Active >= 7	Boolean Boolean Volts Volts RPM RPM Sec N*m Pct RPM Kph				
					Below describes the brake torque exit criteria Brake torque entry criteria	= Not Met					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		ime uired	Mil Illum
- Cystelli	Joue	Description	oriu	Taluo		Clutch	1,160		1
					Clutch hydraulic pressure	≠ Hydraulic			
					Ciulcii fiyuraulic pressure	Air Purge			
						Event			
					Clutch used to exit brake	CeTFTD_e			
					torque active	= _C3_RatIE nbl			
					The above clutch pressure is	TIDI			
					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			
					P06AC Status is	≠ On or			
						Fault	1		
						Active	1		1
							1		
				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			
						F0300, F0307, F0300, F0401, F042L			
ansmission Control Module CM)	P06AD	TCM power-up thermistor circuit voltage low	Power Up Temp	<= -59 °C			>= 60	Fail Time (Sec)	Two
CIVI)		voltage low			Ignition Voltage Lo	>= 8.5996094 Volts	+		Trips
					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			
					P06AD Status is	≠ On or			
						Fault	1		1
					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			
					Lost Communication with		1		
					Hybrid Processor Control	= FALSE	1		
					Module				
				i e e e e e e e e e e e e e e e e e e e	Followston Motor Downer Land	Ī	1		1
					Estimated Motor Power Loss	= FALSE			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			ime Juired	Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723 ECM: None				
Transmission Control Module (TCM)	P06AE	TCM power-up thermistor circuit voltage high	Power Up Temp	>= 164 °C	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	>=	60	Fail Time (Sec)	Two Trips
					allowable limits for	>= 5 Sec Test Failed This Key ≠ On or Fault Active				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None				
Transmission Fluid Temperature Sensor (TFT)	P0711	Trans Fluid Temp Sensor Circuit Range/Performance	If transmission oil temp to substrate temp Δ	Refer to Table 19 in °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)	
					Engine Torque Signal Valid	= TRUE Boolean	Out of	875	Sample Counts (100ms loop)	
					Accelerator Position Signal Valid Ignition Voltage Lo	= TRUE Boolean >= 8.5996094 Volts				
					Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the	<= 31.999023 Volts >= 400 RPM <= 7500 RPM				
I					allowable limits for Brake torque active					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum
					Below describes the brake		·	
					torque entry criteria Engine Torque	>= 90 N*m		
					Throttle	>= 90 N*m >= 30.000305 Pct		
					Transmission Input Speed	<= 200 RPM		
					Vehicle Speed	<= 8 Kph		
					Transmission Range	≠ Park		
					Transmission Range	≠ Neutral		
					PTO	 Not Active 		
					Set Brake Torque Active	-		
					TRUE if above conditions are	>= 7 sec		
					met for: 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		
					Clutab was dita avit braka	CeTFTD_e		
					Clutch used to exit brake torque active	= _C3_RatIE		
						nbl		
					The above clutch pressure is			
					greater than this value for one	>= 600 kpa		
					loop			
					Set Brake Torque Active			
					FALSE if above conditions are	>= 20 Sec		
					met for:	Toot Folland		
						Test Failed		
					P0711 Status is	This Key ≠ On or		
					P0/11 3ldlu515	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		
						. 5555,1 5567,1 5560,1 5761,1 572L		
	1			CeTFTI_e_Vo				Two
Fransmission Fluid	P0712	Transmission fluid temperature	Type of Sensor Used					Trips
Temperature Sensor (TFT)	1	thermistor failed at a low voltage	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	p				
			If Transmission Fluid Temperature	,				
			Sensor = Direct Proportional and	<= -74 °C				
			Temp					
			If Transmission Fluid Temperature					
			Sensor = Indirect Proportional and					
			Temp					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			me uired	Mil Illum.
<u> </u>			Either condition above will satisfy				>=	60	Fail Time (Sec)	
			the fail conditions		Ignition Voltage Lo	>= 8.5996094 Volts			. ,	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					
						Test Failed				
						This Key				
					P0712 Status is	≠ On or				
						Fault				
					For Hybrids, below conditions	Active				
					must also be met					
					Estimated Motor Power Loss	>= 0 kW				
					Estimated Motor Power Loss					
					greater than limit for time	>= 0 Sec				
					Lost Communication with					
					Hybrid Processor Control	= FALSE				
					Module					
					Estimated Motor Power Loss	= FALSE				
					Fault	= FALSE				
				5: 11		TOM DOTA / DOTAT DOTAG DOTAG				
				Disable	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723				
				Conditions:	DICS:	ECM: None				
						ECIVI. NOTIE				
Francisco Floid		T		CeTFTI_e_Vo						Two
Fransmission Fluid	P0713	Transmission fluid temperature	Type of Sensor Used	= ItageDirectPro						Trips
Temperature Sensor (TFT)		thermistor failed at a high voltage		р						
			If Transmission Fluid Temperature							
			Sensor = Direct Proportional and	>= 174 °C						
			Temp							
			If Transmission Fluid Temperature							
			Sensor = Indirect Proportional and	<= 174 °C						
			Temp Either condition above will satisfy							-
			the fail conditions				>=	60	Fail Time (Sec)	
			are rain corradions		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					
						Test Failed				
						This Key				
					P0713 Status is	≠ On or				
						Fault				
						Active				
				Disable	MIL not Illuminated for	TCM: P0713, P0716, P0717, P0722,				
				Conditions:	DTC's:					

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria			shold Ilue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
Transmission Input Speed Sensor (TISS)	P0716	Input Speed Sensor Performance		Transmission Input Speed Sensor Drops	>=	900	RPM					>=	0.8	Fail Time (Sec)	One Trip
								Engine Torque is Engine Torque is Engine Speed Engine Speed	>= <= >= <=	0 8191.875 400 7500	N*m N*m RPM RPM				-
								Engine Speed is within the allowable limits for Vehicle Speed is	>= >=	5 10	Sec Kph				
								Throttle Position is	>=	0	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	<	8191.875	RPM/Loop				
								The previous requirement has been satisfied for	>=	0	Sec				
								Throttle Position Signal Valid Engine Torque Signal Valid Ignition Voltage Ignition Voltage	= = >= <=	TRUE TRUE 8.5996094 31.999023	Boolean Boolean Volts Volts				
								P0716 Status is not	=	Test Failed This Key On or Fault Active					
							Disab Condition:			01, 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 Trip
			Fail Case 2	When P0722 DTC Status equal to Test Failed and Transmission Input Speed is	<	653.125	RPM	Controller uses a single power supply for the speed sensors	=	1	Boolean				-
								Engine Torque is Engine Torque is Vehicle Speed Engine Torque Signal Valid	>= <= >= =	120 8191.875 12 TRUE	N*m N*m Kph Boolean				
								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/	Fault	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum
System	Code	Description	Cineria	value	P0717 Status is not	Test Failed This Key On or Fault Active	required	- inum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0722, P0723 ECM: P0101, P0102, P0103		
ransmission Output Speed ensor (TOSS)	P0722	Output Speed Sensor Circuit Low Voltage	Transmission Output Speed Sensor Raw Speed	<= 35 RPM			>= 4.5 Fail Time (Sec	One Tr
					P0722 Status is not	Test Failed This Key = On or Fault Active		
					Transmission Input Speed Check Engine Torque Check	= TRUE Boolean = TRUE Boolean		
					Throttle Position Transmission Fluid Temperature	>= 8.0001831 Pct >= -40 °C		
					Disable this DTC if the PTO is active Engine Torque Signal Valid	= 1 Boolean = TRUE Boolean		
					Throttle Position Signal Valid Ignition Voltage is Ignition Voltage is Engine Speed is	= TRUE Boolean >= 8.5996094 Volts <= 31.999023 Volts >= 400 RPM		
					Engine Speed is Engine Speed is Engine Speed is within the allowable limits for	<= 7500 RPM >= 5 Sec		
					Enable_Flags Defined Below			1
					The Engine Torque Check is TRUE, if either of the two following conditions are TRUE			
					Engine Torque Condition 1	Range		
					Range Shift Status OR	≠ shift ENUM completed		
					Transmission Range is	= Park or Neutral		
					Engine Torque is Engine Torque is	>= 8191.75 N*m <= 8191.75 N*m		
					Engine Torque Condition 2 Engine Torque is Engine Torque is	>= 54 N*m <= 8191.75 N*m		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thre: Va	shold lue		Secondary Malfunction		Enable Conditions				me uired	Mil Illum
								The Transmission Input Speed (TIS) Check is TRUE, if either of the two following conditions are TRUE							
								TIS Check Condition 1 Transmission Input Speed is Transmission Input Speed is	>= <=	653.125 5350	RPM RPM				
								TIS Check Condition 2 Engine Speed without the brake applied is	>=	3200	RPM				
								Engine Speed with the brake applied is Engine Speed is	>= <=	3200 8191.875	RPM RPM				
								Controller uses a single power supply for the speed sensors Powertrain Brake Pedal is Valid	=	1 TRUE	Boolean Boolean				
						Di Condit	sable ions:	MIL not Illuminated for DTC's:		5, P0717, P072 1, P0102, P010					
ansmission Output Speed ensor (TOSS)	P0723	Output Speed Sensor Circuit Intermittent	Transmission Output Speed Sensor Raw Speed	>=	105	RPM						>=	0	Enable Time (Sec) Enable Time	One 1
			Output Speed Delta Output Speed Drop		8192 650	RPM RPM						>=	0 1.5	(Sec) Output Speed Drop Recovery	
			AND									/-	1.5	Fail Time (Sec)	
			Transmission Range is	= [Oriven range (R,D)										
								Range_Disable OR	=	FALSE	See Below				
								Neutral_Range_Enable And Neutral_Speed_Enable	=	TRUE TRUE	See Below See Below				
								are TRUE concurrently							
								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	llit
					Disable this DTC if the PTO is	=	1	Boolean		
					active					
					Ignition Voltage is	>=	8.5996094	Volts		
					Ignition Voltage is	<=	31.999023	Volts		
					Engine Speed is Engine Speed is	>= <=	400 7500	RPM RPM		
					Engine Speed is within the	<=		KPIVI		
					allowable limits for	>=	5	Sec		
					Enable_Flags Defined Below					
					Enable_1 lags befined below					
					Transmission_Input_Speed_E					
					nable is TRUE when either TIS					
					Condition 1 or TIS Condition 2					
					is TRUE:					
					TIS Condition 1 is TRUE when			Enable Time		
					both of the following conditions	>=	0	(Sec)		
					are satsified for					
					Input Speed Delta	<=	4095.875	RPM		
					Raw Input Speed	>=	500	RPM		
					TIS Condition 2 is TRUE when					
					ALL of the next two conditions					
					are satisfied		0	DDM		
					Input Speed	=	0	RPM		
					A Single Power Supply is used	=	TRUE	Boolean		
					for all speed sensors					
				1	Neutral_Range_Enable is					
					TRUE when any of the next 3					
					conditions are TRUE					
					Transmission Range is	=	Neutral	ENUM		
							Reverse/N			
					Transmission Range is	=	eutral	ENUM		
					Transmission Nange is	_	Transitonal			
							Neutral/Dri			
					Transmission Range is	=	ve	ENUM		
							Transitiona			
					And when a drop occurs		I			
					Loop to Loop Drop of	>	650	RPM		
					Transmission Output Speed is		000	TXI IVI		
					Range_Disable is TRUE when					
					any of the next three					
				1	conditions are TRUE					
					Transmission Range is	=	Park	ENUM		
				1			Park/Reve			
				1	Transmission Range is	=	rse	ENUM		
				1	Transmission Range is	=	Transitonal	LIVUIVI		
					Input Clutch is not	=	ON (Fully	ENUM		
			•	1	I IIIDUL CIULCII IS IIUL	_	Applied)	LIVUIVI		

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

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions			Tii Requ		Mil Illum.
		2000-	If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter							>=	2	TCC Stuck Off Fail Counter	
			inciditati i di dodita			TCC Mode	=	On or Lock					
						Ignition Voltage Lo	>=	8.5996094	Volts				
						Ignition Voltage Hi	<=	31.999023	Volts				
						Engine Speed	>=	400	RPM				
						Engine Speed Engine Speed is within the	<=	7500	RPM				
						allowable limits for	>=	5	Sec				
						Engine Torque Lo	>=	50	N*m				
						Engine Torque Hi	<=	8191.875	N*m				
						Throttle Position Lo	>=	8.0001831	Pct				
						Throttle Position Hi 2nd Gear Ratio Lo	<= >=	99.998474 2.1948242	Pct 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 5th Gear Ratio Lo	<= >=	1.2304688 0.7905273	Ratio 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 Transmission Fluid							
						Temperature Hi	<=	130	°C				
						PTO Not Active	=	TRUE	Boolean				
						Engine Torque Signal Valid	=	TRUE	Boolean				
						Throttle Position Signal Valid	=	TRUE	Boolean				
						Dynamic Mode	=	FALSE Test Failed	Boolean				
								This Key					
						P0741 Status is	≠	On or					
								Fault					
								Active					
					Disable	MIL not Illuminated for			2, P0723,				
					Conditions:	DTC's:	P0742, P27	63, P2764					
							ECM: DO10	01, P0102, P010	3 D0106				
								08, P0171, P017					
								01, P0202, P020					
								06, P0207, P020					
								02, P0303, P030 07, P0308, P040					
							P0300, P03	U7, PU306, PU40	J1, PU42E				
Torque Converter Clutch	P0742	TCC System Stuck ON	TCC Slip Speed	>= -50	RPM								One Trip
(TCC)			TCC Slip Speed		RPM								
										>=	1.5	Fail Time (Sec)	
			If Above Conditions Have been								,	F-11.0	
			Met, and Fail Timer Expired, Increment Fail Counter							>=	6	Fail Counter	
í	1	I	increment Fail Counter			l				I			ı

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	П
					TCC Mode	=	Off			
					Enable test if Cmnd Gear =		1	Davis		
					1stFW and value true	=	1	Boolean		
					Enable test if Cmnd Gear =					
					2nd and value true	=	0	Boolean		
					Engine Speed Hi	<=	6000	RPM		
					Engine Speed Lo	>=	500	RPM		
					Vehicle Speed HI	>= <=	511	KPH		
					Vehicle Speed Lo	>=	1	KPH		
					Engine Torque Hi	<=	8191.875	Nm		
					Engine Torque Lo	>=	80	Nm		
					Current Range	≠	Neutral	Range		
					Current Range	≠	Reverse	Range		
					Transmission Sump		120	°C		
					Temperature	<=	130	°C		
					Transmission Sump					
					Temperature	>=	18	°C		
					Throttle Position Hyst High	>=	5.0003052	Pct		
					AND		3.0003032	1 Ct		
					Max Vehicle Speed to Meet					
						<=	8	KPH		
					Throttle Enable					
					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	Dooloon		
					value true	=	1	Boolean		
					Disable if in D1 and value true	=	1	Boolean		
					Disable if in D2 and value true	=	1	Boolean		
					Disable if in D3 and value true	=	1	Boolean		
					Disable if in D4 and value true	=	1	Boolean		
							1			
					Disable if in D5 and value true	=	1	Boolean		
					Disable if in MUMD and value	=	1	Boolean		
					true					
					Disable if in TUTD and value	=	1	Boolean		
					true	-	'	Doolean		
					4 Wheel Drive Low Active	=	FALSE	Boolean		
					Disable if Air Purge active and		0	Deeleen		
					value false	=	0	Boolean		
					RVT Diagnostic Active	=	FALSE	Boolean		
					Ignition Voltage	>=	8.5996094	V		
					Ignition Voltage	<=	31.999023	V		
					Vehicle Speed	<=	51.999023	KPH		
					Engine Speed		400	RPM		
						>=				
					Engine Speed	<=	7500	RPM		
					Engine Speed is within the	>=	5	Sec		
					allowable limits for					
					Engine Torque Signal Valid	=	TRUE	Boolean		
					Throttle Position Signal Valid	=	TRUE	Boolean		
							Test Failed			
							This Key			
					P0742 Status is	≠	On or			
					. 5. 12 Status 15	,	Fault			
							Active			
							Active			
				ī						- 1

723, 106, 0174, 0204, 0300, 0305, 042E		K	Required	u	Illu
106, 0174, 0204, 0300, 0305,					
0174, 0204, 0300, 0305,					
0174, 0204, 0300, 0305,					1
0204, 0300, 0305,					
0300, 0305,					
0305,					
					T Tr
					1 "
3	>=	0.2		Fail Tmr	
	=	5	F	Fail Counts	
1					
1	≠	0	Ne	Neutral Timer	
				(Sec)	
	>=	0.3	Fail	ail Timer (Sec)
/olts	>=	8		Counts	-
/olts					
>ec					
°C					
NUM					
%					
₹PM					
oolean					
	1				1
ıolean					
olean					
olean	1				
olean	1				
oolean					1
1					1
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1					
oolean oolean oolean					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction		Enable Conditions			ime Juired	Mil Illum
Jysteili	Code	Description	GILGI IZ		Disable ditions:	MIL not Illuminated for DTC's:			P, P0723,	Rec	_{умп} еч	uill
							P0107, P010 P0175, P020 P0205, P020 P0301, P030	P0102, P0103 3, P0171, P017 1, P0202, P020 6, P0207, P020 2, P0303, P030 7, P0308, P040	72, P0174, 03, P0204, 08, P0300, 04, P0305,			
Mode 2 Multiplex Valve	P0752	Shift Solenoid Valve A Stuck On	Gear Box Slip	>= 400 RPM						<u> </u>		One Tr
			Commanded Gear Commanded Gear has Achieved 1st Locked OR 1st Free-Wheel OR 2nd with Mode 2 Sol. Commanded On If the above parameters are true	= TRUE Boolean						Please Refi to Table 16 >= Supporting	in Neutral Timer	
										>= 1.5	S 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 Range Shift State	>=	8.5996094 31.999023 400 7500 5 TRUE TRUE 67 0.5004883 Range Shift	Volts Volts RPM RPM Sec Boolean Boolean RPM %	>= 5	Counts	
						Transmission Fluid Temperature Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	>= = = =	-6.65625 FALSE FALSE TRUE	°C Boolean Boolean			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Requir		M
System	Code	Description	Officia	Disable		TCM: P0716, P0717, P0722, P0	23.	Requii	eu	in a
				Conditions:	DTC's:					
						EON DO101 D0102 D0102 D0	10/			
						ECM: P0101, P0102, P0103, P0 P0107, P0108, P0171, P0172, P	106,			
						P0175, P0201, P0202, P0203, P				
						P0205, P0206, P0207, P0208, P				
						P0301, P0302, P0303, P0304, P				
						P0306, P0307, P0308, P0401, P	042E			
ode 2 Multiplex Valve	D07E4	Shift Solenoid Valve B Stuck Off	Fail Case 1 Commanded Gear	= 1st Locked						On
de 2 ividitipiex valve	P0/30	SHIR SOIEHOID VAIVE B STUCK OIL	<u>Fall Case 1</u> Confinanced Gear	= ISI LOCKEU			F	Please Refer		OII
			0 0 0	100 5514			1		Neutral Timer	
			Gear Box Slip	>= 400 RPM				Supporting	(Sec)	
								Documents		
			Intrusive Shift to 2nd							
			Commanded Gear Previous	= 1st Locked Gear <= 2.482177734						
				>= 2.245849609						
			If the above parameters are true							
			·				>=	1	sec	
							>=	3	counts	
					Ignition Voltage Lo Ignition Voltage Hi		/olts /olts			
					Engine Speed Lo		RPM			
					Engine Speed Hi		RPM			
					Engine Speed is within the		Sec			
					allowable limits for					
					Output Speed	>= 67	RPM			
					OR TPS	>= 0.5004883	%			
					113		70			
					Donne Chift Chata	Range	NUM			
					Range Shift State	= Shift E Completed	INUIVI			
						Completed				
					Transmission Fluid	>= -6.65625	°C			1
					Temperature High-Side Driver is Enabled	= TRUE Bo	olean			
					Throttle Position Signal Valid					1
					from ECM	= TRUE Bo	olean			
					Input Speed Sensor fault		olean			1
					Output Speed Sensor fault	= FALSE Bo	olean			1
					Default Gear Option is not	= TRUE				
					present					
										1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	Griteria	Disable	MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723,	Nequileu	muni.
				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		
		0 1 1/00) 0 1 110	5.11.0					0 7
riable Bleed Solenoid (VBS)	P0776	Pressure Control (PC) Solenoid B Stuck Off [C35R]	Fail Case 1 Case: Steady State 3rd Gear					One T
		Stack On [C33N]	Commanded Gear	= 3rd Gear				
			Gearbox Slip					
							Please Refer	
							to Table 16 in Neutral Timer	•
							Supporting (Sec) Documents	
			Command 4th Gear once Output				Documents	
			Shaft Speed	<= 400 RPM				
				>= 1.094360352				
			And Gear Ratio	<= 1.209594727				
							>= 3 Fail Timer (Sec	c)
			It the above condiations are true,				3rd Gear Fail	
			Increment 3rd gear fail counter				>= 3 Counts	
							or	
			and C35R Fail counter				>= 14 3-5R Clutch	
							Fail Counts	
			Fail Case 2 Case: Steady State 5th Gear Commanded Gear	= 5th Gear				
			Commanded Gear	- Jui Geai				
							Please Refer	
			Gearbox Slip	>= 400 Rpm			to Table 5 in Neutral Timer	
			GCalbox Slip	>= 400 Kpm			Supporting (Sec)	
							Documents	
			Intrusive Test: Command 6th Gear					
				Please refer				
			If attained Gear=6th gear Time	to Table 3 in				
			ii attairieu Gear-otii gear Tiirie	Supporting				
			It the obeye conditations are true	documents			Eth Coor Foll	
			It the above condiations are true, Increment 5th gear fail counter				>= 3 5th Gear Fail Counts	
			morement our gear rail counter				or	
			and C35R Fail counter				3-5R Clutch	
			and Cook Fall Counter				>= 14 Fail Counts	4
					PRNDL State defaulted	= FALSE Boolean		
					inhibit RVT IMS fault pending indication	= FALSE Boolean = FALSE Boolean		
					TPS validity flag	= TRUE Boolean		
					Hydraulic System Pressurized	= TRUE Boolean		
					Minimum output speed for	>= 67 RPM		
					RVT	>- 07 KI WI		
					A OR B	. /7 DD4		
	l	I	I		(A) Output speed enable	>= 67 RPM	I	1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time equired	Mil Illum
- Cystem	Joue	Seconpuon	oriu	- aluo	(B) Accelerator Pedal enable	>= 0.5004883 Pct	1		1
					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	= 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	= IRUE			
				Disable	MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723,			
				Conditions:	DTC's:				
				Conditions.	D10 3.	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			
						1 0000,1 0007,1 0000,1 0 101,1 0 122			
'ariable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solinoid B	Fail Case 1 Case: Steady State 1st						One T
, ,		Stuck On [C35R] (Steady State)	Attained Gear slip						
			Attained Gear Stip	Table Based					
				Time Please					
			If the Above is True for Time	Refer to Table Enable Time					
			If the Above is True for Time	4 in (Sec)					
				supporting					
			Intrusive test:	documents					
			(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	
							/- J	Counts	-
			Fail Case 2 Case: Steady State 2nd gear	Table Deced					
				Table Based value Please					1
			Max Delta Output Speed	Refer to 3D					
			Hysteresis						
]	supporting					
	l			documents					1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Ti Regi	ne Jired
0,0.0.11		2000.100011	2	Table Based				
				value Please				
			Min Delta Output Speed	Refer to 3D				
			Hysteresis	>= Table 2 in rpm/sec				
			Trysteresis	supporting				
				documents				
				Table Based				
				Time Please				
				Pofor to Table				
			If the Above is True for Time	>= 17 in Sec				
				supporting				
				documents				
			Intrusive test:	documents				
			(CB26 clutch exhausted)					
				<= 1.608642578				
				>= 1.455444336				
			If the above parameters are true					- 1
								E-ILTI- (O.)
							>= 1.1	Fail Timer (Sec)
							>= 3	Fail Count in
							>= 3	2nd Gear
								or
							>= 3	Total Fail
							>= 3	Counts
			Fail Case 3 Case: Steady State 4th gear					
				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 III				
				supporting				
				documents Table Recod				- 1
				Table Based Time Please				1
				Pofor to Table				- 1
			If the Above is True for Time	>= Refer to Table Sec				
				supporting				
				documents				
			Intrusive test:	documents				
			(C1234 clutch exhausted)					
				<= 0.89465332				- 1
			Gear Ratio	>= 0.809448242				- 1
			If the above parameters are true					- 1
							>= 1.1	Fail Timer (Sec)
							>= 3	Fail Count in 4th Gear
								or
								Total Fail
							>= 3	Counts
	1 1		Fail Case 4 Case: Steady State 6th gear					Courts

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary		Enable				ime	N
System	Code	Description	Criteria	Value	Malfunction		Conditions			Red	quired	IIIu
				Table Based								
				value Please								
			Max Delta Output Speed	Refer to 3D								1
			Hysteresis	>= Table 1 in rpm/sec								
				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					l			1
				documents								
			Intrusive test:									
			(CB26 clutch exhausted)									
			i i	<= 0.89465332					>=	1.1	Fail Timer (Sec))
			Gear Ratio	>= 0.809448242					>=	3	counts	
			If the above parameters are true	2 - 0.007110212					-	0	counts	
			ii tile above parameters are true									
									>=	1.1	Fail Timer (Sec)	1
											Fail Count in	
									>=	3	6th Gear	
											or	
										2	Total Fail	
									>=	3	Counts	
					PRNDL State defaulted	=	FALSE	Boolean				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	Dooloon				
					d	=	IKUE	Boolean				
					A OR B							1
					(A) Output speed enable	>=	67	Nm				1
					(B) Accelerator Pedal enable	>=	0.5004883	Nm				1
					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	Soo				1
					allowable limits for	>=)	Sec				1
					if Attained Gear=1st FW	,	E 00030E3	Det				1
					Accelerator Pedal enable	>=	5.0003052	Pct	l			1
					if Attained Gear=1st FW		-	Nino				1
					Engine Torque Enable	>=	5	Nm				
					if Attained Gear=1st FW		0101 075	Mer				
					Engine Torque Enable	<=	8191.875	Nm				1
					Transmission Fluid		/ /5/05	0.0				
					Temperature	>=	-6.65625	°C				
					Input Speed Sensor fault	=	FALSE	Boolean	1			1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum
0,0.0	5545	2000.1980.1			Output Speed Sensor faul			
				Dis	able MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723,		
				Conditi		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		
			Primary Offgoing Clutch is					One
ariable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solenoid B	exhausted (See Table 12 in	= TRUE Boolean				
,		StuckOn [C35R] (Dymanic)	Supporting Documents for 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					
			If the above conditions are true					
			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 (S	ec)			
			fail timer 1	>= 0.299804688 Fail Time (S				
			(3-2 shifting with Throttle)	>= 0.299004000 Fall Fille (3	(C)			
			fail timer 1 (3-2 shifting with Closed Throttle)	>= 0.5 Fail Time (S	ec)			
			fail timer 1	>= 0.299804688 Fail Time (S	oc)			
			(3-4 shifting with Throttle) fail timer 1					
			(3-4shifting with Closed Throttle)	>= 0.5 Fail Time (S	ec)			
			fail timer 1	>= 0.299804688 Fail Time (S	ec)			
			(3-5 shifting with Throttle) fail timer 1					
			(3-5 shifting with Closed Throttle)	>= 0.5 Fail Time (S	ec)			
			fail timer 1 (5-3 shifting with Throttle)	>= 0.299804688 Fail Time (S	ec)			
			(5-3 stilling with Frilottie) fail timer 1	O.F. Foil Time (C	(0.0			
			(5-3 shifting with Closed Throttle)	>= 0.5 Fail Time (S	et)			
			fail timer 1 (5-4 shifting with Throttle)	>= 0.299804688 Fail Time (S	ec)			
			fail timer 1	>= 0.5 Fail Time (S	20)			
			(5-4 shifting with Closed Throttle) fail timer 1		50)			
			(5-6 shifting with Throttle)	>= 0.299804688 Fail Time (S	ec)			
			fail timer 1	>= 0.5 Fail Time (S	ec)			
		1	(5-6 shifting with Closed Throttle)	5.5 1 411 11110 (5		ı L		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thresho Value		Secondary Malfunction	Enable Conditions		Tin Requ		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 Fa Timer 1, and Reference Supporting Table 15 for Fail Timer 2	il	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter								
			3rd gear fail counter						>= 3	3rd gear fail counts OR	
			5th gear fail counter						>= 3	5th gear fail counts OR	
			Total fail counter			TUT Enable temperature	>= -6.65625	°C	>= 5	total fail counts	
						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	= -6.0023 = FALSE ≠ 1st = TRUE >= 100 >= 150 = FALSE = FALSE = TRUE = TRUE	Boolean Boolean Boolean RPM RPM Boolean Boolean Boolean			
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722 P182E	2, P0723,			
							ECM: P0101, P0102, P0103 P0107, P0108, P0171, P01 P0175, P0201, P0202, P020 P0205, P0206, P0207, P020 P0301, P0302, P0303, P030 P0306, P0307, P0308, P040	72, P0174, 03, P0204, 08, P0300, 04, P0305,			
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 RF	PM				Please See Table 5 For Neutral Time	Neutral Timer (Sec)	One Tr
			Intrusive test: commanded 5th gear						Cal	(Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	T.
System	Code	Description	Onteria	Please refer	mananoton	Conditions	Required	Ť
			If attained Gear ≠5th for time	>= to Table 3 in Supporting Shift Time (Sec)				
				Documents				
			if the above conditions have been	Documents				
			met					
			met				a 4th Gear Fail	Ш
			Increment 4th Gear Fail Counter				>= 3 Count	1
							OR	П
							C456 Fail	
			and C456 Fail Counters				>= 14 C430 Fall Counts	П
			Fail Case 2 Case: Steady State 5th Gear				Counts	1
			Tail case 2 Case. Steady State Still Gear				Please See	
							Table 5 For Moutral Time	r
			Gear slip	>= 400 RPM			>= Neutral Time (Sec)	' I
							Cal	
			Intrusive test:				Gai	
			commanded 6th gear					
			commanded our gear	Please Refer				
			If attained Gear ≠ 6th for time	>= to Table 3 in Supporting Shift Time (Sec)				П
				Documents				
			if the above conditions have been	Bocaments				П
			met					П
							5th Gear Fail	Ш
			Increment 5th Gear Fail Counter				>= 3 Count	
							OR	
							C456 Fail	
			and C456 Fail Counters				>= 14 C430 Fall Counts	
			Fail Case 3 Case: Steady State 6th Gear					1
			,				Please See	
			0 "	100 5514			Table 5 For Neutral Time	r
			Gear slip	>= 400 RPM			>= Neutral Time (Sec)	
							Cal	
			Intrusive test:					
			commanded 5th gear					П
			3	Please refer				
			If all all and Connect Fills from the con-	to Table 3 in				
			If attained Gear ≠ 5th for time	>= to Table 3 in Supporting Shift Time (Sec)				П
				Documents				
			if the above conditions have been					
			met					
			Increment 6th Gear Fail Counter				>= 3 6th Gear Fail	Ш
			and C456 Fail Counter				>= 3 Count	
							OR	
			and C456 Fail Counter				>= 14 C456 Fail	
			and C450 Fail Counter				>= 14 Counts	
					PRNDL State defaulted	= FALSE Boole		
					inhibit RVT	= FALSE Boole		
					IMS fault pending indication	= FALSE Boole		
					TPS validity flag	= TRUE Boole		
					Hydraulic System Pressurized	= TRUE Boole	an	
					Minimum output speed for	>= 67 RPN		
					RVT	/- 0/ KFN	'	
					A OR B			
					(A) Output speed enable	>= 67 RPN		
					(B) Accelerator Pedal enable	>= 0.5004883 Pct	•	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		lime quired	Mil Illum
					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 HSD Enabled Transmission Fluid Temperature	>= 8.5996094 Volts <= 31.999023 Volts >= 400 RPM <= 7500 RPM >= 5 Sec = TRUE Boolean = TRUE Boolean >= -6.65625 °C			
					Input Speed Sensor fault OutputSpeed Sensor fault Default Gear Option is not present	= 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			
iable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Steady State)	Fail Case 1 Case: Steady State 1st Attained Gear slip	>= 400 RPM					One
			If the Above is True for Time	Table Based Time Please Refer to Table Enable Time + 4 in (Sec) supporting					
			Intrusive test: (CBR1 clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	documents <= 1.209594727 >= 1.094360352					
			ii iilo asovo paramotoro are trae				>= 1.1	Fail Timer (Sec)	
							>= 2	Fail Count in 1st Gear or	
							>= 3	Total Fail Counts	
			Fail Case 2 Case Steady State 2nd Max Delta Output Speed Hysteresis	Table Based value Please Refer to 3D >= Table 1 in supporting					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time quired
System	Code	Description	Criteria		Manufiction	Conditions	Re	quireu
				Table Based value Please]			l
			Min Dolto Outnut Canad	Defer to 2D				l
			Min Delta Output Speed	>= Refer to 3D Table 2 in rpm/sec	1			
			Hysteresis	Table 2 III	1			
				supporting	1			
				documents	1			
				Table Based	1			
				Time Please	1			
				>= Refer to Table Sec	1			
			If the Above is True for Time	>= 17 in Sec	1			
				supporting	1			
				documents	1			
			Intrusive test:	accamonic	1			
			(CB26 clutch exhausted)		1			
				<= 1.209594727	1			
				>= 1.094360352	1			
				>= 1.074300332]			l
			If the above parameters are true		1			l
					1		>= 1.1	Fail Timer (Sec)
					1			
							>= 3	Fail Count in
					1			2nd Gear
					1			or
					1		>= 3	Total fail counts
					1			
					ļ			
			Fail Case 3 Case Steady State 3rd		1			
				Table Based	1			
				value Please	1			
			Max Delta Output Speed	>= Refer to 3D rpm/sec	1			
			Hysteresis	Table 1 in	1			
				supporting	1			
				documents	1			
				Table Based	1			
				value Please	1			
			Min Delta Output Speed	Refer to 3D	1			
			Hysteresis	>= Table 2 in rpm/sec	1			
			,	supporting	1			
				documents				l
				Table Based	1			l
				Time Please	1			l
				Pofor to Table	1			l
			If the Above is True for Time	>= 17 in Sec	1			
				supporting	1			
					1			
			Intrusive test:	documents				l
					1			
			(C35R clutch exhausted)	1 20050 4727	1			l
				<= 1.209594727				l
				>= 1.094360352]			l
			If the above parameters are true		1			l
							>= 1.1	Fail Timer (Sec)
							>= 3	Fail Count in
					1			3rd Gear
					1		OR	
]		>= 3	Total Fail
	1 1				1		l "	Counts

Component/	Fault	Monitor Strategy	Malfunction		shold	Secondary		Enable		Time	Mil
System	Code	Description	Criteria	Va	lue	Malfunction inhibit RVT		Conditions	Doolean	Required	Illum.
							=	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					
						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		-	0		
						allowable limits for	>=	5	Sec		
						if Attained Gear=1st FW					
	1					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	=	TRUE			
						present					
					Diaghla	MII mat Illumimated for	TCM: D071/	D0717 D070	D0722		
					Disable	MIL not Illuminated for), P0/1/, P0/22	2, P0723,		
					Conditions:	DTC's:	P182E				
								I, P0102, P0103			
							P0107, P010	08, P0171, P01	72, P0174,		
							P0175, P020	01, P0202, P020	03, P0204,		
							P0205, P020	06, P0207, P020	08, P0300,		
							P0301, P030	02, P0303, P030	04, P0305,		
							P0306, P030	07, P0308, P040	01, P042E		
			Primary Offgoing Clutch is								One Tri
		Pressure Control (PC) Solenoid C	exhausted (See Table 11 in								
ariable Bleed Solenoid (VBS)) P0797	Stuck On [C456] (Dynamic)	Supporting Documents for	= TRUE	Boolean						
		Stack on to root (2 finance)	Exhaust Delay Timers)								
			Primary Oncoming Clutch	Maximum							
			Pressure Command Status	= pressurized							
			r ressure command Status	Clutch							
			Primary Offgoing Clutch Pressure	= exhaust							
			Command Status								ı
	1			command							
			Range Shift Status	≠ Initial Clutch							
	1		-	Control							
			Attained Gear Slip	<= 40	RPM					1	
			If the obeyes conditions are								
	1		If the above conditions are true								
			increment appropriate Fail 1								I
			Timers Below:								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	III
Oystem	Code	Description	fail timer 1	>= 0.299804688 Fail Time (Sec)		Conditions	required	+
			(4-1 shifting with throttle) fail timer 1	>= 0.277004000 Tall Time (Sec)				
			(4-1 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1	>= 0.299804688 Fail Time (Sec)				
			(4-2 shifting with throttle) fail timer 1	0.5				
			(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	>= 0.5 Fail Time (Sec)				
			(4-3 shifting without throttle) 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	>= 0.299804688 Fail Time (Sec)				
			(6-2 shifting with throttle) fail timer 1	O.F. Fall Three (Car)				
			(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 Timer 1, and sec	
							Reference	
							Supporting Table 15 for	
							Fail Timer 2	
			If fail timer is greater than					
			threshold increment corresponding gear fail counter and total fail					
			counter					
			4th gear fail counter				>= 3 Fail Counte From 4th Ge	
							OR	
			5th gear fail counter				>= 3 Fail Counte From 5th Ge	
							OR	
			6th gear fail counter				>= 3 Fail Counte From 6th Ge	
							OR	
			Total fail counter				>= 5 Total Fail Counter	
					TUT Enable temperature	>= -6.65625 °C	Counter	\exists
					Input Speed Sensor fault Output Speed Sensor fault	= FALSE Boolean = FALSE Boolean		
					Command / Attained Gear	≠ 1st Boolean		
					High Side Driver ON	= TRUE Boolean >= 100 RPM		
					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	Thresh Valu		Secondary Malfunction		Enable Conditions				me uired	Mil Illum
Зу зсенн	Code	<u>Description</u>	Smg1id	valu	Disable Conditions:	MIL not Illuminated for DTC's:			, P0723,		req	un Su	inull
							P0107, P0108 P0175, P020 P0205, P0206 P0301, P0302	P0102, P0103 3, P0171, P017 1, 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					>= out	4.4	Fail Time (Sec) Sample Time	Tw Trip
						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	of	•	(Sec)	
					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					>= out of	1.5 1.875	Fail Time (Sec) Sample Time (Sec)	One
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	8.5996094 31.999023 400 7500 5	Volts Volts RPM RPM Sec	OI .		(366)	-
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
ariable Bleed Solenoid (VBS)	P0963	Pressure Control (PC) Solenoid A Control Circuit High Voltage (Line Pressure VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>=	4.4	Fail Time (Sec)	Tw Trip
						Ignition Voltage	>=	8.5996094	Volts	out of	5	Sample Time (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		reshold /alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
						Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	<= >= <= >=	31.999023 400 7500 5	Volts RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P0966	Pressure Control (PC) Solenoid B Control Circuit Low Voltage (C35R VBS)	The HWIO reports a low vollage (ground short) error flag	= TRUE	Boolean					>= out	0.3	Fail Time (Sec) Sample Time	One Tri
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	8.5996094 31.999023 400 7500 5 Test Failed This Key On or Fault Active	Volts Volts RPM RPM Sec	of	0.375	(Sec)	
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P0967	Pressure Control (PC) Solenoid B Control Circuit High Voltage (C35R VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Tri
								0.500/004	V 1	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/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
Variable Bleed Solenoid (VBS)		Pressure Control (PC) Solenoid C Control Circuit Low Voltage (C456/CBR1 VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>= out	0.3	Fail Time (Sec)	One Trip
						P0970 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	= >= <= >= >=	Test Failed This Key On or Fault Active 8.5996094 31.999023 400 7500 5	Volts Volts RPM RPM Sec	of	0.375	(Sec)	-
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P0971	Pressure Control (PC) Solenoid C Control Circuit High Voltage (C456/CBR1 VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>= out of	0.3 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	- 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 1.5	Fail Time (Sec) Sample Time (Sec)	One Trip
						P0973 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed	= >= <= >= <=	Test Failed This Key On or Fault Active 8.5996094 31.999023 400 7500	Volts Volts RPM RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
- Oystoni	0000	Doddipson				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 Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Mode 3 Multiplex Valve	P0977	Shift Solenoid B Control Circuit High (Mode 3 Solenoid)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>= out	1.2 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	of		330	
Internal Mode Switch (IMS)	P182E	Internal Mode Switch - Invalid Range	Fail Case 1 Current range	Transition 1 = (bit state 1110)	Range								One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		reshold Value	Secondary Malfunction		Enable Conditions		Tin Requ		Ι,
System	Code	Description	Griteria	CeTRGR_		mananouon		CONTRICTIONS	\vdash	nequ	n cu	+
			Previous range									
			i revious range	6	runge							
				CeTRGR_	۵							
			Previous range									Т
			r revious range	4 TRINDE_DI	ive italige							Т
				Range Sh	ift							Т
			Range Shift State	= Complete	d ENUM							Т
			Absolute Attained Gear Slip		rpm							Т
			Attained Gear	<= Sixth	трии							Т
			Attained Gear	>= First								Т
			Throttle Position Available	= TRUE								Т
				>= 8.0001831	05 nct							Т
			Output Speed		rpm							Т
			Engine Torque	>= 50	Nm							Т
			Engine Torque									
			If the above conditions are met	2								
			then Increment Fail Timer						>=	1	Fail Seconds	
			If Fail Timer has Expired then							-	F-11 0	
			Increment Fail Counter						>=	5	Fail Counts	1
			Fail Case 2 Output Speed	<= 70	rpm							1
			The following PRNDL sequence		•							
			events occur in this exact order:									
			PRNDL state	_ Drive 6 (b								
				state 011	D) Kange							
			PRNDL state = Drive 6 for		Sec							
				Transition								
			PRNDL state	= (bit state	Range							
				0111)								1
			PRNDL state	Drive 6 (b	it Range							1
			SE state	state 011	J)go							1
												1
				Transition								Т
			PRNDL state		Range							Т
				1110)								1
			About	. 4	Coo							
			Above sequencing occurs in		Sec							
			Neutral Idle Mode	= Inactive								
			If all conditions above are met									
			Increment delay Timer If the below two conditions are									
			met Increment Fail Timer						>=	3	Fail Seconds	
			met increment Fail Timer delay timer	>= 1	Sec							
			-	>= 1	Sec							
			If Fail Timer has Expired then	/- 400	Sec							
			Increment Fail Counter						>=	2	Fail Counts	
			Fail Case 3	Transition	13			CeTRGR_	1			+
			Current range		Range	Previous range	≠	e_PRNDL				
			Surrent range	0010)		i revious range	,	_Drive2				
				0010)				CeTRGR_				
			Engine Torque	>= -8192	Nm	Previous range	≠	e_PRNDL				
			Engine Torque		19111	i revious range	7	_Drive1	1			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	- 1
			If the above conditions are met then, Increment Fail Timer		1 then the "previous range" criteria above must also be satsified when the "current			conds
			If Fail Timer has Expired then Increment Fail Counter		rango" – "Transition 12"		>= 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	>= 100 Nm <= 8191.75 Nm	TOO T (party)		>= 0.225 Sec	conds
			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	= (bit state Range 0100)				
			PRNDL State	= Neutral (bit state 0101) Range Transition 11				
			. All Be state	= (bit state Range 0100)				
			Above sequencing occurs in Then delay timer increments Delay timer					
			Range Shift State	= Range Shift Complete				
				<= 50 rpm <= Sixth >= First				
			Throttle Position Output Speed If the above conditions are met	>= 8.000183105 pct >= 200 rpm				
			In the above conditions are men Increment Fail Timer Fail Case 6	Illegal (bit	A Open Circuit Definition (flag		>= 20 Sec	conds
			Current range	= state 0000 or 1000 or 0001)	set false if the following conditions are met):	TorredWee		
			and		Current Range	Transition ≠ 11 (bit state		
			A Open Circuit (See Definition)	= FALSE Boolean	or	0100)		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Condition	s		Tir Requ		Mil Illum.
System	Code	Description	Griteria.	Yalue	Last positive state or Previous transition state	Neutral (≥ ≠ state 0101)	oit		nequ	un SU	mulli.
			If the above Condtions are met		Fail case 5 delay time	· ·	sec	>=	6.25	Seconds	
			then, Increment Fail timer Fail Case 7 Current PRNDL State and Previous PRNDL state	= PRNDL circuit Range ABCP = 1101 PRNDL circuit Range ABCP = 1111					0.23	Seconds	-
			Input Speed Reverse Trans Ratio Reverse Trans Ratio If the above Condtions are met then, Increment Fail timer	ABCP = 1111 >= 150 RPM <= 2.845825195 ratio >= 3.274169922 ratio				>=	6.25	Seconds	
			P182E will report test fail when any of the above 7 fail cases are met								
					Ignition Voltage Lo Ignition Voltage H Engine Speed Lo Engine Speed H Engine Speed is within the allowable limits for	i <= 31.9900 >= 400 i <= 7500 >= 5	Volts RPM RPM Sec				
				Соі		TCM: P0716, P0717, P0: P07C0, P07BF, P077C,					
						ECM: P0101, P0102, P0 P0107, P0108, P0171, P P0175, P0201, P0202, P P0205, P0206, P0207, P P0301, P0302, P0303, P P0306, P0307, P0308, P	0172, P0174, 0203, P0204, 0208, P0300, 0304, P0305,				
Internal Mode Switch (IMS)	P1915	Internal Mode Switch Does Not Indicate Park/Neutral (P/N) During Start	PRNDL State is	≠ Park or Enumer Neutral	ation						One Trip
		Start	The following events must occur Sequentially							Enable Time	
			Initial Engine speed Then	<= 50 RPM				>=	0.25	(Sec)	}
			Engine Speed Between Following Cals								
	1	1	Engine Speed Lo Hist	>= 50 RPM		I		1			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	т	hreshold Value	Secondary Malfunction		Enable Conditions			Tir Requ		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				1
						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 Tri
(ТСМ)	. 2501	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	MIL not Illuminated for	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 Tri
		-	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)	i
						ECM run/crank active status available	=	TRUE	Boolean				1
						ECM run/crank active status	=	FALSE	Boolean	1			

Component/	Fault	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mi Illur
System	Code	Description	Criteria	value	Waitunction	Conditions	Required	illui
				Disable	MIL not Illuminated for	TCM: None		
				Conditions:	DTC's:	1 01111 110110		
						ECM: None		
riable Bleed Solenoid (VBS)	P2714	Pressure Control (PC) Solenoid D	Fail Case 1 Case: Steady State 2nd Gear					One
		Stuck Off [CB26]					Please See	
							Table 5 For Neutral Tir	ner
			Gear slip	>= 400 RPM			>= Neutral Time (Sec)	101
							Cal	
			Intrusive test:					
			commanded 3rd gear					
				Table Based				
			If attained Gear = 3rd for Time	Time Please >= see Table 2 in Supporting Documents Time Please (Sec)				
		ii attainea Geal – Sia ioi Time	Supporting (Sec)					
				Documents				
			If Above Conditions have been					
			met					
			Increment 2nd gear fail count				>= 3 2nd Gear Count	ail
			_				Count	
							CR26 Fa	il
			and CB26 Fail Count				>= 14 Count	
			Fail Case 2 Case: Steady State 6th Gear					
							Please See	
			Gear slip	>= 400 RPM			>= Table 5 For Neutral Tir Neutral Time (Sec)	ner
							Cal (Sec)	
			Intrusive test:				ou.	
			commanded 5th gear					
				Table Based				
			K 11 10 51 5 T	Time Please Enable Time				
			If attained Gear = 5th For Time	>= see Table 2 in Supporting (Sec)				
				Documents				
			If Above Conditions have been	Bodanients				
			met, Increment 5th gear fail				>= 3 5th Gear F	ail
			counter					
							or OD3/ F-	
			and CB26 Fail Count				>= 14 CB26 Fa	"
					PRNDL State defaulted	= FALSE B	polean	
					inhibit RVT		polean	
					IMS fault pending indication	= FALSE B	polean	
					TPS validity flag		polean	
					Hydraulic System Pressurized	= TRUE B	polean	
					Minimum output speed for RVT	>= 0	RPM	
				A OR B				
				(A) Output speed enable	>= 67	RPM		
					(B) Accelerator Pedal enable		Pct	
					Common Enable Criteria			
					Ignition Voltage Lo		/olts	
					Ignition Voltage Hi		/olts	
	I	l			Engine Speed Lo	>= 400	RPM	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum
System	Code	Description	Criteria	Value Disa Conditio	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	<pre><= 7500 RPM >= 5 Sec = TRUE Boolean = TRUE Boolean >= -6.65625 °C = FALSE Boolean = FALSE Boolean = TRUE TCM: P0716, P0717, P0722, P0723, P182E</pre>	Required	llium
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0177, P0178, P0177, P0178, P0177, P0178, 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 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 If above coditons are true, increment appropriate Fail 1 Timers Below:	Control				One T
			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 (4-4 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 without throttle)	>= 0.299804688 Fail Time (Se >= 0.5 Fail Time (Se >= 0.299804688 Fail Time (Se >= 0.5 Fail Time (Se	c) c) c) c) c)			

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				F-11 Country	
			2nd gear fail counter 6th gear fail counter				>= 3 Fail Counter From 2nd Gear OR >= 3 Fail Counter From 6th Gear	
			total fail counter				OR Total Fail >= 5 Counter	
					TUT Enable temperature Input Speed Sensor fault Output Speed Sensor fault Command / Attained Gear High Side Driver ON output speed limit for TUT input speed limit for TUT PRNDL state defaulted IMS Fault Pending Service Fast Learn Mode HSD Enabled	>= -6.65625 °C = FALSE Boolean = FALSE Boolean ≠ 1st Boolean = TRUE Boolean >= 100 RPM >= 150 RPM = FALSE Boolean = FALSE Boolean = 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		
iable Bleed Solenoid (VBS) P2715	Pressure Control (PC) Solenoid D	Fail Case 1 Case: Steady State 1st					One
	1	Stuck On [CB26] (Steady State)	Attained Gear slip					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	R	Time equired	ı
•		r		Table Based					T
				Time Please					
			If the Above is True for Time	Refer to Table Enable Time					
				>= 4 in (Sec) supporting					
				documents					Т
			Intrusive test:						
			(CBR1 clutch exhausted)						
				<= 2.482177734					
			Gear Ratio If the above parameters are true	>= 2.245849609					
			ii the above parameters are true						
							>= 1.1	Fail Timer (Sec)	.)
							>= 5	Fail Count in	
								1st Gear	
								or Total Fail	
							>= 5	Counts	
			Fail Case 2 Case: Steady State 3rd Gear					500.10	1
				Table Based					
				value Please					
			Max Delta Output Speed Hysteresis	>= Refer to 3D Table 1 in rpm/sec					
			пузієїезіз	supporting					
				documents					
				Table Based					ı
				value Please					
			Min Delta Output Speed	>= Refer to 3D Table 2 in rpm/sec					
			Hysteresis	supporting					
				documents					
				Table Based					
				Time Please					
			If the Above is True for Time	>= Refer to Table Sec					
				>= 17 in Sec supporting					
				documents					
			Intrusive test:						
			(C35R clutch exhausted)						
				<= 2.482177734					
			Gear Ratio If the above parameters are true	>= 2.245849609					
			ii the above parameters are true						
							>= 1.1	Fail Timer (Sec)	.)
							>= 3	Fail Count in	
							1 - 3	3rd Gear	
								or Total Fail	1
							>= 5	Counts	1
			Fail Case 3 Case: Steady State 4rd Gear					000.113	1
				Table Based					
				value Please					
			Max Delta Output Speed	>= Refer to 3D rpm/sec					
			Hysteresis	Table 1 in supporting					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	R	Time lequired
Oyoteill	Code	Description	Oriteria	Table Based	a.i allottoli	Conditions		.oquiiou
				value Please				
			Min Delta Output Speed	Refer to 3D	1			
			Hysteresis	>= Table 2 in rpm/sec				
			Hysteresis	supporting				
				documents				
				Table Based				
				Time Please				
				Pofor to Tablo				
			If the Above is True for Time	>= 17 in Sec				
				supporting				
				documents				
			Intrusive test:					
			(C1234 clutch exhausted)					
				<= 0.700317383				
			Gear Ratio	>= 0.633666992				
			If the above parameters are true					
							>= 1.1	Fail Timer (Sec)
							>= 1.1	
							>= 3	Fail Count in
								4th Gear
								or
							>= 5	Total Fail
			Fall Coco A Coco Stoody Stota Fib Coco		+			Counts
			Fail Case 4 Case: Steady State 5th Gear	Table Based				
				value Please				
			Max Delta Output Speed	Refer to 3D				
			Hysteresis	>= Table 1 in rpm/sec				
			rrysteresis	supporting				
				documents				
				Table Based				
				value Please				
			Min Delta Output Speed	B (1 0B				
			Hysteresis	>= Refer to 3D Table 2 in rpm/sec				
			, i	supporting				
				documents				
				Table Based				
				Time Please				
			If the Above is True for Time	>= Refer to Table Sec				
			ii the Above is True tot Tillie	17 111				
				supporting				
				documents				
			Intrusive test:					
			(C35R clutch exhausted)	0.700217202				
				<= 0.700317383				
				>= 0.633666992				
			If the above parameters are true					
							>= 1.1	Fail Timer (Sec)
								Fail Count in
							>= 3	5th Gear
								or
								Total Fail
							>= 5	Counts
					PRNDL State defaulted	= FALSE Boole	an	
					inhibit RVT	= FALSE Boole	an	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold lue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum
						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	=	IKUE	Doolean				
						A OR B							
						(A) Output speed enable	>=	67	Nm				
						(B) Accelerator Pedal enable	>=	0.5004883	Nm				
						Ignition Voltage Lo	>=	8.5996094	Volts				
						Ignition Voltage Hi	<=	31.999023	Volts				
						Engine Speed Lo	>=	400	RPM				
						Engine Speed Hi	<=	7500	RPM				
						Engine Speed is within the		-	C				
						allowable limits for	>=	5	Sec				
						if Attained Gear=1st FW							
						Accelerator Pedal enable	>=	5.0003052	Pct				
						if Attained Gear=1st FW		-		1			
						Engine Torque Enable	>=	5	Nm				
						if Attained Gear=1st FW							
						Engine Torque Enable	<=	8191.875	Nm				
						Transmission Fluid							
						Temperature	>=	-6.65625	°C				
						Input Speed Sensor fault	=	FALSE	Boolean				
						Output Speed Sensor fault	=	FALSE	Boolean				
						Default Gear Option is not	_		Doolcan				
						present	=	TRUE					
					Disable Conditions:	MIL not Illuminated for DTC's:		, P0717, P0722	, P0723,				
							P0107, P010 P0175, P020 P0205, P020 P0301, P030	, P0102, P0103 18, P0171, P017 11, P0202, P020 16, P0207, P020 12, P0303, P030 17, P0308, P040	72, P0174, 03, P0204, 08, P0300, 04, P0305,				
		Pressure Control (PC) Solenoid D	The HWIO reports a low voltage										One Tr
ariable Bleed Solenoid (VBS)	P2720	Control Circuit Low	(ground short) error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	
		(CB26 VBS)	(ground short) error nag										
										out	0.375	Sample Time	
										of	0.070	(Sec)	
								Test Failed					
								This Key					
						P2770 Status is not	=	On or		1			
								Fault		1			
								Active					
						Ignition Voltage	>=	8.5996094	Volts	1			
						Ignition Voltage	<=	31.999023	Volts	1			
						Engine Speed	>=	400	RPM				
						Engine Speed	<=	7500	RPM				
						Engine Speed is within the allowable limits for	>=	5	Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold llue	Secondary Malfunction		Enable Conditions			Time Requir		Mil Illum.
Gysterii	Code	Description	or not no	V	Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None	- Simmoria			почин	•	
Variable Bleed Solenoid (VBS)	P2721	Pressure Control (PC) Solenoid D Control Circuit High (CB26 VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					aut.	0.3	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	Volts Volts RPM RPM Sec	OI .		(Jet)	
					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	Please refer	RPM Shift Time (Sec)					>= Tab Neut	ase See le 5 For ral Time Cal	Neutral Timer (Sec)	One T
			If Above Conditions have been met, Increment 1st gear fail counter and C1234 fail counter	Documents						>=	3	1st Gear Fail Count or C1234 Clutch Fail Count	
			Fail Case 2 Case: Steady State 2nd Gear Gear slip	>= 400	RPM					>= Tab Neut	ase See le 5 For tral Time Cal	Neutral Timer (Sec)	
			commanded 3rd gear If attained Gear ≠ 3rd for Time	Please refer to Table 3 in Supporting Documents	Shift Time (Sec)								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			me uired	II
.,			If Above Conditions have been							1
			met, Increment 2nd gear fail					>= 3	2nd Gear Fail Count	
			counter						Count	
									or	
			and C1234 fail counter					>= 14	C1234 Clutch	1
									Fail Count	4
			Fail Case 3 Case: Steady State 3rd Gear					Disease Co.		
								Please See Table 5 For		.
			Gear slip	>= 400 RPM				>= Neutral Time		
								Cal	(300)	
			Intrusive test:					Oui		
			commanded 4th gear							
			J	Please refer						Т
			If attained Coor + 4th for time	to Table 3 in						
			If attained Gear ≠ 4th for time	Supporting Still Title (Sec)						
				Documents						
			If Above Conditions have been					1 .	3rd Gear Fail	1
			met, Increment 3rd gear fail					>= 3	Count	
			counter							
									or C1234 Clutch	
			and C1234 fail counter					>= 14	Fail Count	Т
			Fail Case 4 Case: Steady State 4th Gear						Tall Count	1
			ouse. Steady State IIII deal					Please See	!	
				400 5514				Table 5 For		
			Gear slip	>= 400 RPM				>= Neutral Time		
								Cal		
			Intrusive test:							Т
			commanded 5th gear							
				Please refer						Т
			If attained Gear = 5th For Time	>= to Table 3 in Supporting Shift Time (Sec)						
				Supporting Documents						
			If Above Conditions have been	Documents						Т
			met, Increment 4th gear fail					>= 3	4th Gear Fail	
			counter					, ,	Count	
			Counter						or	
			1.04004611						C1234 Clutch	1
			and C1234 fail counter					>= 14	Fail Count	
					PRNDL State defaulted	= FALSE	Boolean			1
					inhibit RVT	= FALSE	Boolean			1
					IMS fault pending indication	= FALSE	Boolean			
					TPS validity flag	= TRUE	Boolean			
					Hydraulic System Pressurized Minimum output speed for	= TRUE	Boolean			1
					RVT	>= 0	RPM			
					A OR B					
					(A) Output speed enable	>= 67	RPM			1
					(B) Accelerator Pedal enable	>= 0.5004883	Pct			1
					Common Enable Criteria					1
					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			1
					allowable limits for		000	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	= TRUE Boolean = TRUE Boolean >= -6.65625 °C = FALSE Boolean = FALSE Boolean		
				Disable Conditions	present	= 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		
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 Range Shift Status Attained Gear Slip If the above conditions are true	Control				One T
			in 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 (3-5 shifting without throttle)	>= 0.299804688 sec >= 0.5 sec >= 0.299804688 sec >= 0.5 sec				
			(3-5 shirting without introttle) fail timer 1 (4-5 shifting with throttle) fail timer 1 (4-5 shifting without throttle) fail timer 1 (4-6 shifting with throttle) fail timer 1 (4-6 shifting without throttle)	>= 0.299804688 sec >= 0.5 sec >= 0.299804688 sec >= 0.5 sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers				Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail >= Timer 1, and Reference Supporting Table 15 for Fail Timer 2	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter				5.10	
			2nd gear fail counter				>= 3 Fail Counter From 2nd Gea	
			3rd gear fail counter				>= 3 Fail Counter From 3rd Gea	
			4th gear fail counter				>= 3 Fail Counter From 4th Gea	
			total fail counter				>= 5 Total Fail Counter	
					TUT Enable temperature Input Speed Sensor fault Output Speed Sensor fault Command / Attained Gea High Side Driver ON output speed limit for TUT input speed limit for TUT PRNDL state defaulted IMS Fault Pending Service Fast Learn Mode HSD Enabled	>= -6.65625 °C = FALSE Boolean = FALSE Boolean ≠ 1st Boolean = TRUE Boolean >= 100 RPM >= 150 RPM = FALSE Boolean = FALSE Boolean = 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		
ariable Bleed Solenoid (VBS		Pressure Control (PC) Solenoid E Stuck On (Steady State)	Fail Case 1 Case: 5th Gear					One T

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	=
Jysteili	Code	Description	Oriteria	Table Based	mununouon	Conditions	rrequired	- "
				value Please				
			Max Delta Output Speed	Pofor to 2D				
			Hysteresis	>= Table 1 in rpm/sec				
			Trysteresis	supporting				
				documents				
				Table Based				
				value Please				
			Min Delta Output Speed	Refer to 3D				
			Hysteresis	>= Table 2 in rpm/sec				
			Trysteresis	supporting				
				documents				
				Table Based				
				Time Please				
				Defeate Table				
			If the Above is True for Time	>= 17 in Sec				
				supporting				
				documents				- 1
			Intrusive test:	abbambino				
			(C35R clutch exhausted)					
				<= 1.209594727				
			Gear Ratio	>= 1.094360352				
			If the above parameters are true					
								(0.)
							>= 1.1 Fail Time	r (Sec)
							Fail Co	unt in
							>= 3 5th G	ear
							OF	2
							>= 3 Total	
							>= 3 Cour	nts
			Fail Case 2 Case: 6th Gear					
				Table Based				
				value Please				
			Max Delta Output Speed	>= Refer to 3D rpm/sec				
			Hysteresis	Table I III				
				supporting				
				documents				
				Table Based				
			Mis Dalla O i i O	value Please				
			Min Delta Output Speed	>= Refer to 3D rpm/sec				
			Hysteresis	Table 2 III				
				supporting				
				documents				
				Table Based				
				Time Please				- 1
			If the Above is True for Time	>= Refer to Table Sec				
				supporting				
			leteration to at.	documents				
			Intrusive test:					
			(CB26 clutch exhausted)	1 20050 4727				
			Gear Ratio	<= 1.209594727				
	1 1			>= 1.094360352	1		1	
			If the above a constant					
			If the above parameters are true					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				ime uired	Mil Illum
- Cyolein	Joue	Description	C. 1001M	Talue			20		>=	3	Fail Count in 6th Gear	
											OR	
									>=	3	Total Fail	
					PRNDL State defaulted	=	FALSE	Boolean			Counts	1
					inhibit RVT	=	FALSE	Boolean				
					IMS fault pending indication	=	FALSE	Boolean				
					output speed TPS validity flag	>=	0 TRUE	RPM				
					HSD Enabled	= =	TRUE	Boolean Boolean				
					Hydraulic_System_Pressurize		TRUE					
					d	=	TRUE	Boolean				
					A OR B		/7	Mari				
					(A) Output speed enable (B) Accelerator Pedal enable	>= >=	67 0.5004883	Nm 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		5.0003052	Pct				
					Accelerator Pedal enable	>=	3.0003032	PU				
					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 Input Speed Sensor fault	=	FALSE	Boolean				
					Output Speed Sensor fault	=	FALSE	Boolean				
					Default Gear Option is not	=	TRUE					
					present							
				Disabl Conditions			P0717, P0722	2, P0723,				
				Conditions	5.03.	1 1022						
						ECM: P0101,	P0102, P0103	B. P0106.				
						P0107, P0108						
						P0175, P0201						
						P0205, P0206						
						P0301, P0302 P0306, P0307						
		Pressure Control (PC) Solenoid E	The HWIO reports a low voltage						-			One '
'ariable Bleed Solenoid (VBS) P2729	Control Circuit Low (C1234 VBS)	(ground short) error flag	= TRUE Boolean					>=	0.3	Fail Time (Sec)	
									out of	0.375	Sample Time (Sec)	
							Test Failed		1		(000)	1
	1						This Key					
	1				P2729 Status is not	=	On or					
							Fault Active					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		reshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
- Cystoni	-	2000, p. 100				Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	8.5996094 31.999023 400 7500 5	Volt Volt RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P2730	Pressure Control (PC) Solenoid E Control Circuit High (C1234 VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>= out	0.3	Fail Time (Sec) Sample Time	One Trip
						P2730 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	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		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 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	O1		(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				me uired	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					>=	4.4	MPH	One Trip
			story ordinag								out of	5	MPH	
							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				
						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	
			Doug and		0.1123	360	Stabilization delay Ignition Voltage Ignition Voltage Power Mode	>= >= <= =	3 8.5996094 31.999023 Run	sec Volt Volt	of	70	(≈ 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
			·				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						

16 OBDG10 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 °C
Curve	409.59	2.00	2.00 Sed

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 °C
Curve	409.00	3.40	1.40	1.30	1.20 Sec

16 OBDG10 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 °C	;
Curve	2.12	1.39	0.84	0.64	0.33 Se	эс

<u>Table 13</u>

Axis	-40.00	-20.00	0.00	30.00	110.00 °	C
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	٥С
Curve	2.97	0.82	0.47	0.20	0.13	Sec

Table 15

16 OBDG10 Diagnostic 2D Tables - TCM

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

<u>Table 17</u>

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

<u>Table 18</u>

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

<u>Table 19</u>

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

Table 20

Axis	-40.10	-40.00	-20.00	0.00	30.00	60.00	100.00	149.00	149.10	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 OBDG10 Diagnostic 3D Tables - TCM

3D_Table 1

X-Axis Cali	%
Y-Axis Cali	°C
Table Calib	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 Cali	%
Y-Axis Cali	°C
Table Calib	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