Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		reshold Value	Secondary Malfunction	Enable Condition	s		me uired	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 Trip
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0603 ECM: None				
Transmission Control Module (TCM)	P0604	Transmission Electro-Hydraulic Control Module Random Access Memory	RAM Read/Write Failure (Single Word)	= TRUE	Boolean				>= 5	Fail Counts Sample Counts	One Trip
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0604 ECM: None			cumple count	
Transmission Control Module (TCM)	P062F	Transmission Electro-Hydraulic Control Module Long Term Memory Performance	TCM Non-Volatile Memory bit Incorrect flag at Powerdown	= TRUE	Boolean				Runs Continously		One Trip
					Disable Conditions:		TCM: P062F ECM: None				
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1 Substrate Temperature	>= 144	°C				>= 5	Fail Time (Sec)	One Trip
			Fail Case 2 Substrate Temperature		°C				>= 2	Fail Time (Sec)	
			Ignition Voltage Note: either fail case can set the DTC	>= 18	Volts						-
						Ignition Voltage Lo Ignition Voltage Hi Substrate Temp Lo Substrate Temp Hi Substrate Temp Between Temp Range for Time	>= 9 <= 31.99023 >= 0 <= 240 >= 0.25	Volts 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					>=	4	Fail Counts	One Trip
									out of	6	Sample Counts	
					P0658 Status is not	=	Test Failed This Key On or Fault Active					
					High Side Driver 1 On	=	True	Boolean				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Transmission Control Module (TCM)	P0667	TCM Internal Temp (substrate) Sensor Circuit Range/Performance	If transmission oil temp to substrate temp Δ	Refer to Table 19 in °C supporting documents								Two Trips
			If TCM substrate temp to power up temp Δ	Refer to Table 20 in °C supporting documents								
			Both conditions above required to increment fail counter						>=	3000	Fail Counts (100ms loop)	
			Note: table reference temp = to the median temp of trans oil temp, substrate temp and power up temp.						Out of	3750	Sample Counts (100ms loop)	
			Non-continuous (intermittent) fail conditions will delay resetting fail counter until						>=	700	Pass Counts (100ms loop)	
									Out of	875	Sample Counts (100ms loop)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mi Illun
		•			Engine Torque Signal Valid	=	TRUE	Boolean		
					Accelerator Position Signal					
					Valid	=	TRUE	Boolean		
					Ignition Voltage Lo	>=	9	Volts		
					Ignition Voltage Hi	<=	31.99023	Volts		
					Engine Speed Lo	>=	400	RPM		
					Engine Speed Hi	<=	7500	RPM		
					Engine Speed is within the	>=	5	Sec		
					allowable limits for	>=		366		
					Brake torque active	=	FALSE			
					Below describes the brake					
					torque entry criteria					
					Engine Torque	>=	90	N*m		
					Throttle	>=	30.0003	Pct		
					Transmission Input Speed	<=	200	RPM		
					Vehicle Speed	<=	8	Kph		
					Transmission Range	≠	Park			
					Transmission Range	≠	Neutral			
					PTO	=	Not Active			
					Set Brake Torque Active TRUE					
					if above conditions are met for:	>=	7	sec		
					Below describes the brake					
					torque exit criteria					
					Brake torque entry criteria	=	Not Met			
							Clutch			
					Clutch hydraulic pressure	≠	Hydraulic			
					Sidion rijardano prossaro	,	Air Purge			
							Event			
					Clutch used to exit brake torque		CeTFTD_e			
					active	=	_C3_RatlE			
							nbl			
					The above clutch pressure is					
					greater than this value for one	>=	600	kpa		
					loop					
					Set Brake Torque Active				1	
					FALSE if above conditions are	>=	20	Sec		
					met for:				1	
							.		1	
							Test Failed		1	
					P0667 Status is	≠	This Key		1	
							On or Fault		1	
							Active		1	
									1	
	1				1				1	

Component/	Fault	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	Criteria		MIL not Illuminated for DTC's	TCM: P0658, P0668, P0669, P06AD, P06AE, P0716, P0712, P0713, P0717, P0722, P0723, P0962, P0963, P0966, P0967, P0970, P0971, P215C, P2720, P2721, P2729, P2730 ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0301, P0302, P0303, P0304, P0305,	Kequired	mam.
Transmission Control Module (TCM)	P0668	TCM internal temperature (substrate) thermistor failed at a low voltge	Type of Sensor Used If TCM Substrate Temperature Sensor = Direct Proportional and Temp If TCM Substrate Temperature Sensor = Indirect Proportional and Temp	op <= 254 °C		P0306, P0307, P0308, P0401, P042E		Two Trips
			Either condition above will satisfy the fail conditions		Ignition Voltage Lo Ignition Voltage H Engine Speed LE Engine Speed is within the allowable limits for	>= 9 Volts <= 31.99023 Volts >= 400 RPM <= 7500 RPM >= 5 Sec Test Failed	>= 60 Fail Timer (Sec	-) -
Transmission Control Medulo		TCM internal temperature (substrate)		Disable Conditions Ceterial C	e MIL not Illuminated for DTC's :	Active		Two
Transmission Control Module (TCM)	P0669	TCM internal temperature (substrate) thermistor failed at a high voltage	Type of Sensor Used If TCM Substrate Temperature Sensor = Direct Proportional and Temp If TCM Substrate Temperature Sensor = Indirect Proportional and Temp Either condition above will satisfy the fail conditions	= tageInversePr op >= -254 °C <= -254 °C			>= 60 Fail Timer (Sec	Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
- Cystem	0048	Description			Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= <= >= <= >=	9 31.99023 400 7500 5	Volts Volts RPM RPM Sec				
					P0669 Status is	≠	Test Failed This Key On or Fault Active					
					For Hybrids, below conditions must also be met							
					Estimated Motor Power Loss	>=	0	kW				
					Estimated Motor Power Loss greater than limit for time	>=	0	Sec				
					Lost Communication with Hybrid Processor Control Module	=	FALSE					
					Estimated Motor Power Loss Fault	=	FALSE					
				Disabl Conditions		TCM: P0716,	, P0717, P0722, I	P0723				
Transmission Control Module (TCM)	P06AC	TCM Power-up Temp Sensor Circuit Range/Performance	If TCM power-up temp to substrate temp Δ	Refer to Table 20 in supporting documents								Two Trips
			If transmission oil temp to power up temp Δ	Refer to Table 18 in supporting documents								
			Both conditions above required to increment fail counter						>=	3000	Fail Counts (100ms loop)	
			Note: table reference temp = to the median temp of trans oil temp, substrate temp and power up temp.						Out of	3750	Sample Counts (100ms loop)	
			Non-continuous (intermittent) fail conditions will delay resetting fail counter until						>=	700	Pass Counts (100ms loop)	
									Out of	875	Sample Counts (100ms loop)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mi Illur
					Engine Torque Signal Valid	=	TRUE	Boolean		
					Accelerator Position Signal					
					Valid	=	TRUE	Boolean		
					Ignition Voltage Lo	>=	9	Volts		
					Ignition Voltage Hi	<=	31.99023	Volts		
					Engine Speed Lo	>=	400	RPM		
					Engine Speed Hi	<=	7500	RPM		
					Engine Speed is within the		5	Sec		
					allowable limits for	>=		Sec		
					Brake torque active	=	FALSE			
					Below describes the brake					
					torque entry criteria					
					Engine Torque	>=	90	N*m		
					Throttle	>=	30.0003	Pct		
				1	Transmission Input Speed	<=	200	RPM		- [
					Vehicle Speed	<=	8	Kph		
					Transmission Range	≠	Park			
					Transmission Range	≠	Neutral			
					PTO	=	Not Active			
					Cat Danka Tanana Astina TDUE					
					Set Brake Torque Active TRUE if above conditions are met for:	>=	7	sec		
					ii above conditions are met for:					
					Below describes the brake					
					torque exit criteria					
					Brake torque entry criteria	=	Not Met			
							Clutch			
					Chitab budanda ananana	_	Hydraulic			
					Clutch hydraulic pressure	≠	Air Purge			
							Event			
					Chatabassand to exit been a terror		CeTFTD_e			
					Clutch used to exit brake torque	=	_C3_RatlE			
					active		nbl			
					The above clutch pressure is					
					greater than this value for one	>=	600	kpa		
					loop					
					Set Brake Torque Active					
					FALSE if above conditions are	>=	20	Sec		
				1	met for:					
				1			Test Failed			1
					DO(AO C) : :	,	This Key			
					P06AC Status is	≠	On or Fault			
				1			Active			
							,,,,,,			
				1						
	1									1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
- Cycleiii		2505,pitori			MIL not Illuminated for DTC's:			
Transmission Control Module (TCM)	P06AD	TCM power-up thermistor circuit voltage low	Power Up Temp	<= 254 °C			>= 60 Fail Time (Sec)	Two Trips
(IUM)		voliage low			Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= 9 Volts <= 31.99023 Volts >= 400 RPM <= 7500 RPM >= 5 Sec		Imps
					P06AD Status is	Test Failed This Key ≠ On or Fault Active		
					For Hybrids, below conditions must also be met			
					Estimated Motor Power Loss	>= 0 kW		
					Estimated Motor Power Loss greater than limit for time	>= 0 Sec		
					Lost Communication with Hybrid Processor Control Module	= FALSE		
					Estimated Motor Power Loss Fault	= FALSE		
				Disable Conditions	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723 ECM: None		
Transmission Control Module (TCM)	P06AE	TCM power-up thermistor circuit voltage high	Power Up Temp	>= -254 °C			>= 60 Fail Time (Sec)	Two Trips
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= 9 Volts <= 31.99023 Volts >= 400 RPM <= 7500 RPM >= 5 Sec		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions			Tir Requ		Mil Illum
System	Code	Description	GIRGIA	value	P06AE Status is	≠	Test Failed This Key On or Fault Active			requ	111 GU	
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Transmission Fluid Temperature Sensor (TFT)	P0711	Trans Fluid Temp Sensor Circuit Range/Performance	If transmission oil temp to substrate temp Δ If transmission oil temp to power up temp Δ	Refer to Table 19 in °C supporting documents Refer to Table 18 in °C supporting documents								Two Trips
			Both conditions above required to increment fail counter Note: table reference temp = to the median temp of trans oil temp, substrate temp and power up temp,						>= Out of	3000 3750	Fail Counts (100ms loop) Sample Counts (100ms loop)	_
			Non-continuous (intermittent) fail conditions will delay resetting fail counter until						>= Out of	700 875	Pass Counts (100ms loop) Sample Counts (100ms loop)	
					Engine Torque Signal Valid Accelerator Position Signal Valid Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed Hi 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	= = = >= <= >= = >= <= ≠	TRUE TRUE 9 31.99023 400 7500 5 FALSE 90 30.0003 200 8 Park	Boolean Boolean Volts Volts RPM RPM Sec N*m Pct RPM Kph				-

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions			Tim Requ		Mil Illum.
5,2					PTC Set Brake Torque Active TRUI if above conditions are met for		Not Active	sec		- 1		
					Below describes the brake torque exit criteria Brake torque entry criteria	a	Not Met Clutch					
					Clutch hydraulic pressure	<i>≠</i>	Hydraulic Air Purge Event					
					Clutch used to exit brake torqui	=	CeTFTD_e _C3_RatlE nbl					
					The above clutch pressure is greater than this value for one loop	>=	600	kpa				
					Set Brake Torque Activo FALSE if above conditions are met for	>=	20	Sec				
					P0711 Status i	5 ≠	Test Failed This Key On or Fault Active					
				Di: Condit	able MIL not Illuminated for DTC's ons:	P06AE, P07 P0722, P072	16, P0712, P0713 23, P0962, P0963, 70, P0971, P215C	, P0717, P0966,				
						P0107, P010 P0175, P020 P0205, P020 P0301, P030	1, P0102, P0103, 08, P0171, P0172 01, P0202, P0203, 06, P0207, P0208, 02, P0303, P0304, 07, P0308, P0401	, P0174, , P0204, , P0300, , P0305,				
Transmission Fluid Temperature Sensor (TFT)	P0712	Transmission fluid temperature thermistor failed at a low voltage	Type of Sensor Used If Transmission Fluid Temperature	CeTFTI_e_Vol = tageInversePr op								Two Trips
			ii Transnission Fluid Terriperature Sensor = Direct Proportional and Temp If Transmission Fluid Temperature	<= 254 °C								
			Sensor = Indirect Proportional and Temp Either condition above will satisfy	>= 254 °C					>=	60	Fail Time (Sec)	
			the fail conditions		Ignition Voltage Lo		9 31.99023	Volts Volts				

Conditions 400 RPM 7500 RPM	Required	Illum.
5 Sec		
Test Failed This Key On or Fault Active		
0 kW		
0 Sec		
FALSE		
FALSE		
o, P0717, P0722, P0723		
		Two Trips
+	>= 60 Fail Time (Sec)	
9 Volts 31.99023 Volts 400 RPM 7500 RPM 5 Sec	>= 00 rdii iiiie (sec)	
Test Failed This Key On or Fault Active		
	31.99023 Volts 400 RPM 7500 RPM 5 Sec Test Failed This Key On or Fault	31.99023 Volts 400 RPM 7500 RPM 5 Sec Test Failed This Key On or Fault

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thresho Value		Secondary Malfunction		Enable Conditions			Tir Requ		Mil Illum.
System	Code	Description	Onteria		vaiue			TCM: P0713 P0723	P0716, P0717,	P0722,		Nequ	mou.	
								ECM: None						
Transmission Input Speed Sensor (TISS)	P0716	Input Speed Sensor Performance	Transmission Input Speed Sensor Drops	>=	1350 R	PM					>=	0.8	Fail Time (Sec)	One Trip
							Engine Torque is Engine Torque is Engine Speed Engine Speed is within the allowable limits for Vehicle Speed is Throttle Position is	>=	0 8191.88 400 7500 5 10 0	N°m N°m RPM RPM Sec Kph Pct				
							The previous requirement has been satisfied for The change (loop to loop) in	>=	0	Sec				
							transmission input speed is The previous requirement has been satisfied for	>=	8191.75 0	RPM/Loop Sec				
1							Throttle Position Signal Valid	=	TRUE	Boolean				
							Engine Torque Signal Valid Ignition Voltage Ignition Voltage	= >=	TRUE 9 31.99023	Boolean Volts Volts				
							P0716 Status is not	=	Test Failed This Key On or Fault Active					
						Disable Conditions:	MIL not Illuminated for DTC's:		P0102, P0103,					
Transmission Input Speed Sensor (TISS)	P0717	Input Speed Sensor Circuit Low Voltage	Fail Case 1 Transmission Input Speed is	<	33 R	PM					>=	4.5	Fail Time (Sec)	One Tri
			Fail Case 2 When P0722 DTC Status equal to Test Failed and Transmission Input Speed is	<	1000 R	PM	Controller uses a single power supply for the speed sensors	=	1	Boolean				
							Engine Torque is Engine Torque is Vehicle Speed	>= <= >=	50 8191.88 16	N*m N*m Kph				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Tir Requ		Mil Illum.
					Engine Torque Signal Valid Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	<= 31.99023 >= 400	Boolean Volts Volts RPM RPM Sec				
					P0717 Status is not	Test Failed This Key On or Fault Active					
				Disable Conditions	MIL not Illuminated for DTC's:	TCM: P0722, P0723 ECM: P0101, P0102, P0103					
Transmission Output Speed Sensor (TOSS)	P0722	Output Speed Sensor Circuit Low Voltage	Transmission Output Speed Sensor Raw Speed	<= 35 RPM				>=	4.5	Fail Time (Sec)	One Trip
					P0722 Status is not	Test Failed This Key On or Fault Active					
					Transmission Input Speed Check	= TRUE	Boolean				
					Engine Torque Check Throttle Position	= TRUE >= 8.0002	Boolean Pct				
					Transmission Fluid Temperature Disable this DTC if the PTO is	>= -40	°C				
					active Engine Torque Signal Valid	= 1 = TRUE	Boolean Boolean				
					Throttle Position Signal Valid	= TRUE	Boolean				
					Ignition Voltage is Ignition Voltage is Engine Speed is Engine Speed is	>= 9 <= 31.99023 >= 400 <= 7500	Volts Volts RPM RPM				
					Engine Speed is within the allowable limits for	>= 5	Sec				
					Enable_Flags Defined Below						
					The Engine Torque Check is TRUE, if either of the two following conditions are TRUE						
					Engine Torque Condition 1						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold 'alue	Secondary Malfunction		Enable Conditions			Tim Requi		Mil Illum.
						Range Shift Status	≠	Range shift completed	ENUM		·		
						OR Transmission Range is Engine Torque is	= >=	Park or Neutral 8191.75	N*m				
						Engine Torque is	<=	8191.75	N*m				
						Engine Torque Condition 2 Engine Torque is Engine Torque is	>= <=	30 8191.75	N*m N*m				
						The Transmission Input Speed (TIS) Check is TRUE, if either of the two following conditions are TRUE							
						TIS Check Condition 1							
						Transmission Input Speed is	>=	1000	RPM				
						Transmission Input Speed is	<=	8191.75	RPM				
						TIS Check Condition 2 Engine Speed without the brake applied is	>=	3200	RPM				
						Engine Speed with the brake applied is	>=	3200	RPM				
						Engine Speed is Controller uses a single power supply for the speed sensors	<= =	8191.75 1	RPM Boolean				
						Powertrain Brake Pedal is Valid	=	TRUE	Boolean				
					Disable Conditions:	MIL not Illuminated for DTC's:							
							ECM: P0101 P0122, P012	, P0102, P0103, 3	P0121,				
Transmission Output Speed Sensor (TOSS)	P0723	Output Speed Sensor Circuit Intermittent	Transmission Output Speed Sensor Raw Speed	>= 105	RPM					>=	0	Enable Time (Sec) Enable Time	One Trip
			Output Speed Delta	<= 8191.75	RPM					>=	0	(Sec)	
			Output Speed Drop		RPM					>=	3	Output Speed Drop Recovery Fail Time (Sec)	
	1		AND			l							

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mi Illun
			Transmission Range is	Driven range = (R,D)						
					Range_Disable OR	=	FALSE	See Below		
					Neutral_Range_Enable	=	TRUE	See Below		
					And Neutral_Speed_Enable are TRUE concurrently	=	TRUE	See Below		
					Transmission_Range_Enable	=	TRUE	See Below		
					Transmission_Input_Speed_En able	=	TRUE	See Below		
					No Change in Transfer Case Range (High <-> Low) for	>=	5	Seconds		
					P0723 Status is not	=	Test Failed This Key On or Fault Active			
					Disable this DTC if the PTO is active	=	1	Boolean		
					Ignition Voltage is Ignition Voltage is Engine Speed is	>= <= >=	9 31.99023 400	Volts Volts RPM		
					Engine Speed is Engine Speed is within the allowable limits for	<= >=	7500 5	RPM Sec		
					Enable_Flags Defined Below					
					Transmission_Input_Speed_En able is TRUE when either TIS Condition 1 or TIS Condition 2 is TRUE:					
					TIS Condition 1 is TRUE when both of the following conditions are satsified for Input Speed Delta	>= <=	0 4095	Enable Time (Sec) RPM		
					Raw Input Speed TIS Condition 2 is TRUE when ALL of the next two conditions	>=	500	RPM		
					are satisfied Input Speed A Single Power Supply is used	=	0 TRUE	RPM Boolean		
					for all speed sensors	=	IKUE	Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illun
					Neutral_Range_Enable is TRUE when any of the next 3 conditions are TRUE		N. J	ENUM.		
					Transmission Range is	=	Neutral Reverse/N	ENUM		
					Transmission Range is	=	eutral Transitonal	ENUM		
					Transmission Range is	=	Neutral/Dri ve Transitiona I	ENUM		
					And when a drop occurs					
					Loop to Loop Drop of Transmission Output Speed is	>	650	RPM		
					Range_Disable is TRUE when any of the next three conditions are TRUE					
					Transmission Range is	=	Park	ENUM		
					Transmission Range is	=	Park/Rever se Transitonal	ENUM		
					Input Clutch is not	=	ON (Fully Applied)	ENUM		
					Neutral_Speed_Enable is TRUE when All of the next three conditions are satsified for	>	1.5	Seconds		
					Transmission Output Speed	>	130	RPM		
					The loop to loop change of the Transmission Output Speed is	<	125	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 Reverse/N	ENUM		
					Transmission Range is	=	eutral Transitiona I	ENUM		
					Transmission Range is	=	Neutral/Dri ve Transitiona I	ENUM		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold	Secondary Malfunction	Enable Condition	,			me uired	Mil Illum.
System	Code	Description	One.na			Time since a driven range (R,D) has been selected	Table Based Time Please >= Refer to Table 21 i supporting document	Sec 1		Rogi		
						Transmission Output Speed Sensor Raw Speed Output Speed when a fault was detected	>= 500 >= 500	RPM RPM				-
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0973, P0974, P097 ECM: P0101, P0102, P010 P0122, P0123					
orque Converter Clutch (TCC)	P0741	TCC System Stuck OFF	TCC Pressure Either Condition (A) or (B) Must be Met	>= 500 Refer to Table	Кра				>=	2	Enable Time (Sec)	Two Trips
			(A) TCC Slip Error @ TCC On Mode	1 in	RPM				>=	5	Fail Time (Sec)	
			(B) TCC Slip @ Lock On Mode If Above Conditions Have been Met,	>= 130	RPM				>=	5	Fail Time (Sec) TCC Stuck Off	
			and Fail Timer Expired, Increment Fail Counter						>=	2	Fail Counter	1
						TCC Mode Ignition Voltage Lo Ignition Voltage Hi Engine Speed Engine Speed is within the allowable limits for Engine Torque Lo Engine Torque Lo Throttle Position Lo Throttle Position Hi 2nd Gear Ratio Lo 3rd Gear Ratio High 4th Gear Ratio High 4th Gear Ratio Lo 4th Gear Ratio Io	>= 9 <= 31.99023 >= 400 <= 7500 >= 5 >= 50 <= 8191.88 >= 8.0002 <= 99.9985 >= 2.75281 <= 3.16724 >= 1.77625 <= 2.0437 >= 1.34851	Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			shold ilue		Secondary Malfunction		Enable Conditions			Tir Requ		Mil Illum.
Gystein	Gode	Scotlynon						5th Gear Ratio Lo 5th Gear Ratio Hi 6th Gear Ratio Lo 6th Gear Ratio High Transmission Fluid Temperature Lo Transmission Fluid Temperature Hi PTO Not Active Engine Torque Signal Valid	>= <= >= <= >= <= = =	0.93005 1.06995 0.69751 0.80249 -6.6563 130 TRUE TRUE	Ratio Ratio Ratio Ratio °C °C Boolean Boolean		· · · · · · · · · · · · · · · · · · ·		
								Throttle Position Signal Valid Dynamic Mode	=	TRUE FALSE	Boolean Boolean				
								P0741 Status is	- ≠	Test Failed This Key On or Fault Active	boolean				
							Disable iditions:	MIL not Illuminated for DTC's:	P0742, P27 ECM: P010 P0107, P01 P0175, P02 P0205, P02 P0301, P03		P0106, , P0174, , P0204, , P0300,				
Torque Converter Clutch (TCC)	P0742	TCC System Stuck ON	TCC Slip Speed	>=	-50	RPM									One Trip
			TCC Slip Speed If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter	<=	13	RPM						>= >=	1 5	Fail Time (Sec)	
								TCC Mode Enable test if Cmnd Gear = 1stFW and value true Enable test if Cmnd Gear = 2nd and value true Engine Speed Hi Engine Speed Lo Vehicle Speed II Vehicle Speed Lo Engine Torque Hi Engine Torque Lo Current Range Current Range Transmission Sump	= = = = = = = = = = = = = = = = = = =	Off 1 0 6000 500 511 1 8191.88 60 Neutral Reverse	Boolean RPM RPM KPH KPH Nm Nm Range Range				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	M Illu
					Transmission Sump	>=	15	°C		
					Temperature Throttle Position Hyst High	>=	10.0006	Pct		
					AND	~-	10.0000	1 61		
					Max Vehicle Speed to Meet	<=	8	KPH		
					Throttle Enable	\-	O	Ki ii		
					Once Hyst High has been met, the enable will remain while	>=	2.0004	Pct		
					Throttle Position	-	2.0001	1 01		
					Disable for Throttle Position	>=	75	Pct		
					Disable if PTO active and value	=	1	Boolean		
					true					
					Disable if in D1 and value true	=	1	Boolean		
					Disable if in D2 and value true	=	1	Boolean		
					Disable if in D2 and value frue	_	'	Doolcan		
					Disable if in D3 and value true	=	1	Boolean		
					D'antha 'C'a DA an Latan			Bestere		
					Disable if in D4 and value true	=	1	Boolean		
					Disable if in D5 and value true	=	1	Boolean		
					Disable if in MUMD and value					
					true	=	1	Boolean		
					Disable if in TUTD and value	=	1	Boolean		
					true					
					4 Wheel Drive Low Active Disable if Air Purge active and	=	FALSE	Boolean		
					value false	=	0	Boolean		
					RVT Diagnostic Active	=	FALSE	Boolean		
					Ignition Voltage	>=	9	V		
					Ignition Voltage	<=	31.99023	V KPH		
					Vehicle Speed Engine Speed	<= >=	511 400	RPM		
					Engine Speed Engine Speed	>= <=	7500	RPM		
					Engine Speed is within the					
					allowable limits for	>=	5	Sec		
					Engine Torque Signal Valid	=	TRUE	Boolean		
					Throttle Position Signal Valid	=	TRUE	Boolean		
							Test Failed			
		1			P0742 Status is	≠	This Key			
		1			PU/42 Status IS	+	On or Fault			
		1					Active			
		1								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Val		Secondary Malfunction		Enable Conditions				ime uired	Mil Illum
System	Code	Description	Official		vai		MIL not Illuminated for DTC's	P0741, P276 ECM: P010 P0107, P016 P0175, P026 P0205, P026 P0301, P036	5, P0717, P0722,	, P0106, 2, P0174, 3, P0204, 3, P0300, 4, P0305,		Kec	uneu	
Mode 2 Multiplex Valve	P0751	Shift Solenoid Valve A Stuck Off	Commaned Gear Slip Commanded Gear Gear Ratio Gear Ratio If the above parameters are true	= 1st <= 1.5		RPM rpm					>= =	0.3 5	Fail Tmr Fail Counts	Two Trips
											≠ >= >=	0 0.3 8	Neutral Timer (Sec) Fail Timer (Sec) Counts	
							Ignition Voltage Lo Ignition Voltage H Engine Speed L Engine Speed Is Engine Speed is within the allowable limits for Transmission Fluic Temperature	>= <= >= <= >= >=	9 31.99023 400 7500 5	Volts Volts RPM RPM Sec			Stanto	
							Range Shift State	= >=	Range Shift Completed 0.5005	ENUM %				
							OR Output Speed Throttle Position Signal Valid from ECN Engine Torque Signal Valid	>=	100 TRUE	RPM Boolean				
							from ECM, High side driver is enablec High-Side Driver is Enablec Input Speed Sensor faul Output Speed Sensor faul Default Gear Option is not presen	= = = =	TRUE TRUE FALSE FALSE TRUE	Boolean Boolean Boolean Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold /alue	Secondary Malfunction		Enable Conditions			Tim Requ		Mil Illum.
System	Code	Description	Sinona				MIL not Illuminated for DTC's:	TCM: P071 P182E	6, P0717, P0722,	P0723,		Roqu		
								P0107, P01 P0175, P02 P0205, P02 P0301, P03	01, P0102, P0103, 108, P0171, P017: 201, P0202, P020: 206, P0207, P020: 302, P0303, P030- 307, P0308, P040	2, P0174, 3, P0204, 8, P0300, 4, P0305,				
Mode 2 Multiplex Valve	P0752	Shift Solenoid Valve A Stuck On	Gear Box Slip	>=	400	RPM								One Tri
			Commanded Gear	=	3rd	Gear								
			Commanded Gear has Achieved 1st Locked OR 1st Free-Wheel OR 2nd with Mode 2 Sol. Commanded On	=	TRUE	Boolean								
			If the above parameters are true											
l											>= to	Please Refer Table 16 in Supporting Documents	Neutral Timer (Sec)	
			Command 4th Gear once Output Shaft Speed	<=	1000	RPM								
			If Gear Ratio And Gear Ratio	>= <=	4.35486 4.81323									
											>=	1.5	Fail Timer (Sec)	
							Ignition Voltage Lo	>=	9	Volts	>=	5	Counts	-
							Ignition Voltage Hi Engine Speed Lo	<=	31.99023 400	Volts RPM				
							Engine Speed Hi	>= <=	7500	RPM				
							Engine Speed is within the allowable limits for	>=	5	Sec				
							High-Side Driver is Enabled	=	TRUE	Boolean				
							Throttle Position Signal Valid from ECM	=	TRUE	Boolean				
							Output Speed	>=	100	RPM				
							OR TPS	>=	0.5005	%				
							Range Shift State	=	Range Shift Completed	ENUM				
							Transmission Fluid Temperature	>=	-6.6563	°C				
							Input Speed Sensor fault Output Speed Sensor fault	=	FALSE FALSE	Boolean Boolean				
							Default Gear Option is not present	=	TRUE					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thre Va	shold	Secondary Malfunction	Enable Conditions	Tim Requi		Mi Illur
System	Code	Description	Citteria	Va	iue	mananotion	Conditions	Kequi	ireu	IIIGI
					Disable	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723,			
					Conditions:		P182E			
							ECM: P0101, P0102, P0103, P0106,			
							P0107, P0108, P0171, P0172, P0174,			
							P0175, P0201, P0202, P0203, P0204,			
							P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305,			
							P0306, P0307, P0308, P0401, P042E			
							1 0300, 1 0307, 1 0300, 1 0 101, 1 0 122			
iable Bleed Solenoid (VBS)	P0776	Pressure Control (PC) Solenoid B	Fail Case 1 Case: Steady State 3rd Gear							One
(,		Stuck Off [C35R]		2-4	C					
			Commanded Gear Gearbox Slip	= 3rd >= 400	Gear RPM					
			Octabox Stip	100	TXI W			Di D. f		
								Please Refer to Table 16 in	Neutral Timer	
								>= Supporting	(Sec)	
								Documents	(,	
			Command 4th Gear once Output							
			Shaft Speed	<= 1000	RPM					
			If Gear Ratio							
			And Gear Ratio	<= 1.51831						
								>= 3	Fail Timer (Sec))
			It the above condiations are true, Increment 3rd gear fail counter					>= 2	3rd Gear Fail Counts	
			increment siù gear fair counter							
									0f	
			and C35R Fail counter					>= 14	3-5R Clutch Fail Counts	'
			Fail Case 2 Case: Steady State 5th Gear						odino	1
			Commanded Gear	= 5th	Gear					
								Diagon Defea		
								Please Refer to Table 5 in	Neutral Timer	
			Gearbox Slip	>= 400	Rpm			>= Supporting	(Sec)	
								Documents	(===)	
			Intrusive Test: Command 6th Gear							
			initiasive rest. Command offi Geal	Diagram						1
				Please refer to Table 3 in						
			If attained Gear=6th gear Time	>= supporting	Shift Time (Sec)					
				documents						1
			It the above condiations are true,						5th Gear Fail	1
			Increment 5th gear fail counter					>= 3	Counts	1
									or	
									3-5R Clutch Fail	
			and C35R Fail counter					>= 14	Counts	Ί

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
					inhibit RVT IMS fault pending indication	=	FALSE FALSE	Boolean Boolean		
					TPS validity flag		TRUE	Boolean		
					Hydraulic System Pressurized	=	TRUE	Boolean		
					Minimum output speed for RVT	>=	100	RPM		
					A OR B (A) Output speed enable	>=	100	RPM		
					(B) Accelerator Pedal enable	>=	0.5005	Pct		
					Common Enable Criteria Ignition Voltage Lo Ignition Voltage Hi	>= <=	9 31.99023	Volts Volts		
					Engine Speed Lo	>=	400	RPM		
					Engine Speed Hi	<=	7500	RPM		
					Engine Speed is within the allowable limits for	>=	5	Sec		
					Throttle Position Signal valid	=	TRUE	Boolean		
					HSD Enabled Transmission Fluid	=	TRUE	Boolean		
					Temperature	>=	-6.6563	°C		
					Input Speed Sensor fault Output Speed Sensor fault	= =	FALSE FALSE	Boolean Boolean		
					Default Gear Option is not	=	TRUE			
					present		TROE			
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P182E	P0717, P0722,	P0723,		
							P0102, P0103, 3, P0171, P0172			
							I, P0202, P0203			
							5, P0207, P0208 2, P0303, P0304			
						P0306, P0307	7, P0308, P040	1, P042E		
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solinoid B	Fail Case 1 Case: Steady State 1st							One Trip
		Stuck On [C35R] (Steady State)	Attained Gear slip	>= 400 RPM						
			·	Table Based						
			If the Above is True for Time	4 In (Sec)						
				supporting documents						
			Intrusive test: (CBR1 clutch exhausted)							
			Gear Ratio							
			Gear Ratio	>= 1.74463						
1			If the above parameters are true							

Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	IIIu
						>=	1.1 Fail Timer (Sec))
						>=	2 Fail Count in 1st Gear	it
						>=	3 Total Fail Counts	
		Fail Case 2 Case: Steady State 2nd gear	Table Based					
		Max Delta Output Speed Hysteresis						
			Table Based					
		Min Dalla Outant Canad Unatannia	Refer to Table					
		Min Delia Output Speed Hysteresis						
			documents					
			Table Based					
		If the Above to Tour for The	Refer to Table					
		If the Above is True for Time	17 111					
		Intrusive test:						
			<= 2.00732					
		If the above parameters are true						
						>=	1.1 Fail Timer (Sec))
							Fail Count in	
						>=	3 2nd Gear	
							Total Fail	
		E-110 2				>=	3 Counts	
		<u>Fall Case 3</u> Case: Steady State 4th gear	Table Based					
			value Please					
		Max Delta Output Speed Hysteresis	>= Keter to Table rpm/sec					
			supporting					
			value Please					
		Min Delta Output Speed Hysteresis	>= Refer to Table rpm/sec					
			supporting					1
_	Code	Code Description	Fail Case 2 Case: Steady State 2nd gear Max Delta Output Speed Hysteresis Min Delta Output Speed Hysteresis If the Above is True for Time Intrusive test: (CB26 clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true Fail Case 3 Case: Steady State 4th gear	Table Based value Please Refer to Table Based Time Please Refer to Table Table Based Value Please Refer to Table Table Based Value Please Table Based Value Please Table Based Value Please Refer to Table	Eall Case 2 Case: Steady State 2nd gear Max Delta Output Speed Hysteresis >= Refer to 1 Table Based value Please Refer to 1 Table Based value Please (See Refer to 1 Table Based value Please) >= Refer to 1 Table Based value Please (Refer to 1 Table Based value Please) >= Refer to 1 Table Based value Please (Refer to 1 Table Based Value Please Refer to Table Based Value Please Refer to Table	Fall Case 2 Case: Sleady State 2nd gear Max Delta Output Speed Hysteresis Min Delta Output Speed Hysteresis Min Delta Output Speed Hysteresis If the Above is True for Time Intrusive test (CB26 dutch orbausdo) Gear Ratio Gear Ratio Table Based Trombec 200732 Gear Ratio 200732 Gear Ratio Table Based Trombec 300732 Gear Ratio Table Based Trombec 1 7 in Speed Hysteresis Table Based Trombec 1 7 in Table Based Trombec 1 7 in Table Based Trombec 1 7 in Table Based Trombec Table Based Trombec	Edit Cases 2 Case: Stoady State 2nd qear Table Based solve Peaso Max Deta Output Speed Hysterests > Min Datta Output Speed Hysterests If the Above is True for Time If the Above parameters are true If the above parameters are true Fell Cases 3 Case: Steady State 4th quar Table Based value Peaso Max Deta Output Speed Hysterests Fell Cases 3 Case: Steady State 4th quar Table Based value Peaso Max Deta Output Speed Hysterests Max Deta Output Speed Hysterests Min Deta Output Speed Hysterests Refer for Table Based value Peaso Refer for Table Based Refer for Table Based value Peaso Refer for Table Based Ref	>= 1.1 Fall Timer (Sec. 2 Case: Steady State 2nd gear and care and

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time equired
- Oyətemi	Code	Description	Ontona	Table Based		Conditions	, , ,	
				Time Please				
			If the Above is True for Time	Refer to Table Soc				
			If the Above is True for Time	17 IN				
				supporting				
			Intrusive test:	documents				
			(C1234 clutch exhausted)					
			Gear Ratio	<= 1.06995				
			Gear Ratio					
			If the above parameters are true					
			ii uio abovo paramotoro aro uao					
							>= 1.1	Fail Timer (Sec)
								Fail Count in 4th
							>= 3	Gear
								or
							>= 3	Total Fail
			Fail Case 4 Case: Steady State 6th gear					Counts
			Case. Steady State Off geal	Table Based				
				valuo Ploaco				
			Max Delta Output Speed Hysteresis	>= Refer to Table rpm/sec				
			wax Bella Output Speed Hysteresis	LL III				
				supporting documents				
				Table Based				
				l Dlanes				
			Min Delta Output Speed Hysteresis	Refer to Table >= 23 in rpm/sec				
			Will Della Output Speed Hysteresis					
				supporting documents				
				Table Based				
				Timo Ploaso				
			If the Above is True for Time	Dofor to Tablo				
			ii the Above is True for Time	17 III				
				supporting				
			Intrusive test:	documents				
			(CB26 clutch exhausted)					
			i i	. 1.0400E			. 11	Foil Timor (Coo)
			Gear Ratio				>= 1.1	Fail Timer (Sec)
			Gear Ratio	>= 0.93005			>= 3	counts
			If the above parameters are true					
								F. 11 F 1 (C.)
							>= 1.1	Fail Timer (Sec)
							>= 3	Fail Count in 6th
							7= 3	Gear
								or Total Fail
							>= 3	Counts
					PRNDL State defaulted	= FALSE Boole	on	- Counto

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum
					IMS fault pending indication	=	FALSE	Boolean		
					output speed	>=	0	RPM		
					TPS validity flag		TRUE	Boolean		
					HSD Enabled	=	TRUE	Boolean		
					Hydraulic_System_Pressurized	=	TRUE	Boolean		
					A OR E					
					(A) Output speed enable		100	Nm		
					(B) Accelerator Pedal enable	>=	0.5005	Nm		
					Ignition Voltage Lo	>=	9	Volts		
					Ignition Voltage H		31.99023	Volts		
					Engine Speed Lo		400	RPM		
					Engine Speed H	<=	7500	RPM		
					Engine Speed is within the	>=	5	Sec		
					allowable limits fo		-			
					if Attained Gear=1st FV	>=	10.0006	Pct		
					Accelerator Pedal enable	-	10.0000	1 01		
					if Attained Gear=1st FW Engine	>=	45	Nm		
					Torque Enable					
					if Attained Gear=1st FW Engine	<=	8191.88	Nm		
					Torque Enable		0171.00	14111		
					Transmission Fluid		-6.6563	°C		
					Temperature					
					Input Speed Sensor faul		FALSE	Boolean		
					Output Speed Sensor faul	=	FALSE	Boolean		
				Di	sable MIL not Illuminated for DTC's	TCM: P0716	, P0717, P0722,	P0723,		
				Condi	ions:	P182E				
						ECM: P0101	, P0102, P0103,	P0106,		
							8, P0171, P017			
						P0175, P020	1, P0202, P020	3, P0204,		
							6, P0207, P0208			
						P0301, P030	2, P0303, P0304	4, P0305,		
						P0306, P030	7, P0308, P040	1, P042E		
	1		Primary Offgoing Clutch is			-				One T
		Pressure Control (PC) Solenoid B	exhausted (See Table 12 in							Official
ariable Bleed Solenoid (VBS)	P0777	StuckOn [C35R] (Dymanic)	Supporting Documents for Exhaust	= TRUE Boolean						
		Stackon [essit] (bymanic)	Delay Timers)							
			Primary Oncoming Clutch Pressure	Maximum						
			Command Status		1					
			Primary Offgoing Clutch Pressure	Clutch exhaust	1					
			Command Status	command						
			Dongs Chift Chalus	_ Initial Clutch						
			Range Shift Status	≠ Control	1					
			Attained Gear Slip	<= 40 RPM	1					
	1	1	1	I						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction	Enable Conditions	Time Require		Mil Illum
			If the above conditions are true run appropriate Fail 1 Timers Below:								
			fail timer 1 (3-1 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)					
			fail timer 1 (3-2 shifting with Throttle)	>=	0.40039	Fail Time (Sec)					
			fail timer 1 (3-2 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)					
			fail timer 1 (3-4 shifting with Throttle)	>=	0.40039	Fail Time (Sec)					
			fail timer 1 (3-4shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)					
			fail timer 1 (3-5 shifting with Throttle)	>=	0.40039	Fail Time (Sec)					
			fail timer 1 (3-5 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)					
			fail timer 1 (5-3 shifting with Throttle)	>=	0.40039	Fail Time (Sec)					
			fail timer 1 (5-3 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)					
			fail timer 1 (5-4 shifting with Throttle)	>=	0.40039	Fail Time (Sec)					
			fail timer 1 (5-4 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)					
			fail timer 1 (5-6 shifting with Throttle)	>=	0.40039	Fail Time (Sec)					
			fail timer 1 (5-6 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)					
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers						Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer >= 1, and Reference Supporting Table 15 for Fail Timer 2	sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter]
			3rd gear fail counter						>= 3	3rd gear fail counts OR	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thres Val		Secondary Malfunction		nable nditions			Tir Requ	ired	Mil Illum.
			5th gear fail counter							>=	3	5th gear fail counts OR	
			Total fail counter		Disable	TUT Enable temperature Input Speed Sensor fault Output Speed Sensor fault Command / Attained Gear High Side Driver ON output speed limit for TUT input speed limit for TUT PRNDL state defaulted IMS Fault Pending Service Fast Learn Mode HSD Enabled Default Gear Option is not present	=	FALSE E 1st E TRUE E 200 200 FALSE E FALSE E TRUE E TRUE	°C Boolean Boolean Boolean RPM RPM Boolean Boolean Boolean Boolean	>=	3	total fail counts	
					Disable Conditions:	MIL not Illuminated for DTC's:	ECM: P0/16, P0/1 P182E ECM: P0101, P010 P0107, P0108, P01 P0175, P0201, P02 P0205, P0206, P02 P0301, P0302, P03 P0306, P0307, P03	12, P0103, P0 171, P0172, P1 202, P0203, P1 207, P0208, P1 803, P0304, P1	106, 20174, 20204, 20300, 20305,				
Transmission Output Speed Sensor (TOSS)	P077C	Output Speed Sensor Circuit Low	TOSS Analog Signal Voltage P077C Status is not If the above conditions have been met, increment the P077C Fail Counter DTC P077C Sets when the Fail	Test Failed = This Key On or Fault Active						>=	0.05	sec	One Tri
			Counter	>= 75	Counts Disable Conditions:	P077C Enable Calibration Ignition Voltage Lo Ignition Voltage Hi MIL not Illuminated for DTC's:		9	Boolean Volts Volts				
Fransmission Output Speed Sensor (TOSS)	P077D	Output Speed Sensor Circuit High	TOSS Analog Signal Voltage	>= 4.75	Volts					>=	0.05	sec	One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold ilue	Secondary Malfunction		Enable Conditions		Tim Requi		Mil Illum.
- Oysiciii	Joue	Southern	P077D Status is r	Test Failed				20110110		Rogui		
			If the above conditons have be met, increment the P077D F Count	nil								
			DTC P077D Sets when the F Count	nil75	Counts	P077D Enable Calibration		1	Boolean			
						Ignition Voltage Lo Ignition Voltage Hi	= >= <=	9 31.99023	Volts Volts			
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P077C					
Variable Bleed Solenoid (VBS)	P0796	Pressure Control (PC) Solenoid C Stuck Off [C456] (Steady State)	Fail Case 1 Case: Steady State 4th Ge	ar								One Tri
			Gear s	ip >= 400	RPM					>= Please See Table 5 For Neutral Time Cal	Neutral Timer (Sec)	
			Intrusive te commanded 5th ge		0							
			If attained Gear ≠5th for tir	Table 3 in	Shift Time (Sec)							
			if the above conditions have be m	n								
			Increment 4th Gear Fail Count	er						>= 2	4th Gear Fail Count OR	
			and C456 Fail Counte							>= 14	C456 Fail Counts	
			Fail Case 2 Case: Steady State 5th Ge Gear s		RPM					Please See Table 5 For Neutral Time Cal	Neutral Timer (Sec)	
			Intrusive te commanded 6th ge	ar Please Refer						Gui		
			If attained Gear ≠ 6th for tin	Documents	Shift Time (Sec)							
			if the above conditions have be m Increment 5th Gear Fail Coun	et						>= 2	5th Gear Fail	
			increment our deal Fall Court							Z= Z	Count OR	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Val		Secondary Malfunction		Enable Conditions			Time Requir		Illu
•		·	and C456 Fail Counters								>=	14	C456 Fail	
			Fail Case 3 Case: Steady State 6th Gear										Counts	-
			ouse. Steady State our Gear									Please See		
			Gear slip	>=	400	RPM						able 5 For	Neutral Timer	
											IN	eutral Time Cal	(Sec)	
			Intrusive test:									Odi		
			commanded 5th gear		6 1 .									
				Tah	e refer to ble 3 in									
			If attained Gear ≠ 5th for time	>= Sup	porting	Shift Time (Sec)								
			7.11	Doc	uments									
			if the above conditions have been met											
			Increment 6th Gear Fail Counter								>=	2	6th Gear Fail	
			and C456 Fail Counter								>=	2	Count	
													OR C456 Fail	
			and C456 Fail Counter								>=	14	Counts	
							PRNDL State defaulted inhibit RVT	=	FALSE FALSE	Boolean Boolean				
							IMS fault pending indication	=	FALSE	Boolean				
							TPS validity flag	=	TRUE	Boolean				
							Hydraulic System Pressurized	=	TRUE	Boolean				
							Minimum output speed for RVT	>=	100	RPM				
							A OR B							
							(A) Output speed enable	>=	100	RPM				
							(B) Accelerator Pedal enable	>=	0.5005	Pct				
							Common Enable Criteria							
							Ignition Voltage Lo Ignition Voltage Hi	>= <=	9 31.99023	Volts Volts				
							Engine Speed Lo	>=	400	RPM				
							Engine Speed Hi	<=	7500	RPM				
							Engine Speed is within the allowable limits for	>=	5	Sec				
							Throttle Position Signal valid	=	TRUE	Boolean				
							HSD Enabled	=	TRUE	Boolean				
							Transmission Fluid Temperature	>=	-6.6563	°C				
							Input Speed Sensor fault	=	FALSE	Boolean				
							OutputSpeed Sensor fault	=	FALSE	Boolean				
							Default Gear Option is not present	=	TRUE					
				I			present				l			1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time quired	Mil Illum.
System	Code	Description	Criteria		MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723,	Kei	quireu	u
				Conditions:	mile not manimated for D10 3.	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)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Steady State)	Fail Case 1 Case: Steady State 1st						One Tri
			Attained Gear slip	>= 400 RPM					
			·	Table Based					
				Time Please					
			If the Above is True for Time	Refer to Table Enable Time					
				4 in (Sec) supporting					
				documents					
			Intrusive test:	dodanishis					
			(CBR1 clutch exhausted)						
			Gear Ratio	<= 1.52905					
			Gear Ratio	>= 1.32898					
			If the above parameters are true						
							1		
							>= 1.1	Fail Timer (Sec)	
							>= 2	Fail Count in 1st	
								Gear	
								Or Takal Fail	
							>= 3	Total Fail Counts	
			Fail Case 2 Case Steady State 2nd					Counts	1
			,	Table Based					
				value Please					
			Max Delta Output Speed Hysteresis	>= Refer to Table rpm/sec					
				22 in supporting					
				documents					
				Table Based					
				value Please					
			Min Delta Output Speed Hysteresis	>= Refer to Table rpm/sec					
			Will Della Output Speed Trysteresis	23 111					
				supporting documents					
				Table Based					
				Time Please			1		
			If the Aberra is To a fee Time	Defer to Table			1		
			If the Above is True for Time	>= 17 in Sec			1		1
				supporting			1		
				documents			1		
			Intrusive test:				1		
	I	I	(CB26 clutch exhausted)			I	J		I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	_ 		Time equired	Mi Illur
Jystein	Code	Description	Gear Ratio Gear Ratio If the above parameters are true	<= 1.52905 >= 1.32898		Conditions	•	>= 1.1	Fail Timer (Sec)	
								>= 3	Fail Count in 2nd Gear or	
								>= 3	Total fail counts	
			Fail Case 3 Case Steady State 3rd Max Delta Output Speed Hysteresis	22 111						
			Min Delta Output Speed Hysteresis	supporting documents Table Based value Please Refer to Table 23 in supporting documents						
			If the Above is True for Time	17 in supporting						
			Intrusive test: (C35R clutch exhausted) Gear Ratio Gear Ratio	documents <= 1.52905 >= 1.32898						
			If the above parameters are true					>= 1.1	Fail Timer (Sec)	
								>= 3	Fail Count in 3rd Gear	
								OR >= 3	Total Fail Counts	
					PRNDL State defaulted inhibit RVT IMS fault pending indication output speed	= FALSE = FALSE = FALSE >= 0	Boolean Boolean Boolean RPM			
					TPS validity flag HSD Enabled Hydraulic_System_Pressurized	= TRUE = TRUE = TRUE	Boolean Boolean Boolean			
					A OR B (A) Output speed enable	>= 100	Nm			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thres Val	shold lue	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
						(B) Accelerator Pedal enable	>=	0.5005	Nm		
						Ignition Voltage Lo	>=	9	Volts		
						Ignition Voltage Hi	<=	31.99023	Volts		
						Engine Speed Lo	>=	400	RPM		
						Engine Speed Hi Engine Speed is within the	<=	7500	RPM		
						allowable limits for	>=	5	Sec		
						if Attained Gear=1st FW					
						Accelerator Pedal enable	>=	10.0006	Pct		
						if Attained Gear=1st FW Engine	>=	45	Nm		
						Torque Enable	/-	43	INIII		
						if Attained Gear=1st FW Engine	<=	8191.88	Nm		
						Torque Enable Transmission Fluid					
						Temperature	>=	-6.6563	°C		
						Input Speed Sensor fault	=	FALSE	Boolean		
						Output Speed Sensor fault	=	FALSE	Boolean		
						Default Gear Option is not	=	TRUE			
						present	_	TRUE			
					Disable	MIL not Illuminated for DTC's:	TCM: P071/	6 P0717 P0722	D0723		
					Conditions:	wile not indiminated for DTC 3.	P182E	0, F0/1/, F0/22,	10123,		
								1, P0102, P0103,			
								08, P0171, P0172			
								01, P0202, P0203 06, P0207, P0208			
								02, P0303, P0304			
								07, P0308, P040°			
		Pressure Control (PC) Solenoid C	Primary Offgoing Clutch is exhausted (See Table 11 in								One Trip
Variable Bleed Solenoid (VBS)	P0797	Stuck On [C456] (Dynamic)	Supporting Documents for Exhaust	= TRUE	Boolean						
		Stack on to 100j (Byhanic)	Delay Timers)								
			Primary Oncoming Clutch Pressure	Maximum							
			Command Status	= pressurized							
			Primary Offgoing Clutch Pressure	Clutch exhaust	t						
			Command Status	command	•						
				, Initial Clutch							
			Range Shift Status	≠ Control							
			Attained Gear Slip		RPM						
			If the above conditions are true								
			increment appropriate Fail 1 Timers Below:								
			fail timer 1								
			(4-1 shifting with throttle)	>= 0.40039	Fail Time (Sec)						
			fail timer 1	>= 0.5	Fail Time (Sec)						
	1	1	(4-1 shifting without throttle)	Z= U.S	ran rine (Sec)					1	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions			Tir Requ		III
			fail timer 1 (4-2 shifting with throttle)	>=	0.40039	Fail Time (Sec)								
			fail timer 1 (4-2 shifting without throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (4-3 shifting with throttle)	>=	0.7002	Fail Time (Sec)								
			fail timer 1 (4-3 shifting without throttle)	>=	0.5	Fail Time (Sec)								
			(4-3 silling without throttle) fail timer 1 (5-3 shifting with throttle)	>=	0.40039	Fail Time (Sec)								
			(3-3 shifting with throttle) fail timer 1 (5-3 shifting without throttle)	>=	0.5	Fail Time (Sec)								
			(3-3 shifting without throttle) fail timer 1 (6-2 shifting with throttle)	>=	0.40039	Fail Time (Sec)								
			fail timer 1	>=	0.5	Fail Time (Sec)								
			(6-2 shifting without throttle)									Total Fail		
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers								+ En fo >=	me = (Fail 1) Fail 2) See hable Timer or Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2	: S	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter											
			4th gear fail counter								>=	3	Fail Counter From 4th Gear	
			5th gear fail counter								>=	3	OR Fail Counter From 5th Gear OR	
			6th gear fail counter								>=	3	Fail Counter From 6th Gear OR	
			Total fail counter								>=	3	Total Fail Counter	
							TUT Enable temperature Input Speed Sensor fault Output Speed Sensor fault Command / Attained Gear High Side Driver ON output speed limit for TUT input speed limit for TUT PRNDL state defaulted IMS Fault Pending Service Fast Learn Mode HSD Enabled	>= = = = = >= >= = = =	-6.6563 FALSE FALSE 1st TRUE 200 200 FALSE FALSE FALSE TRUE	°C Boolean Boolean Boolean Boolean RPM RPM Boolean Boolean Boolean Boolean Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction		nable iditions			Time Require	d	Mil Illum.
					Disable iditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717 P182E	7, P0722, P07	23,				
							ECM: P0101, P0102 P0107, P0108, P01' P0175, P0201, P02' P0205, P0206, P02' P0301, P0302, P03' P0306, P0307, P03'	71, P0172, P0 02, P0203, P0 07, P0208, P0 03, P0304, P0	174, 1204, 1300, 1305,				
Transmission Input Speed	P07BF	Input/Turbine Speed Sensor A Circuit	TISS Analog Signal Voltage	<= 0.25 Volts						>=	0.05	sec	One Trip
Sensor (TISS)		Low	P07BF Status is not	Test Failed									
			If the above conditons have been met, increment the P07BF Fail Counter	or Fault Active									
			DTC P07BF Sets when the Fail Counter	>= 75 Counts		P07BF Enable Calibration	=		oolean				
						Ignition Voltage Lo Ignition Voltage Hi	>= <= 31		Volts Volts				
					Disable ditions:	MIL not Illuminated for DTC's:	TCM: P07C0						
Transmission Input Speed Sensor (TISS)	P07C0	Input/Turbine Speed Sensor A Circuit High	TISS Analog Signal Voltage							>=	0.05	sec	One Trip
			P07C0 Status is not	Test Failed = This Key On or Fault Active									
			If the above conditons have been met, increment the P07C0 Fail Counter										
			DTC P07C0 Sets when the Fail Counter	>= 75 Counts									
						P07C0 Enable Calibration Ignition Voltage Lo Ignition Voltage Hi	= >= <= 31	9	oolean Volts Volts				
				Con	Disable iditions:	MIL not Illuminated for DTC's:	TCM: P07BF						
Tap Up Tap Down Switch (TUTD)	P0815	Upshift Switch Circuit	Fail Case 1 Tap Up Switch Stuck in the Up Position in Range 1 Enabled	= 1 Boolean									Special No MIL

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold 'alue	Secondary Malfunction	Enable Condition			Time Required	III
			Tap Up Switch Stuck in the Up	= 1	Boolean						
			Position in Range 2 Enabled		Doolean						
			Tap Up Switch Stuck in the Up	= 1	Boolean						
			Position in Range 3 Enabled Tap Up Switch Stuck in the Up								
			Position in Range 4 Enabled	= 1	Boolean						
			Tap Up Switch Stuck in the Up		5 .						
			Position in Range 5 Enabled	= 1	Boolean						
			Tap Up Switch Stuck in the Up	= 1	Boolean						
			Position in Range 6 Enabled		Doolean						
			Tap Up Switch Stuck in the Up	= 1	Boolean						
			Position in Neutral Enabled Tap Up Switch Stuck in the Up								
			Position in Park Enabled	= 1	Boolean						
			Tap Up Switch Stuck in the Up		5 .						
			Position in Reverse Enabled	= 1	Boolean						
			Tap Up Switch ON =	= TRUE	Boolean				>= 1	Fail Time (Sec)	
			Tap op Switch Oil	- INOL	Doolcan					raii riilic (See)	
			Fail Case 2 Tap Up Switch Stuck in the Up								
			Position in Range 1 Enabled	= 1	Boolean						
			Tap Up Switch Stuck in the Up	= 1	Deelees						
			Position in Range 2 Enabled	= 1	Boolean						
			Tap Up Switch Stuck in the Up	= 1	Boolean						
			Position in Range 3 Enabled								
			Tap Up Switch Stuck in the Up Position in Range 4 Enabled	= 1	Boolean						
			Tap Up Switch Stuck in the Up								
			Position in Range 5 Enabled	= 1	Boolean						
			Tap Up Switch Stuck in the Up	= 1	Deelees						
			Position in Range 6 Enabled	= [Boolean						
			Tap Up Switch Stuck in the Up	= 1	Boolean						
			Position in Neutral Enabled								ı
			Tap Up Switch Stuck in the Up Position in Park Enabled	= 1	Boolean						
			Tap Up Switch Stuck in the Up								
			Position in Reverse Enabled	= 1	Boolean						ı
			Tap Up Switch ON =	= TRUE	Boolean						ı
			NOTE: Both Failcase1 and Failcase						>= 60	0 Fail Time (Sec)	
			2 Must Be Met						×= 00	1 411 111110 (300)	-
						Time Since Last Dange Change	>= 1	Enable Time			1
						Time Since Last Range Change		(Sec)			
						Ignition Voltage Lo	>= 9	Volts	I		1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions			Time Require		Mil Illum.
						Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	<= >= <= >=	31.99023 400 7500 5	Volts RPM RPM Sec		·		
						P0815 Status is	≠	Test Failed This Key On or Fault Active					
					Disable Conditions:	MIL not Illuminated for DTC's:	P1877, P191		P1876,				
Tap Up Tap Down Switch	D0916	Downshift Switch Circuit	Fail Case 1 Tap Down Switch Stuck in the Down	= 1	Boolean		ECM: None						Special No MIL
(TUTD)	1 0010	Downshift Switch Circuit	Position in Range 1 Enabled		Doolcan								IVOIVILE
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	= 1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	= 1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	= 1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	= 1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	= 1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range Neutral Enabled	= 1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range Park Enabled	= 1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range Reverse Enabled	= 1	Boolean								
			Tap Down Switch ON	= TRUE	Boolean					>=	1	sec	
			Fail Case 2 Tap Down Switch Stuck in the Down Position in Range 1 Enabled	= 1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	= 1	Boolean								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction	Enable Conditions		Tim Requi		Mil Illum.
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	= 1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	= 1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	= 1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	= 1	Boolean						
			Tap Down Switch Stuck in the Down Position in Neutral Enabled	= 1	Boolean						
			Tap Down Switch Stuck in the Down Position in Park Enabled	= 1	Boolean						
			Tap Down Switch Stuck in the Down Position in Reverse Enabled	= 1	Boolean						
			Tap Down Switch ON NOTE: Both Failcase1 and Failcase 2 Must Be Met	= TRUE	Boolean				>= 600	sec	
						Time Since Last Range Change	>= 1	Enable Time (Sec)			-
						Ignition Voltage Lo Ignition Voltage Hi	>= 9 <= 31.99023	Volts Volts			
						Engine Speed Lo Engine Speed Hi Engine Speed is within the	>= 400 <= 7500	RPM RPM			
						allowable limits for	>= 5	Sec			
						P0816 Status is	Test Failed ≠ This Key On or Fault				
							Active				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0815, P0826, P182E, I P1877, P1915, P1761	P1876,			
							ECM: None				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
Tap Up Tap Down Switch (TUTD)	P0826	Up and Down Shift Switch Circuit	TUTD Circuit Reads Invalid Voltage	= TRUE	Boolean					>=	60	Fail Time (Sec)	Special No MIL
						Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= <= >= <= >=	9 31.99023 400 7500 5	Volts Volts RPM RPM Sec				
						P0826 Status is	<i>≠</i>	Test Failed This Key On or Fault Active					
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P1761 ECM: None						
Variable Bleed Solenoid (VBS)	P0961	Pressure Control (PC) Solenoid A Control Circuit Rationality Test (Line Pressure VBS)	The HWIO reports an invalid voltage (out of range) error flag	= TRUE	Boolean					>=	4.4	Fail Time (Sec)	Two Trips
										out of	5	Sample Time (Sec)	
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the	>= <= >= <=	9 31.99023 400 7500 5	Volts Volts RPM RPM				
						allowable limits for	>=	5	Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P0962	Pressure Control (PC) Solenoid A Control Circuit Low Voltage (Line Pressure VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>=	1.5	Fail Time (Sec)	One Trip
		(Ellio 1 1000allo 120)								out of	1.875	Sample Time (Sec)	
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	9 31.99023 400 7500 5	Volts Volts RPM RPM Sec			\ <i>\</i>	
					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 A Control Circuit High Voltage (Line Pressure VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>=	4.4	Fail Time (Sec)	Two Trips
										out of	5	Sample Time (Sec)	
						Ignition Voltage Ignition Voltage Engine Speed	>= <= >=	9 31.99023 400	Volts Volts RPM	O.		(666)	
						Engine Speed Engine Speed is within the allowable limits for	<= >=	7500 5	RPM Sec				
						allowable limits for							
					Disable Conditions:	MIL not Illuminated for DTC's:							
							ECM: None						
Variable Bleed Solenoid (VBS)	P0966	Pressure Control (PC) Solenoid B Control Circuit Low Voltage (C35R VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Tri
										out of	0.375	Sample Time (Sec)	
						Ignition Voltage	>=	9 31.99023	Volts	Oi		(500)	-
						Ignition Voltage Engine Speed	<= >=	400	Volts RPM				
						Engine Speed Engine Speed is within the allowable limits for	<= >=	7500 5	RPM Sec				
						P0966 Status is not	=	Test Failed This Key On or Fault					
								Active					
					Disable	MIL not Illuminated for DTC's:	TCM: None						
					Conditions:		ECM: None						
Variable Bleed Solenoid (VBS)	P0967	Pressure Control (PC) Solenoid B Control Circuit High Voltage (C35R VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Tri
		(out of	0.375	Sample Time (Sec)	
						Ignition Voltage	>=	9 31.99023	Volts	Ü.		(000)	
						Ignition Voltage Engine Speed	<= >=	400	Volts RPM				
						Engine Speed Engine Speed is within the	<=	7500	RPM				
						allowable limits for	>=	5	Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
					P0967 Status is n	ot =	Test Failed This Key On or Fault Active					
				Dis: Conditio	ble MIL not Illuminated for DTC' ns:	s: TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P0970	Pressure Control (PC) Solenoid C Control Circuit Low Voltage (C456/CBR1 VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE Boolean					>= out	0.3 0.375	Fail Time (Sec)	One Trip
					P0970 Status is n	ot =	Test Failed This Key On or Fault Active		of	0.373	(Sec)	
					Ignition Volta; Ignition Voltag Engine Spee Engine Spee Engine Speed is within It allowable limits f	e <= d >= d <=	9 31.99023 400 7500	Volts Volts RPM RPM Sec				
				Disa Conditio	ble MIL not Illuminated for DTC' ns:	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 n	ot =	Test Failed This Key On or Fault Active					
					Ignition Volta; Ignition Volta; Engine Spee Engine Spee Engine Speed is within th allowable limits f	e <= d >= d <=	9 31.99023 400 7500 5	Volts Volts RPM RPM Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		reshold /alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
						MIL not Illuminated for DTC's:	TCM: None ECM: None						
Shift Solinoid	P0973	Shift Solenoid A Control Circuit Low (Mode 2 Solenoid)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>= out of	1.2	Fail Time (Sec) Sample Time (Sec)	One Trip
						P0973 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <=	Test Failed This Key On or Fault Active 9 31.99023 400 7500	Volts Volts RPM RPM Sec			(200)	
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Shift Solinoid	P0974	Shift Solenoid A Control Circuit High (Mode 2 Solenoid)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>= out of	1.2	Fail Time (Sec) Sample Time (Sec)	Two Trips
						P0974 Status is not Ignition Voltage		Test Failed This Key On or Fault Active	Volts				
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	<= >= <=	31.99023 400 7500 5	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	Threshold Value	Secondary Malfunction	Enable Conditio			Tii Requ	me uired	Mil Illum.
Tap Up Tap Down Switch (TUTD)	P1761	Tap Up and Down switch signal circuit (rolling count)	Rolling count value received from BCM does not match expected value	= TRUE Boolean				>=	3	Fail Counter	Specia No MIL
								>	10	Sample Timer (Sec)	
					Tap Up Tap Down Message Health		Boolean				
					Engine Speed Lo Engine Speed H		RPM RPM				
					Engine Speed is within the allowable limits for	5	Sec				
				Dieak	le MIL not Illuminated for DTC's	TCM: Nono					
				Condition							
						ECM: None					
Internal Mode Switch (IMS)	P182E	Internal Mode Switch - Invalid Range	Fail Case 1 Current range	= Transition 1 (bit state 1110) Range							One Tri
			Previous range	CoTPCP o P							
			Previous range	RINDL_Drives							
			Range Shift State	= Range Shift Completed ENUM							
			Absolute Attained Gear Slip Attained Gear								
			Attained Gear Throttle Position Available	>= First							
			Throttle Position	>= 8.0002 pct							
			Output Speed Engine Torque								
			Engine Torque	<= 8191.75 Nm							
			If the above conditions are met then Increment Fail Timer					>=	1	Fail Seconds	
			If Fail Timer has Expired then Increment Fail Counter					>=	5	Fail Counts	
			Fail Case 2 Output Speed	<= 70 rpm							-
			The following PRNDL sequence events occur in this exact order:								
			PRNDL state	= Drive 6 (bit state 0110) Range							
			PRNDL state = Drive 6 for								
			PRNDL state	= Transition 8 = (bit state 0111) Range							
			PRNDL state	Drivo 4 /bit							

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mi
		•	PRNDL state Above sequencing occurs in Neutral Idle Mode	= Transition 1 Range (bit state 1110) Range				
			If all conditions above are met Increment delay Timer If the below two conditions are met Increment Fail Timer delay timer Input Speed If Fail Timer has Expired then				>= 3 Fail Seconds >= 2 Fail Counts	
			Increment Fail Counter Fail Case 3 Current range	= Transition 13 = (bit state 0010) Range	Previous range	CeTRGR_ ≠ e_PRNDL_ Drive5 CeTRGR_		
			Engine Torque	>= -8192 Nm	Previous range	≠ e_PRNDL_ Drive5		
			Engine Torque	<= 8191.75 Nm	IMS is 7 position configuration	= 0 Boolean		
			If the above conditions are met then, Increment Fail Timer		If the "IMS 7 Position config" = 1 then the "previous range" criteria above must also be satsified when the "current range" = "Transition 13"		>= 0.225 Seconds	
			If Fail Timer has Expired then Increment Fail Counter				>= 15 Fail Counts	
			Fail Case 4 Current range	= Transition 8 (bit state 0111) Range	Disable Fail Case 4 if last positive range was Drive 6 and current range is transition 8			
			Inhibit bit (see definition)	= FALSE	Set inhibit bit true if PRNDL = 1100 (rev) or 0100 (Rev-Neu transition 11) Set inhibit bit false if PRNDL = 1001 (park)			
			Steady State Engine Torque Steady State Engine Torque If the above conditions are met then Increment Fail Timer	>= 30 Nm <= 8191.75 Nm			>= 0.225 Seconds	
			If the above Condtions have been met, Increment Fail Counter				>= 15 Fail Counts	
			Fail Case 5 Throttle Position Available The following PRNDL sequence events occur in this exact order:	= TRUE Boolean				
			PRNDL State	= Reverse (bit state 1100) Range				
			PRNDL State	Transition 11 (bit state 0100)				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Illu
•		•	PRNDL State	= Neutral (bit state 0101) Range				
				Transition 11				
			PRNDL State	= (bit state 0100) Range				
			Above sequencing occurs in Then delay timer increments	<= 1 Sec				
			Delay timer	>= 5 sec				
			Range Shift State	Range Shift				
			Absolute Attained Gear Slip	Complete <= 50 rpm				
			Attained Gear	<= Sixth				
			Attained Gear Throttle Position	>= First >= 8.0002 pct				
			Output Speed	>= 200 rpm				
			If the above conditions are met Increment Fail Timer				>= 20 Seconds	
			Fail Case 6	Illegal (bit	A Open Circuit Definition (flag			1
			Current range	= state 0000 or	set false if the following			
				1000 or 0001)	conditions are met):			
						Transition		
			and		Current Range	≠ 11 (bit state 0100)		
			A Open Circuit (See Definition)	= FALSE Boolean	or	state o rooy		
			A Open circuit (See Bennium)	- TALSE BOOKER		_ Neutral (bit		
					Last positive state	≠ state 0101)		
					or			
					Previous transition state	Transition ≠ 8 (bit state		
					Previous transition state	9 (DII STATE		
			If the above Condtions are met		Fail case 5 delay timer	= 0 sec		
			then, Increment Fail timer				>= 6.25 Seconds	
			Fail Case 7	= PRNDL circuit Range				
			Current PRNDL State	ABCP = 1101 Range				
			and					
			Previous PRNDL state	= PRNDL circuit Range				
			Input Speed	>= 150 RPM				
			Reverse Trans Ratio	<= 2.73694 ratio				
			Reverse Trans Ratio If the above Condtions are met	>= 3.14905 ratio				
			then, Increment Fail timer				>= 6.25 Seconds	
			P182E will report test fail when any					
			of the above 7 fail cases are met					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions			Tim Requ		Mil Illum.
3,							>= <= >= >= TCM: P0716, P0 P07C0, P07BF, I ECM: P0101, P0 P0107, P0108, P	9 31.99023 400 7500 5 TRUE 1717, P0722, P077C, P077 0102, P0103, P0171, P0172 P0202, P0203	D P0106, , P0174, , P0204,				
Tap Up Tap Down Switch		Tap Up and Down Enable Switch		Park or			P0205, P0206, P P0301, P0302, P P0306, P0307, P	P0303, P0304	, P0305,				Special
(TUTD)	P1876	Circuit	Current range TUTD Enable Switch is Active	Neutral	Range State Boolean								No MIL
		UNIQUE to Cruze/Sonic								>= >=	3 5	Fail Time (Sec)	
						Ignition Voltage Lo Ignition Voltage Hi Vehicle Speed Lo Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	<= >= <=	9 31.99023 511 400 7500 5	Volts Volts KPH RPM RPM	7-	3	Tail Courts	
						P1876 Status is	≠	Test Failed This Key On or Fault Active					
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0815, P0 P1825, P1877, P ECM: None						
Internal Mode Switch (IMS)	P1915	Internal Mode Switch Does Not Indicate Park/Neutral (P/N) During	PRNDL State is	≠ Park or Neutral	Enumeration								One Trip
		Start	The following events must occur Sequentially										
			Initial Engine speed	<= 50	RPM					>=	0.1	Enable Time (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions			Tin Requ		Mil Illum.
Gystein	oodc	Description	Then Engine Speed Between Following Cals						COMMISSION			rioqu		
				>= <=	50 480	RPM RPM					>=	0.06875	Enable Time (Sec)	
			Then Final Engine Speed	>=	500	RPM							(Sec)	
					100	RPM					>=	1.25	Fail Time (Sec)	
							DTC has Ran this Key Cycle? Ignition Voltage Lo Ignition Voltage His Ignition Voltage His Ignition Voltage Hyst High (enables above this value) Ignition Voltage Hyst Low (disabled below this value) Transmission Output Speed	= >= <= >= <=	FALSE 6 31.99023 5 2 90 Test Failed This Key On or Fault Active	Boolean V V V V rpm				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0722, ECM: None	P0723					
Transmission Control Module (TCM)	P2534	Ignition Switch Run/Start Position Circuit Low	TCM Run crank active (based on voltage thresholds below) Ignition Voltage High Hyst (run	= F	ALSE	Boolean								One Trip
			crank goes true when above this value)		5	Volts					>=	280	Fail Counts (25ms loop)	
			Ignition Voltage Low Hyst (run crank goes false when below this value)		2	Volts					Out of	280	Sample Counts (25ms loop)	
							ECM run/crank active status available ECM run/crank active status	=	TRUE TRUE	Boolean Boolean				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P2714	Pressure Control (PC) Solenoid D Stuck Off [CB26]	Fail Case 1 Case: Steady State 2nd Gear								<u> </u>	Nama Car		One Trip
			Gear slip	>=	400	RPM					_ 1	Please See Fable 5 For Jeutral Time Cal	Neutral Timer (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Tin Requ		IIIu
			Intrusive test: commanded 3rd gear						_	_	
			If attained Gear = 3rd for Time	Table Based Time Please >= see Table 2 in Supporting Documents							
			If Above Conditions have been met								
			Increment 2nd gear fail count					>=	3	2nd Gear Fail Count or	
			and CB26 Fail Count					>=	14	CB26 Fail Count	
			Fail Case 2 Case: Steady State 6th Gear					Dio	ase See		
			Gear slip	>= 400 RPM				Tal	ble 5 For utral Time		
			Intrusive test: commanded 5th gear						Cal		
			If attained Gear = 5th For Time	Table Based Time Please >= see Table 2 in Supporting Documents Table Based Enable Time (Sec)							
			If Above Conditions have been met, Increment 5th gear fail counter					>=	3	5th Gear Fail Count	
			and CB26 Fail Count					>=	14	or CB26 Fail Count	
					PRNDL State defaulted inhibit RVT	= FALSE = FALSE	Boolean Boolean				
					IMS fault pending indication	= FALSE = FALSE	Boolean				
					TPS validity flag	= TRUE	Boolean				ı
					Hydraulic System Pressurized	= TRUE	Boolean				
					Minimum output speed for RVT	>= 0	RPM				
					A OR B (A) Output speed enable	>= 100	RPM				
					(B) Accelerator Pedal enable	>= 0.5005	Pct				
					Common Enable Criteria Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo	>= 9 <= 31.99023 >= 400	Volts Volts RPM				
					Engine Speed Hi Engine Speed is within the	<= 7500	RPM				
					allowable limits for	>= 5	Sec	I			1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold 'alue	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum.
Jysteili	Code	Description	Ontena	v	uiuc	HSD Enabled	= TRUE	Boolean	Nequileu	
						Transmission Fluid	>= -6.6563	°C		
						Temperature Input Speed Sensor fault	= FALSE	Boolean		
						Output Speed Sensor fault	= FALSE	Boolean		
						Default Gear Option is not present	= TRUE			
						present				
					Dicable	MIL not Illuminated for DTC's:	TCM, D0714 D0717 D0722	D0722		
					Conditions	WILL HOL HIGHHITATED TOT DTC 5:	P182E	, PU/23,		
							ECM: P0101, P0102, P0103	. P0106.		
							P0107, P0108, P0171, P017	2, P0174,		
							P0175, P0201, P0202, P020 P0205, P0206, P0207, P020			
							P0301, P0302, P0303, P030	4, P0305,		
							P0306, P0307, P0308, P040	1, P042E		
			Primary Offgoing Clutch is							One Trip
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Dynamic)	exhausted (See Table 13 in Supporting Documents for Exhaust	= TRUE	Boolean					
		Stuck Off [CB20] (Dyffaffiic)	Delay Timers)							
			Primary Oncoming Clutch Pressure	= Maximum						
			Command Status	pressurized						
			Primary Offgoing Clutch Pressure Command Status	= Clutch exhau command						
				Initial Clutch						
			Range Shift Status	≠ Control						
			Attained Gear Slip	<= 40	RPM					
			If above coditons are true,							
			increment appropriate Fail 1 Timers Below:							
			fail timer 1	. 0.40020	Fail Time (Coa)					
			(2-1 shifting with throttle)	>= 0.40039	Fail Time (Sec)					
			fail timer 1 (2-1 shifting without throttle)	>= 0.5	Fail Time (Sec)					
			fail timer 1	>= 0.40039	Fail Time (Sec)					
			(2-3 shifting with throttle) fail timer 1							
			(2-3 shifting without throttle)	>= 0.5	Fail Time (Sec)					
			fail timer 1 (2-4 shifting with throttle)	>= 0.40039	Fail Time (Sec)					
			fail timer 1	O.F	Eail Time (Coo)					
			(2-4 shifting without throttle)	>= 0.5	Fail Time (Sec)					
			fail timer 1 (6-4 shifting with throttle)	>= 0.40039	Fail Time (Sec)					
			fail timer 1	>= 0.5	Fail Time (Sec)					
			(6-4 shifting without throttle) fail timer 1							
			(6-5 shifting with throttle)	>= 0.7002	Fail Time (Sec)					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
oyoto		2000	fail timer 1 (6-5 shifting without throttle) >=	0.5 Fail Time (Sec)				
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers				Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer >= 1, and Reference Supporting Table 15 for Fail Timer 2	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter					
			2nd gear fail counter				>= 3 Fail Counter From 2nd Gear	
			6th gear fail counter				OR Fail Counter From 6th Gear OR	
			total fail counter				>= 3 Total Fail Counter	
					TUT Enable temperature Input Speed Sensor fault Output Speed Sensor fault Command / Attained Gear High Side Driver ON output speed limit for TUT input speed limit for TUT PRNDL state defaulted IMS Fault Pending Service Fast Learn Mode HSD Enabled	>= -6.6563 °C = FALSE Boolean = FALSE Boolean ≠ 1st Boolean = TRUE Boolean >= 200 RPM >= 200 RPM = FALSE Boolean = FALSE Boolean = FALSE Boolean = TRUE Boolean = TRUE Boolean		
				Disabl Conditions		TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204,		
						P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
/ariable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Steady State)	Fail Case 1 Case: Steady State 1st					One T
		(-1111)	Attained Gear slip >=	400 RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time equired	III
				Table Based					Т
				Time Please					1
			If the Above is True for Time	Refer to Table Enable Time					1
			II the Above is True for Time	4 in (Sec)					
				supporting					
			14. 2. 1. 1	documents					
			Intrusive test:						
			(CBR1 clutch exhausted) Gear Ratio	<= 3.11267					
			Gear Ratio						
				2.70002					
			If the above parameters are true						
							>= 1.1	Fail Timer (Sec)	, I
							>= 1.1		
							>= 5	Fail Count in 1st	1
								Gear	
								or Total Fail	
							>= 5	Counts	ı
			Fail Case 2 Case: Steady State 3rd Gear				1	Journs	1
			,	Table Based					ı
				value Please					ı
			Max Delta Output Speed Hysteresis	>= Refer to Table rpm/sec					ı
			Max Bolla Output Speed Hystoresis						
				supporting					ı
				documents Table Based					ı
				value Please					
				Defer to Table					ı
			Min Delta Output Speed Hysteresis	>= Relef to Table rpm/sec					
				supporting					ı
				documents					
				Table Based					
				Time Please					
			If the Above is True for Time	Refer to Table >= 17 in Sec					
				17 in supporting					
				documents					
			Intrusive test:						
			(C35R clutch exhausted)						
			Gear Ratio						
			Gear Ratio	>= 2.70532					
			If the above parameters are true						
							>= 1.1	Fail Timer (Sec)	4
								Fail Count in 3rd	ı
							>= 3	Gear	1
								or	1
							>= 5	Total Fail	
	1 1						7- 3	Counts	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Illu
OyoldIII	Code	Description	Gilleria	Table Based		Conditions	Nequileu	
				value Dioace				
			Mary Dalla Ordand Canad I historia	Defer to Table				
			Max Delta Output Speed Hysteresis	>= 22 in rpm/sec				
				supporting				
				documents				
				Table Based value Please				
				Value Please Pefer to Table				
			Min Delta Output Speed Hysteresis	>= Refer to Table rpm/sec				
				supporting				
				documents				
				Table Based				
				Time Please				
			If the Above is True for Time	>= Refer to Table Sec				
				supporting				
				documents				
			Intrusive test:					
			(C1234 clutch exhausted)					
			Gear Ratio	<= 0.79822				
			Gear Ratio	>= 0.69373				
			If the above parameters are true					
							>= 1.1 Fail Timer (Se	c)
							>= 3 Fail Count in 4	lth .
							Gear	
							or	
							>= 5 Total Fail Counts	
			Fail Case 4 Case: Steady State 5th Gear				Courts	-
			Guse. Steady State Stri Gear	Table Based				
				l Dlanes				
			Max Delta Output Speed Hysteresis	>= Refer to Table rpm/sec				
			max Bona Output Speed Hystelesis					1
				supporting				
				documents Table Based				
				value Please				
			Mr. Balla O to 1 Constitutions	Refer to Table				
			Min Delta Output Speed Hysteresis	>= rpm/sec				
				supporting				
				documents				
				Table Based				
				Time Please Refer to Table >= 17 in Sec				
			If the Above is True for Time	>= Relef to Table Sec				
				supporting				
				documents				
			Intrusive test:					
			(C35R clutch exhausted) Gear Ratio					
				<= 0.79822				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				ime Juired	Mil Illum.
			If the above parameters are true									
									>=	1.1	Fail Timer (Sec)	
									>=	3	Fail Count in 5th Gear	
									>=	5	or Total Fail Counts	
					PRNDL State defaulted inhibit RVT IMS fault pending indication output speed	= = = >=	FALSE FALSE FALSE 0	Boolean Boolean Boolean RPM				
					TPS validity flag HSD Enabled	=	TRUE TRUE	Boolean Boolean				
					Hydraulic_System_Pressurized A OR B	=	TRUE	Boolean				
					(A) Output speed enable (B) Accelerator Pedal enable	>=	0.5005	Nm Nm				
					Ignition Voltage Lo	>= <=	9 31.99023	Volts Volts				
					Engine Speed Lo Engine Speed Hi	>= <=	400 7500	RPM RPM				
					Engine Speed is within the allowable limits for if Attained Gear=1st FW	>=	5 10.0006	Sec Pct				
					Accelerator Pedal enable if Attained Gear=1st FW Engine Torque Enable	>=	45	Nm				
					if Attained Gear=1st FW Engine Torque Enable	<=	8191.88	Nm				
					Transmission Fluid Temperature	>=	-6.6563	°C				
					Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	= =	FALSE FALSE TRUE	Boolean Boolean				
					present							
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P182E	P0717, P0722,	P0723,				
						P0107, P0108 P0175, P020	P0102, P0103, 3, P0171, P0172 1, P0202, P0203	2, P0174, 3, P0204,				
						P0301, P0302	5, P0207, P0208 2, P0303, P0304 7, P0308, P040	4, P0305,				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		reshold /alue	Secondary Malfunction		Enable Conditions			Tin Requ		Mil Illum.
Variable Bleed Solenoid (VBS)	P2720	Pressure Control (PC) Solenoid D Control Circuit Low (CB26 VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>= out of	0.3 0.375	Fail Time (Sec) Sample Time (Sec)	One Trip
						P2770 Status is not	=	Test Failed This Key On or Fault Active					
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	9 31.99023 400 7500 5	Volts Volts RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P2721	Pressure Control (PC) Solenoid D Control Circuit High (CB26 VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>= out of	0.3 0.375	Fail Time (Sec) Sample Time (Sec)	One Trip
						P2721 Status is not	=	Test Failed This Key On or Fault Active					
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	9 31.99023 400 7500 5	Volts Volts RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P2723	Pressure Control (PC) Solenoid E Stuck Off	Fail Case 1 Case: Steady State 1st Gear								Dlagge Co-		One Trip
			Gear slip	>= 400	RPM					_ 1	Please See Fable 5 For leutral Time Cal	Neutral Timer (Sec)	
			Intrusive test: commanded 2nd gear										

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Illu
-,	1			Please refer to			- 4	\Box
			If attained Gear ≠ 2nd for Time	Table 2 in				
			If Above Conditions have been met, Increment 1st gear fail counter				>= 2 1st Gear Fail Count	
			and C1234 fail counter				or C1234 Clutch	
			Fail Case 2 Case: Steady State 2nd Gear				>= 14 Fail Count	-
			Gear slip	>= 400 RPM			Please See Table 5 For Neutral Timer Neutral Time (Sec) Cal	
			Intrusive test: commanded 3rd gear	Please refer to				
			If attained Gear ≠ 3rd for Time	Toble 2 in				
			If Above Conditions have been met, Increment 2nd gear fail counter				>= 2 2nd Gear Fail Count	
			and C1234 fail counter				or C1234 Clutch >= 14 Fail Count	
			Fail Case 3 Case: Steady State 3rd Gear Gear slip	>= 400 RPM			Please See Table 5 For Neutral Timer Neutral Time (Sec)	
			Intrusive test: commanded 4th gear	Please refer to				
			If attained Gear ≠ 4th for time	>= Table 3 in Supporting Documents Shift Time (Sec)				
			If Above Conditions have been met, Increment 3rd gear fail counter				>= 2 3rd Gear Fail Count	
			and C1234 fail counter				or C1234 Clutch >= 14 Fail Count	
			Fail Case 4 Case: Steady State 4th Gear Gear slip	>= 400 RPM			Please See Table 5 For Neutral Timer Neutral Time (Sec) Cal	
			Intrusive test: commanded 5th gear					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
- Cystem	Gode	Description	If attained Gear = 5th For Time	Please refer to		Contamions		
			If Above Conditions have been met, Increment 4th gear fail counter				>= 3 4th Gear Fail Count or	
			and C1234 fail counter				>= 14 C1234 Clutch Fail Count	
					PRNDL State defaulted inhibit RVI IMS fault pending indication TPS validity flag Hydraulic System Pressurized			
					Minimum output speed for RVT A OR B			
					(A) Output speed enable (B) Accelerator Pedal enable	>= 100 RPM >= 0.5005 Pct		
					Common Enable Criteria Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi HSD Enabled Transmission Fluid Temperature Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	<pre><= 31.99023 Volts >= 400 RPM <= 7500 RPM >= 5 Sec = TRUE Boolean = TRUE Boolean >= -6.6563 °C = FALSE Boolean</pre>		
				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, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thresh Value		Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Variable Bleed Solenoid (VBS)		Pressure Control (PC) Solenoid E Stuck On (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 10 in Supporting Documents for Exhaust Delay Timers)	= TRL	JE E	Boolean		Continuid	requisi	One Tr
			Primary Oncoming Clutch Pressure Command Status	= pressu	rized					
			Primary Offgoing Clutch Pressure Command Status	= Clutch ex						
			Range Shift Status	Cont	trol					
			Attained Gear Slip If the above conditions are true increment appropriate Fail 1 Timers Below:	<= 40) F	RPM				
			fail timer 1 (2-6 shifting with throttle)	>= 0.400	039 s	sec				
			fail timer 1 (2-6 shifting without throttle) fail timer 1	>= 0.5		sec				
			(3-5 shifting with throttle) fail timer 1	>= 0.400		sec				
			(3-5 shifting without throttle) fail timer 1 (4-5 shifting with throttle)	>= 0.400		sec				
			fail timer 1 (4-5 shifting without throttle)	>= 0.5	5 s	sec				
			fail timer 1 (4-6 shifting with throttle) fail timer 1	>= 0.400	039 s	sec				
			(4-6 shifting without throttle)	>= 0.5	5 S	sec				
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers						Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer >= 1, and Reference Supporting Table 15 for Fail Timer 2	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter							
			2nd gear fail counter						>= 3 Fail Cou	
			3rd gear fail counter						>= 3 Fail Cou	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			ime Juired	Mil Illum.
			4th gear fail counter				>=	3	Fail Counter From 4th Gear	
			total fail counter				>=	3	Total Fail Counter	
					TUT Enable temperature Input Speed Sensor fault Output Speed Sensor fault Command / Attained Gear High Side Driver ON output speed limit for TUT input speed limit for TUT PRNDL state defaulted IMS Fault Pending Service Fast Learn Mode HSD Enabled	>= -6.6563 °C = FALSE Boolean = FALSE Boolean ≠ 1st Boolean = TRUE Boolean >= 200 RPM >= 200 RPM = FALSE Boolean = FALSE Boolean = FALSE Boolean = TRUE Boolean = TRUE Boolean				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106,				
						P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E				
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Steady State)	Fail Case 1 Case: 5th Gear							One Trip
			Max Delta Output Speed Hysteresis	supporting documents						
			Min Delta Output Speed Hysteresis	Table Based value Please Refer to Table rpm/sec 23 in supporting documents Table Based						
			If the Above is True for Time	Time Please Refer to Table 17 in Sec supporting						
			Intrusive test: (C35R clutch exhausted) Gear Ratio Gear Ratio							

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	(Enable Conditions				ime Juired	Mil Illum
			If the above parameters are true									
									>=	1.1	Fail Timer (Sec)	
									>=	3	Fail Count in 5th Gear OR	
									>=	3	Total Fail Counts	
			Fail Case 2 Case: 6th Gear Max Delta Output Speed Hysteresis Min Delta Output Speed Hysteresis If the Above is True for Time Intrusive test: (CB26 clutch exhausted) Gear Ratio	supporting documents Table Based value Please Refer to Table 23 in supporting documents Table Based Time Please Refer to Table								
			Gear Ratio If the above parameters are true	>= 1.32898								
									>=	1.1	Fail Timer (Sec)	
									>=	3	Fail Count in 6th Gear OR	
									>=	3	Total Fail Counts	
					PRNDL State defaulted inhibit RVT IMS fault pending indication output speed TPS validity flag HSD Enabled	= = = >= = =	FALSE FALSE FALSE 0 TRUE TRUE	Boolean Boolean Boolean RPM Boolean Boolean				
					Hydraulic_System_Pressurized A OR B	=	TRUE	Boolean				
					(A) Output speed enable	>=	100	Nm				
					(B) Accelerator Pedal enable Ignition Voltage Lo	>= >=	0.5005 9	Nm Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum
System	Code	Description	Criteria	Value Disable Conditions	Ignition Voltage Hi Engine Speed Lo Engine Speed II Engine Speed II Engine Speed Is within the allowable limits for if Attained Gear=1st FW Accelerator Pedal enable if Attained Gear=1st FW Engine Torque Enable if Attained Gear=1st FW Engine Torque Enable Transmission Fluid Temperature Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	>= 400 RPM = 7500 RPM >= 5 Sec >= 10.0006 Pct >= 45 Nm = 45 Nm = 6.6563 °C = FALSE Boolean = TRUE TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204,		Required	Illum
Variable Bleed Solenoid (VBS)	P2729	Pressure Control (PC) Solenoid E Control Circuit Low (C1234 VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE Boolean		P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E	out	0.3 Fail Tim 9.375 Sample	e Time
					P2729 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	On or Fault Active >= 9 Volt <= 31.99023 Volt >= 400 RPM dd <= 7500 RPM			
				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			Tir Requ		Mil Illum.
Variable Bleed Solenoid (VBS)		Pressure Control (PC) Solenoid E	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean			Containions		>= out of	0.3	Fail Time (Sec) Sample Time (Sec)	One Trip
						P2730 Status is not Ignition Voltage	= >=	Test Failed This Key On or Fault Active	Volt	0.		(GGG)	
						Ignition Voltage Engine Speed Engine Speed is within the Engine Speed is within the allowable limits for	<= >= <= >=	31.99023 400 7500 5	Volt RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P2763	Torque Converter Clutch Pressure High	The HWIO reports a low pressure/high voltage (open or power short) error flag	= TRUE	Boolean					>= out of	4.4 5	Fail Time (Sec) Sample Time (Sec)	Two Trips
						P2763 Status is not	=	Test Failed This Key On or Fault Active		OI		(sec)	
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for High Side Driver Enabled	>= <= >= <= >= =	9 31.99023 400 7500 5 TRUE	Volt Volt RPM RPM Sec Boolean				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0658, I ECM: None	P0659					
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 flaq	= TRUE	Boolean					>=	4.4	Fail Time (Sec)	One Trip
			Sitti ilay							out of	5	Sample Time (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
							P2764 Status is not	=	Test Failed This Key On or Fault Active					
							Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the allowable limits for High Side Driver Enabled	<= >= <= >=	9 31.99023 400 7500 5 TRUE	Volt Volt RPM RPM Sec Boolean				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0658,	P0659					
Communication	U0073	Controller Area Network Bus Communication Error	CAN Hardware Circuitry Detects a Low Voltage Error	=	TRUE	Boolean					>=	62	Fail counts (≈ 10 seconds)	One Trip
			Delay timer	>=	0.1125	sec					Out of	70	Sample Counts (≈ 11 seconds)	
							Stabilization delay Ignition Voltage Ignition Voltage Power Mode	>= >= <= =	3 9 31.99023 Run	sec Volt Volt				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Communication	U0100	Lost Communications with ECM (Engine Control Module)	CAN messages from ECM are not received by the TCM	=	TRUE	Boolean					>=	12	sec	One Trip
							Stabilization delay Ignition Voltage Ignition Voltage Power Mode	>= >= <= =	3 9 31.99023 Run	sec Volt Volt				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: U0073 ECM: None						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction	Enable Conditions		Time equired	Mil Illum.
Tap Up Tap Down Switch			Fail Case 1 Tap Up Switch Stuck in the Up					- 1	4	Specia
(TUTD)	P0815	Upshift Switch Circuit	Position in Range 1 Enabled	= 0	Boolean					No MIL
			Tap Up Switch Stuck in the Up	= 0	Boolean					
			Position in Range 2 Enabled	= 0	DUUIEdII					
			Tap Up Switch Stuck in the Up	= 0	Boolean					
			Position in Range 3 Enabled	- 0	Doolcan					
			Tap Up Switch Stuck in the Up	= 0	Boolean					
			Position in Range 4 Enabled							
			Tap Up Switch Stuck in the Up Position in Range 5 Enabled	= 0	Boolean					
			Tap Up Switch Stuck in the Up							
			Position in Range 6 Enabled	= 0	Boolean					
			Tap Up Switch Stuck in the Up							
			Position in Neutral Enabled	= 1	Boolean					
			Tap Up Switch Stuck in the Up		5 .					
			Position in Park Enabled	= 1	Boolean					
			Tap Up Switch Stuck in the Up	0	Daalaan					
			Position in Reverse Enabled	= 0	Boolean					
			Tap Up Switch ON	= TRUE	Boolean			>= 1	Fail Time (Sec)	
			Tap op Silicit Sil	INOL	Doolean			, ,	Tun Time (See)	
										4
			Fail Case 2 Tap Up Switch Stuck in the Up	= 1	Boolean					
			Position in Range 1 Enabled Tap Up Switch Stuck in the Up							
			Position in Range 2 Enabled	= 1	Boolean					
			Tap Up Switch Stuck in the Up							
			Position in Range 3 Enabled	= 1	Boolean					
			Tap Up Switch Stuck in the Up		5 .					
			Position in Range 4 Enabled	= 1	Boolean					
			Tap Up Switch Stuck in the Up	= 1	Boolean					
			Position in Range 5 Enabled	= 1	DUUIEdII					
			Tap Up Switch Stuck in the Up	= 1	Boolean					
			Position in Range 6 Enabled	- '	Doolean					
			Tap Up Switch Stuck in the Up	= 0	Boolean					
			Position in Neutral Enabled							
			Tap Up Switch Stuck in the Up	= 0	Boolean					
			Position in Park Enabled Tap Up Switch Stuck in the Up							
			Position in Reverse Enabled	= 0	Boolean					
			Tap Up Switch ON	= TRUE	Boolean					
			NOTE: Both Failcase1 and Failcase	- INOL	Doolcan					
			2 Must Be Met					>= 600	Fail Time (Sec)	
										1
										1
		l								1

Component/	Fault	Monitor Strategy	Malfunction Criteria		reshold /alue	Secondary Malfunction	E	nable nditions	Time Required	Mil Illum.
System	Code	Description	Criteria		value	manuncton	Col	iunions	Required	
						Time Since Last Range Change Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>=	1 Enable Time (Sec) 9 Volts .990234 Volts 400 RPM 7500 RPM 5 Sec		
						P0815 Status is	≠ T ≠ Or	st Failed his Key ı or Fault Active		
					Disable Conditions:		P1877, P1915, P1			
Tap Up Tap Down Switch (TUTD)	P0816	Downshift Switch Circuit	Fail Case 1 Tap Down Switch Stuck in the Down Position in Range 1 Enabled	= 0	Boolean		ECM: None			Special No MIL
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	= 0	Boolean					
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	= 0	Boolean					
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	= 0	Boolean					
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	= 0	Boolean					
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	= 0	Boolean					
			Tap Down Switch Stuck in the Down Position in Range Neutral Enabled	= 1	Boolean					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction	Enable Conditions		me uired	Mil Illum.
Cycle		2001.p.101.	Tap Down Switch Stuck in the Down Position in Range Park Enabled	_	Boolean					
			Tap Down Switch Stuck in the Down Position in Range Reverse = Enabled	0	Boolean					
			Tap Down Switch ON =	TRUE	Boolean			>= 1	sec	
			Fail Case 2 Tap Down Switch Stuck in the Down Position in Range 1 Enabled	1	Boolean					
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	1	Boolean					
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	1	Boolean					
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	1	Boolean					
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	1	Boolean					
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	1	Boolean					
			Tap Down Switch Stuck in the Down Position in Neutral Enabled	0	Boolean					
			Tap Down Switch Stuck in the Down Position in Park Enabled	0	Boolean					
			Tap Down Switch Stuck in the Down Position in Reverse Enabled	0	Boolean					
			Tap Down Switch ON = NOTE: Both Failcase1 and Failcase 2 Must Be Met	TRUE	Boolean			>= 600	sec	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
					Time Since Last Range Change	>=	1	Enable Time (Sec)		
					Ignition Voltage Lo		9	Volts		
					Ignition Voltage Hi		31.990234	Volts		
					Engine Speed Lo		400	RPM		
					Engine Speed Hi		7500	RPM		
					Engine Speed is within the allowable limits for		5	Sec		
					P0816 Status is	<i>≠</i>	Test Failed This Key On or Fault Active			
				Disable Conditions:		TCM: P081: P1877, P19 ECM: None	15, P1761	P1876,		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold 'alue	Secondary Malfunction	Enable Conditions	Tin Requ		Mil Illum.
Transmission Control Module (TCM)	P0601	Transmission Electro-Hydraulic Control Module Read Only Memory	Incorrect program/calibrations checksum	=	TRUE	Boolean			>= 5	Fail Counts	One Trip
						Disable Conditions:	MIL not Illuminated for DTC's:	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 Trip
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0603 ECM: None			
Transmission Control Module (TCM)	P0604	Transmission Electro-Hydraulic Control Module Random Access Memory	RAM Read/Write Failure (Single Word)	=	TRUE	Boolean			>= 5	Fail Counts	One Trip
						Disable	MIL not Illuminated for DTC's:	TCM: P0604	= 16	Sample Counts	
						Conditions:		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 Trip
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P062F ECM: None			
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1 Substrate Temperature	>=	144	°C			>= 5	Fail Time (Sec)	One Trip
			Fail Case 2 Substrate Temperature Ignition Voltage		50 18	°C Volts			>= 2	Fail Time (Sec)	
			Note: either fail case can set the DTC								
	I	l	I	I			Ignition Voltage Lo	>= 9 Volts			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions			Tii Requ		Mil Illum.
					Ignition Voltage Hi	<=	31.990234	Volts				
					Substrate Temp Lo Substrate Temp Hi Substrate Temp Between Temp Range for Time	>= <= >=	0 240 0.25	°C °C Sec				
					P0634 Status is	≠	Test Failed This Key On or Fault Active					
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
High Side Driver 1	P0658	Actuator Supply Voltage Circuit Low	The HWIO reports a low voltage (open or ground short) error flag	= TRUE Boolean					>= out	4	Fail Counts Sample Counts	One Trip
					P0658 Status is not	=	Test Failed This Key On or Fault Active		of		<u> </u>	
					High Side Driver 1 On	=	True	Boolean				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Transmission Control Module (TCM)	P0667	TCM Internal Temp (substrate) Sensor Circuit Range/Performance	If transmission oil temp to substrate temp Δ	Refer to Table 19 in °C supporting documents								Two Trips
			If TCM substrate temp to power up temp Δ	Refer to Table 20 in °C supporting documents								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	(Enable Conditions				me uired	Mil Illum.
												l
			Both conditions above required to increment fail counter						>=	3000	Fail Counts (100ms loop)	
			Note: table reference temp = to the median temp of trans oil temp, substrate temp and power up temp.						Out of	3750	Sample Counts (100ms loop)	
			Non-continuous (intermittent) fail conditions will delay resetting fail counter until						>=	700	Pass Counts (100ms loop)	
									Out of	875	Sample Counts (100ms loop)	
					Engine Torque Signal Valid	=	TRUE	Boolean				
					Accelerator Position Signal Valid	=	TRUE	Boolean				
					Ignition Voltage Lo	>=	9	Volts				
					Ignition Voltage Hi		31.990234	Volts				
					Engine Speed Lo Engine Speed Hi	>= <=	400 7500	RPM RPM				
					Engine Speed is within the							
					allowable limits for	>=	5	Sec				
					Brake torque active Below describes the brake	=	FALSE					
					torque entry criteria							
					Engine Torque	>=	90	N*m				
					Throttle		30.000305	Pct				
					Transmission Input Speed Vehicle Speed	<=	200 8	RPM				
					Transmission Range	<= ≠	o Park	Kph				
					Transmission Range	<i>≠</i>	Neutral					
					PTO	=	Not Active					
					Set Brake Torque Active TRUE if above conditions are met for:	>=	7	sec				
					Below describes the brake							
					torque exit criteria							
					Brake torque entry criteria	=	Not Met Clutch					
						,	Hydraulic					
					Clutch hydraulic pressure	≠	Air Purge Event					
					Clutch used to exit brake torque active		CeTFTD_e _C3_RatlE _nbl					
					The above clutch pressure is							1
					greater than this value for one	>=	600	kpa				1
	I	I	Į l		loop				I			1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Set Brake Torque Active FALSE if above conditions are met for:	>= 20 Sec		
					P0667 Status is	Test Failed		
				Disable Conditions:		TCM: P0658, P0668, P0669, P06AD, P06AE, P0716, P0712, P0713, P0717, P0722, P0723, P0962, P0963, P0966, P0967, P0970, P0971, P215C, P2720, P2721, P2729, P2730		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Transmission Control Module (TCM)	P0668	TCM internal temperature (substrate) thermistor failed at a low voltge	Type of Sensor Used If TCM Substrate Temperature	CeTFTI_e_Vol = tageInversePr op				Two Trips
			Sensor = Direct Proportional and Temp If TCM Substrate Temperature Sensor = Indirect Proportional and					
			Temp Either condition above will satisfy the fail conditions				>= 60 Fail Timer (Sec	 c)
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= 9 Volts <= 31.990234 Volts >= 400 RPM <= 7500 RPM >= 5 Sec		
					P0668 Status is	Test Failed This Key On or Fault Active		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
					Disable 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	CeTFTI_e_Vol = tageInversePr op >= -254 °C <= -254 °C									Two Trips
			Either condition above will satisfy the fail conditions			Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= <= >= <= >=	9 31.990234 400 7500 5	Volts Volts RPM RPM Sec	>=	60	Fail Timer (Sec)	
						P0669 Status is	≠	Test Failed This Key On or Fault Active					
						For Hybrids, below conditions must also be met							
						Estimated Motor Power Loss Estimated Motor Power Loss	>=	0	kW Sec				
						greater than limit for time Lost Communication with Hybrid Processor Control Module	=	FALSE	300				
						Estimated Motor Power Loss Fault	=	FALSE					
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, ECM: None	P0717, P0722, I	P0723				
Transmission Control Module (TCM)	P06AC	TCM Power-up Temp Sensor Circuit Range/Performance	If TCM power-up temp to substrate temp Δ	Refer to Table 20 in °C supporting documents									Two Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum
			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 the median temp of trans oil temp, substrate temp and power up temp.				>= 3000 Fail Counts (100ms loop) Out 3750 Sample Counts (100ms loop)	5
			Non-continuous (intermittent) fail conditions will delay resetting fail counter until				>= 700 Pass Counts (100ms loop)	
							Out 875 Sample Counts of (100ms loop)	j
					Engine Torque Signal Valid Accelerator Position Signal Valid Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for Brake torque active Below describes the brake torque entry criteria Engine Torque Throttle Transmission Input Speed	= TRUE Boolean = TRUE Boolean >= 9 Volts <= 31.990234 Volts >= 400 RPM <= 7500 RPM >= 5 Sec = FALSE >= 90 N*m >= 30.000305 Pct <= 200 RPM		_
					Vehicle Speed Transmission Range Transmission Range PTO Set Brake Torque Active TRUE if above conditions are met for:	<= 8 Kph ≠ Park ≠ Neutral		
					Below describes the brake torque exit criteria Brake torque entry criteria Clutch hydraulic pressure	= Not Met Clutch + Hydraulic ≠ Air Purge Event		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Clutch used to exit brake torque active	CeTFTD_e = _C3_RatlE nbl		
					The above clutch pressure is greater than this value for one loop	>= 600 kpa		
					Set Brake Torque Active FALSE if above conditions are met for:	>= 20 Sec		
					P06AC Status is	Test Failed This Key ≠ On or Fault Active		
				Disable Conditions:		TCM: P0658, P0668, P0669, P06AD, P06AE, P0716, P0712, P0713, P0717, P0722, P0723, P0962, P0963, P0966, P0967, P0970, P0971, P215C, P2720, P2721, P2729, P2730		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Transmission Control Module (TCM)	P06AD	TCM power-up thermistor circuit voltage low	Power Up Temp	<= 254 °C			>= 60 Fail Time (Sec	Two
(,,					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= 9 Volts <= 31.990234 Volts >= 400 RPM <= 7500 RPM >= 5 Sec		
					P06AD Status is	Test Failed ≠ This Key On or Fault Active		
					For Hybrids, below conditions must also be met			
					Estimated Motor Power Loss	>= 0 kW		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Estimated Motor Power Loss greater than limit for time			
					Lost Communication with Hybrid Processor Control Module	= FALSE		
					Estimated Motor Power Loss Fault	- ENISE		
				Disable Conditions:		TCM: P0716, P0717, P0722, P0723 ECM: None		
Transmission Control Module (TCM)	P06AE	TCM power-up thermistor circuit voltage high	Power Up Temp	>= -254 °C			>= 60 Fail Time (Sec)	Two Trips
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	<= 31.990234 Volts >= 400 RPM <= 7500 RPM		
					P06AE Status is	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)		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					
			Both conditions above required to increment fail counter				>= 3000 Fail Counts (100ms loop)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
			Note: table reference temp = to the median temp of trans oil temp, substrate temp and power up temp.						Out of	3750	Sample Counts (100ms loop)	
			Non-continuous (intermittent) fail conditions will delay resetting fail counter until						>=	700	Pass Counts (100ms loop)	
									Out of	875	Sample Counts (100ms loop)	
					Engine Torque Signal Valid Accelerator Position Signal Valid Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Transmission Input Speed Vehicle Speed Transmission Range Transmission Range	=	TRUE TRUE 9 31.990234 400 7500 5 FALSE 90 30.000305 200 8 Park Neutral	Boolean Boolean Volts Volts RPM RPM Sec				
					PTO Set Brake Torque Active TRUE if above conditions are met for: Below describes the brake	>=	Not Active 7	sec				
					torque exit criteria Brake torque entry criteria Clutch hydraulic pressure	= ≠	Not Met Clutch Hydraulic Air Purge					
					Clutch used to exit brake torque active The above clutch pressure is greater than this value for one	= >=	Event CeTFTD_e _C3_RatlE _nbl	kpa				
					Set Brake Torque Active FALSE if above conditions are met for:	>=	20	Sec				

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

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Estimated Motor Power Loss greater than limit for time	>= 0 Sec		
					Lost Communication with Hybrid Processor Control Module	= FALSE		
					Estimated Motor Power Loss Fault	= FALSE		
				Disable Conditions:		TCM: P0716, P0717, P0722, P0723 ECM: None		
Transmission Fluid Temperature Sensor (TFT)	P0713	Transmission fluid temperature thermistor failed at a high voltage	Type of Sensor Used	ор				Two Trips
			If Transmission Fluid Temperature Sensor = Direct Proportional and Temp If Transmission Fluid Temperature	>= -254 °C				
			Sensor = Indirect Proportional and Temp Either condition above will salisfy	<= -254 °C				_
			the fail conditions				>= 60 Fail Time (Sec)	
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= 9 Volts <= 31.990234 Volts >= 400 RPM <= 7500 RPM >= 5 Sec		
					P0713 Status is	Test Failed This Key ≠ On or Fault Active		
				Disable Conditions:		TCM: P0713, P0716, P0717, P0722, P0723		
Transmission Input Speed Sensor (TISS)	P0716	Input Speed Sensor Performance	Transmission Input Speed Sensor Drops			ECM: None	>= 0.8 Fail Time (Sec)	One Trip
					Engine Torque is Engine Torque is Engine Speed	>= 0 N*m <= 8191.875 N*m >= 400 RPM		

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria			shold lue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
								Engine Speed Engine Speed is within the allowable limits for	<= >=	7500 5	RPM Sec				
								Vehicle Speed is Throttle Position is	>= >=	10 0	Kph Pct				
								Transmission Input Speed is	>=	0	RPM				
								The previous requirement has been satisfied for	>=	0	Sec				
								The change (loop to loop) in transmission input speed is	<	8191.75	RPM/Loop				
								The previous requirement has been satisfied for	>=	0	Sec				
								Throttle Position Signal Valid	=	TRUE	Boolean				
								Engine Torque Signal Valid Ignition Voltage Ignition Voltage	= >= <=	TRUE 9 31.990234	Boolean Volts Volts				
								P0716 Status is not	=	Test Failed This Key On or Fault Active					
							Dis Conditi	MIL not Illuminated for DTC's:		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	<	1000	RPM	Controller uses a single power supply for the speed sensors	=	1	Boolean				
				,				Engine Torque is Engine Torque is Vehicle Speed Engine Torque Signal Valid Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the	>= <=	50 8191.875 16 TRUE 9 31.990234 400 7500	N*m N*m Kph Boolean Volts Volts RPM RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					P0717 Status is no	Test Failed This Key On or Fault Active		
				Condition	ole MIL not Illuminated for DTC's: is:	TCM: P0722, P0723 ECM: P0101, P0102, P0103		
Transmission Output Speed Sensor (TOSS)	P0722	Output Speed Sensor Circuit Low Voltage	Transmission Output Speed Sensor Raw Speed	<= 35 RPM			>= 4.5 Fail Time (Sec	One Trip
					P0722 Status is no	Test Failed This Key On or Fault Active		
					Transmission Input Speed Check	= TRUE Boole	an	
					Engine Torque Check Throttle Positior Transmission Fluic	s = TRUE Boole 1 >= 8.0001831 Pci		
					Tansinission Fluic Temperature Disable this DTC if the PTO is active	>= -40 °C		
					Engine Torque Signal Valid		an	
					Throttle Position Signal Valid			
					Ignition Voltage is Ignition Voltage is Engine Speed is Engine Speed is Engine Speed is within the allowable limits for	 <= 31.990234 Volt >= 400 RPI <= 7500 RPI 	s Л	
					Enable_Flags Defined Below	,		
					The Engine Torque Check is TRUE, if either of the two following conditions are TRUE			
					Engine Torque Condition 1			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold lue	Secondary Malfunction		Enable Conditions			Tim Requi		Mil Illum.
						Range Shift Status	<i>≠</i>	Range shift completed	ENUM				
						OR Transmission Range is	=	Park or					
						Engine Torque is Engine Torque is	>= <=	Neutral 8191.75 8191.75	N*m N*m				
						Engine Torque Condition 2 Engine Torque is Engine Torque is	>= <=	30 8191.75	N*m N*m				
						The Transmission Input Speed (TIS) Check is TRUE, if either of the two following conditions are TRUE							
						TIS Check Condition 1 Transmission Input Speed is	>=	1000	RPM				
						Transmission Input Speed is	<=	8191.75	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 8191.75	RPM RPM				
						Controller uses a single power supply for the speed sensors	=	1	Boolean				
						Powertrain Brake Pedal is Valid	=	TRUE	Boolean				-
					Disable Conditions:			, P0102, P0103,	P0121,				
nsmission Output Speed nsor (TOSS)	P0723	Output Speed Sensor Circuit Intermittent	Transmission Output Speed Sensor Raw Speed	>= 105	RPM					>=	0	Enable Time (Sec)	One T
			Output Speed Delta	<= 8191.75	RPM					>=	0	Enable Time (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions			Time Require	ed	Mil Illun
			Output Speed Drop	> 1000 RPM					>=	3 I	Output Speed Drop Recovery Fail Time (Sec)	
			Transmission Range is	= Driven range = (R,D)								
					Range_Disable OR	=	FALSE	See Below				
					Neutral_Range_Enable	=	TRUE	See Below				
					And Neutral_Speed_Enable are TRUE concurrently	=	TRUE	See Below				
					Transmission_Range_Enable	=	TRUE	See Below				
					Transmission_Input_Speed_En able	=	TRUE	See Below				
					No Change in Transfer Case Range (High <-> Low) for	>=	5	Seconds				
					P0723 Status is not	=	Test Failed This Key On or Fault Active					
					Disable this DTC if the PTO is	=	1	Boolean				
					active Ignition Voltage is Ignition Voltage is Engine Speed is	>= <= >=	9 31.990234 400	Volts Volts RPM				
					Engine Speed is Engine Speed is within the allowable limits for	<= >=	7500 5	RPM Sec				
					Enable_Flags Defined Below							
					Transmission_Input_Speed_En able is TRUE when either TIS Condition 1 or TIS Condition 2 is TRUE:]
					TIS Condition 1 is TRUE when both of the following conditions are satsified for Input Speed Delta	>= <=	0 4095	Enable Time (Sec) RPM				
					Raw Input Speed	>=	500	RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum
					TIS Condition 2 is TRUE when ALL of the next two conditions					
					are satisfied Input Speed	=	0	RPM		
					A Single Power Supply is used	=	TRUE	Boolean		
					for all speed sensors	=	IKUE	DUUIEAII		
					Neutral_Range_Enable is TRUE when any of the next 3					
					conditions are TRUE					
					Transmission Range is	=	Neutral	ENUM		
					Transmission Range is	=	Reverse/N eutral	ENUM		
							Transitonal			
							Neutral/Dri ve			
					Transmission Range is	=	Transitiona I	ENUM		
					And when a drop occurs					
					Loop to Loop Drop of Transmission Output Speed is	>	650	RPM		
					Range_Disable is TRUE when any of the next three conditions					
					are TRUE					
					Transmission Range is	=	Park	ENUM		
							Park/Rever			
					Transmission Range is	=	se Transitonal	ENUM		
					Input Clutch is not	=	ON (Fully Applied)	ENUM		
					Neutral_Speed_Enable is TRUE when All of the next three	>	1.5	Seconds		
					conditions are satsified for		1.5	Seconds		
					Transmission Output Speed	>	130	RPM		
					The loop to loop change of the Transmission Output Speed is	<	125	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					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold lue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
						Transmission Range is Transmission Range is	=	Neutral Reverse/N eutral Transitiona	ENUM ENUM				
						Transmission Range is	=	Neutral/Dri 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:			1, P0102, P0103,					
orque Converter Clutch (TCC)) P0741	TCC System Stuck OFF	TCC Pressure Either Condition (A) or (B) Must be Met		Кра					>=	2	Enable Time (Sec)	Two Trips
			(A) TCC Slip Error @ TCC On Mode	Refer to Table 1 in Supporting Documents	RPM					>=	5	Fail Time (Sec)	
			(B) TCC Slip @ Lock On Mode	>= 130	RPM					>=	5	Fail Time (Sec)	
			If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter							>=	2	TCC Stuck Off Fail Counter	
						TCC Mode	=	On or Lock					
						Ignition Voltage Lo Ignition Voltage Hi Engine Speed	>= <= >=	9 31.990234 400	Volts Volts RPM				

Component/	Fault	Monitor Strategy	Malfunction Criteria		reshold /alue	Secondary Malfunction		Enable Conditions		Ti	ne	Mil Illum.
System	Code	Description	Criteria	· '	raiue			7500	RPM	Requ	ııred	muni.
						Engine Speed Engine Speed is within the	<=	/500	RPIVI			
						allowable limits for	>=	5	Sec			
						Engine Torque Lo		50	M*ma			
							>=		N*m			
						Engine Torque Hi	<=	8191.875	N*m			
						Throttle Position Lo	>=	8.0001831	Pct			
						Throttle Position Hi 2nd Gear Ratio Lo	<=	99.998474 2.7045898	Pct Ratio			
						2nd Gear Ratio Lo	>=	3.1118164	Ratio			
						3rd Gear Ratio High	<=					
						3rd Gear Ratio High	>=	1.7601318 2.0250244	Ratio Ratio			
							<=					
						4th Gear Ratio Lo	>=	1.3450928	Ratio			
						4th Gear Ratio High		1.5474854	Ratio			
						5th Gear Ratio Lo	>=	0.9300537	Ratio			
						5th Gear Ratio Hi	<=	1.0699463	Ratio			
						6th Gear Ratio Lo	>=	0.6938477	Ratio			
						6th Gear Ratio High	<=	0.7983398	Ratio			
						Transmission Fluid	>=	-6.65625	°C			
						Temperature Lo						
						Transmission Fluid	<=	130	°C			
						Temperature Hi						
						PTO Not Active	=	TRUE	Boolean			
						Engine Torque Signal Valid	=	TRUE	Boolean			
						Throttle Position Signal Valid	=	TRUE	Boolean			
						Dynamic Mode	=	FALSE	Boolean			
								Test Failed				
								This Key				
						P0741 Status is	≠	On or Fault				
								Active				
								Active				
					Disable	MIL not Illuminated for DTC's:	TCM: P0716	. P0717. P0722.	P0723.			
					Conditions:		P0742, P276					
							FCM: P010°	1, P0102, P0103,	P0106			
								1, 1 0102, 1 0103, 18, P0171, P0172				
)1, P0202, P0203				
								06, P0207, P0208				
								02, P0303, P0304				
								7, P0308, P0401				
												One Tris
Torque Converter Clutch (TCC)	P0742	TCC System Stuck ON	TCC Slip Speed	>= -50	RPM							One Trip
			TCC Slip Speed	<= 13	RPM							
										>= 1	Fail Time (Sec)	
	I	I		I						1	,,	I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				me uired	Mi Illur
			If Above Conditions Have been Met,							_		
			and Fail Timer Expired, Increment						>=	5	Fail Counter	
			Fail Counter									-
					TCC Mode	=	Off					
					Enable test if Cmnd Gear =	=	1	Boolean				
					1stFW and value true							
					Enable test if Cmnd Gear = 2nd	=	0	Boolean				
					and value true							
					Engine Speed Hi	<=	6000	RPM				
					Engine Speed Lo	>=	500	RPM				
					Vehicle Speed HI	<=	511	KPH				
					Vehicle Speed Lo	>=	1	KPH				
					Engine Torque Hi	<=	8191.875	Nm				
					Engine Torque Lo	>=	30	Nm				
					Current Range	≠	Neutral	Range				
					Current Range	≠	Reverse	Range				
					Transmission Sump	<=	130	°C				
					Temperature			Ü				
					Transmission Sump	>=	15	°C				
					Temperature	-						
					Throttle Position Hyst High AND	>=	10.00061	Pct				
					Max Vehicle Speed to Meet	<=	8	KPH				
					Throttle Enable		-					
					Once Hyst High has been met,							
					the enable will remain while Throttle Position	>=	2.0004272	Pct				
					Disable for Throttle Position	>=	75	Pct				
					Disable if PTO active and value	=	1	Boolean				
					true	=	'					
					Disable if in D1 and value true	=	1	Boolean				
					Disable if in D2 and value true	=	1	Boolean				
					Disable if in D3 and value true	=	1	Boolean				
					Disable if in D4 and value true	=	1	Boolean				
					Disable if in D5 and value true	=	1	Boolean				
					Disable if in MUMD and value	=	1	Boolean				
					true Disable if in TUTD and value	=	1	Boolean				
					true	_						1
					4 Wheel Drive Low Active	=	FALSE	Boolean				
					Disable if Air Purge active and value false	=	0	Boolean				
					RVT Diagnostic Active	=	FALSE	Boolean				
					Ignition Voltage	>=	9	V				
					Ignition Voltage	<=	31.990234	V				1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum.
					Vehicle Speed Engine Speed Engine Speed Engine Speed is within the allowable limits for Engine Torque Signal Valid	<= 7500 RPM >= 5 Sec			
					Throttle Position Signal Valid	= TRUE Boolean			
					P0742 Status is	Test Failed ≠ This Key Øn or Fault Active			
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P0741, P2763, P2764			
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E			
Mode 2 Multiplex Valve	P0751	Shift Solenoid Valve A Stuck Off	Commaned Gear Slip	>= 400 RPM					Two
Mode 2 Multiplex valve	P0/31	SHIRL SUIEHUIU VAIVE A SIUCK OH	Commanded Gear Gear Ratio	= 1st Lock rpm = 1.518310547 >= 1.373657227				0.3 Fail Tmr 5 Fail Counts	Trips
			If the above parameters are true				≠	0 Neutral Timer (Sec)	
							>=	0.3 Fail Timer (Sec))
							>=	8 Counts	
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for Transmission Fluid Temperature	>= -6.65625 °C			
					Range Shift State	Range = Shift ENUM Completed			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value	Secondary Malfunction	Enable Conditions			ime Juired	Mil Illum.
Gystom		Description	Citics its			TPS OR Output Speed Throttle Position Signal Valid from ECM Engine Torque Signal Valid from ECM, High side driver is enabled High-Side Driver is Enabled Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	>= 0.5004883 >= 110 = TRUE = TRUE = TRUE = FALSE = FALSE = TRUE	P0106, , P0174,			
							P0173, P0201, P0202, P0203, P0205, P0206, P0207, P0208, P0301, P0302, P0303, P0304, P0306, P0307, P0308, P0401,	, P0300, , P0305,			
Mode 2 Multiplex Valve	P0752	Shift Solenoid Valve A Stuck On	Gear Box Slip	>= 40	00 RPM						One Trip
			Commanded Gear Commanded Gear has Achieved	= 3r	d Gear						
			1st Locked OR 1st Free-Wheel OR 2nd with Mode 2 Sol. Commanded On	= TR	UE Boolean						
			If the above parameters are true								
									Please Refe to Table 16 >= Supporting Documents	in Neutral Timer (Sec)	
			Command 4th Gear once Output Shaft Speed If Gear Ratio And Gear Ratio		5625						
									>= 1.5	Fail Timer (Sec)	
						Ignition Voltage Lo		Volts Volts	>= 5	Counts	1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum.
					Engine Speed Lo Engine Speed Hi	>= 400 <= 7500	RPM RPM	·	
					Engine Speed is within the allowable limits for	>= 5	Sec		
					High-Side Driver is Enabled	= TRUE	Boolean		
					Throttle Position Signal Valid from ECM	= TRUE	Boolean		
					Output Speed	>= 110	RPM		
					OR	0.5004003	0/		
					TPS	>= 0.5004883	%		
					Range Shift State	Range = Shift	ENUM		
					J	Completed			
					Transmission Fluid	>= -6.65625	°C		
					Temperature Input Speed Sensor fault		Boolean		
					Output Speed Sensor fault		Boolean		
					Default Gear Option is not present	= TRUE			
					p.oson.				
				Disable	MIL not Illuminated for DTC's:	TCM: P0716 P0717 P0722 P0	0723		
				Conditions		P182E	57207		
						ECM: P0101, P0102, P0103, P0			
						P0107, P0108, P0171, P0172, F P0175, P0201, P0202, P0203, F			
						P0205, P0206, P0207, P0208, F	P0300,		
						P0301, P0302, P0303, P0304, F P0306, P0307, P0308, P0401, F			
						1 0300,1 0307,1 0300,1 0401,1	1 042L		
Variable Bleed Solenoid (VBS)		Pressure Control (PC) Solenoid B Stuck Off [C35R]	Fail Case 1 Case: Steady State 3rd Gear						One Trip
		Stuck Oil [C33R]	Commanded Gear						
			Gearbox Slip	>= 400 RPM					
								Please Refer	
								>= to Table 16 in Neutral Tim Supporting (Sec)	iei
								Documents	
			Command 4th Gear once Output						
			Shaft Speed If Gear Ratio	>= 1.373657227					
				<= 1.518310547					
								>= 3 Fail Timer (S	Sec)

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value	Secondary Malfunction		Enable Conditions			Tir Requ	ne ıired	Mil Illum.
			It the above condiations are true, Increment 3rd gear fail counter							>=	2	3rd Gear Fail Counts	
			and C35R Fail counter							>=	14	or 3-5R Clutch Fail Counts	
			Fail Case 2 Case: Steady State 5th Gear Commanded Gear	=	5th Gear								
			Gearbox Slip	>=	400 Rpm					>= to	lease Refer Table 5 in Supporting Documents		
			Intrusive Test: Command 6th Gear		Please refer to								
			If attained Gear=6th gear Time		Table 3 in supporting documents Shift Time (Sec)								
			It the above condiations are true, Increment 5th gear fail counter							>=	3	5th Gear Fail Counts	
			and C35R Fail counter							>=	14	or 3-5R Clutch Fail Counts	
						PRNDL State defaulted inhibit RVT IMS fault pending indication TPS validity flag	= = =	FALSE FALSE FALSE TRUE	Boolean Boolean Boolean Boolean				
						Hydraulic System Pressurized	=	TRUE	Boolean				
						Minimum output speed for RVT	>=	110	RPM				
						A OR B							
						(A) Output speed enable	>=	110	RPM				
						(B) Accelerator Pedal enable	>=	0.5004883	Pct				
						Common Enable Criteria Ignition Voltage Lo Ignition Voltage Hi	>= <=	9 31.990234	Volts Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Tim Requi		Mil Illum.
				Disable Conditions:	Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for Throttle Position Signal valid HSD Enabled Transmission Fluid Temperature Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present MIL not Illuminated for DTC's:	= TRUE Boolean >= -6.65625 °C = FALSE Boolean = FALSE Boolean			
		Pressure Control (PC) Solinoid B	Fail Case 1			ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0308, P0307, P0308, P0401, P042E			One Trip
Variable Bleed Solenoid (VBS)	P0777	Stuck On [C35R] (Steady State)	Case: Steady State 1st Attained Gear slip If the Above is True for Time Intrusive test: (CBR1 clutch exhausted) Gear Ratio	>= 400 RPM Table Based Time Please Refer to Table Enable Time >= 4 in (Sec) supporting documents					
			Fail Case 2 Case: Steady State 2nd gear				>= 1.1 >= 2 >= 3	Fail Timer (Sec) Fail Count in 1st Gear or Total Fail Counts	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum
			Max Delta Output Speed Hysteresis	Table Based value Please				
			Min Delta Output Speed Hysteresis	Table Based value Please				
			If the Above is True for Time	Table Based Time Please Refer to Table 17 in supporting documents				
				<= 2.025024414 >= 1.760131836				
							>= 1.1 Fail Timer (Se	*C)
							>= 3 Fail Count in 2nd Gear or	
							>= 3 Total Fail Counts	
			Fail Case 3 Case: Steady State 4th gear	Table Based value Please			Counts	
			Max Delta Output Speed Hysteresis	>= Refer to 3D Table 1 in supporting documents Table Based value Please				
			Min Delta Output Speed Hysteresis	>= Refer to 3D Table 2 in supporting documents Table Based				
			If the Above is True for Time	Time Please Refer to Table 17 in supporting documents				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Re	Time equired	Illu
			Gear Ratio	<= 1.069946289 >= 0.930053711						
			If the above parameters are true					>= 1.1	Fail Timer (Sec)	
								>= 3	Fail Count in 4th Gear	
								>= 3	or Total Fail Counts	
			Fail Case 4 Case: Steady State 6th gear	Table Based value Please Refer to 3D rpm/sec					555.115	
			Max Delta Output Speed Hysteresis	>= Table 1 in supporting documents Table Based value Please						
			Min Delta Output Speed Hysteresis	>= Refer to 3D rpm/sec Table 2 in supporting documents Table Based						
			If the Above is True for Time	17 in supporting						
			Intrusive test: (CB26 clutch exhausted)	documents						
			Gear Ratio	<= 1.069946289				>= 1.1	Fail Timer (Sec)	
			Gear Ratio If the above parameters are true	>= 0.930053711				>= 3	counts	
								>= 1.1	Fail Timer (Sec)	
								>= 3	Fail Count in 6th Gear	
								>= 3	or Total Fail Counts	
					PRNDL State defaulted inhibit RVT IMS fault pending indication output speed	= FALSE = FALSE = FALSE >= 0	Boolean Boolean Boolean RPM			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thres Val		Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
						TPS validity flag HSD Enabled	=	TRUE TRUE	Boolean Boolean		
						Hydraulic_System_Pressurized	=	TRUE	Boolean		
						A OR B		440	N		
						(A) Output speed enable (B) Accelerator Pedal enable	>=	110 0.5004883	Nm Nm		
						Ignition Voltage Lo	>=	9	Volts		
						Ignition Voltage Hi	<=	31.990234	Volts		
						Engine Speed Lo Engine Speed Hi	>= <=	400 7500	RPM RPM		
						Engine Speed is within the					
						allowable limits for	>=	5	Sec		
						if Attained Gear=1st FW Accelerator Pedal enable	>=	10.00061	Pct		
						if Attained Gear=1st FW Engine Torque Enable	>=	45	Nm		
						if Attained Gear=1st FW Engine Torque Enable	<=	8191.875	Nm		
						Transmission Fluid	>=	-6.65625	°C		
						Temperature Input Speed Sensor fault	=	FALSE	Boolean		
						Output Speed Sensor fault	=	FALSE	Boolean		
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716 P182E	, P0717, P0722,	P0723,		
								, P0102, P0103,			
)8, P0171, P0172)1, P0202, P0203			
							P0205, P020	06, P0207, P0208	3, P0300,		
								02, P0303, P0304 07, P0308, P0401			
							. 0000,1 000		.,		
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solenoid B StuckOn [C35R] (Dymanic)	Primary Offgoing Clutch is exhausted (See Table 12 in Supporting Documents for Exhaust	= TRUE	Boolean						One Trip
			Delay Timers) Primary Oncoming Clutch Pressure	Maximum							
			Command Status	= pressurized							
			Primary Offgoing Clutch Pressure Command Status	= Clutch exhaust command							
			Range Shift Status	≠ Initial Clutch Control							
			Attained Gear Slip		RPM						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If the above conditions are true run appropriate Fail 1 Timers Below:					
			fail timer 1 (3-1 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (3-2 shifting with Throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (3-2 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (3-4 shifting with Throttle) fail timer 1	>= 0.400390625 Fail Time (Sec)				
			(3-4shifting with Closed Throttle) fail timer 1	>= 0.5 Fail Time (Sec)				
			(3-5 shifting with Throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (3-5 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (5-3 shifting with Throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (5-3 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (5-4 shifting with Throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (5-4 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (5-6 shifting with Throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (5-6 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
							Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail	
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers				>= Timer 1, and sec Reference	
							Supporting Table 15 for Fail Timer 2	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Re	Time quired	Mil Illum.
System	Code	Description	3rd gear fail counter	value		Conditions	>=	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	>=	3	total fail counts	
					Input Speed Sensor fault	= FALSE Boolean				
					Output Speed Sensor fault	= FALSE Boolean				
					Command / Attained Gear	≠ 1st Boolean				
					High Side Driver ON output speed limit for TUT	= TRUE Boolean >= 200 RPM				
					input speed limit for TUT	>= 200 RPM				
					PRNDL state defaulted	= FALSE Boolean				
					IMS Fault Pending	= FALSE Boolean				
					Service Fast Learn Mode HSD Enabled	= FALSE Boolean = TRUE Boolean				
					Default Gear Option is not					
					present	= TRUE				
				Disable	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723,				
				Conditions:		P182E				
						ECM: P0101, P0102, P0103, P0106,				
						P0107, P0108, P0171, P0172, P0174,				
						P0175, P0201, P0202, P0203, P0204,				
						P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305,				
						P0306, P0307, P0308, P0401, P042E				
Transmission Output Speed Sensor (TOSS)	P077C	Output Speed Sensor Circuit Low	TOSS Analog Signal Voltage	<= 0.25 Volts			>=	0.05	sec	One Trip
, ,				Test Failed						
			P077C Status is not							
				or Fault Active						
			If the above conditons have been							
			met, increment the P077C Fail							
			Counter							
			DTC P077C Sets when the Fail Counter	>= 75 Counts						
			Counter		P077C Enable Calibration	= 1 Boolean				
					Ignition Voltage Lo	>= 9 Volts				
					Ignition Voltage Hi	<= 31.990234 Volts				
	ı	I	I	I		I	ı			I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Oyatem	Code	Description	omena		MIL not Illuminated for DTC's:		rtoquirou	
				Conditions	:			
Transmission Output Speed Sensor (TOSS)	P077D	Output Speed Sensor Circuit High	TOSS Analog Signal Voltage	>= 4.75 Volts			>= 0.05 sec	One Trip
00.1307 (1.000)				Test Failed				
			P077D Status is not	= This Key On				
				or Fault Active				
			If the above conditons have been met, increment the P077D Fail					
			Counter					
			DTC P077D Sets when the Fail Counter	>= 75 Counts				
			Counter		P077D Enable Calibration	= 1 Boolean		
					Ignition Voltage Lo Ignition Voltage Hi	>= 9 Volts <= 31.990234 Volts		
					igillion voltage ni	<= 31.990234 VOIIS		
				Disable	MIL not Illuminated for DTC's:	TOM, DOTTO		
				Conditions		TCW: PU//C		
Variable Bleed Solenoid (VBS)	P0796	Pressure Control (PC) Solenoid C	Fail Case 1 Case: Steady State 4th Gear					One Trip
variable bleed Soleriold (VBS)	P0/90	Stuck Off [C456] (Steady State)	Case. Steady State 4th Geal				Please See	
			Gear slip	>= 400 RPM			Table 5 For Neutral Timer	
			Geal Silp	>= 400 KPW			>= Neutral Time (Sec) Cal	
			Intrusive test:				Cal	
			commanded 5th gear	DI C				
			15 11 1 10 15 15 1	Please refer to Table 3 in Chiff Time (Cook)				
			If attained Gear ≠5th for time	>= Supporting Shift Time (Sec)				
			if the above conditions have been	Documents				
			met					
			Increment 4th Gear Fail Counter				>= 2 4th Gear Fail Count	
							OR	
			and C456 Fail Counters				>= 14 C456 Fail Counts	
			Fail Case 2 Case: Steady State 5th Gear					
							Please See Table 5 For Neutral Timer	
			Gear slip	>= 400 RPM			>= Neutral Time (Sec)	
			Intrusive test:				Cal	
			commanded 6th gear					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions			Tim Requi	e red	Mil Illum.
,			If attained Gear ≠6th for time	>= Please Refer to Table 3 in Supporting Documents Shift Time (Sec)						·		
			if the above conditions have been met								5 0	
			Increment 5th Gear Fail Counter						>=	2	5th Gear Fail Count OR	
l			and C456 Fail Counters						>=	14	C456 Fail Counts	
1			Fail Case 3 Case: Steady State 6th Gear							lease See		
			Gear slip	>= 400 RPM						able 5 For eutral Time Cal	Neutral Timer (Sec)	
			Intrusive test: commanded 5th gear							Gui		
			If attained Gear ≠ 5th for time	Please refer to Table 3 in Supporting Documents Shift Time (Sec)								
			if the above conditions have been met	Documents								
			Increment 6th Gear Fail Counter and C456 Fail Counter						>=	2	6th Gear Fail Count OR	
			and C456 Fail Counter						>=	14	C456 Fail Counts	
					PRNDL State defaulted inhibit RVT IMS fault pending indication	= = =	FALSE FALSE FALSE	Boolean Boolean Boolean				
					TPS validity flag Hydraulic System Pressurized	=	TRUE TRUE	Boolean Boolean				
					Minimum output speed for RVT	>=	110	RPM				
					A OR B (A) Output speed enable	>=	110	RPM				
					(B) Accelerator Pedal enable	>=	0.5004883	Pct				
					Common Enable Criteria Ignition Voltage Lo Ignition Voltage Hi	>= <=	9 31.990234	Volts Volts				ļ
1					Engine Speed Lo Engine Speed Hi Engine Speed is within the	>= <=	400 7500	RPM RPM				
					allowable limits for Throttle Position Signal valid	>=	5 TRUE	Sec Boolean				
		l	1		HSD Enabled	=	TRUE	Boolean				1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time equired	Mil Illum.
					Transmission Fluid Temperature Input Speed Sensor fault OutputSpeed Sensor fault Default Gear Option is not present	>= -6.65625 °C = FALSE Boolean = FALSE Boolean = TRUE			
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E			
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E			
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Steady State)	Fail Case 1 Case: Steady State 1st						One Tri
		Stack On [C430] (Steady State)	Attained Gear slip	>= 400 RPM Table Based					
			If the Above is True for Time	Time Please					
				<= 1.547485352 >= 1.345092773					
			If the above parameters are true						
							>= 1.1	Fail Timer (Sec)	
							>= 2	Fail Count in 1st Gear or	
							>= 3	Total Fail Counts	
			Fail Case 2 Case Steady State 2nd	Table Based value Please					
			Max Delta Output Speed Hysteresis	Defer to 2D					

	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	ь	Time equired	Mil Illum
System	Joue	Description	Min Delta Output Speed Hysteresis	Table Based value Please Refer to 3D		Conditions		очиней	
			,,	Table 2 in supporting documents Table Based					
			If the Above is True for Time	17 10					
			Intrusive test: (CB26 clutch exhausted)	supporting documents					
				<= 1.547485352 >= 1.345092773					
							>= 1.1	Fail Timer (Sec)	
							>= 3	Fail Count in 2nd Gear or	
							>= 3	Total fail counts	
			Fail Case 3 Case Steady State 3rd	Table Based					
			Max Delta Output Speed Hysteresis	value Please Refer to 3D Table 1 in supporting					
				documents Table Based value Please					
			Min Delta Output Speed Hysteresis	>= Refer to 3D Table 2 in supporting documents					
			If the Above is True for Time	Table Based Time Please					
				>= 17 in Sec supporting documents					
				<= 1.547485352 >= 1.345092773					

	Criteria	Value	Secondary Malfunction		Conditions			Red	ime quired	Mil Illum.
	If the above parameters are true									
							>=	1.1	Fail Timer (Sec)	
							>=	3	Fail Count in 3rd Gear	
								OR	Total Fail	
					541.05		>=	3	Counts	-
			PRNDL State defaulted inhibit RVT	= =	FALSE FALSE	Boolean Boolean				
			IMS fault pending indication output speed	= >=	FALSE 0	Boolean RPM				
			TPS validity flag	=	TRUE	Boolean				
			HSD Enabled	=	TRUE	Boolean				
			Hydraulic_System_Pressurized	=	TRUE	Boolean				
			A OR B (A) Output speed enable	>=	110	Nm				
			(B) Accelerator Pedal enable	>=	0.5004883	Nm				
			Ignition Voltage Lo	>=	9	Volts				
			Ignition Voltage Hi Engine Speed Lo	<= >=	31.990234 400	Volts RPM				
			Engine Speed Hi	<=	7500	RPM				
			Engine Speed is within the allowable limits for	>=	5	Sec				
			if Attained Gear=1st FW	>=	10.00061	Pct				
			Accelerator Pedal enable if Attained Gear=1st FW Engine		45	Nim				
			Torque Enable if Attained Gear=1st FW Engine	>=	45	Nm				
			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 present	=	TRUE					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 11 in Supporting Documents for Exhaust Delay Timers) Primary Oncoming Clutch Pressure Command Status	= TRUE Boolean = Maximum pressurized				One Trip
			Primary Offgoing Clutch Pressure Command Status	= Clutch exhaust command				
			Range Shift Status Attained Gear Slip	COLLIO				
			If the above conditions are true increment appropriate Fail 1 Timers Below:					
			fail timer 1 (4-1 shifting with throttle) fail timer 1	>= 0.400390625 Fail Time (Sec)				
			(4-1 shifting without throttle) fail timer 1	>= 0.5 Fail Time (Sec) >= 0.400390625 Fail Time (Sec)				
			(4-2 shifting with throttle) fail timer 1 (4-2 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (4-3 shifting with throttle) fail timer 1	>= 0.400390625 Fail Time (Sec)				
			(4-3 shifting without throttle) fail timer 1	>= 0.5 Fail Time (Sec) >= 0.400390625 Fail Time (Sec)				
			(5-3 shifting with throttle) fail timer 1 (5-3 shifting without throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (6-2 shifting with throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (6-2 shifting without throttle)	>= 0.5 Fail Time (Sec)				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers				Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail >= Timer 1, and sec Reference Supporting Table 15 for Fail Timer 2	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter					
			4th gear fail counter				>= 3 Fail Counter From 4th Gea OR	r
			5th gear fail counter				>= 3 Fail Counter From 5th Gea OR	r
			6th gear fail counter				>= 3 Fail Counter From 6th Gea OR	r
			Total fail counter				>= 3 Total Fail Counter	
					TUT Enable temperature Input Speed Sensor fault Output Speed Sensor fault Command / Attained Gear High Side Driver ON output speed limit for TUT input speed limit for TUT PRNDL state defaulted IMS Fault Pending Service Fast Learn Mode HSD Enabled	>= -6.65625 °C = FALSE Boolean = FALSE Boolean ≠ 1st Boolean = TRUE Boolean >= 200 RPM >= 200 RPM = FALSE Boolean = FALSE Boolean = FALSE Boolean = TRUE Boolean = TRUE Boolean		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold lue	Secondary Malfunction		Enable Conditions			Tir Requ		Mil Illum.
Transmission Input Speed Sensor (TISS)	P07BF	Input/Turbine Speed Sensor A Circuit Low	TISS Analog Signal Voltage	<= 0.25	Volts					>=	0.05	sec	One Trip
			P07BF Status is not	Test Failed = This Key On or Fault Active									
			If the above conditons have been met, increment the P07BF Fail Counter										
			DTC P07BF Sets when the Fail Counter	>= 75	Counts	P07BF Enable Calibration Ignition Voltage Lo Ignition Voltage Hi	= >= <=	1 9 31.990234	Boolean Volts Volts				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P07C0						
Transmission Input Speed Sensor (TISS)	P07C0	Input/Turbine Speed Sensor A Circuit High	TISS Analog Signal Voltage	>= 4.75	Volts					>=	0.05	sec	One Trip
			P07C0 Status is not	Test Failed = This Key On or Fault Active)								
			If the above conditons have been met, increment the P07C0 Fail Counter										
			DTC P07C0 Sets when the Fail Counter	>= 75	Counts								
						P07C0 Enable Calibration Ignition Voltage Lo Ignition Voltage Hi	= >= <=	1 9 31.990234	Boolean Volts Volts				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P07BF						
Tap Up Tap Down Switch (TUTD)	P0826	Up and Down Shift Switch Circuit	TUTD Circuit Reads Invalid Voltage	= TRUE	Boolean					>=	60	Fail Time (Sec)) Special No MIL
						Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= <= >= <= >=	9 31.990234 400 7500 5	Volts Volts RPM RPM Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					P0826 Status is	Test Failed ≠ This Key On or Fault Active		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P1761 ECM: None		
Variable Bleed Solenoid (VBS)	P0961	Pressure Control (PC) Solenoid A Control Circuit Rationality Test (Line Pressure VBS)	The HWIO reports an invalid voltage (out of range) error flag	= TRUE Boolean			>= 4.4 Fail Time (Sec) out 5 Sample Time	Two Trips
				Disable	Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	<= 31.990234 Volts >= 400 RPM <= 7500 RPM >= 5 Sec	of (Sec)	-
		Pressure Control (PC) Solenoid A		Conditions:		ECM: None		One Trip
Variable Bleed Solenoid (VBS)	P0962	Control Circuit Low Voltage (Line Pressure VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE Boolean			>= 1.5 Fail Time (Sec) out	
					Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= 400 RPM <= 7500 RPM		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None		

System Code Variable Bleed Solenoid (VBS) P0963	Description				Secondary Malfunction		Conditions				uired	Illum.
	Pressure Control (PC) Solenoid A Control Circuit High Voltage (Line Pressure VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>=	4.4	Fail Time (Sec)	Two Trips
									out of	5	Sample Time (Sec)	
					Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	9 31.990234 400 7500 5	Volts Volts RPM RPM Sec				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS) P0966	Pressure Control (PC) Solenoid B Control Circuit Low Voltage (C35R VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>= out	0.3 0.375	Fail Time (Sec) Sample Time	One Trip
					Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	9 31.990234 400 7500 5	Volts Volts RPM RPM Sec	of		(Sec)	
					P0966 Status is not	=	Test Failed This Key On or Fault Active					
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS) P0967	Pressure Control (PC) Solenoid B Control Circuit High Voltage (C35R VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Trip
					Ignition Voltage	>=	9	Volts	out of	0.375	Sample Time (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold	Secondary Malfunction		Enable Conditions			Tiı Reqı		Mil Illum.
						Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	<= >= <= >=	31.990234 400 7500 5	Volts RPM RPM Sec				
						P0967 Status is not	=	Test Failed This Key On or Fault Active					
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)		Pressure Control (PC) Solenoid C Control Circuit Low Voltage (C456/CBR1 VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Trip
										out of	0.375	Sample Time (Sec)	
						P0970 Status is not	=	Test Failed This Key On or Fault Active					
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed	>= <= >= <=	9 31.990234 400 7500	Volts Volts RPM RPM				
						Engine Speed is within the allowable limits for	>=	5	Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P0971	Pressure Control (PC) Solenoid C Control Circuit High Voltage (C456/CBR1 VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Trip
		(O 100/ODIKT VDO)								out of	0.375	Sample Time (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold 'alue	Secondary Malfunction		Enable Conditions			Tir Requ		Mil Illum.
						P0971 Status is not	=	Test Failed This Key On or Fault Active					
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	9 31.990234 400 7500 5	Volts Volts RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Shift Solinoid	P0973	Shift Solenoid A Control Circuit Low (Mode 2 Solenoid)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>=	1.2	Fail Time (Sec)	One Tri
										out of	1.5	Sample Time (Sec)	
						P0973 Status is not	=	Test Failed This Key On or Fault Active					
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the Engine Speed is within the	>= <= >= <=	9 31.990234 400 7500	Volts Volts RPM RPM				
						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					>=	1.2	Fail Time (Sec)	Two Trips
		,								out of	1.5	Sample Time (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Inditions			Tii Requ		Mil Illum.
					P0974 Status is no	= O	est Failed This Key n or Fault Active					
					Ignition Voltage Ignition Voltage Engine Speec Engine Speed Engine Speed is within the allowable limits for	<= 3 >= <=	9 1.990234 400 7500 5	Volts Volts RPM RPM Sec				
				Disab Condition	le MIL not Illuminated for DTC's: s:	TCM: None ECM: None						
Tap Up Tap Down Switch (TUTD)	P1761	Tap Up and Down switch signal circuit (rolling count)	Rolling count value received from BCM does not match expected value	= TRUE Boolean					>=	3	Fail Counter Sample Timer	Special No MIL
					Tap Up Tap Down Message Health Engine Speed Lo Engine Speed H Engine Speed is within the allowable limits for	=	TRUE 400 7500 5	Boolean RPM RPM Sec		10	(Sec)	
				Disab Condition	le MIL not Illuminated for DTC's: s:	TCM: None ECM: None						
Internal Mode Switch (IMS)	P182E	Internal Mode Switch - Invalid Range	Fail Case 1 Current range	1110)								One Trip
			Previous range	KNDL_DIIVe0								
			Previous range Range Shift State Absolute Attained Gear Slip	= Range Shift Completed								
			Attained Gear Attained Gear Throttle Position Available	>= First								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			shold lue	Secondary Malfunction		Enable Conditions			Tin Requ	ne ired	Illu
			Throttle Position	>=	8.000183105	pct								T
			Output Speed		200	rpm								
			Engine Torque		50	Nm								
			2.19.10 10.190		00									
			Engine Torque	<=	8191.75	Nm								
			2.19.110 1.51435		0171170									
			If the above conditions are met then											
			Increment Fail Timer								>=	1	Fail Seconds	
			If Fail Timer has Expired then											
			Increment Fail Counter								>=	5	Fail Counts	
			Fail Case 2 Output Speed	<=	70	rpm								1
			The following PRNDL sequence											
			events occur in this exact order:											
					Drive 6 (bit									
			PRNDL state	=	state 0110)	Range								
			PRNDL state = Drive 6 for	>=	1	Sec								
					Transition 8									
			PRNDL state	=	(bit state	Range								
					0111)	. 3.								
					Drive 6 (bit	_								
			PRNDL state	=	state 0110)	Range								
					Transition 1									
			PRNDL state		(bit state	Range								
					1110)	. 3.								
			Above sequencing occurs in	<=	1	Sec								
			Neutral Idle Mode	=	Inactive									
			If all conditions above are met											
			Increment delay Timer											
			If the below two conditions are met									_		
			Increment Fail Timer								>=	3	Fail Seconds	
			delay timer	>=	1	Sec]							
			•		400	Sec	1							1
			If Fail Timer has Expired then											
			Increment Fail Counter								>=	2	Fail Counts	
			Fail Case 3		Transition 13				CeTRGR_					1
			Current range		(bit state	Range	Previous range	≠	e_PRNDL_					1
			l		0010)	J -			Drive5					
					/		1		CeTRGR_					1
			Engine Torque	>=	-8192	Nm	Previous range	≠	e_PRNDL_					1
			z.igiile Folque		0.72		. remeas range	,	Drive5					
							1							
	I		Engine Torque	<=	8191.75	Nm	IMS is 7 position configuration	=	0	Boolean				1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thres Valu		Secondary Malfunction	Enable Conditions		Ti: Req	me uired	Mil Illum
- Cystem	Jour	Description		van		II LITE TIVIS / FUSILIUTI CUTTING = 1		\neg			T
			If the above conditions are met			then the "previous range" criteria above must also be		>=	0.225	Seconds	
			then, Increment Fail Timer			satsified when the "current		>=	0.223	Seconus	
						rongo" "Transition 12"					
			If Fail Timer has Expired then					>=	15	Fail Counts	
			Increment Fail Counter								4
			Fail Case 4	Transition 8		Disable Fail Case 4 if last					
			Current range		Range	positive range was Drive 6 and					
				0111)		current range is transition 8					
						Set inhibit bit true if PRNDL =					
						1100 (rev) or 0100 (Rev-Neu					
			Inhibit bit (see definition)	= FALSE		transition 11)					
						Set inhibit bit false if PRNDL =					
			Charle Chala Farina Tanana	20	Nime	1001 (park)					
			Steady State Engine Torque Steady State Engine Torque		Nm Nm						
			If the above conditions are met then	<- 0171.73	IVIII						
			Increment Fail Timer					>=	0.225	Seconds	
			If the above Conditions have been								
			If the above Condtions have been met, Increment Fail Counter					>=	15	Fail Counts	
			· ·								1
			Fail Case 5 Throttle Position Available	= TRUE	Boolean						
			The following PRNDL sequence								
			events occur in this exact order:								
				Reverse (bit	_						
			PRNDL State	= state 1100)	Range						
				Transition 11							
			PRNDL State		Range						
				0100)							
			PRNDL State	Neutral (bit	Range						
				state 0101) Transition 11	Ü						
			PRNDL State		Range						
			1 KNDE State	0100)	Range						
			Above sequencing occurs in		Sec						
			Then delay timer increments								
			Delay timer	>= 5	sec						
			Range Shift State	Range Shift							1
			, and the second	Complete							1
			Absolute Attained Gear Slip		rpm						
			Attained Gear Attained Gear	<= Sixth >= First							
				>= FIISt >= 8.000183105	nct						1
			Output Speed		rpm						
			If the above conditions are met		r.'''				00	6 ,	
			Increment Fail Timer					>=	20	Seconds	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Fail Case 6 Current range	Illegal (bit = state 0000 or 1000 or 0001)	A Open Circuit Definition (flag set false if the following conditions are met):			
			and		Current Range	Transition ≠ 11 (bit state 0100)		
			A Open Circuit (See Definition)	= FALSE Boolean	or Last positive state	≠ Neutral (bit state 0101)		
					or Previous transition state	Transition ≠ 8 (bit state 0111)		
			If the above Condtions are met then, Increment Fail timer	DONO! : "	Fail case 5 delay timer	= 0 sec	>= 6.25 Seconds	-
			Current PRNDL State	= PRNDL circuit ABCP = 1101 Range				
			Previous PRNDL state Input Speed	>= 150 RPM				
				<= 2.670166016 ratio >= 3.072021484 ratio			>= 6.25 Seconds	
			P182E will report test fail when any					_
			of the above 7 fail cases are met		Ignition Voltage Lo	>= 9 Volts		
					Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the	<= 31.990234 Volts >= 400 RPM <= 7500 RPM >= 5 Sec		
					allowable limits for Engine Torque Signal Valid	= TRUE Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions			Ti Req	me uired	Mi Illur
oyuu			5.13.12				MIL not Illuminated for DTC's:	P07C0, P0 ECM: P010 P0107, P01 P0175, P02 P0205, P02	6, P0717, P0722 7BF, P077C, P07 01, P0102, P010 108, P0171, P017 201, P0202, P020 206, P0207, P020	, P0723, 17D 3, P0106, 72, P0174, 13, P0204, 18, P0300,				
		Internal Mode Switch Does Not			Dork or				302, P0303, P030 307, P0308, P040					One
ernal Mode Switch (IMS)	P1915	Indicate Park/Neutral (P/N) During Start	PRNDL State is The following events must occur	<i>≠</i>	Park or Neutral	Enumeration								
			Sequentially Initial Engine speed Then	<=	50	RPM					>=	0.1	Enable Time (Sec)	
			Engine Speed Between Following Cals Engine Speed Lo Hist	>=	50	RPM								
			Engine Speed Hi Hist		480	RPM					>=	0.06875	Enable Time (Sec)	_
			Final Engine Speed Final Transmission Input Speed		100	RPM RPM					>=	1.25	Fail Time (Sec)	
							DTC has Ran this Key Cycle? Ignition Voltage Lo Ignition Voltage Hi Ignition Voltage Hyst High (enables above this value) Ignition Voltage Hyst Low (disabled below this value) Transmission Output Speed	= >= <= >= <= <=	FALSE 6 31.990234 5 2 90	Boolean V V V rpm				
							P1915 Status is	≠	Test Failed This Key On or Fault Active					
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P072 ECM: None						
ansmission Control Module CM)	P2534	Ignition Switch Run/Start Position Circuit Low	TCM Run crank active (based on voltage thresholds below)	=	FALSE	Boolean								One

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction		Enable Conditions			Tim Requi	ne ired	Mil Illum.
			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 ECM run/crank active status	=	TRUE TRUE	Boolean Boolean				
					Disable	MIL not Illuminated for DTC's:	TCM: None						
					nditions:		ECM: None						
Variable Bleed Solenoid (VBS)	P2714	Pressure Control (PC) Solenoid D Stuck Off [CB26]	Fail Case 1 Case: Steady State 2nd Gear								Please See		One Tri
			Gear slip	>= 400 RPM						_ T	able 5 For eutral Time Cal	Neutral Timer (Sec)	
			Intrusive test: commanded 3rd gear								Cai		
			If attained Gear = 3rd for Time	Table Based Time Please >= see Table 2 in Supporting Documents	Γime								
			If Above Conditions have been met										
			Increment 2nd gear fail count							>=	3	2nd Gear Fail Count or	
			and CB26 Fail Count							>=	14	CB26 Fail Count	
			Fail Case 2 Case: Steady State 6th Gear Gear slip	>= 400 RPM						T	Please See Table 5 For eutral Time Cal	Neutral Timer (Sec)	
			Intrusive test: commanded 5th gear	T. 11 D. 1									
			If attained Gear = 5th For Time	Table Based Time Please >= see Table 2 in Supporting Documents	Γime								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions			Ti Req	me uired	Mil Illum.
			If Above Conditions have been met, Increment 5th gear fail counter							>=	3	5th Gear Fail Count	
			and CB26 Fail Count							>=	14	or CB26 Fail Count	
			and Cb20 Fall Count		Disable Conditions:	PRNDL State defaulted inhibit RVT IMS fault pending indication TPS validity flag Hydraulic System Pressurized Minimum output speed for RVT A OR B (A) Output speed enable (B) Accelerator Pedal enable Common Enable Criteria Ignition Voltage Lo Ignition Voltage Lo Engine Speed Lo Engine Speed Lo Engine Speed II Transmission Fluid Transmission Fluid Temperature Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	=	FALSE FALSE FALSE TRUE 0 110 0.5004883 9 31.990234 400 7500 5 TRUE TRUE -6.65625 FALSE FALSE TRUE	Boolean Boolean Boolean Boolean Roolean RPM RPM Pct Volts Volts RPM RPM Sec Boolean Boolean Boolean		14	CB20 Fall Coulii	
							P0107, P010 P0175, P020 P0205, P020 P0301, P030	, P0102, P0103, 08, P0171, P0172 01, P0202, P0203 06, P0207, P0208 02, P0303, P0304 07, P0308, P040	2, P0174, 3, P0204, 3, P0300, 4, P0305,				
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 13 in Supporting Documents for Exhaust Delay Timers)	= TRUE	Boolean								One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Primary Oncoming Clutch Pressure Command Status	= Maximum pressurized				
			Primary Offgoing Clutch Pressure	Clutch exhaust				
			Command Status	command				
			Range Shift Status	≠ Initial Clutch				
			Attained Gear Slip	Control				
			·					
			If above coditons are true, increment appropriate Fail 1 Timers					
			Below:					
			fail timer 1 (2-1 shifting with throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (2-1 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1	>= 0.400390625 Fail Time (Sec)				
			(2-3 shifting with throttle) fail timer 1					
			(2-3 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (2-4 shifting with throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1	>= 0.5 Fail Time (Sec)				
			(2-4 shifting without throttle) fail timer 1					
			(6-4 shifting with throttle) fail timer 1	>= 0.400390625 Fail Time (Sec)				
			(6-4 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (6-5 shifting with throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1	>= 0.5 Fail Time (Sec)				
			(6-5 shifting without throttle)	· · · · · · · · · · · · · · · · · · ·				
							Total Fail Time = (Fail 1 + Fail	
							2) See Enable	
			If Attained Gear Slip is Less than				Timers for Fail >= Timer 1, and sec	
			Above Cal Increment Fail Timers				Reference	
							Supporting Table 15 for	
							Fail Timer 2	
			If fail timer is greater than threshold					
			increment corresponding gear fail					
			counter and total fail counter					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Tir Requ	ne iired	Mil Illum.
			2nd gear fail counter				>=	3	Fail Counter From 2nd Gear	
			6th gear fail counter				>=	3	OR Fail Counter From 6th Gear OR	
			total fail counter				>=	3	Total Fail Counter	
				Dicable	TUT Enable temperature Input Speed Sensor fault Output Speed Sensor fault Command / Attained Gear High Side Driver ON output speed limit for TUT input speed limit for TUT PRNDL state defaulted IMS Fault Pending Service Fast Learn Mode HSD Enabled	>= -6.65625 °C = FALSE Boolean = FALSE Boolean ≠ 1st Boolean = TRUE Boolean >= 200 RPM >= 200 RPM = FALSE Boolean = FALSE Boolean = TRUE Boolean = TRUE Boolean = TRUE Boolean				
				Conditions:		ECM: P0710, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E				
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Steady State)		Table Based Time Please						One Trip
							>=	1.1	Fail Timer (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Ti Req	ime Juired	Mil Illum
							>=	5	Fail Count in 1st Gear	
							>=	5	or Total Fail Counts	
			Fail Case 2 Case: Steady State 3rd Gear	Table Based						
			Max Delta Output Speed Hysteresis	Table I III						
				supporting documents Table Based						
			Min Delta Output Speed Hysteresis	supporting						
				documents Table Based Time Please Refer to Table >= 17 in Sec						
			If the Above is True for Time	>= 17 in Sec supporting documents						
				<= 3.111816406						
			Gear Ratio If the above parameters are true	>= 2.704589844						
							>=	1.1	Fail Timer (Sec)	
							>=	3	Fail Count in 3rd Gear	1
							>=	5	or Total Fail Counts	
			Fail Case 3 Case: Steady State 4rd Gear	Table Based value Please						
			Max Delta Output Speed Hysteresis	>= Refer to 3D Table 1 in supporting						
				documents Table Based value Please						
			Min Delta Output Speed Hysteresis	>= Table 2 in supporting documents						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illun
Oyatem	Code	Description	Ontona	Table Based		Conditions	<u> </u>	quii ou	1
				Timo Dioaco					
			If the Above is True for Time	>= Refer to Table Sec					
				supporting					
				documents					
			Intrusive test:						
			(C1234 clutch exhausted)	<= 0.798339844					
				<= 0.796339644 >= 0.693847656					
			If the above parameters are true						
			ii tile above parameters are tide						
							>= 1.1	Fail Timer (Sec)	1
							>= 3	Fail Count in 4th	1
							>= 3	Gear	
								or Total Fail	
							>= 5	Counts	
			Fail Case 4 Case: Steady State 5th Gear						1
				Table Based value Please					
				Defer to 2D					
			Max Delta Output Speed Hysteresis	>= Table 1 in rpm/sec					
				supporting					
				documents Table Based					
				value Please					
			Min Delta Output Speed Hysteresis	>= Refer to 3D Table 2 in rpm/sec					
			,	Table 2 in supporting					
				documents					
				Table Based					
				Time Please					
			If the Above is True for Time	>= Refer to Table Sec					
				supporting					
				documents					
			Intrusive test: (C35R clutch exhausted)						
				<= 0.798339844					
			Gear Ratio	>= 0.693847656					1
			If the above parameters are true						1
								F-11 T (C)	
							>= 1.1		
							>= 3	Fail Count in 5th	1
								Gear or	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction		Enable Conditions			Tin Requ	ne ired	III
		,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,								>=	5	Total Fail	
										/-	J	Counts	
						PRNDL State defaulted	=	FALSE	Boolean				
						inhibit RVT	=	FALSE	Boolean				
						IMS fault pending indication	=	FALSE	Boolean				
						output speed	>=	0	RPM				
						TPS validity flag	=	TRUE	Boolean				
						HSD Enabled	=	TRUE	Boolean				
						Hydraulic_System_Pressurized	=	TRUE	Boolean				
						A OR B							
						(A) Output speed enable	>=	110	Nm				
						(B) Accelerator Pedal enable	>=	0.5004883	Nm				
						Ignition Voltage Lo	>=	9	Volts				
						Ignition Voltage Hi	<=	31.990234	Volts				
						Engine Speed Lo	>=	400	RPM				
						Engine Speed Hi	<=	7500	RPM				1
						Engine Speed is within the		-	6				1
						allowable limits for	>=	5	Sec				
						if Attained Gear=1st FW	>=	10.00061	Pct				
						Accelerator Pedal enable		10.00001	1 60				
						if Attained Gear=1st FW Engine	>=	45	Nm				
						Torque Enable		10					
						if Attained Gear=1st FW Engine	<=	8191.875	Nm				
						Torque Enable	,	0171.070					
						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							
						MIL not Illuminated for DTC's:		, P0717, P0722,	P0723,				
					Conditions:		P182E						
							ECM: D0101	, P0102, P0103,	D0104				
								, P0102, P0103, 08, P0171, P017.					
								06, P0171, P017. 01, P0202, P020					
								06, P0207, P020					
								02, P0303, P030 07, P0308, P040					
							,. 200						L
able Bleed Solenoid (VBS)	D0700	Pressure Control (PC) Solenoid D	The HWIO reports a low voltage	TDUE P							0.2	Fall Tire - /C \	0
TDIE RIEED ZOIEDOID (VBS)	P2720	Control Circuit Low	(ground short) error flag	= TRUE Bool	ean					>=	0.3	Fail Time (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thre V:	eshold alue	Secondary Malfunction		Enable Conditions			Tim Requi	ired	Mil Illum.
										out of	0.375	Sample Time (Sec)	
						P2770 Status is not	=	Test Failed This Key On or Fault Active					
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	9 31.990234 400 7500 5	Volts Volts RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P2721	Pressure Control (PC) Solenoid D Control Circuit High (CB26 VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Trip
										out of	0.375	Sample Time (Sec)	
						P2721 Status is not	=	Test Failed This Key On or Fault Active					
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	9 31.990234 400 7500 5	Volts Volts RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P2723	Pressure Control (PC) Solenoid E Stuck Off	Fail Case 1 Case: Steady State 1st Gear										One Trip
		SIUCA OII	Gear slip	>= 400	RPM						Please See Fable 5 For leutral Time Cal	Neutral Timer (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Intrusive test:					
			commanded 2nd gear	Please refer to				
				Table 2 in				
			If attained Gear ≠ 2nd for Time	>= Supporting Shift Time (Sec)				
				Documents				
			If Above Conditions have been met,				1st Gear Fa	a I
			Increment 1st gear fail counter				>= 2 Count	
							or	
			and C1234 fail counter				C1234 Cluto	h
							>= 14 Fail Count	
			Fail Case 2 Case: Steady State 2nd Gear				Please See	
				100 5514			Table 5 For Neutral Time	er
			Gear slip	>= 400 RPM			>= Neutral Time (Sec)	
							Cal	
			Intrusive test: commanded 3rd gear					
			commanded std gear	Please refer to				
			If attained Gear ≠ 3rd for Time	Table 3 in				
			ii attained Geal 7 Sid for Time	Supporting				
				Documents				
			If Above Conditions have been met,				>= 2 2nd Gear Fa	it
			Increment 2nd gear fail counter				Count	
							or	.
			and C1234 fail counter				>= 14 C1234 Cluto Fail Count	1
			Fail Case 3 Case: Steady State 3rd Gear				Tail Count	-
							Please See	
			Gear slip	>= 400 RPM			>= Table 5 For Neutral Time	r
			·				Neutral Time (Sec) Cal	
			Intrusive test:				Cai	
			commanded 4th gear					
				Please refer to				
			If attained Gear ≠ 4th for time	>= Table 3 in Shift Time (Sec)				
				Documents				1
			If Above Conditions have been met,				3rd Gear Fa	a 1
			Increment 3rd gear fail counter				>= 2 Sid Geal Fa	<u> </u>
							or	1
							C1234 Cluto	n
			and C1234 fail counter				>= 14 C1234 Clark	
		1	Fail Case 4 Case: Steady State 4th Gear					1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold lue	Secondary Malfunction		Enable Conditions			Tim Requi		Mil Illum.
			Gear slip	>= 400	RPM					_ T	lease See able 5 For eutral Time Cal	Neutral Timer (Sec)	
			Intrusive test: commanded 5th gear If attained Gear = 5th For Time If Above Conditions have been met,	>= Please refer to Table 3 in Supporting Documents	Shift Time (Sec)							4th Gear Fail	
			In Adove Conditions have been met, Increment 4th gear fail counter							>=	3	Count or	
			and C1234 fail counter							>=	14	C1234 Clutch Fail Count	
						PRNDL State defaulted inhibit RVT IMS fault pending indication TPS validity flaq	= = =	FALSE FALSE FALSE TRUE	Boolean Boolean Boolean Boolean			, an ooun	
						Hydraulic System Pressurized	=	TRUE	Boolean				
						Minimum output speed for RVT	>=	0	RPM				
						A OR B (A) Output speed enable	>=	110	RPM				
						(B) Accelerator Pedal enable	>=	0.5004883	Pct				
						Common Enable Criteria Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the	>= <= >= <= >=	9 31.990234 400 7500	Volts Volts RPM RPM Sec				
						allowable limits for Throttle Position Signal valid HSD Enabled	=	TRUE TRUE	Boolean Boolean				
						Transmission Fluid Temperature	>=	-6.65625	°C				
						Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	= =	FALSE FALSE TRUE	Boolean Boolean				
						розон							

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshol Value	ld	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Oystelli	Code	Description	Ontena	Value	Disable		TCM: P0716, P0717, P0722, P0723,	required	
					Conditions:		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		
		0 1 1 (00) 0 1 115	Primary Offgoing Clutch is						One Trip
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Dynamic)	exhausted (See Table 10 in Supporting Documents for Exhaust	= TRUE Bo	olean				
		, ,	Delay Timers)						
			Primary Oncoming Clutch Pressure Command Status	= Maximum pressurized					
			Primary Offgoing Clutch Pressure	Clutch exhaust					
			Command Status	command					
			Range Shift Status	≠ Initial Clutch Control					
			Attained Gear Slip		PM				
			If the above conditions are true increment appropriate Fail 1 Timers						
			Below:						
			fail timer 1	>= 0.400390625 sec	С				
			(2-6 shifting with throttle) fail timer 1						
			(2-6 shifting without throttle)	>= 0.5 sec	С				
			fail timer 1 (3-5 shifting with throttle)	>= 0.400390625 sec	С				
			fail timer 1 (3-5 shifting without throttle)	>= 0.5 sec	С				
			fail timer 1	>= 0.400390625 sec	С				
			(4-5 shifting with throttle) fail timer 1						
			(4-5 shifting without throttle)	>= 0.5 sec	C				
			fail timer 1 (4-6 shifting with throttle)	>= 0.400390625 sec	С				
			fail timer 1	>= 0.5 sec	С				
			(4-6 shifting without throttle)	>= U.5 Sec	C				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			lf Attained Gear Slip is Less than Above Cal Increment Fail Timers				Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail >= Timer 1, and sec Reference Supporting Table 15 for Fail Timer 2	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter					
			2nd gear fail counter				>= 3 Fail Coul	
			3rd gear fail counter				>= 3 Fail Cour From 3rd	
			4th gear fail counter				>= 3 Fail Cour From 4th	
			total fail counter		TUT 5 11 1	4.154.05	>= 3 Total Fa	
					TUT Enable temperature Input Speed Sensor fault Output Speed Sensor fault Command / Attained Gear High Side Driver ON output speed limit for TUT input speed limit for TUT PRNDL state defaulted IMS Fault Pending Service Fast Learn Mode HSD Enabled	>= -6.65625 °C = FALSE Boolean = FALSE Boolean ≠ 1st Boolean = TRUE Boolean >= 200 RPM >= 200 RPM = FALSE Boolean = FALSE Boolean = TRUE Boolean = TRUE Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time equired	Mil Illum.
Oyalelli	Joue	Description	Cinteria		MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723,	<u> </u>	oquii ou	
				Conditions:	mile not manimated for 2 to or	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			
						. 5555/1 5557/1 5555/1 5151/1 5122			
'ariable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E	Fail Case 1 Case: 5th Gear						One Tri
aliable pieed 20leiloid (AP2)	P2724	Stuck On (Steady State)	Case: sin Gear						
				Table Based					
				value Please					
			Max Delta Output Speed Hysteresis	>= Refer to 3D Table 1 in rpm/sec					
				supporting					
				documents					
				Table Based					
				value Please					
			Min Delta Output Speed Hysteresis	>= Refer to 3D rpm/sec					
			Will Bella Output Speed Hysteresis	l able 2 in .					
				supporting					
				documents Table Based					
				Time Please					
				Pafar to Tabla					
			If the Above is True for Time	>= 17 in Sec					
				supporting					
				documents					
			Intrusive test:						
			(C35R clutch exhausted)	4.547405050					
			Gear Ratio	<= 1.547485352 >= 1.345092773					
				>= 1.343092773					
			If the above parameters are true						
							>= 1.1	Fail Timer (Sec)	
							>= 1.1		
							>= 3	Fail Count in 5th	
								Gear	
								OR Total Fail	
							>= 3	Counts	
			Fail Case 2 Case: 6th Gear				1	Counts	1
				Table Based					
				value Please					
			Max Delta Output Speed Hysteresis	>= Refer to 3D rpm/sec					
			Max Boild Output Speed Hysteresis	Table Lin .					
				supporting					
	I	I	1	documents		I	I		I

Component/ System	Fault Code	de Description Criteria Value Table Based Table Based			Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
			Min Delta Output Speed Hysteresis	value Please								
				supporting documents Table Based								
			If the Above is True for Time	Time Please								
			Intrusive test: (CB26 clutch exhausted)	documents								
			Gear Ratio Gear Ratio	<= 1.547485352 >= 1.345092773								
			If the above parameters are true						>=	1.1	Fail Timer (Sec)	
									>=	3	Fail Count in 6th Gear OR	
					PRNDL State defaulted	=	FALSE	Boolean	>=	3	Total Fail Counts	
					inhibit RVT IMS fault pending indication output speed	= = >=	FALSE FALSE 0	Boolean Boolean RPM				
					TPS validity flag HSD Enabled	= =	TRUE TRUE	Boolean Boolean				
					Hydraulic_System_Pressurized A OR B (A) Output speed enable	=	TRUE 110	Boolean Nm				
					(B) Accelerator Pedal enable	>=	0.5004883	Nm				
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo	>= <= >=	9 31.990234 400	Volts Volts RPM				
					Engine Speed Hi Engine Speed is within the allowable limits for	<= >=	7500 5	RPM Sec				
					if Attained Gear=1st FW Accelerator Pedal enable if Attained Gear=1st FW Engine	>=	10.00061 45	Pct Nm				
					Torque Enable if Attained Gear=1st FW Engine Torque Enable	<=	8191.875	Nm				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thres Val		Secondary Malfunction		Enable Conditions			Tir Requ		Mil Illum.
						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				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P182E	P0717, P0722,	P0723,				
							ECM: P0101, P0107, P0108 P0175, P0201 P0205, P0206 P0301, P0302 P0306, P0307	, P0171, P0172 , P0202, P0203 , P0207, P0203 , P0303, P0304	2, P0174, 3, P0204, 3, P0300, 4, P0305,				
Variable Bleed Solenoid (VBS)		Pressure Control (PC) Solenoid E Control Circuit Low (C1234 VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Trip
										out of	0.375	Sample Time (Sec)	
						P2729 Status is not	=	Test Failed This Key On or Fault Active					
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	<= >= <=	9 31.990234 400 7500 5	Volt Volt RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)		Pressure Control (PC) Solenoid E Control Circuit High (C1234 VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Trip
		(-121.755)								out of	0.375	Sample Time (Sec)	

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

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value	Secondary Malfunction		Enable Conditions			Tii Req	me uired	Mil Illum.
						P2764 Status is not	=	Test Failed This Key On or Fault Active					
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for High Side Driver Enabled	<= >= <= >=	9 31.990234 400 7500 5 TRUE	Volt Volt RPM RPM Sec Boolean				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0658, ECM: None	P0659					
Communication	U0073	Controller Area Network Bus Communication Error	CAN Hardware Circuitry Detects a Low Voltage Error	= TR	RUE Boolean					>=	62	Fail counts (≈ 10 seconds)	One Trip
			Delay timer	>= 0.1	125 sec					Out of	70	Sample Counts (≈ 11 seconds)	
						Stabilization delay Ignition Voltage Ignition Voltage Power Mode	>=	3 9 31.990234 Run	sec Volt Volt				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Communication	U0100	Lost Communications with ECM (Engine Control Module)	CAN messages from ECM are not received by the TCM	= TR	RUE Boolean					>=	12	sec	One Trip
						Stabilization delay Ignition Voltage Ignition Voltage Power Mode	>= >= <= =	3 9 31.990234 Run	sec Volt Volt				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: U0073 ECM: None						

Component/	Fault	Monitor Strategy	Malfunction		reshold	Secondary	Enable	_ Tin		Mil
System	Code	Description	Criteria	\	/alue	Malfunction	Conditions	Requ	ııred	Illum
ap Up Tap Down Switch	P0815	Upshift Switch Circuit	Fail Case 1 Tap Up Switch Stuck in the Up	= 1	Boolean					Speci
TUTD)		'	Position in Range 1 Enabled							No M
			Tap Up Switch Stuck in the Up	= 1	Boolean					
			Position in Range 2 Enabled	·	Boologii					
			Tap Up Switch Stuck in the Up	= 1	Boolean					
			Position in Range 3 Enabled	- '	Doolean					
			Tap Up Switch Stuck in the Up	= 1	Boolean					
			Position in Range 4 Enabled	- '	Doolean					
			Tap Up Switch Stuck in the Up	= 1	Boolean					
			Position in Range 5 Enabled	= 1	Doolean					
			Tap Up Switch Stuck in the Up	= 1	Boolean					
			Position in Range 6 Enabled	= 1	DUUIEdII					
			Tap Up Switch Stuck in the Up	1	Daalaaa					
			Position in Neutral Enabled	= 1	Boolean					
			Tap Up Switch Stuck in the Up	4	Б. І					
			Position in Park Enabled	= 1	Boolean					
			Tap Up Switch Stuck in the Up							
			Position in Reverse Enabled	= 1	Boolean					
			Tap Up Switch ON	= TRUE	Boolean			>= 1	Fail Time (Sec)	
		Fail Case 2 Tap Up Switch Stuck in the Up							1	
			Position in Range 1 Enabled	= 1	Boolean					
			Tap Up Switch Stuck in the Up							
			Position in Range 2 Enabled	= 1	Boolean					
			Tap Up Switch Stuck in the Up							
			Position in Range 3 Enabled	= 1	Boolean					
			Tap Up Switch Stuck in the Up							
			Position in Range 4 Enabled	= 1	Boolean					
			Tap Up Switch Stuck in the Up	= 1	Boolean					
			Position in Range 5 Enabled							
			Tap Up Switch Stuck in the Up	= 1	Boolean					
			Position in Range 6 Enabled							
			Tap Up Switch Stuck in the Up	= 1	Boolean					
			Position in Neutral Enabled	·	Boologii					
			Tap Up Switch Stuck in the Up	- 1	Boolean					
			Position in Park Enabled	- '	Doolcan					
			Tap Up Switch Stuck in the Up	= 1	Boolean					
			Position in Reverse Enabled	= 1	DUUIEdII					
			Tap Up Switch ON	= TRUE	Boolean					
		NOTE: Both Failcase1 and Failcase					/00	F-! T! (C)		
			2 Must Be Met					>= 600	Fail Time (Sec)	1
										1
										1
	1									1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		reshold Value	Secondary Malfunction		able itions	Time Required	Mil Illum.
						Time Since Last Range Change Ignition Voltage Lo Ignition Voltage Hi Engine Speed Hi Engine Speed Hi Engine Speed Bi Engine Speed limits for	>= <= 31.9 >= 7 >= Test ≠ Th	1 Enable Time (Sec) 9 Volts 90234 Volts 00 RPM 500 RPM 5 Sec Failed s Key r Fault		
					Disable Conditions:		P1877, P1915, P176			
Tap Up Tap Down Switch (TUTD)	P0816	Downshift Switch Circuit	Fail Case 1 Tap Down Switch Stuck in the Down Position in Range 1 Enabled	= 1	Boolean		ECM: None			Special No MIL
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	= 1	Boolean					
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	= 1	Boolean					
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	= 1	Boolean					
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	= 1	Boolean					
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	= 1	Boolean					
			Tap Down Switch Stuck in the Down Position in Range Neutral Enabled	= 1	Boolean					

Component/	Fault	Monitor Strategy	Malfunction			eshold	Secondary Malfunction	Enable		Time		Mil
System	Code	Description	Criteria		Va	alue	Malfunction	Conditions		Require	ed	Illum.
			Tap Down Switch Stuck in the									
			Down Position in Range Park	=	1	Boolean						
			Enabled									
			Tap Down Switch Stuck in the									
			· · · · · · · · · · · · · · · · · · ·	=	1	Boolean						
			Enabled			Booloan						
			Tap Down Switch ON	_	TRUE	Boolean			>=	1	sec	
			Tap bown Switch Oil	_	INUL	Doolean				'	360	
			Fail Case 2					-				1
			Tap Down Switch Stuck in the		1	Dooloon						
			Down Position in Range 1 Enabled	=	I	Boolean						
			3									
			Tap Down Switch Stuck in the									
			Down Position in Range 2 Enabled	=	1	Boolean						
			John Fosilon III Hango 2 Zhabiou									
			Tap Down Switch Stuck in the									
			Down Position in Range 3 Enabled	=	1	Boolean						
			Down Fosition in Range 3 Enabled									
			Tap Down Switch Stuck in the									
			Down Position in Range 4 Enabled	=	1	Boolean						
			Down Position in Range 4 Enabled									
			T 0 0 11 11 11									
			Tap Down Switch Stuck in the	=	1	Boolean						
			Down Position in Range 5 Enabled									
			Tap Down Switch Stuck in the	=	1	Boolean						
			Down Position in Range 6 Enabled			Doolean						
			Tap Down Switch Stuck in the	=	1	Boolean						
			Down Position in Neutral Enabled	=	!	DUUIEdII						
			Ton Down Cuitob Ctual, in the									
			Tap Down Switch Stuck in the	=	1	Boolean						
			Down Position in Park Enabled									
			Tap Down Switch Stuck in the									
			Down Position in Reverse Enabled	=	1	Boolean						
			Tup Dominion on	=	TRUE	Boolean						
			NOTE: Both Failcase1 and Failcase						>=	600	sec	
			2 Must Be Met						>=	000	Sec	
	1										-	1
									I			
									I			
	1								I			1
												I
	1								I			
												I
	1								I			1
	1							1				1
	ı		1				1	1	I			1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
						Time Since Last Range Change Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	<= >= <=	1 9 31.990234 400 7500 5	Enable Time (Sec) Volts Volts RPM RPM Sec				
						P0816 Status is	≠	Test Failed This Key On or Fault Active					
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0815 P1877, P19 ECM: None		, P1876,				
Tap Up Tap Down Switch (TUTD)	P1876	Tap Up and Down Enable Switch Circuit	Current range TUTD Enable Switch is Active	Neutral	Range State Boolean								Special No MIL
										>= >=	3 5	Fail Time (Sec) Fail Counts	
						Ignition Voltage Lo Ignition Voltage Hi Vehicle Speed Lo Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= <= <= >= <= >=	9 31.990234 511 400 7500 5	Volts Volts KPH RPM RPM Sec				
						P1876 Status is	≠	Test Failed This Key On or Fault Active					
					Disable Conditions:	MIL not Illuminated for DTC's:		, P0816, P0826, 7, P1915, U010					

Transmission Diagnostic Support Tables (MH8/MH9)--2D

_	-	h	-	
		b		

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

Table 2

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

Table 3

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

Table 4

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

Table 5

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

Table 6

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

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

Transmission Diagnostic Support Tables (MH8/MH9)--2D

Table 8	3

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

Table 9

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

<u>Table 10</u>

Axis	-6.67	-6.66	40.00	80.00	120.00	٥С
Curve	8.85	3.75	1.31	0.28	0.28	Sec

Table 11

Axis	-6.67	-6.66	40.00	80.00	120.00	٥С
Curve	5.00	1.70	0.40	0.25	0.25	Sec

<u>Table 12</u>

Axis	-6.67	-6.66	40.00	80.00	120.00	٥С
Curve	8.00	2.20	0.70	0.25	0.25	Sec

Table 13

Axis	-6.67	-6.66	40.00	80.00	120.00	٥С
Curve	5.20	1.60	0.50	0.25	0.25	Sec

<u>Table 14</u>

Axis	-6.67	-6.66	40.00	80.00	120.00	٥С
Curve	5.00	1.50	0.70	0.25	0.25	Sec

Transmission Diagnostic Support Tables (MH8/MH9)--2D

Axis	-40.00	-30.00	-20.00	-10.00	0.00	10.00	20.00	30.00	40.00 °C	;
Curve	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 Se	ЭС

Table 16

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

Table 17

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

Table 18

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

Table 19

Axis	-40.10	-40.00	-20.00	0.00	30.00	60.00	100.00	149.00	149.10 °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 °C
Curve	256.00	10.00	8.00	8.00	8.00	8.00	8.00	8.00	256.00 °C

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

Transmission Diagnostic Support Tables (MH8/MH9)--3D

3D_Table 1

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

0.00 2.00 5.00 25.00 100.00 -6.67 8191.75 8191.75 8191.75 8191.75 8191.75 -6.66 8191.75 8191.75 8191.75 8191.75 8191.75 40.00 8191.75 8191.75 8191.75 8191.75

3D_Table 2

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

		0.00				100.00
I	-6.67	8191.75	8191.75	8191.75	8191.75	8191.75
ĺ	-6.66	500.00	500.00	300.00	300.00	300.00
	40.00	500.00	500.00	300.00	300.00	300.00

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

Table 2

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

Table 3

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

Table 4

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

Table 5

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

Table 6

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

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

Table 8						
	Axis	-6.67	-6.66	40.00	80.00	120.00 °C
	Curve	409.00	3.60	1.60	1.50	1.40 Sec
Table 0	•					
Table 9	Axis	-6.67	-6.66	40.00	80.00	120.00 °C
	Curve	409.00	3.30	1.30	1.20	1.10 Sec
	J u	100.00	0.00	1.00	1.20	1110
<u>Table 10</u>						
	Axis	-6.67	-6.66	40.00	80.00	120.00 °C
	Curve	8.85	3.75	1.31	0.28	0.28 Sec
Table 11	Axis Curve	-6.67 5.00	-6.66 1.70	40.00	80.00	120.00 °C 0.25 Sec
Table 12						
	Axis	-6.67	-6.66	40.00	80.00	120.00 °C
	Curve	8.00	2.20	0.70	0.25	0.25 Sec
Table 13						
	Axis	-6.67	-6.66	40.00	80.00	120.00 °C
	Curve	5.20	1.60	0.50	0.27	0.23 Sec
Table 14	اء: ۵	6 67	e cel	40.00	90 00	120.00
	Axis	-6.67	-6.66	40.00	80.00	120.00 °C

1.50

0.70

0.25

Curve

5.00

0.25 Sec

-	_			- 4	
	ıa	n	0	7	
	ıa	v			

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

Table 16

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

Table 17

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

<u>Table 18</u>

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

Table 19

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

<u>Table 20</u>

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

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

Table 22

Axis	-6.67	-6.66	40.00	°C
Curve	8191.75	500.00	300.00	RPM/Sec

<u>Table 23</u>

Axis	-6.67	-6.66	40.00	°C
Curve	8191.75	500.00	300.00	RPM/Sec