Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	ł	Mil Illum
Transmission Control Module (TCM)	P0601	Transmission Electro-Hydraulic Control Module Read Only Memory	Incorrect program/calibrations checksum	= TRL	IE Boolean			>= 5	Fail Counts	One T
					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	= TRL	JE Boolean			Runs Continously		One 1
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0603			
							ECM: None			
Transmission Control Module (TCM)		Transmission Electro-Hydraulic Control Module Random Access Memory	RAM Read/Write Failure (Single Word)	= TRL	IE Boolean			>= 5	Fail Counts	One 1
								= 16 S	ample Counts	
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0604			
					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	= TRL	JE Boolean			Runs Continously		One 1
						MIL not Illuminated for DTC's:	TCM: P062F			
					Conditions:		ECM: None			
Transmission Control Module TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1 Substrate Temperature	>= 142.10'	15625 °C			>= 5 F	ail Time (Sec)	One T
			Fail Case 2 Substrate Temperature	>= 50	٥C			>= 2 F	ail Time (Sec)	
			Ignition Voltage Note: either fail case can set the DTC	>= 18	Volts					
						Ignition Voltage Lo Ignition Voltage H				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				ime Juired	Mil Illum.
					Substrate Temp Lo Substrate Temp H Substrate Temp Between Temp Range for Time	<=	0 170 0.25	°C °C Sec				
					P0634 Status is	; ≠	Test Failed This Key On or Fault Active					
				Disat Condition	le MIL not Illuminated for DTC's: S:	TCM: None ECM: None						
Transmission Control Module (TCM)	P0667	TCM Internal Temp (substrate) Sensor Circuit Range/Performance	If transmission oil temp to substrate temp Δ									Two Trips
			If TCM substrate temp to power up temp Δ									
			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 Accelerator Position Signal Valid	=	TRUE TRUE	Boolean Boolean				
					Ignition Voltage Lo Ignition Voltage H Engine Speed Lo	>= <= >=	8.5996094 31.999023 400	Volts Volts RPM				
					Engine Speed H Engine Speed is within the allowable limits for		7500 5	RPM Sec				

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction		Enable		Time	N
System	Code	Description	Criteria	Value	Malfunction		Conditions		Required	Illu
					Brake torque active	=	FALSE			
					Below describes the brake					
					torque entry criteria					
					Engine Torque	>=	90	N*m		
					Throttle	>=	30.000305	Pct		
					Transmission Input Speed	<=	200	RPM		
					Vehicle Speed	<=	8	Kph		
					Transmission Range	¥	Park			
					Transmission Range	≠	Neutral			
					PTO	=	Not Active			
					Set Brake Torque Active TRUE					
						>=	7	sec		
					if above conditions are met for:					
					Below describes the brake					
					torque exit criteria					
					Brake torque entry criteria	=	Not Met			
							Clutch			
						,	Hydraulic			
					Clutch hydraulic pressure	¥	Air Purge			
							Event			
							CeTFTD_e			
					Clutch used to exit brake 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		
					met for:	-	20	000		
							Test Failed			
							This Key			
					P0667 Status is	¥	On or Fault			
							Active			
							ACTIVE			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum
Jysteni	Coue	Description			e 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, 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 Sensor = Direct Proportional and Temp If TCM Substrate Temperature Sensor = Indirect Proportional and Temp	p <= -249 °C				Two Trip:
			Either condition above will satisfy the fail conditions		Ignition Voltage Lo Ignition Voltage H Engine Speed Lo Engine Speed is within the allowable limits for P0668 Status is	 <= 31.999023 Volts >= 400 RPM <= 7500 RPM >= 5 Sec Test Failed This Kay 	>= 60 Fail Timer (Sec)	
				Disab Condition:	le MIL not Illuminated for DTC's s:	TCM: None ECM: None		
ransmission Control Module ICM)		TCM internal temperature (substrate) thermistor failed at a high voltage	Type of Sensor Used If TCM Substrate Temperature Sensor = Direct Proportional and Temp	р				Tw Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
			If TCM Substrate Temperature Sensor = Indirect Proportional and Temp Either condition above will satisfy									-
			the fail conditions						>=	60	Fail Timer (Sec)	
					Ignition Voltage Lo Ignition Voltage H Engine Speed Lo Engine Speed H Engine Speed is within the allowable limits for	i <=) >= i <=	8.5996094 31.999023 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 me							
					Estimated Motor Power Loss	5 >=	0	kW				
					Estimated Motor Power Loss greater than limit for time		0	Sec				
					Lost Communication with Hybrid Processor Contro Module	l =	FALSE					
					Estimated Motor Power Loss Faul		FALSE					
				Disabl Condition	e MIL not Illuminated for DTC's s:	: TCM: P0716, P0 ECM: None	0717, P0722,	P0723				
Transmission Control Module (TCM)	P06AC	TCM Power-up Temp Sensor Circuit Range/Performance	If TCM power-up temp to substrate temp Δ	Refer to Table > 20 in °C supporting documents								Two Trips
			If transmission oil temp to power up temp Δ	Refer to Table > 18 in °C supporting documents								
			Both conditions above required to increment fail counter						>=	3000	Fail Counts (100ms loop)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				me uired	N III
			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	=	TRUE	Boolean Boolean				-
					Valid Ignition Voltage Lo Ignition Voltage Hi	- >= <=	8.5996094 31.999023	Volts Volts				
					Engine Speed Lo Engine Speed Hi Engine Speed is within the	>= <=	400 7500	RPM RPM				
					allowable limits for Brake torque active	>= =	5 FALSE	Sec				
					Below describes the brake torque entry criteria Engine Torque	>=	90	N*m				
					Throttle Transmission Input Speed Vehicle Speed	>= <= <=	30.000305 200 8	Pct RPM Kph				
					Transmission Range Transmission Range PTO	≠ ≠ =	Park Neutral 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					1
					Clutch hydraulic pressure	- ≠	Clutch Hydraulic Air Purge					
					Clutch used to exit brake torque active	=	Event CeTFTD_e _C3_RatIE					
					The above clutch pressure is greater than this value for one	>=	nbl 600	kpa				
					loop Set Brake Torque Active FALSE if above conditions are	>=	20	Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					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,		
Transmission Control Module		TCM power-up thermistor circuit				P0306, P0307, P0308, P0401, P042E		Two
(TCM)	P06AD	voltage low	Power Up Temp	<= -59 °C			>= 60 Fail Time (Sec)	Trips
					Ignition Voltage Lo Ignition Voltage H Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= 400 RPM <= 7500 RPM		
					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			
					Lost Communication with Hybrid Processor Control Module Estimated Motor Power Loss	= FALSE = FALSE		
					Fault	- I ALJL		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			ime uired	Mil Illum.
				Disa Conditio		TCM: P0716, P0717, P0722, P0723 ECM: None				
Transmission Control Module (TCM)	P06AE	TCM power-up thermistor circuit voltage high	Power Up Temp	>= 164 °C			>=	60	Fail Time (Sec)	Two Trips
		· · · · · · · · · · · · · · · · · · ·			Ignition Voltage Lo Ignition Voltage H Engine Speed Lo Engine Speed H Engine Speed is within the allowable limits fo	i <= 31.999023 Volts >= 400 RPM i <= 7500 RPM				
					P06AE Status is	Test Failed This Key On or Fault Active				
				Disa Conditio	ole MIL not Illuminated for DTC's is:	TCM: None ECM: None				
Transmission Fluid Temperature Sensor (TFT)	P0711	Trans Fluid Temp Sensor Circuit Range/Performance	If transmission oil temp to substrate temp Δ	Refer to Table > 19 in °C supporting documents						Two Trips
			If transmission oil temp to power up temp Δ	Refer to Table 18 in °C supporting documents						
			Both conditions above required to increment fail counter				>=	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 Valio	1 = TRUE Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mi Illur
	i i				Accelerator Position Signal				1
					Valid	= TRUE	Boolean		
					Ignition Voltage Lo	>= 8.5996094	Volts		
					Ignition Voltage Hi	<= 31.999023	Volts		
					Engine Speed Lo	>= 400	RPM		
					Engine Speed Hi	<= 7500	RPM		
					Engine Speed is within the	r	<u> </u>		
					allowable limits for	>= 5	Sec		
					Brake torque active	= FALSE			
					Below describes the brake				
					torque entry criteria				
					Engine Torque	>= 90	N*m		
					Throttle	>= 30.000305	Pct		
					Transmission Input Speed	<= 200	RPM		
					Vehicle Speed	<= 8	Kph		
					Transmission Range	≠ Park	, i		
					Transmission Range	≠ Neutral			
					PTO	= Not Active			
					Set Brake Torque Active TRUE	>= 7	sec		
					if above conditions are met for:		500		
					Below describes the brake				
					torque exit criteria				
					Brake torque entry criteria	= Not Met			
					brane terque entry enterna	Clutch			
						Hydraulic			
					Clutch hydraulic pressure	≠ Air Purge			
						Event			
						CeTFTD_e			
					Clutch used to exit brake torque	= _C3_RatlE			
					active	nbl			
					The above clutch pressure is	TIDI			
					greater than this value for one	>= 600	kpa		
					loop	>- 000	кра		
					Set Brake Torque Active				
					FALSE if above conditions are	>= 20	Sec		
					met for:	>= 20	366		
					met ior:				
						Test Failed			
					P0711 Status is	≠ This Key			
						On or Fault			
						Active			
	- I - I				1				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction		Enable Conditions				me uired	Mi Illur
Jysten		Description			Disable Conditions:	MIL not Illuminated for DTC's:	P06AE, P07 ⁻ P0722, P072 P0967, P097 P2721, P272 ECM: P010 ⁻ P0107, P010 P0175, P020 P0205, P020 P0301, P030	, P0668, P0669, F 16, P0712, P0713 3, P0962, P0963, 0, P0971, P215C	, P0717, P0966, , P2720, P0106, P0174, P0204, P0300, P0305,				
ansmission Fluid emperature 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 Either condition above will satisfy the fail conditions	р <= -74 °С		Ignition Voltage Lo Ignition Voltage Hi Engine Speed Hi Engine Speed Hi Engine Speed still P0712 Status is P0712 Status is For Hybrids, below conditions must also be met Estimated Motor Power Loss greater than limit for time Lost Communication with Hybrid Processor Contri Module Estimated Motor Power Loss	>= <= >= >= = =	8.5996094 31.999023 400 7500 5 Test Failed This Key On or Fault Active 0 0 0 FALSE FALSE	Volts Volts RPM RPM Sec kW Sec	>=	60	Fail Time (Sec)	Tw Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		reshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, ECM: None	P0717, P0722,	P0723				
Transmission Fluid Temperature Sensor (TFT)	P0713	Transmission fluid temperature thermistor failed at a high voltage	Type of Sensor Used If Transmission Fluid Temperature Sensor = Direct Proportional and Temp If Transmission Fluid Temperature Sensor = Indirect Proportional and Temp	р >= 174									Two Trips
			Either condition above will satisfy the fail conditions			Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed is within the allowable limits for P0713 Status is	>= <= >= >= #	8.5996094 31.999023 400 7500 5 Test Failed This Key On or Fault Active	Volts Volts RPM RPM Sec	>=	60	Fail Time (Sec)	
Transmission Input Speed			Transmission Input Speed Sensor		Conditions:	MIL not Illuminated for DTC's:	TCM: P0713, P0723 ECM: None	P0716, P0717,	P0722,				One Trip
Sensor (TISS)	P0716	Input Speed Sensor Performance	Drops	>= 900	RPM					>=	0.8	Fail Time (Sec)	_
						Engine Torque is Engine Speed Engine Speed Engine Speed is within the allowable limits for Vehicle Speed is Throttle Position is Throttle Position is	>= <= >= >= >= >=	0 8191.875 400 7500 5 10 0	N*m N*m RPM RPM Sec Kph Pct				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		nable ditions		Time Required	M
-					The previous requirement has been satisfied for		0 Se	ec		
					The change (loop to loop) in transmission input speed is	< 81	91.875 RPM/	Loop		
					The previous requirement has been satisfied for		0 Se	C		
					Throttle Position Signal Valid	= 1	FRUE Boo	ean		
					Engine Torque Signal Valid Ignition Voltage Ignition Voltage	>= 8.5	FRUE Bool 996094 Vo 999023 Vo	lts		
					P0716 Status is not	= Tr On	st Failed his Key or Fault Active			
				Disabl Condition:		TCM: P0717, P0752 ECM: P0101, P0102 P0122, P0123				
ansmission Output Speed nsor (TOSS)	P0722	Output Speed Sensor Circuit Low Voltage	Transmission Output Speed Sensor Raw Speed	<= 35 RPM				>=	4.5 Fail Time	(Sec) One
					P0722 Status is not	= Tr On	st Failed nis Key or Fault Active			
					Transmission Input Speed Check		FRUE Bool	ean		
					Engine Torque Check Throttle Position	>= 8.0	FRUE Bool 001831 P			
					Transmission Fluid Temperature		-40 °(2		
					Disable this DTC if the PTO is active	_	1 Boo	ean		
					Engine Torque Signal Valid		FRUE Boo	ean		
					Throttle Position Signal Valid	= T	TRUE Boo	ean		
					Ignition Voltage is Ignition Voltage is		996094 Vo 999023 Vo			
					Engine Speed is		400 RF			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illun
					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					
					Range Shift Status	¥	Range shift completed	ENUM		
					OR Transmission Range is Engine Torque is Engine Torque is	= >= <=	Park or Neutral 8191.75 8191.75	N*m N*m		
					Engine Torque Condition 2 Engine Torque Condition 2 Engine Torque is Engine Torque is	>= <=	50 8191.75	N*m N*m		
					The Transmission Input Speed (TIS) Check is TRUE, if either of the two following conditions are TRUE					
					TIS Check Condition 1		150.005			
					Transmission Input Speed is Transmission Input Speed is	>= <=	653.125 5350	RPM RPM		
					TIS Check Condition 2 Engine Speed without the brake applied is Engine Speed with the brake	>= >=	3200 3200	RPM RPM		
					applied is Engine Speed is	<=	8191.875	RPM		
					Controller uses a single power supply for the speed sensors	=	1	Boolean		
					Powertrain Brake Pedal is Valid	=	TRUE	Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions			Ti Req	me uired	Mil Illum.
						Di Condil	MIL not Illuminated for DTC's:		, P0102, P0103,					
Transmission Output Speed Sensor (TOSS)	P0723	Output Speed Sensor Circuit Intermittent	Transmission Output Speed Sensor Raw Speed	r >=	105	RPM					>=	0	Enable Time (Sec)	One Trip
			Output Speed Delta	a <=	8192	RPM					>=	0	Enable Time (Sec)	
			Output Speed Drop) >	650	RPM					>=	1.5	Output Speed Drop Recovery Fail Time (Sec)	
			AND Transmission Range is		Driven range (R,D)	<u>)</u>								
							 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 Engine Speed is	>= <= >= <=	8.5996094 31.999023 400 7500	Volts Volts RPM RPM				
							Engine Speed is within the allowable limits for	>=	5	Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mi Illur
					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	>= 0 Enable Time		
					are satsified for	(Sec)		
					Input Speed Delta	<= 4095.875 RPM		
					Raw Input Speed	>= 500 RPM		
					TIS Condition 2 is TRUE when			
					ALL of the next two conditions			
					are satisfied Input Speed	= 0 RPM		
					A Single Power Supply is used			
					for all speed sensors	= TRUE Boolean		
		-			Neutral_Range_Enable is			
					TRUE when any of the next 3			
					conditions are TRUE Transmission Range is	Nector CNUM		
					Transmission Range is	= Neutral ENUM		
					Transmission Danas is	Reverse/N		
					Transmission Range is	= eutral ENUM Transitonal		
						Neutral/Dri		
					Transmission Range is	= ve ENUM		
						Transitional		
					And when a drop occurs			
					Loop to Loop Drop of	> 650 RPM		
					Transmission Output Speed is			
					Range_Disable is TRUE when			-
					any of the next three conditions			
					are TRUE			
					Transmission Range is	= Park ENUM		
						Park/Rever		
					Transmission Range is	= se ENUM Transitonal		
					Input Clutch is not	= ON (Fully ENUM Applied)		
						Applieu)		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	M
					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			
					The loop to loop change of the Transmission Output Speed is			
					Transmission_Range_Enable is TRUE when one of the next six conditions is TRUE Transmission Range is			
					Transmission Range is	Reverse/N = eutral ENUM Transitional		
					Transmission Range is	Neutral/Dri = ve ENUM Transitional		
					Time since a driven range (R,D) has been selected			
					Transmission Output Speed Sensor Raw Speed Output Speed when a fault was	>= 500 RPM		
				Disable Conditions:	:	TCM: P0973, P0974, P0976, P0977 ECM: P0101, P0102, P0103, P0121, P0122, P0123		
ue Converter Clutch (TCC	+ +			>= -50 RPM				One

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				me uired	N IIIu
System	Code	Description	TCC Slip Speed <=	13 RPM	Manufiction		conutions		1	Neq	uireu	
				10 10 10								
									>=	1.5	Fail Time (Sec)	
			If Above Conditions Have been									
			Met, and Fail Timer Expired,						>=	6	Fail Counter	
			Increment Fail Counter									
					TCC Mode	=	Off					
					Enable test if Cmnd Gear =	=	1	Boolean				
					1stFW and value true	-	I	Doolcan				
					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	>=	80	Nm				
					Current Range Current Range	≠ ≠	Neutral Reverse	Range				
					Transmission Sump	+		Range				
					Temperature	<=	130	°C				
					Transmission Sump							
					Temperature	>=	18	°C				
					Throttle Position Hyst High	>=	5.0003052	Pct				
					AND		0.0000002	1.01				
					Max Vehicle Speed to Meet							
					Throttle Enable	<=	8	KPH				
					Once Hyst High has been met,							
					the enable will remain while	>=	2.0004272	Pct				
					Throttle Position							
					Disable for Throttle Position	>=	75	Pct				
					Disable if PTO active and value	=	1	Boolean				
					true	-	I	Doolcan				
					Disable if in D1 and value true	=	1	Boolean				
							-					
					Disable if in D2 and value true	=	1	Boolean				
					Disable if in D3 and value true	=	1	Boolean				
					Disable if in D4 and value true	=	1	Boolean				1
												1
					Disable if in D5 and value true	=	1	Boolean				1
					Disable if in MUMD and value							
					true	=	1	Boolean				1
					Disable if in TUTD and value							1
					true	=	1	Boolean				1
					4 Wheel Drive Low Active		FALSE	Boolean	1			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold lue	Secondary Malfunction		Enable Conditions		Time Requir		Mil Illum
						Disable if Air Purge active and value false RVT Diagnostic Active Ignition Voltage Ignition Voltage Vehicle Speed Engine Speed Engine Speed Speed is within the allowable limits for Engine Torque Signal Valid	= >= <= <= >= <= >=	0 FALSE 8.5996094 31.999023 511 400 7500 5 TRUE	Boolean V V KPH RPM RPM Sec Boolean			
						Throttle Position Signal Valid		TRUE	Boolean			
						P0742 Status is	¥	Test Failed This Key On or Fault Active				
					Disable Conditions:		P0741, P2763, ECM: P0101, F	P2764 P0102, P0103,	P0106,			
							P0107, P0108, P0175, P0201, P0205, P0206, P0301, P0302, P0306, P0307,	P0202, P0203 P0207, P0208 P0303, P0304	, P0204, , P0300, , P0305,			
ode 2 Multiplex Valve	P0752	Shift Solenoid Valve A Stuck On	Gear Box Slip	>= 400	RPM							One 1
			Commanded Gear Commanded Gear has Achieved 1st Locked OR 1st Free-Wheel OR 2nd with Mode 2 Sol. Commanded On	= 3rd = TRUE	Gear Boolean							
			If the above parameters are true									
										>= Please Refer to Table 16 in Supporting Documents	Neutral Timer (Sec)	
				<= 400 >= 3.825683594 <= 4.228393555								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions			Tin Requ		Mil Illum.
										>=	1.5	Fail Timer (Sec)	
						Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Lo Engine Speed I is International International International International Internation International International Internation International International Internation International International Internation International International Inte	>= <= >= >= >= >= = = = =	8.5996094 31.999023 400 7500 5 TRUE TRUE 67 0.5004883 Range Shift Completed -6.65625 FALSE FALSE FALSE TRUE	Volts Volts RPM Sec Boolean RPM % ENUM °C Boolean Boolean	>=	5	Counts	
					Disable Conditions:		P182E ECM: P0101 P0107, P010 P0175, P020 P0205, P020 P0301, P030	, P0717, P0722, , P0102, P0103, 38, P0171, P017 31, P0202, P020 36, P0207, P020 32, P0303, P030 37, P0308, P040	. P0106, 2, P0174, 3, P0204, 8, P0300, 4, P0305,				
Variable Bleed Solenoid (VBS)	P0776	Pressure Control (PC) Solenoid B Stuck Off [C35R]	Fail Case 1 Case: Steady State 3rd Gear Commanded Gear Gearbox Slip Command 4th Gear once Output Shaft Speed	= 3rd >= 400	Gear RPM RPM					>= to S	lease Refer Table 16 in Supporting Documents	Neutral Timer (Sec)	One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions			Tir Requ		Mil Illum.
-,			If Gear Ratio	>= 1.094360352					İ			
			And Gear Ratio	<= 1.209594727								
									>=	3	Fail Timer (Sec)	
			It the above condiations are true,								3rd Gear Fail	
			Increment 3rd gear fail counter						>=	3	Counts	
											or	
			and C35R Fail counter						>=	14	3-5R Clutch Fail Counts	
			Fail Case 2 Case: Steady State 5th Gear								Counts	-
			Commanded Gear	= 5th Gear								
									D	lease Refer		
			Gearbox Slip	>= 400 Rpm						o Table 5 in	Neutral Timer	
			Gearbox Silp	>= 400 Kpm						Supporting	(Sec)	
										Documents		
			Intrusive Test: Command 6th Gear									
				Please refer to Table 3 in								
			If attained Gear=6th gear Time	>= Shift Time (Sec)								
				documents								
			It the above condiations are true,						>=	3	5th Gear Fail	
			Increment 5th gear fail counter								Counts	
											or 3-5R Clutch Fail	
			and C35R Fail counter						>=	14	Counts	
					PRNDL State defaulted	=	FALSE	Boolean				
					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		0	RPM				
					· · ·	>=	U	REIVI				
					A OR B (A) Output speed enable	>=	67	RPM				
					(B) Accelerator Pedal enable	>=	0.5004883	Pct				
					Common Enable Criteria	-	0.0001000	1.00				
					Ignition Voltage Lo	>=	8.5996094	Volts				
					Ignition Voltage Hi	<=	31.999023	Volts				
					Engine Speed Lo Engine Speed Hi	>= <=	400 7500	RPM RPM				
					Engine Speed is within the	>=	5	Sec				
					allowable limits for							
	1	1	1		Throttle Position Signal valid	=	TRUE	Boolean	I			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum
				Dis Condit		= TRUE Boolean >= -6.65625 °C = FALSE Boolean t = FALSE Boolean = TRUF		
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 Delay Timers) Primary Oncoming Clutch Pressure Command Status Primary Offgoing Clutch Pressure Command Status Range Shift Status Attained Gear Slip	 TRUE Boolean Maximum pressurized Clutch e exhaust command Initial Clutch Control 		P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		One T
			If the above conditions are true run appropriate Fail 1 Timers Below: fail timer 1 (3-1 shifting with Closed Throttle) fail timer 1 (3-2 shifting with Throttle) fail timer 1 (3-2 shifting with Closed Throttle) fail timer 1 (3-4 shifting with Throttle) fail timer 1	>= 0.5 Fail Time (S >= 0.299804688 Fail Time (S >= 0.5 Fail Time (S >= 0.299804688 Fail Time (S	xc) xc) xc)			
				>= 0.5 Fail Time (S >= 0.299804688 Fail Time (S				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Tim Requi	
oyotom	0000	Decemption	fail timer 1						
			(3-5 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)					
			fail timer 1						
			(5-3 shifting with Throttle)	>= 0.299804688 Fail Time (Sec)					
			fail timer 1						
			(5-3 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)					
			fail timer 1						
			(5-4 shifting with Throttle)	>= 0.299804688 Fail Time (Sec)					
			fail timer 1						
			(5-4 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)					
			fail timer 1						
			(5-6 shifting with Throttle)	>= 0.299804688 Fail Time (Sec)					
			fail timer 1						
			(5-6 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)					
								Total Fail Time	
								= (Fail 1 + Fail	
								 See Enable Timers for Fail 	
			If Attained Gear Slip is Less than					>= Timer 1, and	sec
			Above Cal Increment Fail Timers					Reference	300
								Supporting	
								Table 15 for Fail Timer 2	
								Fall filler 2	
			If fail timer is greater than threshold						
			increment corresponding gear fail						
			counter and total fail counter						
									3rd gear fail
			3rd gear fail counter					>= 3	counts
									OR
			5th gear fail counter					>= 3	5th gear fail counts
									OR
			Total fail counter					>= 5	total fail counts
					TUT Enable temperature	>= -6.65625	°C		
					Input Speed Sensor fault Output Speed Sensor fault	= FALSE = FALSE	Boolean Boolean		
					Command / Attained Gear	= TALSL ≠ 1st	Boolean		
					High Side Driver ON	= TRUE	Boolean		
					output speed limit for TUT	>= 100	RPM		
					input speed limit for TUT PRNDL state defaulted	>= 150 = FALSE	RPM Boolean		
					IMS Fault Pending	= FALSE	Boolean	1	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Service Fast Learn Mode HSD Enabled Default Gear Option is nol presenl	= TRUE Boolean		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0796	Pressure Control (PC) Solenoid C Stuck Off [C456] (Steady State)	Fail Case 1 Case: Steady State 4th Gear					One Trip
		Sluck OII [0490] (Sleady Slate)	Gear slip	>= 400 RPM			Please See Table 5 For Neutral Timer >= Neutral Time (Sec) Cal	
			Intrusive test: commanded 5th gear	Please refer to				
			If attained Gear <i>≠</i> 5th for time if the above conditions have been	>= Table 3 in Supporting Documents Shift Time (Sec)				
			mei					
			Increment 4th Gear Fail Counter				>= 3 4th Gear Fail Count OR	
			and C456 Fail Counters				>= 14 C456 Fail Counts	_
			Fail Case 2 Case: Steady State 5th Gear Gear slip	>= 400 RPM			Please See Table 5 For Neutral Timer >= Neutral Time (Sec) Cal	
			Intrusive test: commanded 6th gear	Please Refer to Table 3 in Shift Timo (Soc)				
			If attained Gear ≠ 6th for time if the above conditions have been met	>= Supporting Documents				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Increment 5th Gear Fail Counter				>= 3 5th Gear Fail Count OR	
			and C456 Fail Counters				>= 14 C456 Fail Counts	
			Fail Case 3 Case: Steady State 6th Gear				Please See	
			Gear slip	>= 400 RPM			>= Table 5 For Neutral Timer Neutral Time (Sec) Cal	
			Intrusive test: commanded 5th gear	Please refer to				
			If attained Gear \neq 5th for time	Table 2 in				
			if the above conditions have been met					
			Increment 6th Gear Fail Counter and C456 Fail Counter				>= 3 6th Gear Fail Count OR	
			and C456 Fail Counter				>= 14 C456 Fail Counts	
					PRNDL State defaulted inhibit RVT	= FALSE Boolean = FALSE Boolean		
					IMS fault pending indication	= FALSE Boolean		
					TPS validity flag	= TRUE Boolean		
					Hydraulic System Pressurized	= TRUE Boolean		
					Minimum output speed for RVT	>= 0 RPM		
					A OR B (A) Output speed enable	>= 67 RPM		
					(B) Accelerator Pedal enable	>= 0.5004883 Pct		
					Common Enable Criteria Ignition Voltage Lo Ignition Voltage Hi	>= 8.5996094 Volts <= 31.999023 Volts		
					Engine Speed Lo Engine Speed Hi	>= 400 RPM <= 7500 RPM		
					Engine Speed is within the	>= 5 Sec		
					allowable limits for Throttle Position Signal valid	= TRUE Boolean		
					HSD Enabled Transmission Fluid	= TRUE Boolean		
					Temperature	>= -6.65625 °C		
					Input Speed Sensor fault OutputSpeed Sensor fault	= FALSE Boolean = FALSE Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disabl	Default Gear Option is not present el MIL not Illuminated for DTC's:	= TRUE 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		
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				One Trip
			Primary Offgoing Clutch Pressure Command Status Range Shift Status Attained Gear Slip	Control				
			If the above conditions are true increment appropriate Fail 1 Timers Below: fail timer 1					
			(4-1 shifting with throttle) fail timer 1 (4-1 shifting without throttle) fail timer 1 (4-2 shifting with throttle) fail timer 1	>= 0.5 Fail Time (Sec) >= 0.299804688 Fail Time (Sec)				
			(4-2 shifting without throttle) fail timer 1 (4-3 shifting with throttle) fail timer 1 (4-3 shifting without throttle)	>= 0.5 Fail Time (Sec) >= 0.299804688 Fail Time (Sec) >= 0.5 Fail Time (Sec)				
			fail timer 1 (5-3 shifting with throttle) fail timer 1 (5-3 shifting without throttle) fail timer 1 (6-2 shifting with throttle)	>= 0.299804688 Fail Time (Sec) >= 0.5 Fail Time (Sec) >= 0.299804688 Fail Time (Sec)				

de Description	Criteria	Value	Secondary Malfunction	Conditions	Required	
						Illu
	(6-2 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 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 Gear OR	
	5th gear fail counter				>= 3 Fail Counter From 5th Gear OR	
	6th gear fail counter				>= 3 Fail Counter From 6th Gear	
	Total fail counter		THT Enable temperature	4 4E42E 90	>= 5 Total Fail Counter	
			Input Speed Sensor fault Output Speed Sensor fault	= FALSE Boolean = FALSE Boolean		
			High Side Driver ON	= TRUE Boolean		
			input speed limit for TUT PRNDL state defaulted	>= 150 RPM = FALSE Boolean		
			IMS Fault Pending Service Fast Learn Mode HSD Enabled	= FALSE Boolean = FALSE Boolean = TRUE Boolean		
		If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter 4th gear fail counter 5th gear fail counter 6th gear fail counter	If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter 4th gear fail counter 5th gear fail counter 6th gear fail counter	If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter 4th gear fail counter 5th gear fail counter 6th gear fail counter Total fail counter Total fail counter TUT Enable temperature Input Speed Sensor fault Output Speed Sensor fault Courter	If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter 4th gear fail counter 5th gear fail counter 6th gear fail counter Total fail counter TuT Enable temperature TuT Enable temperature FALSE Boolean Migh Sted Driver ON TRUE Boolean Migh Staut Pending FALSE Boolean Mis Faut Pending FALSE Boolean Mis Faut Pending	If fail liner is greater than threshold increment corresponding great fail counter If fail liner is greater than threshold increment corresponding great fail counter If fail liner is greater than threshold increment corresponding great fail counter If fail liner is greater than threshold increment corresponding great fail counter If fail liner is greater than threshold increment corresponding great fail counter If fail liner is greater than threshold increment corresponding great fail counter If fail liner is greater than threshold increment corresponding great fail counter If fail liner is greater than threshold increment corresponding great fail counter If fail liner is greater than threshold increment corresponding great fail counter If fail liner is greater than threshold increment corresponding great fail counter If fail liner is greater than threshold increment corresponding great fail counter If fail liner is greater than threshold increment corresponding great fail counter If fail liner is greater than threshold increment corresponding great fail counter If fail liner is greater than threshold increment corresponding great fail counter If fail liner is greater than threshold increment corresponding great fail counter If fail liner is greater than threshold increment corresponding great fail counter If fail liner is greater than threshold increment corresponding great fail counter If fail liner is greater than threshold increment corresponding great fail counter If fail liner is greater than threshold increment corresponding great fail counter If fail liner is greater than threshold increment corresponding great fail counter If fail liner is greater than threshold increment corre

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
					Disable Conditions:		P182E ECM: P0101, P0107, P0108 P0175, P0201 P0205, P0206 P0301, P0302	P0717, P0722, I P0102, P0103, I 8, P0171, P0172 , P0202, P0203 9, P0207, P0208 2, P0303, P0304 7, P0308, P0401	P0106, , P0174, , P0204, , P0300, , P0305,				
Variable Bleed Solenoid (VBS)	P0961	Pressure Control (PC) Solenoid A Control Circuit Rationality Test (Line Pressure VBS)	The HWIO reports an invalid voltage (out of range) error flag	= TRUE	Boolean					>= out	4.4 5	Fail Time (Sec) Sample Time	Two Trips
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	8.5996094 31.999023 400 7500 5	Volts Volts RPM RPM Sec	of		(Sec)	
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P0962	Pressure Control (PC) Solenoid A Control Circuit Low Voltage (Line Pressure VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>= out of	1.5 1.875	Fail Time (Sec) Sample Time (Sec)	One Tri
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	8.5996094 31.999023 400 7500 5	Volts Volts RPM RPM Sec	01		(386)	
					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)	P0963	Pressure Control (PC) Solenoid A Control Circuit High Voltage (Line Pressure VBS)	The HWIO reports a high voltage (open or power short) error flag		TRUE	Boolean					>=	4.4	Fail Time (Sec)	Two Trips
											out of	5	Sample Time (Sec)	
							Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= >=	8.5996094 31.999023 400 7500 5	Volts Volts RPM RPM Sec				-
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P0966	Pressure Control (PC) Solenoid B Control Circuit Low Voltage (C35R VBS)	The HWIO reports a low voltage (ground short) error flag	=	TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Trip
											out of	0.375	Sample Time (Sec)	
							Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	, , , , , , ,	8.5996094 31.999023 400 7500 5	Volts Volts RPM RPM Sec				
							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)		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
		(000.1.20)									out of	0.375	Sample Time (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	reshold /alue	Secondary Malfunction		Enable Conditions			Tir Requ		Mi
System	Coue	Description			Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <=	8.5996094 31.999023 400 7500 5 Test Failed	Volts Volts RPM RPM Sec			in cu	
				Disable Conditions:	P0967 Status is not MIL not Illuminated for DTC's:		This Key On or Fault Active					
ariable 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	Boolean					>= out of	0.3 0.375	Fail Time (Sec) Sample Time (Sec)	One
					P0970 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	<= >= <=	8.5996094 31.999023 400 7500 5	Volts Volts RPM RPM Sec				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
ariable Bleed Solenoid (VBS)	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	Boolean					>=	0.3	Fail Time (Sec)	One
									out of	0.375	Sample Time (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	eshold alue	Secondary Malfunction		Enable Conditions			Tin Requ		Mi Illun
					P0971 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	<= >= <=	8.5996094 31.999023 400 7500 5	Volts Volts RPM RPM Sec				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Shift Solinoid	P0973	Shift Solenoid A Control Circuit Low (Mode 2 Solenoid)	The HWIO reports a low voltage (ground short) error flag	Boolean					>=	1.2	Fail Time (Sec)	One
									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 Engine Speed is within the allowable limits for	<= >= <=	8.5996094 31.999023 400 7500 5	Volts Volts RPM RPM Sec				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
hift Solinoid	P0974	Shift Solenoid A Control Circuit High (Mode 2 Solenoid)	The HWIO reports a high voltage (open or power short) error flag	Boolean					>=	1.2	Fail Time (Sec)	T\ Tri
			,						out of	1.5	Sample Time (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions			Tir Requ		Mil Illum.
						P0974 Status is not	=	Test Failed This Key On or Fault Active					
						Ignition Vollage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	8.5996094 31.999023 400 7500 5	Volts Volts RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Mode 3 Multiplex Valve	P0977	Shift Solenoid B Control Circuit High (Mode 3 Solenoid)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>=	1.2	Sec	One Trip
										out of	1.5	Sec	_
						P0977 Status is not	=	Test Failed This Key On or Fault Active					
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= >=	8.5996094 31.999023 400 7500 5	Volts Volts RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
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	Special No MIL
										>	10	Sample Timer (Sec)	
						Tap Up Tap Down Message Health	=	TRUE	Boolean			<u> </u>	1
						Engine Speed Lo	>=	400	RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions			Tin Requ	ne ired	Mil Illum.
							Engine Speed Hi Engine Speed is within the allowable limits for	<= >=	7500 5	RPM Sec				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Internal Mode Switch (IMS)	P1915	Internal Mode Switch Does Not Indicate Park/Neutral (P/N) During Start	PRNDL State is	¥	Park or Neutral	Enumeration								One Trip
		Start	The following events must occur Sequentially										Enable Time	
			Initial Engine speed	<=	50	RPM					>=	0.25	(Sec)	-
			Then Engine Speed Between Following Cals											
			Engine Speed Lo Hist Engine Speed Hi Hist		50 480	RPM RPM					>= (0.06975	Enable Time	
			Then		400						>= (0.00075	(Sec)	
			Final Engine Speed		525	RPM						1.05	5 H T (0)	
			Final Transmission Input Speed	>=	200	RPM					>=	1.25	Fail Time (Sec)	-
							DTC has Ran this Key Cycle?	=	FALSE	Boolean				
							Ignition Voltage Lo Ignition Voltage Hi	>= <=	6 31.999023	V V				
							Ignition Voltage Hyst High (enables above this value)	>=	5	V				
							Ignition Voltage Hyst Low (disabled below this value) Transmission Output Speed	<= <=	2 90	V rpm				
							P1915 Status is	ź	Test Failed This Key On or Fault Active					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions			Tim Requi		Mil Illum.
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0722, F ECM: None	20723					
Transmission Control Module (TCM)	P2534	Ignition Switch Run/Start Position Circuit Low	TCM Run crank active (based on voltage thresholds below) Ignition Voltage High Hyst (run crank goes true when above this		FALSE	Boolean Volts					>=	280	Fail Counts	One Trip
			value) Ignition Voltage Low Hyst (run crank goes false when below this value)		2	Volts					Out of	280	(25ms loop) Sample Counts (25ms loop)	_
							ECM run/crank active status available ECM run/crank active status	=	TRUE TRUE	Boolean Boolean				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Transmission Control Module (TCM)	P2535	Ignition Switch Run/Start Position Circuit High	TCM Run crank active (based on voltage thresholds below) Ignition Voltage High Hyst (run crank goes true when above this	=	TRUE	Boolean Volts					>=	280	Fail Counts (25ms loop)	One Trip
			value) 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 FALSE	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									Please See		One Trip
			Gear slip Intrusive test: commanded 3rd gear) >=	400	RPM						Table 5 For leutral Time Cal	Neutral Timer (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditior	IS		Tim Requi		N IIIu
Jystem	Coue	Description	If attained Gear = 3rd for Time	Table Based					nequ		
			If Above Conditions have been met Increment 2nd gear fail count					>=	3	2nd Gear Fail	
			and CB26 Fail Count					>=	14	Count or CB26 Fail Count	t
			Fail Case 2 Case: Steady State 6th Gear Gear slip	>= 400 RPM				Ta	ease See Ible 5 For utral Time Cal	Neutral Timer (Sec)	
			Intrusive test: commanded 5th gear If attained Gear = 5th For Time	Table Based Time Please see Table 2 in Supporting Documents							
			If Above Conditions have been met, Increment 5th gear fail counter					>=	3	5th Gear Fail Count or	
			and CB26 Fail Count					>=	14	CB26 Fail Count	t
					PRNDL State defaulted inhibit RVT IMS fault pending indication TPS validity flag	= FALSE = FALSE = FALSE = TRUE	Boolean Boolean Boolean				
					Hydraulic System Pressurized Minimum output speed for RVT	= TRUE	Boolean RPM				
					A OR B (A) Output speed enable	>= 67	RPM				
					(B) Accelerator Pedal enable Common Enable Criteria Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi	>= 0.500488 >= 8.599609 <= 31.99902 >= 400 <= 7500	94 Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illun
					Engine Speed is within the			
					allowable limits for Throttle Position Signal valid			
					HSD Enabled			
					Transmission Fluid	>= -6.65625 °C		
					Temperature Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault			
					Default Gear Option is not	= TRUE		
					present			
				Disable Conditions:		TCM: P0716, P0717, P0722, P0723, P182E		
						11022		
						ECM: P0101, P0102, P0103, P0106,		
						P0107, P0108, P0171, P0102, P0108, P0174,		
						P0175, P0201, P0202, P0203, P0204,		
						P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305,		
						P0306, P0307, P0308, P0401, P042E		
			Primary Offgoing Clutch is					One
riable Bleed Solenoid (VBS)		Pressure Control (PC) Solenoid D	exhausted (See Table 13 in	= TRUE Boolean				One
	12/13	Stuck On [CB26] (Dynamic)	Supporting Documents for Exhaust Delay Timers)	- INDE DOORAIT				
			Primary Oncoming Clutch Pressure	Maximum				
			Command Status	= 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	>= 0.299804688 Fail Time (Sec)				
			(2-1 shifting with throttle) fail timer 1					
			(2-1 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1	>= 0.299804688 Fail Time (Sec)				
			(2-3 shifting with throttle) fail timer 1					
			(2-3 shifting without throttle)	>= 0.5 Fail Time (Sec)				
	1		fail timer 1	>= 0.299804688 Fail Time (Sec)				

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

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Т	hreshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
					Disable Conditions:	MIL not Illuminated for DTC's:	P182E ECM: P0101, P0107, P0100 P0175, P020 P0205, P0200 P0301, P0302	P0717, P0722, I P0102, P0103, I 3, P0171, P0172 1, P0202, P0203 5, P0207, P0208 2, P0303, P0304 7, P0308, P0401	P0106, , P0174, , P0204, , P0300, , P0305,				
Variable Bleed Solenoid (VBS)		Pressure Control (PC) Solenoid D Control Circuit Low (CB26 VBS)	The HWIO reports a low voltage (ground short) error flag		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	<= >= <=	8.5996094 31.999023 400 7500 5	Volts Volts RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)		Pressure Control (PC) Solenoid D Control Circuit High (CB26 VBS)	The HWIO reports a high voltage (open or power short) error flag		Boolean					>= out	0.3 0.375	Fail Time (Sec) Sample Time	One Trip
						P2721 Status is not	=	Test Failed This Key On or Fault Active		of	0.010	(Sec)	
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed	>= <= >= <=	8.5996094 31.999023 400 7500	Volts Volts RPM RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable onditions		Tim Requir		Mil Illum.
					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)	P2723	Pressure Control (PC) Solenoid E Stuck Off	Fail Case 1 Case: Steady State 1st Gear								One Trip
			Gear slip	>= 400 RPM					>= Please See Table 5 For Neutral Time Cal	Neutral Timer (Sec)	
			Intrusive test: commanded 2nd gear	Please refer to					Cai		
			If attained Gear ≠ 2nd for Time	>= Table 3 in Supporting Documents Shift Time (Sec)							
			If Above Conditions have been met, Increment 1st gear fail counter						>= 3	1st Gear Fail Count or	
			and C1234 fail counter						>= 14	C1234 Clutch Fail Count	
			Fail Case 2 Case: Steady State 2nd Gear Gear slip	>= 400 RPM					Please See Table 5 For Neutral Time	Neutral Timer (Sec)	
			Intrusive test: commanded 3rd gear	Please refer to					Cal		
			If attained Gear ≠ 3rd for Time	>= Table 3 in Supporting Documents							
			If Above Conditions have been met, Increment 2nd gear fail counter						>= 3	2nd Gear Fail Count	
			and C1234 fail counter						>= 14	or C1234 Clutch Fail Count	
			Fail Case 3 Case: Steady State 3rd Gear Gear slip	>= 400 RPM					Please See Table 5 For Neutral Time Cal	Neutral Timer (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions			Tim Requi		1
System	Code	Description	Intrusive test:		inditation		Conditions			Requi	cu	1
			commanded 4th gear									
				Please refer to								
			If attained Gear ≠ 4th for time	>= Table 3 in Supporting Shift Time (Sec)								
			ii attained Gear 🗲 4tirioi time	Supporting								
				Documents								
			If Above Conditions have been met,								3rd Gear Fail	
			Increment 3rd gear fail counter						>=	3	Count	
											or	
											C1234 Clutch	
			and C1234 fail counter						>=	14	Fail Count	
			Fail Case 4 Case: Steady State 4th Gear									
										Please See		
			Gear slip	>= 400 RPM						able 5 For	Neutral Timer	
									N	eutral Time Cal	(Sec)	
			Intrusive test:							Cal		
			commanded 5th gear									
				Please refer to								
			If attained Gear = 5th For Time	>= Table 3 in Supporting Shift Time (Sec)								
			li attained Gear = stirror fille	Supporting								
				Documents								
			If Above Conditions have been met,							3	4th Gear Fail	
			Increment 4th gear fail counter						>=	3	Count	
											or	
			and C1234 fail counter						>=	14	C1234 Clutch	
									>=	14	Fail Count	
					PRNDL State defaulted	=	FALSE	Boolean				
					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	>=	0	RPM				1
							0					
					A OR B (A) Output speed enable		67	RPM				1
						>=						
					(B) Accelerator Pedal enable	>=	0.5004883	Pct				1
					Common Enable Criteria							1
					Ignition Voltage Lo	>=	8.5996094	Volts				1
					Ignition Voltage Hi	<=	31.999023	Volts				1
					Engine Speed Lo	>=	400	RPM				
					Engine Speed Hi Engine Speed is within the	<=	7500	RPM				1
					allowable limits for	>=	5	Sec				1
					Throttle Position Signal valid	=	TRUE	Boolean	1			1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					HSD Enabled Transmission Fluid Temperature Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	>= -6.65625 °C = FALSE Boolean = FALSE Boolean = TRIF		
				Disa Conditio		TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
riable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 10 in Supporting Documents for Exhaust	= IRUE Boolean				One ⁻
			Delay Timers) Primary Oncoming Clutch Pressure Command Status	Maximum pressurized				
			Primary Offgoing Clutch Pressure Command Status	command				
			Range Shift Status Attained Gear Slip	Control				
			If the above conditions are true increment appropriate Fail 1 Timers Below:					
			fail timer 1 (2-6 shifting with throttle) fail timer 1	>= 0.299804688 sec >= 0.5 sec				
			(2-6 shifting without throttle) fail timer 1 (3-5 shifting with throttle)	>= 0.5 sec >= 0.299804688 sec				
			fail timer 1 (3-5 shifting without throttle) fail timer 1	>= 0.5 sec				
			(4-5 shifting with throttle) fail timer 1	>= 0.299804688 sec				
			(4-5 shifting without throttle)	>= 0.5 sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil
oystem		Description	fail timor 1	>= 0.299804688 sec >= 0.5 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 sec Reference Supporting Table 15 for Fail Timer 2	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter					
			2nd gear fail counter				>= 3 Fail Counter From 2nd Gear	r
			3rd gear fail counter				>= 3 Fail Counter From 3rd Gear	r
			4th gear fail counter				>= 3 Fail Counter From 4th Gear	r
			total fail counter				>= 5 Total Fail Counter	
					TUT Enable temperature Input Speed Sensor fault Output Speed Sensor fault Command / Attained Gear High Side Driver ON output speed limit for TUT input speed limit for TUT PRNDL state defaulted IMS Fault Pending Service Fast Learn Mode HSD Enabled	>= -6.65625 °C = FALSE Boolean ≠ FALSE Boolean ≠ 1st Boolean = TRUE Boolean >= 100 RPM >= 150 RPM = FALSE Boolean = FALSE Boolean = TRUE Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Т	hreshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
					Disable Conditions:	MIL not Illuminated for DTC's:	P182E ECM: P0101, P0107, P0100 P0175, P020 P0205, P0200 P0301, P0302	P0717, P0722, F P0102, P0103, F 3, P0171, P0172, 1, P0202, P0203, 5, P0207, P0208, 2, P0303, P0304, 7, P0308, P0401,	P0106, , P0174, , P0204, , P0300, , P0305,				
Variable Bleed Solenoid (VBS)	P2729	Pressure Control (PC) Solenoid E Control Circuit Low (C1234 VBS)	The HWIO reports a low voltage (ground short) error flag		Boolean					>= out of	0.3 0.375	Fail Time (Sec) Sample Time (Sec)	One Trip
						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	<= >= <=	8.5996094 31.999023 400 7500 5	Volt Volt RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P2730	Pressure Control (PC) Solenoid E Control Circuit High (C1234 VBS)	The HWIO reports a high vollage (open or power short) error flag		Boolean					>= out	0.3 0.375	Fail Time (Sec) Sample Time	One Trip
						P2730 Status is not	=	Test Failed This Key On or Fault Active		of	0.375	(Sec)	
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed	>= <= >= <=	8.5996094 31.999023 400 7500	Volt Volt RPM RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
						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)	P2763	Torque Converter Clutch Pressure High	The HWIO reports a low pressure/high vollage (open or power short) error flag	= TRU	E Boolean					>=	4.4	Fail Time (Sec)	Two Trips
			······································							out of	5	Sample Time (Sec)	
						P2763 Status is not	=	Test Failed This Key On or Fault Active					
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for High Side Driver Enabled	>= <= >= = =	8.5996094 31.999023 400 7500 5 TRUE	Volt Volt RPM RPM Sec Boolean				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0658 ECM: None	, P0659					
Variable Bleed Solenoid (VBS)	P2764	Torque Converter Clutch Pressure Control Solenoid Control Circuit Low	The HWIO reports a high pressure/low voltage (ground short) error flag	= TRU	E Boolean					>=	4.4	MPH	One Trip
										out of	5	MPH	
						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	>= <= >= <=	8.5996094 31.999023 400 7500 5	Volt Volt RPM RPM Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
					Disable Conditions	High Side Driver Enabled		TRUE P0659	Boolean				
					Conditions		ECM: None						
Communication	U0073	Controller Area Network Bus Communication Error	CAN Hardware Circuitry Detects a Low Voltage Error	= TF	RUE Boolean					>=	62	Fail counts (≈ 10 seconds)	
			Delay timer	>= 0.1	125 sec					Out of	70	Sample Counts (≈ 11 seconds)	
						Stabilization delay Ignition Voltage Ignition Voltage Power Mode	>= >= <=	3 8.5996094 31.999023 Run	sec Volt Volt				
					Disable Conditions		TCM: None ECM: None						
Communication	U0100	Lost Communications with ECM (Engine Control Module)	CAN messages from ECM are not received by the TCM	= TF	RUE Boolean					>=	12	sec	One Trip
						Stabilization delay Ignition Voltage Ignition Voltage Power Mode	>= >= <= =	3 8.5996094 31.999023 Run	sec Volt Volt				
					Disable Conditions		TCM: U0073 ECM: None						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mi Illun
igh Side Driver 1	P0658	Actuator Supply Voltage Circuit Low	The HWIO reports a low voltage (open or ground short) error flag	=	TRUE	Boolean					>= out	3 5	Fail Counts Sample Counts	One
							P0658 Status is not	=	Test Failed This Key On or Fault Active		of			-
							High Side Driver 1 On	=	True	Boolean				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None						
								ECM: None						
Fransmission Input Speed Sensor (TISS)	P0717	Input Speed Sensor Circuit Low Voltage	Fail Case 1 Transmission Input Speed is	<	67	RPM					>=	4.5	Fail Time (Sec)	One
			Fail Case 2 When P0722 DTC Status equal to Test Failed and Transmission Input Speed is	<	653.125	RPM	Controller uses a single power supply for the speed sensors		1	Boolean				
							Engine Torque is Engine Torque is Vehicle Speed Engine Torque Signal Valid	<= >=	50 8191.875 10 TRUE	N*m N*m Kph Boolean				
							Ignition Voltage Ignition Voltage Engine Speed Engine Speed	<= >=	8.5996094 31.999023 400 7500	Volts Volts RPM RPM				
							Engine Speed is within the allowable limits for	<u> </u>	5	Sec				
							P0717 Status is not	=	Test Failed This Key On or Fault Active					
						Disable Conditions:	MIL not Illuminated for DTC's:		, P0723 , P0102, P0103					
orque Converter Clutch (TCC)	P0741	TCC System Stuck OFF	TCC Pressure	>=	750	Кра					>=	2	Enable Time (Sec)	Tv Tri

Component/	ult Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Time	Mil
System	de Description	Criteria	Value	Malfunction	Conditions	Required	Illum.
Component/ System		Criteria Either Condition (A) or (B) Must be Met (A) TCC Slip Error @ TCC On Mode))

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		ime Juired	Mil
System	Code	Description	Criteria		MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P0742, 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,	, rec	uneu	
lode 2 Multiplex Valve	P0751	Shift Solenoid Valve A Stuck Off		>= 400 RPM = 1st Lock rpm <= 1.209594727 >= 1.094360352		P0306, P0307, P0308, P0401, P042E	>= 0.8 = 1	Fail Tmr Fail Counts	Two Trip
			If the above parameters are true				≠ 0 >= 0.3 >= 8	Neutral Timer (Sec) Fail Timer (Sec) Counts	1
					Ignition Voltage Lo Ignition Voltage HI Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= 8.5996094 Volts <= 31.999023 Volts >= 400 RPM <= 7500 RPM >= 5 Sec			
					Transmission Fluid Temperature Range Shift State	>= -6.65625 °C Range = Shift ENUM Completed			
					TPS OR Output Speed Throttle Position Signal Valid from ECM Engine Torque Signal Valid	>= 67 RPM			
					Engine Forque Signal Valio 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	= TRUE Boolean = TRUE Boolean = FALSE Boolean = FALSE Boolean = TRUE			

Component/	Fault	Monitor Strategy	Malfunction	Threshold Value	Secondary Malfunction	Enable Conditions	Time	Mil Illum
System	Code	Description	Criteria	value	Warrunction	Conditions	Required	mum
					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, P0204, P0205, P0206, P0207, P0208, P0300,		
						P0301, P0302, P0303, P0304, P0305,		
						P0306, P0307, P0308, P0401, P042E		
	+		Fail Case 1					One -
	1							
Iode 2 Multiplex Valve	P0756	Shift Solenoid Valve B Stuck Off	Commanded Gear	= 1st Locked				
							Please Refer	
			Gear Box Slip	>= 400 RPM			>= to Table 5 in Neutral	
							Supporting (Se Documents	c)
			Intrusive Shift to 2nd				Documents	
			Commanded Gear Previous					
				<= 2.482177734 >= 2.245849609				
			If the above parameters are true					
	1						>= 1 se	
	1				Ignition Voltage Lo	>= 8.5996094 Volts	>= 1 cou	11.5
	1				Ignition Voltage Hi	<= 31.999023 Volts		
	1				Engine Speed Lo	>= 400 RPM <= 7500 RPM		
	1				Engine Speed Hi Engine Speed is within the			
	1				allowable limits for	>= 5 Sec		
	1				Output Speed	>= 67 RPM		
					OR			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Range Shift State	Range = Shift ENUM Completed		
					Transmission Fluid Temperature	>= -6.65625 °C		
					High-Side Driver is Enabled Throttle Position Signal Valid from ECM			
					Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not	= FALSE Boolean = FALSE Boolean		
					present	= TRUE		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
			Fail Case 1			FU300, FU307, FU306, FU401, FU42E		One Trip
		Pressure Control (PC) Solinoid B						
Variable Bleed Solenoid (VBS)	P0777	Stuck On [C35R] (Steady State)	Case: Steady State 1st					
			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				
			Intrusive test: (CBR1 clutch exhausted)	documents				
				<= 1.608642578				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Require	
System	Code	Description		- 1.455444336	manuncuon	conunions	Require	
			If the above parameters are true					
							>= 1.1 F	ail Timer (Sec)
							>= 2 F	ail Count in 1st
								Gear or
								Total Fail
							>= 3	Counts
			Fail Case 2 Case: Steady State 2nd 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 Table 2 in rpm/sec				
			1 1 5	Table 2 in supporting				
				documents				
				Table Based				
				Timo Dioaso				
			If the Above is True for Time >	Refer to Table				
			in the Above is true for time 2	17 111				
				supporting documents				
			Intrusive test:	documents				
			(CB26 clutch exhausted)					
				= 1.608642578				
			Gear Ratio >	-= 1.455444336				
			If the above parameters are true					
							>= 1.1 F	ail Timer (Sec)
							>= 3	Fail Count in
							>= 5	2nd Gear
								Or Tetel Feil
							>= 3	Total Fail Counts
			Fail Case 3 Case: Steady State 4th gear					Junis
				Table Based				
				value Please				1
			Max Delta Output Speed Hysteresis >	Refer to 3D Table 1 in rpm/sec				
				Table TIIT .				
				supporting				
				documents				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	M
Oystem	ooue	Description		Table Based				
				value Please				
			Min Delta Output Speed Hysteresis	>= Refer to 3D Table 2 in rpm/sec				
				Table 2 III				
				supporting documents				
				Table Based				
				Time Please				
			If the Above is True for Time	Refer to Table Sec				
			If the Above is True for Time	17 11				
				supporting				
			Intrusive test:	documents				
			(C1234 clutch exhausted)					
				<= 0.89465332				
				>= 0.809448242				
			If the above parameters are true					
							>= 1.1 Fail Timer (S	ec)
							- Fail Count in	4th
							>= 3 Gear	
							or	
							>= 3 Total Fail	
			Fail Case 4 Case: Steady State 6th gear				Counts	_
			Fair Case 4 Case: Steady State oin gear	Table Based				
				value Please				
			Max Delta Output Speed Hysteresis	Refer to 3D				
			Max Della Oulput Speed Hysteresis	Table Tin .				
				supporting				
				documents Table Based				
				value Please				
				Refer to 3D				
			Min Delta Output Speed Hysteresis	>= Table 2 in rpm/sec				
				supporting				
				documents				
				Table Based Time Please				
				Defer to Table				
			If the Above is True for Time	>= 17 in Sec				
				supporting				
				documents				
			Intrusive test: (CR26 clutch exhausted)					
			(CB26 clutch exhausted)					
			Gear Ratio	<= 0.89465332			>= 1.1 Fail Timer (S	ec)
			Gear Ratio	>= 0.809448242			>= 3 counts	

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction		Enable			1	lime	Mi
System	Code	Description	Criteria	Value	Malfunction		Conditions			Re	quired	Illu
			If the above parameters are true									
									>=	1.1	Fail Timer (Sec)	
											Fail Count in 6th	
									>=	3	Gear	
											or	
											Total Fail	
									>=	3	Counts	
					PRNDL State defaulted	=	FALSE	Boolean				1
					inhibit RVT	=	FALSE	Boolean				
					IMS fault pending indication	=	FALSE	Boolean				
					output speed	>=	0	RPM				
					TPS validity flag	=	TRUE	Boolean				
					HSD Enabled	=	TRUE	Boolean				
					Hydraulic_System_Pressurized	=	TRUE	Boolean				
					A OR B							
					(A) Output speed enable	>=	67	Nm				
					(B) Accelerator Pedal enable	>=	0.5004883	Nm				
					Ignition Voltage Lo	>=	8.5996094	Volts				
					Ignition Voltage Hi	<=	31.999023	Volts				
					Engine Speed Lo	>=	400	RPM				
					Engine Speed Hi	<=	7500	RPM				
					Engine Speed is within the	>=	5	Sec				
					allowable limits for							
					if Attained Gear=1st FW Accelerator Pedal enable	>=	5.0003052	Pct				
					if Attained Gear=1st FW Engine							
					Torque Enable	>=	5	Nm				
					if Attained Gear=1st FW Engine							
					Torque Enable	<=	8191.875	Nm				
					Transmission Fluid							
					Temperature	>=	-6.65625	°C				1
					Input Speed Sensor fault	=	FALSE	Boolean				1
					Output Speed Sensor fault	=	FALSE	Boolean				1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum
System	Code	Description	Criteria			TCM: P0716, P0717, P0722, P0723,		Required	inum
				Conditions:		P182E			
						ECM: P0101, P0102, P0103, P0106,			
						P0107, P0108, P0171, P0172, P0174,			
						P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300,			
						P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305,			
						P0306, P0307, P0308, 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 -
		Sluck OII [C450] (Sleady Slale)	Attained Gear slip	>= 400 RPM					
			Attailed Gear sip	Table Based					
				Time Please					
			If the Above is True for Time	Refer to Table Enable Time					
				4 in (Sec)					
				supporting documents					
			Intrusive test:	documents					
			(CBR1 clutch exhausted)						
				<= 1.209594727					
			Gear Ratio	>= 1.094360352					
			If the above parameters are true						
							>= 1.1	I Fail Timer (Sec)	
								Fail Count in 1st	t
							>= 2	Gear	
								or	
							>= 3	Total Fail	
			Fail Case 2 Case Steady State 2nd					Counts	-
				Table Based					
				value Please					
			Max Delta Output Speed Hysteresis	>= Refer to 3D					
			Max Delta Oulput Speed Hysteresis	Table Tin .					
				supporting					
				documents Table Based			1		
				value Please					
				Refer to 3D			1		
			Min Delta Output Speed Hysteresis	>= Table 2 in rpm/sec					
				supporting					
	1			documents					1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	N IIIu
System	Code	Description	onena	Table Based		Containono	roquiou	
				Time Please				
			If the Above is True for Time	>= Refer to Table Sec				
				supporting				
			Intrusive test:	documents				
			(CB26 clutch exhausted)					
			Gear Ratio	<= 1.209594727				
			Gear Ratio	>= 1.094360352				
			If the above parameters are true					
							>= 1.1 Fail Timer (Se	ec)
							>= 3 Fail Count in	۱
							2nd Gear	
							or	
							>= 3 Total fail cour	nts
			Fail Case 3 Case Steady State 3rd					
				Table Based				
				value Please				
			Max Delta Output Speed Hysteresis	>= Refer to 3D Table 1 in rpm/sec				
				supporting				
				documents				
				Table Based				
				value Please				
			Min Delta Output Speed Hysteresis	>= Refer to 3D Table 2 in rpm/sec				
				supporting				
				documents				
				Table Based				
				Time Please				
			If the Above is True for Time	>= Refer to Table 17 in Sec				
				>= 17 in Sec supporting				
				documents				
			Intrusive test:	2. Juniona				
			(C35R clutch exhausted)					
				<= 1.209594727				
				>= 1.094360352				
			If the above parameters are true					
							>= 1.1 Fail Timer (Se	
							>= 3 Fail Count in 3	Brd
							Gear	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time equired	Mil Illum.
							>=	OR 3	Total Fail Counts	
				Disable Conditions:	PRNDL State defaulted inhibit RVT IMS fault pending indication output speed TPS validity flag HSD Enabled Hydraulic_System_Pressurized A ORE (A) Output speed enable (B) Accelerator Pedal enable Ignition Voltage LC Ignition Voltage LC Engine Speed LC Engine Speed LC Engine Speed LC Engine Speed LC Engine Speed Is within the allowable limits for if Attained Gear=1st FW Engine Torque Enable Torque Enable Transmission Fluid Temperature Input Speed Sensor faul Output Speed Sensor faul Default Gear Option is nol present	$ \begin{array}{rcrcrcr} & = & FALSE & Boolea \\ & = & FALSE & Boolea \\ & = & FALSE & Boolea \\ & = & TRUE & Boolea \\ & = & 31.999023 & Volts \\ & < = & 5 & Sec \\ & \\ & > = & 5 & Sec \\ & \\ & > = & 5 & Sec \\ & \\ & = & 5 & Nm \\ & \\ & = & 5 & Nm \\ & \\ & = & FALSE & Boolea \\ & = & TRUE \\ & \\ & = & TRUE & Boolea \\ & \\ & = & TRUE \\ \end{array} $	n n n n n	3	Counts	
						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				
ap Up Tap Down Switch TUTD)	P0815	Upshift Switch Circuit	Fail Case 1 Tap Up Switch Stuck in the Up Position in Range 1 Enabled	= 0 Boolean						Spec No M

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		reshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Tap Up Switch Stuck in the Up Position in Range 2 Enabled	= 0	Boolean				
			Tap Up Switch Stuck in the Up Position in Range 3 Enabled	= 0	Boolean				
			Tap Up Switch Stuck in the Up Position in Range 4 Enabled	= 0	Boolean				
			Tap Up Switch Stuck in the Up Position in Range 5 Enabled	= 0	Boolean				
			Tap Up Switch Stuck in the Up Position in Range 6 Enabled	= 0	Boolean				
			Tap Up Switch Stuck in the Up Position in Neutral Enabled	= 1	Boolean				
			Tap Up Switch Stuck in the Up Position in Park Enabled	= 1	Boolean				
			Tap Up Switch Stuck in the Up Position in Reverse Enabled	= 0	Boolean				
			Tap Up Switch ON	= TRUE	Boolean			>= 1 Fail T	Time (Sec)
			Fail Case 2 Tap Up Switch Stuck in the Up	= 1	Boolean				
			Position in Range 1 Enabled Tap Up Switch Stuck in the Up	= 1	Boolean				
			Position in Range 2 Enabled Tap Up Switch Stuck in the Up						
			Position in Range 3 Enabled Tap Up Switch Stuck in the Up	= 1	Boolean				
			Position in Range 4 Enabled Tap Up Switch Stuck in the Up	= 1	Boolean				
			Position in Range 5 Enabled Tap Up Switch Stuck in the Up	= 1	Boolean				
			Position in Range 6 Enabled Tap Up Switch Stuck in the Up	= 1	Boolean				
			Position in Neutral Enabled	= 0	Boolean				
			Tap Up Switch Stuck in the Up Position in Park Enabled	= 0	Boolean				
			Tap Up Switch Stuck in the Up Position in Reverse Enabled	= 0	Boolean				
			Tap Up Switch ON NOTE: Both Failcase1 and Failcase	= TRUE	Boolean			>= 600 Fail T	Time (Sec)
			2 Must Be Met						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Valu		Secondary Malfunction		Enable Conditions		Time Required	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 8.5996094 31.999023 400 7500 5	Enable Time (Sec) Volts Volts RPM RPM Sec		
							P0815 Status is	¥	Test Failed This Key On or Fault Active			
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0816 P1877, P19 ⁻ ECM: None		P1876,		
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						Speci No M
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	=	0	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	=	0	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled		0	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled		0	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	=	0	Boolean						
			Tap Down Switch Stuck in the Down Position in Range Neutral Enabled	=	1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range Park Enabled	=	1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range Reverse Enabled		0	Boolean						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions			me uired	Mil Illun
		·	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							
			Down Position in Neutral Enabled	=	0	Boolean							
			Tap Down Switch Stuck in the Down Position in Park Enabled	=	0	Boolean							
			Tap Down Switch Stuck in the Down Position in Reverse Enabled	=	0	Boolean							
			Tap Down Switch ON NOTE: Both Failcase1 and Failcase 2 Must Be Met	=	TRUE	Boolean				>=	600	sec	
							Time Since Last Range Change	>=	1 Enabl	ec)			1
							Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo	>= <= >=	8.5996094 Vo 31.999023 Vo 400 RI	lts			
							Engine Speed Hi	<=		M			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Engine Speed is within the 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, P1876, P1877, P1915, P1761 ECM: None		
Tap Up Tap Down Switch	P0826	Up and Down Shift Switch Circuit	TUTD Circuit Reads Invalid Voltage	= TRUE Boolean		ECM: NOTE	>= 60 Fail Time (Sec	Specia
(TUTD)					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for			/ No MIL
					P0826 Status is	Test Failed This Key On or Fault Active		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P1761 ECM: None		
nternal Mode Switch (IMS)	P182E	Internal Mode Switch - Invalid Range	Fail Case 1 Current range	Transition 1 = (bit state Range 1110)				One Ti
			Previous range	≠ CeTRGR_e_P RNDL_Drive6 Range				
			Previous range	≠ CeTRGR_e_P RNDL_Drive4 Range				
			Range Shift State Absolute Attained Gear Slip Attained Gear	<= 50 rpm <= Sixth				

Component/	Fault	Monitor Strategy	Malfunction		shold lue	Secondary Malfunction		Enable Conditions			Tim Requi	e	N III
System	Code	Description	Criteria	>= 8.000183105		Manunction		Conditions			Requi	rea	
			Output Speed	>= 200	rpm								
			Engine Torque		Nm								
			Engine Torque	<= 8191.75	Nm								
			If the above conditions are met then										
			Increment Fail Timer							>=	1	Fail Seconds	
			If Fail Timer has Expired then							>=	5	Fail Counts	
			Increment Fail Counter							-	0	T di Obditto	
			Fail Case 2 Output Speed	<= 70	rpm								
			The following PRNDL sequence										
			events occur in this exact order:										
			PRNDL state	_ Drive 6 (bit	Range								
				state 0110)									
			PRNDL state = Drive 6 for		Sec								
				Transition 8									
			PRNDL state		Range								
				0111)									
			PRNDL state	_ Drive 6 (bit	Range								
			T RIVE State	state 0110)	Range								
				Transition 1									
			PRNDL state	 (bit state 	Range								
				1110)									
			Above sequencing occurs in	<= 1	Sec								
			Neutral Idle Mode	= Inactive									
			If all conditions above are met										
			Increment delay Timer										
			If the below two conditions are met								2	Fail Cooord-	1
			Increment Fail Timer							>=	3	Fail Seconds	1
			delay timer	>= 1	Sec								1
			Input Speed		Sec								1
			If Fail Timer has Expired then								0	F 1 6 .	1
			Increment Fail Counter							>=	2	Fail Counts	1
			Fail Case 3	Transition 13				CeTRGR_					1
			Current range		Range	Previous range	≠	e_PRNDL_					1
			Sanoni rango	0010)				Drive4					1
)				CeTRGR_					1
			Engine Torque	>= -8192	Nm	Previous range	≠	e_PRNDL_					
			_/igito forquo					Drive4					1
													1
			Engine Torque	<= 8191 75	Nm	IMS is 7 position configuration	=	0	Boolean				1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			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 Range 0111)	Disable Fail Case 4 if last positive range was Drive 6 and current range is transition 8			-
			Inhibit bit (see definition)	= FALSE	Set inhibit bit true if PRNDL = 1100 (rev) or 0100 (Rev-Neu transition 11) Set inhibit bit false if PRNDL = 1001 (park)			
			Steady State Engine Torque Steady State Engine Torque If the above conditions are met then Increment Fail Timer	>= 100 Nm <= 8191.75 Nm			>= 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) Transition 11				
			PRNDL State	= (bit state Range 0100)				
			PRNDL State	= Neutral (bit state 0101) Range Transition 11				
			PRNDL State	= (bit state Range 0100)				
			Above sequencing occurs in Then delay timer increments Delay timer					
			Range Shift State	= Range Shift Complete				
			Absolute Attained Gear Slip Attained Gear Attained Gear Attained Gear	<= Sixth				
				>= 8.000183105 pct				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	N IIIu
			Output Speed If the above conditions are met Increment Fail Timer	>= 200 rpm			>=	20 Seconds	
			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			
			If the above Condtions are met then, Increment Fail timer		Fail case 5 delay timer	0111) = 0 sec	>= 6	5.25 Seconds	
			Fail Case 7 Current PRNDL State	= PRNDL circuit ABCP = 1101 Range					-
			and Previous PRNDL state	= PRNDL circuit ABCP =1111 Range					
				>= 150 RPM <= 2.845825195 ratio >= 3.274169922 ratio					
			then, Increment Fail timer				>= 6	5.25 Seconds	-
			P182E will report test fail when any of the above 7 fail cases are met						-
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the	>= 8.5996094 Volts <= 31.999023 Volts >= 400 RPM <= 7500 RPM			
					allowable limits for Engine Torque Signal Valid	>= 5 Sec = TRUE Boolean			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		lime quired	Mil Illum
System	Code	Description				CONARCHS TCM: P0716, P0717, P0722, P0723, P07C0, P07BF, P077C, P077D ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E			
/ariable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Steady State)		Table Based Time Please >= Refer to Table Enable Time 4 in (Sec) supporting documents <= 2.482177734 >= 2.245849609			>= 1.1 >= 3 >= 3	Fail Timer (Sec) Fail Count in 1st Gear or Total Fail	
			Fail Case 2 Case: Steady State 3rd Gear Max Delta Output Speed Hysteresis Min Delta Output Speed Hysteresis	Table Fin supporting documents Table Based value Please Pofor to 3D				Counts	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Tin Requ		M
ojotom		Boothphon		Table Based					í –
				Time Please					1
			If the Above is True for Time	>= Refer to Table Sec					1
				supporting					l l
				documents					1
			Intrusive test:						1
			(C35R clutch exhausted)						1
				<= 2.482177734 >= 2.245849609					1
				>= 2.245849609					1
			If the above parameters are true						1
							>= 1.1	Fail Timer (Sec)	1
							2- 1.1		1
							>= 3	Fail Count in 3rd Gear	1
								or	1
							2	Total Fail	1
							>= 3	Counts	1
			Fail Case 3 Case: Steady State 4rd Gear	Table Deced					
				Table Based value Please					1
			Max Delta Output Speed Hysteresis	>= Table 1 in					1
				supporting					1
				documents Table Based					1
				value Please					
			Mia Dalka Outaut Canad Unstancia	Refer to 3D					
			Min Delta Output Speed Hysteresis	>= Table 2 in Tph//sec					
				supporting					
				documents Table Based					
				Timo Dionco					
			If the Above is True for Time	Refer to Table					
			If the Above is the for time	17					
				supporting documents					
			Intrusive test:	uocuments					
			(C1234 clutch exhausted)						1
			Gear Ratio	<= 0.700317383					
			Gear Ratio	>= 0.633666992					
			If the above parameters are true						
									1
							>= 1.1	Fail Timer (Sec)	
							>= 3	Fail Count in 4th	
							/- J	Gear	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				Time quired	N Illu
									>=	3	Total Fail	
			Fail Case 4 Case: Steady State 5th Gear								Counts	
				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	>= Refer to 3D Table 2 in rpm/sec								
				supporting								
				documents Table Based								
				Timo Ploaso								
			If the Above is True for Time	Refer to Table >= 17 in Sec								
				supporting								
			Intrusive test:	documents								
			(C35R clutch exhausted)									
				<= 0.700317383 >= 0.633666992								
			If the above parameters are true									
									>=	1.1	Fail Timer (Sec	,
									>=		Fail Count in 5tl	
									>=	3	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	>=	67	Nm				
					(B) Accelerator Pedal enable	>=	0.5004883	Nm				
					Ignition Voltage Lo	>=	8.5996094	Volts				
					Ignition Voltage Hi Engine Speed Lo	<= >=	31.999023 400	Volts RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Engine Speed H Engine Speed is within the			
					allowable limits for if Attained Gear=1st FW	F 00000F0 D-t		
					Accelerator Pedal enable if Attained Gear=1st FW Engine	E Nm		
					Torque Enable if Attained Gear=1st FW Engine	- 9101.975 Nm		
					Torque Enable Transmission Fluid			
					Temperature Input Speed Sensor fault	t = FALSE Boolean		
					Output Speed Sensor fault Default Gear Option is not	t = TRUF		
					present			
				Disable	MIL not Illuminated for DTC's	TCM: P0716, P0717, P0722, P0723,		
				Conditions:	The not manimated for DTC 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		
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Steady State)	Fail Case 1 Case: 5th Gear					One Trip
				Table Based value Please				
			Max Delta Output Speed Hysteresis	lable lin .				
				supporting documents Table Based				
				value Please				
			Min Delta Output Speed Hysteresis	>= Table 2 in supporting				
				documents Table Based				
				Time Please Refer to Table				
			If the Above is True for Time	>= 17 in supporting				
				documents				

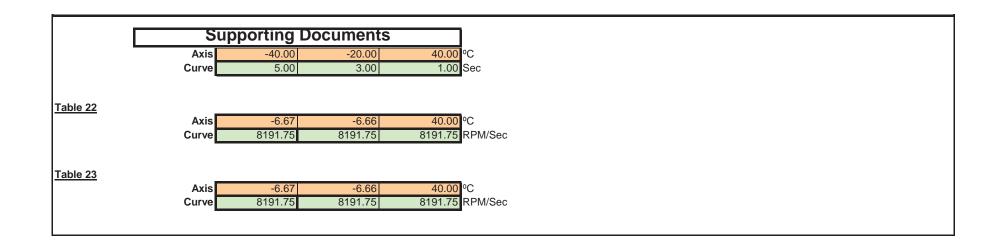
Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time quired	Mil Illum.
				<= 1.209594727 >= 1.094360352						
			in the above parameters are rate					>= 1.1	Fail Timer (Sec)	
								>= 3	Fail Count in 5th Gear	
								>= 3	OR Total Fail Counts	
			Fail Case 2 Case: 6th Gear Max Delta Output Speed Hysteresis	Table Based value Please Refer to 3D Table 1 in supporting documents Table Based value Please						
			Min Delta Output Speed Hysteresis If the Above is True for Time	>= Refer to 3D Table 2 in supporting documents Table Based Time Please Refer to Table 3= 17 in Sec						
				supporting documents <= 1.209594727 >= 1.094360352						
								>= 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	= FALSE = FALSE = FALSE >= 0	Boolean Boolean Boolean RPM			

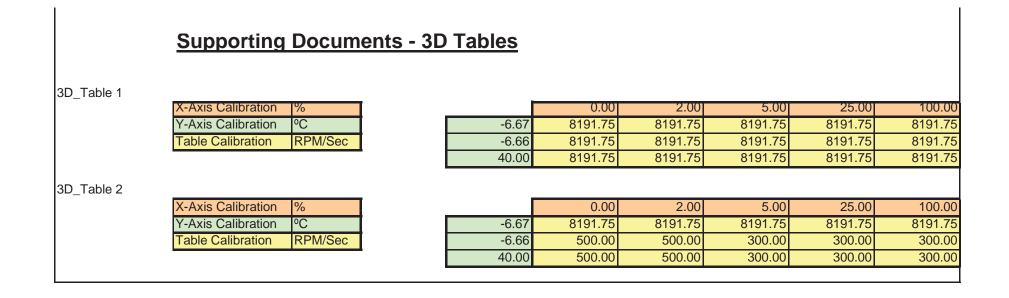
Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
	1				TPS validity flag		TRUE	Boolean		Î
					HSD Enabled	=	TRUE	Boolean		
					Hydraulic_System_Pressurized	=	TRUE	Boolean		
					A OR B					
					(A) Output speed enable	>=	67	Nm		
					(B) Accelerator Pedal enable	>=	0.5004883	Nm		
					Ignition Voltage Lo	>=	8.5996094	Volts		
					Ignition Voltage Hi		31.999023	Volts		
					Engine Speed Lo	>=	400	RPM		
					Engine Speed Hi	<=	7500	RPM		
					Engine Speed is within the					
					allowable limits for		5	Sec		
					if Attained Gear=1st FW					
					Accelerator Pedal enable		5.0003052	Pct		
					if Attained Gear=1st FW Engine		_			
					Torque Enable		5	Nm		
					if Attained Gear=1st FW Engine					
					Torque Enable		8191.875	Nm		
					Transmission Fluid					
					Temperature		-6.65625	°C		
					Input Speed Sensor fault		FALSE	Boolean		
					Output Speed Sensor fault		FALSE	Boolean		
					Default Gear Option is not					
					present	=	TRUE			
					prosona					
				Disable	MIL not Illuminated for DTC's:	TCM: P071	5, P0717, P0722,	P0723,		
				Conditions:		P182E				
						ECM: P010	1, P0102, P0103,	P0106.		
							08, P0171, P017			
							01, P0202, P020			
							06, P0207, P020			
							00, P0207, P020 02, P0303, P030			
							02, P0303, P030 07, P0308, P040			
						1 0000, 1 00	07,10000,1040	I, I UTZL		

	Sup	porting Do	cuments							
Table 1	Axis	0.00	64.00	128.00	192.00	256.00	320.00	384.00	448.00	512.00 N*m
	Curve	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00 RPM
Table 2										
	Axis Curve	-6.67 409.59	-6.66 2.00	40.00 ⁰C 2.00 Sec						
	Cuive	409.09	2.00	2.00 360						
Table 3	Axis	-6.67	-6.66	40.00 °C						
	Curve	409.59	4.00	4.00 Sec						
Table 4										
	Axis Curve	-6.67 409.59	-6.66 2.00	40.00 °C 2.00 Sec						
	Cuive	409.39	2.00	2.00 360						
Table 5	Avia	6.67	22.2	40.00 °C						
	Axis Curve	-6.67 409.59	-6.66 3.00	3.00 Sec						
Table 6	Axis	-6.67	-6.66	40.00	80.00	120.00 °C				
	Curve	409.00	3.60	1.60	1.40	1.40 Sec				
Table 7										

	Sup	porting Do				
	Axis	-6.67	-6.66	40.00	80.00	120.00 °C
	Curve	409.00	3.40	1.40	1.30	1.20 Sec
Table 8						
Table 0	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
Table 10						
	Axis	-40.00	-20.00	0.00	30.00	110.00 °C
	Curve	3.03	1.86	1.00	0.75	0.58 Sec
Table 11	Axis	-40.00	-20.00	0.00	30.00	110.00 °C
	Curve	1.72	1.11	0.60	0.36	0.22 Sec
Table 12	Axis	-40.00	-20.00	0.00	30.00	110.00 °C
	Curve	2.12	1.39	0.84	0.64	0.33 Sec
Table 13	Axis	-40.00	-20.00	0.00	30.00	110.00 °C
			0.95	0.50	0.29	0.13 Sec

Axis -40.00 -20.00 0.00 30.00 110.00 °C Curve 2.97 0.82 0.47 0.20 0.13 Sec Table 15 Axis -40.00 -30.00 -10.00 0.00 10.00 20.00 30.00 Table 15 Axis -40.00 -30.00 -10.00 10.00 149.00 149.00 149.00 149.00 149.00 149.00 149.00 149.00 149.00 149.00 149.00 149.00 149.00 149.00 149.00								uments	porting Doc	Supp	Г
Table 15 Axis -40.00 -30.00 -20.00 -10.00 0.00 10.00 20.00 30.00 Curve 0.00 149.00 20.0										Axis	_
Axis -40.00 -30.00 -20.00 -10.00 0.00 10.00 20.00 30.00 Curve 0.00 100.00 149.00 149.00 149.00 149.00 25.00 20.00<					0.13 Sec	0.20	0.47	0.82	2.97	Curve	
Axis -40.00 -30.00 -20.00 -10.00 0.00 10.00 20.00 30.00 Curve 0.00 100.00 149.00 149.00 149.00 149.00 25.00 20.00<											Table 15
Table 16 Axis -6.67 -6.66 40.00 °C Curve 409.59 2.50 2.50 Sec Table 17 Axis -6.67 -6.66 40.00 °C 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 Table 18 Axis -40.10 -40.00 -20.00 0.00 30.00 60.00 100.00 149.00 Table 19 Axis -40.10 -40.00 -20.00 0.00 30.00 60.00 100.00 149.00 Table 20 Axis -40.10 -40.00 -20.00 0.00 30.00 60.00 100.00 149.00	40.00 °C	30.00			0.00					Axis	
Axis -6.67 -6.66 40.00 °C Curve 409.59 2.50 2.50 Sec Table 17 Axis -6.67 -6.66 40.00 °C 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 Table 18 Axis -40.10 -40.00 -20.00 0.00 30.00 60.00 100.00 149.00 Table 19 Axis -40.10 -40.00 -20.00 0.00 30.00 60.00 100.00 149.00 Table 20 Axis -40.10 -40.00 -20.00 0.00 30.00 60.00 100.00 149.00	0.00 S	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Curve	
Curve 409.59 2.50 2.50 Sec Table 17 Axis -6.67 -6.66 40.00 °C 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 Curve 256.00 50.00 45.00 40.00 34.00 25.00 20.00 20.00 Table 19 Axis -40.10 -40.00 -20.00 0.00 30.00 60.00 100.00 149.00 Curve 256.00 50.00 45.00 40.00 34.00 25.00 20.00 20.00 Table 20 Axis -40.10 -40.00 -20.00 0.00 30.00 60.00 100.00 149.00 Curve 256.00 50.00 45.00 40.00 34.00 25.00 20.00 20.00											Table 16
Table 17 Axis -6.67 -6.66 40.00 °C 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 Curve 256.00 50.00 45.00 40.00 34.00 25.00 20.00 20.00 Table 19 Axis -40.10 -40.00 -20.00 0.00 30.00 60.00 100.00 149.00 Table 20 Axis -40.10 -40.00 -20.00 0.00 30.00 60.00 100.00 149.00											
Axis -6.67 -6.66 40.00 °C 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 Curve 256.00 50.00 45.00 40.00 34.00 25.00 20.00 20.00 Table 19 Axis -40.10 -40.00 -20.00 0.00 30.00 60.00 100.00 149.00 Table 20 Axis -40.10 -40.00 -20.00 0.00 30.00 60.00 100.00 149.00 Table 20 Axis -40.10 -40.00 -20.00 0.00 30.00 60.00 100.00 149.00							2.50 Sec	2.50	409.59	Curve	
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 Curve 256.00 50.00 45.00 40.00 34.00 25.00 20.00 20.00 Table 19 Axis -40.10 -40.00 -20.00 0.00 30.00 60.00 100.00 149.00 Table 20 Axis -40.10 -40.00 -20.00 0.00 30.00 60.00 100.00 149.00											Table 17
Table 18 Axis -40.10 -40.00 -20.00 0.00 30.00 60.00 100.00 149.00 Curve 256.00 50.00 45.00 40.00 34.00 25.00 20.00 20.00 Table 19 Axis -40.10 -40.00 -20.00 0.00 30.00 60.00 100.00 149.00 Table 20 Axis -40.10 -40.00 -20.00 0.00 30.00 60.00 100.00 149.00											
Axis -40.10 -40.00 -20.00 0.00 30.00 60.00 100.00 149.00 Curve 256.00 50.00 45.00 40.00 34.00 25.00 20.00 20.00 Table 19 Axis -40.10 -40.00 -20.00 0.00 30.00 60.00 100.00 149.00 Table 20 Axis -40.10 -40.00 -20.00 0.00 30.00 60.00 100.00 149.00 Xis -40.10 -40.00 -20.00 0.00 30.00 60.00 100.00 149.00 Xis -40.10 -40.00 -20.00 0.00 30.00 60.00 100.00 149.00							0.30 Sec	0.35	0.40	Curve	
Curve 256.00 50.00 45.00 40.00 34.00 25.00 20.00 20.00 Table 19 Axis -40.10 -40.00 -20.00 0.00 30.00 60.00 100.00 149.00 Curve 256.00 50.00 45.00 40.00 34.00 25.00 20.00 20.00 Table 20 Axis -40.10 -40.00 -20.00 0.00 30.00 60.00 100.00 149.00											Table 18
Table 19 Axis -40.10 -40.00 -20.00 0.00 30.00 60.00 100.00 149.00 Curve 256.00 50.00 45.00 40.00 34.00 25.00 20.00 20.00 Table 20 Axis -40.10 -40.00 -20.00 0.00 30.00 60.00 100.00 149.00	149.10 °C										
Axis -40.10 -40.00 -20.00 0.00 30.00 60.00 100.00 149.00 Curve 256.00 50.00 45.00 40.00 34.00 25.00 20.00 20.00 Table 20 Axis -40.10 -40.00 -20.00 0.00 30.00 60.00 100.00 149.00	256.00 °C	20.00	20.00	25.00	34.00	40.00	45.00	50.00	256.00	Curve	
Axis -40.10 -40.00 -20.00 0.00 30.00 60.00 100.00 149.00 Curve 256.00 50.00 45.00 40.00 34.00 25.00 20.00 20.00 Table 20 Axis -40.10 -40.00 -20.00 0.00 30.00 60.00 100.00 149.00											Table 19
Table 20 Axis -40.10 -40.00 -20.00 0.00 30.00 60.00 100.00 149.00	149.10 °C									Axis	
Axis -40.10 -40.00 -20.00 0.00 30.00 60.00 100.00 149.00	256.00 °C	20.00	20.00	25.00	34.00	40.00	45.00	50.00	256.00	Curve	
Axis -40.10 -40.00 -20.00 0.00 30.00 60.00 100.00 149.00											Table 20
	149.10 °C	149.00	100.00		30.00	0.00	-20.00	-40.00	-40.10	Axis	
	256.00 °C	8.00	8.00	8.00	8.00	8.00	8.00	10.00	256.00	Curve	





Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thre: Va		Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
Transmission Control Module (TCM)	C1251	The lateral accleration signal is stuck at a high magnitude in range	Lateral accleration magnitude	<=	3.85	g's						Special No MIL
			Lateral accleration magnitude Lateral accleration magnitude is within the range above for		0.53 120	g's Sec						
			within the range above for									
							Lateral accleration magnitude	<=	3.85	g's		
							Lateral accleration magnitude	>=	0.53	g's		
							Lateral accleration magnitude is within the range above for	>=	90	Sec		
							Diagnostic shifting override command	=	FALSE	Boolean		
							Attained Gear State	=	1st through 6th			
							Attained Gear Slip	<=	100 Clutch to	RPM		
							Transmission Type	=	Clutch Transmissi			
							High Side Driver 1 On		on TRUE	Boolean		
							Vehicle Speed Lateral acceleration stuck in		15	kph		
							range diagnostic enable Battery Voltage	=	TRUE 31.999023	Boolean Volts		
							Battery Voltage	<= >=	31.999023 9	Volts		
							Battery voltage is within the allowable limits for	>=	0.1	Sec		
							Ignition Voltage	<=	31.999023	Volts		
							Ignition Voltage	>=	9	Volts		
							Service Fast Learn (SFL) Mode	=	FALSE	Boolean		
							Ignition voltage and SFL conditions met for	>=	0.1	Sec		
						Disable Conditions:		(P0716, P07	17, P0721, P072 C0, P077B, P077	2, P0723,		
								ECM: None				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions				ime quired	Mil Illum.
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 of	4 6	Fail Counts Sample Counts	One Tri
							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 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 Tr
			Fail Case 2 When P0722 DTC Status equal to Test Failed and Transmission Input Speed is	<	653.125	RPM	Controller uses a single power supply for the speed sensors	=	1	Boolean				-
							Engine Torque is Engine Torque is Vehicle Speed Engine Torque Signal Valid Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the allowable limits for	<= >= >= <= >= <=	100 8191.875 12 TRUE 8.5996094 31.999023 400 7500 5	N*m Kph 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:		2, P0723 , P0102, P0103					
Mode Switch	P071D	Transmission Mode Switch B Circuit	Sport Mode Switch state	=	TRUE	Boolean					>=	600	Fail Time (Sec)	Speci No M

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
					Ignition Voltage Lo Ignition Voltage H Engine Speed Lo Engine Speed H Engine Speed is within the allowable limits fo	i <=) >= i <=	8.5996094 31.999023 400 7500 5	Volts Volts RPM RPM Sec				
				Dis Conditi	able MIL not Illuminated for DTC's ons:	TCM: P1762 ECM: None						
Torque Converter Clutch (TCC)	P0741	TCC System Stuck OFF	TCC Pressure Either Condition (A) or (B) Must be Met						>=	2	Enable Time (Sec)	Two Trips
			(A) TCC Slip Error @ TCC On Mode	1 in _{PDM}					>=	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 Ignition Voltage Lo Ignition Voltage H Engine Speed Engine Speed Engine Speed is within the allowable limits fo Engine Torque H Throttle Position Lo Throttle Position H 2nd Gear Ratio Lo 3rd Gear Ratio Lo 3rd Gear Ratio Lo 3rd Gear Ratio Lo 4th Gear Ratio Lo 5th Gear Ratio Lo 6th Gear Ratio Lo 6th Gear Ratio Lo		On or Lock 8.5996094 31.999023 400 7500 5 50 8191.875 8.0001831 99.998474 2.1948242 2.5251465 1.4228516 1.4228516 1.637085 1.069458 1.2304688 0.7905273 0.6230469 0.7169189	Volts Volts RPM Sec N*m Pct Pct Ratio				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time quired	Mil Illum.
					Transmission Fluid Temperature Lo	>= -6.65625 °C			
					Transmission Fluid Temperature Hi				
					PTO Not Active Engine Torque Signal Valid				
					Throttle Position Signal Valid	= TRUE Boolean			
					Dynamic Mode	= FALSE Boolean			
					P0741 Status is	Test Failed This Key On or Fault Active			
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P0742, 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 Trips
				= 1st Lock rpm <= 1.209594727 >= 1.094360352			>= 0.2 = 5	Fail Tmr Fail Counts	
			If the above parameters are true						
							≠ 0	Neutral Timer (Sec)	
							>= 0.3	Fail Timer (Sec)	
					Ignition Voltage Lo	>= 8.5996094 Volts	>= 8	Counts	-
					Ignition Voltage Hi Engine Speed Lo Engine Speed Hi	<= 31.999023 Volts >= 400 RPM			
					Engine Speed is within the allowable limits for	<= 7500 RPM >= 5 Sec			
					Transmission Fluid Temperature	>= -6.65625 °C			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Range Shift State	Range = Shift ENUM Completed		
					TPS OR	>= 0.5004883 %		
					Output Speed	>= 67 RPM		
					Throttle Position Signal Valid from ECM	= TRUE Boolean		
					Engine Torque Signal Valid from ECM, High side driver is	= TRUE Boolean		
					enabled High-Side Driver is Enabled			
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault Default Gear Option is not	= FALSE Boolean = TRUE		
					present	= IKUL		
				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		
Mode 2 Multiplex Valve	P0756	Shift Solenoid Valve B Stuck Off	Fail Case 1 Commanded Gear	= 1st Locked			Please Refer	One Trip
			Gear Box Slip	>= 400 RPM			>= to Table 5 in Neutral Timer Supporting (Sec) Documents	
			Intrusive Shift to 2nd				Documents	
				<= 2.482177734				
				>= 2.245849609				
			If the above parameters are true				>= 1 sec	
					Ignition Voltage Lo	>= 8.5996094 Volts	>= 3 counts	
					Ignition Voltage Hi	<= 31.999023 Volts		
					Engine Speed Lo Engine Speed Hi	>= 400 RPM <= 7500 RPM		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Engine Speed is within the allowable limits for Output Speed OR	>= 5 Sec >= 67 RPM		
					TPS Range Shift State	>= 0.5004883 % Range = Shift ENUM Completed		
					Transmission Fluid Temperature High-Side Driver is Enabled Throttle Position Signal Valid	>= -6.65625 °C = TRUE Boolean		
					from ECM Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	= TRUE Boolean = 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)	P0777	Pressure Control (PC) Solinoid B Stuck On [C35R] (Steady State)		>= 400 RPM Table Based Time Please Refer to Table Enable Time 4 in (Sec) supporting documents <= 1.608642578				One Trip
			Gear Ratio	>= 1.455444336			>= 1.1 Fail Timer (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Require	d Illun
System	Code	Description	Unterta			Contractors	>= 2 F.	ail Count in 1st Gear or Total Fail
			Fail Case 2 Case: Steady State 2nd gear	Table Based			>= 3	Counts
			Max Delta Output Speed Hysteresis	value Please				
				supporting documents Table Based				
			Min Delta Output Speed Hysteresis	Defer to Table				
			If the Above is True for Time	Table Based Time Please Defer to Table				
			Intrusive test:	17 in supporting documents				
			(CB26 clutch exhausted) Gear Ratio	<= 1.608642578 >= 1.455444336				
			If the above parameters are true				44 5	
								ail Timer (Sec) Fail Count in 2nd Gear
			Fail Case 3 Case: Steady State 4th gear				>= 3	or Total Fail Counts
				Table Based value Please Refer to Table 22 in rpm/sec				
			Max Delta Output Speed Hysteresis	>= 22 in supporting documents				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Min Delta Output Speed Hysteresis	Table Based value Please Refer to Table 23 in supporting documents				
			If the Above is True for Time	Table Based Time Please Refer to Table 17 in Supporting documents				
			Gear Ratio	<= 0.89465332 >= 0.809448242				
			If the above parameters are true					
							>= 1.1 Fail Timer (S	
							>= 3 Fail Count in Gear or >= 3 Total Fail	
			Fail Case 4 Case: Steady State 6th gear	Table Based value Please				_
			Max Delta Output Speed Hysteresis	>= Refer to Table 22 in rpm/sec				
			Min Delta Output Speed Hysteresis	23 in supporting				
			If the Above is True for Time	supporting				
			Intrusive test: (CB26 clutch exhausted)	documents				
			Gear Ratio	<= 0.89465332			>= 1.1 Fail Timer (S	iec)

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions			T Rec	ime quired	Mil Illum.
			Gear Ratio	>= 0.809448242					>=	3	counts	ĺ
			If the above parameters are true									
			·····									
									>=	1.1	Fail Timer (Sec)	
										_	Fail Count in 6th	
									>=	3	Gear	
											or	
									>=	3	Total Fail	
					PRNDL State defaulted	=	FALSE	Boolean			Counts	
					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	>=	67	Nm				
					(B) Accelerator Pedal enable	>=	0.5004883	Nm				
					Ignition Voltage Lo	>=	8.5996094	Volts				
					Ignition Voltage Hi	<=	31.999023	Volts				
					Engine Speed Lo	>=	400	RPM				
					Engine Speed Hi	<=	7500	RPM				
					Engine Speed is within the allowable limits for	>=	5	Sec				
					if Attained Gear=1st FW							
					Accelerator Pedal enable	>=	5.0003052	Pct				
					if Attained Gear=1st FW Engine	>=	5	Nm				
					Torque Enable	>=	5	INITI				
					if Attained Gear=1st FW Engine	<=	8191.875	Nm				
					Torque Enable Transmission Fluid							
					Tansmission Fluid Temperature	>=	-6.65625	٥C				
					Input Speed Sensor fault	=	FALSE	Boolean				
					Output Speed Sensor fault	=	FALSE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum.
					MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E			
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E			
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Steady State)	Fail Case 1 Case: Steady State 1st						One Trip
		Sidek Off [0430] (Sleady Slate)	Attained Gear slip	>= 400 RPM Table Based					
				Time Please Refer to Table Enable Time					
			If the Above is True for Time	>= 4 in (Sec) supporting					
			Intrusive test:	documents					
				<= 1.209594727					
			If the above parameters are true	>= 1.094360352					
							>=	1.1 Fail Timer	(Sec)
							>=	2 Fail Count Gear	in 1st
							>=	or 3 Total F Count	
			Fail Case 2 Case Steady State 2nd					Count	<u>></u>
			Max Delta Output Speed Hysteresis	Table Based value Please >= Refer to Table 22 in supporting					
			Min Delta Output Speed Hysteresis	documents Table Based value Please Refer to Table					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If the Above is True for Time	Table Based Time Please Refer to Table 17 in supporting				
			Intrusive test: (CB26 clutch exhausted) Gear Ratio	<= 1.209594727				
				>= 1.094360352				
							>= 1.1 Fail Time >= 3 Fail Co 2nd C or	unt in Gear
			5-11 Occor 2				>= 3 Total fail	
			Fail Case 3 Case Steady State 3rd	Table Based value Please				
			Max Delta Output Speed Hysteresis	supporting documents Table Based value Please				
			Min Delta Output Speed Hysteresis	supporting documents Table Based				
			If the Above is True for Time	Time Please Refer to Table 17 in supporting documents				
			Gear Ratio	<= 1.209594727 >= 1.094360352				
			If the above parameters are true				>= 1.1 Fail Time	r (Sec)

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				ime Juired	Mil Illum.
									>=	3 OR 3	Fail Count in 3rd Gear Total Fail	
				Disabl	PRNDL State defaulted inhibit RVT IMS fault pending indication output speed TPS validity flag HSD Enabled Hydraulic_System_Pressurized A OR B (A) Output speed enable (B) Accelerator Pedal enable Ignition Voltage Lo Ignition Voltage Lo Ignition Voltage Hi 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 if Attained Gear=1st FW Engine Torque Enable Unput Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present MIL not Illuminated for DTC's:	= = = = = = = = = = = = = = = = = = =	FALSE FALSE FALSE 0 TRUE TRUE TRUE 67 0.5004883 8.5996094 31.999023 400 7500 5 5.0003052 5 8191.875 -6.65625 FALSE FALSE FALSE TRUE , P0717, P0722,				Counts	
						P0107, P010 P0175, P020 P0205, P020 P0301, P030), F0102, F0103, 108, P0171, P017. 11, P0202, P020 16, P0207, P020 12, P0303, P030 17, P0308, P040	2, P0174, 3, P0204, 8, P0300, 4, P0305,				

Boolean RPM RPM	>=	3 10	Fail Counter	Special
RPM	>	10		No MIL
RPM			Sample Timer (Sec)	
RPM				
Sec				
				One Trip
				One Trip
	~-	11	Fail Timer (Sec)
	-			
	>=	5	Gear	,
		_		
	>=	5	Counts	_
	1			
	1			
	1			
_		>= >= >=	>= 5	>= 5 Fail Count in 1s Gear or Total Fail

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Min Delta Output Speed Hysteresis	Table Based value Please Refer to Table 23 in supporting documents				
			If the Above is True for Time	Table Based Time Please Defer to Table				
				documents <= 2.482177734 >= 2.245849609				
			If the above parameters are true					
							>= 1.1 Fail Timer (Sec	
							>= 3 Fail Count in 3 Gear or >= 5 Total Fail Counts	ď
			Fail Case 3 Case: Steady State 4rd Gear				Counts	-
			Max Delta Output Speed Hysteresis	supporting				
			Min Delta Output Speed Hysteresis	documents Table Based value Please Please 23 in supporting documents				
			If the Above is True for Time	Table Based Time Please Refer to Table 17 in supporting				
				documents <= 0.700317383 >= 0.633666992				

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 4th Gear	
							>= 5	or Total Fail Counts	
			Fail Case 4 Case: Steady State 5th Gear	Table Based					
			Max Delta Output Speed Hysteresis	>= Refer to Table 22 in rpm/sec					
				supporting documents Table Based					
			Min Delta Output Speed Hysteresis	value Please Refer to Table					
				>= 23 in supporting documents					
				Table Based Time Please					
			If the Above is True for Time	Pofor to Tablo					
				supporting documents					
			Intrusive test: (C35R clutch exhausted)						
			Gear Ratio	<= 0.700317383 >= 0.633666992					
			If the above parameters are true	- 0.033000772					
							>= 1.1	Fail Timer (Sec)	
							>= 3	Fail Count in 5th Gear	
							>= 5	or Total Fail	
					PRNDL State defaulted	= FALSE Boolea		Counts	
					inhibit RVT IMS fault pending indication	= FALSE Boolea = FALSE Boolea			
					output speed TPS validity flag	>= 0 RPM = TRUE Boolea			
					HSD Enabled	= TRUE Boolea	1		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
					Hydraulic_System_Pressurized	=	TRUE	Boolean		
					A OR B					
					(A) Output speed enable	>=	67	Nm		
					(B) Accelerator Pedal enable	>=	0.5004883	Nm		
					Ignition Voltage Lo	>=	8.5996094	Volts		
					Ignition Voltage Hi	<=	31.999023	Volts		
					Engine Speed Lo Engine Speed Hi	>=	400 7500	RPM RPM		
					Engine Speed is within the	<=				
					allowable limits for	>=	5	Sec		
					if Attained Gear=1st FW	>=	5.0003052	Pct		
					Accelerator Pedal enable		3.0003032	1.01		
					if Attained Gear=1st FW Engine Torque Enable	>=	5	Nm		
					if Attained Gear=1st FW Engine					
					Torque Enable	<=	8191.875	Nm		
					Transmission Fluid	>=	-6.65625	°C		
					Temperature Input Speed Sensor fault		FALSE	Boolean		
					Output Speed Sensor fault	=	FALSE	Boolean		
					Default Gear Option is not	=	TRUE	Doologii		
					present	_	INUL			
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716 P182E	5, P0717, P0722,	P0723,		
						P0107, P01 P0175, P02 P0205, P02 P0301, P03	1, P0102, P0103, 08, P0171, P017; 01, P0202, P020; 06, P0207, P020; 02, P0303, P030 07, P0308, P040	2, P0174, 3, P0204, 3, P0300, 4, P0305,		
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E	Fail Case 1 Case: 5th Gear							One Trip
Vanable bleed Suletioid (VDS)	1 2/24	Stuck On (Steady State)	Case. Sill Gedi							
				Table Based value Please						
				Pofor to Tablo						
	1		Max Delta Output Speed Hysteresis	>= 22 in rpm/sec						
	1			supporting						
				documents						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Min Delta Output Speed Hysteresis	Table Based value Please Refer to Table 23 in supporting documents				
			If the Above is True for Time	Table Based Time Please Pefer to Table 17 in Supporting documents				
			Gear Ratio	<= 1.209594727 >= 1.094360352				
			If the above parameters are true					
							>= 1.1 Fail Timer (Sec	
							>= 3 Fail Count in 50 Gear OR >= 3 Total Fail Counts	n
			Fail Case 2 Case: 6th Gear				Counts	-
			Max Delta Output Speed Hysteresis	Table Based value Please >= Refer to Table 22 in rpm/sec				
				supporting documents Table Based value Please				
			Min Delta Output Speed Hysteresis	>= Refer to Table 23 in rpm/sec supporting documents				
			If the Above is True for Time	17 In				
			Intrusive test: (CB26 clutch exhausted)	supporting documents				
			Gear Ratio	<= 1.209594727 >= 1.094360352				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				ime quired	Mil Illum.
			If the above parameters are true									
									>=	1.1	Fail Timer (Sec)	
									>=	3	Fail Count in 6th Gear OR	
									>=	3	Total Fail Counts	
					PRNDL State defaulted inhibit RVT IMS fault pending indication output speed TPS validity flag	= = >= =	FALSE FALSE FALSE 0 TRUE	Boolean Boolean Boolean RPM Boolean				
					HSD Enabled Hydraulic_System_Pressurized	=	TRUE TRUE	Boolean Boolean				
					A OR B (A) Output speed enable	>=	67	Nm				
					(B) Accelerator Pedal enable	>=	0.5004883	Nm				
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= <= >= <=	8.5996094 31.999023 400 7500 5	Volts Volts RPM RPM Sec				
					if Attained Gear=1st FW Accelerator Pedal enable if Attained Gear=1st FW Engine	>=	5.0003052 5	Pct Nm				
					Torque Enable if Attained Gear=1st FW Engine Torque Enable	<=	8191.875	Nm				
					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				
					present							

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Time	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions	Required	Illum.
				Disable Conditions:		TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
Transmission Control Module (TCM)	C1251	The lateral accleration signal is stuck at a high magnitude in range	Lateral accleration magnitude	<= 3.85	ā g's						Special No MIL
			Lateral accleration magnitude Lateral accleration magnitude is within the range above for	>= 0.53 >= 120	0						
											-
						Lateral accleration magnitude	<=	3.85	g's		
						Lateral accleration magnitude	>=	0.53	g's		
						Lateral accleration magnitude is within the range above for		90	Sec		
						Diagnostic shifting override command	=	FALSE	Boolean		
						Attained Gear State	=	1st through 6th			
						Attained Gear Slip	<=	100 Clutch to	RPM		
						Transmission Type	=	Clutch Transmissi on			
						High Side Driver 1 On		TRUE	Boolean		
						Vehicle Speed Lateral acceleration stuck in	>=	15	kph		
						range diagnostic enable	=	TRUE	Boolean		
						Battery Voltage Battery Voltage	<= >=	31.999023 9	Volts Volts		
						Battery voltage is within the		0.1	Sec		
						allowable limits for		31.999023	Volts		
						Ignition Voltage Ignition Voltage		31.999023 9	Volts		
						Service Fast Learn (SFL) Mode	=	FALSE	Boolean		
						Ignition voltage and SFL conditions met for	>=	0.1	Sec		
					Disab Condition	e MIL not Illuminated for DTC's: ::	(P0716, P07	17, P0721, P072 C0, P077B, P077	2, P0723,		
							ECM: None				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions				ime juired	Mil Illum.
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 of	4 6	Fail Counts Sample Counts	One Trip
							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 Input Speed Sensor (TISS)	P0717	Input Speed Sensor Circuit Low Voltage	Fail Case 1 Transmission Input Speed is	<	33	RPM					>=	4.5	Fail Time (Sec)	One Tri
			Fail Case 2 When P0722 DTC Status equal to Test Failed and Transmission Input Speed is) (<	653.125	RPM	Controller uses a single power supply for the speed sensors	=	1	Boolean				
							Engine Torque is Engine Torque is Vehicle Speed Engine Torque Signal Valid Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	<= >= =	100 8191.875 12 TRUE 8.5996094 31.999023 400 7500 5	N*m N*m Kph 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:		, P0723 , P0102, P0103					
Torque Converter Clutch (TCC)	P0741	TCC System Stuck OFF	TCC Pressure	>=	750	Кра					>=	2	Enable Time (Sec)	Two Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Value Refer to Table 1 in Supporting Documents	TCC Mode Ignition Voltage Lo Ignition Voltage Hi Engine Speed Engine Speed is within the allowable limits for Engine Torque Lo	Conditions = On or Lock >= 8.5996094 Volts <= 31.999023 Volts >= 400 RPM <= 7500 RPM >= 5 Sec >= 50 N*m		Illum.
					Engine Torque Lo Engine Torque Hi Throttle Position Lo 2nd Gear Ratio High 3rd Gear Ratio High 3rd Gear Ratio Lo 3rd Gear Ratio Lo 4th Gear Ratio High 5th Gear Ratio Lo 5th Gear Ratio Lo 6th Gear Ratio Lo 6th Gear Ratio Ligh Transmission Fluid	$\begin{array}{rrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrrr$		
					Temperature Lo Transmission Fluid Temperature Hi PTO Not Active Engine Torque Signal Valid Throttle Position Signal Valid Dynamic Mode	>= -6.65625 °C <= 130 °C = TRUE Boolean = TRUE Boolean = TRUE Boolean = FALSE Boolean		
					P0741 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	Time Required	Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P0742, 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 Commanded Gear Gear Ratio Gear Ratio If the above parameters are true		Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for Transmission Fluid Temperature Range Shift State	>= 8.5996094 Volts <= 31.999023 Volts >= 400 RPM <= 7500 RPM >= 5 Sec >= -6.65625 °C Range = Shift ENUM Completed	 >= 0.2 Fail Tmr = 5 Fail Counts ≠ 0 Neutral Timer (Sec) >= 0.3 Fail Timer (Sec) >= 8 Counts 	
					TPS OR Output Speed Throttle Position Signal Valid from ECM Engine Torque Signal Valid from ECM, High side driver is enabled High-Side Driver is Enabled Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	>= 0.5004883 % >= 67 RPM = TRUE Boolean = TRUE Boolean = FALSE Boolean = FALSE Boolean		

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		
Mode 2 Multiplex Valve	P0756	Shift Solenoid Valve B Stuck Off		>= 400 RPM = 1st Locked Gear <= 2.482177734 >= 2.245849609	Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed Hi	<= 31.999023 Volts >= 400 RPM <= 7500 RPM	Please Refer to Table 5 in Supporting Documents >= 1 sec >= 3	One Trip
					allowable limits for Output Speed OR TPS Range Shift State Transmission Fluid Temperature High-Side Driver is Enabled Throttle Position Signal Valid from ECM	>= 67 RPM >= 0.5004883 % = Shift ENUM Completed >= -6.65625 °C = TRUE Boolean		
					Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	= FALSE Boolean = FALSE Boolean - TRUE		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Ш	Mil Ilum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E				
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E				
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solinoid B Stuck On [C35R] (Steady State)	Fail Case 1 Case: Steady State 1st						On	ne Trip
			Attained Gear slip	Table Based						
			If the Above is True for Time	Time Please Refer to Table Enable Time >= 4 in (Sec) supporting documents						
			Intrusive test: (CBR1 clutch exhausted) Gear Ratio	<= 1.608642578						
			Gear Ratio If the above parameters are true	>= 1.455444336						
							>=	1.1 Fail Ti	mer (Sec)	
							>=	2 Fail C	ount in 1st Gear	
							>=	, То	or tal Fail ounts	
			Fail Case 2 Case: Steady State 2nd gear	Table Based				0		
			Max Delta Output Speed Hysteresis	value Please Refer to Table 22 in supporting						
			Min Delta Output Speed Hysteresis	documents Table Based value Please Defecto Table						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	T	ime quired	Mil Illum.
			If the Above is True for Time Intrusive test:	Table Based Time Please Refer to Table 17 in supporting documents					
			Gear Ratio	<= 1.608642578 >= 1.455444336					
			If the above parameters are true						
							>= 1.1	Fail Timer (Sec) Fail Count in	
							>= 3	2nd Gear or	
							>= 3	Total Fail Counts	
			Fail Case 3 Case: Steady State 4th gear	Table Based value Please Pafer to Table					
			Max Delta Output Speed Hysteresis	22 III supporting documents Table Based					
			Min Delta Output Speed Hysteresis	23 III supporting documents Table Based Time Please					
			If the Above is True for Time	>= Refer to Table 17 in supporting					
			Gear Ratio	documents <= 0.89465332 >= 0.809448242					
			If the above parameters are true						
							>= 1.1	Fail Timer (Sec) Fail Count in 4th	
							>= 3	Gear or	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions			T Ree	ime quired	Mil Illum
									>=	3	Total Fail Counts	
			Fail Case 4 Case: Steady State 6th gear								oouno	
				Table Based value Please								
			Max Delta Output Speed Hysteresis	Refer to Table								
				22 in supporting								
				documents								
				Table Based value Please								
			Min Delta Output Speed Hysteresis	Refer to Table								
				23 in supporting								
				documents								
				Table Based Time Please								
			If the Above is True for Time	Refer to Table Soc								
				17 in supporting								
				documents								
			Intrusive test: (CB26 clutch exhausted)									
			,	<= 0.89465332					>=	1.1	Fail Timer (Sec)	
				>= 0.809448242					>=	3	counts	
			If the above parameters are true							0	counts	
			in the above parameters are inde									
									>=	1.1	Fail Timer (Sec)	
									>=	3	Fail Count in 6th Gear	
											or	
									>=	3	Total Fail Counts	
					PRNDL State defaulted	=	FALSE	Boolean				
					inhibit RVT IMS fault pending indication	=	FALSE FALSE	Boolean Boolean				
					output speed	>=	0	RPM				
					TPS validity flag HSD Enabled	=	TRUE TRUE	Boolean Boolean				
					Hydraulic_System_Pressurized	=	TRUE	Boolean				
					A OR B			200.0011				
					(A) Output speed enable	>=	67	Nm				
					(B) Accelerator Pedal enable	>=	0.5004883	Nm				
					Ignition Voltage Lo	>=	8.5996094	Volts				
			1	L	Ignition Voltage Hi	<=	31.999023	Volts				

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 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	>= 400 RPM <=		
				Disable	Transmission Fluid Temperature Input Speed Sensor fault Output Speed Sensor fault MIL not Illuminated for DTC's:	>= -6.65625 °C = FALSE Boolean = FALSE Boolean TCM: P0716, P0717, P0722, P0723,		
				Conditions:		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)		Table Based Time Please Pofer to Table, Enable Time				One Trip
							>= 1.1 Fail Timer (S >= 2 Fail Count in Gear	
							or Total Fail	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
		•	Fail Case 2 Case Steady State 2nd					
				Table Based				
				value Please				
			Max Delta Output Speed Hysteresis	>= Refer to Table 22 in rpm/sec				
				supporting				
				documents				
				Table Based				
				value Please Refer to Table				
			Min Delta Output Speed Hysteresis	>= Refer to Table 23 in rpm/sec				
				supporting				
				documents				
				Table Based Time Please				
				Defer to Table				
			If the Above is True for Time	>= 17 in Sec				
				supporting				
			Intrucius test	documents				
			Intrusive test: (CB26 clutch exhausted)					
				<= 1.209594727				
			Gear Ratio	>= 1.094360352				
			If the above parameters are true					
							>= 1.1 Fail Timer (S	ec)
							>= 3 Fail Count	
							2nd Gear	
							or	
							>= 3 Total fail cou	nts
			Fail Case 3 Case Steady State 3rd					
				Table Based value Please				
				Defer to Table				
			Max Delta Output Speed Hysteresis	>= 22 in rpm/sec				
				supporting				
				documents Table Based				
				velue Diseas				
			Mire Dellas Oudend Cener, 111, 1	Refer to Table				
			Min Delta Output Speed Hysteresis					
				supporting				
				documents	<u> </u>			

Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				ime juired	Mil Illum.
		Intrusive test: (C35R clutch exhausted)	supporting documents								
		Gear Ratio									
		If the above parameters are true						>=	1.1	Fail Timer (Sec)	
								>=	3	Fail Count in 3rd Gear	
								>=	OR 3	Total Fail Counts	
				inhibit RVT IMS fault pending indication output speed TPS validity flag	= = >= = =	FALSE FALSE FALSE 0 TRUE TRUE	Boolean Boolean Boolean RPM Boolean Boolean				
				Hydraulic_System_Pressurized	=	TRUE	Boolean				
				(A) Output speed enable	>=	67	Nm				
				(B) Accelerator Pedal enable	>=	0.5004883	Nm				
				Ignition Voltage Hi Engine Speed Lo Engine Speed Hi	>= <= >= <=	8.5996094 31.999023 400 7500	Volts Volts RPM RPM				
				Engine Speed is within the allowable limits for if Attained Gear=1st FW	>=	5	Sec				
				Accelerator Pedal enable if Attained Gear=1st FW Engine	>=	5.0003052	Pct Nm				
				if Attained Gear=1st FW Engine Torque Enable	<=	8191.875	Nm				
				Transmission Fluid Temperature	>=	-6.65625	°C				
				Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not	= = =	FALSE FALSE TRUF	Boolean Boolean				
			Intrusive test: (C35R clutch exhausted) Gear Ratio	If the Above is True for Time Please Refer to Table Sec 17 in Supporting documents Intrusive test: (C35R clutch exhausted) Gear Ratio Sec 17 in Sec 17 in Se	If the Above is True for Time PROFE To Table Sec: 17 In Supporting documents (C35R cluth: exhausted) Gear Ratio <= 1.205941277 Gear Ratio >= 1.205941277 Gear Ratio >= 1.204340352 If the above parameters are true PRNDL State defaulted initial RVT IMS fault pending indication output speed TPS validly flag Hydraulic_System_Pressurized A O RB (0) Accelerator Pedal enable Ignition Voltage Lo Ignition Voltage Lo	If the Above Is True for Time >= Refer to Table Sec Time Yin Sec Time Sec Sec Supporting documents documents Sec Sec Intrusive text (C3SR clutch exhausted) Care Ratio Sec 1.20954727 Gear Ratio >= 1.20954727 Gear Ratio >= Intrusive text If the above parameters are true If the above parameters are true MS fault pending indication = MS fault pending indication = 1.20954727 Gear Ratio >= Output speed >= 1.09954023 >= 1.9994023 >= If the above parameters are true MS fault pending indication = AOR >= Hydraulic_System_Pressurized = AOR >= = Gear Batio >= Gear Batio >= = Gear Batio >= Sec >= Sec >= Gear Batio >= Sec >=	If the Above is True for Time >= Refer to Table Soc 17 me Please supporting supporting documents Intrustve test: (C3R clutch sharasted) CG ar Relito <= 1209504777 Gear Relito >= 1.094360352 > PRIOL State defaulted = = FALSE within FWT = FALSE FALSE Biblic FWT = FALSE FALSE FALSE Biblic FWT = FALSE FALSE FALSE Biblic FWT = FALSE FALSE FALSE FALSE Biblic FWT = FALSE F	If the Above is True for Time > Refer to Table Sec. 17 in > Intrusive test. (C:SR cluth enhance) C Ger Ratio > 120994727 Ger Ratio > Ger Ratio > 1.09330352 If the above parameters are true PRNDL State defaulted inhibit RPT Ger Ratio = FALSE Boolsan House If the above parameters are true If the above parameters are true PRNDL state defaulted inhibit RPT IPS-state defaulted IPS-state above parameters are true = FALSE Boolsan House If the above parameters are true If the above parameters are true IPS-state defaulted IPS-state above parameters are true = TRUE Boolsan House If the above parameters are true If the above parameters are true IPS-state defaulted IPS-state above parameters are true = TRUE Boolsan House above parameters are true If the above parameters are true IFS data parameters are true IFS data parameters are true = IFS data parameters are true IFS data parameters are true = IFS data parameters are true If the above parameters are true IFS data parameters are true IFS data parameters are true = IFS data parameters are true IFS data parameters are true IFS data parameters are true = IFS data	If the Above is True for Tables or supprinting documents This Please supprinting documents If the Above is True for Tables or supprinting documents If the Above is True for Tables or true is the Above is True for Tables or true is the Above is True for Tables or true is the Above is true is the Above is true is the Above is true is true is the Above is true is tru	If the Above is True for Two	If the Above is True for time

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			reshold 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		
Tap Up Tap Down Switch (TUTD)	P0815	Upshift Switch Circuit	Position in	ch Stuck in the Up Range 1 Enabled	= 1	Boolean				Special No MIL
			Position in	ch Stuck in the Up Range 2 Enabled	= 1	Boolean				
				ch Stuck in the Up Range 3 Enabled	= 1	Boolean				
			Tap Up Swite	ch Stuck in the Up Range 4 Enabled	= 1	Boolean				
			Tap Up Swite	ch Stuck in the Up Range 5 Enabled	= 1	Boolean				
			Tap Up Swite	ch Stuck in the Up Range 6 Enabled	= 1	Boolean				
			Tap Up Swite	ch Stuck in the Up	= 1	Boolean				
			Tap Up Swite	ch Stuck in the Up	= 1	Boolean				
			Tap Up Swite	ch Stuck in the Up Reverse Enabled	= 1	Boolean				
			т	ap Up Switch ON =	= TRUE	Boolean			>= 1 Fail Time (Sec)	
			Position in	ch Stuck in the Up Range 1 Enabled	= 1	Boolean				-
			Tap Up Swite Position in	ch Stuck in the Up Range 2 Enabled	= 1	Boolean				
			Tap Up Swite	ch Stuck in the Up Range 3 Enabled	= 1	Boolean				
			Tap Up Swite	ch Stuck in the Up Range 4 Enabled	= 1	Boolean				
			Tap Up Swite	ch Stuck in the Up Range 5 Enabled	= 1	Boolean				
			Tap Up Swite	ch Stuck in the Up Range 6 Enabled	= 1	Boolean				
			Tap Up Swite	ch Stuck in the Up	= 1	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum.
			Tap Up Switch Stuck in the Up Position in Park Enabled Tap Up Switch Stuck in the Up Position in Reverse Enabled Tap Up Switch ON	=	1 1 TRUE	Boolean Boolean Boolean					
			NOTE: Both Failcase1 and Failcase 2 Must Be Me						>= 6	00 Fail Time (Sec)	_
							Time Since Last Range Change	>= 1 Enable Time			_
							Inne Since Las Range Grange Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	(Sec) >= 8.5996094 Volts			
							P0815 Status is	Test Failed This Key On or Fault Active			
						Disable Conditions:		TCM: P0816, P0826, P182E, P1876, P1877, P1915, P1761 ECM: None			
Tap Up Tap Down Switch (TUTD)	P0816	Downshift Switch Circuit	Fail Case 1 Tap Down Switch Stuck in the Down Position in Range 1 Enabled	=	1	Boolean					Special No MIL
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	=	1	Boolean					
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	=	1	Boolean					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			reshold /alue	Secondary Malfunction	Enable Conditions		Time Required	ł	Mil Illum.
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	=	1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	=	1	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	=	1	Boolean						
			Tap Down Switch Stuck in the Down Position in 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						
			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	

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria		reshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
Jystem		Description		Cinteria		value	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 Ei 8.5996094 31.999023 400 7500 5 Test Failed	nable Time (Sec) Volts RPM RPM Sec		
						Disable Conditions:	P0816 Status is MIL not Illuminated for DTC's:	≠ TCM: P0815, P P1877, P1915,		1876,		
Tan Un Tan Davin Cuitab			E-11 0 1	Tag the Controls Church in the Line				ECM: None				Createl
Tap Up Tap Down Switch (TUTD)	P1765	Upshift Switch Circuit #2	Fail Case 1	Tap Up Switch Stuck in the Up Position in Range 1 Enabled	= 0	Boolean						Special No MIL
				Tap Up Switch Stuck in the Up Position in Range 2 Enabled	= 0	Boolean						
				Tap Up Switch Stuck in the Up Position in Range 3 Enabled	= 0	Boolean						
				Tap Up Switch Stuck in the Up Position in Range 4 Enabled	= 0	Boolean						
				Tap Up Switch Stuck in the Up Position in Range 5 Enabled	= 0	Boolean						
				Tap Up Switch Stuck in the Up Position in Range 6 Enabled	= 0	Boolean						
				Tap Up Switch Stuck in the Up Position in Neutral Enabled	= 1	Boolean						
				Tap Up Switch Stuck in the Up Position in Park Enabled	= 1	Boolean						
				Tap Up Switch Stuck in the Up Position in Reverse Enabled	= 0	Boolean						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value	Secondary Malfunction	Enable Conditions			Time quired	Mil Illum.
			Tap Up Switch ON	= TRU	E Boolean			>=	1	Fail Time (Sec)	
			Fail Case 2 Tap Up Switch Stuck in the Up 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 Position in Range 5 Enabled	= 1	Boolean						
			Tap Up Switch Stuck in the Up Position in Range 6 Enabled	= 1	Boolean						
			Tap Up Switch Stuck in the Up Position in Neutral Enabled	= 0	Boolean						
			Tap Up Switch Stuck in the Up Position in Park Enabled Tap Up Switch Stuck in the Up	= 0	Boolean						
l			Position in Reverse Enabled Tap Up Switch ON	= 0 = TRU	Boolean E Boolean						
			NOTE: Both Failcase1 and Failcase 2 Must Be Met	- 110	L Doolean			>=	600	Fail Time (Sec)	
						Time Since Last Range Change	>= 1 Enable Time (Sec)				
						Ignition Voltage Lo Ignition Voltage Hi	>= 8.5996094 Volts				
						Engine Speed Lo Engine Speed Hi					
						Engine Speed is within the allowable limits for	E Soc				
						P1765 Status is	Test Failed → This Key				
							✓ On or Fault Active				
					Dia-bi	Mill not illuminated for DTOI-	TCM: P1767, P1761, P182E, P1915				
					Conditions		ECM: P1767, P1761, P182E, P1915				
Tap Up Tap Down Switch (TUTD)	P1766	Downshift Switch Circuit #2	Fail Case 1 Tap Down Switch Stuck in the Down Position in Range 1 Enabled	= 0	Boolean						Specia No MII

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thresh Value		Secondary Malfunction	Enable Conditions		Time Required		Mil Illum.
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	=	0 B	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	=	0 B	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	=	0 B	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	=	0 B	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	=	0 B	Boolean						
			Tap Down Switch Stuck in the Down Position in Range Neutral Enabled	=	1 B	Boolean						
			Tap Down Switch Stuck in the Down Position in Range Park Enabled	=	1 B	Boolean						
			Tap Down Switch Stuck in the Down Position in Range Reverse Enabled	=	0 B	Boolean						
			Tap Down Switch ON	= 1	TRUE B	Boolean			>=	1	sec	
			Fail Case 2 Tap Down Switch Stuck in the Down Position in Range 1 Enabled	=	1 B	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	=	1 B	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	=	1 B	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	=	1 B	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	=	1 B	Boolean						
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	=	1 B	Boolean						
			Tap Down Switch Stuck in the Down Position in Neutral Enabled	=	0 B	Boolean						
			Tap Down Switch Stuck in the Down Position in Park Enabled	=	0 B	Boolean						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		nreshold Value	Secondary Malfunction		able litions			ime uired	Mil Illum.
			Tap Down Switch Stuck in the Down Position in Reverse Enabled Tap Down Switch ON NOTE: Both Failcase1 and Failcase 2 Must Be Met	= 0	Boolean Boolean				>=	600	Sec	
						Time Since Last Range Change Ignition Voltage Lo Ignition Voltage H Engine Speed Lo Engine Speed H Engine Speed is within the allowable limits for P1766 Status is	>= 8.59 <= 4 <= 7 >= Test ≠ Thi	1 Sec 96094 Volts 18 Volts 100 RPM 500 RPM 5 Sec Failed s Key r Fault ctive				-
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P1767, P1761, ECM: None	P182E, P1915				
Tap Up Tap Down Switch (TUTD)	P1767	Up and Down Shift Switch Circuit #2	TUTD Circuit Reads Invalid Voltage	= TRUE	Boolean	Ignition Voltage Lo Ignition Voltage Hi Engine Speed Hi Engine Speed is within the allowable limits for P1767 Status is	<= 31.9 >= 4 <= 7 >= Test ≠ Thi Ad	96094 Volts 99023 Volts 100 RPM 500 RPM 5 Sec Failed s Key r Fault tive	>=	60	Fail Time (Sec)	Special No MIL
Internal Mode Switch (IMS)	P182E	Internal Mode Switch - Invalid Range	Fail Case 1 Current range	Transitior = (bit state 1110)	Conditions:		ECM: None					One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Tin Requ	
			Previous range	≠ CeTRGR_e_P RNDL_Drive6 Range				
			Previous range	≠ CeTRGR_e_P RNDL_Drive5 Range				
			Range Shift State	= Range Shift Completed ENUM				
			Absolute Attained Gear Slip					
			Attained Gear					
			Attained Gear	>= First				
			Throttle Position Available	= TRUE >= 8.000183105 pct				
			Output Speed	>= 200 rpm				
			Engine Torque					
			Engine Torque					
			If the above conditions are met then				>= 1	Fail Seconds
			Increment Fail Timer					
			If Fail Timer has Expired then Increment Fail Counter				>= 5	Fail Counts
			Fail Case 2 Output Speed	<= 70 rpm			_	
				- 70 ipin				
			The following PRNDL sequence events occur in this exact order:					
			PRNDL state	state 0110)				
			PRNDL state = Drive 6 for	>= 1 Sec Transition 8				
			PRNDL state					
			PRNDL state	Drive 6 (hit				
				Transition 1				
			PRNDL state	 (bit state Range 1110) 				
			Above sequencing occurs in					
			Neutral Idle Mode	= Inactive				
			If all conditions above are met					
			Increment delay Timer					
			If the below two conditions are met Increment Fail Timer				>= 3	Fail Seconds
			delay timer	>= 1 Sec				
			Input Speed					
			If Fail Timer has Expired then				>= 2	Fail Counts
			Increment Fail Counter			0.75.05	/- <u>/</u>	
			Fail Case 3	Transition 13	Drovious range	CeTRGR_		
			Current range	 (bit state Range 0010) 	Previous range	≠ e_PRNDL_ Drive5		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Val		Secondary Malfunction		Enable Conditions			Tin Requ		Mil Illum.
			Engine Torque	>= -	-8192	Nm	Previous range	¥	CeTRGR_ e_PRNDL_ Drive5					
			Engine Torque	<= 8	191.75	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	= (b	ansition 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)	= F	ALSE		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	<= 8 [°]		Nm Nm	i con quany				>=	0.225	Seconds	
			If the above Condtions have been met, Increment Fail Counter								>=	15	Fail Counts	
			Fail Case 5 Throttle Position Available	= 1	TRUE	Boolean								1
			The following PRNDL sequence events occur in this exact order:											
			PRNDL State	= stat	verse (bit te 1100) nsition 11	Range								
			PRNDL State	= (b	oit state 0100)	Range								
			PRNDL State	- sta	utral (bit te 0101) nsition 11	Range								
			PRNDL State	= (b (oit state 0100)	Range								
			Above sequencing occurs in Then delay timer increments Delay timer		1 5	Sec								
			Range Shift State	= Rar Co	nge Shift omplete									
			Absolute Attained Gear Slip	<=	50	rpm								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Attained Gear Attained Gear Throttle Position Output Speed If the above conditions are met Increment Fail Timer	>= First >= 8.000183105 pct			>= 20 Seconds	
			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 Conditons are met then, Increment Fail timer Fail Case 7		Fail case 5 delay timer	= 0 sec	>= 6.25 Seconds	_
			Current PRNDL State	= PRNDL circuit ABCP = 1101 Range				
			Previous PRNDL state	ABCh = IIII 2				
			Reverse Trans Ratio Reverse Trans Ratio Reverse Trans Ratio If the above Conditions are met then, Increment Fail timer	<= 2.845825195 ratio			>= 6.25 Seconds	
			P182E will report test fail when any of the above 7 fail cases are met					
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi	>= 8.5996094 Volts <= 31.999023 Volts >= 400 RPM <= 7500 RPM		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thre: Va	shold lue	Secondary Malfunction		Enable Conditions			Tir Requ	me uired	Mil Illum.
						Engine Speed is within the allowable limits for Engine Torque Signal Valid	>=	5 TRUE	Sec Boolean				
					Disable Conditions:	MIL not Illuminated for DTC's:		P0717, P0722, F , P077C, P077I					
							P0107, P0108 P0175, P0201 P0205, P0206 P0301, P0302	P0102, P0103, , P0171, P0172, , P0202, P0203, , P0207, P0208, , P0303, P0304, , P0308, P0401,	, P0174, , P0204, , P0300, , P0305,				
Tap Up Tap Down Switch (TUTD)	P1876	Tap Up and Down Enable Switch Circuit	Current range	Neutral	Range State								Special No MIL
			TUTD Enable Switch is Active	= TRUE	Boolean					>=	3	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	>= <= >= <= >=	8.5996094 31.999023 511 400 7500 5	Volts Volts KPH RPM RPM Sec	>=	5	Fail Counts	-
						P1876 Status is	¥	Test Failed This Key On or Fault Active					
					Disable Conditions:	MIL not Illuminated for DTC's:		P0816, P0826, F , P1915, U0100					
		Pressure Control (PC) Solenoid D	Fail Case 1										One Trip
Variable Bleed Solenoid (VBS)	P2715	Stuck On [CB26] (Steady State)	Case: Steady State 1st Attained Gear slip		RPM								Sile rip

Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
		If the Above is True for Time Intrusive test:	Table Based Time Please Refer to Table Enable Time 4 in (Sec) supporting documents				
		Gear Ratio Gear Ratio	>= 2.245849609				
						>= 1.1 Fail Timer (Sec	c)
						>= 5 Fail Count in 1s	·
						>= 5 Total Fail Counts	
		Fail Case 2 Case: Steady State 3rd Gear	Table Based value Please				
		Max Delta Output Speed Hysteresis	supporting documents Table Based				
		Min Delta Output Speed Hysteresis	>= Refer to Table 23 in supporting documents Table Based				
		If the Above is True for Time	Defer to Table				
		Gear Ratio Gear Ratio	documents <= 2.482177734 >= 2.245849609				
		If the above parameters are true				>= 1.1 Fail Timer (Sec	c)
						>= 3 Fail Count in 3r Gear	
		Fault Code Monitor Strategy Description Image: Code Image: Code Image: Code I	Code Description Criteria If the Above is True for Time Intrusive test: (CBR1 clutch exhausted) Gear Ratio Gear Ratio Intrusive test: (CBR1 clutch exhausted) Gear Ratio Fail Case 2 Case: Steady State 3rd Gear Max Delta Output Speed Hysteresis Min Delta Output Speed Hysteresis If the Above is True for Time Intrusive test: (C3SR clutch exhausted) Gear Ratio If the Above is True for Time Intrusive test: Intrusive test: (C3SR clutch exhausted) Gear Ratio Gear Ratio	Code Description Criteria Value Image: Code Description Image: Criteria Table Based Image: Criteria If the Above is True for Time Fail Case Refer to Table Enable Time Image: Criteria Image: Criteria Image: Criteria Refer to Table Enable Time Image: Criteria Image: Criteria Image: Criteria Refer to Table Enable Time Image: Criteria Image: Criteria Image: Criteria Supporting Image: Criteria Image: Criteria Criteria Supporting Image: Criteria Image: Criteria Image: Criteria Image: Criteria Image: Criteria Image: Criteria Image: Criteria Image: Crite	Fail Case 2 Case: Steady State 3rd Gear Max Delta Output Speed Hysteresis -= Alter to Table -= Value Please -= Min Delta Output Speed Hysteresis -= See Table -= Value Please -= Min Delta Output Speed Hysteresis -= See Table -= Supporting documents -= Table Based value Please -= Min Delta Output Speed Hysteresis -= See Table Based value Please -= Min Delta Output Speed Hysteresis -= See Table Based value Please -= Min Delta Output Speed Hysteresis -= See Table Based value Please -= Min Delta Output Speed Hysteresis -= See Table Based value Please -= Min Delta Output Speed Hysteresis -= See Table Based value Please -= Min Delta Output Speed Hysteresis -= See Table Based value Please -= Table Based value Please -= Table Based value Please -= Table Based value Please -	Fail Case 2 Case: Steady State 3rd Gear Mix Delta Output Speed Hysteresis Table Based Time Hease Mix Delta Output Speed Hysteresis Table Based Value Please Mix Delta Output Speed Hysteresis Case: Steady State 3rd Gear Mix Delta Output Speed Hysteresis Refer to Table Fraible Speed Value Please Mix Delta Output Speed Hysteresis Refer to Table Based Value Please Mix Delta Output Speed Hysteresis Refer to Table Speed Value Please Mix Delta Output Speed Hysteresis Refer to Table Based Value Please Mix Delta Output Speed Hysteresis Refer to Table Based Value Please Refer to Table Based Value Please Refer to Table Based Value Please Mix Delta Output Speed Hysteresis Refer to Table Based Value Please Refer to Table Based Value Please Refer to Table Based Value Please Value Please Refer to Table Based Value Please Refer to Table Based Value Please Refer to Table Based Value Please Value Please Refer to Table Based Value Please Value Please Refer to Table Based Value Please Value Please Refer to Table Sec Value Please Refer to Table Sec Value Please Refer to Table Sec Value Ple	If the Above is True for Time Table Based The Peaks Net for 1 able Earlier (CRR1 club C monowski) (CRR1 clu

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			ime quired	Mil Illum.
							>=	5	Total Fail Counts	
			Fail Case 3 Case: Steady State 4rd Gear						Counts	-
				Table Based						
				value Please Refer to Table						
			Max Delta Output Speed Hysteresis	ZZ 111						
				supporting documents						
				Table Based						
				value Please						
			Min Delta Output Speed Hysteresis	<pre>>= Refer to Table 23 in rpm/sec</pre>						
				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	<= 0.700317383						
				>= 0.633666992						
			If the above parameters are true							
							>=	1.1	Fail Timer (Sec)	
								0	Fail Count in 4th	
							>=	3	Gear	
									or Total Fail	
							>=	5	Counts	
			Fail Case 4 Case: Steady State 5th Gear	Table Based						
				value Please						
			Max Delta Output Speed Hysteresis	>= Refer to Table rpm/sec 22 in						
				22 in supporting						
				documents						
				Table Based value Please						
			Min Dolta Output Spood Unstancia	Pofor to Tablo						
			Min Delta Output Speed Hysteresis							
				supporting documents						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				ime uired	Mil Illum.
				Table Based Time Please Refer to Table 17 in supporting documents <= 0.700317383 >= 0.633666992								
			If the above parameters are true									
									>=	1.1	Fail Timer (Sec)	
									>=	3	Fail Count in 5th Gear	
									>=	5	or Total Fail Counts	
					PRNDL State defaulted inhibit RVT 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	=	TRUE	Boolean				
					A OR B (A) Output speed enable	>=	67	Nm				
					(B) Accelerator Pedal enable	>=	0.5004883	Nm				
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi	>= <= >= <=	8.5996094 31.999023 400 7500	Volts Volts RPM RPM				
					Engine Speed is within the allowable limits for	>=	5	Sec				
					if Attained Gear=1st FW Accelerator Pedal enable if Attained Gear=1st FW Engine	>=	5.0003052	Pct				
					Torque Enable if Attained Gear=1st FW Engine	>=	5	Nm				
					Torque Enable Transmission Fluid	<=	8191.875	Nm				
					Temperature Input Speed Sensor fault	>=	-6.65625 FALSE	°C Boolean				
					Output Speed Sensor fault Default Gear Option is not present	=	FALSE	Boolean				

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)	P2724	Pressure Control (PC) Solenoid E Stuck On (Steady State)	Fail Case 1 Case: 5th Gear					One Tri
				22 in supporting documents Table Based value Please >= Refer to Table 23 in supporting documents Table Based Time Please >= Refer to Table Sec 17 in supporting documents				
							>= 1.1 Fail	Timer (Sec)
								Count in 5th Gear OR
								Total Fail Counts
			Fail Case 2 Case: 6th Gear			l		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Tin Requ		Mil Illum.
			Max Delta Output Speed Hysteresis	supporting documents							
			Min Delta Output Speed Hysteresis	supporting documents							
			If the Above is True for Time	Table Based Time Please >= Refer to Table 17 in Sec supporting documents							
			Gear Ratio	<= 1.209594727 >= 1.094360352							
			If the above parameters are true								
								>=	1.1	Fail Timer (Sec)	
								>=	3	Fail Count in 6th Gear OR	
								>=	3	Total Fail Counts	
					PRNDL State defaulted 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	= TRUE	Boolean				
					A OR B (A) Output speed enable	>= 67	Nm				
					(B) Accelerator Pedal enable	>= 0.5004883	Nm				
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the	>= 8.5996094 <= 31.999023 >= 400 <= 7500	Volts Volts RPM RPM				
					allowable limits for	>= 5	Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
					if Attained Gear=1st FW Accelerator Pedal enable	>=	5.0003052	Pct		
					if Attained Gear=1st FW Engine Torque Enable	>=	5	Nm		
					if Attained Gear=1st FW Engine Torque Enable	<=	8191.875	Nm		
					Transmission Fluid Temperature	>=	-6.65625	°C		
					Input Speed Sensor fault		FALSE	Boolean		
					Output Speed Sensor fault	=	FALSE	Boolean		
					Default Gear Option is not	=	TRUE			
					present	=	IKUE			
				Disable	MIL not Illuminated for DTC's:	TCM: P0716	, P0717, P0722,	P0723,		
				Conditions:		P182E				
						P0107, P010 P0175, P020 P0205, P020 P0301, P030	I, P0102, P0103, 08, P0171, P017: 01, P0202, P020: 06, P0207, P0206 02, P0303, P030 07, P0308, P040	2, P0174, 3, P0204, 3, P0300, 4, P0305,		

Fault Code	Monitor Strategy Description	Malfunction Criteria			Secondary Malfunction		Enable Conditions				ime uired
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
					P0658 Status is not	=	Test Failed This Key On or Fault Active		of		
					High Side Driver 1 On	=	True	Boolean			
				Disable Conditions:							
P0717	Input Speed Sensor Circuit Low Voltage	Fail Case 1 Transmission Input Speed is	< 33	RPM					>=	4.5	Fail Time (Sec)
		Test Failed and Transmission Input	< 653.13	RPM	Controller uses a single power supply for the speed sensors	=	1	Boolean			
		· ·			Engine Torque is Engine Torque is	>= <=	80 8191.88	N*m N*m			
					Vehicle Speed	>=	10	Kph			
						= >=	1 RUE 8.59961	Boolean Volts			
					Ignition Voltage	<=	31.99902	Volts			
					Engine Speed Engine Speed	>= <=	400 7500	RPM RPM			
					Engine Speed is within the	>=	5	Sec			
	Code P0658	Code Description P0658 Actuator Supply Voltage Circuit Low	Code Description Criteria P0658 Actuator Supply Voltage Circuit Low The HWIO reports a low voltage (open or ground short) error flag P0678 Actuator Supply Voltage Circuit Low Image: Circuit Low Image: Circuit Low P0717 Input Speed Sensor Circuit Low Eail Case 1 Transmission Input Speed is Fail Case 2 P0717 Input Speed Sensor Circuit Low Eail Case 2 When P0722 DTC Status equal to Test Failed and Transmission Input Speed is	Code Description Criteria V P0658 Actuator Supply Voltage Circuit Low The HWIO reports a low voltage (open or ground short) error flag = TRUE P0658 Actuator Supply Voltage Circuit Low Image: Circ	Code Description Criteria Value P0658 Actuator Supply Voltage Circuit Low The HWIO reports a low voltage (open or ground short) error flag (open or ground short) error flag = TRUE Boolean Image: Second S	Code Description Criteria Value Mathematica P0658 Actuator Supply Voltage Circuit Low (open or ground shart) error lag (open or ground shart) error lag = TRUE Boolean P0658 Status is not High Side Driver 1 On Disable MIL not Illuminated for DTC's: Conditions P017 Input Speed Sensor Circuit Low Voltage Eal Case 1 Transmission Input Speed is 33 RPM P0171 Input Speed Sensor Circuit Low Voltage Eal Case 1 Transmission Input Speed is 33 RPM Controller uses a single pover supply for the speed sensor Speed is rest Failed and Transmission Input Speed is Speed is 653.13 RPM Controller uses a single pover supply for the speed sensor Speed is rest Failed and Transmission Input Speed is Speed is 653.13 RPM Controller uses a single pover supply for the speed sensor Speed is runner supply for the	Code Description Criteria Value Mathuncion P0658 Actuator Supply Voltage Circuit Low (open or ground short) or rot tog (open or ground short tog (open or ground short) or rot tog (open or ground short)	Code Description Criteria Value Mathemation Conditions P0688 Acluaior Supply Voltage Circuit Low (open or ground stort) error lag TRUE Boolean Import Section Import Section	Code Description Orderin Value Mathunction Conditions P0658 Acketer Supply Valage Croat Low (open or goand shirt) oroning (open or goand shirt) oroning = TRUE Boolean Image: Conditions Imag	Code Description Criticin Value Maintanction Conditions	Code Description Centre Value Mathematication Conditions $I = 0$ $I = 0$ P0000 Actator Supply Voltage Circuit Low The HWD reports law voltage (perm or ground short) or or flow (perm or ground short) or or ground short) or or flow (perm or ground short) or or ground short) or or flow (perm or ground short) or or ground short) or or flow (perm or ground short) or or ground short) or or flow (perm or ground short) or or ground short) or or ground short (perm or ground short) or or ground short) or or ground short (perm or ground short) or or ground short) or or ground short (perm or ground short) or or ground short) or or ground short (perm or ground short) or or ground short (perm or ground short) or or ground short) or or or or (perm or ground short) or or or (perm or ground short) or or ground short) or or or (perm or ground short) or (perm or ground shor (perm or ground short)

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Т	hreshold Value	Secondary Malfunction		Enable Conditions				'ime quired
						P0717 Status is no	t =	Test Failed This Key On or Fault Active				
					Disa Conditio	ole MIL not Illuminated for DTC's is:		2, P0723 1, P0102, P0103				
Torque Converter Clutch (TCC)	P0741	TCC System Stuck OFF	TCC Pressure Either Condition (A) or (B) Must be Met	>= 750	Кра					>=	2	Enable Time (Sec)
			(A) TCC Slip Error @ TCC On Mode	Refer to T >= 1 in Supporti Docume	ng 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 Ignition Voltage Le Ignition Voltage Le Ignition Voltage H Engine Speed Engine Speed is within the allowable limits fo Engine Torque L Engine Torque L Engine Torque H Throttle Position H 2nd Gear Ratio Le 2nd Gear Ratio Hig 3rd Gear Ratio Le 3rd Gear Ratio Le 4th Gear Ratio Le 5th Gear Ratio Hig 6th Gear Ratio Le 6th Gear Ratio Le	>= >= >= >= >= >= i <=	On or Lock 8.59961 31.99902 400 7500 5 50 8191.88 8.0002 99.9985 2.19482 2.52515 1.42285 1.63708 1.06946 1.23047 0.79053 0.62305 0.71692	Volts Volts RPM Sec N*m Pct Ratio Ra			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				ime Juired
						Transmission Fluid Temperature Lo	>=	-6.6563	٥C			
						Transmission Fluid Temperature Hi	<=	130	°C			
						PTO Not Active	=	TRUE	Boolean			
						Engine Torque Signal Valid	=	TRUE	Boolean			
						Throttle Position Signal Valid	=	TRUE	Boolean			
						Dynamic Mode	=	FALSE	Boolean			
						P0741 Status is	¥	Test Failed This Key On or Fault Active				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P071 P0742, P27		, P0723,			
							P0107, P01 P0175, P02 P0205, P02	01, P0102, P0103 108, P0171, P017 201, P0202, P020 206, P0207, P020 302, P0303, P030	2, P0174, 3, P0204, 8, P0300,			
								307, P0308, P040				
Mode 2 Multiplex Valve	P0751	Shift Solenoid Valve A Stuck Off	Commaned Gear Slip	>= 400	RPM							
			Commanded Gear	= 1st Lock	rpm							
			Gear Ratio Gear Ratio							>= =	0.2 5	Fail Tmr Fail Counts
			If the above parameters are true	>= 1.09430						-	5	Fall Courits
			in the above parameters are the									Neutral Timor
										≠	0	Neutral Timer (Sec)
										>=	0.3	Fail Timer (Sec)
										>=	8	Counts
						Ignition Voltage Lo	>=	8.59961	Volts			
						Ignition Voltage Hi Engine Speed Lo	<= >=	31.99902 400	Volts RPM			
						Engine Speed Hi	<=	7500	RPM			
						Engine Speed is within the	>=	5	Sec			
						allowable limits for Transmission Fluid				1		
						Temperature	>=	-6.6563	°C			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions		Tim Requi	
						Range Shift State	=	Range Shift Completed	ENUM		
						TPS	>=	0.5005	%		
						Output Speed	>=	67	RPM		
						Throttle Position Signal Valid from ECM	=	TRUE	Boolean		
						Engine Torque Signal Valid from ECM, High side driver is		TRUE	Boolean		
						enabled					
						High-Side Driver is Enabled Input Speed Sensor fault		TRUE FALSE	Boolean Boolean		
						Output Speed Sensor fault	=	FALSE	Boolean		
						Default Gear Option is not present	=	TRUE			
						MIL not Illuminated for DTC's:		l6, P0717, P0722,	P0723,		
					Conditions:		P182E				
							P0107, P0 ² P0175, P02	01, P0102, P0103, 108, P0171, P0172 201, P0202, P0203	, P0174, , P0204,		
							P0301, P03	206, P0207, P0208 302, P0303, P0304 307, P0308, P0401	, P0305,		
Mode 2 Multiplex Valve	P0756	Shift Solenoid Valve B Stuck Off	Fail Case 1 Commanded Gear	= 1st Locked							
			Gear Box Slip	>= 400	RPM					>= Please Refer to Table 5 in Supporting	Neutral Timer (Sec)
			Intrusive Shift to 2nd							Documents	
			Commanded Gear Previous Gear Ratio		Gear						
			Gear Ratio								
			If the above parameters are true								
										>= 1 >= 3	sec counts
						Ignition Voltage Lo Ignition Voltage Hi	>= <=	8.59961 31.99902	Volts Volts		
						Engine Speed Lo		400	RPM		

		Description	Criteria	Value	Malfunction		Conditions		Required
		· · · · · · · · · · · · · · · · · · ·			Engine Speed Hi	<=	7500	RPM	
					Engine Speed is within the	>=	5	Sec	
					allowable limits for				
					Output Speed OR	>=	67	RPM	
					TPS	>=	0.5005	%	
					Range Shift State	=	Range Shift	ENUM	
					Nange Shint State	_	Completed	LINOW	
					Treasuriesian Fluid				
					Transmission Fluid Temperature	>=	-6.6563	°C	
					High-Side Driver is Enabled	=	TRUE	Boolean	
					Throttle Position Signal Valid				
					from ECM	=	TRUE	Boolean	
					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, 18, P0171, P0172		
							1, P0202, P0203		
							6, P0207, P0208		
							2, P0303, P0304		
						P0306, P030	7, P0308, P0401	, P042E	
		Pressure Control (PC) Solinoid B	Fail Case 1						
Variable Bleed Solenoid (VBS) PC		Stuck On [C35R] (Steady State)	Case: Steady State 1st						
	ľ		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:	uocumento					
			(CBR1 clutch exhausted)						
			Gear Ratio	<= 1.60864					
			Gear Ratio	>= 1.45544					
			If the above parameters are true						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			ime juired
							>=	1.1	Fail Timer (Sec
							>=	2	Fail Count in 1s Gear
							>=	3	or Total Fail Counts
			Fail Case 2 Case: Steady State 2nd gear	Table Based					
			Max Delta Output Speed Hysteresis	value Please					
				supporting documents Table Based					
			Min Delta Output Speed Hysteresis	value Please					
				supporting documents Table Based					
			If the Above is True for Time	Time Please Refer to Table 17 in Supporting					
			Intrusive test: (CB26 clutch exhausted)	documents					
			Gear Ratio Gear Ratio						
			If the above parameters are true						
							>=	1.1	Fail Timer (Sec
							>=	3	Fail Count in 2nd Gear
							>=	3	or Total Fail Counts
			Fail Case 3 Case: Steady State 4th gear	Table Based value Please					
			Max Delta Output Speed Hysteresis	>= Refer to Table 22 in supporting					
				documents					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required
•		·		Table Based value Please			
			Min Delta Output Speed Hysteresis	Defer to Table			
				supporting documents			
				Table Based Time Please			
			If the Above is True for Time	>= Refer to Table 17 in supporting			
			Intrusive test:	documents			
			(C1234 clutch exhausted)				
			Gear Ratio Gear Ratio				
			If the above parameters are true				
							>= 1.1 Fail Timer (Sec
							>= 3 Fail Count in 4t Gear
							>= 3 Or Counts
			Fail Case 4 Case: Steady State 6th gear				oodino
			Max Delta Output Speed Hysteresis	Table Based value Please >= Refer to Table 22 in supporting documents			
			Min Delta Output Speed Hysteresis	Table Based value Please >= Refer to Table 23 in rpm/sec supporting			
			If the Above is True for Time	supporting			
			Intrusive test: (CB26 clutch exhausted)	documents			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable nditions			Time quired
System	Code	Description			Manufiction		nutions			-
			Gear Ratio					>=	1.1	Fail Timer (Sec)
			Gear Ratio	>= 0.80945				>=	3	counts
			If the above parameters are true							
								>=	1.1	Fail Timer (Sec)
								>=	3	Fail Count in 6th Gear
								>=	3	or Total Fail Counts
					PRNDL State defaulted		FALSE Boolean			
					inhibit RVT IMS fault pending indication		FALSE Boolean 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		67 Nm			
					(B) Accelerator Pedal enable	>=	0.5005 Nm			
					Ignition Voltage Lo	>= 8	3.59961 Volts			
					Ignition Voltage Hi	<= 3	1.99902 Volts			
					Engine Speed Lo		400 RPM			
					Engine Speed Hi	<=	7500 RPM			
					Engine Speed is within the allowable limits for		5 Sec			
					if Attained Gear=1st FW Accelerator Pedal enable	>=	5.0003 Pct			
					if Attained Gear=1st FW Engine Torque Enable		5 Nm			
					if Attained Gear=1st FW Engine Torque Enable		3191.88 Nm			
					Transmission Fluid Temperature	<u>\</u>	-6.6563 °C			
					Input Speed Sensor fault		FALSE Boolean			
					Output Speed Sensor fault		FALSE Boolean			
		l		1	1					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			ime Juired
System	Code	Description	Cinteria			TCM: P0716, P0717, P0722, P0723,		Neu	uireu
				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			
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C	Fail Case 1 Case: Steady State 1st						
	F 0/7/	Stuck On [C456] (Steady State)							
			Attained Gear slip	>= 400 RPM Table Based Time Please					
			If the Above is True for Time	4 in (Sec)					
				supporting documents					
			Intrusive test:						
			(CBR1 clutch exhausted) Gear Ratio	<= 1.20959					
			Gear Ratio						
			If the above parameters are true						
							>=	1.1	Fail Timer (Sec)
							>=	2	Fail Count in 1s Gear or
							>=	3	Total Fail Counts
			Fail Case 2 Case Steady State 2nd	Table Based value Please					
			Max Delta Output Speed Hysteresis	Defer to Table					
				supporting documents					
			Min Delta Output Speed Hysteresis	Table Based value Please >= Refer to Table 23 in rpm/sec					
				supporting documents					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required
			If the Above is True for Time Intrusive test: (CB26 clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	17 in supporting documents = 1.20959 = 1.09436			>= 1.1 Fail Timer (Sec >= 3 Fail Count in 2nd Gear or >= 3 Total fail count
			Fail Case 3 Case Steady State 3rd Max Delta Output Speed Hysteresis	Table Based value Please Pofer to Table			
			Min Delta Output Speed Hysteresis	supporting documents Table Based value Please Pofer I Table			
			If the Above is True for Time	Time Please			
			Intrusive test: (C35R clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	<= 1.20959 >= 1.09436			
							>= 1.1 Fail Timer (Sec

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction		Enable				me
System	Code	Description	Criteria	Value	Malfunction		Conditions			Req	uired
									>=	3	Fail Count in 3rd Gear
										OR	
									>=	3	Total Fail Counts
					PRNDL State defaulted	=	FALSE	Boolean			
					inhibit RVT	=	FALSE	Boolean			
					IMS fault pending indication	=	FALSE 0	Boolean RPM			
					output speed TPS validity flag	>= =	TRUE	Boolean			
					HSD Enabled	=	TRUE	Boolean			
					Hydraulic_System_Pressurized	=	TRUE	Boolean			
					A OR B (A) Output speed enable	>=	67	Nm			
					(B) Accelerator Pedal enable	>=	0.5005	Nm			
					Ignition Voltage Lo	>=	8.59961	Volts			
					Ignition Voltage Hi	<=	31.99902	Volts			
					Engine Speed Lo	>=	400	RPM			
					Engine Speed Hi	<=	7500	RPM			
					Engine Speed is within the allowable limits for	>=	5	Sec			
					if Attained Gear=1st FW Accelerator Pedal enable	>=	5.0003	Pct			
					if Attained Gear=1st FW Engine	>=	5	Nm			
					Torque Enable if Attained Gear=1st FW Engine Torque Enable	<=	8191.88	Nm			
					Transmission Fluid Temperature	>=	-6.6563	°C			
					Input Speed Sensor fault	=	FALSE	Boolean			
					Output Speed Sensor fault	=	FALSE	Boolean			
					Default Gear Option is not present	=	TRUE				
					present						

Component/	Fault	Monitor Strategy	Malfund Criter			eshold alue	Secondary Malfunction	Enable		ime
System	Code	Description	Criter	ria	Vä			Conditions	Rec	luired
						Conditions:	MIL not illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E		
						Conditions.		PIOZE		
								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		
	_		F. 1. O							
Tap Up Tap Down Switch (TUTD)	P0815	Upshift Switch Circuit		p Switch Stuck in the Up = tion in Range 1 Enabled	0	Boolean				
(101D)				p Switch Stuck in the Up						
				tion in Range 2 Enabled	0	Boolean				
				p Switch Stuck in the Up						
				tion in Range 3 Enabled	0	Boolean				
				p Switch Stuck in the Up	0	Dealase				
			Posit	tion in Range 4 Enabled	0	Boolean				
				p Switch Stuck in the Up	0	Boolean				
				tion in Range 5 Enabled	0	Doolean				
				p Switch Stuck in the Up	0	Boolean				
				tion in Range 6 Enabled						
				p Switch Stuck in the Up = sition in Neutral Enabled	1	Boolean				
				p Switch Stuck in the Up						
				Position in Park Enabled	1	Boolean				
				p Switch Stuck in the Up						
				tion in Reverse Enabled	0	Boolean				
				Tap Up Switch ON =	TRUE	Boolean			>= 1	Fail Time (Sec
				rap op Switch Old =	TRUL	DUDICALI			2- 1	Tali Time (Sec
			5 H Q Q T H	0 11 1 01 1 1 1 1						
				p Switch Stuck in the Up	1	Boolean				
				tion in Range 1 Enabled p Switch Stuck in the Up						
				tion in Range 2 Enabled	1	Boolean				
				p Switch Stuck in the Up						
				tion in Range 3 Enabled	1	Boolean				
				p Switch Stuck in the Up	1	Dealase				
	1			tion in Range 4 Enabled	I	Boolean				
	1			p Switch Stuck in the Up	1	Boolean				
				tion in Range 5 Enabled		Doolcan				
				p Switch Stuck in the Up	1	Boolean				
				tion in Range 6 Enabled						
				p Switch Stuck in the Up = sition in Neutral Enabled	0	Boolean				
		1	POS							

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		reshold Value	Secondary Malfunction	Enable Conditions			Tim Requi	
			Tap Up Switch Stuck in the Up Position in Park Enabled Tap Up Switch Stuck in the Up Position in Reverse Enabled Tap Up Switch ON NOTE: Both Failcase1 and Failcase	= 0 = 0	Boolean Boolean Boolean						
			2 Must Be Met						>=	600	Fail Time (Sec)
						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	(50) >= 8.59961 Vc i <= 31.99902 Vc) >= 400 RF i <= 7500 RF	ec) Its Its M M			
						P0815 Status is	Test Failed This Key On or Fault Active				
					Disable Conditions	:	TCM: P0816, P0826, P182E, P1876 P1877, P1915, P1761 ECM: None				
Tap Up Tap Down Switch (TUTD)	P0816	Downshift Switch Circuit	Fail Case 1 Tap Down Switch Stuck in the Down Position in Range 1 Enabled	= 0	Boolean						
			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						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold ′alue	Secondary Malfunction	Enable Conditions	Time Required
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	= 0	Boolean			
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	= 0	Boolean			
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	= 0	Boolean			
			Tap Down Switch Stuck in the Down Position in Range Neutral Enabled	= 1	Boolean			
			Tap Down Switch Stuck in the Down Position in Range Park Enabled	= 1	Boolean			
			Tap Down Switch Stuck in the Down Position in Range Reverse Enabled	= 0	Boolean			
			Tap Down Switch ON	= TRUE	Boolean			>= 1 sec
			Fail Case 2 Tap Down Switch Stuck in the Down Position in Range 1 Enabled	= 1	Boolean			
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	= 1	Boolean			
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	= 1	Boolean			
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	= 1	Boolean			
			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			
<u> </u>			Tap Down Switch ON	= TRUE	Boolean			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions			Tiı Requ	
			NOTE: Both Failcase1 and Failcase 2 Must Be Met							>=	600	Sec
						Time Since Last Range Change	>=	I	Enable Time (Sec)			
						Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo	>= <= >=	8.59961 31.99902 400	Volts Volts RPM			
						Engine Speed Hi Engine Speed is within the allowable limits for	<= >=	7500 5	RPM Sec			
						P0816 Status is	¥	Test Failed This Key On or Fault Active				
					Disable Conditions:		P1877, P1915		P1876,			
Tap Up Tap Down Switch	P0826	Up and Down Shift Switch Circuit	TUTD Circuit Reads Invalid Voltage	= TRUE	Boolean		ECM: None			>=	60	Fail Time (Sec)
(τύτο)						Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= <= >= <= >=	8.59961 31.99902 400 7500 5	Volts Volts RPM RPM Sec			
						P0826 Status is	¥	Test Failed This Key On or Fault Active				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Valu		Secondary Malfunction	Enable Conditions		Time Required	i
							MIL not Illuminated for DTC's:	TCM: P1761			
						Conditions:		ECM: None			
Internal Mode Switch (IMS)	P182F	Internal Mode Switch - Invalid Range	Fail Case 1 Current range		ansition 1 (bit state	Range					
	1 1022				1110)	nango					
			Previous range	≠ CeT	TRGR_e_P IDL_Drive6	Range					
				′ RNI	DL_Drive6	nango					
			Previous range	≠ CeT	TRGR_e_P IDL_Drive4	Range					
			i revieus range			Kunge					
			Range Shift State	= Ra	ange Shift completed	ENUM					
			Absolute Attained Gear Slip	<=	50	rpm					
			Attained Gear		Sixth						
			Attained Gear		First						
			Throttle Position Available		TRUE						
			Throttle Position			pct					
			Output Speed			rpm					
			Engine Torque			Nm					
			Engine Torque		8191.75	Nm					
			If the above conditions are met then						>=	1 F	Fail Seconds
			Increment Fail Timer								
			If Fail Timer has Expired then						>=	5	Fail Counts
			Increment Fail Counter						-		i un obuino
			Fail Case 2 Output Speed	<=	70	rpm					
			The following PRNDL sequence								
			events occur in this exact order:								
				Dr	rive 6 (bit	Denne					
			PRNDL state	= sta	ate 0110)	Range					
			PRNDL state = Drive 6 for			Sec					
					ansition 8						
			PRNDL state		(bit state	Range					
					0111)						
			PRNDL state	= Dr	rive 6 (bit	Range					
				SIZ		0					
					ansition 1	Danga					
			PRNDL state			Range					
			Above sequencing assure in		1110)	500					
			Above sequencing occurs in		1 Inactive	Sec					
			Neutral Idle Mode	=	Inactive						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			shold Ilue	Secondary Malfunction		Enable Conditions			Tir Requ	
System	Code	Description	If all conditions above are met Increment delay Timer If the below two conditions are met Increment Fail Timer						Conditions		>=	3	Fail Seconds
			delay timer Input Speed If Fail Timer has Expired then Increment Fail Counter		1 400	Sec Sec					>=	2	Fail Counts
			Fail Case 3 Current range		Transition 13 (bit state 0010)	Range	Previous range	¥	CeTRGR_ e_PRNDL_ Drive1 CeTRGR_				
			Engine Torque	>=	-8192	Nm	Previous range	¥	e_PRNDL_ Drive2				
			Engine Torque	<=	8191.75	Nm	IMS is 7 position configuration	=	1	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	<=	100 8191.75	Nm Nm					>=	0.225	Seconds
			If the above Condtions have been met, Increment Fail Counter								>=	15	Fail Counts
			Fail Case 5 Throttle Position Available		TRUE	Boolean					1		
			The following PRNDL sequence events occur in this exact order:										
			PRNDL State	=	Reverse (bit state 1100)	Range							

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditio			Tim Requi	
Oyatem	ooue	Description	ontana	Transition 11		Conditio		+	noqui	
			PRNDL State							
			F KNDL Sidle	0100)						
				Noutral (bit						
			PRNDL State	state 0101) Range						
				Transition 11						
			PRNDL State	= (bit state Range						
			FRINDE Sidle	- (bit state Range 0100)						
			Above sequencing occurs in							
			Then delay timer increments							
			Delay timer							
				Danna Chift						
			Range Shift State	= Complete						
			Absolute Attained Gear Slip							
			Attained Gear							
			Attained Gear							
			Throttle Position							
			Output Speed							
			If the above conditions are met							
			Increment Fail Timer					>=	20	Seconds
			Fail Case 6	11 L 76. 9						
				Illegal (bit	A Open Circuit Definition (flag					
			Current range		set false if the following					
				1000 or 0001)	conditions are met):					
						Transitio				
			and		Current Range	≠ 11 (bi				
			and		Current Range	state 010				
						Sidle UT)0)			
			A Open Circuit (See Definition)	= FALSE Boolean	or					
						, Neutral	bit			
					Last positive state	≠ state 010				
						Sidle UT)))			
					or					
						Transiti				
					Previous transition state	≠ 8 (bit sta				
						0111)				
					Fail case 5 delay timer	= 0	sec			
			If the above Condtions are met					>=	6.25	Seconds
			then, Increment Fail timer					-	0.20	00001100
			Fail Case 7	PRNDL circuit						
			Current PRNDL State	= PRNDL circuit ABCP = 1101 Range						
			and							
			Device DDNDL state	= PRNDL circuit ABCP =1111 Range						
			Previous PRNDL state	ABCP =1111						
			land Canad							
		l	Input Speed	>= 150 RPM	1					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value	Secondary Malfunction	Enable Conditions			Time quired
			Reverse Trans Ratio Reverse Trans Ratio If the above Condtions are met then, Increment Fail timer					>=	6.25	Seconds
			P182E will report test fail when any of the above 7 fail cases are met			Ignition Voltage Lo	>= 8.59961 Volts			
						Ignition Voltage H Ignition Voltage H Engine Speed Lc Engine Speed Is within the allowable limits for Engine Torque Signal Valic	 <= 31.99902 Volts >= 400 RPM <= 7500 RPM >= 5 Sec 			
					Disab Condition		TCM: P0716, P0717, P0722, P0723, P07C0, P07BF, P077C, P077D ECM: P0101, P0102, P0103, P0106,			
							P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E			
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Steady State)	Fail Case 1 Case: Steady State 1st Attained Gear slip							
			If the Above is True for Time	Table Time I >= Refer to 4 supp docur	Please Table Enable Time n (Sec) rrting					
			Intrusive test: (CBR1 clutch exhausted) Gear Ratio Gear Ratio	<= 2.48	218					
			If the above parameters are true					>=	1.1	Fail Timer (Sec)

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		T Red	ſime quired
							>=	5	Fail Count in 1s Gear or Total Fail
			Fail Case 2 Case: Steady State 3rd Gear Max Delta Output Speed Hysteresis Min Delta Output Speed Hysteresis If the Above is True for Time Intrusive test:	Table Based value Please 22 in supporting documents Table Based value Please >= Refer to Table 23 in supporting documents Table Based Time Please Frefer to Table 17 in supporting documents Sec			>=	5	Counts
			(C35R clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	<= 2.48218 >= 2.24585					
							>=	1.1 3	Fail Timer (Sec Fail Count in 3r Gear or
			Fail Case 3 Case: Steady State 4rd Gear Max Delta Output Speed Hysteresis	Table Based value Please Pofor to Table			>=	5	Total Fail Counts

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required
		2000 pilon	Min Delta Output Speed Hysteresis	Table Based value Please >= Refer to Table 23 in rpm/sec			
				supporting documents Table Based Time Please Refer to Table			
			If the Above is True for Time	supporting documents			
			Intrusive test: (C1234 clutch exhausted) Gear Ratio Gear Ratio	<= 0.70032			
			If the above parameters are true				
							>= 1.1 Fail Timer (Sec Fail Count in 4
							>= 3 Gear or
							>= 5 Total Fail Counts
			Fail Case 4 Case: Steady State 5th Gear	Table Based			
			Max Delta Output Speed Hysteresis	>= Refer to Table 22 in supporting documents			
			Min Delta Output Speed Hysteresis	Table Based value Please Refer to Table 23 in supporting documents			
			If the Above is True for Time	Table Based Time Please Pofer to Table			
			Intrusive test: (C35R clutch exhausted) Gear Ratio				

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary		Enable				Fime
System	Code	Description	Criteria	Value	Malfunction	(Conditions			Re	quired
			Gear Ratio	>= 0.63367							
			If the above parameters are true								
									>=	1.1	Fail Timer (Sec
									>=	3	Fail Count in 5t
									>=	3	Gear
											or
									>=	5	Total Fail
					PRNDL State defaulted	=	FALSE	Boolean			Counts
					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	<u>\</u> _	67	Nm			
						>=					
					(B) Accelerator Pedal enable	>=	0.5005	Nm			
					Ignition Voltage Lo	>=	8.59961	Volts			
					Ignition Voltage Hi	<=	31.99902	Volts			
					Engine Speed Lo	>=	400	RPM			
					Engine Speed Hi	<=	7500	RPM			
					Engine Speed is within the allowable limits for	>=	5	Sec			
					if Attained Gear=1st FW						
					Accelerator Pedal enable	>=	5.0003	Pct			
					if Attained Gear=1st FW Engine		_				
					Torque Enable	>=	5	Nm			
					if Attained Gear=1st FW Engine	<=	8191.88	Nm			
					Torque Enable	~-	0171.00	INITI			
					Transmission Fluid	>=	-6.6563	°C			
					Temperature						
					Input Speed Sensor fault Output Speed Sensor fault	=	FALSE FALSE	Boolean Boolean			
					Default Gear Option is not			DUDICAL			
					present	=	TRUE				
					procent						

Component/ System	Fault	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			ime Juired
System	Code	Description	Criteria			TCM: P0716, P0717, P0722, P0723,		Kec	luirea
				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			
		Pressure Control (PC) Solenoid E	Fail Case 1						
Variable Bleed Solenoid (VBS)		Stuck On (Steady State)	Case: 5th Gear						
		oració on (orodaly oraco)		Table Based					
				value Please					
			Max Delta Output Speed Hysteresis	>= Refer to Table 22 in rpm/sec					
				>= 22 in supporting					
				documents					
				Table Based					
				value Please					
			Min Delta Output Speed Hysteresis	>= Refer to Table 23 in rpm/sec					
				supporting					
				documents					
				Table Based					
				Time Please					
			If the Above is True for Time	>= Refer to Table 17 in Sec					
				supporting					
				documents					
			Intrusive test:						
			(C35R clutch exhausted)	<= 1.20959					
			Gear Ratio Gear Ratio						
			If the above parameters are true						
							>=	1.1	Fail Timer (Sec
									Fail Count in 5t
							>=	3	Gear
									OR
							>=	3	Total Fail
			5-11-0				<u> </u>	5	Counts
			Fail Case 2 Case: 6th Gear						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				lime quired
			Max Delta Output Speed Hysteresis	Table Based value Please Refer to Table 22 in supporting documents							
			Min Delta Output Speed Hysteresis	Table Based value Please >= Refer to Table 23 in supporting							
			If the Above is True for Time	supporting							
			Intrusive test: (CB26 clutch exhausted) Gear Ratio Gear Ratio	<= 1.20959 >= 1.09436							
			If the above parameters are true								
									>=	1.1	Fail Timer (Sec
									>=	3	Fail Count in 6 Gear OR
									>=	3	Total Fail Counts
					PRNDL State defaulted inhibit RVT IMS fault pending indication	= = =	FALSE FALSE FALSE	Boolean Boolean Boolean			Counts
					output speed TPS validity flag	>= =	0 TRUE	RPM Boolean			
					HSD Enabled Hydraulic_System_Pressurized	=	TRUE TRUE	Boolean Boolean			
					A OR B	=	IKUE	DUURGII			
					(A) Output speed enable	>=	67	Nm			
					(B) Accelerator Pedal enable	>=	0.5005	Nm			
					Ignition Voltage Lo Ignition Voltage Hi	>=	8.59961 31.99902	Volts			
					Engine Speed Lo	<= >=	400	Volts RPM			
					Engine Speed Hi	<=	7500	RPM			

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary		Enable		Time
System	Code	Description	Criteria	Value	Malfunction		Conditions		Required
					Engine Speed is within the allowable limits for	>=	5	Sec	
					if Attained Gear=1st FW Accelerator Pedal enable	>=	5.0003	Pct	
					if Attained Gear=1st FW Engine Torque Enable	>=	5	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	= =	FALSE FALSE	Boolean Boolean	
					Default Gear Option is not present	=	TRUE		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716 P182E	, P0717, P0722,	P0723,	
						P0107, P010 P0175, P020 P0205, P020 P0301, P030	, P0102, P0103, 18, P0171, P017 11, P0202, P020 16, P0207, P020 12, P0303, P030 17, P0308, P040	2, P0174, 3, P0204, 8, P0300, 4, P0305,	

Component/	Fault	Monitor Strategy		Malfunction			eshold		Secondary Malfunction		Enable				ime	Mil Illum.
System Transmission Control Module	Code	Description Transmission Control Module Read		Criteria Incorrect program/calibrations			alue				Conditions				uired Rom Test Fail	One Trip
(TCM)	P0601	Only Memory (ROM)		checksum	=	TRUE			None				>	5	Counter	
							С	Disable onditions:	MIL not Illuminated for DTC's:	TCM: None						
										ECM: None						
Transmission Control Module (TCM)	P0603	Transmission Control Module Long- Term Memory Reset		Non-volatile memory (static or dynamic) checksum failure	=	TRUE			None							One Trip
							C	Disable onditions:	MIL not Illuminated for DTC's:	TCM: None						
							0	onunions.		ECM: None						
Transmission Control Module (TCM)	P0604	Transmission Control Module Random Access Memory		RAM Read/Write Failure (Single Word)	=	TRUE			None				>=	5	Count	One Trip
								Disable	MIL not Illuminated for DTC's:	TCM: None						
							С	onditions:		TOW. NOTE						
										ECM: None						
Transmission Control Module (TCM)	P062F	Transmission Control Module Long Term Memory Performance		TCM Non-Volatile Memory bit Incorrect flag	=	TRUE			None							One Trip
							С	Disable onditions:	MIL not Illuminated for DTC's:	TCM: None						
							-			ECM: None						
Transmission Fluid Temperature Sensor (TFT)	P0711	Trans Fluid Temp Sensor Circuit Range/Performance	Fail Case 1	TFT Delta from Startup	<=	2	C°				0	Kab	>=	80	Fail Time (Sec)	Special No Trip
									Vehicle Speed	>=	8	Kph				
									Vehicle Speed Above min for	>=	300	Sec				
									TCC Slip	>=	120 300	RPM				
									TCC Slip above min for Transmission Fluid	>=		Sec				
									Temperature Lo	>=	-39	C°				
									Transmission Fluid	<=	20	C°				
									Temperature High Engine Coolant Temp	>=	70	C°				
									Engine Coolant Temp Delta	>=	55	C°				
			Fail Case 2	TFT Delta from startup	<	2	C°						>=	80	Fail Time (Sec)	
									Vehicle Speed	>=	8	Kph				
									Vehicle Speed Above min for	>=	300	Sec				
									TCC Slip	>=	-20	RPM				
									TCC Slip above min for	>=	0	Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value	Secondary Malfunction		Enable Conditions		Tir Requ		Mil Illum.
						Transmission Fluid Temperature Transmission Fluid	>= <=	129 149	C° C°			
						Temperature		70				
						Engine Coolant Temp Engine Coolant Temp Delta	>=		C°			
						from startup	>=	55	C°			
			Fail Case 3	TFT Delta >=	20 C°					>= 14	Fail Counts (100ms loop) Sample Time	-
			Fail Case 4 Transmission Fluid Te	mperature <-	20 C°					Refer to Table	(Sec) Fail Time (Sec)	-
					20 6	Engine Torque Lo Engine Torque Hi Throttle Position Lo Throttle Position Hi Vehicle Speed Lo Vehicle Speed Hi Engine Speed Hi Engine Coolant Lo Engine Coolant Hi Engine Torque Signal Valid Throttle Position Signal Valid Engine Speed Status Valid	>= >= <= >= <= >= = =	50 1492 8.0001831 89.99939 8 511.99219 500 6500 -39 149 TRUE TRUE TRUE TRUE	N*m Pct Pct Kph Kph RPM C° C°	1	Tair Time (Sec)	
						P0711 Common Enable Conditions Transmission Fluid Temperature Lo	>=	-39	C°			
						Transmission Fluid Temperature Hi	<=	149	C°			
						Ignition Voltage	>=	8	V			
						Ignition Voltage	<=	31.999023	V			
						Engine speed	>=	Refer to Table 4	RPM			
						Engine speed above min for	>=	Refer to Table 5	Sec			
						Engine speed above min for	>=	5	Sec			
						Engine Speed Engine Speed	>= <=	500 6500	RPM RPM			
						Engine speed between min/max	>=	5	Sec			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold /alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
						Engine Speed Status Valid Engine Coolant Sensor Signal Valid	=	TRUE TRUE	Boolean				
		Transmission fluid temperature			Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0	716, P0717, P07 P0742	22, P0723,				Specia
Transmission Fluid Temperature Sensor (TFT)	P0712	thermistor failed at a high temperature (short to ground).	TFT resistance	<= 48	Ω					>=	12	Fail Time (Sec)	
						Ignition Voltage Ignition Voltage Engine Speed Engine speed between min/max for Engine Speed Status Valid	>= <= >= >= =	8 31.999023 500 6500 5 TRUE	V V RPM RPM Sec				-
					Disable Conditions:	MIL not Illuminated for DTC's:		TCM: None					
Transmission Fluid Temperature Sensor (TFT)	P0713	Transmission fluid temperature thermistor failed at a low temperature (open or short to power).	TFT resistance	>= 97292	Ω					>=	80	Fail Time (Sec)	Specia No Trip
						Output Speed	>=	200	RPM				
						Output Speed above min for TCC Slip speed	>=	200 120	Sec RPM				
						TCC Slip Speed above min for	>=	200	Sec				
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed between min/max for Engine Speed Status Valid	>= <= >= =	8 31.999023 500 6500 5 TRUE	V V RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	T	CM: P0716, P07	17				
Transmission Input Speed Sensor (TISS)	P0716	Input Speed Sensor Performance	Input speed drop Δ	>= 1000	RPM					>=	3.25	sec	Two Trips
						Ignition Voltage Ignition Voltage Engine Speed	>= <= >=	8 31.999023 500	volts volts RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions			Time Requir		Mil Illum
					Engine Speed	<=	6500	RPM	i			
					Engine speed between min/max	>=	5	Sec				
					for			000				
					Engine Speed Status Valid Engine Torque	=	TRUE 50	N*m				
					Engine Torque	>= <=	1492	N*m				
					Engine Torque Signal Valid	=	TRUE	N III				
					Vehicle Speed	>=	16	KPH				
					Input Speed min	>	1050	RPM				
					Input Speed above min for	>=	2	Sec				
					Positive ISS Δ	<	500	RPM				
					Positive ISS Δ less than min for	>=	2	Sec				
					Throttle	>=	8.0001831	Pct				
					Throttle Position Signal Valid	=	TRUE					
				Dis Condit	able MIL not Illuminated for DTC's:	TCM: P0	717, P0722, P072	23, P0752,				
Transmission Input Speed		Input Speed Sensor Circuit Low					P0973, P0974					Two
Sensor (TISS)	P0717	Voltage	input speed	< 50 RPM					>=	4.5	Sec	Trips
. ,		5										
					Ignition Voltage	>=	8	volts				
					Ignition Voltage	<=	31.999023	volts				
					Engine Speed	>=	500	RPM				
					Engine Speed Engine speed between min/max	<=	6500	RPM				
					for	>=	5	Sec				
					Engine Speed Status Valid	=	TRUE					
					Engine Torque	>=	50	N*m				
					Engine Torque	<=	1492	N*m				
					Engine Torque Signal Valid	=	TRUE					
					Vehicle Speed	>=	16	Kph				
				Die	able MIL not Illuminated for DTC's:	1	CM: P0722, P072	72				
				Condit			011.10722,107					
Tow Haul Switch	P071A	Tow Haul switch circuit low	Tow Haul switch circuit low (switch	= TRUE					>=	600	sec	Specia
			closed)		Ignition Voltage	>=	8	volts				No Tr
					Ignition Voltage	>= <=	o 31.999023	volts				
					Engine Speed	>=	500	RPM				
					Engine Speed	<=	6500	RPM				
					Engine speed between min/max							
					for	>=	5	Sec				
					Engine Speed Status Valid	=	TRUE					
	1	1							1			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue		Secondary Malfunction		Enable Conditions			Tin Requ		Mil Illum.
	İ			ĺ		C	Disable onditions:	MIL not Illuminated for DTC's:		TCM: P1762			i		
Transmission Output Speed Sensor (TOSS)	P0722	Output Speed Sensor Circuit Low Voltage	TOSS	<=	50	rpm						>=	4.5	Sec	Two Trips
								Ignition Voltage Ignition Voltage Engine Speed Engine Speed between min/max for Engine Speed Status Valid	>= <= >= >= =	8 31.999023 500 6500 5 TRUE	volts volts RPM RPM Sec				
								Engine Torque min & Range= R or D	>=	50	N*m				
								Engine Torque max & Range= R or D Engine Torque min & Range=	<=	1492	N*m				
								P/N == Engine Torque max & Range	>= <=	1492 1492	N*m N*m				
								P/N Engine Torque Signal Valid Throttle Position	= >=	TRUE 8.0001831	%				
								Throttle Position Signal Valid	=	TRUE					
								Input Speed Input Speed TCC Slip Trans Temp	>= <= >= >=	1500 6500 -20 -40	RPM RPM RPM C				
						C	Disable onditions:	MIL not Illuminated for DTC's:	TCM	: P0716, P0717, F	P0722				
Transmission Output Speed Sensor (TOSS)	P0723	Output Speed Sensor Circuit Intermittent	Output Speed Drop Δ	>	1200	RPM						>=	3.25	Sec	Two Trips
								Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine speed between min/max for	>= <= >= <=	8 31.999023 500 6500 5	volts volts RPM RPM Sec				
								Engine Speed Status Valid Range Change Timer 4WD Range Timer Input Speed ∆ Input Speed ∆ <max for<br="">Raw Output Speed min</max>	= >= < >= >=	TRUE 6 500 2 105	Sec Sec RPM Sec RPM				
								Raw Output Speed > min for Positive Output Speed Δ	>= <=	2 500	Sec RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction		Enable Conditions			Tin Requ		Mil Illum.
						Positive Output Speed Δ <max for<="" td=""><td>>=</td><td>2</td><td>Sec</td><td></td><td></td><td></td><td></td></max>	>=	2	Sec				
				Cc	Disable I onditions:	MIL not Illuminated for DTC's:	TCM	: P0716, P0717,	P0974				
Torque Converter Clutch (TCC)	P0741	TCC System Stuck OFF	TCC Slip Error	>= Refer to table 3 RPM						>=	5	Sec	Two Trips
										>=	3	Count	
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed between min/max for Engine Speed Status Valid Engine Torque Engine Torque Trottle Position 2nd Gear Ratio 3rd Gear Ratio 3rd Gear Ratio 3rd Gear Ratio 4th Gear Ratio 4th Gear Ratio 4th Gear Ratio TFT TCC Capacity TFC Capacity Timer TCC Mode PTO Active Engine Torque Status Valid		8 31.999023 500 6500 5 TRUE 80 400 10.00061 89.99939 1.5109863 1.7390137 0.9300537 1.0699463 0.6469727 0.7449951 -7 130 64.99939 1.00E-01 On or Lock FALSE TRUE TRUE	V V RPM RPM Sec N*m % Ratio Ra				
						If 4L80E Cmd Gear	¥	4th					
				Cc	Disable I onditions:	MIL not Illuminated for DTC's:)716, P0717, P07:)842, P0843, P27					
Torque Converter Clutch (TCC)	P0742	TCC System Stuck ON	TCC Slip Speed	>= -20 RPM						>=	6	Sec	Two Trips
			TCC Slip Speed	<= 20 RPM						=	5	Count	11103
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed	>= <= >= <=	8 31.999023 500 6500	V V RPM RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			ime uired	Mil Illum.
System	Code	Description	Criteria	Value	Malfunction Engine speed between min/max for Engine Speed Status Valid Engine Torque Engine Torque TFT Trottle Position Trottle Position Vehicle Speed Vehicle Speed Engine Speed Engine Speed Gear Ratio Gear Ratio Gear Ratio Commanded Gear TCC Mode Engine Torque Status Valid Throttle Position Signal Valid	>= 5 Sec = TRUE >= 90 N [*] m <= 1492 N [*] m >= -7 C <= 130 C >= 10.00061 % <= 89.997864 % >= 16 KPH <= 511 KPH >= 500 RPM <= 6500 RPM >= 0.6419678 Ratio <= 1.7869873 Ratio \neq 1st Gear = Off = TRUE		Req	uired	
Shift solenoid A Performance	P0751	Shift Solenoid Valve A Stuck Off 2-2-3-3	Fail Case 1 1st gear low ratio multiplier 1st gear high ratio multiplier	Condition >= 0.949951172 Pct	able MIL not Illuminated for DTC's:	= FALSE TCM: P0716, P0717, P0722, P0723, P0741, P2762, P2763, P2764, P2769,	=	2	Sec	Two Trips
			Fail Case 2 4th gear low ratio multiplier 4th gear high ratio multiplier	>= 0.949951172 Pct			=	2	Sec	
			4tr gea nigh raio multiplie	<= 1.030040628 PU	Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine speed between min/max for Engine Speed Status Valid Gear Slip Gear Slip Fail Time Throttle Engine Torque Output Speed Input Speed 4WD Range Timer Range Change Timer PTO Active Trans Temp Trans Temp	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	=	2	counts	_

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			me uired	Mil Illum.
					Engine Torque Signal Valid	= TRUE				
					Throttle Position Signal Valid	= TRUE				
				Disable Conditions	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P0973, P0974, P0976, P0977, P1915,				
Shift solenoid A Performance	P0752	Shift Solenoid Valve A Stuck On 1-1-4-4	Fail Case 1 2nd gear low ratio multiplie				=	2	Sec	Two Trips
		1-1-4-4	2nd gear high ratio multiplie	r <- 1.0500/8828 Pct						mps
			Fail Case 2 3rd gear low ratio multiplie				=	2	Sec	-
			3rd gear high ratio multiplie							
					Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed Engine speed between min/max for Engine Speed Status Valid Gear Slip Fail Time Throttle Engine Torque Output Speed Hoput Speed 4WD Range Timer Range Change Timer PTO Active Trans Temp Trans Temp Engine Torque Signal Valid	<= 130 C	-	2	counts	
		Shift Solenoid Valve B Stuck On	Fail Case 1	Conditions	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P0973, P0974, P0976, P0977, P1915,				One Tri
Shift solenoid B Performance	P0756	4-3-3-4	1st gear low ratio multiplie 1st gear high ratio multiplie				=	2	Sec	
			Fail Case 2 2nd gear low ratio multiplie	er >= 0.949951172 Pct			=	2	Sec	1
			2nd gear high ratio multiplie	a <= 1.000048828 PCl			=	2	counts	-1
					Ignition Voltage Ignition Voltage Engine Speed Engine Speed	>= 8 volts <= 31.999023 volts >= 500 RPM <= 6500 RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required		Mil Illum.
System		Description			Malfunction Engine speed between min/max for Engine Speed Status Valid Gear Slip Gear Slip Fail Time Throttle Engine Torque Output Speed 4WD Range Timer Range Change Timer PTO Active Trans Temp Trans Torque Engine Torque Signal Valid	Conditions >= 5 Se = TRUE >= 150 RP >= 0.5 Se >= 8.0001831 Pr >= 50 RP >= 50 RP >= 50 RP >= 6 Se >= 6 Se >= 6 Se >= 74LSE C >= 20 C <= 130 C = TRUE C	M cc tt M M M cc cc				
Shift solenoid B Performance	P0757	Shift Solenoid Valve B Stuck Off 1-2-2-1	Fail Case 1 3rd gear low ratio multiplier 3rd gear high ratio multiplier	Condition >= 0.949951172 Pct	le MIL not Illuminated for DTC's: s:	TCM: P0716, P0717, P0722, P07 P0973, P0974, P0976, P0977, P1		=	2	Sec	One Trip
			Fail Case 2 4th gear low ratio multiplier 4th gear high ratio multiplier 4th gear high ratio multiplier	>= 0.949951172 Pct			=		2	Sec	
					Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed Engine speed between min/max for Engine Speed Status Valid Gear Slip Fail Time Throttle Engine Torque Output Speed Input Speed 4WD Range Timer Range Change Timer PTO Active Trans Temp Trans Temp Engine Torque Signal Valid	<= 130 C = TRUE	ts M M M M M M M M M M M M M M M M M M M	= .	2	counts	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thresh Valu		Secondary Malfunction	Ena Cond				ime juired	Mil Illum.
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P07 P0973, P0974, P09					
Shift Solinoid	P0973	Shift Solenoid A Control Circuit Low Voltage	hardware circuitry detects open or short to ground	= TRUE					>=	44	Fail Count (100ms loop)	Two Trips
									Out of	50	Sample Counts (100ms loop)	
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed between min/max for Engine Speed Status Valid	<= 31.94 >= 5 <= 65	00 RPM 00 RPM 5 Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM:	None				
Shift Solinoid	P0974	Shift Solenoid A Control Circuit High Voltage	hardware circuitry detects a short to voltage	= TRUE					>=	44	Fail Count (100ms loop)	Two Trips
									Out of	50	Sample Counts (100ms loop)	
						Ignition Voltage Ignition Voltage Engine Speed Engine speed between min/max for Engine Speed Status Valid	<= 31.94 >= 5 <= 65 >=	8 volts 9023 volts 10 RPM 00 RPM 5 Sec UE				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM:	None				
Shift Solinoid	P0976	Shift Solenoid B Control Circuit Low Voltage	hardware circuitry detects open or short to ground	= TRUE					>=	44	Fail Count (100ms loop)	One Tri
									Out of	50	Sample Counts (100ms loop)	_
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine speed between min/max for	<= 31.94 >= 5 <= 65	8 volts 9023 volts 10 RPM 00 RPM 5 Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thresl Valu		Secondary Malfunction		Enable Conditions				ime juired	Mil Illum.
Jystem	Code	Description	Ginena	Vaic		Engine Speed Status Valid	=	TRUE			Ket	uneu	
		Chiff Colonoid D. Control Circuit Link	hardwara siravita dataata a ahart ta		Disable Conditions:	MIL not Illuminated for DTC's:		TCM: None				Fail Court	One Trip
Shift Solinoid	P0977	Shift Solenoid B Control Circuit High Voltage	hardware circuitry detects a short to voltage	= TRUE						>=	44	Fail Count (100ms loop)	One Trip
										Out of	50	Sample Counts (100ms loop)	
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed between min/max for Engine Speed Status Valid	>= <= >= =	8 31.999023 500 6500 5 TRUE	volts volts RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:		TCM: None					
Transmission Mode Switch	P1762	Trans mode switch signal circuit (BCM to TCM Rolling Count check)	Rolling count value received from BCM does not match expected value	= TRUE						>=	3	cont	Special No Trip
						Engine Speed Engine Speed Engine speed between min/max for Engine Speed Status Valid	>= <= >= =	500 6500 5 TRUE	RPM RPM Sec	=	10	Sec	
					Disable Conditions:	MIL not Illuminated for DTC's:		TCM: None					
Internal Mode Switch (IMS)	P182A	Internal Mode Switch-Circuit A	IMS circuit A low	= TRUE						>= >=	8	sec count	Two Trips
						Engine Torque Engine Torque Ignition Voltage Ignition Voltage Engine Speed Engine speed between min/max for Engine Speed Status Valid Engine Torque Signal Valid Range = Park for	>= <= >= <= >= = = =	50 1492 8 31.999023 500 6500 5 TRUE TRUE TRUE 1	N*m volts volts RPM RPM Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshol Value	d	Secondary Malfunction		Enable Conditions			Tim Requi		Mil Illum.
						Disable Conditions:	MIL not Illuminated for DTC's:		TCM: None					
Internal Mode Switch (IMS)	P182C	Internal Mode Switch-Circuit B	IMS circuit B High	=	TRUE						>=	8	Sec	Two Trips
							Engine Torque Engine Torque Ignition Voltage Ignition Voltage Engine Speed Engine Speed between min/max for Engine Speed Status Valid Engine Torque Signal Valid Range = Park for	>= <= >= <= >= = >=	50 1492 8 31.999023 500 6500 5 TRUE TRUE 1	N*m N*m volts volts RPM RPM Sec sec	>=	1	count	
						Disable Conditions:	MIL not Illuminated for DTC's:		TCM: None					
Internal Mode Switch (IMS)	P182D	Internal Mode Switch-Circuit P	IMS circuit P Low	=	TRUE						>=	8	sec	Two Trips
							Engine Torque Engine Torque Ignition Voltage Ignition Voltage Engine Speed Engine speed between min/max for Engine Speed Status Valid Engine Torque Signal Valid Range = Park for	>= <= >= <= >= = >=	50 1492 8 31.999023 500 6500 5 TRUE TRUE 1	N*m volts volts RPM RPM Sec	>=	1	count	
						Disable Conditions:	MIL not Illuminated for DTC's:		TCM: None					
Internal Mode Switch (IMS)	P182E	Internal Mode Switch-Invalid	IMS Range Illegal	=	TRUE		Ignition Voltage	>=	8	volts	>=	8	Sec	Two Trips
							Ignition Voltage Ignition Voltage Engine Speed Engine Speed between min/max for Engine Speed Status Valid	>= >= <= >=	31.999023 500 6500 5 TRUE	volts RPM RPM Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	ſ	Threshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
					Disable Conditions:	MIL not Illuminated for DTC's:		TCM: None					
Internal Mode Switch (IMS)	P182F	Internal Mode Switch-Circuit C	IMS circuit C High	= TRUE						>=	8	Sec	Two Trips
						Engine Torque Engine Torque Signal Valid Ignition Voltage Ignition Voltage Vehicle Speed 1st gear ratio low 1st gear ratio High 2nd gear ratio High 3rd gear ratio low 3rd gear ratio low 4th gear ratio low	>= = >= >= = = = = = = = = = = = = = =	50 TRUE 8 31.999023 16 2.8448486 3.2740479 1.5109863 1.7399902 0.9300537 1.0699463 0.6500244 0.7469482	N*m volts volts kph Ratio Ratio Ratio Ratio Ratio Ratio Ratio Ratio	>=	1	count	
					Disable Conditions:	MIL not Illuminated for DTC's:	TC	CM: P0722, P07	23				
Internal Mode Switch (IMS)	P1915	Internal Mode Switch-Start in Wrong Range	Range= Park or Neutral	= FALS	e true					>=	2	Sec	Two Trips
						Ignition Voltage Ignition Voltage Engine Speed Power Mode Crank request	>= <= >= <=	8 31.999023 560 Crank 409	volts volts RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Ignition 1 Circuit Low Voltage	P2534	No Ignition Voltage at the TCM	Ignition 1 (run/crank) input	<= 2	volt					>= Out of	200 220	Fail Count (25ms loop) Sample Count (25ms loop)	One Tri
						Engine running state from ECM	=	Running					
						Power Mode	=	Acc or Run					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Require		Mil Illum.
				Disab Condition	le MIL not Illuminated for DTC's: s:	TCM: None ECM: None				
TCC PWM Solenoid	P2763	TCC PWM Solenoid circuit high voltage	Hardware circuitry detects a short to voltage	= TRUE			>=	44	Fail Count (100ms loop)	Two Trips
							Out of	50	Sample Counts (100ms loop)	
					Ignition Voltage Ignition Voltage Engine Speed Engine speed between min/max for Engine Speed Status Valid TCC PWM command	>= 500 RPM <= 6500 RPM >= 5 Sec = TRUE				
				Disab Condition	le MIL not Illuminated for DTC's: s:	TCM: None				
TCC PWM Solenoid	P2764	TCC PWM Solenoid circuit low voltage	Hardware circuitry detects open or short to ground	= TRUE			>=	44	Fail Count (100ms loop)	Two Trips
							Out of		Sample Counts (100ms loop)	
					Ignition Voltage Ignition Voltage Engine Speed Engine speed between min/max for Engine Speed Status Valid TCC PWM command	>= 500 RPM <= 6500 RPM >= 5 Sec = TRUE				
				Disab Condition	le MIL not Illuminated for DTC's: s:	TCM: None				
TCC Enable Solenoid	P2769	TCC enable solenoid circuit low voltage	Hardware circuitry detects open or short to ground	= TRUE			>=	44	Fail Count (100ms loop)	Two Trips
							Out of		Sample Counts (100ms loop)	
					Ignition Voltage Ignition Voltage Engine Speed Engine Speed	<= 31.999023 V				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				ime uired	Mil Illum.
						Engine speed between min/max for	>=	5	Sec				
						Engine Speed Status Valid	=	TRUE					
						TCC Enable solenoid command	=	OFF					
					Disable Conditions:	MIL not Illuminated for DTC's:		TCM: None					
TCC Enable Solenoid	P2770	TCC enable solenoid circuit high voltage	Hardware circuitry detects a short to voltage	= TRUE						>=	44	Fail Count (100ms loop)	Two Trips
		5	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~							Out of	50	Sample Counts (100ms loop)	- ·
Communication	U0073	Controller Area Network Bus Communication Error	CAN Bus Detects Invalid Message Error		Disable Conditions: Boolean	Ignition Voltage Ignition Voltage Engine Speed Engine speed between min/max for Engine Speed Status Valid TCC Enable solenoid command MIL not Illuminated for DTC's:	>= <= >= = =	8 31.999023 500 5 TRUE ON TCM: None	V V RPM RPM Sec	>=	5	Fail Count (1000ms loop)	Two Trips
						Ignition On				Out of	5	Sample Counts (1000ms loop)	-
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Communication	U0100	Lost Communications with Engine Control System	Comm. Message Invalid Between ECU and TCM	= TRUE	Boolean					>=	12	Fail Count (1000ms loop)	Two Trips
										Out of	12	Sample Counts (1000ms loop)	
						Ignition Voltage Lo Ignition Voltage Hi Power Mode	>= <= =	11 18 Run	Volt Volt				

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Time	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions	Required	Illum.
				Disable	MIL not Illuminated for DTC's:	TCM: U0073		
				Conditions:				
						ECM: None		

	Suppo	orting Table	esT42							
Table 1							Units			
	Axis	-40	-25	-10			Deg C			
	Curve	1900	1000	800	520	200	Sec			
Table 2										
	Axis	0	6.248474121	12.49694824	18.74542236	24.99389648	31.24237061	37.49084473	43.73931885	49.98779297
	Curve	0	60	120	180	280	392	480	552	600
		56.23626709	62.48474121	68.73321533	74.98168945	81.23016357				
Table 3		624	624	624	624	624				Units
Table 5	Axis	0	64	128	192	256	320	384	448	512 Nm
	Curve	100	100	100		100	100	150	150	150 RPM
					l					
<u>Table 4</u>	Avia	40	40.05	7.5	24.25	FF	70.75	100 5	100.05	Units
	Axis Curve	-40 600	<mark>-16.25</mark> 400	7.5 400	<u>31.25</u> 400	55 400	78.75 400	102.5 400	126.25 400	150 Deg 0 400 RPM
		000	400	+00	400	+00	400	400	400	400 11 10
Table 5							Units			
	Axis	-40	7.5	55	102.5		Deg C			
1	Curve	0.1	0.15	0.2	0.3	0.3	Sec			