MAIN SECTION

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Val		Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Transmission Control Module (TCM)	P0601	Transmission Electro- Hydraulic Control Module Read Only Memory	Incorrect program/calibrations checksum	=	TRUE	Boolean			>= 5 Fail Counts	One Trip
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0601 ECM: None		
Transmission Control Module (TCM)	P0603	Transmission Electro- Hydraulic Control Module Long-Term Memory Reset	Non-volatile memory (static or dynamic) checksum failure at Powerup	=	TRUE	Boolean			Runs Contin ously	One Trip
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0603 ECM: None		
Transmission Control Module (TCM)	P0604	Transmission Electro- Hydraulic Control Module Random Access Memory	RAM Read/Write Failure (Single Word)	=	TRUE	Boolean			>= 5 Fail Counts	One Trip
									= 16 Sample Counts	
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0604 ECM: None		
Transmission Control Module (TCM)	P062F	Transmission Electro- Hydraulic Control Module Long Term Memory Performance	TCM Non-Volatile Memory bit Incorrect flag at Powerdown	=	TRUE	Boolean			Runs Contin ously	One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Valu		Secondary Malfunction		Enable Condition	s		Tim Requi		Mil Illum.
Gyötöm		Beschpitch				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P	2062F	_				
Transmission Control Module (TCM)	P0634	Transmission Electro- Hydraulic Control Module Internal Temperature Too High	<u>Fail</u> <u>Case</u> Substrate <u>1</u> Temperature		142.10156	°C					>=	5	Fail Time (Sec)	One Trip
			<u>Fail</u> <u>Case</u> Substrate <u>2</u> Temperature		50	°C					>=	2	Fail Time (Sec)	
			Ignition Voltage	>=	18	Volts								
			Note: either fail case can set the DTC											
							Ignition Voltage Lo	>=	8.6	Volts				
							Ignition Voltage Hi	<=	32	Volts				
							Substrate Temp Lo	>=	0	°C				
							Substrate Temp Hi	<=	170	°C				
							Substrate Temp Between Temp Range for Time	>=	0.25	Sec				
							P0634 Status is	¥	Test Failed This Key On or Fault Active					
						Disable Conditions:	for DTC's:							

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value	Secondary Malfunction	Enable Conditions		Tir Requ		Mil Illum.
High Side Driver 1	DOGER	Actuator Supply Voltage Circuit Low	The HWIO reports a low voltage (open or ground short) error flag	=	TRUE Boolean			>=	4	Fail Counts	One Trip
								out of	6	Sample Counts	
						P0658 Status is not	Test Failed This = Key On or Fault Active				
						High Side Driver 1 On	= True Boolean				
					Disable Conditions:						
Transmission Control Module (TCM)	P0667	TCM Internal Temp (substrate) Sensor Circuit Range/Performance	If transmission oil temp to substrate temp Δ	>	Refer to Table 19 in ₀ _℃ supporting documents						Two Trips
			If TCM substrate temp to power up temp Δ	>	Refer to Table 20 in supporting documents						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Condition	s	Tim Requi		Mil Illum.
oystem		Decemption	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 875	Sample Counts (100ms loop)	
					Engine Torque Signal Valid	=	TRUE	Boolean			
					Accelerator Position Signal Valid	=	TRUE	Boolean			
					Ignition Voltage Lo	>=	8.6	Volts			
					Ignition Voltage Hi	<=	32	Volts			
					Engine Speed Lo	>=	400	RPM			
					Engine Speed Hi	<=	7500	RPM			
					Engine Speed is within the allowable limits for		5	Sec			
					Brake torque active	=	FALSE				
					Below describes the brake torque entry criteria						
					Engine Torque	>=	90	N*m			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions	6	Time Required	Mil Illum.
					Throttle	>=	30	Pct		
					Transmission Input Speed	<=	200	RPM		
					Vehicle Speed	<=	8	Kph		
					Transmission Range	≠	Park			
					Transmission Range	¥	Neutral			
					РТО	=	Not Active			
					Set Brake Torque Active TRUE if above conditions are met for:	>=	7	sec		
					Below describes the brake torque exit criteria					_
					Brake torque entry criteria	=	Not Met			
					Clutch hydraulic pressure	¥	Clutch Hydrau lic Air Purge Event			
					Clutch used to exit brake torque active	=	CeTFT D_e_C 3_RatI Enbl			
					The above clutch pressure is greater than this value for one loop	>=	600	kpa		
					Set Brake Torque Active FALSE if above conditions are met for:	>=	20	Sec		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					P0667 Status is	Test Failed This ≠ Key On or Fault Active		
				Disable Conditions:	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	ectProp				Two Trips
			= Direct Proportional and Temp	<= -249 °C				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			shold Ilue	Secondary Malfunction		Enable Condition	s		Tim Requi		Mil Illum.
			If TCM Substrate Temperature Sensor = Indirect Proportional and Temp	>=	-249	٥C								
			Either condition above will satisfy the fail conditions								>=	60	Fail Timer (Sec)	
							Ignition Voltage Lo	>=	8.6	Volts				
							Ignition Voltage Hi	<=	32	Volts				
							Engine Speed Lo	>=	400	RPM				
							Engine Speed Hi	<=	7500	RPM				
							Engine Speed is within the allowable limits for	>=	5	Sec				
							P0668 Status is	¥	Test Failed This Key On or Fault Active					
						Disable Conditions:	for DTC's:	TCM: N ECM: N						
Transmission Control Module (TCM)	P0669	TCM internal temperature (substrate) thermistor failed at a high voltage	Type of Sensor Used		CeTFTI_e VoltageD ectProp	ir								Two Trips
			If TCM Substrate Temperature Sensor = Direct Proportional and Temp	>=	249	٥C								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	C	Enable Condition	6	Tin Requ		Mil Illum.
		·	If TCM Substrate Temperature Sensor = Indirect Proportional and Temp	<= 249 °C							
			Either condition above will satisfy the fail conditions						>= 60	Fail Timer (Sec)	
					Ignition Voltage Lo	>=	8.6	Volts			
					Ignition Voltage Hi	<=	32	Volts			
					Engine Speed Lo	>=	400	RPM			
					Engine Speed Hi	<=	7500	RPM			
					Engine Speed is within the allowable limits for	>=	5	Sec			
					P0669 Status is	¥	Test Failed This Key On or Fault Active				
					For Hybrids, below conditions must also be met						
					Estimated Motor Power Loss	>=	0	kW			
					Estimated Motor Power Loss greater than limit for time	>=	0	Sec			
					Lost Communication with Hybrid Processor Control Module	=	FALSE				
					Estimated Motor Power Loss Fault	=	FALSE				
				l	I I						

MAIN SECTION

Component/	Fault		Malfunction	Threshold	Secondary	Enable	Time	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions	Required	Illum.
				Disable Conditions:		TCM: P0716, P0717, P0722, P0723		
				Conditions:	for DTC S:	1 0722, 1 0725		
						ECM: None		
								Two
				Refer to				Trips
Transmission	DOCAC	TCM Power-up Temp	If TCM power-up					
Control Module (TCM)	P06AC	Sensor Circuit Range/Performance	temp to substrate temp Δ	supporting				
()			p =	documents				
			If transmission oil	Refer to				
			temp to power up					
			temp Δ	supporting documents				
				doodmonto				
			Both conditions				Fail	1
			above required to				>= 3000 Counts	
			increment fail counter				>= 3000 (100ms loop)	
							100p)	
			Note: table reference				Sample	
			temp = to the median temp of trans oil				Out 2750 Counts	
			temp, substrate temp					
			and power up temp.				loop)	
			Non-continuous				Pass	
			(intermittent) fail				Counte	
			conditions will delay resetting fail counter				>= 700 (100ms	
			until				loop)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Condition	s	Tim Requi		Mil Illum.
									Out of 875	Sample Counts (100ms loop)	
					Engine Torque Signal Valid	=	TRUE	Boolean			
					Accelerator Position Signal Valid	=	TRUE	Boolean			
					Ignition Voltage Lo	>=	8.6	Volts			
					Ignition Voltage Hi	<=	32	Volts			
					Engine Speed Lo	>=	400	RPM			
					Engine Speed Hi	<=	7500	RPM			
					Engine Speed is within the allowable limits for	>=	5	Sec			
					Brake torque active	=	FALSE				
					Below describes the brake torque entry criteria						
					Engine Torque	>=	90	N*m			
					Throttle	>=	30	Pct			
					Transmission Input Speed	<=	200	RPM			
					Vehicle Speed	<=	8	Kph			
					Transmission Range	≠	Park				
					Transmission Range	¥	Neutral				
					РТО	=	Not Active				
					Set Brake Torque Active TRUE if above conditions are met for:	>=	7	sec			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions	; 	Time Required	Mil Illum.
					Below describes the brake torque exit criteria					
					Brake torque entry criteria	=	Not Met			
					Clutch hydraulic pressure	¥	Clutch Hydrau lic Air Purge Event			
					Clutch used to exit brake torque active	=	CeTFT D_e_C 3_Ratl Enbl			
					The above clutch pressure is greater than this value for one loop	>=	600	kpa		
					Set Brake Torque Active FALSE if above conditions are met for:	>=	20	Sec		
					P06AC Status is	¥	Test Failed This Key On or Fault Active			

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction		Enable	<u> </u>	Tim		Mil
System	Code	Description	Criteria	Value Disable Conditions:		TCM: P P0669, P0716, P0717, P0962, P0967, P215C, P2729, ECM: F P0103, P0108, P0174, P0202, P0205, P0208, P0302, P0305,	P06AD, P P0712, P0 P0722, P0 P0963, P0 P0970, P0 P2720, P	68, 06AE, 0713, 0723, 0966, 0971, 22721, 22721, 102, 0107, 0172, 0201, 0204, 0207, 0301, 0304, 0307,	Requ	ired	Illum.
Transmission Control Module (TCM)	P06AD	TCM power-up thermistor circuit voltage low	Power Up Temp	<= -59 °C	Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for P06AD Status is	>= <= >=	8.6 32 400 7500 5 Test Failed This Key On or Fault Active	Volts Volts RPM RPM Sec	>= 60	Fail Time (Sec)	Two Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold lue	Secondary Malfunction		Enable Condition	IS	R	Time Require		Mil Illum.
						For Hybrids, below conditions must also be met							
						Estimated Motor Power Loss	>=	0	kW				
						Estimated Motor Power Loss greater than limit for time	>=	0	Sec				
						Lost Communication with Hybrid Processor Control Module	=	FALSE					
						Estimated Motor Power Loss Fault		FALSE					
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P P0722,	20716, P07 P0723	717,				
							ECM: N	lone					
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	>=	8.6	Volts				
						Ignition Voltage Hi	<=	32	Volts				
						Engine Speed Lo	>=	400	RPM				
						Engine Speed Hi	<=	7500	RPM				
						Engine Speed is within the allowable limits for		5	Sec				

Component/ System	Fault Code		Malfunction Criteria		Threshold Value	Secondary Malfunction	Enable Conditions	Time Require		Mil Illum.
						P06AE Status is	Test Failed This ≠ Key On or Fault Active			
					Disable Conditions:					
Transmission Fluid Temperature Sensor (TFT)		Trans Fluid Temp Sensor Circuit Range/Performance	If transmission oil temp to substrate temp Δ	>	Refer to Table 19 in ₀C supporting documents					Two Trips
			If transmission oil temp to power up temp Δ	>	Refer to Table 18 in supporting documents					
			Both conditions above required to increment fail counter					>= 3000 (Fail Counts 100ms Ioop)	
			Note: table reference temp = to the median temp of trans oil temp, substrate temp and power up temp.					Out 3750 (Sample Counts 100ms Ioop)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Condition	s	Ti Requ	ne Jired	Mil Illum.
			Non-continuous (intermittent) fail conditions will delay resetting fail counter until						>= 700	Pass Counts (100ms Ioop)	
									Out of 875	Sample Counts (100ms loop)	
					Engine Torque Signal Valid	=	TRUE	Boolean			
					Accelerator Position Signal Valid	=	TRUE	Boolean			
					Ignition Voltage Lo	>=	8.6	Volts			
					Ignition Voltage Hi	<=	32	Volts			
					Engine Speed Lo	>=	400	RPM			
					Engine Speed Hi	<=	7500	RPM			
					Engine Speed is within the allowable limits for	>=	5	Sec			
					Brake torque active	=	FALSE				
					Below describes the brake torque entry criteria						
					Engine Torque	>=	90	N*m			
					Throttle	>=	30	Pct			
					Transmission Input Speed	<=	200	RPM			
					Vehicle Speed	<=	8	Kph			
					Transmission Range	¥	Park				
					Transmission Range	≠	Neutral				
					PTO	=	Not Active				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions	S	Time Required	Mil Illum.
, , , , , , , , , , , , , , , , , , ,					Set Brake Torque Active TRUE if above conditions are met for:		7	sec		
					Below describes the brake torque exit criteria					
					Brake torque entry criteria	=	Not Met			
					Clutch hydraulic pressure	¥	Clutch Hydrau lic Air Purge Event			
					Clutch used to exit brake torque active		CeTFT D_e_C 3_Ratl Enbl			
					The above clutch pressure is greater than this value for one loop	>=	600	kpa		
					Set Brake Torque Active FALSE if above conditions are met for:		20	Sec		
					P0711 Status is	¥	Test Failed This Key On or Fault Active			
					P0711 Status is	¥	Failed This Key On or Fault			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description		Disable	MIL not Illuminated	TCM: P0658, P0668, P0669, P06AD, P06AE, P0716, P0712, P0713, P0717, P0722, P0723, P0962, P0963, P0966, P0967, P0970, P0971, P215C, P2720, P2721, P2729, P2730 ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Transmission Fluid Temperature Sensor (TFT)	P0712	Transmission fluid temperature thermistor failed at a low voltage	Type of Sensor Used If Transmission Fluid Temperature Sensor = Direct Proportional and Temp	ectProp <= -74 ⁰C				Two Trips
			If Transmission Fluid Temperature Sensor = Indirect Proportional and Temp	>= -74 ⁰C				
			Either condition above will satisfy the fail conditions				Fail >= 60 Time (Sec)	
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo	<= 32 Volts		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					P0712 Status is	Test Failed This ≠ Key On or Fault Active		
					For Hybrids, below conditions must also be met			
					Estimated Motor Power Loss			
					Estimated Motor Power Loss greater than limit for time	>= 0 Sec		
					Lost Communication with Hybrid Processor Control Module	= FALSE		
					Estimated Motor Power Loss Fault			
				Disa Conditio	ole MIL not Illuminated ns: for DTC's:	TCM: P0716, P0717, P0722, P0723		
						ECM: None		
Transmission Fluid Temperature Sensor (TFT)	P0713	Transmission fluid temperature thermistor failed at a high voltage	Type of Sensor Used	CeTFTI_e_ = VoltageDir ectProp				Two Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Val		Secondary Malfunction		Enable Condition	s		Tim Requi		Mil Illum.
			If Transmission Fluid Temperature Sensor = Direct Proportional and Temp	>=	174	°C								
			If Transmission Fluid Temperature Sensor = Indirect Proportional and Temp		174	°C								
			Either condition above will satisfy the fail conditions								>=	60	Fail Time (Sec)	
							Ignition Voltage Lo	>=	8.6	Volts				
							Ignition Voltage Hi	<=	32	Volts				
							Engine Speed Lo	>=	400	RPM				
							Engine Speed Hi	<=	7500	RPM				
							Engine Speed is within the allowable limits for	>=	5	Sec				
							P0713 Status is	¥	Test Failed This Key On or Fault Active					
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P P0717,	20713, P07 P0722, P0	16,)723				
								ECM: N	lone					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Valu		Secondary Malfunction		Enable Conditior	IS		Time Requir		Mil Illum.
Transmission Input Speed Sensor (TISS)	P0716	Input Speed Sensor Performance	Transmission Input Speed Sensor Drops	>=	900	RPM					>=		Fail Time (Sec)	One Trip
							Engine Torque is	>=	0	N*m				
							Engine Torque is	<=	8192	N*m				
							Engine Speed	>=	400	RPM				
							Engine Speed	<=	7500	RPM				
							Engine Speed is within the allowable limits for	>=	5	Sec				
							Vehicle Speed is	>=	10	Kph				
							Throttle Position is	>=	0	Pct				
							Transmission Input Speed is	>=	0	RPM				
							The previous requirement has been satisfied for	>=	0	Sec				
							The change (loop to loop) in transmission input speed is	<	8192	RPM/Lo op				
							The previous requirement has been satisfied for	>=	0	Sec				
							Throttle Position Signal Valid	=	TRUE	Boolean				
							Engine Torque Signal Valid	=	TRUE	Boolean				
							Ignition Voltage	>=	8.6	Volts				
							Ignition Voltage	<=	32	Volts				

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria		Thres Val		Secondary Malfunction		Enable Conditio		R	Time Requir		Mil Illum.
								P0716 Status is not	=	Test Failed This Key Or or Fault Active	n				
							Disable Conditions:		P0973, ECM: P)102,				
Transmission Input Speed Sensor (TISS)	P0717	Input Speed Sensor Circuit Low Voltage	<u>Fail</u> <u>Case</u> <u>1</u>	Transmission Input Speed is		33	RPM					>= .	4.5	Fail Time (Sec)	One Trip
			<u>Fail</u> <u>Case</u> <u>2</u>	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	>=	120	N*m				
								Engine Torque is		8192					
								Vehicle Speed		12	Kph				
								Engine Torque Signal Valid		TRUE	Boolean				
								Ignition Voltage	>=	8.6	Volts				
								Ignition Voltage		32	Volts				
								Engine Speed		400	RPM				
I	I	l	I					Engine Speed	<=	7500	RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold lue	Secondary Malfunction		Enable Conditior	IS	Tim Requi		Mil Illum.
						Engine Speed is within the allowable limits for	>=	5	Sec			
						P0717 Status is not	=	Test Failed This Key On or Fault Active				
					Disable Conditions:	MIL not Illuminated for DTC's:		20722, P07 20101, P07				
		Transmission Mode	Tow Haul Mode								Fail	Special
Mode Switch	P071A	Switch A Circuit	Switch state	= TRUE	Boolean					>= 600	Time	No MIL
						Ignition Voltage Lo	>=	8.6	Volts			
						Ignition Voltage Hi Engine Speed Lo		32 400	Volts RPM			
						Engine Speed Lo		7500	RPM			
						Engine Speed is within the allowable limits for		5	Sec			
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: F ECM: N					
Transmission Output Speed Sensor (TOSS)	P0722	Output Speed Sensor Circuit Low Voltage	Transmission Output Speed Sensor Raw Speed	<= 35	RPM					>= 4.5	Fail Time (Sec)	One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					P0722 Status is not	Test Failed This = Key On or Fault Active		
					Transmission Input Speed Check	= TRUE Boolean		
					Engine Torque Check	= TRUE Boolean		
					Throttle Position	>= 8 Pct		
					Transmission Fluid Temperature	>= -40 °C		
					Disable this DTC if the PTO is active	= 1 Boolean		
					Engine Torque Signal Valid	= TRUE Boolean		
					Throttle Position Signal Valid	= TRUE Boolean		
					Ignition Voltage is	>= 8.6 Volts		
					Ignition Voltage is	<= 32 Volts		
					Engine Speed is	>= 400 RPM		
					Engine Speed is	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					Enable_Flags Defined Below			
					The Engine Torque Check is TRUE, if either of the two following conditions are TRUE			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Condition	s	Time Required	Mil Illum.
		·			Engine Torque Condition 1					
					Range Shift Status	¥	Range shift comple ted	ENUM		
					OR					
					Transmission Range is	=	Park or Neutral			
					Engine Torque is	>=	8192	N*m		
					Engine Torque is	<=	8192	N*m		
					Engine Torque Condition 2					
					Engine Torque is	>=	54	N*m		
					Engine Torque is	<=	8192	N*m		
					The Transmission Input Speed (TIS) Check is TRUE, if either of the two following conditions are TRUE					
					TIS Check Condition 1					
					Transmission Input Speed is	>=	653.1	RPM		
					Transmission Input Speed is	<=	5350	RPM		
					TIS Check Condition 2					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Val		Secondary Malfunction		Enable Conditic			Tim Requi		Mil Illum.
							Engine Speed without the brake applied is		3200	RPM				
							Engine Speed with the brake applied is		3200	RPM				
							Engine Speed is	<=	8192	RPM				
							Controller uses a single power supply for the speed sensors	=	1	Boolean				
							Powertrain Brake Pedal is Valid		TRUE	Boolean				
						Disable Conditions:	for DTC's:	P0723 ECM: I	20716, P0 20101, P0 20121, I	0102,				
Transmission Output Speed Sensor (TOSS)	P0723	Output Speed Sensor Circuit Intermittent	Transmission Output Speed Sensor Raw Speed	>=	105	RPM					>=	0	Enable Time (Sec)	One Trip
			Output Speed Delta	<=	8192	RPM					>=	0	Enable Time (Sec) Output	
			Output Speed Drop AND		650	RPM					>=	1.5	Speed Drop Recove ry Fail Time (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Transmission Range is	Driven = range (R,D)				Τ
					 Range_Disable	= FALSE See Below		
					OR 			
					Neutral_Range_Enabl e	= TRUE See Below		
					And Neutral_Speed_Enabl	TRUE See		
					e are TRUE	= TRUE Below		
					concurrently			
					Transmission_Range_ Enable	= TRUE See Below		
					Transmission_Input_S peed_Enable	= TRUE See Below		
					No Change in Transfer Case Range (High <-> Low) for	>= 5 Second s		
					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	>= 8.6 Volts		
	I I				Ignition Voltage is	<= 32 Volts	l i	I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditior	ns	Time Required	Mil Illum.
					Engine Speed is	>=	400	RPM		
					Engine Speed is	<=	7500	RPM		
					Engine Speed is within the allowable limits for	>=	5	Sec		
					Enable_Flags Defined Below					
					Transmission_Input_S peed_Enable is TRUE when either TIS Condition 1 or TIS Condition 2 is TRUE:					
					TIS Condition 1 is TRUE when both of the following conditions are satsified for	>=	0	Enable Time (Sec)		
					Input Speed Delta	<=	4096	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_Enabl e is TRUE when any of the next 3 conditions are TRUE					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Transmission Range is	= Neutral ENUM		
					Transmission Range is	Revers e/Neutr = al ENUM Transit onal		
					Transmission Range is	Neutral /Drive Transiti onal		
					And when a drop occurs			
					Loop to Loop Drop of Transmission Output Speed is	> 650 RPM		
					Range_Disable is TRUE when any of the next three conditions are TRUE			
					Transmission Range is	= Park ENUM		
					Transmission Range is	Park/R everse Transit onal		
					Input Clutch is not	ON (Fully Applie d)		
					Neutral_Speed_Enabl e is TRUE when All of the next three conditions are satsified for	> 1.5 Second s		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Transmission Output Speed			
					The loop to loop change of the Transmission Output Speed is	< 20 RPM		
					The loop to loop change of the Transmission Output Speed is 	> -10 RPM		
					Transmission_Range_ Enable is TRUE when one of the next six conditions is TRUE			
					Transmission Range is			
					Transmission Range is			
					Transmission Range is			

Component/	Fault		Malfunction		shold	Secondary		Enable			Tim		Mil
System	Code	Description	Criteria	Va	alue	Malfunction	(Condition	S		Requi	red	Illum.
						Time since a driven range (R,D) has been selected	>=	Table Based Time Please Refer to Table 21 in suppor ting docum ents	Sec				
						Transmission Output Speed Sensor Raw Speed	>=	500	RPM				
						Output Speed when a fault was detected		500	RPM				
					Disable Conditions:	for DTC's:	P0976, I ECM: P		02,				
Torque Converter Clutch (TCC)	P0741	TCC System Stuck OFF	TCC Pressure Either Condition (A) or (B) Must be Met		Кра					>=	2	Enable Time (Sec)	Two Trips

MAIN SECTION

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	(Enable Condition	s		Time quired	Mil Illum.
			(A) TCC Slip Error @ TCC On Mode	Refer to Table 1 in >= Supporting RPM Document s					>= !	Fail 5 Time (Sec)	
			(B) TCC Slip @ Lock On Mode	>= 130 RPM					>= {	Fail 5 Time (Sec)	
			If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter						>= 2	TCC Stuck Off Fail Counte	
					TCC Mode	=	On or Lock				
					Ignition Voltage Lo	>=	8.6	Volts			
					Ignition Voltage Hi	<=	32	Volts			
					Engine Speed	>=	400	RPM			
					Engine Speed	<=	7500	RPM			
					Engine Speed is within the allowable limits for	>=	5	Sec			
					Engine Torque Lo	>=	50	N*m			
					Engine Torque Hi	<=	8192	N*m			
					Throttle Position Lo	>=	8	Pct			
					Throttle Position Hi	<=	100	Pct			
					2nd Gear Ratio Lo	>=	2.195	Ratio			
					2nd Gear Ratio High	<=	2.525	Ratio			
					3rd Gear Ratio Lo	>=	1.423	Ratio			
					3rd Gear Ratio High	<=	1.637	Ratio			
					4th Gear Ratio Lo	>=	1.069	Ratio			
					4th Gear Ratio High	<=	1.23	Ratio			
					5th Gear Ratio Lo	>=	0.791	Ratio			
I	I I				5th Gear Ratio Hi	<=	0.91	Ratio			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	(Enable Condition	s	Time Required	Mil Illum.
					6th Gear Ratio Lo	>=	0.623	Ratio		
					6th Gear Ratio High	<=	0.717	Ratio		
					Transmission Fluid Temperature Lo		-6.656	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			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			shold Iue	Secondary Malfunction		Enable Conditio			Tin Requ		Mil Illum.
Cycloni		Description				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P P0722, P2763, ECM: I P0103, P0108, P0174, P0202, P0205, P0208, P0208, P0302, P0305,	0716, P0 P0723, I	717, P0742, P0102, P0107, P0172, P0204, P0207, P0204, P0207, P0301, P0304, P0307,				
Torque Converter Clutch (TCC)	P0742	TCC System Stuck ON	TCC Slip Speed TCC Slip Speed If Above Conditions	<=	-50 13	RPM RPM					>=	1.5	Fail Time (Sec)	One Trip
			Have been Met, and Fail Timer Expired, Increment Fail Counter								>=	6	Fail Counter	
							TCC Mode Enable test if Cmnd Gear = 1stFW and value true		Off 1	Boolean		_		
							Enable test if Cmnd Gear = 2nd and value true	=	Ū	Boolean				
							Engine Speed Hi Engine Speed Lo Vehicle Speed HI Vehicle Speed Lo	>= <=	6000 500 511 1	RPM RPM KPH KPH				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions	Time Required	Mil Illum.
					Engine Torque Hi	<=	8192 Nm		
	1 1				Engine Torque Lo	>=	80 Nm		
	1 1				Current Range	¥	Neutral Range		
					Current Range	¥	Revers e Range		
					Transmission Sump Temperature	<=	130 ⁰C		
					Transmission Sump Temperature	>=	18 °C		
					Throttle Position Hyst High	>=	5 Pct		
	1 1				AND				
					Max Vehicle Speed to Meet Throttle Enable	<=	8 KPH		
					Once Hyst High has been met, the enable will remain while Throttle Position	>=	2 Pct		
					Disable for Throttle Position	>=	75 Pct		
					Disable if PTO active and value true	=	1 Boolean		
					Disable if in D1 and value true	=	1 Boolean		
					Disable if in D2 and value true	=	1 Boolean		
					Disable if in D3 and value true	=	1 Boolean		
					Disable if in D4 and value true	=	1 Boolean		
					Disable if in D5 and value true	=	1 Boolean		
					Disable if in MUMD and value true	=	1 Boolean		

Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions	Time Required	Mil Illum.
				Disable if in TUTD and value true	=	1 Boolean		
				4 Wheel Drive Low Active	=	FALSE Boolean		
				Disable if Air Purge active and value false	=	0 Boolean		
				RVT Diagnostic Active	=	FALSE Boolean		
				Ignition Voltage	>=	8.6 V		
				Ignition Voltage	<=	32 V		
				Vehicle Speed	<=	511 KPH		
				Engine Speed	>=	400 RPM		
				Engine Speed	<=	7500 RPM		
				Engine Speed is within the allowable limits for	>=	5 Sec		
				Engine Torque Signal Valid	=	TRUE Boolean		
				Throttle Position Signal Valid	=	TRUE Boolean		
				P0742 Status is	¥	Test Failed This Key On or Fault Active		
					Code Description Criteria Value Malfunction Disable if in TUTD and value true 4 Wheel Drive Low Active Disable if Air Purge active and value false 8 Wheel Drive Low Active Disable if Air Purge active and value false RVT Diagnostic Active Ignition Voltage Ignition Voltage Ignition Voltage Ignition Voltage Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the allowable Imits for Engine Torque Signal Valid Yalid	Code Description Criteria Value Malfunction Image: Code Description Criteria Value Disable if in TUTD and value true = Image: Code 4 Wheel Drive Low Active = Disable if Air Purge active and value false = Image: Code RVT Diagnostic Active = Ignition Voltage >= Image: Code Ignition Voltage >= Ignition Voltage >= Image: Code Image: Code Image: Code Image: Code >= Image: Code Image: Code Image: Code Image: Code >= Image: Code Image: Code Image: Code Image: Code >= Image: Code Image: Code Image: Code Image: Code >= Image: Code Image: Code Image: Code Image: Code Image: Code	Code Description Criteria Value Malfunction Conditions Image: Strength on the strength of the strengt of the strength of the strength of the strengen of the st	Code Description Criteria Value Malfunction Conditions Required Disable if in TUD and value true = 1 Boolean

Component/	Fault	Monitor Strategy	Malfunction	Thres Valu		Secondary Malfunction		Enable conditior			Tim		Mil Illum.
System	Code	Description	Criteria	Vall	le Disable	MIL not Illuminated					Requ	Irea	mum.
					Conditions:	for DTC's:							
							P2763, F						
							ECM· P	0101, P0	102				
								P0106, P					
								P0171, P					
								20175, P 20203, P					
							P0205, F	P0206, P	0207,				
								20300, P 20303, P					
								20305, P					
							P0308, F	P0401, P	042E				
/lode 2 Multiplex /alve	P0751	Shift Solenoid Valve A Stuck Off	Commaned Gear Slip	>= 400	RPM								Two Trips
			Commanded Gear	= 1st Lock	rpm								
				<= 1.2095947						>=	0.2	Fail	
												Fail	
			Gear Ratio	>= 1.0943604						=	5	Counts	
			If the above										
			parameters are true										
												Neutral	
										¥	0	Timer	
												(Sec)	
										>=	0.3	Fail Timer	
										-	0.0	(Sec)	
										>=	8	Counts	
						Ignition Voltage Lo	>=	8.6	Volts				
						Ignition Voltage Hi		32	Volts				
						Engine Speed Lo		400	RPM				
						Engine Speed Hi	<=	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	>=	5 Sec		
					Transmission Fluid Temperature	>=	-6.656 °C		
					Range Shift State	=	Range Shift Compl eted		
					TPS	>=	0.5 %		
					OR				
					Output Speed	>=	67 RPM		
					Throttle Position Signal Valid from ECM	=	TRUE Boolean		
					Engine Torque Signal Valid from ECM, High side driver is enabled	=	TRUE Boolean		
					High-Side Driver is Enabled	=	TRUE Boolean		
					Input Speed Sensor fault	=	FALSE Boolean		
					Output Speed Sensor fault	=	FALSE Boolean		
					Default Gear Option is not present	=	TRUE		

Component/ System	Fault Code		Malfunction Criteria		Thres Val		Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
						Disable Conditions:	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	P0752	Shift Solenoid Valve A Stuck On	Gear Box Slip	>=	400	RPM				One Trip
			Commanded Gear		3rd	Gear				
			Commanded Gear has Achieved 1st Locked OR 1st Free- Wheel OR 2nd with Mode 2 Sol. Commanded On If the above parameters are true	=	TRUE	Boolean				
									Pleas e Refer to Table 16 in Suppo rting Docu ments	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Command 4th Gear once Output Shaft Speed If Gear Ratio	<= 400 RPM				
			And Gear Ratio					
				- +.2200000			Fail >= 1.5 Timer (Sec)	
							>= 5 Counts	
					Ignition Voltage Lo	>= 8.6 Volts		
					Ignition Voltage Hi	<= 32 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					High-Side Driver is Enabled	= TRUE Boolear		
					Throttle Position Signal Valid from ECM	= TRUE Boolear		
					Output Speed	>= 67 RPM		
					OR			
					TPS	>= 0.5 %		
					Range Shift State	Range Shift Compl eted		
					Transmission Fluid Temperature	>= -6.656 °C		
					Input Speed Sensor fault	= FALSE Boolear		
					Output Speed Sensor fault	= FALSE Boolear		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Default Gear Option is not present	= TRUE		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Mode 2 Multiplex Valve	P0756	Shift Solenoid Valve B Stuck Off	<u>Fail</u> <u>Case</u> Commanded Gear 1	= 1st Locked				One Trip
			– Gear Box Slip	>= 400 RPM			Pleas e Refer to Neutral Table 5 in Suppo rting Docu ments	
			Intrusive Shift to 2nd					
			Commanded Gear Previous	= 1st Locked Gear				
		l	Gear Ratio	<= 2.4821777				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions	S	Tim Requ		Mil Illum.
			Gear Ratio If the above parameters are true								
									>= 1 >= 3	sec counts	
					Ignition Voltage Lo	>=	8.6	Volts			
					Ignition Voltage Hi		32	Volts			
					Engine Speed Lo	>=	400	RPM			
					Engine Speed Hi	<=	7500	RPM			
					Engine Speed is within the allowable limits for	>=	5	Sec			
					Output Speed	>=	67	RPM			
					OR						
					TPS	>=	0.5	%			
					Range Shift State	=	Range Shift Compl eted	ENUM			
					Transmission Fluid Temperature	>=	-6.656	٥C			
					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 present	=	TRUE				

Component/ System	Fault Code			Malfunction Criteria		Thres Valu		Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Gystem							Disable Conditions:	MIL not Illuminated	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)	P0776	Pressure Control (PC) Solenoid B Stuck Off [C35R]	Fail Case 1	Case: Steady State 3rd Gear Commanded Gear Gearbox Slip	=	3rd 400	Gear RPM			Pleas e Refer to Table 16 in Suppo rting Docu ments	One Trip
				Command 4th Gear once Output Shaft Speed If Gear Ratio And Gear Ratio	<= >=	400 1.0943604 1.2095947					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	It the above condiations are true, Increment 3rd gear fail counter				>= 3 Fail >= 3 Timer (Sec) 3rd >= 3 Gear Fail Counts	
			and C35R Fail counter				or 3-5R >= 14 Clutch Fail Counts	
			Fail Case: Steady State <u>2</u> 5th Gear Commanded Gear	= 5th Gear				
			Gearbox Slip :	>= 400 Rpm			Pleas e Refer to Neutral 5 in Suppo rting Docu ments	
			Intrusive Test: Command 6th Gear					
			If attained Gear=6th gear Time	Please refer to Table 3 in supporting documents				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	C	Enable Condition	s		Tim Requi		Mil Illum.
			It the above condiations are true, Increment 5th gear fail counter						>=	3	5th Gear Fail Counts	
			and C35R Fail counter						>=	14	or 3-5R Clutch Fail Counts	
					PRNDL State defaulted	=	FALSE	Boolean				
					inhibit RVT	=	FALSE	Boolean				
					IMS fault pending indication	=	FALSE	Boolean				
					TPS validity flag	=	TRUE	Boolean				
					Hydraulic System Pressurized	=	TRUE	Boolean				
					Minimum output speed for RVT	>=	67	RPM				
					A OR B							
					(A) Output speed enable	>=	67	RPM				
					(B) Accelerator Pedal enable	>=	0.5	Pct				
					Common Enable Criteria							
					Ignition Voltage Lo	>=	8.6	Volts				
					Ignition Voltage Hi	<=	32	Volts				
					Engine Speed Lo	>=	400	RPM				
					Engine Speed Hi	<=	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	>= 5 Sec		
					Throttle Position Signal valid			
					HSD Enabled	= TRUE Boolean		
					Transmission Fluid Temperature			
					Input Speed Sensor fault			
					Output Speed Sensor fault			
					Default Gear Option is not present			
				Disable Conditions:		TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solinoid B Stuck On [C35R] (Steady State)	<u>Fail</u> <u>Case</u> Case: Steady State <u>1</u> 1st					One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Gystein		Description	If the Above is True for Time	Table Based Time Please Enable Time				
			Intrusive test: (CBR1 clutch exhausted)					
			Gear Ratio	<= 1.6086426				
			Gear Ratio	>= 1.4554443				
			If the above					
			parameters are true				Fail	
							>= 1.1 Timer (Sec) Fail	
							>= 2 Count in 1st or	
							>= 3 Fail	
			<u>Fail</u> Case: Steady State <u>2</u> 2nd gear					

MAIN SECTION

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Time	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions	Required	Illum.
			Max Delta Output Speed Hysteresis	Table Based value Please >= Refer to rpm/sec 3D Table 1 in supporting documents				
			Min Delta Output Speed Hysteresis	Table Based value Please >= Refer to rpm/sec 3D Table 2 in supporting documents				
			If the Above is True for Time	Table Based Time Please Refer to Table 17 in supporting documents				
			Intrusive test: (CB26 clutch exhausted)					
			Gear Ratio	<= 1.6086426				
			Gear Ratio	>= 1.4554443				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If the above parameters are true				>= 1.1 Fail Timer (Sec) Fail Count in 2nd Gear or >= 3 Total Sean Sean Counts	
			<u>Fail</u> <u>Case</u> Case: Steady State <u>3</u> 4th gear					
			Max Delta Output Speed Hysteresis	Table Based value Please >= Refer to rpm/sec 3D Table 1 in supporting documents				
			Min Delta Output Speed Hysteresis	Table Based value Please >= Refer to rpm/sec 3D Table 2 in supporting documents				

MAIN SECTION

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Uystein		Description	If the Above is True for Time	Table Based Time Please				
			Intrusive test: (C1234 clutch exhausted)					
				<= 0.8946533				
				>= 0.8094482				
			If the above parameters are true					
							Fail >= 1.1 Timer (Sec) Fail	
							>= 3 Count in 4th Gear	
							or Total >= 3 Fail Counts	
			<u>Fail</u> <u>Case</u> Case: Steady State <u>4</u> 6th gear					

MAIN SECTION

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Time	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions	Required	Illum.
			Max Delta Output Speed Hysteresis	Table Based value Please >= Refer to rpm/sec 3D Table 1 in supporting documents				
			Min Delta Output Speed Hysteresis	Table Based value Please >= Refer to rpm/sec 3D Table 2 in supporting documents				
			If the Above is True for Time	Table Based Time Please Refer to Table 17 in supporting documents				
			Intrusive test: (CB26 clutch exhausted)				F-1	
			Gear Ratio	<= 0.8946533			Fail >= 1.1 Time (Sec)	r
			Gear Ratio	>= 0.8094482			>= 3 count	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		able ditions		ime uired	Mil Illum.
System			If the above parameters are true					>= 1.1 >= 3	Fail	
					PRNDL State defaulted	= FA	LSE Boolean		Counts	
					inhibit RVT	= FA	LSE Boolean			
					IMS fault pending indication	= F <i>F</i>	LSE Boolean			
					output speed	>=	0 RPM			
					TPS validity flag	= T	RUE Boolean			
					HSD Enabled	= T	RUE Boolean			
					Hydraulic_System_Pr essurized	= TI	RUE Boolean			
					A OR B					
					(A) Output speed enable	>=	67 Nm			
					(B) Accelerator Pedal enable	>=	0.5 Nm			
					Ignition Voltage Lo	>=	8.6 Volts			
					Ignition Voltage Hi		32 Volts			
					Engine Speed Lo		400 RPM			
	I I				Engine Speed Hi	<= 7	500 RPM			I

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		
					if Attained Gear=1st FW Accelerator Pedal enable	>= 5	Pct		
					if Attained Gear=1st FW Engine Torque Enable	>= 5	Nm		
					if Attained Gear=1st FW Engine Torque Enable	<= 8192	Nm		
					Transmission Fluid Temperature		°C		
					Input Speed Sensor fault		oolean		
					Output Speed Sensor fault	= FALSE Bo	oolean		
				Disable Conditions:		TCM: P0716, P0717 P0722, P0723, P182	, 2E		
						ECM: P0101, P0102 P0103, P0106, P010 P0108, P0171, P017 P0174, P0175, P020 P0202, P0203, P020 P0205, P0206, P020 P0208, P0300, P030 P0302, P0303, P030 P0305, P0306, P030 P0308, P0401, P042	07, 72, 01, 04, 07, 01, 04, 04, 07,		

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Time	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions	Required	Illum.
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)					One Trip
			Primary Oncoming Clutch Pressure Command Status					
			Primary Offgoing Clutch Pressure Command Status	= exhaust				
			Range Shift Status	Initial ≠ Clutch Control				
			Attained Gear Slip	<= 40 RPM				
			If the above conditions are true run appropriate Fail 1 Timers Below:					
			fail timer 1 (3-1 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (3-2 shifting with Throttle)	>= 0.2998047 Fail Time (Sec)				
			fail timer 1 (3-2 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (3-4 shifting with Throttle)					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			fail timer 1 (3-4shifting with Closed Throttle)	>= 0.5 Fail Time (See)				
			fail timer 1 (3-5 shifting with Throttle)	1 >= 0.2998047 (Sec)				
			fail timer 1 (3-5 shifting with Closed Throttle)	$1 \ge 0.5$ Fail Time (See)				
			fail timer 1 (5-3 shifting with Throttle)	1 >= 0.2998047 Fall Time (Sec)				
			fail timer 1 (5-3 shifting with Closed Throttle)	$1 \ge 0.5$ Fail Time (See)				
			fail timer 1 (5-4 shifting with Throttle)	1 >= 0.2998047 (Sec)				
			fail timer 1 (5-4 shifting with Closed Throttle)	>= 0.5 (Sec)				
			fail timer 1 (5-6 shifting with Throttle)	>= 0.2998047 (Sec)				
			fail timer 1 (5-6 shifting with Closed Throttle)	$1 \ge 0.5$ Fail Time (See)				

Component/	Fault Code	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	If Attained Gear Slip is Less than Above Cal Increment Fail Timers				Total Fail Time = (Fail 1 + Fail 2) See Enabl e Timer s for >= Fail sec Timer 1, and Refer ence Suppo rting Table 15 for Fail Timer 2	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter					
			3rd gear fail counter				3rd >= 3 gear fai counts OR	
			5th gear fail counter				>= 3 gear fai counts	
			Total fail counter				>= 5 total fail	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					TUT Enable temperature	>= -6.656 °C		
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault	= FALSE Boolean		
					Command / Attained Gear	≠ 1st Boolean		
					High Side Driver ON	= TRUE Boolean		
					output speed limit for TUT	>= 100 RPM		
					input speed limit for TUT	>= 150 RPM		
					PRNDL state defaulted	= FALSE Boolean		
					IMS Fault Pending	= FALSE Boolean		
					Service Fast Learn Mode	= FALSE Boolean		
					HSD Enabled	= TRUE Boolean		
					Default Gear Option is not present	= TRUE		

Component/ System	Fault Code	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	Criteria	Value Disable Conditions:	MIL not Illuminated	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	Required	Illum.
Variable Bleed Solenoid (VBS)		Pressure Control (PC) Solenoid C Stuck Off [C456] (Steady State)	<u>Fail</u> <u>Case</u> Case: Steady State <u>1</u> 4th Gear				Pleas e See Table 5 For Timer	One Trip
			Gear slip Intrusive test: commanded 5th gear				>= Neutr al Time Cal	
			If attained Gear ≠5th for time	>-				

Component/	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	if the above	Value		Conditions	Required	
			conditions have been met					
							4th	
			Increment 4th Gear Fail Counter				>= 3 Gear Fail	
							OR	
							C456	
			and C456 Fail Counters				>= 14 Fail	
			Fail Case Case: Steady State				Counts	1
			Case Case: Steady State 2 5th Gear					
			-					
							Pleas e See	
							Table Neutral	
			Gear slip	>= 400 RPM			Neutr (Soc)	
							Time	
							Cal	
			Intrusive test:					
			commanded 6th gear					
				Please				
				Refer to				
			If attained Gear ≠ 6th for time	>= Table 3 in Shift Time Supporting (Sec)				
				Document s				
				3				
			if the above					
			conditions have been met					
			Increment 5th Gear				5th	
			Fail Counter				>= 3 Gear Fail	
							OR	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	and C456 Fail Counters				C456 >= 14 Fail Counts	
			Fail_ <u>Case</u> Case: Steady State <u>3</u> 6th Gear					
			Gear slip	>= 400 RPM			Pleas e See Table 5 For Neutr al Time Cal	
			Intrusive test: commanded 5th gear					
			If attained Gear ≠ 5th for time					
			if the above conditions have been met					
			Increment 6th Gear Fail Counter and C456 Fail Counter				S= 3 6th Gear Fail Count OR	
			and C456 Fail Counter				C456 >= 14 Fail Counts	
					PRNDL State defaulted	= FALSE Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions	Time Required	Mil Illum.
					inhibit RVT	=	FALSE Boolean		
					IMS fault pending indication	=	FALSE Boolean		
					TPS validity flag	=	TRUE Boolean		
					Hydraulic System Pressurized	=	TRUE Boolean		
					Minimum output speed for RVT	>=	67 RPM		
					A OR B				1 1
					(A) Output speed enable	>=	67 RPM		
					(B) Accelerator Pedal enable	>=	0.5 Pct		
					Common Enable Criteria				
					Ignition Voltage Lo	>=	8.6 Volts		1 1
					Ignition Voltage Hi	<=	32 Volts		1 1
					Engine Speed Lo	>=	400 RPM		1 1
					Engine Speed Hi	<=	7500 RPM		1 1
					Engine Speed is within the allowable limits for	>=	5 Sec		
					Throttle Position Signal valid	=	TRUE Boolean		
					HSD Enabled	=	TRUE Boolean		
					Transmission Fluid Temperature	>=	-6.656 ⁰C		
					Input Speed Sensor fault	=	FALSE Boolean		

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria	Thres Val		Secondary Malfunction		Enable Conditions	Time Required	Mil Illum.
							OutputSpeed Sensor fault Default Gear Option is not present	_	FALSE Boolean TRUE		
						Disable Conditions:		P0722, ECM: F P0103, P0108, P0174, P0202, P0205, P0208, P0208, P0302, P0305,	P0716, P0717, P0723, P182E P0101, P0102, P0106, P0107, P0171, P0172, P0175, P0201, P0203, P0204, P0206, P0207, P0300, P0301, P0303, P0304, P0306, P0307, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Steady State)	<u>Fail</u> <u>Case</u> 1	Case: Steady State 1st Attained Gear slip		RPM					One Trip
				If the Above is True for Time		J					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Intrusive test: (CBR1 clutch exhausted)					
			Gear Ratio	<= 1.2095947				
			Gear Ratio	>= 1.0943604				
			If the above parameters are true					
							Fail >= 1.1 Timer (Sec)	
							Fail >= 2 Count in 1st Gear	
							or Total >= 3 Fail Counts	
			F <u>ail</u> Case Case Steady State 2 2nd					
			Max Delta Output Speed Hysteresis	Table Based value Please >= Refer to rpm/sec 3D Table 1 in supporting documents				

MAIN SECTION

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Time	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions	Required	Illum.
			Min Delta Output Speed Hysteresis	Table Based value Please >= Refer to rpm/sec 3D Table 2 in supporting documents				
			If the Above is True for Time					
			Intrusive test: (CB26 clutch exhausted)					
			Gear Ratio	<= 1.2095947				
			Gear Ratio	>= 1.0943604				
			If the above parameters are true					
							Fail >= 1.1 Time (Sec) Fail	
							>= 3 Coun in 2nd Gear	ł
							or	

MAIN SECTION

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			F ail				>= 3 fail counts	
			<u>Fail</u> <u>Case</u> Case Steady State <u>3</u> 3rd					
			Max Delta Output Speed Hysteresis	Table Based value Please >= Refer to rpm/sec 3D Table 1 in supporting documents				
			Min Delta Output Speed Hysteresis	Table Based value Please >= Refer to rpm/sec 3D Table 2 in supporting documents				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions	Ti Req	ne Jired	Mil Illum.
Joseff		Description	If the Above is True for Time	Table Based Time Please						
			Intrusive test: (C35R clutch exhausted)							
			Gear Ratio	<= 1.2095947						
			Gear Ratio	>= 1.0943604						
			If the above parameters are true					>= 1.1	Fail Timer	
								>= 1.1	(Sec)	
								>= 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 Boolean			
					output speed	>=	0 RPM			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Condition	s	Time Required	Mil Illum.
					TPS validity flag	=	TRUE	Boolean		
					HSD Enabled	=	TRUE	Boolean		
					Hydraulic_System_Pr essurized	=	TRUE	Boolean		
					A OR B					
					(A) Output speed enable	>=	67	Nm		
					(B) Accelerator Pedal enable	>=	0.5	Nm		
	1 1				Ignition Voltage Lo	>=	8.6	Volts		
	1 1				Ignition Voltage Hi	<=	32	Volts		
	1 1				Engine Speed Lo	>=	400	RPM		
	1 1				Engine Speed Hi	<=	7500	RPM		
					Engine Speed is within the allowable limits for	>=	5	Sec		
					if Attained Gear=1st FW Accelerator Pedal enable	>=	5	Pct		
					if Attained Gear=1st FW Engine Torque Enable	>=	5	Nm		
					if Attained Gear=1st FW Engine Torque Enable	<=	8192	Nm		
					Transmission Fluid Temperature	>=	-6.656	°C		
					Input Speed Sensor fault	=	FALSE	Boolean		
					Output Speed Sensor fault	=	FALSE	Boolean		

Component/ System	Fault Code		Malfunction Criteria		Thresh Valu		Secondary Malfunction		Enable Conditions	Time Required	Mil Illum.
							Default Gear Option is not present		TRUE		
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: F P0722	20716, P0717, P0723, P182E		
								P0103 P0108 P0174 P0202 P0205 P0208 P0302 P0305	P0101, P0102, P0106, P0107, P0171, P0172, P0175, P0201, P0203, P0204, P0206, P0207, P0300, P0301, P0303, P0304, P0306, P0307, 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)	=	TRUE	Boolean					One Trip
			Primary Oncoming Clutch Pressure Command Status	=	Maximum pressurize d						
			Primary Offgoing Clutch Pressure Command Status	=	Clutch exhaust command						
			Range Shift Status	¥	Initial Clutch Control						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thresl Valu		Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Attained Gear Slip	<=	40	RPM				
			If the above conditions are true increment appropriate Fail 1 Timers Below:							
			fail timer 1 (4-1 shifting with throttle)		0.2998047	Fail Time (Sec)				
			fail timer 1 (4-1 shifting without throttle)	>=	0.5	Fail Time (Sec)				
			fail timer 1 (4-2 shifting with throttle)	>=	0.2998047	Fail Time (Sec)				
			fail timer 1 (4-2 shifting without throttle)	>=	0.5	Fail Time (Sec)				
			fail timer 1 (4-3 shifting with throttle)	>=	0.2998047	Fail Time (Sec)				
			fail timer 1 (4-3 shifting without throttle)	>=	0.5	Fail Time (Sec)				
			fail timer 1 (5-3 shifting with throttle)	>=	0.2998047	Fail Time (Sec)				
			fail timer 1 (5-3 shifting without throttle)	>=	0.5	Fail Time (Sec)				
			fail timer 1 (6-2 shifting with throttle)	>=	0.2998047	Fail Time (Sec)				

MAIN SECTION

Component/	Fault	Monitor Strategy	Malfunction	Threshold Value	Secondary Malfunction	Enable	Time	Mil
System	Code	Description	Criteria fail timer 1 (6-2 shifting without throttle) If Attained Gear Slip is Less than Above Cal Increment Fail Timers	Value >= 0.5 Fail Time (Sec)	Malfunction	Conditions	RequiredTotal Fail Time = (Fail 1 + Fail 2) See Enabl e Timer s for >= Fail Sec Timer 1, and Refer ence Suppo rting Table 15 for Fail Timer 2	Illum.
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter 4th gear fail counter				Fail Counter >= 3 From 4th Gear	r

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Gystem		Description	5th gear fail counter				Fail Counte >= 3 From 5th Gear	er
			6th gear fail counter				OR Fail Counte >= 3 From 6th Gear	
			Total fail counter				OR Total >= 5 Fail Counte	
					TUT Enable temperature	>= -6.656 °C		
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault	= FALSE Boolean		
					Command / Attained Gear	≠ 1st Boolean		
					High Side Driver ON	= TRUE Boolean		
					output speed limit for TUT	>= 100 RPM		
					input speed limit for TUT	>= 150 RPM		
					PRNDL state defaulted	= FALSE Boolean		
					IMS Fault Pending	= FALSE Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Valu		Secondary Malfunction		Enable Conditions	Time Required	Mil Illum.
							Service Fast Learn Mode	=	FALSE Boolean		
							HSD Enabled	=	TRUE Boolean		
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: F P0722,	20716, P0717, P0723, P182E		
								P0103, P0108, P0174, P0202, P0205, P0208, P0208, P0302, P0305,	P0101, P0102, P0106, P0107, P0171, P0172, P0175, P0201, P0203, P0204, P0206, P0207, P0300, P0301, P0303, P0304, P0306, P0307, P0401, P042E		
Tap Up Tap Down Switch (TUTD)	P0815	Upshift Switch Circuit	Fail Tap Up Switch Stuck Case in the Up Position in 1 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					

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Val		Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			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			Fail >= 1 Time (Sec)	
			Fail Tap Up Switch Stuck Case in the Up Position in 2 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				

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Val		Secondary Malfunction		Enable Condition	S	Tim Requi		Mil Illum.
			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	=	TRUE	Boolean							
			NOTE: Both Failcase1 and Failcase 2 Must Be Met								>= 600	Fail Time (Sec)	
							Time Since Last Range Change	>=	1	Enable Time (Sec)			
							Ignition Voltage Lo	>=	8.6	Volts			
							Ignition Voltage Hi	<=	32	Volts			
							Engine Speed Lo	>=	400	RPM			
							Engine Speed Hi	<=	7500	RPM			
							Engine Speed is within the allowable limits for	>=	5	Sec			
							P0815 Status is	¥	Test Failed This Key On or Fault Active				

Component/ System	Fault Code		Malfunction Criteria			shold lue	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Jystem	Code	Description	Gillena			Disable Conditions:	MIL not Illuminated	TCM: P0816, P0826, P182E, P1876, P1877, P1915, P1761 ECM: None		
Tap Up Tap Down Switch (TUTD)	P0816	Downshift Switch Circuit	<u>Fail</u> Tap Down Switch <u>Case</u> Stuck in the Down <u>1</u> Position in Range 1 Enabled	=	0	Boolean				Special No MIL
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	=	0	Boolean				
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	=	0	Boolean				
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	=	0	Boolean				
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	=	0	Boolean				
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	=	0	Boolean				
			Tap Down Switch Stuck in the Down Position in Range Neutral Enabled	=	1	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			shold Ilue	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			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	
			FailTap Down SwitchCaseStuck in the Down2Position in Range 1Enabled	=	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				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Val		Secondary Malfunction	ſ	Enable Condition	s	Time Required	Mil Illum.
Jystein	Coue	Description	Tap Down Switch Stuck in the Down Position in Neutral Enabled	=	0	Boolean					Roquirou	
			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	=	TRUE	Boolean						
			NOTE: Both Failcase1 and Failcase 2 Must Be Met								>= 600 sec	
							Time Since Last Range Change	>=	1	Enable Time (Sec)		
							Ignition Voltage Lo	>=	8.6	Volts		
							Ignition Voltage Hi	<=	32	Volts		
							Engine Speed Lo	>=	400	RPM		
I	I I						Engine Speed Hi	<=	7500	RPM		1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Val		Secondary Malfunction		Enable Condition	s		Tim Requi		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:		P1876, P1					
								ECM: N	lone					
														On a sist
Tap Up Tap Down Switch (TUTD)	P0826	Up and Down Shift Switch Circuit	TUTD Circuit Reads Invalid Voltage	=	TRUE	Boolean					>=	60	Fail Time (Sec)	Special No MIL
							Ignition Voltage Lo	>=	8.6	Volts				
							Ignition Voltage Hi	<=	32	Volts				
							Engine Speed Lo	>=	400	RPM				
							Engine Speed Hi	<=	7500	RPM				
							Engine Speed is within the allowable limits for	>=	5	Sec				
							P0826 Status is	¥	Test Failed This Key On or Fault Active					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Val		Secondary Malfunction	(Enable Condition	s		Tim Requi		Mil Illum.
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P ECM: N						
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	Fail Time (Sec) Sample	Two Trips
											of	5	Time (Sec)	
							Ignition Voltage	>=	8.6	Volts			. ,	
							Ignition Voltage	<=	32	Volts				
							Engine Speed	>=	400	RPM				
							Engine Speed	<=	7500	RPM				
							Engine Speed is within the allowable limits for	>=	5	Sec				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: N ECM: N						
Variable Bleed Solenoid (VBS)	P0962	Pressure Control (PC) Solenoid A Control Circuit Low Voltage (Line Pressure VBS)	The HWIO reports a low voltage (ground short) error flag		TRUE	Boolean					>=	1.5	Fail Time (Sec)	One Trip
											out of	1.875	Sample Time (Sec)	
							Ignition Voltage	>=	8.6	Volts				
							Ignition Voltage	<=	32	Volts				
							Engine Speed	>=	400	RPM				
							Engine Speed	<=	7500	RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value	Secondary Malfunction		Enable Conditior	ıs		me uired	Mil Illum.
						Engine Speed is within the allowable limits for	>=	5	Sec			
					Disable Conditions:	for DTC's:						
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	= TI	RUE Boolean					>= 4.4	Fail Time (Sec)	Two Trips
										out of 5	Sample Time (Sec)	
						Ignition Voltage	>=	8.6	Volts			
						Ignition Voltage	<=	32	Volts			
						Engine Speed	>=	400	RPM			
						Engine Speed	<=	7500	RPM			
						Engine Speed is within the allowable limits for		5	Sec			
					Disable Conditions:	MIL not Illuminated for DTC's:						
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		RUE Boolean					>= 0.3	Fail Time (Sec)	One Trip
										out of 0.37	Sample 5 Time (Sec)	
						Ignition Voltage	>=	8.6	Volts			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Val		Secondary Malfunction		Enable Condition	S	Tim Requi		Mil Illum.
							Ignition Voltage	<=	32	Volts			
							Engine Speed	>=	400	RPM			
							Engine Speed	<=	7500	RPM			
							Engine Speed is within the allowable limits for	>=	5	Sec			
							P0966 Status is not	=	Test Failed This Key On or Fault Active				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: N ECM: N					
Variable Bleed Solenoid (VBS)	P0967	Pressure Control (PC) Solenoid B Control Circuit High Voltage (C35R VBS)	The HWIO reports a high voltage (open or power short) error flag	=	TRUE	Boolean					>= 0.3	Fail Time (Sec)	One Trip
											out of 0.375	Sample Time (Sec)	
							Ignition Voltage	>=	8.6	Volts			
							Ignition Voltage	<=	32	Volts			
							Engine Speed	>=	400	RPM			
							Engine Speed	<=	7500	RPM			
							Engine Speed is within the allowable limits for	>=	5	Sec			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thres Val		Secondary Malfunction		Enable Condition	s	Tim Requi		Mil Illum.
						P0967 Status is not	=	Test Failed This Key On or Fault Active				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: N ECM: N					
Variable Bleed Solenoid (VBS)	P0970	Pressure Control (PC) Solenoid C Control Circuit Low Voltage (C456/CBR1 VBS)	The HWIO reports a low voltage (ground short) error flag	TRUE	Boolean					>= 0.3	Fail Time (Sec)	One Trip
										out of 0.375	Sample Time (Sec)	
						P0970 Status is not	=	Test Failed This Key On or Fault Active				
						Ignition Voltage	>=	8.6	Volts			
						Ignition Voltage	<=	32	Volts			
						Engine Speed	>=	400	RPM			
						Engine Speed	<=	7500	RPM			
						Engine Speed is within the allowable limits for	>=	5	Sec			
		l										

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		hreshold Value	Secondary Malfunction		Enable Conditions	s		Tim Requi		Mil Illum.
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: N ECM: N						
Variable Bleed Solenoid (VBS)	P0971	Pressure Control (PC) Solenoid C Control Circuit High Voltage (C456/CBR1 VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRU	JE Boolean					>=	0.3	Fail Time (Sec)	One Trip
										out of	0.375	Sample Time (Sec)	
						P0971 Status is not	=	Test Failed This Key On or Fault Active					
						Ignition Voltage	>=	8.6	Volts				
						Ignition Voltage	<=	32	Volts				
						Engine Speed	>=	400	RPM				
						Engine Speed	<=	7500	RPM				
						Engine Speed is within the allowable limits for	>=	5	Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: N ECM: N						
Shift Solinoid	P0973	Shift Solenoid A Control Circuit Low (Mode 2 Solenoid)	The HWIO reports a low voltage (ground short) error flag	= TRU	JE Boolean					>=	1.2	Fail Time (Sec)	One Trip
										out of	1.5	Sample Time (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	eshold alue	Secondary Malfunction		Enable Condition	S		Time equired	Mil Illum.
					P0973 Status is not	=	Test Failed This Key On or Fault Active				
					Ignition Voltage	>=	8.6	Volts			
					Ignition Voltage	<=	32	Volts			
					Engine Speed	>=	400	RPM			
					Engine Speed	<=	7500	RPM			
					Engine Speed is within the allowable limits for	>=	5	Sec			
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: N ECM: N					
Shift 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	Fail .2 Time (Sec)	Two Trips
									out of 1	Sample .5 Time (Sec)	
					P0974 Status is not	=	Test Failed This Key On or Fault Active				
					Ignition Voltage	>=	8.6	Volts			
					Ignition Voltage	<=	32	Volts			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thres Valu		Secondary Malfunction		Enable Condition	s		Time Requir		Mil Illum.
						Engine Speed	>=	400	RPM				
						Engine Speed	<=	7500	RPM				
						Engine Speed is within the allowable limits for	>=	5	Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:							
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	>=	8.6	Volts				
						Ignition Voltage	<=	32	Volts				
						Engine Speed	>=	400	RPM				
						Engine Speed	<=	7500	RPM				
						Engine Speed is within the allowable limits for	>=	5	Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: N ECM: N						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Val		Secondary Malfunction		Enable Conditio			Tin Requ		Mil Illum.
Tap Up Tap Down Switch (TUTD)	P1761	Tap Up and Down switch signal circuit (rolling count)	Rolling count value received from BCM does not match expected value	=	TRUE	Boolean					>=	3	Fail Counter	Special No MIL
											>	10	Sample Timer (Sec)	
							Tap Up Tap Down Message Health	=	TRUE	Boolean				
							Engine Speed Lo	>=	400	RPM				
							Engine Speed Hi	<=	7500	RPM				
							Engine Speed is within the allowable limits for	>=	5	Sec				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: N ECM: N						
Mode Switch	P1762	Transmission Mode Switch Signal Circuit (rolling count)	Rolling count value received from BCM does not match expected value	Ш	TRUE	Boolean					>=	3	Fail Counter	Special No MIL
											>	10	Sample Timer (Sec)	
							Pattern Switch Message Health	=	TRUE	Boolean				
							Engine Speed Lo	>=	400	RPM				
							Engine Speed Hi	<=	7500	RPM				
							Engine Speed is within the allowable limits for	>=	5	Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshol Value	ld	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					C	Disable conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None		
Internal Mode Switch (IMS)	P182E	Internal Mode Switch - Invalid Range	<u>Fail</u> <u>Case</u> <u>1</u> Current range	=	Transition 1 (bit state Ra 1110)	ange				One Trip
			Previous range	¥	CeTRGR_ e_PRNDL_ Ra Drive6	ange				
			Previous range	¥	CeTRGR_ e_PRNDL_ Ra Drive4	ange				
			Range Shift State	=	Range Shift El Completed	NUM				
			Absolute Attained Gear Slip	<=	50 rp	m				
			Attained Gear	<=	Sixth					
			Attained Gear	>=	First					
			Throttle Position Available	=	TRUE					
			Throttle Position	>=	8.0001831 pc	ct				
			Output Speed	>=	200 rp	m				
			Engine Torque	>=	50 Nr	m				
			Engine Torque		8191.75 Nr	m				
			If the above conditions are met then Increment Fail Timer						Fa >= 1 Secc s	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thresh Valu		Secondary Malfunction	Enable Condition	s		ne uired	Mil Illum.
			If Fail Timer has Expired then Increment Fail Counter							>= 5	Fail Counts	
			Fail_ CaseOutput Speed 2	<=	70	rpm						
			The following PRNDL sequence events occur in this exact order:									
			PRNDL state	=	Drive 6 (bit state 0110)	Range						
			PRNDL state = Drive 6 for	>=	1	Sec						
			PRNDL state	=	Transition 8 (bit state 0111)	Range						
			PRNDL state	=	Drive 6 (bit state 0110)	Range						
			PRNDL state	=	Transition 1 (bit state 1110)	Range						
			Above sequencing occurs in		1	Sec						
			Neutral Idle Mode	=	Inactive							
			If all conditions above are met Increment delay Timer									
			If the below two conditions are met Increment Fail Timer							>= 3	Fail Second s	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Valu		Secondary Malfunction		Enable Conditions		Tim Requi		Mil Illum.
			delay timer Input Speed If Fail Timer has Expired then Increment Fail Counter	>=	1 400	Sec Sec					>= 2	Fail Counts	
			<u>Fail</u> <u>Case</u> <u>3</u> Current range	=	Transition 13 (bit state 0010)		Previous range	¥	CeTR GR_e_ PRND L_Driv e1				
			Engine Torque	>=	-8192	Nm	Previous range	¥	CeTR GR_e_ PRND L_Driv e2				
			Engine Torque	<=	8191.75	Nm	IMS is 7 position configuration	=	1 E	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	Second s	
			If Fail Timer has Expired then Increment Fail Counter								>= 15	Fail Counts	
			<u>Fail</u> <u>Case</u> <u>4</u> Current range	=	Transition 8 (bit state 0111)		Disable Fail Case 4 if last positive range was Drive 6 and current range is transition 8						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Valu		Secondary Malfunction	Enable Conditions	Time Require	d	Mil Illum.
Gystein		Description	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	>=	100	Nm					
			Steady State Engine Torque	<=	8191.75	Nm					
			If the above conditions are met then Increment Fail Timer						>= 0.225 ^S	econd s	
			If the above Condtions have been met, Increment Fail Counter						>= ¹⁵ c	Fail Counts	
			<u>Fail</u> <u>Case</u> Throttle Position <u>5</u> Available	=	TRUE	Boolean					
			The following PRNDL sequence events occur in this exact order:								
			PRNDL State	=	Reverse (bit state 1100)	Range					
			PRNDL State	=	Transition 11 (bit state 0100)	Range					
			PRNDL State	=	Neutral (bit state 0101)	Range					

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction	Enable	Time	Mil
System	Code	Description	Criteria	Value	Maifunction	Conditions	Required	Illum.
			PRNDL State	Transition e = 11 (bit Range state 0100)				
			Above sequencing occurs in	g n <= 1 Sec				
			Then delay timer increments					
			Delay timer	er >= 5 sec				
			Range Shift State	re = Range Shift Complete				
			Absolute Attained Gear Slip	d p <= 50 rpm				
			Attained Gear	ar <= Sixth				
			Attained Gear	ar >= First				
			Throttle Position	n >= 8.0001831 pct				
			Output Speed	ed >= 200 rpm				
			If the above conditions are met Increment Fail Timer	et			>= 20 Second s	
			<u>Fail</u> <u>Case</u> <u>6</u> Current range	e = Ullegal (bit state 0000 or 1000 or 0001)	A Open Circuit Definition (flag set false if the following conditions are met):			
			and	d	Current Range	Transiti on 11 ≠ (bit state 0100)		
			A Open Circuit (See Definition)		or			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Last positive state	Neutral ≠ (bit state 0101)		
					or Previous transition state	Transiti ≠ on 8 (bit state 0111)		
					Fail case 5 delay timer	= 0 sec		
			If the above Condtions are met then, Increment Fail timer				>= 6.25 Second s	
			<u>Fail</u> <u>Case</u> <u>7</u> Current PRNDL State	PRNDL circuit ABCP = 1101				
			and Previous PRNDL state	PRNDL circuit ABCP =1111				
			Input Speed	>= 150 RPM				
				<= 2.8458252 ratio				
			If the above Condtions are met then, Increment Fail timer	>= 3.2741699 ratio			>= 6.25 Second s	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thres Valu		Secondary Malfunction		Enable Conditior	าร	Time Required	Mil Illum.
			P182E will report test fail when any of the above 7 fail cases are met								
						Ignition Voltage Lo	>=	8.6	Volts		
						Ignition Voltage Hi	<=	32	Volts		
						Engine Speed Lo	>=	400	RPM		
						Engine Speed Hi	<=	7500	RPM		
						Engine Speed is within the allowable limits for	>=	5	Sec		
						Engine Torque Signal Valid	=	TRUE	Boolean		
					Disable Conditions:	MIL not Illuminated for DTC's:	P0722,		07C0,		
							P0103, P0108, P0174, P0202, P0205, P0208, P0302, P0305,	P0101, P0 P0106, P P0171, P P0203, P P0206, P P0300, P P0300, P P0303, P P0306, P P0306, P	0107, 0172, 0201, 0204, 0207, 0301, 0304, 0307,		
Internal Mode Switch (IMS)	P1915	Internal Mode Switch Does Not Indicate Park/Neutral (P/N) During Start	PRNDL State is	≠ Park or ≠ Neutral	Enumeratio n						One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			shold lue	Secondary Malfunction		Enable Condition	s	Tim Requi		Mil Illum.
			The following events must occur Sequentially										
			Initial Engine speed	<=	50	RPM					>= 0.25	Enable Time (Sec)	
			Then Engine Speed Between Following Cals										
			Engine Speed Lo Hist	>=	50	RPM						Enable	
			Engine Speed Hi Hist	<=	480	RPM					>= 0.069	Time (Sec)	
			Then Final Engine Speed	>=	525	RPM							
			Final Transmission Input Speed	>=	100	RPM					>= 1.25	Fail Time (Sec)	
							DTC has Ran this Key Cycle?	=	FALSE	Boolean			
							Ignition Voltage Lo	>=	6	V			
							Ignition Voltage Hi	<=	32	V			
							Ignition Voltage Hyst High (enables above this value)	>=	5	V			
							Ignition Voltage Hyst Low (disabled below this value)	<=	2	V			
							Transmission Output Speed	<=	90	rpm			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Val		Secondary Malfunction	Enable Conditions	Tim Requi		Mil Illum.
							P1915 Status is	Test Failed This ≠ Key On or Fault Active			
						Disable Conditions:	MIL not Illuminated for DTC's:				
Transmission Control Module (TCM)	P2534	Ignition Switch Run/Start Position Circuit Low	TCM Run crank active (based on voltage thresholds below)	=	FALSE	Boolean					One Trip
			Ignition Voltage High Hyst (run crank goes true when above this value)		5	Volts			>= 280	Fail Counts (25ms Ioop)	
			Ignition Voltage Low Hyst (run crank goes false when below this value)		2	Volts			Out of 280	Sample Counts (25ms Ioop)	
							ECM run/crank active status available				
							ECM run/crank active status				
						Disable Conditions:	MIL not Illuminated for DTC's:				
Transmission Control Module (TCM)	P2535	Ignition Switch Run/Start Position Circuit High	TCM Run crank active (based on voltage thresholds below)	=	TRUE	Boolean					One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Val		Secondary Malfunction		Enable Conditions		Tim Requi		Mil Illum.
			Ignition Voltage High Hyst (run crank goes true when above this value)		5	Volts				>=	280	Fail Counts (25ms loop)	
			Ignition Voltage Low Hyst (run crank goes false when below this value)		2	Volts				Out of	280	Sample Counts (25ms loop)	
							ECM run/crank active status available		TRUE Boolean				
							ECM run/crank active status	=	FALSE Boolean				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: N ECM: N					
Variable Bleed Solenoid (VBS)		Pressure Control (PC) Solenoid D Stuck Off [CB26]	<u>Fail</u> <u>Case</u> Case: Steady State 1 2nd Gear										One Trip
			Gear slip	>=	400	RPM				~-	Pleas e See Table 5 For Neutr al Time Cal	Neutral Timer (Sec)	
			Intrusive test: commanded 3rd gear										

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
		Zeeenpien	If attained Gear = 3rd for Time	Table Based Time Please see Enable Time				
			If Above Conditions have been met					
			Increment 2nd gear fail count				>= 3 2nd Sear Fail Count	
			and CB26 Fail Count				or CB26 >= 14 Fail Count	
			<u>Fail</u> <u>Case</u> Case: Steady State <u>2</u>					
			Gear slip	>= 400 RPM			Pleas e See Table 5 For Neutr al Time Cal	
			Intrusive test: commanded 5th gear					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
		Decemption	If attained Gear = 5th For Time	Table Based Time Please see Enable Time				
			If Above Conditions have been met, Increment 5th gear fail counter				>= 3 5th Fail Count	
			and CB26 Fail Count				or CB26 >= 14 Fail Count	
					PRNDL State defaulted	= FALSE Boolean	1	
					inhibit RVT	= FALSE Boolear	1	
					IMS fault pending indication	= FALSE Boolear	1	
					TPS validity flag	= TRUE Boolear	1	
					Hydraulic System Pressurized		1	
					Minimum output speed for RVT	>= 0 RPM		
					A OR B			
					(A) Output speed enable	>= 67 RPM		
					(B) Accelerator Pedal enable	>= 0.5 Pct		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions	Time Required	Mil Illum.
					Common Enable Criteria				
					Ignition Voltage Lo	>=	8.6 Volts		
					Ignition Voltage Hi	<=	32 Volts		
					Engine Speed Lo	>=	400 RPM		
					Engine Speed Hi	<=	7500 RPM		
					Engine Speed is within the allowable limits for		5 Sec		
					Throttle Position Signal valid	=	TRUE Boolear		
					HSD Enabled	=	TRUE Boolear		
					Transmission Fluid Temperature	>=	-6.656 ⁰C		
					Input Speed Sensor fault	=	FALSE Boolear		
					Output Speed Sensor fault	=	FALSE Boolear		
					Default Gear Option is not present	=	TRUE		

Component/	Fault	Monitor Strategy	Malfunction	Thres		Secondary	Enable	Time	Mil
System	Code	Description	Criteria	Valu		Malfunction	Conditions	Required	Illum.
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E		
							ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
/ariable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 13 in Supporting Documents for Exhaust Delay Timers)		Boolean				One Trip
			Primary Oncoming Clutch Pressure Command Status	= pressurize					
			Primary Offgoing Clutch Pressure Command Status	= exhaust					
			Range Shift Status	Initial ≠ Clutch Control					
			Attained Gear Slip	<= 40	RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If above coditons are true, increment appropriate Fail 1 Timers Below:	t 1				
			fail timer 1 (2-1 shifting with throttle)	$1 >= 0.2998047 \frac{Fail Time}{(Soc)}$				
			fail timer 1 (2-1 shifting without throttle)	$t \ge 0.5$ (Sec)				
			fail timer 1 (2-3 shifting with throttle)	$1 >= 0.2998047 \frac{\text{Fail Time}}{(\text{Sec})}$				
			fail timer 1 (2-3 shifting without throttle)	$t \ge 0.5$ (Sec)				
			fail timer 1 (2-4 shifting with throttle)	1 >= 0.2998047 (See)				
			fail timer 1 (2-4 shifting without throttle)	$t \ge 0.5$ (See)				
			fail timer 1 (6-4 shifting with throttle)	$1 >= 0.2998047 \frac{\text{Fall Lime}}{(Soc)}$				
			fail timer 1 (6-4 shifting without throttle)	$t \ge 0.5$ (See)				
			fail timer 1 (6-5 shifting with throttle)	1 >= 0.2998047 (See)				
			fail timer 1 (6-5 shifting without throttle)	$t \ge 0.5$ (Sec)				

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction	Enable	Time	Mil Illum.
System	Code	Description	Criteria	Value	WandhGuon	Conditions	Required	mum.
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers				Total Fail Time = (Fail 1 + Fail 2) See Enabl e Timer s for >= Fail sec Timer 1, and Refer ence Suppo rting 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				Fail Counter >= 3 From 2nd Gear OR	
			6th gear fail counter				Fail Counter >= 3 From 6th Gear	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			total fail counter				OR Total >= 5 Fail Counter	r
I					TUT Enable temperature			
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault	= FALSE Boolean		
					Command / Attained Gear			
					High Side Driver ON	= TRUE Boolean		
					output speed limit for TUT	>= 100 RPM		
					input speed limit for TUT	>= 150 RPM		
					PRNDL state defaulted			
					IMS Fault Pending	= FALSE Boolean		
					Service Fast Learn Mode			
					HSD Enabled	= TRUE Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thresh Valu		Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description			Valu	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)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Steady State)	Fail Case: Steady State 1 1st Attained Gear slip If the Above is True for Time	>= >= T	Table Based Time Please Refer to Fable 4 in	RPM Enable Time (Sec)				One Trip
			Intrusive test: (CBR1 clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	dd <= 2 >= 2						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
							>= 1.1 Fail >= 1.1 Timer (Sec) Fail Count in 1st Gear or	
			Fail				Total >= 5 Fail Counts	-
			<u>Case</u> Case: Steady State <u>2</u> 3rd Gear	Table Based value				
			Max Delta Output Speed Hysteresis	Please >= Refer to rpm/sec 3D Table 1 in supporting documents				
			Min Delta Output Speed Hysteresis	Table Based value Please >= Refer to rpm/sec 3D Table 2 in supporting documents				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Jystein		Description	If the Above is True for Time	Table Based Time Please				
			Intrusive test: (C35R clutch exhausted)					
			Gear Ratio	<= 2.4821777				
				>= 2.2458496				
			If the above parameters are true				Fail	
							>= 1.1 Timer (Sec)	
							Fail >= 3 Count in 3rd Gear	
							or Total >= 5 Fail Counts	
			Fail Case Case: Steady State 3 4rd Gear					

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction	Enable	Time	Mil
System	Code	Description	Criteria	Value	Manunction	Conditions	Required	Illum.
			Max Delta Output Speed Hysteresis	Table Based value Please >= Refer to rpm/sec 3D Table 1 in supporting documents				
			Min Delta Output Speed Hysteresis	Table Based value Please >= Refer to rpm/sec 3D Table 2 in supporting documents				
			If the Above is True for Time	Table Based Time Please Refer to Table 17 in supporting documents				
			Intrusive test: (C1234 clutch exhausted)					
				<= 0.7003174				
I			Gear Ratio	>= 0.633667				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If the above parameters are true				>= 1.1 Fail >= 1.1 Timer (Sec) Fail Count in 4th Gear or Total >= 5 Fail Counts	
			<u>Fail</u> <u>Case</u> Case: Steady State <u>4</u> 5th Gear					
			Max Delta Output Speed Hysteresis	Table Based value Please >= Refer to rpm/sec 3D Table 1 in supporting documents				
			Min Delta Output Speed Hysteresis	Table Based value Please >= Refer to rpm/sec 3D Table 2 in supporting documents				

Component/	Fault	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	If the Above is True for Time	Table Based Time Please				
				<= 0.7003174 >= 0.633667			>= 1.1 Fail >= 1.1 Timer (Sec) Fail >= 3 Count in 5th	
					PRNDL State	= FALSE Boolean	Gear or Total >= 5 Fail Counts	
					defaulted inhibit RVT IMS fault pending indication output speed	= FALSE Boolean = FALSE Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
					TPS validity flag	=	TRUE Boo	lean		
					HSD Enabled	=	TRUE Boo	lean		
					Hydraulic_System_Pr essurized	=	TRUE Boo	lean		
					A OR B					
					(A) Output speed enable	>=	67 N	Im		
					(B) Accelerator Pedal enable	>=	0.5 N	lm		
					Ignition Voltage Lo	>=	8.6 Vo	olts		
					Ignition Voltage Hi	<=	32 Vo	olts		
					Engine Speed Lo	>=	400 R	PM		
					Engine Speed Hi	<=	7500 R	PM		
					Engine Speed is within the allowable limits for	>=	5 S	ec		
					if Attained Gear=1st FW Accelerator Pedal enable	>=	5 F	'ct		
					if Attained Gear=1st FW Engine Torque Enable	>=	5 N	Im		
					if Attained Gear=1st FW Engine Torque Enable	<=	8192 N	lm		
					Transmission Fluid Temperature	>=	-6.656	С		
					Input Speed Sensor fault	=	FALSE Boo	lean		
					Output Speed Sensor fault	=	FALSE Boo	lean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thres Val		Secondary Malfunction	Enable Conditio		Tim Requi		Mil Illum.
						Default Gear Option is not present					
					Disable Conditions:		TCM: P0716, P0 P0722, P0723, P				
							ECM: P0101, P0 P0103, P0106, P P0108, P0171, P P0174, P0175, P P0202, P0203, P P0205, P0206, P P0208, P0300, P P0302, P0303, P P0305, P0306, P P0308, P0401, P	0107, 0172, 0201, 0204, 0207, 0301, 0304, 0307,			
Variable Bleed Solenoid (VBS)	P2720	Pressure Control (PC) Solenoid D Control Circuit Low (CB26 VBS)	The HWIO reports a low voltage (ground short) error flag		Boolean				>= 0.3 out 0.375	Fail Time (Sec) Sample Time (Sec)	One Trip
						P2770 Status is not	Test Failed This = Key Or or Fault Active	1			
						Ignition Voltage		Volts Volts			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thresh Valu		Secondary Malfunction		Enable Condition	s	Tim Requi		Mil Illum.
							Engine Speed	>=	400	RPM			
							Engine Speed	<=	7500	RPM			
							Engine Speed is within the allowable limits for	>=	5	Sec			
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: N ECM: N					
Variable Bleed Solenoid (VBS)	P2721	Pressure Control (PC) Solenoid D Control Circuit High (CB26 VBS)	The HWIO reports a high voltage (open or power short) error flag	= .	TRUE	Boolean					>= 0.3	Fail Time (Sec)	One Trip
											out of 0.375	Sample Time (Sec)	
							P2721 Status is not	=	Test Failed This Key On or Fault Active				
							Ignition Voltage	>=	8.6	Volts			
							Ignition Voltage	<=	32	Volts			
							Engine Speed	>=	400	RPM			
							Engine Speed	<=	7500	RPM			
							Engine Speed is within the allowable limits for	>=	5	Sec			

Component/ System	Fault Code		Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	Criteria	Disab Condition	le MIL not Illuminated	TCM: None	Nequireu	
Variable Bleed Solenoid (VBS)	P2723	Pressure Control (PC) Solenoid E Stuck Off	Fail Case Case: Steady State 1 1st Gear					One Trip
			Gear slip	>= 400 RPM			Pleas e See Table 5 For Neutral Timer (Sec) Time Cal	
			Intrusive test: commanded 2nd gear				Gai	
			If attained Gear ≠ 2nd for Time	Please refer to Table 3 in Shift Time Supporting (Sec) Document s				
			If Above Conditions have been met, Increment 1st gear fail counter				>= 3 Fail Count or	
			and C1234 fail counter				>= 14 Clutch Fail Count	
			Fail Case 2 Case: Steady State 2nd Gear					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Gear slip	>= 400 RPM			Pleas e See Table 5 For Neutral Timer Cal Pleas Neutral Timer (Sec)	
			Intrusive test: commanded 3rd gear					
			If attained Gear ≠ 3rd for Time					
			If Above Conditions have been met, Increment 2nd gear fail counter				>= 3 ^{2nd} Gear Fail Count	
			and C1234 fail counter				>= 14 Clutch Fail Count	
			<u>Fail</u> <u>Case</u> Case: Steady State <u>3</u> 3rd Gear					
			Gear slip	>= 400 RPM			Pleas e See Table 5 For Neutral Time Cal	

MAIN SECTION

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Intrusive test: commanded 4th gear					
			If attained Gear ≠ 4th for time	Please refer to Table 3 in Shift Time Supporting (Sec) Document s				
			If Above Conditions have been met, Increment 3rd gear fail counter				>= 3 Gear Fail Count or	
			and C1234 fail counter				>= 14 C1234 Clutch Fail Count	
			<u>Fail</u> <u>Case</u> Case: Steady State <u>4</u> 4th Gear					
			Gear slip	>= 400 RPM			Pleas e See Table 5 For Neutral Timer Cal	
			Intrusive test: commanded 5th gear					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions	Time Required	Mil Illum.
		Boothpiton	If attained Gear = 5th For Time	Please refer to Table 3 in Shift Time					
			If Above Conditions have been met, Increment 4th gear fail counter					4th >= 3 Gear Fail Count or	
			and C1234 fail counter					C1234 C1234 >= 14 Clutch Fail Count	
					PRNDL State defaulted	=	FALSE Boolean		
					inhibit RVT	=	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	>=	0.5 Pct		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions	Time Required	Mil Illum.
					Common Enable Criteria				
					Ignition Voltage Lo	>=	8.6 Volts		
					Ignition Voltage Hi	<=	32 Volts		
					Engine Speed Lo	>=	400 RPM		
					Engine Speed Hi	<=	7500 RPM		
					Engine Speed is within the allowable limits for	>=	5 Sec		
					Throttle Position Signal valid	=	TRUE Boolean		
					HSD Enabled	=	TRUE Boolean		
					Transmission Fluid Temperature	>=	-6.656 °C		
					Input Speed Sensor fault	=	FALSE Boolean		
					Output Speed Sensor fault	=	FALSE Boolean		
					Default Gear Option is not present	=	TRUE		

Component/	Fault	Monitor Strategy	Malfunction	Thresh Valu		Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	Criteria	valu	e Disable		TCM: P0716, P0717,	Required	mum.
					Conditions:		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		
			Primary Offgoing						One
			Clutch is exhausted						Trip
Variable Bleed	D0704	Pressure Control (PC) Solenoid E Stuck On	(See Table 10 in		Boolean				
Solenoid (VBS)	P2724	(Dynamic)	Supporting Documents for		Doolean				
			Exhaust Delay						
			Timers)						
			Primary Oncoming						
			Clutch Pressure Command Status	= pressurize d					
			Command Status	a					
			Primary Offgoing	Clutch					
			Clutch Pressure	= exhaust					
			Command Status	command					
				Initial					
			Range Shift Status	≠ Clutch Control					
			Attained Gear Slip		RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If the above conditions are true increment appropriate Fail 1 Timers Below:					
			fail timer 1 (2-6 shifting with throttle)	>= 0.2998047 sec				
			fail timer 1 (2-6 shifting without throttle)	>= 0.5 sec				
			fail timer 1 (3-5 shifting with throttle)	>= 0.2998047 sec				
			fail timer 1 (3-5 shifting without throttle)	>= 0.5 sec				
			fail timer 1 (4-5 shifting with throttle)	>= 0.2998047 sec				
			fail timer 1 (4-5 shifting without throttle)	>= 0.5 sec				
			fail timer 1 (4-6 shifting with throttle)	>= 0.2998047 sec				
			fail timer 1 (4-6 shifting without throttle)	>= 0.5 sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers				Total Fail Time = (Fail 1 + Fail 2) See Enabl e Timer s for >= Fail sec Timer 1, and Refer ence Suppo rting 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				Fail Counter >= 3 From 2nd Gear	r
			3rd gear fail counter				Fail Counter >= 3 From 3rd Gear	r

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum
Gyotom		Decomption	4th gear fail counter				Fail Counter >= 3 From 4th Gear	
			total fail counter				Total >= 5 Fail Counter	r
					TUT Enable temperature	>= -6.656 °C		
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault	= FALSE Boolean		
					Command / Attained Gear	≠ 1st Boolean		
					High Side Driver ON	= TRUE Boolean		
					output speed limit for TUT	>= 100 RPM		
					input speed limit for TUT	>= 150 RPM		
					PRNDL state defaulted	= FALSE Boolean		
					IMS Fault Pending	= FALSE Boolean		
					Service Fast Learn Mode	= FALSE Boolean		
					HSD Enabled	= TRUE Boolean		

Component/	Fault		Malfunction	Threshold	Secondary	Enable	Time	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions	Required	Illum.
				Disable		TCM: P0716, P0717,		
				Conditions:	for DTC's:	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)	<u>Fail</u> <u>Case</u> Case: 5th Gear 1					One Trip
			Max Delta Output Speed Hysteresis					

MAIN SECTION

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Time	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions	Required	Illum.
			Min Delta Output Speed Hysteresis	Table Based value Please >= Refer to rpm/sec 3D Table 2 in supporting documents				
			If the Above is True for Time	Table Based Time Please Refer to Table 17 in supporting documents				
			Intrusive test: (C35R clutch exhausted) Gear Ratio	<= 1.2095947				
			Gear Ratio If the above parameters are true	>= 1.0943604				
							Fail >= 1.1 Time (Sec) Fail	
							>= 3 Coun in 5th Gear OR	n

MAIN SECTION

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Coue	Description	Fail Case Case: 6th Gear 2				>= 3 Fail Counts	
			Max Delta Output Speed Hysteresis	Table Based value Please >= Refer to rpm/sec 3D Table 1 in supporting documents				
			Min Delta Output Speed Hysteresis	Table Based value Please >= Refer to rpm/sec 3D Table 2 in supporting documents				
			If the Above is True for Time					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Intrusive test: (CB26 clutch exhausted)					
			Gear Ratio	<= 1.2095947				
			Gear Ratio	>= 1.0943604				
			If the above parameters are true					
							Fail >= 1.1 Timer (Sec) Fail	
							>= 3 Count in 6th Gear	
							OR Total >= 3 Fail Counts	
					PRNDL State defaulted			
					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_Pr essurized			
					A OR B			
					(A) Output speed enable			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Condition	s	Time Required	Mil Illum.
					(B) Accelerator Pedal enable	>=	0.5	Nm		
					Ignition Voltage Lo	>=	8.6	Volts		
					Ignition Voltage Hi	<=	32	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	Pct		
					if Attained Gear=1st FW Engine Torque Enable	>=	5	Nm		
					if Attained Gear=1st FW Engine Torque Enable	<=	8192	Nm		
					Transmission Fluid Temperature	>=	-6.656	°C		
					Input Speed Sensor fault	=	FALSE	Boolean		
					Output Speed Sensor fault	=	FALSE	Boolean		
					Default Gear Option is not present	=	TRUE			

Component/	Fault		Malfunction	Thres Val		Secondary Malfunction		Enable Condition			ne	Mil Illum.
System	Code	Description	Criteria	va	Disable	MIL not Illuminated				Req	uired	mum.
					Conditions:	for DTC's:						
							ECM: P P0103, P0108, P0174, P0202, P0205, P0208, P0302, P0305,	0101, P01 P0106, P0 P0171, P0 P0175, P0 P0203, P0 P0206, P0 P0300, P0 P0303, P0 P0306, P0 P0401, P0	02, 1107, 1172, 1201, 1204, 1207, 1301, 1304, 1307,			
Variable Bleed Solenoid (VBS)	P2729	Pressure Control (PC) Solenoid E Control Circuit Low (C1234 VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>= 0.3 out 0.37	Fail Time (Sec) Sample 5 Time (Sec)	One Trip
						P2729 Status is not	=	Test Failed This Key On or Fault Active			(000)	
						Ignition Voltage	>=	8.6	Volt			
						Ignition Voltage	<=	32	Volt			
						Engine Speed	>=	400	RPM			
						Engine Speed	<=	7500	RPM			

MAIN SECTION

Component/ System	Fault Code		Malfunction Criteria	Thresl Valu		Secondary Malfunction		Enable Condition	s	Tim Requi		Mil Illum.
						Engine Speed is within the allowable limits for		5	Sec			
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: N ECM: N					
Variable Bleed Solenoid (VBS)	P2730	Pressure Control (PC) Solenoid E Control Circuit High (C1234 VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>= 0.3	Fail Time (Sec)	One Trip
										out of 0.375	Sample Time (Sec)	
						P2730 Status is not	=	Test Failed This Key On or Fault Active				
						Ignition Voltage	>=	8.6	Volt			
						Ignition Voltage	<=	32	Volt			
						Engine Speed	>=	400	RPM			
						Engine Speed	<=	7500	RPM			
						Engine Speed is within the allowable limits for		5	Sec			
					Disable Conditions:	MIL not Illuminated for DTC's:						

Component/ System	Fault Code		Malfunction Criteria		Thres Val		Secondary Malfunction		Enable Condition	s		Tim Requ		Mil Illum.
Variable Bleed Solenoid (VBS)	P2763	Torque Converter Clutch Pressure High	The HWIO reports a low pressure/high voltage (open or power short) error flag	=	TRUE	Boolean					>=	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	>=	8.6	Volt				1
							Ignition Voltage	<=	32	Volt				1
							Engine Speed	>=	400	RPM				
							Engine Speed	<=	7500	RPM				
							Engine Speed is within the allowable limits for	>=	5	Sec				
							High Side Driver Enabled	=	TRUE	Boolean				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P ECM: N		59				
Variable Bleed Solenoid (VBS)	P2764	Torque Converter Clutch Pressure Control Solenoid Control Circuit Low	The HWIO reports a high pressure/low voltage (ground short) error flag	=	TRUE	Boolean					>=	4.4	MPH	One Trip
											out of	5	MPH	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Val		Secondary Malfunction		Enable Conditior	IS		Tim Requi		Mil Illum.
							P2764 Status is not	=	Test Failed This Key On or Fault Active					
							Ignition Voltage	>=	8.6	Volt				
							Ignition Voltage	<=	32	Volt				
							Engine Speed	>=	400	RPM				
							Engine Speed	<=	7500	RPM				
							Engine Speed is within the allowable limits for	>=	5	Sec				
							High Side Driver Enabled	=	TRUE	Boolean				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P ECM: N		659				
Communication	U0073	Controller Area Network Bus Communication Error	CAN Hardware Circuitry Detects a Low Voltage Error	=	TRUE	Boolean					>=	62	Fail counts (≈ 10 second s)	One Trip
			Delay timer	>=	0.1125	sec					Out of	70	Sample Counts (≈ 11 second s)	
							Stabilization delay	>=	3	sec				
							Ignition Voltage	>=	8.6	Volt				
							Ignition Voltage	<=	32	Volt				

Component/ System	Fault Code	•••	Malfunction Criteria		Thres Val		Secondary Malfunction		Enable Conditio			Time equired	Mil Illum.
						Disable Conditions:	Power Mode MIL not Illuminated for DTC's:	TCM: N					
Communication	U0100	Lost Communications with ECM (Engine Control Module)	CAN messages from ECM are not received by the TCM	=	TRUE	Boolean					>= 1	12 sec	One Trip
							Stabilization delay	>=	3	sec			
							Ignition Voltage	>=	8.6	Volt			
							Ignition Voltage	<=	32	Volt			
							Power Mode	=	Run				
						Disable Conditions:	MIL not Illuminated for DTC's:						

Additional Trans DTC's

Shift solenoid B Performance	P0757	Shift Solenoid Valve B Stuck Off 1-2-2-1	<u>Fail</u> <u>Case</u> 1	3rd gear low ratio multiplier	>=	= 0.9499512 Pct		=	2	Sec	One Trip
				3rd gear high ratio multiplier		= 1.0500488 Pct					
			<u>Fail</u> <u>Case</u> 2	4th gear low ratio multiplier	>=	= 0.9499512 Pct		=	2	Sec	
				4th gear high ratio multiplier	<=	= 1.0500488 Pct					
								=	2	counts	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Condition	S	Time Required	Mil Illum.
					Ignition Voltage	>=	8	volts		
					Ignition Voltage	<=	32	volts		
					Engine Speed	>=	500	RPM		
					Engine Speed	<=	6500	RPM		
					Engine speed between min/max for	>=	5	Sec		
					Engine Speed Status Valid	=	TRUE			
					Gear Slip	>=	150	RPM		
					Gear Slip Fail Time	>=	0.5	Sec		
					Throttle	>=	8	Pct		
					Engine Torque	>=	50	N*m		
					Output Speed	>=	50	RPM		
					Input Speed	>=	50	RPM		
					4WD Range Timer	>=	6	Sec		
					Range Change Timer	>=	6	Sec		
					PTO Active	=	FALSE			
					Trans Temp	>=	20	С		
					Trans Temp	<=	130	С		
					Engine Torque Signal Valid	=	TRUE	-		
					Throttle Position Signal Valid	=	TRUE			

Component/	Fault		Malfunction	Threshold	Secondary		Enable			Tim		Mil
System	Code	Description	Criteria	Value	Malfunction		ondition			Requ	ired	Illum.
				Disable		P0722, P0974, P1915, P182D, P0741, P2764, ECM: P0103, P0108, P0108, P0174, P0202, P0205, P0208, P0302, P0305, P0308, P0340, P0365,	P0716, F P0723, P0976, P182A, P182E, P0742, P2769, P0101, F P0106, P0171, P0175, P0203, P0206, P0300, P0303, P0306, P0345, P0366, P0401,	P0973, P0977, P182C, P182F, P2763, P2770 P0102, P0107, P0172, P0201, P0204, P0207, P0301, P0304, P0307, P0336, P0346, P0390,				
Shift Solinoid	P0976	Shift Solenoid B Control Circuit Low Voltage	hardware circuitry detects open or short to ground						>=	44	Fail Count (100ms loop)	One Trip
									Out of	50	Sample Counts (100ms loop)	
					Ignition Voltage	>=	8	volts				
					Ignition Voltage	<=	32	volts				
					Engine Speed	>=	500	RPM				
					Engine Speed	<=	6500	RPM				
					Engine speed between min/max for	>=	5	Sec				

MAIN SECTION

Component/ System	Fault Code		Malfunction Criteria		Thres Valu		Secondary Malfunction		Enable Conditions	Time Required	Mil Illum.
						Disable Conditions:	Engine Speed Status Valid MIL not Illuminated for DTC's:	P03	TRUE TCM: None M: P0335, P0336, 40, P0345, P0346, 65, P0366, P0390, P0391		
Tap Up Tap Down Switch (TUTD)	P1765	Upshift Switch Circuit #2	Fail Tap Up Switch Stuck Case in the Up Position in 1 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					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			shold Iue	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Tap Up Switch Stuck in the Up Position in Reverse Enabled	=	0	Boolean				
			Tap Up Switch ON	=	TRUE	Boolean			Fail >= 1 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				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction		Enable Conditior	IS	Tim Requ		Mil Illum.	
			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	=	TRUE	Boolean							
			NOTE: Both Failcase1 and Failcase 2 Must Be Met								>= 600	Fail Time (Sec)	
							Time Since Last Range Change	>=	1	Enable Time (Sec)			
							Ignition Voltage Lo	>=	8.6	Volts			
							Ignition Voltage Hi	<=	32	Volts			
							Engine Speed Lo	>=	400	RPM			
							Engine Speed Hi	<=	7500	RPM			
							Engine Speed is within the allowable limits for	>=	5	Sec			
							P1765 Status is	¥	Test Failed This Key On or Fault Active				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P P182E, ECM: N	P1915	761,			

Component/ System	Fault Code	Malfunction Criteria			shold alue	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Tap Up Tap Down Switch (TUTD)	P1766	Fail Tap Down Switch Case Stuck in the Down 1 Position in Range 1 Enabled	=	0	Boolean				Special No MIL
		Tap Down Switch Stuck in the Down Position in Range 2 Enabled	=	0	Boolean				
		Tap Down Switch Stuck in the Down Position in Range 3 Enabled	=	0	Boolean				
		Tap Down Switch Stuck in the Down Position in Range 4 Enabled	=	0	Boolean				
		Tap Down Switch Stuck in the Down Position in Range 5 Enabled	=	0	Boolean				
		Tap Down Switch Stuck in the Down Position in Range 6 Enabled	=	0	Boolean				
		Tap Down Switch Stuck in the Down Position in Range Neutral Enabled	=	1	Boolean				
		Tap Down Switch Stuck in the Down Position in Range Park Enabled	=	1	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			shold lue	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Tap Down Switch Stuck in the Down Position in Range Reverse Enabled	=	0	Boolean				
			Tap Down Switch ON	=	TRUE	Boolean			>= 1 sec	
			FailTap Down SwitchCaseStuck in the Down2Position in Range 1Enabled	=	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				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Val		Secondary Malfunction		Enable Condition	s	Time Require		Mil Illum.
			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	=	TRUE	Boolean							
			NOTE: Both Failcase1 and Failcase 2 Must Be Met								>= 600	sec	
							Time Since Last Range Change	>=	1	Sec			
							Ignition Voltage Lo	>=	8.6	Volts			
							Ignition Voltage Hi	<=	18	Volts			
							Engine Speed Lo	>=	400	RPM			
							Engine Speed Hi	<=	7500	RPM			
							Engine Speed is within the allowable limits for	>=	5	Sec			
							P1766 Status is	¥	Test Failed This Key On or Fault Active				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P P182E, ECM: N	P1915	61,			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction		Enable Condition	s		Tir Requ		Mil Illum.	
Tap Up Tap Down Switch (TUTD)	P1767	Up and Down Shift Switch Circuit #2	TUTD Circuit Reads Invalid Voltage	=	TRUE	Boolean					>=	60	Fail Time (Sec)	Special No MIL
							Ignition Voltage Lo	>=	8.6	Volts				
							Ignition Voltage Hi	<=	32	Volts				
							Engine Speed Lo	>=	400	RPM				
							Engine Speed Hi	<=	7500	RPM				
							Engine Speed is within the allowable limits for	>=	5	Sec				
							P1767 Status is	¥	Test Failed This Key On or Fault Active					
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: F ECM: N						
Internal Mode Switch (IMS)	P182A	Internal Mode Switch- Circuit A	IMS circuit A low	=	TRUE						>=	8	sec	Two Trips
											>=	1	count	
							Engine Torque	>=	50	N*m				1
							Engine Torque	<=	1492	N*m				
							Ignition Voltage	>=	8	volts				
							Ignition Voltage	<=	32	volts				
							Engine Speed	>=	500	RPM				
							Engine Speed	<=	6500	RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Engine speed between min/max for	>= 5 Sec		
					Engine Speed Status Valid	= TRUE		
					Engine Torque Signal Valid	= TRUE		
					Range = Park for	>= 1 sec		
				Disable Conditions:		TCM: None 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, P0335, P0336, P0340, P0345, P0346, P0365, P0366, P0390, P0391, P0401, P042E		
Internal Mode Switch (IMS)	P182C	Internal Mode Switch- Circuit B	IMS circuit B High	= TRUE			>= 8 sec	Two Trips
							>= 1 count	
					Engine Torque	>= 50 N*m		
					Engine Torque	<= 1492 N*m		
					Ignition Voltage	>= 8 volts		
					Ignition Voltage	<= 32 volts		
					Engine Speed	>= 500 RPM		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions ed <= 6500 RPM		IS	R	Time equire		Mil Illum.
					Engine Speed Engine speed between min/max for	<=	6500 5	RPM Sec				
					Engine Speed Status Valid	=	TRUE					
					Engine Torque Signal Valid	=	TRUE					
					Range = Park for	>=	1	sec				
				Disabl Conditions		ECM P010 P010 P020 P020 P020 P030 P030 P030 P034 P036	TCM: Nor : P0101, F 3, P0106, 8, P0171, 4, P0175, 2, P0203, 5, P0206, 8, P0300, 2, P0303, 5, P0306, 8, P0335, 0, P0345, 5, P0366, 1, P0401,	P0102, P0107, P0172, P0201, P0204, P0207, P0301, P0304, P0307, P0336, P0346, P0390,				-
Internal Mode Switch (IMS)	P182D	Internal Mode Switch- Circuit P	IMS circuit P Low	= TRUE						8	sec	Two Trips
					Engine Torque	>=	50	N*m	>=	1	count	
					Engine Torque	<=	1492	N*m				
					Ignition Voltage	>=	8	volts				
					Ignition Voltage	<=	32	volts				
					Engine Speed	>=	500	RPM				
					Engine Speed		6500	RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Engine speed between min/max for	>= 5 Sec		
					Engine Speed Status Valid			
					Engine Torque Signal Valid	= TRUE		
					Range = Park for	>= 1 sec		
				Disable Conditions				
Internal Mode Switch (IMS)	P182F	Internal Mode Switch- Circuit C	IMS circuit C High	= TRUE			>= 8 sec	Two Trips
							>= 1 count	
					Engine Torque	>= 50 N*m		
					Engine Torque Signal Valid	= TRUE		
					Ignition Voltage	>= 8 volts		
					Ignition Voltage	<= 32 volts		
					Vehicle Speed	>= 16 kph		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Tir Requ		Mil Illum.
					1st gear ratio low	>= 2.845	Ratio			
					1st gear ratio High	<= 3.274	Ratio			
					2nd gear ratio low	>= 1.511	Ratio			
					2nd gear ratio High	<= 1.74	Ratio			
					3rd gear ratio low	>= 0.93	Ratio			
					3rd gear ratio High	<= 1.07	Ratio			
					4th gear ratio low	>= 0.65	Ratio			
					4th gear ratio High	<= 0.747	Ratio			
				Disable Conditions		TCM: P0722, ECM: P0101, P0103, P0106, P0108, P0171, P0174, P0175, P0202, P0203, P0205, P0206, P0208, P0300, P0302, P0303, P0305, P0306, P0308, P0401,	P0102, P0107, P0172, P0201, P0204, P0207, P0301, P0304, P0307,			
Tap Up Tap Down Switch (TUTD)	P1876	Tap Up and Down Enable Switch Circuit	Current range TUTD Enable Switch	Neutral						Special No MIL
			is Active					>= 3	Fail Time (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thres Val		Secondary Malfunction		Enable Condition	s		Tim Requi		Mil Illum.
										>=	5	Fail Counts	
						Ignition Voltage Lo	>=	8.6	Volts				
						Ignition Voltage Hi	<=	32	Volts				
						Vehicle Speed Lo	<=	511	KPH				
						Engine Speed Lo	>=	400	RPM				
						Engine Speed Hi	<=	7500	RPM				
						Engine Speed is within the allowable limits for	>=	5	Sec				
						P1876 Status is	¥	Test Failed This Key On or Fault Active					
					Disable Conditions:	for DTC's:	P0826,	P1761, P1 P1915, U0	825,				
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	50	Sample Counts (100ms loop)	
						Ignition Voltage	>=	8	V				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Condition	S	1	Time Requir		Mil Illum.
					Ignition Voltage	<=	32	V				
					Engine Speed	>=	500	RPM				
					Engine Speed	<=	6500	RPM				
					Engine speed between min/max for	>=	5	Sec				
					Engine Speed Status Valid		TRUE					
					TCC Enable solenoid command		OFF					
				Disa Conditio			TCM: Non	e				
				Condition	115. 101 DTC 5.	ECM P034	l: P0335, F 0, P0345, 5, P0366, P0391	P0346,				
TCC Enable Solenoid	P2770	TCC enable solenoid circuit high voltage	Hardware circuitry detects a short to voltage						>=	44	Fail Count (100ms loop)	Two Trips
									Out of	FO	Sample Counts (100ms loop)	
					Ignition Voltage	>=	8	V				
					Ignition Voltage	<=	32	V				
					Engine Speed		500	RPM				
					Engine Speed		6500	RPM				
					Engine speed between min/max for	>=	5	Sec				
					Engine Speed Status Valid		TRUE					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					TCC Enable solenoid command	= ON		
				Disable Conditions:				

Supporting Documents

				orting	Doodin					
Table 1		0.00	04.00	100.00	100.00	050.00	000.00	004.00	4.40,00	540.00 NI*
	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 RPN
Table 2										
	Axis	-6.67	-6.66	40.00 °C	;					
	Curve	409.59	2.00	2.00 Se	ec					
	_									
Table 3	A	0.07	0.00	40.00						
	Axis Curve	-6.67 409.59	-6.66 4.00	40.00 °C 4.00 Se						
	Curve	409.09	4.00	4.00 30	50					
Table 4										
	Axis	-6.67	-6.66	40.00 °C	;					
	Curve	409.59	2.00	2.00 Se	ec					
Table F										
Table 5	Axis	-6.67	-6.66	40.00 °C						
	Curve	409.59	3.00	3.00 Se						
	L									
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 S	ec			
Table 7										
100101	Axis	-6.67	-6.66	40.00	80.00	120.00 °C	2			
	Curve	409.00	3.40	1.40	1.30	1.20 S	ес			
	-									
Table 8		0.07	0.00	10.00		100.00				
	Axis Curve	<u>-6.67</u> 409.00	-6.66 3.60	40.00	80.00	120.00 °C 1.40 S				
	Curve	403.00	5.00	1.00	1.50	1.40 3	60			
Table 9										
	Axis	-6.67	-6.66	40.00	80.00	120.00 °C	2			
	Curve	409.00	3.30	1.30	1.20	1.10 S	ec			
Table 10										
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 S				
<u>Table 11</u>	_									
	Axis	-40.00	-20.00	0.00	30.00	<mark>110.00</mark> °C				
	Curve	1.72	1.11	0.60	0.36	0.22 S	ec			
Table 12										
10010 12	Axis	-40.00	-20.00	0.00	30.00	110.00 °C	2			
	Curve	2.12	1.39	0.84	0.64	0.33 S				

	Axis	-40.00	-20.00	0.00	30.00	110.00 °C										
	Curve	2.51	0.95	0.50	0.29	0.13 Se										
Table 14																
Table 14	Axis	-40.00	-20.00	0.00	30.00	110.00 °C										
	Curve	2.97	0.82	0.47	0.20	0.13 Se										
Table 15																
	Axis	-40.00	-30.00	-20.00	-10.00	0.00	10.00	20.00	30.00	40.00 °C						
	Curve	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00 Se	C					
able 16																
	Axis	-6.67	-6.66	40.00 °C	0											
	Curve	409.59	2.50	2.50 S												
able 17																
	Axis	-6.67	-6.66	40.00 °C	C											
	Curve	0.40	0.35	0.30 S												
Table 18																
	Axis	-40.10	-40.00	-20.00	0.00	30.00	60.00	100.00	149.00	149.10 °C						
	Curve	256.00	50.00	45.00	40.00	34.00	25.00	20.00	20.00	256.00 °C						
able 19																
	Axis	-40.10	-40.00	-20.00	0.00	30.00	60.00	100.00	149.00	149.10 °C						
	Curve	256.00	50.00	45.00	40.00	34.00	25.00	20.00	20.00	256.00 °C						
Table 20																
	Axis	-40.10	-40.00	-20.00	0.00	30.00	60.00	100.00	149.00	149.10 °C						
	Curve	256.00	10.00	8.00	8.00	8.00	8.00	8.00	8.00	256.00 °C						
<u>able 21</u>																
	Axis	-40.00	-20.00	40.00 °C												
	Curve	5.00	3.00	1.00 S	ec											
		Supp	ortina	Tables	(Addit	ional D [.]	TC's)									
		<u></u>	<u>viuig</u>		17 10010											
<u>Table 1</u>		40	0.5	40			nits									
	Axis Curve	-40 1900	-25 1000	-10 800	5 520	20 De 200 Se	eg C ec									
Table 2	Axis	0	6.248474	12.49695	18.74542	24.9939 3	1.24237	37.49084	43.73932	49.98779 5	6.23627 62.4	8474 69 7	73322 74	4.98169	81.23016	8.
	Curve	0	60	12.49095	180	24.9939 3	392	480		49.90779 0 600	624	624	624	624	624	87.4

Table 13

Curve

624 Kpa

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Table 3											Units
	Axis	0	64	128	192	256	320	384	448	512	Nm
	Curve	100	100	100	100	100	100	150	150	150	RPM
Table 4											Units
	Axis	-40	-16.25	7.5	31.25	55	78.75	102.5	126.25	150	Deg C
	Curve	600	400	400	400	400	400	400	400	400	RPM
											-
Table 5							Units				
	Axis	-40	7.5	55	102.5	150	Deg C				
	Curve	0.1	0.15	0.2	0.3	0.3	Sec				

100.00

8191.75

300.00

300.00

Supporting Documents - 3D Tables

3D_Table 1

X-Axis Calibration

Y-Axis Calibration **Table Calibration**

n	%		0.00	2.00	5.00	25.00	100.00
n	°C	-6.67	8191.75	8191.75	8191.75	8191.75	8191.75
۱	RPM/Sec	-6.66	8191.75	8191.75	8191.75	8191.75	8191.75
		40.00	8191.75	8191.75	8191.75	8191.75	8191.75

3D_Table 2

s Calibration	%
Axis Calibration	°C
Calibration	RPM/Sec