15 OBDG02 TCM Summary Tables (Common)

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	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 Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0601 ECM: None	>= 5 Fail Counts	One Trip
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 Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0603 ECM: None	Runs Continously	One Trip
Transmission Control Module (TCM)	P0604	Transmission Electro-Hydraulic Control Module Random Access Memory	RAM Read/Write Failure (Single Word)	= TRUE Boolean Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0604 ECM: None	>= 5 Fail Counts = 16 Sample Counts	One Trip
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 Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P062F ECM: None	Runs Continously	One Trip
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1 Substrate Temperature	>= 144 ºC			>= 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.
			Fail Case 2 Substrate Temperature Ignition Voltage	>= 50 ºC >= 18 Volts			>= 2 Fail Time (Sec)	
			Note: either fail case can set the DTC					
					Ignition Voltage Lo Ignition Voltage Hi Substrate Temp Lo Substrate Temp Hi Substrate Temp Between Temp Range for Time P0634 Status is	>= 9 Volts <= 31.990234 Volts >= 0 ºC <= 240 ºC >= 0.25 Sec ≠ Test Failed This Key On or Fault Active	
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None		
High Side Driver 1	P0658	Actuator Supply Voltage Circuit Low	The HWIO reports a low voltage (open or ground short) error flag	= TRUE Boolean			>= 4 Fail Counts out of 6 Sample Counts	One Trip
					P0658 Status is High Side Driver 1 On	= Test Failed This Key On or Fault Active = True Boolean		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
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 supporting documents °C				Two Trips
			If TCM substrate temp to power up temp Δ	> Refer to Table 20 in supporting documents °C				
			Both conditions above required to increment fail counter				>= 3000 Fail Counts (100ms loop)	
			Note: table reference temp = to the median temp of trans oil temp, substrate temp and power up temp.				Out of 3750 Sample Counts (100ms loop)	
			Non-continuous (intermittent) fail conditions will delay resetting fail counter until				>= 700 Pass Counts (100ms loop)	
							Out of 875 Sample Counts (100ms loop)	
					Engine Torque Signal Valid	= TRUE Boolean		
					Accelerator Position Signal Valid	= TRUE Boolean		
					Ignition Voltage Lo	>= 9 Volts		
					Ignition Voltage Hi	<= 31.990234 Volts		
					Engine Speed Lo	>= 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	>= 30.000305 Pct		
					Transmission Input Speed	<= 200 RPM		
					Vehicle Speed	<= 8 Kph		
					Transmission Range	≠ Park		
					Transmission Range	≠ Neutral		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					PTO = Not Active Set Brake Torque Active TRUE if above conditions are met for: >= 7 sec			
					Below describes the brake torque exit criteria Brake torque entry criteria = Not Met Clutch hydraulic pressure ≠ Clutch Hydraulic Air Purge Event Clutch used to exit brake torque active = CeTFTD_e_C3_RatlEnbl The above clutch pressure is greater than this value for one loop >= 600 kpa Set Brake Torque Active FALSE if above conditions are met for: >= 20 Sec P0667 Status is ≠ Test Failed This Key On or Fault Active		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0658, P0668, P0669, P06AD, P06AE, P0716, P0712, P0713, P0717, P0722, P0723, P0962, P0963, P0966, P0967, P0970, P0971, P215C, P2720, P2721, P2729, P2730 ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Transmission Control Module (TCM)	P0668	TCM internal temperature (substrate) thermistor failed at a low voltge	Type of Sensor Used	= CeTFTI_e_VoltageInverseProp				Two Trips
			If TCM Substrate Temperature Sensor = Direct Proportional and Temp	<= 254 °C				
			If TCM Substrate Temperature Sensor = Indirect Proportional and Temp	>= 254 °C				
			Either condition above will satisfy the fail conditions				>= 60 Fail Timer (Sec)	
					Ignition Voltage Lo	>= 9 Volts		
					Ignition Voltage Hi	<= 31.990234 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					P0668 Status is	≠ Test Failed This Key On or Fault Active		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None		
Transmission Control Module (TCM)	P0669	TCM internal temperature (substrate) thermistor failed at a high voltage	Type of Sensor Used	= CeTFTI_e_VoltageInverseProp				Two Trips
			If TCM Substrate Temperature Sensor = Direct Proportional and Temp	>= -254 °C				
			If TCM Substrate Temperature Sensor = Indirect Proportional and Temp	<= -254 °C				
			Either condition above will satisfy the fail conditions				>= 60 Fail Timer (Sec)	
					Ignition Voltage Lo	>= 9 Volts		
					Ignition Voltage Hi	<= 31.990234 Volts		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					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		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723 ECM: None		
Transmission Control Module (TCM)	P06AC	TCM Power-up Temp Sensor Circuit Range/Performance	If TCM power-up temp to substrate temp Δ	> Refer to Table 20 in supporting documents °C				Two Trips
			If transmission oil temp to power up temp Δ	> Refer to Table 18 in supporting documents °C				
			Both conditions above required to increment fail counter				>= 3000 Fail Counts (100ms loop)	

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

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Clutch used to exit brake torque active	= CeTFTD_e _C3_RatlE nbl		
					The above clutch pressure is greater than this value for one loop	>= 600 kpa		
					Set Brake Torque Active FALSE if above conditions are met for:	>= 20 Sec		
					P06AC Status is	≠ Test Failed This Key On or Fault Active		
					Disable Conditions: MIL not Illuminated for DTC's:	TCM: P0658, P0668, P0669, P06AD, P06AE, P0716, P0712, P0713, P0717, P0722, P0723, P0962, P0963, P0966, P0967, P0970, P0971, P215C, P2720, P2721, P2729, P2730 ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Transmission Control Module (TCM)	P06AD	TCM power-up thermistor circuit voltage low	Power Up Temp	<= 254 °C			>= 60 Fail Time (Sec)	Two Trips
					Ignition Voltage Lo	>= 9 Volts		
					Ignition Voltage Hi	<= 31.990234 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					P06AD Status is	≠ Test Failed This Key On or Fault Active		
					For Hybrids, below conditions must also be met			
					Estimated Motor Power Loss	>= 0 kW		
					Estimated Motor Power Loss greater than limit for time	>= 0 Sec		
					Lost Communication with Hybrid Processor Control Module	= FALSE		
					Estimated Motor Power Loss Fault	= FALSE		
					Disable Conditions: MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723 ECM: None		
Transmission Control Module (TCM)	P06AE	TCM power-up thermistor circuit voltage high	Power Up Temp	>= -254 °C			>= 60 Fail Time (Sec)	Two Trips
					Ignition Voltage Lo	>= 9 Volts		
					Ignition Voltage Hi	<= 31.990234 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					P06AE Status is	≠ Test Failed This Key On or Fault Active		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None		
Transmission Fluid Temperature Sensor (TFT)	P0711	Trans Fluid Temp Sensor Circuit Range/Performance	If transmission oil temp to substrate temp Δ	> Refer to Table 19 in supporting documents °C				Two Trips
			If transmission oil temp to power up temp Δ	> Refer to Table 18 in supporting documents °C				
			Both conditions above required to increment fail counter Note: table reference temp = to the median temp of trans oil temp, substrate temp and power up temp.				>= 3000 Fail Counts (100ms loop) Out of 3750 Sample Counts (100ms loop)	
			Non-continuous (intermittent) fail conditions will delay resetting fail counter until				>= 700 Pass Counts (100ms loop) Out of 875 Sample Counts (100ms loop)	
					Engine Torque Signal Valid Accelerator Position Signal Valid Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for Brake torque active	= TRUE Boolean = TRUE Boolean >= 9 Volts <= 31.990234 Volts >= 400 RPM <= 7500 RPM >= 5 Sec = FALSE	
					Below describes the brake torque entry criteria Engine Torque Throttle	 >= 90 N*m >= 30.000305 Pct		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
					Transmission Input Speed	<=	200	RPM		
					Vehicle Speed	<=	8	Kph		
					Transmission Range	≠	Park			
					Transmission Range	≠	Neutral			
					PTO	=	Not Active			
					Set Brake Torque Active TRUE if above conditions are met for:	>=	7	sec		
					Below describes the brake torque exit criteria					
					Brake torque entry criteria	=	Not Met			
					Clutch hydraulic pressure	≠	Clutch Hydraulic Air Purge Event			
					Clutch used to exit brake torque active	=	CeTFTD_e_C3_RatlEnbl			
					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			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: 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	= CeTFTI_e_VoltageInversePrOp				Two Trips
			If Transmission Fluid Temperature Sensor = Direct Proportional and Temp	<= 254 °C				
			If Transmission Fluid Temperature Sensor = Indirect Proportional and Temp	>= 254 °C				
			Either condition above will satisfy the fail conditions				>= 60 Fail Time (Sec)	
					Ignition Voltage Lo	>= 9 Volts		
					Ignition Voltage Hi	<= 31.990234 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					P0712 Status is	≠ Test Failed This Key On or Fault Active		
					For Hybrids, below conditions must also be met			
					Estimated Motor Power Loss	>= 0 kW		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Estimated Motor Power Loss greater than limit for time	>= 0 Sec		
					Lost Communication with Hybrid Processor Control Module	= FALSE		
					Estimated Motor Power Loss Fault	= FALSE		
					Disable Conditions: MIL not Illuminated 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_VoltageInversePrOp				Two Trips
			If Transmission Fluid Temperature Sensor = Direct Proportional and Temp	>= -254 °C				
			If Transmission Fluid Temperature Sensor = Indirect Proportional and Temp	<= -254 °C				
			Either condition above will satisfy the fail conditions				>= 60 Fail Time (Sec)	
					Ignition Voltage Lo	>= 9 Volts		
					Ignition Voltage Hi	<= 31.990234 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					P0713 Status is	≠ Test Failed This Key On or Fault Active		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0713, P0716, P0717, P0722, P0723 ECM: None		
Transmission Input Speed Sensor (TISS)	P0716	Input Speed Sensor Performance	Transmission Input Speed Sensor Drops	>= 1350 RPM			>= 0.8 Fail Time (Sec)	One Trip
					Engine Torque is	>= 0 N*m		
					Engine Torque is	<= 8191.875 N*m		
					Engine Speed	>= 400 RPM		
					Engine Speed	<= 7500 RPM		
					Engine Speed is within the 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	< 8191.75 RPM/Loop		
					The previous requirement has been satisfied for	>= 0 Sec		
					Throttle Position Signal Valid	= TRUE Boolean		
					Engine Torque Signal Valid	= TRUE Boolean		
					Ignition Voltage	>= 9 Volts		
					Ignition Voltage	<= 31.990234 Volts		
					P0716 Status is not	= Test Failed This Key On or Fault Active		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0717, P0752, P0973, P0974 ECM: P0101, P0102, P0103, P0121, P0122, P0123		
Transmission Input Speed Sensor (TISS)	P0717	Input Speed Sensor Circuit Low Voltage	Fail Case 1 Transmission Input Speed is	< 33 RPM			>= 4.5 Fail Time (Sec)	One Trip
			Fail Case 2 When P0722 DTC Status equal to Test Failed and Transmission Input Speed is	< 1000 RPM	Controller uses a single power supply for the speed sensors	= 1 Boolean		
					Engine Torque is	>= 50 N*m		
					Engine Torque is	<= 8191.875 N*m		
					Vehicle Speed	>= 16 Kph		
					Engine Torque Signal Valid	= TRUE Boolean		
					Ignition Voltage	>= 9 Volts		
					Ignition Voltage	<= 31.990234 Volts		
					Engine Speed	>= 400 RPM		
					Engine Speed	<= 7500 RPM		
					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:	TCM: P0722, P0723 ECM: P0101, P0102, P0103		
Transmission Output Speed Sensor (TOSS)	P0722	Output Speed Sensor Circuit Low Voltage	Transmission Output Speed Sensor Raw Speed	<= 35 RPM			>= 4.5 Fail Time (Sec)	One Trip
					P0722 Status is not	= Test Failed This Key On or Fault Active		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
					Transmission Input Speed Check	=	TRUE	Boolean		
					Engine Torque Check	=	TRUE	Boolean		
					Throttle Position	>=	8.0001831	Pct		
					Transmission Fluid Temperature	>=	-40	ºC		
					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	>=	9	Volts		
					Ignition Voltage is	<=	31.990234	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					
					Engine Torque Condition 1					
					Range Shift Status	≠	Range shift completed	ENUM		
					OR					
					Transmission Range is	=	Park or Neutral			
					Engine Torque is	>=	8191.75	N*m		
					Engine Torque is	<=	8191.75	N*m		
					Engine Torque Condition 2					
					Engine Torque is	>=	30	N*m		
					Engine Torque is	<=	8191.75	N*m		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					The Transmission Input Speed (TIS) Check is TRUE, if either of the two following conditions are TRUE			
					TIS Check Condition 1			
					Transmission Input Speed is	>= 1000 RPM		
					Transmission Input Speed is	<= 8191.75 RPM		
					TIS Check Condition 2			
					Engine Speed without the brake applied is	>= 3200 RPM		
					Engine Speed with the brake applied is	>= 3200 RPM		
					Engine Speed is	<= 8191.75 RPM		
					Controller uses a single power supply for the speed sensors	= 1 Boolean		
					Powertrain Brake Pedal is Valid	= TRUE Boolean		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0723 ECM: P0101, P0102, P0103, P0121, P0122, P0123		
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	<= 8191.75 RPM			>= 0 Enable Time (Sec)	
			Output Speed Drop	> 1000 RPM			>= 3 Output Speed Drop Recovery Fail Time (Sec)	
			AND Transmission Range is	= Driven range (R,D)				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.

					Range_Disable	=	FALSE	See Below		
					OR					

					Neutral_Range_Enable	=	TRUE	See Below		
					And					
					Neutral_Speed_Enable	=	TRUE	See Below		
					are TRUE concurrently					

					Transmission_Range_Enable	=	TRUE	See Below		
					Transmission_Input_Speed_Enable	=	TRUE	See Below		
					No Change in Transfer Case Range (High <-> Low) for	>=	5	Seconds		
					P0723 Status is not	=	Test Failed This Key On or Fault Active			
					Disable this DTC if the PTO is active	=	1	Boolean		
					Ignition Voltage is	>=	9	Volts		
					Ignition Voltage is	<=	31.990234	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					
					Transmission_Input_Speed_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	<=	4095	RPM		
					Raw Input Speed	>=	500	RPM		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
					TIS Condition 2 is TRUE when ALL of the next two conditions are satisfied					
					Input Speed	=	0	RPM		
					A Single Power Supply is used for all speed sensors	=	TRUE	Boolean		

					Neutral_Range_Enable is TRUE when any of the next 3 conditions are TRUE					
					Transmission Range is	=	Neutral	ENUM		
					Transmission Range is	=	Reverse/Neutral Transitonal	ENUM		
					Transmission Range is	=	Neutral/Drive Transitional	ENUM		
					And when a drop occurs					
					Loop to Loop Drop of Transmission Output Speed is	>	650	RPM		

					Range_Disable is TRUE when any of the next three conditions are TRUE					
					Transmission Range is	=	Park	ENUM		
					Transmission Range is	=	Park/Reverse Transitonal	ENUM		
					Input Clutch is not	=	ON (Fully Applied)	ENUM		

					Neutral_Speed_Enable is TRUE when All of the next three conditions are satsified for	>	1.5	Seconds		
					Transmission Output Speed	>	130	RPM		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
					The loop to loop change of the Transmission Output Speed is	<	125	RPM		
					The loop to loop change of the Transmission Output Speed is	>	-10	RPM		

					Transmission_Range_Enable is TRUE when one of the next six conditions is TRUE					
					Transmission Range is	=	Neutral	ENUM		
					Transmission Range is	=	Reverse/Neutral Transitional	ENUM		
					Transmission Range is	=	Neutral/Drive Transitional	ENUM		
					Time since a driven range (R,D) has been selected	>=	Table Based Time Please Refer to Table 21 in supporting documents	Sec		
					Transmission Output Speed Sensor Raw Speed	>=	500	RPM		
					Output Speed when a fault was detected	>=	500	RPM		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0973, P0974, P0976, P0977 ECM: P0101, P0102, P0103, P0121, P0122, P0123				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Torque Converter Clutch (TCC)	P0741	TCC System Stuck OFF	TCC Pressure	>= 500 Kpa			>= 2 Enable Time (Sec)	Two Trips
			Either Condition (A) or (B) Must be Met					
			(A) TCC Slip Error @ TCC On Mode	>= Refer to Table 1 in Supporting Documents RPM			>= 5 Fail Time (Sec)	
			(B) TCC Slip @ Lock On Mode	>= 130 RPM			>= 5 Fail Time (Sec)	
			If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter				>= 2 TCC Stuck Off Fail Counter	
					TCC Mode = On or Lock			
					Ignition Voltage Lo >= 9 Volts			
					Ignition Voltage Hi <= 31.990234 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 <= 8191.875 N*m			
					Throttle Position Lo >= 8.0001831 Pct			
					Throttle Position Hi <= 99.998474 Pct			
					2nd Gear Ratio Lo >= 2.7528076 Ratio			
					2nd Gear Ratio High <= 3.1672363 Ratio			
					3rd Gear Ratio Lo >= 1.7762451 Ratio			
					3rd Gear Ratio High <= 2.0437012 Ratio			
					4th Gear Ratio Lo >= 1.3485107 Ratio			
					4th Gear Ratio High <= 1.5515137 Ratio			
					5th Gear Ratio Lo >= 0.9300537 Ratio			
					5th Gear Ratio Hi <= 1.0699463 Ratio			
					6th Gear Ratio Lo >= 0.6975098 Ratio			
					6th Gear Ratio High <= 0.8024902 Ratio			
					Transmission Fluid Temperature Lo >= -6.65625 ºC			
					Transmission Fluid Temperature Hi <= 130 ºC			
					PTO Not Active = TRUE Boolean			
					Engine Torque Signal Valid = TRUE Boolean			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Throttle Position Signal Valid	= TRUE Boolean		
					Dynamic Mode	= FALSE Boolean		
					P0741 Status is	≠ Test Failed This Key On or Fault Active		
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P0742, P2763, P2764 ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Torque Converter Clutch (TCC)	P0742	TCC System Stuck ON	TCC Slip Speed	>= -50 RPM				One Trip
			TCC Slip Speed	<= 13 RPM				
			If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter				>= 1 Fail Time (Sec) >= 5 Fail Counter	
					TCC Mode	= Off		
					Enable test if Cmnd Gear = 1stFW and value true	= 1 Boolean		
					Enable test if Cmnd Gear = 2nd and value true	= 0 Boolean		
					Engine Speed Hi	<= 6000 RPM		
					Engine Speed Lo	>= 500 RPM		
					Vehicle Speed HI	<= 511 KPH		
					Vehicle Speed Lo	>= 1 KPH		
					Engine Torque Hi	<= 8191.875 Nm		
					Engine Torque Lo	>= 60 Nm		
					Current Range	≠ Neutral Range		
					Current Range	≠ Reverse Range		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
					Transmission Sump Temperature	<=	130	°C		
					Transmission Sump Temperature	>=	15	°C		
					Throttle Position Hyst High AND	>=	10.00061	Pct		
					Max Vehicle Speed to Meet Throttle Enable	<=	8	KPH		
					Once Hyst High has been met, the enable will remain while Throttle Position	>=	2.0004272	Pct		
					Disable for Throttle Position	>=	75	Pct		
					Disable if PTO active and value true	=	1	Boolean		
					Disable if in D1 and value true	=	1	Boolean		
					Disable if in D2 and value true	=	1	Boolean		
					Disable if in D3 and value true	=	1	Boolean		
					Disable if in D4 and value true	=	1	Boolean		
					Disable if in D5 and value true	=	1	Boolean		
					Disable if in MUMD and value true	=	1	Boolean		
					Disable if in TUTD and value true	=	1	Boolean		
					4 Wheel Drive Low Active	=	FALSE	Boolean		
					Disable if Air Purge active and value false	=	0	Boolean		
					RVT Diagnostic Active	=	FALSE	Boolean		
					Ignition Voltage	>=	9	V		
					Ignition Voltage	<=	31.990234	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		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					P0742 Status is	≠ Test Failed This Key On or Fault Active		
					Disable Conditions: MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P0741, P2763, P2764 ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Mode 2 Multiplex Valve	P0751	Shift Solenoid Valve A Stuck Off	Commaned Gear Slip	>= 400 RPM				Two Trips
			Commanded Gear Gear Ratio	= 1st Lock rpm				
			Gear Ratio	<= 1.518310547			>= 0.3 Fail Tmr	
			Gear Ratio	>= 1.373657227			= 5 Fail Counts	
			If the above parameters are true				≠ 0 Neutral Timer (Sec)	
							>= 0.3 Fail Timer (Sec)	
							>= 8 Counts	
					Ignition Voltage Lo	>= 9 Volts		
					Ignition Voltage Hi	<= 31.990234 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					Transmission Fluid Temperature	>= -6.65625 ºC		
					Range Shift State	= Range Shift Completed ENUM		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					TPS >= 0.5004883 % OR Output Speed >= 100 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			
					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)	P0776	Pressure Control (PC) Solenoid B Stuck Off [C35R]	Fail Case 1 Case: Steady State 3rd Gear Commanded Gear Gearbox Slip Command 4th Gear once Output Shaft Speed If Gear Ratio And Gear Ratio	= 3rd Gear >= 400 RPM <= 1000 RPM >= 1.373657227 <= 1.518310547			>= Please Refer to Table 16 in Supporting Documents Neutral Timer (Sec) >= 3 Fail Timer (Sec)	One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			It the above condiations are true, Increment 3rd gear fail counter				>= 2 3rd Gear Fail Counts	
			and C35R Fail counter				>= 14 or 3-5R Clutch Fail Counts	
			Fail Case 2 Case: Steady State 5th Gear Commanded Gear	= 5th Gear				
			Gearbox Slip	>= 400 Rpm			>= Please Refer to Table 5 in Supporting Documents Neutral Timer (Sec)	
			Intrusive Test: Command 6th Gear					
			If attained Gear=6th gear Time	>= Please refer to Table 3 in supporting documents Shift Time (Sec)				
			It the above condiations are true, Increment 5th gear fail counter				>= 3 5th Gear Fail Counts	
			and C35R Fail counter				>= 14 or 3-5R Clutch Fail Counts	
					PRNDL State defaulted	= 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	>= 100 RPM		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
					A OR B					
					(A) Output speed enable	>=	100	RPM		
					(B) Accelerator Pedal enable	>=	0.5004883	Pct		
					Common Enable Criteria					
					Ignition Voltage Lo	>=	9	Volts		
					Ignition Voltage Hi	<=	31.990234	Volts		
					Engine Speed Lo	>=	400	RPM		
					Engine Speed Hi	<=	7500	RPM		
					Engine Speed is within the allowable limits for	>=	5	Sec		
					Throttle Position Signal valid	=	TRUE	Boolean		
					HSD Enabled	=	TRUE	Boolean		
					Transmission Fluid Temperature	>=	-6.65625	ºC		
					Input Speed Sensor fault	=	FALSE	Boolean		
					Output Speed Sensor fault	=	FALSE	Boolean		
					Default Gear Option is not present	=	TRUE			
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Transmission Output Speed Sensor (TOSS)	P077C	Output Speed Sensor Circuit Low	TOSS Analog Signal Voltage P077C Status is not If the above conditons have been met, increment the P077C Fail Counter	<= 0.25 Volts = Test Failed This Key On or Fault Active			>= 0.05 sec	One Trip
			DTC P077C Sets when the Fail Counter	>= 75 Counts	P077C Enable Calibration = 1 Boolean Ignition Voltage Lo >= 9 Volts Ignition Voltage Hi <= 31.990234 Volts Disable Conditions: MIL not Illuminated for DTC's: TCM: P077D			
Transmission Output Speed Sensor (TOSS)	P077D	Output Speed Sensor Circuit High	TOSS Analog Signal Voltage P077D Status is not If the above conditons have been met, increment the P077D Fail Counter	>= 4.75 Volts = Test Failed This Key On or Fault Active			>= 0.05 sec	One Trip
			DTC P077D Sets when the Fail Counter	>= 75 Counts	P077D Enable Calibration = 1 Boolean Ignition Voltage Lo >= 9 Volts Ignition Voltage Hi <= 31.990234 Volts Disable Conditions: MIL not Illuminated for DTC's: TCM: P077C			
Variable Bleed Solenoid (VBS)	P0796	Pressure Control (PC) Solenoid C Stuck Off [C456] (Steady State)	Fail Case 1 Case: Steady State 4th Gear					One Trip

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

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If attained Gear ≠ 5th for time if the above conditions have been met Increment 6th Gear Fail Counter and C456 Fail Counter and C456 Fail Counter	>= Please refer to Table 3 in Supporting Documents Shift Time (Sec)			>= 2 6th Gear Fail Count OR >= 14 C456 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 >= 100 RPM A OR B (A) Output speed enable >= 100 RPM (B) Accelerator Pedal enable >= 0.5004883 Pct Common Enable Criteria Ignition Voltage Lo >= 9 Volts Ignition Voltage Hi <= 31.990234 Volts Engine Speed Lo >= 400 RPM Engine Speed Hi <= 7500 RPM Engine Speed is within the allowable limits for >= 5 Sec Throttle Position Signal valid = TRUE Boolean HSD Enabled = TRUE Boolean Transmission Fluid Temperature >= -6.65625 ℃ Input Speed Sensor fault = FALSE Boolean OutputSpeed Sensor fault = FALSE Boolean Default Gear Option is not present = TRUE		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Transmission Input Speed Sensor (TISS)	P07BF	Input/Turbine Speed Sensor A Circuit Low	TISS Analog Signal Voltage P07BF Status is not If the above conditons have been met, increment the P07BF Fail Counter	<= 0.25 Volts = Test Failed This Key On or Fault Active			>= 0.05 sec	One Trip
			DTC P07BF Sets when the Fail Counter	>= 75 Counts	P07BF Enable Calibration Ignition Voltage Lo Ignition Voltage Hi Disable Conditions:	= 1 Boolean >= 9 Volts <= 31.990234 Volts MIL not Illuminated for DTC's:	TCM: P07C0	
Transmission Input Speed Sensor (TISS)	P07C0	Input/Turbine Speed Sensor A Circuit High	TISS Analog Signal Voltage P07C0 Status is not If the above conditons have been met, increment the P07C0 Fail Counter	>= 4.75 Volts = Test Failed This Key On or Fault Active			>= 0.05 sec	One Trip
			DTC P07C0 Sets when the Fail Counter	>= 75 Counts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
					P07C0 Enable Calibration	=	1	Boolean				
					Ignition Voltage Lo	>=	9	Volts				
					Ignition Voltage Hi	<=	31.990234	Volts				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P07BF						
Tap Up Tap Down Switch (TUTD)	P0826	Up and Down Shift Switch Circuit	TUTD Circuit Reads Invalid Voltage	= TRUE Boolean					>=	60	Fail Time (Sec)	Special No MIL
					Ignition Voltage Lo	>=	9	Volts				
					Ignition Voltage Hi	<=	31.990234	Volts				
					Engine Speed Lo	>=	400	RPM				
					Engine Speed Hi	<=	7500	RPM				
					Engine Speed is within the allowable limits for	>=	5	Sec				
					P0826 Status is	≠	Test Failed This Key On or Fault Active					
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P1761 ECM: None						
Variable Bleed Solenoid (VBS)	P0961	Pressure Control (PC) Solenoid A Control Circuit Rationality Test (Line Pressure VBS)	The HWIO reports an invalid voltage (out of range) error flag	= TRUE Boolean					>=	4.4	Fail Time (Sec)	Two Trips
									out of	5	Sample Time (Sec)	
					Ignition Voltage	>=	9	Volts				
					Ignition Voltage	<=	31.990234	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	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None		
Variable Bleed Solenoid (VBS)	P0962	Pressure Control (PC) Solenoid A Control Circuit Low Voltage (Line Pressure VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE Boolean			>= 1.5 Fail Time (Sec) out of 1.875 Sample Time (Sec)	One Trip
					Ignition Voltage >= 9 Volts Ignition Voltage <= 31.990234 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: None ECM: None		
Variable Bleed Solenoid (VBS)	P0963	Pressure Control (PC) Solenoid A Control Circuit High Voltage (Line Pressure VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE Boolean			>= 4.4 Fail Time (Sec) out of 5 Sample Time (Sec)	Two Trips
					Ignition Voltage >= 9 Volts Ignition Voltage <= 31.990234 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: None ECM: None		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Variable Bleed Solenoid (VBS)	P0966	Pressure Control (PC) Solenoid B Control Circuit Low Voltage (C35R VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE Boolean			>= 0.3 Fail Time (Sec) out of 0.375 Sample Time (Sec)	One Trip
					Ignition Voltage >= 9 Volts Ignition Voltage <= 31.990234 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: None ECM: None		
Variable Bleed Solenoid (VBS)	P0967	Pressure Control (PC) Solenoid B Control Circuit High Voltage (C35R VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE Boolean			>= 0.3 Fail Time (Sec) out of 0.375 Sample Time (Sec)	One Trip
					Ignition Voltage >= 9 Volts Ignition Voltage <= 31.990234 Volts Engine Speed >= 400 RPM Engine Speed <= 7500 RPM Engine Speed is within the allowable limits for >= 5 Sec P0967 Status is not = Test Failed This Key On or Fault Active			

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

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Engine Speed is within the allowable limits for	>= 5 Sec		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None		
Shift Solinoid	P0973	Shift Solenoid A Control Circuit Low (Mode 2 Solenoid)	The HWIO reports a low voltage (ground short) error flag	= TRUE Boolean			>= 1.2 Fail Time (Sec) out of 1.5 Sample Time (Sec)	One Trip
					P0973 Status is not	= Test Failed This Key On or Fault Active		
					Ignition Voltage	>= 9 Volts		
					Ignition Voltage	<= 31.990234 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: None ECM: None		
Shift Solinoid	P0974	Shift Solenoid A Control Circuit High (Mode 2 Solenoid)	The HWIO reports a high voltage (open or power short) error flag	= TRUE Boolean			>= 1.2 Fail Time (Sec) out of 1.5 Sample Time (Sec)	Two Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					P0974 Status is not = Test Failed This Key On or Fault Active			
					Ignition Voltage >= 9 Volts Ignition Voltage <= 31.990234 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: None ECM: None		
Tap Up Tap Down Switch (TUTD)	P1761	Tap Up and Down switch signal circuit (rolling count)	Rolling count value received from BCM does not match expected value	= TRUE Boolean			>= 3 Fail Counter > 10 Sample Timer (Sec)	Special No MIL
					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: None ECM: None		
Internal Mode Switch (IMS)	P1915	Internal Mode Switch Does Not Indicate Park/Neutral (P/N) During Start	PRNDL State is ≠ Park or Neutral Enumeration The following events must occur Sequentially Initial Engine speed <= 50 RPM				>= 0.1 Enable Time (Sec)	One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Then Engine Speed Between Following Cals Engine Speed Lo Hist Engine Speed Hi Hist	 >= 50 RPM <= 480 RPM			>= 0.06875 Enable Time (Sec)	
			Then Final Engine Speed Final Transmission Input Speed	 >= 500 RPM >= 100 RPM			>= 1.25 Fail Time (Sec)	
					DTC has Ran this Key Cycle? Ignition Voltage Lo Ignition Voltage Hi Ignition Voltage Hyst High (enables above this value) Ignition Voltage Hyst Low (disabled below this value) Transmission Output Speed P1915 Status is	= FALSE Boolean >= 6 V <= 31.990234 V >= 5 V <= 2 V <= 90 rpm ≠ Test Failed This Key On or Fault Active	
			Disable Conditions:		MIL not Illuminated for DTC's:	TCM: P0722, P0723 ECM: None		
Transmission Control Module (TCM)	P2534	Ignition Switch Run/Start Position Circuit Low	TCM Run crank active (based on voltage thresholds below) Ignition Voltage High Hyst (run crank goes true when above this value) Ignition Voltage Low Hyst (run crank goes false when below this value)	= FALSE Boolean 5 Volts 2 Volts			>= 280 Fail Counts (25ms loop) Out of 280 Sample Counts (25ms loop)	One Trip

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

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			If attained Gear = 5th For Time	>= Table Based Time Please see Table 2 in Supporting Documents Enable Time (Sec)								
			If Above Conditions have been met, Increment 5th gear fail counter						>=	3	5th Gear Fail Count	
			and CB26 Fail Count						>=	14	or CB26 Fail Count	
					PRNDL State defaulted	=	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	>=	100	RPM				
					(B) Accelerator Pedal enable	>=	0.5004883	Pct				
					Common Enable Criteria							
					Ignition Voltage Lo	>=	9	Volts				
					Ignition Voltage Hi	<=	31.990234	Volts				
					Engine Speed Lo	>=	400	RPM				
					Engine Speed Hi	<=	7500	RPM				
					Engine Speed is within the allowable limits for	>=	5	Sec				
					Throttle Position Signal valid	=	TRUE	Boolean				
					HSD Enabled	=	TRUE	Boolean				
					Transmission Fluid Temperature	>=	-6.65625	ºC				
					Input Speed Sensor fault	=	FALSE	Boolean				
					Output Speed Sensor fault	=	FALSE	Boolean				
					Default Gear Option is not present	=	TRUE					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2720	Pressure Control (PC) Solenoid D Control Circuit Low (CB26 VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE Boolean			>= 0.3 Fail Time (Sec) out of 0.375 Sample Time (Sec)	One Trip
					P2770 Status is not	= Test Failed This Key On or Fault Active		
					Ignition Voltage	>= 9 Volts		
					Ignition Voltage	<= 31.990234 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: None ECM: None		
Variable Bleed Solenoid (VBS)	P2721	Pressure Control (PC) Solenoid D Control Circuit High (CB26 VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE Boolean			>= 0.3 Fail Time (Sec) out of 0.375 Sample Time (Sec)	One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					P2721 Status is not = Test Failed This Key On or Fault Active			
					Ignition Voltage >= 9 Volts Ignition Voltage <= 31.990234 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: None ECM: None		
Variable Bleed Solenoid (VBS)	P2723	Pressure Control (PC) Solenoid E Stuck Off	Fail Case 1 Case: Steady State 1st Gear					One Trip
			Gear slip	>= 400 RPM			>= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec)	
			Intrusive test: commanded 2nd gear					
			If attained Gear ≠ 2nd for Time	>= Please refer to Table 3 in Supporting Documents Shift Time (Sec)				
			If Above Conditions have been met, Increment 1st gear fail counter				>= 2 1st Gear Fail Count	
			and C1234 fail counter				>= 14 or C1234 Clutch Fail Count	
			Fail Case 2 Case: Steady State 2nd Gear					
			Gear slip	>= 400 RPM			>= Please See Table 5 For Neutral Time Cal Neutral Timer (Sec)	

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

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			If Above Conditions have been met, Increment 4th gear fail counter						>=	3	4th Gear Fail Count	
			and C1234 fail counter						>=	14	or C1234 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	>=	100	RPM				
					(B) Accelerator Pedal enable	>=	0.5004883	Pct				
					Common Enable Criteria							
					Ignition Voltage Lo	>=	9	Volts				
					Ignition Voltage Hi	<=	31.990234	Volts				
					Engine Speed Lo	>=	400	RPM				
					Engine Speed Hi	<=	7500	RPM				
					Engine Speed is within the allowable limits for	>=	5	Sec				
					Throttle Position Signal valid	=	TRUE	Boolean				
					HSD Enabled	=	TRUE	Boolean				
					Transmission Fluid Temperature	>=	-6.65625	ºC				
					Input Speed Sensor fault	=	FALSE	Boolean				
					Output Speed Sensor fault	=	FALSE	Boolean				
					Default Gear Option is not present	=	TRUE					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2729	Pressure Control (PC) Solenoid E Control Circuit Low (C1234 VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE Boolean			>= 0.3 Fail Time (Sec) out of 0.375 Sample Time (Sec)	One Trip
					P2729 Status is not	= Test Failed This Key On or Fault Active		
					Ignition Voltage	>= 9 Volt		
					Ignition Voltage	<= 31.990234 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:	TCM: None ECM: None		
Variable Bleed Solenoid (VBS)	P2730	Pressure Control (PC) Solenoid E Control Circuit High (C1234 VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE Boolean			>= 0.3 Fail Time (Sec) out of 0.375 Sample Time (Sec)	One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					P2730 Status is not = Test Failed This Key On or Fault Active			
					Ignition Voltage >= 9 Volt Ignition Voltage <= 31.990234 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:	TCM: None ECM: None		
Variable Bleed Solenoid (VBS)	P2763	Torque Converter Clutch Pressure High	The HWIO reports a low pressure/high voltage (open or power short) error flag	= TRUE Boolean			>= 4.4 Fail Time (Sec) out of 5 Sample Time (Sec)	Two Trips
					P2763 Status is not = Test Failed This Key On or Fault Active			
					Ignition Voltage >= 9 Volt Ignition Voltage <= 31.990234 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: P0658, P0659 ECM: None		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Variable Bleed Solenoid (VBS)	P2764	Torque Converter Clutch Pressure Control Solenoid Control Circuit Low	The HWIO reports a high pressure/low voltage (ground short) error flag	= TRUE Boolean			>= 4.4 Fail Time (Sec) out of 5 Sample Time (Sec)	One Trip
					P2764 Status is not	= Test Failed This Key On or Fault Active		
					Ignition Voltage	>= 9 Volt		
					Ignition Voltage	<= 31.990234 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: P0658, P0659 ECM: None		
Communication	U0073	Controller Area Network Bus Communication Error	CAN Hardware Circuitry Detects a Low Voltage Error	= TRUE Boolean			>= 62 Fail counts (≈ 10 seconds)	One Trip
			Delay timer	>= 0.1125 sec			Out of 70 Sample Counts (≈ 11 seconds)	
					Stabilization delay	>= 3 sec		
					Ignition Voltage	>= 9 Volt		
					Ignition Voltage	<= 31.990234 Volt		
					Power Mode	= Run		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None		
Communication	U0100	Lost Communications with ECM (Engine Control Module)	CAN messages from ECM are not received by the TCM	= TRUE Boolean			>= 12 sec	One Trip
					Stabilization delay	>= 3 sec		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required	Mil Illum.
					Ignition Voltage	>=	9	Volt		
					Ignition Voltage	<=	31.990234	Volt		
					Power Mode	=	Run			
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: U0073 ECM: None				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Transmission Control Module (TCM)	C1251	The lateral accleration signal is stuck at a high magnitude in range	Lateral accleration magnitude Lateral accleration magnitude Lateral accleration magnitude is within the range above for	<= 3.85 g's >= 0.53 g's >= 120 Sec				Special No MIL
					Lateral accleration magnitude Lateral accleration magnitude Lateral accleration magnitude is within the range above for Diagnostic shifting override command Attained Gear State Attained Gear Slip Transmission Type High Side Driver 1 On Vehicle Speed Lateral acceleration stuck in range diagnostic enable Battery Voltage Battery Voltage Battery voltage is within the allowable limits for Ignition Voltage Ignition Voltage Service Fast Learn (SFL) Mode Ignition voltage and SFL conditions met for	<= 3.85 g's >= 0.53 g's >= 90 Sec = FALSE Boolean = 1st through 6th <= 100 RPM = Clutch to Clutch Transmission = TRUE Boolean >= 15 kph = TRUE Boolean <= 31.999023 Volts >= 9 Volts >= 0.1 Sec <= 31.999023 Volts >= 9 Volts = FALSE Boolean >= 0.1 Sec		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: If calibrated to illuminate the MIL (P0716, P0717, P0721, P0722, P0723, P07BF, P07C0, P077B, P077C, P077D, P215C, U0073) ECM: None		
Mode 2 Multiplex Valve	P0752	Shift Solenoid Valve A Stuck On	Gear Box Slip Commanded Gear Commanded Gear has Achieved 1st Locked OR 1st Free-Wheel OR 2nd with Mode 2 Sol. Commanded On If the above parameters are true Command 4th Gear once Output Shaft Speed If Gear Ratio And Gear Ratio	>= 400 RPM = 3rd Gear = TRUE Boolean <= 1000 RPM >= 4.354858398 <= 4.813232422			>= Please Refer to Table 16 in Supporting Documents Neutral Timer (Sec) >= 1.5 Fail Timer (Sec) >= 5 Counts	One Trip
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for High-Side Driver is Enabled Throttle Position Signal Valid from ECM Output Speed OR TPS Range Shift State	>= 9 Volts <= 31.990234 Volts >= 400 RPM <= 7500 RPM >= 5 Sec = TRUE Boolean = TRUE Boolean >= 100 RPM >= 0.5004883 % = Range Shift Completed ENUM	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Transmission Fluid Temperature	>= -6.65625 °C		
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault	= FALSE Boolean		
					Default Gear Option is not present	= TRUE		
					Disable Conditions:	MIL not Illuminated for DTC's: TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solinoid B Stuck On [C35R] (Steady State)	Fail Case 1 Case: Steady State 1st Attained Gear slip If the Above is True for Time Intrusive test: (CBR1 clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	>= 400 RPM >= Table Based Time Please Refer to Table 4 in supporting documents Enable Time (Sec) <= 2.007324219 >= 1.744628906			>= 1.1 Fail Timer (Sec) >= 2 Fail Count in 1st Gear or >= 3 Total Fail Counts	One Trip
			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.
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (CB26 clutch exhausted)					
			Gear Ratio	<= 2.007324219				
			Gear Ratio	>= 1.744628906				
			If the above parameters are true				>= 1.1 Fail Timer (Sec) >= 3 Fail Count in 2nd Gear or >= 3 Total Fail Counts	
			Fail Case 3 Case: Steady State 4th gear					
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (C1234 clutch exhausted)					
			Gear Ratio	<= 1.069946289				
			Gear Ratio	>= 0.930053711				
			If the above parameters are true				>= 1.1 Fail Timer (Sec) >= 3 Fail Count in 4th Gear or >= 3 Total Fail Counts	
			Fail Case 4 Case: Steady State 6th gear					
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (CB26 clutch exhausted)					
			Gear Ratio	<= 1.069946289			>= 1.1 Fail Timer (Sec)	
			Gear Ratio	>= 0.930053711			>= 3 counts	
			If the above parameters are true				>= 1.1 Fail Timer (Sec)	
							>= 3 Fail Count in 6th Gear or	
							>= 3 Total Fail Counts	
					PRNDL State defaulted	= FALSE Boolean		
					inhibit RVT	= FALSE Boolean		
					IMS fault pending indication	= FALSE Boolean		
					output speed	>= 0 RPM		
					TPS validity flag	= TRUE Boolean		
					HSD Enabled	= TRUE Boolean		
					Hydraulic_System_Pressurized	= TRUE Boolean		
					A OR B			
					(A) Output speed enable	>= 100 Nm		
					(B) Accelerator Pedal enable	>= 0.5004883 Nm		
					Ignition Voltage Lo	>= 9 Volts		
					Ignition Voltage Hi	<= 31.990234 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					if Attained Gear=1st FW Accelerator Pedal enable	>= 10.00061 Pct		
					if Attained Gear=1st FW Engine Torque Enable	>= 45 Nm		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					if Attained Gear=1st FW Engine Torque Enable <= 8191.875 Nm Transmission Fluid Temperature >= -6.65625 ºC Input Speed Sensor fault = FALSE Boolean Output Speed Sensor fault = FALSE Boolean			
					Disable Conditions: MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solenoid B StuckOn [C35R] (Dymanic)	Primary Offgoing Clutch is exhausted (See Table 12 in Supporting Documents for Exhaust Delay Timers)	= TRUE Boolean				One Trip
			Primary Oncoming Clutch Pressure Command Status	= Maximum pressurized				
			Primary Offgoing Clutch Pressure Command Status	= Clutch exhaust command				
			Range Shift Status	≠ Initial Clutch Control				
			Attained Gear Slip	<= 40 RPM				
			If the above conditions are true run appropriate Fail 1 Timers Below:					
			fail timer 1 (3-1 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (3-2 shifting with Throttle)	>= 0.400390625 Fail Time (Sec)				

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

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			3rd gear fail counter 5th gear fail counter Total fail counter				>= 3 3rd gear fail counts OR >= 3 5th gear fail counts OR >= 3 total fail counts	
					TUT Enable temperature Input Speed Sensor fault Output Speed Sensor fault Command / Attained Gear High Side Driver ON output speed limit for TUT input speed limit for TUT PRNDL state defaulted IMS Fault Pending Service Fast Learn Mode HSD Enabled Default Gear Option is not present	>= -6.65625 ºC = FALSE Boolean = FALSE Boolean ≠ 1st Boolean = TRUE Boolean >= 200 RPM >= 200 RPM = FALSE Boolean = FALSE Boolean = FALSE Boolean = TRUE Boolean = TRUE	
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Steady State)	Fail Case 1 Case: Steady State 1st Attained Gear slip If the Above is True for Time	>= 400 RPM >= Table Based Time Please Refer to Table 4 in supporting documents Enable Time (Sec)				One Trip

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 Gear Ratio If the above parameters are true	 <= 1.529052734 >= 1.328979492			>= 1.1 Fail Timer (Sec) >= 2 Fail Count in 1st Gear or >= 3 Total Fail Counts	
			Fail Case 2 Case Steady State 2nd Max Delta Output Speed Hysteresis Min Delta Output Speed Hysteresis If the Above is True for Time Intrusive test: (CB26 clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	 >= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec >= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec >= Table Based Time Please Refer to Table 17 in supporting documents Sec <= 1.529052734 >= 1.328979492			>= 1.1 Fail Timer (Sec) >= 3 Fail Count in 2nd Gear or	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
							>= 3 Total fail counts	
			Fail Case 3 Case Steady State 3rd					
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (C35R clutch exhausted)					
			Gear Ratio	<= 1.529052734				
			Gear Ratio	>= 1.328979492				
			If the above parameters are true				>= 1.1 Fail Timer (Sec)	
							>= 3 Fail Count in 3rd Gear	
							OR	
							>= 3 Total Fail Counts	
					PRNDL State defaulted	= FALSE Boolean		
					inhibit RVT	= FALSE Boolean		
					IMS fault pending indication	= FALSE Boolean		
					output speed	>= 0 RPM		
					TPS validity flag	= TRUE Boolean		
					HSD Enabled	= TRUE Boolean		
					Hydraulic_System_Pressurized	= TRUE Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					A OR B (A) Output speed enable >= 100 Nm (B) Accelerator Pedal enable >= 0.5004883 Nm Ignition Voltage Lo >= 9 Volts Ignition Voltage Hi <= 31.990234 Volts Engine Speed Lo >= 400 RPM Engine Speed Hi <= 7500 RPM Engine Speed is within the allowable limits for >= 5 Sec if Attained Gear=1st FW Accelerator Pedal enable >= 10.00061 Pct if Attained Gear=1st FW Engine Torque Enable >= 45 Nm if Attained Gear=1st FW Engine Torque Enable <= 8191.875 Nm Transmission Fluid Temperature >= -6.65625 °C Input Speed Sensor fault = FALSE Boolean Output Speed Sensor fault = FALSE Boolean Default Gear Option is not present = TRUE			
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 11 in Supporting Documents for Exhaust Delay Timers) Primary Oncoming Clutch Pressure Command Status	= TRUE Boolean = Maximum pressurized				One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Primary Offgoing Clutch Pressure Command Status	= Clutch exhaust command				
			Range Shift Status	≠ Initial Clutch Control				
			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)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (4-1 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (4-2 shifting with throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (4-2 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (4-3 shifting with throttle)	>= 0.700195313 Fail Time (Sec)				
			fail timer 1 (4-3 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (5-3 shifting with throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (5-3 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (6-2 shifting with throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (6-2 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers				Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2 >= sec	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter					
			4th gear fail counter				>= 3 Fail Counter From 4th Gear	
							OR	
			5th gear fail counter				>= 3 Fail Counter From 5th Gear	
							OR	
			6th gear fail counter				>= 3 Fail Counter From 6th Gear	
							OR	
			Total fail counter				>= 3 Total Fail Counter	
					TUT Enable temperature	>= -6.65625 °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	>= 200 RPM		
					input speed limit for TUT	>= 200 RPM		
					PRNDL state defaulted	= FALSE Boolean		
					IMS Fault Pending	= FALSE Boolean		
					Service Fast Learn Mode	= FALSE Boolean		
					HSD Enabled	= TRUE Boolean		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Tap Up Tap Down Switch (TUTD)	P0815	Upshift Switch Circuit	Fail Case 1 Tap Up Switch Stuck in the Up Position in Range 1 Enabled	= 0 Boolean				Special No MIL

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

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Time Since Last Range Change	>= 1 Enable Time (Sec)		
					Ignition Voltage Lo	>= 9 Volts		
					Ignition Voltage Hi	<= 31.990234 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					P0815 Status is	≠ Test Failed This Key On or Fault Active		
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0816, P0826, P182E, P1876, P1877, P1915, P1761 ECM: None		
Tap Up Tap Down Switch (TUTD)	P0816	Downshift Switch Circuit	Fail Case 1 Tap Down Switch Stuck in the Down Position in Range 1 Enabled	= 0 Boolean				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				

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

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Tap Down Switch Stuck in the Down Position in Reverse Enabled	= 0 Boolean				
			Tap Down Switch ON NOTE: Both Failcase1 and Failcase 2 Must Be Met	= TRUE Boolean			>= 600 sec	
					Time Since Last Range Change	>= 1 Enable Time (Sec)		
					Ignition Voltage Lo	>= 9 Volts		
					Ignition Voltage Hi	<= 31.990234 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					P0816 Status is	≠ Test Failed This Key On or Fault Active		
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0815, P0826, P182E, P1876, P1877, P1915, P1761 ECM: None		
Internal Mode Switch (IMS)	P182E	Internal Mode Switch - Invalid Range	Fail Case 1 Current range	= Transition 1 (bit state 1110) Range				One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Previous range	≠ CeTRGR_e_PRNDL_Drive6 Range				
			Previous range	≠ CeTRGR_e_PRNDL_Drive5 Range				
			Range Shift State	= Range Shift Completed ENUM				
			Absolute Attained Gear Slip	<= 50 rpm				
			Attained Gear	<= Sixth				
			Attained Gear	>= First				
			Throttle Position Available	= TRUE				
			Throttle Position	>= 8.000183105 pct				
			Output Speed	>= 200 rpm				
			Engine Torque	>= 50 Nm				
			Engine Torque	<= 8191.75 Nm				
			If the above conditions are met then Increment Fail Timer				>= 1 Fail Seconds	
			If Fail Timer has Expired then Increment Fail Counter				>= 5 Fail Counts	
			Fail Case 2 Output Speed	<= 70 rpm				
			The following PRNDL sequence events occur in this exact order:					
			PRNDL state	= Drive 6 (bit state 0110) Range				
			PRNDL state = Drive 6 for	>= 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 Seconds	
			delay timer	>= 1 Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Input Speed If Fail Timer has Expired then Increment Fail Counter	>= 400 Sec			>= 2 Fail Counts	
			Fail Case 3 Current range	= Transition 13 (bit state 0010) Range	Previous range	≠ CeTRGR_e_PRNDL_Drive5		
			Engine Torque	>= -8192 Nm	Previous range	≠ CeTRGR_e_PRNDL_Drive5		
			Engine Torque	<= 8191.75 Nm	IMS is 7 position configuration	= 0 Boolean		
			If the above conditions are met then, Increment Fail Timer		If the "IMS 7 Position config" = 1 then the "previous range" criteria above must also be satsified when the "current range" = "Transition 13"		>= 0.225 Seconds	
			If Fail Timer has Expired then Increment Fail Counter				>= 15 Fail Counts	
			Fail Case 4 Current range	= Transition 8 (bit state 0111) Range	Disable Fail Case 4 if last positive range was Drive 6 and current range is transition 8			
			Inhibit bit (see definition)	= FALSE	Set inhibit bit true if PRNDL = 1100 (rev) or 0100 (Rev-Neu transition 11) Set inhibit bit false if PRNDL = 1001 (park)			
			Steady State Engine Torque	>= 100 Nm				
			Steady State Engine Torque If the above conditions are met then Increment Fail Timer	<= 8191.75 Nm			>= 0.225 Seconds	
			If the above Condtions have been met, Increment Fail Counter				>= 15 Fail Counts	
			Fail Case 5 Throttle Position Available	= TRUE Boolean				
			The following PRNDL sequence events occur in this exact order: PRNDL State	= Reverse (bit state 1100) Range				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			PRNDL State	= Transition 11 (bit state 0100) Range				
			PRNDL State	= Neutral (bit state 0101) Range				
			PRNDL State	= Transition 11 (bit state 0100) Range				
			Above sequencing occurs in	<= 1 Sec				
			Then delay timer increments					
			Delay timer	>= 5 sec				
			Range Shift State	= Range Shift Complete				
			Absolute Attained Gear Slip	<= 50 rpm				
			Attained Gear	<= Sixth				
			Attained Gear	>= First				
			Throttle Position	>= 8.000183105 pct				
			Output Speed	>= 200 rpm				
			If the above conditions are met Increment Fail Timer				>= 20 Seconds	
			Fail Case 6					
			Current range	= Illegal (bit state 0000 or 1000 or 0001)	A Open Circuit Definition (flag set false if the following conditions are met):			
			and		Current Range	≠ Transition 11 (bit state 0100)		
			A Open Circuit (See Definition)	= FALSE Boolean	or			
					Last positive state	≠ Neutral (bit state 0101)		
					or			
					Previous transition state	≠ Transition 8 (bit state 0111)		
					Fail case 5 delay timer	= 0 sec		
			If the above Condtions are met then, Increment Fail timer				>= 6.25 Seconds	
			Fail Case 7					
			Current PRNDL State	= PRNDL circuit ABCP = 1101 Range				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			and Previous PRNDL state Input Speed Reverse Trans Ratio Reverse Trans Ratio If the above Condtions are met then, Increment Fail timer	= PRNDL circuit ABCP =1111 Range >= 150 RPM <= 2.736938477 ratio >= 3.149047852 ratio			>= 6.25 Seconds	
			P182E will report test fail when any of the above 7 fail cases are met					
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for Engine Torque Signal Valid	>= 9 Volts <= 31.990234 Volts >= 400 RPM <= 7500 RPM >= 5 Sec = TRUE Boolean		
					Disable Conditions:	MIL not Illuminated for DTC's: TCM: P0716, P0717, P0722, P0723, P07C0, P07BF, P077C, P077D ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 13 in Supporting Documents for Exhaust Delay Timers) Primary Oncoming Clutch Pressure Command Status	= TRUE Boolean = Maximum pressurized				One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Primary Offgoing Clutch Pressure Command Status	= Clutch exhaust command				
			Range Shift Status	≠ Initial Clutch Control				
			Attained Gear Slip	<= 40 RPM				
			If above coditons are true, increment appropriate Fail 1 Timers Below:					
			fail timer 1 (2-1 shifting with throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (2-1 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (2-3 shifting with throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (2-3 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (2-4 shifting with throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (2-4 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (6-4 shifting with throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (6-4 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (6-5 shifting with throttle)	>= 0.700195313 Fail Time (Sec)				
			fail timer 1 (6-5 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers				Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2 >= sec	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter					
			2nd gear fail counter				>= 3 Fail Counter From 2nd Gear	
			6th gear fail counter				OR >= 3 Fail Counter From 6th Gear	
			total fail counter				OR >= 3 Total Fail Counter	
					TUT Enable temperature	>= -6.65625 °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	>= 200 RPM		
					input speed limit for TUT	>= 200 RPM		
					PRNDL state defaulted	= FALSE Boolean		
					IMS Fault Pending	= FALSE Boolean		
					Service Fast Learn Mode	= FALSE Boolean		
					HSD Enabled	= TRUE Boolean		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Steady State)	Fail Case 1 Case: Steady State 1st Attained Gear slip	>= 400 RPM				One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If the Above is True for Time	>= Table Based Time Please Refer to Table 4 in supporting documents Enable Time (Sec)				
			Intrusive test: (CBR1 clutch exhausted)					
			Gear Ratio	<= 3.112670898				
			Gear Ratio	>= 2.705322266				
			If the above parameters are true				>= 1.1 Fail Timer (Sec) >= 5 Fail Count in 1st Gear or >= 5 Total Fail Counts	
			Fail Case 2 Case: Steady State 3rd Gear					
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (C35R clutch exhausted)					
			Gear Ratio	<= 3.112670898				
			Gear Ratio	>= 2.705322266				
			If the above parameters are true					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
							>= 1.1 Fail Timer (Sec) >= 3 Fail Count in 3rd Gear or >= 5 Total Fail Counts	
			Fail Case 3 Case: Steady State 4rd Gear					
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (C1234 clutch exhausted)					
			Gear Ratio	<= 0.798217773				
			Gear Ratio	>= 0.693725586				
			If the above parameters are true					
							>= 1.1 Fail Timer (Sec) >= 3 Fail Count in 4th Gear or >= 5 Total Fail Counts	
			Fail Case 4 Case: Steady State 5th Gear					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (C35R clutch exhausted)					
			Gear Ratio	<= 0.798217773				
			Gear Ratio	>= 0.693725586				
			If the above parameters are true				>= 1.1 Fail Timer (Sec)	
							>= 3 Fail Count in 5th Gear or >= 5 Total Fail Counts	
					PRNDL State defaulted	= FALSE Boolean		
					inhibit RVT	= FALSE Boolean		
					IMS fault pending indication	= FALSE Boolean		
					output speed	>= 0 RPM		
					TPS validity flag	= TRUE Boolean		
					HSD Enabled	= TRUE Boolean		
					Hydraulic_System_Pressurized	= TRUE Boolean		
					A OR B			
					(A) Output speed enable	>= 100 Nm		
					(B) Accelerator Pedal enable	>= 0.5004883 Nm		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Ignition Voltage Lo >= 9 Volts Ignition Voltage Hi <= 31.990234 Volts Engine Speed Lo >= 400 RPM Engine Speed Hi <= 7500 RPM Engine Speed is within the allowable limits for >= 5 Sec if Attained Gear=1st FW Accelerator Pedal enable >= 10.00061 Pct if Attained Gear=1st FW Engine Torque Enable >= 45 Nm if Attained Gear=1st FW Engine Torque Enable <= 8191.875 Nm Transmission Fluid Temperature >= -6.65625 °C Input Speed Sensor fault = FALSE Boolean Output Speed Sensor fault = FALSE Boolean Default Gear Option is not present = TRUE Disable Conditions: MIL not Illuminated for DTC's: TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 10 in Supporting Documents for Exhaust Delay Timers) Primary Oncoming Clutch Pressure Command Status Primary Offgoing Clutch Pressure Command Status	= TRUE Boolean = Maximum pressurized = Clutch exhaust command				One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Range Shift Status	≠ Initial Clutch Control				
			Attained Gear Slip	<= 40 RPM				
			If the above conditions are true increment appropriate Fail 1 Timers Below:					
			fail timer 1 (2-6 shifting with throttle)	>= 0.400390625 sec				
			fail timer 1 (2-6 shifting without throttle)	>= 0.5 sec				
			fail timer 1 (3-5 shifting with throttle)	>= 0.400390625 sec				
			fail timer 1 (3-5 shifting without throttle)	>= 0.5 sec				
			fail timer 1 (4-5 shifting with throttle)	>= 0.400390625 sec				
			fail timer 1 (4-5 shifting without throttle)	>= 0.5 sec				
			fail timer 1 (4-6 shifting with throttle)	>= 0.400390625 sec				
			fail timer 1 (4-6 shifting without throttle)	>= 0.5 sec				
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers				Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2 >= sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter					
			2nd gear fail counter				>= 3 Fail Counter From 2nd Gear	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			3rd gear fail counter				>= 3 Fail Counter From 3rd Gear	
			4th gear fail counter				>= 3 Fail Counter From 4th Gear	
			total fail counter				>= 3 Total Fail Counter	
					TUT Enable temperature	>= -6.65625 °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	>= 200 RPM		
					input speed limit for TUT	>= 200 RPM		
					PRNDL state defaulted	= FALSE Boolean		
					IMS Fault Pending	= FALSE Boolean		
					Service Fast Learn Mode	= FALSE Boolean		
					HSD Enabled	= TRUE Boolean		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Steady State)	Fail Case 1 Case: 5th Gear Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (C35R clutch exhausted)					
			Gear Ratio	<= 1.529052734				
			Gear Ratio	>= 1.328979492				
			If the above parameters are true				>= 1.1 Fail Timer (Sec)	
							>= 3 Fail Count in 5th Gear OR	
							>= 3 Total Fail Counts	
			Fail Case 2 Case: 6th Gear					
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec			>= 1.1 Fail Timer (Sec) >= 3 Fail Count in 6th Gear OR >= 3 Total Fail Counts	
			Intrusive test: (CB26 clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	<= 1.529052734 >= 1.328979492				
					PRNDL State defaulted	= FALSE Boolean		
					inhibit RVT	= FALSE Boolean		
					IMS fault pending indication	= FALSE Boolean		
					output speed	>= 0 RPM		
					TPS validity flag	= TRUE Boolean		
					HSD Enabled	= TRUE Boolean		
					Hydraulic_System_Pressurized	= TRUE Boolean		
					A OR B			
					(A) Output speed enable	>= 100 Nm		
					(B) Accelerator Pedal enable	>= 0.5004883 Nm		
					Ignition Voltage Lo	>= 9 Volts		
					Ignition Voltage Hi	<= 31.990234 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					if Attained Gear=1st FW Accelerator Pedal enable	>= 10.00061 Pct		
					if Attained Gear=1st FW Engine Torque Enable	>= 45 Nm		
					if Attained Gear=1st FW Engine Torque Enable	<= 8191.875 Nm		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Transmission Fluid Temperature >= -6.65625 °C Input Speed Sensor fault = FALSE Boolean Output Speed Sensor fault = FALSE Boolean Default Gear Option is not present = TRUE			
					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		
Communication	U0073	Controller Area Network Bus Communication Error	CAN Hardware Circuitry Detects a Low Voltage Error	= TRUE Boolean			>= 62 Fail counts (≈ 10 seconds)	One Trip
			Delay timer	>= 0.1125 sec			Out of 70 Sample Counts (≈ 11 seconds)	
					Stabilization delay >= 3 sec Ignition Voltage >= 9 Volt Ignition Voltage <= 31.990234 Volt Power Mode = Run			
					Disable Conditions: MIL not Illuminated for DTC's:	TCM: None ECM: None		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
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	= TRUE Boolean				
			If the above parameters are true				>= Please Refer to Table 16 in Supporting Documents Neutral Timer (Sec)	
			Command 4th Gear once Output Shaft Speed	<= 1000 RPM				
			If Gear Ratio	>= 4.2265625				
			And Gear Ratio	<= 4.671508789				
							>= 1.5 Fail Timer (Sec)	
							>= 5 Counts	
					Ignition Voltage Lo	>= 9 Volts		
					Ignition Voltage Hi	<= 31.990234 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					High-Side Driver is Enabled	= TRUE Boolean		
					Throttle Position Signal Valid from ECM	= TRUE Boolean		
					Output Speed	>= 110 RPM		
					OR TPS	>= 0.5004883 %		
					Range Shift State	= Range Shift Completed ENUM		
					Transmission Fluid Temperature	>= -6.65625 °C		
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault	= FALSE Boolean		
					Default Gear Option is not present	= TRUE		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solinoid B Stuck On [C35R] (Steady State)	Fail Case 1 Case: Steady State 1st Attained Gear slip If the Above is True for Time Intrusive test: (CBR1 clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	>= 400 RPM >= Table Based Time Please Refer to Table 4 in supporting documents Enable Time (Sec) <= 2.025024414 >= 1.760131836			>= 1.1 Fail Timer (Sec) >= 2 Fail Count in 1st Gear or >= 3 Total Fail Counts	One Trip
			Fail Case 2 Case: Steady State 2nd gear Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (CB26 clutch exhausted)					
			Gear Ratio	<= 2.025024414				
			Gear Ratio	>= 1.760131836				
			If the above parameters are true				>= 1.1 Fail Timer (Sec)	
							>= 3 Fail Count in 2nd Gear or	
							>= 3 Total Fail Counts	
			Fail Case 3 Case: Steady State 4th gear					
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (C1234 clutch exhausted)					
			Gear Ratio	<= 1.069946289				
			Gear Ratio	>= 0.930053711				
			If the above parameters are true				>= 1.1 Fail Timer (Sec) >= 3 Fail Count in 4th Gear or >= 3 Total Fail Counts	
			Fail Case 4 Case: Steady State 6th gear					
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (CB26 clutch exhausted)					
			Gear Ratio	<= 1.069946289			>= 1.1 Fail Timer (Sec)	
			Gear Ratio	>= 0.930053711			>= 3 counts	

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)	
									>=	3	Fail Count in 6th Gear or Total Fail Counts	
									>=	3		
					PRNDL State defaulted	=	FALSE	Boolean				
					inhibit RVT	=	FALSE	Boolean				
					IMS fault pending indication	=	FALSE	Boolean				
					output speed	>=	0	RPM				
					TPS validity flag	=	TRUE	Boolean				
					HSD Enabled	=	TRUE	Boolean				
					Hydraulic_System_Pressurized	=	TRUE	Boolean				
					A OR B							
					(A) Output speed enable	>=	110	Nm				
					(B) Accelerator Pedal enable	>=	0.5004883	Nm				
					Ignition Voltage Lo	>=	9	Volts				
					Ignition Voltage Hi	<=	31.990234	Volts				
					Engine Speed Lo	>=	400	RPM				
					Engine Speed Hi	<=	7500	RPM				
					Engine Speed is within the allowable limits for	>=	5	Sec				
					if Attained Gear=1st FW Accelerator Pedal enable	>=	10.00061	Pct				
					if Attained Gear=1st FW Engine Torque Enable	>=	45	Nm				
					if Attained Gear=1st FW Engine Torque Enable	<=	8191.875	Nm				
					Transmission Fluid Temperature	>=	-6.65625	°C				
					Input Speed Sensor fault	=	FALSE	Boolean				
					Output Speed Sensor fault	=	FALSE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solenoid B StuckOn [C35R] (Dymanic)	Primary Offgoing Clutch is exhausted (See Table 12 in Supporting Documents for Exhaust Delay Timers)	= TRUE Boolean				One Trip
			Primary Oncoming Clutch Pressure Command Status	= Maximum pressurized				
			Primary Offgoing Clutch Pressure Command Status	= Clutch exhaust command				
			Range Shift Status	≠ Initial Clutch Control				
			Attained Gear Slip	<= 40 RPM				
			If the above conditions are true run appropriate Fail 1 Timers Below:					
			fail timer 1 (3-1 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (3-2 shifting with Throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (3-2 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (3-4 shifting with Throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (3-4shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (3-5 shifting with Throttle)	>= 0.400390625 Fail Time (Sec)				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			fail timer 1 (3-5 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (5-3 shifting with Throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (5-3 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (5-4 shifting with Throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (5-4 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (5-6 shifting with Throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (5-6 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers				Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2 >= sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter					
			3rd gear fail counter				>= 3 3rd gear fail counts OR	
			5th gear fail counter				>= 3 5th gear fail counts OR	
			Total fail counter				>= 3 total fail counts	
					TUT Enable temperature Input Speed Sensor fault	>= -6.65625 ºC = FALSE Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Output Speed Sensor fault	= FALSE Boolean		
					Command / Attained Gear	≠ 1st Boolean		
					High Side Driver ON	= TRUE Boolean		
					output speed limit for TUT	>= 200 RPM		
					input speed limit for TUT	>= 200 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		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Steady State)	Fail Case 1 Case: Steady State 1st Attained Gear slip If the Above is True for Time Intrusive test: (CBR1 clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	 >= 400 RPM >= Table Based Time Please Refer to Table 4 in supporting documents Enable Time (Sec) <= 1.547485352 >= 1.345092773			>= 1.1 Fail Timer (Sec) >= 2 Fail Count in 1st Gear	One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
							>= 3 or Total Fail Counts	
			Fail Case 2 Case Steady State 2nd					
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (CB26 clutch exhausted)					
			Gear Ratio	<= 1.547485352				
			Gear Ratio	>= 1.345092773				
			If the above parameters are true				>= 1.1 Fail Timer (Sec)	
							>= 3 Fail Count in 2nd Gear or	
							>= 3 Total fail counts	
			Fail Case 3 Case Steady State 3rd					
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (C35R clutch exhausted)					
			Gear Ratio	<= 1.547485352				
			Gear Ratio	>= 1.345092773				
			If the above parameters are true				>= 1.1 Fail Timer (Sec) >= 3 Fail Count in 3rd Gear OR >= 3 Total Fail Counts	
					PRNDL State defaulted	= FALSE Boolean		
					inhibit RVT	= FALSE Boolean		
					IMS fault pending indication	= FALSE Boolean		
					output speed	>= 0 RPM		
					TPS validity flag	= TRUE Boolean		
					HSD Enabled	= TRUE Boolean		
					Hydraulic_System_Pressurized	= TRUE Boolean		
					A OR B			
					(A) Output speed enable	>= 110 Nm		
					(B) Accelerator Pedal enable	>= 0.5004883 Nm		
					Ignition Voltage Lo	>= 9 Volts		
					Ignition Voltage Hi	<= 31.990234 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					if Attained Gear=1st FW Accelerator Pedal enable	>= 10.00061 Pct		
					if Attained Gear=1st FW Engine Torque Enable	>= 45 Nm		
					if Attained Gear=1st FW Engine Torque Enable	<= 8191.875 Nm		
					Transmission Fluid Temperature	>= -6.65625 °C		
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault	= FALSE Boolean		
					Default Gear Option is not present	= TRUE		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 11 in Supporting Documents for Exhaust Delay Timers)	= TRUE Boolean				One Trip
			Primary Oncoming Clutch Pressure Command Status	= Maximum pressurized				
			Primary Offgoing Clutch Pressure Command Status	= Clutch exhaust command				
			Range Shift Status	≠ Initial Clutch Control				
			Attained Gear Slip	<= 40 RPM				
			If the above conditions are true increment appropriate Fail 1 Timers Below:					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			fail timer 1 (4-1 shifting with throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (4-1 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (4-2 shifting with throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (4-2 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (4-3 shifting with throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (4-3 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (5-3 shifting with throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (5-3 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (6-2 shifting with throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (6-2 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers				Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2 >= sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter					
			4th gear fail counter				>= 3 Fail Counter From 4th Gear OR	
			5th gear fail counter				>= 3 Fail Counter From 5th Gear OR	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			6th gear fail counter Total fail counter				>= 3 Fail Counter From 6th Gear OR >= 3 Total Fail Counter	
					TUT Enable temperature Input Speed Sensor fault Output Speed Sensor fault Command / Attained Gear High Side Driver ON output speed limit for TUT input speed limit for TUT PRNDL state defaulted IMS Fault Pending Service Fast Learn Mode HSD Enabled	>= -6.65625 ºC = FALSE Boolean = FALSE Boolean ≠ 1st Boolean = TRUE Boolean >= 200 RPM >= 200 RPM = FALSE Boolean = FALSE Boolean = FALSE Boolean = TRUE Boolean	
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Tap Up Tap Down Switch (TUTD)	P0815	Upshift Switch Circuit	Fail Case 1					Special No MIL
			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				

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

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Time Since Last Range Change	>= 1 Enable Time (Sec)		
					Ignition Voltage Lo	>= 9 Volts		
					Ignition Voltage Hi	<= 31.990234 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					P0815 Status is	≠ Test Failed This Key On or Fault Active		
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0816, P0826, P182E, P1876, P1877, P1915, P1761 ECM: None		
Tap Up Tap Down Switch (TUTD)	P0816	Downshift Switch Circuit	Fail Case 1					Special No MIL
			Tap Down Switch Stuck in the Down Position in Range 1 Enabled	= 1 Boolean				
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	= 1 Boolean				
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	= 1 Boolean				
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	= 1 Boolean				
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	= 1 Boolean				
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	= 1 Boolean				
			Tap Down Switch Stuck in the Down Position in Range Neutral Enabled	= 1 Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		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	=	1	Boolean					
			Tap Down Switch ON	=	TRUE	Boolean			>= 1	sec	
			Fail Case 2								
			Tap Down Switch Stuck in the Down Position in Range 1 Enabled	=	1	Boolean					
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	=	1	Boolean					
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	=	1	Boolean					
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	=	1	Boolean					
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	=	1	Boolean					
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	=	1	Boolean					
			Tap Down Switch Stuck in the Down Position in Neutral Enabled	=	1	Boolean					
			Tap Down Switch Stuck in the Down Position in Park Enabled	=	1	Boolean					
			Tap Down Switch Stuck in the Down Position in Reverse Enabled	=	1	Boolean					
			Tap Down Switch ON NOTE: Both Failcase1 and Failcase 2 Must Be Met	=	TRUE	Boolean			>= 600	sec	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Time Since Last Range Change >= 1 Enable Time (Sec) Ignition Voltage Lo >= 9 Volts Ignition Voltage Hi <= 31.990234 Volts Engine Speed Lo >= 400 RPM Engine Speed Hi <= 7500 RPM Engine Speed is within the allowable limits for >= 5 Sec P0816 Status is ≠ Test Failed This Key On or Fault Active		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0815, P0826, P182E, P1876, P1877, P1915, P1761 ECM: None		
Internal Mode Switch (IMS)	P182E	Internal Mode Switch - Invalid Range	Fail Case 1 Current range Previous range Previous range Range Shift State Absolute Attained Gear Slip Attained Gear Attained Gear Throttle Position Available Throttle Position	= Transition 1 (bit state 1110) Range ≠ CeTRGR_e_PRNDL_Drive6 Range ≠ CeTRGR_e_PRNDL_Drive5 Range = Range Shift Completed ENUM <= 50 rpm <= Sixth >= First = TRUE >= 8.000183105 pct				One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Output Speed	>= 200 rpm				
			Engine Torque	>= 50 Nm				
			Engine Torque	<= 8191.75 Nm				
			If the above conditions are met then Increment Fail Timer				>= 1 Fail Seconds	
			If Fail Timer has Expired then Increment Fail Counter				>= 5 Fail Counts	
			Fail Case 2 Output Speed	<= 70 rpm				
			The following PRNDL sequence events occur in this exact order:					
			PRNDL state	= Drive 6 (bit state 0110) Range				
			PRNDL state = Drive 6 for	>= 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 Seconds	
			delay timer	>= 1 Sec				
			Input Speed	>= 400 Sec				
			If Fail Timer has Expired then Increment Fail Counter				>= 2 Fail Counts	
			Fail Case 3 Current range	= Transition 13 (bit state 0010) Range	Previous range	≠ CeTRGR_e_PRNDL_Drive5		
			Engine Torque	>= -8192 Nm	Previous range	≠ CeTRGR_e_PRNDL_Drive5		
			Engine Torque	<= 8191.75 Nm	IMS is 7 position configuration	= 0 Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If the above conditions are met then, Increment Fail Timer		If the "IMS 7 Position config" = 1 then the "previous range" criteria above must also be satsified when the "current range" = "Transition 13"		>= 0.225 Seconds	
			If Fail Timer has Expired then Increment Fail Counter				>= 15 Fail Counts	
			Fail Case 4					
			Current range	= Transition 8 (bit state 0111) Range	Disable Fail Case 4 if last positive range was Drive 6 and current range is transition 8			
			Inhibit bit (see definition)	= FALSE	Set inhibit bit true if PRNDL = 1100 (rev) or 0100 (Rev-Neu transition 11) Set inhibit bit false if PRNDL = 1001 (park)			
			Steady State Engine Torque	>= 30 Nm				
			Steady State Engine Torque	<= 8191.75 Nm				
			If the above conditions are met then Increment Fail Timer				>= 0.225 Seconds	
			If the above Condtions have been met, Increment Fail Counter				>= 15 Fail Counts	
			Fail Case 5 Throttle Position 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				
			PRNDL State	= Transition 11 (bit state 0100) Range				
			Above sequencing occurs in Then delay timer increments	<= 1 Sec				
			Delay timer	>= 5 sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Range Shift State =	Range Shift Complete				
			Absolute Attained Gear Slip <=	50 rpm				
			Attained Gear <=	Sixth				
			Attained Gear >=	First				
			Throttle Position >=	8.000183105 pct				
			Output Speed >=	200 rpm				
			If the above conditions are met Increment Fail Timer				>= 20 Seconds	
			Fail Case 6					
			Current range =	Illegal (bit state 0000 or 1000 or 0001)	A Open Circuit Definition (flag set false if the following conditions are met):			
			and		Current Range	≠ Transition 11 (bit state 0100)		
			A Open Circuit (See Definition) =	FALSE Boolean	or			
					Last positive state	≠ Neutral (bit state 0101)		
					or			
					Previous transition state	≠ Transition 8 (bit state 0111)		
					Fail case 5 delay timer	= 0 sec		
			If the above Condtions are met then, Increment Fail timer				>= 6.25 Seconds	
			Fail Case 7					
			Current PRNDL State =	PRNDL circuit ABCP = 1101 Range				
			and					
			Previous PRNDL state =	PRNDL circuit ABCP =1111 Range				
			Input Speed >=	150 RPM				
			Reverse Trans Ratio <=	2.670166016 ratio				
			Reverse Trans Ratio >=	3.072021484 ratio				
			If the above Condtions are met then, Increment Fail timer				>= 6.25 Seconds	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			P182E will report test fail when any of the above 7 fail cases are met					
					Ignition Voltage Lo	>= 9 Volts		
					Ignition Voltage Hi	<= 31.990234 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					Engine Torque Signal Valid	= TRUE Boolean		
					Disable Conditions:	MIL not Illuminated for DTC's: TCM: P0716, P0717, P0722, P0723, P07C0, P07BF, P077C, P077D ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Tap Up Tap Down Switch (TUTD)	P1876	Tap Up and Down Enable Switch Circuit	Current range	= Park or Reverse or Neutral Range State				Special No MIL
			TUTD Enable Switch is Active	= TRUE Boolean				
							>= 3 Fail Time (Sec)	
							>= 5 Fail Counts	
					Ignition Voltage Lo	>= 9 Volts		
					Ignition Voltage Hi	<= 31.990234 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		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					P1876 Status is	≠ Test Failed This Key On or Fault Active		
					Disable Conditions:	MIL not Illuminated for DTC's: TCM: P0815, P0816, P0826, P1761, P1825, P1877, P1915, U0100 ECM: None		
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 13 in Supporting Documents for Exhaust Delay Timers)	= TRUE Boolean				One Trip
			Primary Oncoming Clutch Pressure Command Status	= Maximum pressurized				
			Primary Offgoing Clutch Pressure Command Status	= Clutch exhaust command				
			Range Shift Status	≠ Initial Clutch Control				
			Attained Gear Slip	<= 40 RPM				
			If above coditons are true, increment appropriate Fail 1 Timers Below:					
			fail timer 1 (2-1 shifting with throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (2-1 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (2-3 shifting with throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (2-3 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (2-4 shifting with throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (2-4 shifting without throttle)	>= 0.5 Fail Time (Sec)				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			fail timer 1 (6-4 shifting with throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (6-4 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (6-5 shifting with throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (6-5 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers				>= Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2 sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter					
			2nd gear fail counter				>= 3 Fail Counter From 2nd Gear	
			6th gear fail counter				>= 3 OR Fail Counter From 6th Gear	
			total fail counter				>= 3 OR Total Fail Counter	
					TUT Enable temperature	>= -6.65625 °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	>= 200 RPM		
					input speed limit for TUT	>= 200 RPM		
					PRNDL state defaulted	= FALSE Boolean		
					IMS Fault Pending	= FALSE Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	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: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Steady State)	Fail Case 1 Case: Steady State 1st Attained Gear slip If the Above is True for Time Intrusive test: (CBR1 clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	 >= 400 RPM >= Table Based Time Please Refer to Table 4 in supporting documents Enable Time (Sec) <= 3.111816406 >= 2.704589844			>= 1.1 Fail Timer (Sec) >= 5 Fail Count in 1st Gear or >= 5 Total Fail Counts	One Trip
			Fail Case 2 Case: Steady State 3rd Gear Max Delta Output Speed Hysteresis	 >= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (C35R clutch exhausted)					
			Gear Ratio	<= 3.111816406				
			Gear Ratio	>= 2.704589844				
			If the above parameters are true				>= 1.1 Fail Timer (Sec)	
							>= 3 Fail Count in 3rd Gear or >= 5 Total Fail Counts	
			Fail Case 3 Case: Steady State 4rd Gear					
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (C1234 clutch exhausted)					
			Gear Ratio	<= 0.798339844				
			Gear Ratio	>= 0.693847656				
			If the above parameters are true				>= 1.1 Fail Timer (Sec) >= 3 Fail Count in 4th Gear or >= 5 Total Fail Counts	
			Fail Case 4 Case: Steady State 5th Gear					
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (C35R clutch exhausted)					
			Gear Ratio	<= 0.798339844				
			Gear Ratio	>= 0.693847656				
			If the above parameters are true					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
									>=	1.1	Fail Timer (Sec)	
									>=	3	Fail Count in 5th Gear or	
									>=	5	Total Fail Counts	
					PRNDL State defaulted	=	FALSE	Boolean				
					inhibit RVT	=	FALSE	Boolean				
					IMS fault pending indication	=	FALSE	Boolean				
					output speed	>=	0	RPM				
					TPS validity flag	=	TRUE	Boolean				
					HSD Enabled	=	TRUE	Boolean				
					Hydraulic_System_Pressurized	=	TRUE	Boolean				
					A OR B							
					(A) Output speed enable	>=	110	Nm				
					(B) Accelerator Pedal enable	>=	0.5004883	Nm				
					Ignition Voltage Lo	>=	9	Volts				
					Ignition Voltage Hi	<=	31.990234	Volts				
					Engine Speed Lo	>=	400	RPM				
					Engine Speed Hi	<=	7500	RPM				
					Engine Speed is within the allowable limits for	>=	5	Sec				
					if Attained Gear=1st FW Accelerator Pedal enable	>=	10.00061	Pct				
					if Attained Gear=1st FW Engine Torque Enable	>=	45	Nm				
					if Attained Gear=1st FW Engine Torque Enable	<=	8191.875	Nm				
					Transmission Fluid Temperature	>=	-6.65625	ºC				
					Input Speed Sensor fault	=	FALSE	Boolean				
					Output Speed Sensor fault	=	FALSE	Boolean				
					Default Gear Option is not present	=	TRUE					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 10 in Supporting Documents for Exhaust Delay Timers)	= TRUE Boolean				One Trip
			Primary Oncoming Clutch Pressure Command Status	= Maximum pressurized				
			Primary Offgoing Clutch Pressure Command Status	= Clutch exhaust command				
			Range Shift Status	≠ Initial Clutch Control				
			Attained Gear Slip	<= 40 RPM				
			If the above conditions are true increment appropriate Fail 1 Timers Below:					
			fail timer 1 (2-6 shifting with throttle)	>= 0.400390625 sec				
			fail timer 1 (2-6 shifting without throttle)	>= 0.5 sec				
			fail timer 1 (3-5 shifting with throttle)	>= 0.400390625 sec				
			fail timer 1 (3-5 shifting without throttle)	>= 0.5 sec				
			fail timer 1 (4-5 shifting with throttle)	>= 0.400390625 sec				
			fail timer 1 (4-5 shifting without throttle)	>= 0.5 sec				
			fail timer 1 (4-6 shifting with throttle)	>= 0.400390625 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 Enable Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2 >= sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter					
			2nd gear fail counter				>= 3 Fail Counter From 2nd Gear	
			3rd gear fail counter				>= 3 Fail Counter From 3rd Gear	
			4th gear fail counter				>= 3 Fail Counter From 4th Gear	
			total fail counter				>= 3 Total Fail Counter	
					TUT Enable temperature	>= -6.65625 °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	>= 200 RPM		
					input speed limit for TUT	>= 200 RPM		
					PRNDL state defaulted	= FALSE Boolean		
					IMS Fault Pending	= FALSE Boolean		
					Service Fast Learn Mode	= FALSE Boolean		
					HSD Enabled	= TRUE Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Steady State)	Fail Case 1 Case: 5th Gear Max Delta Output Speed Hysteresis Min Delta Output Speed Hysteresis If the Above is True for Time Intrusive test: (C35R clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec >= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec >= Table Based Time Please Refer to Table 17 in supporting documents Sec <= 1.547485352 >= 1.345092773			>= 1.1 Fail Timer (Sec) >= 3 Fail Count in 5th Gear OR >= 3 Total Fail Counts	One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Fail Case 2 Case: 6th Gear					
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (CB26 clutch exhausted)					
			Gear Ratio	<= 1.547485352				
			Gear Ratio	>= 1.345092773				
			If the above parameters are true				>= 1.1 Fail Timer (Sec)	
							>= 3 Fail Count in 6th Gear OR	
							>= 3 Total Fail Counts	
					PRNDL State defaulted	= FALSE Boolean		
					inhibit RVT	= FALSE Boolean		
					IMS fault pending indication	= FALSE Boolean		
					output speed	>= 0 RPM		
					TPS validity flag	= TRUE Boolean		
					HSD Enabled	= TRUE Boolean		
					Hydraulic_System_Pressurized	= TRUE Boolean		
					A OR B (A) Output speed enable	>= 110 Nm		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					(B) Accelerator Pedal enable >= 0.5004883 Nm Ignition Voltage Lo >= 9 Volts Ignition Voltage Hi <= 31.990234 Volts Engine Speed Lo >= 400 RPM Engine Speed Hi <= 7500 RPM Engine Speed is within the allowable limits for >= 5 Sec if Attained Gear=1st FW Accelerator Pedal enable >= 10.00061 Pct if Attained Gear=1st FW Engine Torque Enable >= 45 Nm if Attained Gear=1st FW Engine Torque Enable <= 8191.875 Nm Transmission Fluid Temperature >= -6.65625 °C Input Speed Sensor fault = FALSE Boolean Output Speed Sensor fault = FALSE Boolean Default Gear Option is not present = TRUE		
					Disable Conditions: MIL not Illuminated for DTC's:	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		
Communication	U0073	Controller Area Network Bus Communication Error	CAN Hardware Circuitry Detects a Low Voltage Error	= TRUE Boolean			>= 62 Fail counts (≈ 10 seconds)	One Trip
			Delay timer	>= 0.1125 sec			Out of 70 Sample Counts (≈ 11 seconds)	
					Stabilization delay >= 3 sec Ignition Voltage >= 9 Volt Ignition Voltage <= 31.990234 Volt Power Mode = Run			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None		
Communication	U0100	Lost Communications with ECM (Engine Control Module)	CAN messages from ECM are not received by the TCM	= TRUE Boolean			>= 12 sec	One Trip
					Stabilization delay >= 3 sec Ignition Voltage >= 9 Volt Ignition Voltage <= 31.990234 Volt Power Mode = Run			
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: U0073 ECM: None		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
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	= TRUE Boolean				
			If the above parameters are true				>= Please Refer to Table 16 in Supporting Documents Neutral Timer (Sec)	
			Command 4th Gear once Output Shaft Speed	<= 1000 RPM				
			If Gear Ratio	>= 4.2265625				
			And Gear Ratio	<= 4.671508789				
							>= 1.5 Fail Timer (Sec)	
							>= 5 Counts	
					Ignition Voltage Lo	>= 9 Volts		
					Ignition Voltage Hi	<= 31.990234 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					High-Side Driver is Enabled	= TRUE Boolean		
					Throttle Position Signal Valid from ECM	= TRUE Boolean		
					Output Speed	>= 110 RPM		
					OR			
					TPS	>= 0.5004883 %		
					Range Shift State	= Range Shift Completed ENUM		
					Transmission Fluid Temperature	>= -6.65625 °C		
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault	= FALSE Boolean		
					Default Gear Option is not present	= TRUE		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solinoid B Stuck On [C35R] (Steady State)	Fail Case 1 Case: Steady State 1st Attained Gear slip If the Above is True for Time Intrusive test: (CBR1 clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	>= 400 RPM >= Table Based Time Please Refer to Table 4 in supporting documents Enable Time (Sec) <= 2.025024414 >= 1.760131836			>= 1.1 Fail Timer (Sec) >= 2 Fail Count in 1st Gear or >= 3 Total Fail Counts	One Trip
			Fail Case 2 Case: Steady State 2nd gear Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (CB26 clutch exhausted)					
			Gear Ratio	<= 2.025024414				
			Gear Ratio	>= 1.760131836				
			If the above parameters are true				>= 1.1 Fail Timer (Sec)	
							>= 3 Fail Count in 2nd Gear or >= 3 Total Fail Counts	
			Fail Case 3 Case: Steady State 4th gear					
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (C1234 clutch exhausted)					
			Gear Ratio	<= 1.069946289				
			Gear Ratio	>= 0.930053711				
			If the above parameters are true				>= 1.1 Fail Timer (Sec) >= 3 Fail Count in 4th Gear or >= 3 Total Fail Counts	
			Fail Case 4 Case: Steady State 6th gear					
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (CB26 clutch exhausted)					
			Gear Ratio	<= 1.069946289			>= 1.1 Fail Timer (Sec)	
			Gear Ratio	>= 0.930053711			>= 3 counts	

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)	
									>=	3	Fail Count in 6th 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				
					TPS validity flag	=	TRUE	Boolean				
					HSD Enabled	=	TRUE	Boolean				
					Hydraulic_System_Pressurized	=	TRUE	Boolean				
					A OR B							
					(A) Output speed enable	>=	110	Nm				
					(B) Accelerator Pedal enable	>=	0.5004883	Nm				
					Ignition Voltage Lo	>=	9	Volts				
					Ignition Voltage Hi	<=	31.990234	Volts				
					Engine Speed Lo	>=	400	RPM				
					Engine Speed Hi	<=	7500	RPM				
					Engine Speed is within the allowable limits for	>=	5	Sec				
					if Attained Gear=1st FW Accelerator Pedal enable	>=	10.00061	Pct				
					if Attained Gear=1st FW Engine Torque Enable	>=	45	Nm				
					if Attained Gear=1st FW Engine Torque Enable	<=	8191.875	Nm				
					Transmission Fluid Temperature	>=	-6.65625	ºC				
					Input Speed Sensor fault	=	FALSE	Boolean				
					Output Speed Sensor fault	=	FALSE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solenoid B StuckOn [C35R] (Dymanic)	Primary Offgoing Clutch is exhausted (See Table 12 in Supporting Documents for Exhaust Delay Timers)	= TRUE Boolean				One Trip
			Primary Oncoming Clutch Pressure Command Status	= Maximum pressurized				
			Primary Offgoing Clutch Pressure Command Status	= Clutch exhaust command				
			Range Shift Status	≠ Initial Clutch Control				
			Attained Gear Slip	<= 40 RPM				
			If the above conditions are true run appropriate Fail 1 Timers Below:					
			fail timer 1 (3-1 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (3-2 shifting with Throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (3-2 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (3-4 shifting with Throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (3-4shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (3-5 shifting with Throttle)	>= 0.400390625 Fail Time (Sec)				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			fail timer 1 (3-5 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (5-3 shifting with Throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (5-3 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (5-4 shifting with Throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (5-4 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (5-6 shifting with Throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (5-6 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers				Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail >= Timer 1, and Reference Supporting Table 15 for Fail Timer 2 sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter					
			3rd gear fail counter				>= 3 3rd gear fail counts OR	
			5th gear fail counter				>= 3 5th gear fail counts OR	
			Total fail counter				>= 3 total fail counts	
					TUT Enable temperature	>= -6.65625 °C		
					Input Speed Sensor fault	= FALSE Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Output Speed Sensor fault	= FALSE Boolean		
					Command / Attained Gear	≠ 1st Boolean		
					High Side Driver ON	= TRUE Boolean		
					output speed limit for TUT	>= 200 RPM		
					input speed limit for TUT	>= 200 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		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Steady State)	Fail Case 1 Case: Steady State 1st Attained Gear slip If the Above is True for Time Intrusive test: (CBR1 clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	 >= 400 Table Based Time Please >= Refer to Table 4 in supporting documents <= 1.547485352 >= 1.345092773			>= 1.1 Fail Timer (Sec) >= 2 Fail Count in 1st Gear	One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
							>= 3 or Total Fail Counts	
			Fail Case 2 Case Steady State 2nd					
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (CB26 clutch exhausted)					
			Gear Ratio	<= 1.547485352				
			Gear Ratio	>= 1.345092773				
			If the above parameters are true				>= 1.1 Fail Timer (Sec)	
							>= 3 Fail Count in 2nd Gear or	
							>= 3 Total fail counts	
			Fail Case 3 Case Steady State 3rd					
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (C35R clutch exhausted)					
			Gear Ratio	<= 1.547485352				
			Gear Ratio	>= 1.345092773				
			If the above parameters are true				>= 1.1 Fail Timer (Sec)	
							>= 3 Fail Count in 3rd Gear	
							OR	
							>= 3 Total Fail Counts	
					PRNDL State defaulted	= FALSE Boolean		
					inhibit RVT	= FALSE Boolean		
					IMS fault pending indication	= FALSE Boolean		
					output speed	>= 0 RPM		
					TPS validity flag	= TRUE Boolean		
					HSD Enabled	= TRUE Boolean		
					Hydraulic_System_Pressurized	= TRUE Boolean		
					A OR B			
					(A) Output speed enable	>= 110 Nm		
					(B) Accelerator Pedal enable	>= 0.5004883 Nm		
					Ignition Voltage Lo	>= 9 Volts		
					Ignition Voltage Hi	<= 31.990234 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					if Attained Gear=1st FW Accelerator Pedal enable	>= 10.00061 Pct		
					if Attained Gear=1st FW Engine Torque Enable	>= 45 Nm		
					if Attained Gear=1st FW Engine Torque Enable	<= 8191.875 Nm		
					Transmission Fluid Temperature	>= -6.65625 °C		
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault	= FALSE Boolean		
					Default Gear Option is not present	= TRUE		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 11 in Supporting Documents for Exhaust Delay Timers)	= TRUE Boolean				One Trip
			Primary Oncoming Clutch Pressure Command Status	= Maximum pressurized				
			Primary Offgoing Clutch Pressure Command Status	= Clutch exhaust command				
			Range Shift Status	≠ Initial Clutch Control				
			Attained Gear Slip	<= 40 RPM				
			If the above conditions are true increment appropriate Fail 1 Timers Below:					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			fail timer 1 (4-1 shifting with throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (4-1 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (4-2 shifting with throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (4-2 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (4-3 shifting with throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (4-3 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (5-3 shifting with throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (5-3 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (6-2 shifting with throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (6-2 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers				Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2 >= sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter					
			4th gear fail counter				>= 3 Fail Counter From 4th Gear OR	
			5th gear fail counter				>= 3 Fail Counter From 5th Gear OR	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value		Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
			6th gear fail counter								>=	3	Fail Counter From 6th Gear OR	
			Total fail counter								>=	3	Total Fail Counter	
							TUT Enable temperature	>=	-6.65625	°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	>=	200	RPM				
							input speed limit for TUT	>=	200	RPM				
							PRNDL state defaulted	=	FALSE	Boolean				
							IMS Fault Pending	=	FALSE	Boolean				
							Service Fast Learn Mode	=	FALSE	Boolean				
							HSD Enabled	=	TRUE	Boolean				
							Disable Conditions: MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E					
Tap Up Tap Down Switch (TUTD)	P0815	Upshift Switch Circuit	Fail Case 1	Tap Up Switch Stuck in the Up Position in Range 1 Enabled	=	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								

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

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Time Since Last Range Change >= 1 Enable Time (Sec) Ignition Voltage Lo >= 9 Volts Ignition Voltage Hi <= 31.990234 Volts Engine Speed Lo >= 400 RPM Engine Speed Hi <= 7500 RPM Engine Speed is within the allowable limits for >= 5 Sec P0815 Status is ≠ Test Failed This Key On or Fault Active			
					Disable Conditions:	MIL not Illuminated for DTC's: TCM: P0816, P0826, P182E, P1876, P1877, P1915, P1761 ECM: None		
Tap Up Tap Down Switch (TUTD)	P0816	Downshift Switch Circuit	Fail Case 1					Special No MIL
			Tap Down Switch Stuck in the Down Position in Range 1 Enabled	= 0 Boolean				
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	= 0 Boolean				
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	= 0 Boolean				
			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	Threshold Value	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	
			Fail Case 2 Tap Down Switch Stuck in the Down Position in Range 1 Enabled	= 1 Boolean				
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	= 1 Boolean				
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	= 1 Boolean				
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	= 1 Boolean				
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	= 1 Boolean				
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	= 1 Boolean				
			Tap Down Switch Stuck in the Down Position in Neutral Enabled	= 0 Boolean				
			Tap Down Switch Stuck in the Down Position in Park Enabled	= 0 Boolean				
			Tap Down Switch Stuck in the Down Position in Reverse Enabled	= 0 Boolean				
			Tap Down Switch ON NOTE: Both Failcase1 and Failcase 2 Must Be Met	= TRUE Boolean			>= 600 sec	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Time Since Last Range Change	>= 1 Enable Time (Sec)		
					Ignition Voltage Lo	>= 9 Volts		
					Ignition Voltage Hi	<= 31.990234 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					P0816 Status is	≠ Test Failed This Key On or Fault Active		
					Disable Conditions: MIL not Illuminated for DTC's:	TCM: P0815, P0826, P182E, P1876, P1877, P1915, P1761 ECM: None		
Internal Mode Switch (IMS)	P182E	Internal Mode Switch - Invalid Range	Fail Case 1					One Trip
			Current range	= Transition 1 (bit state 1110) Range				
			Previous range	≠ CeTRGR_e_PRNDL_Drive6 Range				
			Previous range	≠ CeTRGR_e_PRNDL_Drive5 Range				
			Range Shift State	= Range Shift Completed ENUM				
			Absolute Attained Gear Slip	<= 50 rpm				
			Attained Gear	<= Sixth				
			Attained Gear	>= First				
			Throttle Position Available	= TRUE				
			Throttle Position	>= 8.000183105 pct				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Output Speed	>= 200 rpm				
			Engine Torque	>= 50 Nm				
			Engine Torque	<= 8191.75 Nm				
			If the above conditions are met then Increment Fail Timer				>= 1 Fail Seconds	
			If Fail Timer has Expired then Increment Fail Counter				>= 5 Fail Counts	
			Fail Case 2 Output Speed	<= 70 rpm				
			The following PRNDL sequence events occur in this exact order:					
			PRNDL state	= Drive 6 (bit state 0110) Range				
			PRNDL state = Drive 6 for	>= 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 Seconds	
			delay timer	>= 1 Sec				
			Input Speed	>= 400 Sec				
			If Fail Timer has Expired then Increment Fail Counter				>= 2 Fail Counts	
			Fail Case 3 Current range	= Transition 13 (bit state 0010) Range	Previous range	≠ CeTRGR_e_PRNDL_Drive4		
			Engine Torque	>= -8192 Nm	Previous range	≠ CeTRGR_e_PRNDL_Drive4		
			Engine Torque	<= 8191.75 Nm	IMS is 7 position configuration	= 0 Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If the above conditions are met then, Increment Fail Timer		If the "IMS 7 Position config" = 1 then the "previous range" criteria above must also be satsified when the "current range" = "Transition 13"		>= 0.225 Seconds	
			If Fail Timer has Expired then Increment Fail Counter				>= 15 Fail Counts	
			Fail Case 4					
			Current range	= Transition 8 (bit state 0111) Range	Disable Fail Case 4 if last positive range was Drive 6 and current range is transition 8			
			Inhibit bit (see definition)	= FALSE	Set inhibit bit true if PRNDL = 1100 (rev) or 0100 (Rev-Neu transition 11) Set inhibit bit false if PRNDL = 1001 (park)			
			Steady State Engine Torque	>= 100 Nm				
			Steady State Engine Torque	<= 8191.75 Nm				
			If the above conditions are met then Increment Fail Timer				>= 0.225 Seconds	
			If the above Condtions have been met, Increment Fail Counter				>= 15 Fail Counts	
			Fail Case 5 Throttle Position 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				
			PRNDL State	= Transition 11 (bit state 0100) Range				
			Above sequencing occurs in Then delay timer increments	<= 1 Sec				
			Delay timer	>= 5 sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Range Shift State	= Range Shift Complete				
			Absolute Attained Gear Slip	<= 50 rpm				
			Attained Gear	<= Sixth				
			Attained Gear	>= First				
			Throttle Position	>= 8.000183105 pct				
			Output Speed	>= 200 rpm				
			If the above conditions are met Increment Fail Timer				>= 20 Seconds	
			Fail Case 6					
			Current range	= Illegal (bit state 0000 or 1000 or 0001)	A Open Circuit Definition (flag set false if the following conditions are met):			
			and		Current Range	≠ Transition 11 (bit state 0100)		
			A Open Circuit (See Definition)	= FALSE Boolean	or			
					Last positive state	≠ Neutral (bit state 0101)		
					or			
					Previous transition state	≠ Transition 8 (bit state 0111)		
					Fail case 5 delay timer	= 0 sec		
			If the above Condtions are met then, Increment Fail timer				>= 6.25 Seconds	
			Fail Case 7					
			Current PRNDL State	= PRNDL circuit ABCP = 1101 Range				
			and					
			Previous PRNDL state	= PRNDL circuit ABCP =1111 Range				
			Input Speed	>= 150 RPM				
			Reverse Trans Ratio	<= 2.670166016 ratio				
			Reverse Trans Ratio	>= 3.072021484 ratio				
			If the above Condtions are met then, Increment Fail timer				>= 6.25 Seconds	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			P182E will report test fail when any of the above 7 fail cases are met		Ignition Voltage Lo >= 9 Volts Ignition Voltage Hi <= 31.990234 Volts Engine Speed Lo >= 400 RPM Engine Speed Hi <= 7500 RPM Engine Speed is within the allowable limits for >= 5 Sec Engine Torque Signal Valid = TRUE Boolean			
					Disable Conditions: MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P07C0, P07BF, P077C, P077D ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 13 in Supporting Documents for Exhaust Delay Timers)	= TRUE Boolean				One Trip
			Primary Oncoming Clutch Pressure Command Status	= Maximum pressurized				
			Primary Offgoing Clutch Pressure Command Status	= Clutch exhaust command				
			Range Shift Status	≠ Initial Clutch Control				
			Attained Gear Slip	<= 40 RPM				
			If above coditons are true, increment appropriate Fail 1 Timers Below: fail timer 1 (2-1 shifting with throttle)	>= 0.400390625 Fail Time (Sec)				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			fail timer 1 (2-1 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (2-3 shifting with throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (2-3 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (2-4 shifting with throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (2-4 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (6-4 shifting with throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (6-4 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1 (6-5 shifting with throttle)	>= 0.400390625 Fail Time (Sec)				
			fail timer 1 (6-5 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers				Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2 >= sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter					
			2nd gear fail counter				>= 3 Fail Counter From 2nd Gear	
			6th gear fail counter				OR >= 3 Fail Counter From 6th Gear OR	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			total fail counter				>= 3 Total Fail Counter	
					TUT Enable temperature >= -6.65625 °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 >= 200 RPM input speed limit for TUT >= 200 RPM PRNDL state defaulted = FALSE Boolean IMS Fault Pending = FALSE Boolean Service Fast Learn Mode = FALSE Boolean HSD Enabled = TRUE Boolean			
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Steady State)	Fail Case 1 Case: Steady State 1st Attained Gear slip If the Above is True for Time Intrusive test: (CBR1 clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	>= 400 RPM >= Table Based Time Please Refer to Table 4 in supporting documents Enable Time (Sec) <= 3.111816406 >= 2.704589844			>= 1.1 Fail Timer (Sec)	One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
							>= 5 Fail Count in 1st Gear or >= 5 Total Fail Counts	
			Fail Case 2 Case: Steady State 3rd Gear					
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (C35R clutch exhausted)					
			Gear Ratio	<= 3.111816406				
			Gear Ratio	>= 2.704589844				
			If the above parameters are true				>= 1.1 Fail Timer (Sec) >= 3 Fail Count in 3rd Gear or >= 5 Total Fail Counts	
			Fail Case 3 Case: Steady State 4rd Gear					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (C1234 clutch exhausted)					
			Gear Ratio	<= 0.798339844				
			Gear Ratio	>= 0.693847656				
			If the above parameters are true				>= 1.1 Fail Timer (Sec) >= 3 Fail Count in 4th Gear or >= 5 Total Fail Counts	
			Fail Case 4 Case: Steady State 5th Gear					
			Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				
			If the Above is True for Time	>= Table Based Time Please Refer to Table 17 in supporting documents Sec				
			Intrusive test: (C35R clutch exhausted)					
			Gear Ratio	<= 0.798339844				
			Gear Ratio	>= 0.693847656				
			If the above parameters are true				>= 1.1 Fail Timer (Sec)	
							>= 3 Fail Count in 5th Gear or >= 5 Total Fail Counts	
					PRNDL State defaulted	= FALSE Boolean		
					inhibit RVT	= FALSE Boolean		
					IMS fault pending indication	= FALSE Boolean		
					output speed	>= 0 RPM		
					TPS validity flag	= TRUE Boolean		
					HSD Enabled	= TRUE Boolean		
					Hydraulic_System_Pressurized	= TRUE Boolean		
					A OR B			
					(A) Output speed enable	>= 110 Nm		
					(B) Accelerator Pedal enable	>= 0.5004883 Nm		
					Ignition Voltage Lo	>= 9 Volts		
					Ignition Voltage Hi	<= 31.990234 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					if Attained Gear=1st FW Accelerator Pedal enable	>= 10.00061 Pct		
					if Attained Gear=1st FW Engine Torque Enable	>= 45 Nm		
					if Attained Gear=1st FW Engine Torque Enable	<= 8191.875 Nm		
					Transmission Fluid Temperature	>= -6.65625 °C		
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault	= FALSE Boolean		
					Default Gear Option is not present	= TRUE		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 10 in Supporting Documents for Exhaust Delay Timers)	= TRUE Boolean				One Trip
			Primary Oncoming Clutch Pressure Command Status	= Maximum pressurized				
			Primary Offgoing Clutch Pressure Command Status	= Clutch exhaust command				
			Range Shift Status	≠ Initial Clutch Control				
			Attained Gear Slip	<= 40 RPM				
			If the above conditions are true increment appropriate Fail 1 Timers Below:					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			fail timer 1 (2-6 shifting with throttle)	>= 0.400390625 sec				
			fail timer 1 (2-6 shifting without throttle)	>= 0.5 sec				
			fail timer 1 (3-5 shifting with throttle)	>= 0.400390625 sec				
			fail timer 1 (3-5 shifting without throttle)	>= 0.5 sec				
			fail timer 1 (4-5 shifting with throttle)	>= 0.400390625 sec				
			fail timer 1 (4-5 shifting without throttle)	>= 0.5 sec				
			fail timer 1 (4-6 shifting with throttle)	>= 0.400390625 sec				
			fail timer 1 (4-6 shifting without throttle)	>= 0.5 sec				
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers				>= Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail Timer 1, and Reference Supporting Table 15 for Fail Timer 2 sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter					
			2nd gear fail counter				>= 3 Fail Counter From 2nd Gear	
			3rd gear fail counter				>= 3 Fail Counter From 3rd Gear	
			4th gear fail counter				>= 3 Fail Counter From 4th Gear	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			total fail counter				>= 3 Total Fail Counter	
					TUT Enable temperature >= -6.65625 °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 >= 200 RPM input speed limit for TUT >= 200 RPM PRNDL state defaulted = FALSE Boolean IMS Fault Pending = FALSE Boolean Service Fast Learn Mode = FALSE Boolean HSD Enabled = TRUE Boolean			
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Steady State)	Fail Case 1 Case: 5th Gear Max Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 1 in supporting documents rpm/sec				One Trip
			Min Delta Output Speed Hysteresis	>= Table Based value Please Refer to 3D Table 2 in supporting documents rpm/sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Table Based Time Please				
			If the Above is True for Time	>= Refer to Table 17 in supporting documents Sec				
			Intrusive test: (C35R clutch exhausted)					
			Gear Ratio	<= 1.547485352				
			Gear Ratio	>= 1.345092773				
			If the above parameters are true					
							>= 1.1 Fail Timer (Sec)	
							>= 3 Fail Count in 5th Gear OR	
							>= 3 Total Fail Counts	
			Fail Case 2 Case: 6th Gear					
				Table Based value Please				
			Max Delta Output Speed Hysteresis	>= Refer to 3D Table 1 in supporting documents rpm/sec				
				Table Based value Please				
			Min Delta Output Speed Hysteresis	>= Refer to 3D Table 2 in supporting documents rpm/sec				
				Table Based Time Please				
			If the Above is True for Time	>= Refer to Table 17 in supporting documents Sec				
			Intrusive test: (CB26 clutch exhausted)					
			Gear Ratio	<= 1.547485352				
			Gear Ratio	>= 1.345092773				
			If the above parameters are true					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Required			Mil Illum.
									>=	1.1	Fail Timer (Sec)	
									>=	3	Fail Count in 6th 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				
					TPS validity flag	=	TRUE	Boolean				
					HSD Enabled	=	TRUE	Boolean				
					Hydraulic_System_Pressurized	=	TRUE	Boolean				
					A OR B							
					(A) Output speed enable	>=	110	Nm				
					(B) Accelerator Pedal enable	>=	0.5004883	Nm				
					Ignition Voltage Lo	>=	9	Volts				
					Ignition Voltage Hi	<=	31.990234	Volts				
					Engine Speed Lo	>=	400	RPM				
					Engine Speed Hi	<=	7500	RPM				
					Engine Speed is within the allowable limits for	>=	5	Sec				
					if Attained Gear=1st FW Accelerator Pedal enable	>=	10.00061	Pct				
					if Attained Gear=1st FW Engine Torque Enable	>=	45	Nm				
					if Attained Gear=1st FW Engine Torque Enable	<=	8191.875	Nm				
					Transmission Fluid Temperature	>=	-6.65625	°C				
					Input Speed Sensor fault	=	FALSE	Boolean				
					Output Speed Sensor fault	=	FALSE	Boolean				
					Default Gear Option is not present	=	TRUE					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Communication	U0073	Controller Area Network Bus Communication Error	CAN Hardware Circuitry Detects a Low Voltage Error	= TRUE Boolean			>= 62 Fail counts (≈ 10 seconds)	One Trip
			Delay timer	>= 0.1125 sec			Out of 70 Sample Counts (≈ 11 seconds)	
					Stabilization delay	>= 3 sec		
					Ignition Voltage	>= 9 Volt		
					Ignition Voltage	<= 31.990234 Volt		
					Power Mode	= Run		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None		

15 OBDG02 TCM Diagnostic 2D Tables

Table 1

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

Table 2

Axis	-6.67	-6.66	40.00	ºC
Curve	409.59	2.00	2.00	Sec

Table 3

Axis	-6.67	-6.66	40.00	ºC
Curve	409.59	3.50	3.50	Sec

Table 4

Axis	-6.67	-6.66	40.00	ºC
Curve	409.59	2.99	2.00	Sec

Table 5

Axis	-6.67	-6.66	40.00	ºC
Curve	409.59	3.00	3.00	Sec

Table 6

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

Table 7

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

15 OBDG02 TCM Diagnostic 2D Tables

Table 8

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

Table 9

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

Table 10

Axis	-30.00	-20.00	0.00	30.00	110.00	ºC
Curve	8.85	3.75	1.31	0.28	0.28	Sec

Table 11

Axis	-30.00	-20.00	0.00	30.00	110.00	ºC
Curve	5.00	1.70	0.40	0.25	0.25	Sec

Table 12

Axis	-30.00	-20.00	0.00	30.00	110.00	ºC
Curve	8.00	2.20	0.70	0.25	0.25	Sec

Table 13

Axis	-30.00	-20.00	0.00	30.00	110.00	ºC
Curve	5.20	1.60	0.50	0.27	0.23	Sec

Table 14

Axis	-30.00	-20.00	0.00	30.00	110.00	ºC
Curve	5.00	1.50	0.70	0.25	0.25	Sec

Table 15

Axis	-40.00	-30.00	-20.00	-10.00	0.00	10.00	20.00	30.00	40.00	ºC
Curve	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Sec

Table 16

Axis	-6.67	-6.66	40.00	ºC
Curve	409.59	2.50	2.50	Sec

Table 17

Axis	-6.67	-6.66	40.00	ºC
Curve	0.40	0.35	0.30	Sec

Table 18

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

Table 19

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

Table 20

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

Table 21

Axis	-40.00	-20.00	40.00	ºC
Curve	5.00	3.00	1.00	Sec

15 OBDG02 TCM Diagnostic 3D Tables

3D_Table 1

X-Axis Calibration	%
Y-Axis Calibration	ºC
Table Calibration	RPM/Sec

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

3D_Table 2

X-Axis Calibration	%
Y-Axis Calibration	ºC
Table Calibration	RPM/Sec

	0.00	2.00	5.00	25.00	100.00
-6.67	8191.75	8191.75	8191.75	8191.75	8191.75
-6.66	500.00	500.00	300.00	300.00	300.00
40.00	500.00	500.00	300.00	300.00	300.00