Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Т	hreshold Value	d	Secondary Malfunction		Enable Conditions			Tin Requ	ne ired	Mil Illum.
Transmission Control Module (TCM)		The lateral accleration signal is stuck at a low magnitude out of range because of a low circuit	Lateral accleration magnitude	>=	-3.85	g's				CONDITIONS		>=	105	seconds	Specia No MIL
		pecause of a low circuit	Lateral accleration magnitude is within the range above for	>=	120	Sec	3					out of	120	sample	
								Lateral accleration magnitude	>=	-3.85	g's				
								Lateral accleration magnitude is within the range above for	>=	105	Sec				
								Sensor Type	=	Voltage Directional Proportiona te					
								Transmission Type	=	Clutch to Clutch Transmissi on					
								Lateral acceleration sensor circuit low diagnostic enable	=	TRUE	Boolean				
								Battery Voltage	<=	31.99902	Volts				
								Battery Voltage	>=	9	Volts				
								Battery voltage is within the allowable limits for	>=	0.1	Sec				
								Ignition Voltage	<=	31.99902	Volts				
								Ignition Voltage	>=	9	Volts				
								Service Fast Learn (SFL) Mode	=	FALSE	Boolean				
								Ignition voltage and SFL conditions met for	>=	0.1	Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue		Secondary Malfunction		Enable Conditions			Time Requir		Mil Illum.
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: If calibr (U0073, U010 ECM: None	ated to illuminate	the MIL				
Transmission Control Module (TCM)	C1250	The lateral accleration signal is stuck at a high magnitude out of range because of a high circuit	Lateral accleration magnitude Lateral accleration magnitude is within the range above for	 3.85	g's Sec						>= out of	105 120	seconds sample	Special No MIL
							Lateral accleration magnitude Lateral accleration magnitude is within the range above for Sensor Type	>= >=	3.85 105 Voltage Directional Proportiona	g's Sec				
							Transmission Type Lateral acceleration sensor circuit high diagnostic enable	=	te Clutch to Clutch Transmissi on TRUE	Boolean				
							Battery Voltage Battery Voltage Battery voltage is within the allowable limits for Ignition Voltage Ignition Voltage	<= >= >= <= >=	31.99902 9 0.1 31.99902 9	Volts Volts Sec Volts Volts				
							Service Fast Learn (SFL) Mode Ignition voltage and SFL conditions met for	= >=	FALSE 0.1	Boolean Sec				
					•	Disable Conditions:	MIL not Illuminated for DTC's:	TCM: If calibr (U0073, U010 ECM: None		the MIL				
Transmission Control Module (TCM)	C1251	The lateral accleration signal is stuck at a high magnitude in range	Lateral accleration magnitude Lateral accleration magnitude is within the range above for	3.85 0.53 120	g's g's Sec									Special No MIL

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thres Val		Secondary Malfunction		Enable Conditions		Tir Requ		Mil Illum.
						Lateral accleration magnitude	<=	3.85	g's			
						Lateral accleration magnitude	>=	0.53	g's			
						Lateral accleration magnitude is within the range above for		90	Sec			
						Diagnostic shifting override command		FALSE	Boolean			
						Attained Gear State	=	1st through 6th				
						Attained Gear Slip	<=	100 Clutch to	RPM			
						Transmission Type	=	Clutch Clutch Transmissi on				
						High Side Driver 1 On	=	TRUE	Boolean			
						Vehicle Speed	>=	15	kph			
						Lateral acceleration stuck in range diagnostic enable		TRUE	Boolean			
						Battery Voltage Battery Voltage		31.99902 9	Volts Volts			
						Battery voltage is within the allowable limits for		0.1	Sec			
						Ignition Voltage		31.99902	Volts			
						Ignition Voltage		9	Volts			'
						Service Fast Learn (SFL) Mode	=	FALSE	Boolean			
						Ignition voltage and SFL conditions met for		0.1	Sec			
					Disable Conditions:	MIL not Illuminated for DTC's:	(P0716, P071	7, P0721, P072 0, P077B, P077	2, P0723,			
										+		One Trip
Transmission Control Module (TCM)	P0601	Transmission Electro-Hydraulic Control Module Read Only Memory	Incorrect program/calibrations checksum	= TRUE	Boolean					>= 5	Fail Counts	
					Disable Conditions:	MIL not Illuminated for DTC's:						
							ECM: None					
Transmission Control Module (TCM)	P0603	Transmission Electro-Hydraulic Control Module Long-Term Memory Reset	Non-volatile memory (static or dynamic) checksum failure at Powerup	= TRUE	Boolean					Runs Continously		One Trip
					Disable Conditions:	MIL not Illuminated for DTC's:						
							ECM: None					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions			Tin Requ		Mil Illum.
Transmission Control Module (TCM)	P0604	Transmission Electro-Hydraulic Control Module Random Access Memory	RAM Read/Write Failure (Single Word)		TRUE	Boolean					>=	5	Fail Counts	One Trip
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0604 ECM: None			=	16	Sample Counts	
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			С	Runs ontinously		One Trip
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1 Substrate Temperature	>=	142.1016	°C					>=	5	Fail Time (Sec)	One Trip
			Fail Case 2 Substrate Temperature Ignition Voltage Note: either fail case can set the DTC	; ; ;	50 18	°C Volts	Ignition Voltage Lo Ignition Voltage Hi Substrate Temp Lo Substrate Temp Hi Substrate Temp Between Temp Range for Time	>= <= >= <= >=	8.59961 31.99902 0 170 0.25 Test Failed This Key	Volts Volts °C °C Sec	>=	2	Fail Time (Sec)	
High Cide Drives	Povico	Advisor Const. Valley Classic Love	The HWIO reports a low voltage	į	TDUE	Conditions:	MIL not Illuminated for DTC's:		On or Fault Active				Fell Counts	One Trip
High Side Driver 1	P0658	Actuator Supply Voltage Circuit Low	(open or ground short) error flag		TRUE	Boolean	P0658 Status is not High Side Driver 1 On	= =	Test Failed True	Boolean	>= out of	6	Fail Counts Sample Counts	
						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			me uired	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		COMMONS		iteq	un out	Two Tri
			If TCM substrate temp to power up temp Δ	Refer to Table						
			Both conditions above required to increment fail counter				>=	3000	Fail Counts (100ms loop)	
			Note: table reference temp = to the median temp of trans oil temp, substrate temp and power up temp.				Out of	3750	Sample Counts (100ms loop)	
			Non-continuous (intermittent) fail conditions will delay resetting fail counter until				>=	700	Pass Counts (100ms loop)	
							Out of	875	Sample Counts (100ms loop)	
					Engine Torque Signal Valid Accelerator Position Signal	= TRUE Boolean = TRUE Boolean				
					Valid Ignition Voltage Lo Ignition Voltage Hi	>= 8.59961 Volts <= 31.99902 Volts				
					Engine Speed Lo Engine Speed Hi Engine Speed is within the	>= 400 RPM <= 7500 RPM >= 5 Sec				
					allowable limits for Brake torque active Below describes the brake torque entry criteria	= FALSE				
					Engine Torque Throttle Transmission Input Speed	>= 90 N*m >= 30.0003 Pct <= 200 RPM				
					Vehicle Speed Transmission Range Transmission Range PTO	<= 8 Kph ≠ Park ≠ Neutral = Not Active				
					Set Brake Torque Active TRUE if above conditions are met for:	>= 7 Sec				
					Below describes the brake torque exit criteria Brake torque entry criteria	= Not Met				
					Clutch hydraulic pressure	Clutch Hydraulic ≠ Air Purge Event				
					Clutch used to exit brake torque active	CeTFTD_e = _C3_RatlE _nbl				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions			Time equired	Mil Illum.
						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 I nditions:	MIL not Illuminated for DTC's:	TCM: P0658, P0668, P0669, F P06AE, P0716, P0712, P0713 P0722, P0723, P0962, P0963, P0967, P0970, P0971, P215C P2721, P2729, P2730	P0717, P0966,			
							ECM: P0101, P0102, P0103, P0107, P0108, P0171, P0172, P0175, P0201, P0202, P0203, P0205, P0206, P0207, P0208, P0301, P0302, P0303, P0304, P0306, P0307, P0308, P0401,	P0174, P0204, P0300, P0305,			
Transmission Control Module (TCM)	P0668	TCM internal temperature (substrate) thermistor failed at a low voltge	Type of Sensor Used	= CeTFTI_e_Vol tageDirectProp							Two Trips
			If TCM Substrate Temperature Sensor = Direct Proportional and Temp								
			If TCM Substrate Temperature Sensor = Indirect Proportional and Temp	>= -249 °C							
			Either condition above will satisfy the fail conditions						>= 60	Fail Timer (Sec)	
			WO LONG SONIANO IS			Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= 8.59961 <= 31.99902 >= 400 <= 7500 >= 5	Volts Volts RPM RPM Sec			
						P0668 Status is	Test Failed This Key On or Fault Active				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshole Value	d	Secondary Malfunction		Enable Conditions				ime quired	Mil Illum.
System	Code	Description	Cineria	value	Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None	Conditions			Kei	quii eu	
Transmission Control Module		TCM internal temperature (substrate)		CeTFTI_e_Vol			EGW. None			-			Two Trips
(TCM)	P0669	thermistor failed at a high voltage	Type of Sensor Used	= tageDirectProp									
			If TCM Substrate Temperature Sensor = Direct Proportional and Temp	>= 249 °C									
			If TCM Substrate Temperature Sensor = Indirect Proportional and	<= 249 °C									
			Temp Either condition above will satisfy the fail conditions							>=	60	Fail Timer (Sec)	
			WO tan Sortamons			Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi	>= <=	8.59961 31.99902 400 7500	Volts Volts RPM 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, F	20723				
					Conditions.		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 °C supporting documents									Two Trips
			If transmission oil temp to power up temp Δ										

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions			Ti Req	me uired	Mil Illum
			Both conditions above required to increment fail counter						>=	3000	Fail Counts (100ms loop)	
			Note: table reference temp = to the median temp of trans oil temp, substrate temp and power up temp.						Out of	3750	Sample Counts (100ms loop)	
			Non-continuous (intermittent) fail conditions will delay resetting fail counter until						>=	700	Pass Counts (100ms loop)	
									Out of	875	Sample Counts (100ms loop)	
					Engine Torque Signal Valid Accelerator Position Signal Valid	=	TRUE TRUE	Boolean Boolean				
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo	>= <= >=	8.59961 31.99902 400	Volts Volts RPM				
					Engine Speed Hi Engine Speed is within the allowable limits for Brake torque active	<= >= =	7500 5 FALSE	RPM Sec				
					Below describes the brake torque entry criteria Engine Torque	>=	90	N*m				
					Throttle Transmission Input Speed Vehicle Speed	>= <= <=	30.0003 200 8	Pct RPM Kph				
					Transmission Range Transmission Range PTO	≠ ≠ =	Park Neutral Not Active					
					Set Brake Torque Active TRUE if above conditions are met for:	>=	7	sec				
					Below describes the brake torque exit criteria Brake torque entry criteria	=	Not Met Clutch					
					Clutch hydraulic pressure	≠	Hydraulic Air Purge Event					
					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				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value	Secondary Malfunction		Enable Conditions			Ti Req	me uired	Mil Illum.
						P06AC Status is	. ≠	Test Failed This Key On or Fault Active					
					Disab Condition	e MIL not Illuminated for DTC's :	P06AE, P07 P0722, P07 P0967, P09 P2721, P27 ECM: P010 P0107, P01 P0175, P02 P0205, P02 P0301, P03	116, P0712, P0713 23, P0962, P0963, 70, P0971, P215C 29, P2730 11, P0102, P0103, 08, P0171, P0172, 01, P0202, P0203, 06, P0207, P0208, 02, P0303, P0304,	, P0717, P0966, , P2720, P0106, P0174, P0204, P0300, P0305,				
Transmission Control Module	P06AD	TCM power-up thermistor circuit	Power Up Temp	<= -5'	9 °C		P0306, P03	07, P0308, P0401,	P042E		60	Fail Time (Sec)	Two Trips
(ТСМ)	FOUND	voltage low	Fower up Temp		, .	Ignition Voltage Lc Ignition Vollage H Engine Speed Lc Engine Speed H Engine Speed is within the allowable limits for	>= <=	8.59961 31.99902 400 7500 5	Volts Volts RPM RPM Sec	>=	00	Tall Tille (Sec)	_
						P06AD Status is	<i>≠</i>	Test Failed This Key On or Fault Active					
ı						For Hybrids, below conditions must also be me							
ı						Estimated Motor Power Loss Estimated Motor Power Loss greater than limit for time	\	0	kW Sec				
ı						Lost Communication with Hybrid Processor Contro Module	=	FALSE					
						Estimated Motor Power Loss Faul	=	FALSE					
					Disab Condition	e MIL not Illuminated for DTC's.	TCM: P071		P0723				
Transmission Control Module	P06AE	TCM power-up thermistor circuit	Power Up Temp	>= 16	4 °C					>=	60	Fail Time (Sec)	Two Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	T	Secondary Malfunction		Enable Conditions			Ti Req		Mil Illum.
						Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	<= >= <= >=	31.99902 400 7500 5	Volts RPM RPM Sec				
						P06AE Status is	≠	Test Failed This Key On or Fault Active					
				D Cond		MIL not Illuminated for DTC's:	TCM: None ECM: None						
Transmission Fluid Temperature Sensor (TFT)	P0711	Trans Fluid Temp Sensor Circuit Range/Performance	If transmission oil temp to substrate temp Δ	Refer to Table 19 in °C supporting documents									Two Trip
			If transmission oil temp to power up temp Δ	Refer to Table 18 in °C supporting documents									
			Both conditions above required to increment fail counter							>=	3000	Fail Counts (100ms loop)	,
			Note: table reference temp = to the median temp of trans oil temp, substrate temp and power up temp.							Out of	3750	Sample Counts (100ms loop)	
			Non-continuous (intermittent) fail conditions will delay resetting fail counter until							>=	700	Pass Counts (100ms loop)	
										Out of	875	Sample Counts (100ms loop)	
						Engine Torque Signal Valid Accelerator Position Signal Valid	=	TRUE TRUE	Boolean Boolean				
						Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= <= >= <= >=	8.59961 31.99902 400 7500	Volts Volts RPM RPM Sec				
						Brake torque active Below describes the brake torque entry criteria Engine Torque Throttle Transmission Input Speed	>= >= >= <=	90 30.0003 200	N*m Pct RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction		Enable Conditions			Tir Requ		Mil Illum.
						Vehicle Speed Transmission Range Transmission Range PTO	<= ≠ ≠ =	8 Park Neutral Not Active	Kph				
						Set Brake Torque Active TRUE if above conditions are met for:	>=	7	sec				
						Below describes the brake torque exit criteria Brake torque entry criteria Clutch hydraulic pressure	= ≠	Not Met Clutch Hydraulic Air Purge					
					ı	Clutch used to exit brake torque active The above clutch pressure is	=	Event CeTFTD_e _C3_RatIE nbl					
						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	<i>≠</i>	Test Failed This Key On or Fault Active					
					Disable nditions:		P06AE, P0716 P0722, P0723	, P0712, P0713, , P0962, P0963, , P0971, P215C,	P0717, P0966,				
							P0107, P0108 P0175, P0201 P0205, P0206 P0301, P0302	P0102, P0103, I , P0171, P0172, , P0202, P0203, , P0207, P0208, , P0303, P0304, , P0308, P0401,	P0174, P0204, P0300, P0305,				
Transmission Fluid Temperature Sensor (TFT)	P0712	Transmission fluid temperature thermistor failed at a low voltage	Type of Sensor Used	= CeTFTI_e_Vol tageDirectProp									Two Trips
			Temp	<= -74 °C									
			If Transmission Fluid Temperature Sensor = Indirect Proportional and Temp	>= -74 °C									-
			Either condition above will satisfy the fail conditions							>=	60	Fail Time (Sec)	

Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions					Mil Illum.
				Engine Spec Engine Spec Engine Speed is withi	d Lo >= ed Hi <= n the	31.99902 400 7500 5	Volts RPM RPM Sec				
				P0712 Stat	us is ≠	Test Failed This Key On or Fault Active					
				Estimated Motor Power	_OSS >=	0	kW				
						0	Sec				
				Hybrid Processor Co	ntrol =	FALSE					
				Estimated Motor Power	_0SS	FALSE					
							P0723				
P0713	Transmission fluid temperature thermistor failed at a high voltage	Type of Sensor Used	= CeTFTI_e_Vol = tageDirectProp								Two Trips
			>= 174 °C								
		If Transmission Fluid Temperature Sensor = Indirect Proportional and									
		Either condition above will satisfy						>=	60	Fail Time (Sec)	
		THE TAIL COTOROUS		Ignition Volta; Engine Spee Engine Spee Engine Speed is withi allowable limi	e Hi	8.59961 31.99902 400 7500 5 Test Failed This Key On or Fault Active	Volts Volts RPM RPM Sec				
	Code	Code Description Transmission fluid temperature	P0713 Transmission fluid temperature thermistor failed at a high voltage If Transmission Fluid Temperature Sensor = Direct Proportional and Temp If Transmission Fluid Temperature Sensor = Indirect Proportional and Temp	P0713 Transmission fluid temperature thermistor failed at a high voltage Type of Sensor Used thermistor failed at a high voltage If Transmission Fluid Temperature Sensor = Direct Proportional and the position of th	Ignition Voltage Engine Spee Individual Engine Spee Engine Engine Engine Engine Engine Engine Engine Engine Engi	International Properties International Prope	P0713 Transmission fluid temporature Sensor Used Infrastrusion Fluid Temporature Sensor - Direct Proportional and Sensor - Sensor - Sensor - Direct Proportional And Sensor - Se	P0713 Transmission fluid temperature Sensor - Direct Proportional and Sensor -	P0713 Transmission Ruid Temperature Figure Spend to 19 19 19 19 19 19 19 1	Image: Note Image: Note	Content

Component/	Fault	Monitor Strategy		Ifunction			shold		Secondary Malfunction		Enable			Tin		Mil Illum.
System	Code	Description		Criteria		Va		Disable ditions:	MIL not Illuminated for DTC's:	TCM: P0713 P0723	Conditions , P0716, P0717,	P0722,		Requ	iired	illum.
Transmission Input Speed	Doz.		Transi	mission Input Speed Sensor		000	DDI.			ECM: None				0.0	5 H T (0)	One Trip
Sensor (TISS)	P0716	Input Speed Sensor Performance	114115	Drops	>=	900	RPM						>=	0.8	Fail Time (Sec)	0.10 1115
									Engine Torque is Engine Torque is Engine Speed Engine Speed Engine Speed is within the	>= <= >= <=	0 8191.88 400 7500	N*m N*m RPM RPM				
									allowable limits for Vehicle Speed is Throttle Position is	>= >= >=	5 10 0	Sec Kph Pct				
									Transmission Input Speed is The previous requirement has been satisfied for	>=	0	RPM Sec				
									The change (loop to loop) in transmission input speed is	<	8191.88	RPM/Loop				
									The previous requirement has been satisfied for	>=	0	Sec				
									Throttle Position Signal Valid	=	TRUE	Boolean				
									Engine Torque Signal Valid Ignition Voltage Ignition Voltage	= >= <=	TRUE 8.59961 31.99902	Boolean Volts Volts				
									P0716 Status is not	=	Test Failed This Key On or Fault Active					
							Con	Disable iditions:	MIL not Illuminated for DTC's:		, P0102, P0103,					
Transmission Input Speed Sensor (TISS)	P0717	Input Speed Sensor Circuit Low Voltage	<u>Fail Case 1</u>	Transmission Input Speed is	<	33	RPM						>=	4.5	Fail Time (Sec)	One Trip
			Fail Case 2 When Test Fa	P0722 DTC Status equal to illed and Transmission Input Speed is	<	653.13	RPM		Controller uses a single power supply for the speed sensors	=	1	Boolean				
									Engine Torque is Engine Torque is Vehicle Speed Engine Torque Signal Valid Ignition Voltage	>= <= >= = >=	80 8191.88 10 TRUE 8.59961	N*m N*m Kph Boolean Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Tir Requ		Mil Illum.
·					Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	<= 31.99902 >= 400 <= 7500 >= 5	Volts RPM RPM Sec				
					P0717 Status is not	Test Failed This Key On or Fault Active					
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0722, P0723 ECM: P0101, P0102, P0103					
Transmission Output Speed Sensor (TOSS)	P0722	Output Speed Sensor Circuit Low Voltage	Transmission Output Speed Sensor Raw Speed	<= 35 RPM				>=	4.5	Fail Time (Sec)	One Trip
,					P0722 Status is not	Test Failed This Key On or Fault Active					
					Transmission Input Speed Check Engine Torque Check	= TRUE = TRUE	Boolean Boolean				
					Throttle Position Transmission Fluid Temperature	>= 8.0002 >= -40	Pct °C				
					Disable this DTC if the PTO is active Engine Torque Signal Valid	= 1 = TRUE	Boolean Boolean				
					Throttle Position Signal Valid	= TRUE	Boolean				
					Ignition Voltage is Ignition Voltage is Engine Speed is Engine Speed is Engine Speed is within the allowable limits for	>= 8.59961 <= 31.99902 >= 400 <= 7500 >= 5	Volts Volts RPM RPM 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				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			shold lue	Secondary Malfunction		Enable Conditions			Tii Requ		Mil Illum.
							OR Transmission Range is Engine Torque is Engine Torque is	= >= <=	Park or Neutral 8191.75 8191.75	N*m N*m				
							Engine Torque Condition 2 Engine Torque is Engine Torque is	>= <=	50 8191.75	N*m N*m				
							The Transmission Input Speed (TIS) Check is TRUE, if either of the two following conditions are TRUE							
							TIS Check Condition 1							
							Transmission Input Speed is	>=	653.13	RPM				
							Transmission Input Speed is	<=	5350	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	<=	8191.88	RPM				
							Controller uses a single power supply for the speed sensors	=	1	Boolean				
							Powertrain Brake Pedal is Valid	=	TRUE	Boolean				
						D Condi	MIL not Illuminated for DTC's:		, P0102, P0103					
Transmission Output Speed Sensor (TOSS)	P0723	Output Speed Sensor Circuit Intermittent	Transmission Output Speed Sensor Raw Speed	>=	105	RPM					>=	0	Enable Time (Sec)	One Trip
Sensor (1033)		memmen	Output Speed Delta	<=	8192	RPM					>=	0	Enable Time (Sec)	
			Output Speed Drop	>	650	RPM					>=	1.5	Output Speed Drop Recovery Fail Time (Sec)	
			AND		D-i									
			Transmission Range is	= [Driven range (R,D)									
							Range_Disable OR	=	FALSE	See Below				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
					Neutral_Range_Enable And	=	TRUE	See Below		
					Neutral_Speed_Enable	=	TRUE	See Below		
					are TRUE concurrently					
					Transmission_Range_Enable	=	TRUE	See Below		
					Transmission_Input_Speed_En able	=	TRUE	See Below		
					No Change in Transfer Case Range (High <-> Low) for	>=	5	Seconds		
					P0723 Status is not	=	Test Failed This Key On or Fault Active			
					Disable this DTC if the PTO is	=	1	Boolean		
					active Ignition Voltage is	>=	8.59961	Volts		
					Ignition Voltage is Engine Speed is	<= >=	31.99902 400	Volts RPM		
					Engine Speed is	>= <=	7500	RPM		
					Engine Speed is within the allowable limits for	>=	5	Sec		
					Enable_Flags Defined Below					
					Transmission_Input_Speed_En able is TRUE when either TIS Condition 1 or TIS Condition 2 is TRUE:					
					TIS Condition 1 is TRUE when both of the following conditions	>=	0	Enable Time		
					are satsified for		400F 00	(Sec)		
					Input Speed Delta Raw Input Speed	<= >=	4095.88 500	RPM RPM		
					TIS Condition 2 is TRUE when ALL of the next two conditions					
					are satisfied					
					Input Speed A Single Power Supply is used	=	0	RPM		
					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		
							Reverse/N			
					Transmission Range is	=	eutral Transitonal	ENUM		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
					Transmission Range is	=	Neutral/Dri ve 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 Transmission Range is	=	Park Park/Rever se Transitonal	ENUM		
					Input Clutch is not	=	ON (Fully Applied)	ENUM		
					Neutral_Speed_Enable is TRUE when All of the next three conditions are satsified for	>	1.5	Seconds		
					Transmission Output Speed The loop to loop change of the Transmission Output Speed is	> <	130 20	RPM RPM		
					The loop to loop change of the Transmission Output Speed is	>	-10	RPM		
					Transmission_Range_Enable is TRUE when one of the next six conditions is TRUE Transmission Range is	=	Neutral	ENUM		
					Transmission Range is	=	Reverse/N eutral Transitional	ENUM		
					Transmission Range is	=	Neutral/Dri ve Transitional	ENUM		
					Time since a driven range (R,D) has been selected	>=	Table Based Time Please Refer to Table 21 in	Sec		
						>=	Refer to	Sec		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thresho Value		Secondary Malfunction		Enable Conditions				ime uired	Mil Illum.
System	ooue	<u> </u>	, viteria	value		Transmission Output Speed Sensor Raw Speed Output Speed when a fault was detected	>=	500 500	RPM RPM		Neu		
					Disable Conditions:	MIL not Illuminated for DTC's:		, P0102, P0103,					
Torque Converter Clutch (TCC)	P0741	TCC System Stuck OFF	TCC Pressure Either Condition (A) or (B) Must be	>= 750 K	ра					>=	2	Enable Time (Sec)	Two Trip
			Met (A) TCC Slip Error @ TCC On Mode	>= Supporting	PM					>=	5	Fail Time (Sec)	
			(B) TCC Slip @ Lock On Mode	Documents >= 130 R	PM					>=	5	Fail Time (Sec)	
			If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter							>=	2	TCC Stuck Off Fail Counter	
						TCC Mode	=	On or Lock					
						Ignition Voltage Lo Ignition Voltage Hi Engine Speed Engine Speed	>= <= >= <=	8.59961 31.99902 400 7500	Volts Volts RPM RPM				
						Engine Speed is within the allowable limits for	>=	5 50	Sec				
						Engine Torque Lo Engine Torque Hi Throttle Position Lo Throttle Position Hi	>= <= >= <=	8191.88 8.0002 99.9985	N*m N*m Pct Pct				
						2nd Gear Ratio Lo 2nd Gear Ratio High 3rd Gear Ratio Lo	>= <= >=	2.19482 2.52515 1.42285	Ratio Ratio Ratio				
						3rd Gear Ratio Lo 3rd Gear Ratio High 4th Gear Ratio Lo 4th Gear Ratio High	<= >=	1.63708 1.06946 1.23047	Ratio Ratio Ratio Ratio				
						5th Gear Ratio Lo 5th Gear Ratio Hi	<= >= <=	0.79053 0.90955	Ratio Ratio				
						6th Gear Ratio Lo 6th Gear Ratio High Transmission Fluid	>= <= >=	0.62305 0.71692 -6.6563	Ratio Ratio °C				
						Temperature Lo Transmission Fluid Temperature Hi	<=	130	°C				
						PTO Not Active Engine Torque Signal Valid	= =	TRUE TRUE	Boolean Boolean				
						Throttle Position Signal Valid Dynamic Mode	=	TRUE FALSE	Boolean Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue		Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
								P0741 Status is	≠	Test Failed This Key On or Fault Active					
						Cc	Disable anditions:	MIL not Illuminated for DTC's:	P0742, P276 ECM: P0101 P0107, P010 P0175, P020 P0205, P020 P0301, P030	3, P2764 , P0102, P0103 8, P0171, P017 1, P0202, P020 6, P0207, P020 2, P0303, P030	, P0106, 2, P0174, 3, P0204, 8, P0300, 4, P0305,				
									P0306, P030	7, P0308, P040	I, P042E				One Trip
Torque Converter Clutch (TCC)	P0742	TCC System Stuck ON	TCC Slip Speed TCC Slip Speed		-50 13	RPM RPM									One mp
			тос зіір зреей	<=	13	Krivi						>=	1.5	Fail Time (Sec)	
			If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter									>=	6	Fail Counter	
								TCC Mode Enable test if Cmnd Gear = 1stFW and value true Enable test if Cmnd Gear = 2nd and value true	= =	Off 1 0	Boolean Boolean				
								Engine Speed Hi Engine Speed Lo Vehicle Speed HI	<= >= <=	6000 500 511	RPM RPM KPH				
								Vehicle Speed Lo Engine Torque Hi Engine Torque Lo Current Range	>= <= >= ≠	1 8191.88 80 Neutral	KPH Nm Nm Range				
								Current Range Transmission Sump Temperature Transmission Sump	≠ <= >=	Reverse 130 18	Range °C °C				
								Temperature Throttle Position Hyst High	>=	5.0003	Pct				
								AND Max Vehicle Speed to Meet Throttle Enable Once Hyst High has been met,	<=	8	KPH				
								the enable will remain while Throttle Position	>=	2.0004	Pct				
								Disable for Throttle Position Disable if PTO active and value	>=	75 1	Pct Boolean				
								true Disable if in D1 and value true		1	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thre Va	shold lue	Secondary Malfunction		Enable Conditions			Tiı Requ	me uired	Mil Illum.
						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	=	1	Boolean				
						true 4 Wheel Drive Low Active	=	FALSE	Boolean				
						Disable if Air Purge active and		0	Boolean				
						value false RVT Diagnostic Active		FALSE	Boolean				
						Ignition Voltage	>=	8.59961	V				
						Ignition Voltage		31.99902	V				
						Vehicle Speed	<=	511	KPH				
						Engine Speed Engine Speed	>= <=	400 7500	RPM RPM				
						Engine Speed is within the							
						allowable limits for	>=	5	Sec				
						Engine Torque Signal Valid	=	TRUE	Boolean				
						Throttle Position Signal Valid	=	TRUE	Boolean				
						P0742 Status is	≠	Test Failed This Key On or Fault Active					
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716 P0741, P276		P0723,				
							P0107, P010 P0175, P020 P0205, P020 P0301, P030	1, P0102, P0103, 08, P0171, P0172 01, P0202, P0203 06, P0207, P0208 02, P0303, P0304 07, P0308, P0401	2, P0174, 3, P0204, 3, P0300, 4, P0305,				
Mode 2 Multiplex Valve	P0751	Shift Solenoid Valve A Stuck Off	Commaned Gear Slip	>= 400	RPM								Two Trips
			Commanded Gear		rpm								
			Gear Ratio Gear Ratio Gear Ratio	<= 1.20959	трпі					>= =	0.2 5	Fail Tmr Fail Counts	
			ii iio above parameters are title							≠	0	Neutral Timer (Sec)	
										>=	0.3	Fail Timer (Sec)	
										>=	8	Counts	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		nreshold Value	Secondary Malfunction		Enable Conditions		Time Require	d	Mil Illum.
						Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo	<= >=	8.59961 31.99902 400	Volts Volts RPM			
						Engine Speed Hi Engine Speed is within the allowable limits for		7500 5	RPM Sec			
						Transmission Fluid Temperature		-6.6563	°C			
						Range Shift State	=	Range Shift Completed	ENUM			
						TPS OR	>=	0.5005	%			
						Output Speed Throttle Position Signal Valid		67	RPM			
						from ECM Engine Torque Signal Valid	=	TRUE	Boolean			
						from ECM, High side driver is enabled		TRUE	Boolean			
						High-Side Driver is Enabled Input Speed Sensor fault	=	TRUE FALSE	Boolean Boolean			
						Output Speed Sensor fault Default Gear Option is not		FALSE	Boolean			
						present		TRUE				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716 P182E	, P0717, P0722,	P0723,			
							P0107, P010 P0175, P020 P0205, P020 P0301, P030	, P0102, P0103, 08, P0171, P017: 11, P0202, P0203 16, P0207, P0208 12, P0303, P0304 17, P0308, P040	2, P0174, 3, P0204, 8, P0300, 4, P0305,			
Mode 2 Multiplex Valve	P0752	Shift Solenoid Valve A Stuck On	Gear Box Slip	>= 400	RPM							One Trip
			Commanded Gear Commanded Gear has Achieved	= 3rd	Gear							
			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	<= 400	RPM					Southerno		
			If Gear Ratio And Gear Ratio									

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thres Va	shold lue	Secondary Malfunction	Enable Conditions			Time Requir		Mil Illum.
					lue	Secondary Malfunction 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 Transmission Fluid Temperature Input Speed Sensor fault Output Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present MIL not Illuminated for DTC's:	Section	, P0106,	>= >=	Requir		Mil Illum.
Mode 2 Multiplex Valve	P0756	Shift Solenoid Valve B Stuck Off	<u>Fail Case 1</u> Commanded Gear Gear Box Slip	= 1st Locked >= 400	RPM		P0107, P0108, P0171, P017 P0175, P0201, P0202, P020 P0205, P0206, P0207, P020 P0301, P0302, P0303, P030 P0306, P0307, P0308, P040	2, P0174, 13, P0204, 18, P0300, 14, P0305,	>= to	lease Refer o Table 5 in Supporting Documents	Neutral Timer (Sec)	One Tri
			Intrusive Shift to 2nd Commanded Gear Previous Gear Ratio Gear Ratio If the above parameters are true	<= 2.48218	Gear	lgnition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi	>= 400	Volts Volts RPM RPM	>= >=	1 3	sec counts	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		reshold Value	Secondary Malfunction		Enable Conditions		Tir Requ		Mil Illum.
						Engine Speed is within the	>=	5	Sec			
						allowable limits for Output Speed	>=	67	RPM			
						Output Speed OR	/-	07	IXF IVI			
						TPS	>=	0.5005	%			
								Range				
						Range Shift State	=	Shift Completed	ENUM			
						T		Completed				
						Transmission Fluid Temperature	>=	-6.6563	°C			
						High-Side Driver is Enabled	=	TRUE	Boolean			
						Throttle Position Signal Valid	=	TRUE	Boolean			
						from ECM Input Speed Sensor fault	=	FALSE	Boolean			
						Output Speed Sensor fault	=	FALSE	Boolean			
						Default Gear Option is not	=	TRUE				
						present						
					Disable Conditions	MIL not Illuminated for DTC's:	TCM: P0716 P182E	, P0717, P0722	, P0723,			
					Conditions		PIOZE					
								, P0102, P0103 08, P0171, P017				
								00, P0171, P017 01, P0202, P020				
							P0205, P020	06, P0207, P020	8, P0300,			
)2, P0303, P030)7, P0308, P040				
							F0300, F030	77, FU3U0, FU4U	1, FU42E			
Variable Bleed Solenoid (VBS)	P0776	Pressure Control (PC) Solenoid B	Fail Case 1 Case: Steady State 3rd Gea	r								One Tri
		Stuck Off [C35R]	Commanded Gea		Gear							
			Gearbox Sli		RPM							
										Please Refer		
										>= to Table 16 in Supporting	Neutral Timer (Sec)	
										Documents	(360)	
			Command 4th Gear once Outpu		RPM							
			Shaft Speed If Gear Ratio	1								
			And Gear Ratio									
										>= 3	Fail Timer (Sec)	
										7- 3	run runer (See)	
			It the above condiations are true							>= 3	3rd Gear Fail	
			Increment 3rd gear fail counte	r							Counts	
											Or 2 ED Clutch Foil	
			and C35R Fail counte	r						>= 14	3-5R Clutch Fail Counts	1
			Fail Case 2 Case: Steady State 5th Gea								***************************************	1
1			Commanded Gea	r = 5th	Gear							1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Tin Requ		Mil Illum.
			Gearbox Slip	>= 400 Rpm				>= to	ease Refer Table 5 in Supporting ocuments		
			Intrusive Test: Command 6th Gear								
			If attained Gear=6th gear Time	Please refer to Table 3 in Shift Time (Secondary and Comments))						
			It the above condiations are true, Increment 5th gear fail counter					>=	3	5th Gear Fail Counts	
			and C35R Fail counter					>=	14	or 3-5R Clutch Fail Counts	
					PRNDL State defaulted inhibit RVT	= FALSE = FALSE	Boolean Boolean				
					IMS fault pending indication	= FALSE	Boolean				
					TPS validity flag		Boolean				
					Hydraulic System Pressurized	= TRUE	Boolean				
					Minimum output speed for RVT	>= 67	RPM				
					A OR B (A) Output speed enable	>= 67	RPM				
					(B) Accelerator Pedal enable	>= 0.5005	Pct				
					Common Enable Criteria	0.0000					
					Ignition Voltage Lo	>= 8.59961	Volts				
					Ignition Voltage Hi Engine Speed Lo	<= 31.99902 >= 400	Volts RPM				
					Engine Speed Hi	<= 7500	RPM				
					Engine Speed is within the allowable limits for	>= 5	Sec				
					Throttle Position Signal valid HSD Enabled	= TRUE = TRUE	Boolean Boolean				
					Transmission Fluid		°C				
					Temperature Input Speed Sensor fault	>= -6.6563 = FALSE	Boolean				
					Output Speed Sensor fault	= FALSE	Boolean				
					Default Gear Option is not present	= TRUE					
				Disal	ole MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722	, P0723,				
				Condition		P182E					
						ECM: P0101, P0102, P0103					
						P0107, P0108, P0171, P017 P0175, P0201, P0202, P020					
						P0205, P0206, P0207, P020	08, P0300,				
						P0301, P0302, P0303, P030 P0306, P0307, P0308, P040					
						,,,					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solinoid B Stuck On [C35R] (Steady State)	Fail Case 1 Case: Steady State 1st					One Tr
		Stack on [ossit] (Steady State)	Attained Gear slip	>= 400 RPM				
				Table Based				
				Time Please Refer to Table Enable Time				
			If the Above is True for Time	>= 4 in (Sec)				
				supporting				
			Intrusive test:	documents				
			(CBR1 clutch exhausted)					
			Gear Ratio Gear Ratio					
				>= 1.40044				
			If the above parameters are true					
							>= 1.1 Fail Timer (Sec)
							>= 2 Fail Count i	ı 1st
							Gear	
							or Total Fa	ı
							>= 3 Total Fa	
			<u>Fail Case 2</u> Case: Steady State 2nd gear	Table Based				
				value Please				
			Max Delta Output Speed Hysteresis	>= Refer to 2D >= Table 22 in rpm/sec				
				>= Table 22 in rpm/sec supporting				
				documents				
				Table Based				
				value Please Refer to 2D				
			Min Delta Output Speed Hysteresis	>= Table 23 in rpm/sec				
				supporting				
				documents Table Based				
				Time Please				
			If the Above is True for Time	>= Refer to Table Sec				
				supporting				
				documents				
			Intrusive test: (CB26 clutch exhausted)					
			Gear Ratio	<= 1.60864				
			Gear Ratio	>= 1.45544				
			If the above parameters are true					
							>= 1.1 Fail Timer (Sec)
							Fail Coun	
							>= 3 Fail Coun 2nd Gea	
							or	
							>= 3 Total Fa	
			Fail Case 3 Case: Steady State 4th gear				Counts	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
,,			Max Delta Output Speed Hysteresis	Table Based value Please				
			Min Delta Output Speed Hysteresis	supporting documents				
			If the Above is True for Time	17 in supporting				
			Intrusive test: (C1234 clutch exhausted) Gear Ratio Gear Ratio	documents <= 0.89465 >= 0.80945				
			If the above parameters are true					
							>= 1.1 Fail Timer (Sec	
							>= 3 Fail Count in 4	h
							>= 3 Total Fail Counts	
			Fail Case 4 Case: Steady State 6th gear	T.I. D			Counts	
			Max Delta Output Speed Hysteresis	supporting documents				
			Min Delta Output Speed Hysteresis	supporting documents				
			If the Above is True for Time	Table Based Time Please Refer to Table 17 in supporting documents				
			Intrusive test: (CB26 clutch exhausted)	documents				
			Gear Ratio	<= 0.89465			>= 1.1 Fail Timer (Sec	:)
			Gear Ratio				>= 3 counts	1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold llue	Secondary Malfunction		Enable Conditions				ime Juired	Mil Illum.
			If the above parameters are true	_									
										>=	1.1	Fail Timer (Sec)	
										>=	3	Fail Count in 6th Gear	
										>=	3	or Total Fail Counts	
						PRNDL State defaulted	=	FALSE	Boolean				
						inhibit RVT IMS fault pending indication	= =	FALSE FALSE	Boolean Boolean				
						output speed	>=	0	RPM				
						TPS validity flag	=	TRUE	Boolean				
						HSD Enabled		TRUE	Boolean				
						Hydraulic_System_Pressurized A OR B	=	TRUE	Boolean				
						(A) Output speed enable	>=	67	Nm				
						(B) Accelerator Pedal enable	>=	0.5005	Nm				
						Ignition Voltage Lo	>=	8.59961	Volts				
						Ignition Voltage Hi Engine Speed Lo	<= >=	31.99902 400	Volts RPM				
						Engine Speed Ed		7500	RPM				
						Engine Speed is within the		5	Sec				
						allowable limits for if Attained Gear=1st FW		3	500				
						Accelerator Pedal enable	>=	5.0003	Pct				
						if Attained Gear=1st FW Engine	>=	5	Nm				
						Torque Enable if Attained Gear=1st FW Engine		3	IVIII				
						Torque Enable	<=	8191.88	Nm				
						Transmission Fluid	>=	-6.6563	°C				
						Temperature			Boolean				
						Input Speed Sensor fault Output Speed Sensor fault		FALSE FALSE	Boolean				
						Calpat opoda consor idan		171202	Boologii				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P182E	P0717, P0722,	P0723,				
							ECM: P0101	P0102, P0103,	P0106,				
								8, P0171, P017					
								1, P0202, P020 6, P0207, P020					
								2, P0303, P030					
							P0306, P030	7, P0308, P040	1, P042E				
			Primary Offgoing Clutch is										One Trip
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solenoid B	exhausted (See Table 12 in	= TRUE	Boolean								
Blood Goldfiold (VBG)		StuckOn [C35R] (Dymanic)	Supporting Documents for Exhaust Delay Timers)										
			Primary Oncoming Clutch Pressure	Maximum									
1			Command Status	= pressurized									

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thresh Value		Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Primary Offgoing Clutch Pressure Command Status		ch exhaust ommand					
			Range Shift Status	<i>*</i> c	ial Clutch Control					
			Attained Gear Slip	<=	40 F	RPM				
			If the above conditions are true run appropriate Fail 1 Timers Below:							
			fail timer 1 (3-1 shifting with Closed Throttle)	>=	0.5 F	Fail Time (Sec)				
			fail timer 1 (3-2 shifting with Throttle)	>= 0	D.2998 F	ail Time (Sec)				
			fail timer 1 (3-2 shifting with Closed Throttle)	>=	0.5 F	Fail Time (Sec)				
			fail timer 1 (3-4 shifting with Throttle)	>= 0	D.2998 F	ail Time (Sec)				
			fail timer 1 (3-4shifting with Closed Throttle) fail timer 1			ail Time (Sec)				
			(3-5 shifting with Throttle) fail timer 1	>= 0	D.2998 F	Fail Time (Sec)				
			(3-5 shifting with Closed Throttle)	>=	0.5 F	ail Time (Sec)				
			fail timer 1 (5-3 shifting with Throttle)	>= 0	D.2998 F	ail Time (Sec)				
			fail timer 1 (5-3 shifting with Closed Throttle)	>=	0.5 F	Fail Time (Sec)				
			fail timer 1 (5-4 shifting with Throttle)	>= 0	D.2998 F	Fail Time (Sec)				
			fail timer 1 (5-4 shifting with Closed Throttle)	>=	0.5 F	ail Time (Sec)				
			fail timer 1 (5-6 shifting with Throttle)	>= 0	D.2998 F	Fail Time (Sec)				
			fail timer 1 (5-6 shifting with Closed Throttle)	>=	0.5 F	ail 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					
			3rd gear fail counter				>= 3 3rd gear fail counts	
			5th gear fail counter				OR >= 3 5th gear fail counts OR	
			Total fail counter				>= 5 total fail coun	S
					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	>= -6.6563 °C = FALSE Boolean = FALSE Boolean ≠ 1st Boolean = TRUE Boolean >= 100 RPM >= 150 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)	P0796	Pressure Control (PC) Solenoid C Stuck Off [C456] (Steady State)	Fail Case 1 Case: Steady State 4th Gear					One Trip
			Gear slip	>= 400 RPM			Please See Table 5 For Neutral Time >= Neutral Time (Sec) Cal	f
			Intrusive test: commanded 5th gear	Please refer to				
			If attained Gear ≠5th for time if the above conditions have been	Table 2 in				
			met Increment 4th Gear Fail Counter				>= 3 4th Gear Fai Count OR	
			and C456 Fail Counters				>= 14 C456 Fail Counts	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illun
			Fail Case 2 Case: Steady State 5th Gea				Please See Table 5 For Neutral Timer Neutral Time (Sec)	
			Intrusive test commanded 6th gea If attained Gear ≠ 6th for time if the above conditions have beer	Please Refer to Table 3 in Supporting Documents Shift Time (Sec)				
			In the above conditions have been me	t			>= 3 5th Gear Fail Count OR	
			and C456 Fail Counters	3			>= 14 C456 Fail Counts	
			Fail Case 3 Case: Steady State 6th Gea	>= 400 RPM			Please See Table 5 For Neutral Timer Neutral Time (Sec)	
			Intrusive test commanded 5th gea	Please refer to			Cal	
			If attained Gear ≠ 5th for time if the above conditions have beer	Table 3 in Supporting Documents				
			me Increment 6th Gear Fail Counte and C456 Fail Counte				>= 3 6th Gear Fail Count OR	
			and C456 Fail Counte				>= 14 C456 Fail Counts	
					PRNDL State defaulted inhibit RVT IMS fault pending indication TPS validity flag Hydraulic System Pressurized	= FALSE Boolean = FALSE Boolean = FALSE Boolean = TRUE Boolean = TRUE Boolean		
					Minimum output speed for RVT	>= 67 RPM		
					A OR B (A) Output speed enable	>= 67 RPM		
					(B) Accelerator Pedal enable	>= 0.5005 Pct		
					Common Enable Criteria Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi	>= 8.59961 Volts <= 31.99902 Volts >= 400 RPM <= 7500 RPM		
					Engine Speed is within the allowable limits for Throttle Position Signal valid	>= 5 Sec = TRUE Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		ime quired	Mil Illum.
System	Code	Description	Criteria		HSD Enabled Transmission Fluid Temperature Input Speed Sensor fault OutputSpeed Sensor fault Default Gear Option is not present	= TRUE Boolean >= -6.6563 °C = FALSE Boolean = FALSE Boolean	, Re	quired	mum.
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C	Fail Case 1 Case: Steady State 1st			F0300, F0307, F0300, F0401, F042L			One Trip
valiable bleed solenoid (VBS)	10777	Stuck On [C456] (Steady State)	Attained Gear slip	>= 400 RPM Table Based Time Please					
			If the Above is True for Time	>= Refer to Table Enable Time >= 4 in (Sec) supporting					
			Intrusive test: (CBR1 clutch exhausted) Gear Ratio Gear Ratio						
			If the above parameters are true						
							>= 1.1	Fail Timer (Sec) Fail Count in 1st	
								Gear or Total Fail	
			Fail Case 2 Case Steady State 2nd	Table Based			>= 3	Counts	
			Max Delta Output Speed Hysteresis	value Please					
			Min Delta Output Speed Hysteresis	Table Based value Please Refer to 2D					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	N Hit
			If the Above is True for Time	Table Based Time Please Refer to Table >= 17 in Sec				
			Intrucius tectu	supporting documents				
			Intrusive test: (CB26 clutch exhausted) Gear Ratio Gear Ratio					
			If the above parameters are true					
								ner (Sec)
							>= 3 2nd	ount in Gear or
							>= 3 Total fa	il counts
			Fail Case 3 Case Steady State 3rd	Table Based				
			Max Delta Oulput Speed Hysteresis	value Please				
			Min Delta Output Speed Hysteresis	Table Based value Please				
			If the Above is True for Time	Time Please				
			Intrusive test: (C35R clutch exhausted) Gear Ratio	documents <= 1.20959				
			Gear Ratio	>= 1.09436				
			·				>= 1.1 Fail Tin	ner (Sec)
								unt in 3rd ear
							Tota	al Fail unts
					PRNDL State defaulted inhibit RVT IMS fault pending indication output speed	= FALSE Boolea = FALSE Boolea = FALSE Boolea >= 0 RPM	1	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold llue	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
						TPS validity flag		TRUE	Boolean		
						HSD Enabled	=	TRUE	Boolean		
						Hydraulic_System_Pressurized	=	TRUE	Boolean		
						A OR B					
						(A) Output speed enable	>=	67	Nm		
						(B) Accelerator Pedal enable	>=	0.5005	Nm		
						Ignition Voltage Lo	>=	8.59961	Volts		
						Ignition Voltage Hi		31.99902	Volts		
						Engine Speed Lo		400	RPM		
						Engine Speed Hi		7500	RPM		
						Engine Speed is within the		5	Sec		
						allowable limits for					
						if Attained Gear=1st FW Accelerator Pedal enable	>=	5.0003	Pct		
						if Attained Gear=1st FW Engine					
						Torque Enable	>=	5	Nm		
						if Attained Gear=1st FW Engine					
						Torque Enable		8191.88	Nm		
						Transmission Fluid		-6.6563	°C		
						Temperature					
						Input Speed Sensor fault		FALSE	Boolean		
						Output Speed Sensor fault		FALSE	Boolean		
						Default Gear Option is not present		TRUE			
						present					
						MIL not Illuminated for DTC's:		, P0717, P0722,	P0723,		
					Conditions:		P182E				
							ECM: D0101	, P0102, P0103,	D0104		
								, P0102, P0103, 08, P0171, P0172			
								1, P0202, P0203			
								6, P0207, P0208			
								2, P0303, P0304			
							P0306, P030	7, P0308, P0401	I, P042E		
	1		Primary Offgoing Clutch is								One Trip
		Pressure Control (PC) Solenoid C	exhausted (See Table 11 in								One mp
Variable Bleed Solenoid (VBS)	P0797	Stuck On [C456] (Dynamic)	Supporting Documents for Exhaust	= TRUE	Boolean						
			Delay Timers)								
			Primary Oncoming Clutch Pressure	Maximum							
			Command Status	= pressurized						1	
			Primary Offgoing Clutch Pressure	Clutch exhaus	it						
			Command Status	= command							
				, Initial Clutch							
			Range Shift Status	≠ Initial Clutch Control							
			Attained Gear Slip		RPM						
			If the above conditions are true								
			increment appropriate Fail 1 Timers							1	
1			Below:							I	I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions			Tir Requ	me uired	Mi Illur
			fail timer 1 (4-1 shifting with throttle)	>= 0.2998	Fail Time (Sec)								
			fail timer 1	>= 0.5	Fail Time (Sec)								
			(4-1 shifting without throttle) fail timer 1	>= 0.2998	Fail Time (Sec)								
			(4-2 shifting with throttle) fail timer 1										
			(4-2 shifting without throttle) ² fail timer 1	>= 0.5	Fail Time (Sec)								
			(4-3 shifting with throttle)	>= 0.2998	Fail Time (Sec)								
			fail timer 1 (4-3 shifting without throttle)	>= 0.5	Fail Time (Sec)								
			fail timer 1 (5-3 shifting with throttle)	>= 0.2998	Fail Time (Sec)								
			fail timer 1 (5-3 shifting without throttle)	>= 0.5	Fail Time (Sec)								
			fail timer 1	>= 0.2998	Fail Time (Sec)								
			(6-2 shifting with throttle) fail timer 1										
			(6-2 shifting without throttle)	>= 0.5	Fail Time (Sec)								
											al Fail Tim		
										2)	Fail 1 + Fai See Enable	е	
			If Attained Gear Slip is Less than								ners for Fai mer 1, and		
			Above Cal Increment Fail Timers								Reference Supporting		
										Ta	able 15 for		
										F	ail Timer 2		
			If fail timer is greater than threshold										
			increment corresponding gear fail counter and total fail counter										
			4th gear fail counter							>=	3	Fail Counter	
			in god id ooding								Ü	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	
			Total fail counter			TUT Enable temperature	>=	-6.6563	°C	>=	5	Counter	-
						Input Speed Sensor fault	=	FALSE	Boolean				
						Output Speed Sensor fault Command / Attained Gear	= ≠	FALSE 1st	Boolean Boolean				
						High Side Driver ON output speed limit for TUT	= >=	TRUE 100	Boolean RPM				
						input speed limit for TUT	>=	150	RPM				
						PRNDL state defaulted IMS Fault Pending	= =	FALSE FALSE	Boolean Boolean				
	1					Service Fast Learn Mode	=	FALSE	Boolean				1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	· [Thres Val		Secondary Malfunction	Enable Conditions	R	Time equired	Mil Illum.
Cystem	Couc	Description	0.110110				HSD Enabled	= TRUE Boolean	<u> </u>	oquii ou	
							MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723,			
						Conditions:		P182E			
								ECM: P0101, P0102, P0103, P0106,			
								P0107, P0108, P0171, P0172, P0174,			
								P0175, P0201, P0202, P0203, P0204,			
								P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305,			
								P0306, P0307, P0308, P0401, P042E			
								1 0300,1 0307,1 0300,1 0101,1 0122			
p Up Tap Down Switch	P0815	Upshift Switch Circuit		tch Stuck in the Up	1	Boolean					Special
UTD)	10013	Opstilit Switch Circuit		Range 1 Enabled	į	Doolean					No MIL
				tch Stuck in the Up n Range 2 Enabled	1	Boolean					
				tch Stuck in the Up							
				Range 3 Enabled	1	Boolean					
				tch Stuck in the Up	1	Boolean					
				Range 4 Enabled	'	Doolcan					
				tch Stuck in the Up n Range 5 Enabled	1	Boolean					
				tch Stuck in the Up							
				Range 6 Enabled =	1	Boolean					
			Tap Up Swi	tch Stuck in the Up	1	Boolean					
				in Neutral Enabled -	į	Doolean					
				tch Stuck in the Up	1	Boolean					
				on in Park Enabled tch Stuck in the Up							
				n Reverse Enabled	1	Boolean					
				Tap Up Switch ON =	TRUE	Boolean			>= 1	Fail Time (Sec)	
				rap op Switch Oiv =	INOL	Doolcan			- '	Tall Time (See)	
			Fail Case 2 Tap Up Swi	tch Stuck in the Up					1		1
				Range 1 Enabled	1	Boolean					
				tch Stuck in the Up	1	Pooloon					
				Range 2 Enabled	ı	Boolean					
				tch Stuck in the Up	1	Boolean					
				Range 3 Enabled tch Stuck in the Up							
				Range 4 Enabled	1	Boolean					
				tch Stuck in the Up	1	Boolean					
				Range 5 Enabled	ı	Doolean					
				tch Stuck in the Up	1	Boolean					
	1			Range 6 Enabled tch Stuck in the Up							1
				in Neutral Enabled	1	Boolean					
				tch Stuck in the Up	1	Boolean					
				on in Park Enabled	ı	DUURAII					
	1			tch Stuck in the Up	1	Boolean					
	1			n Reverse Enabled Tap Up Switch ON =	TRUE	Boolean					1
				case1 and Failcase	IRUE	DOURGII					
	1		NOTE. BOUT I dill	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 Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= 1 Enable Time (Sec) >= 8.59961 Volts <= 31.99902 Volts >= 400 RPM <= 7500 RPM >= 5 Sec		
						P0815 Status is	Test Failed This Key On or Fault Active		
					Disable Conditions:		TCM: P0816, P0826, P182E, P1876, P1877, P1915, P1761 ECM: None		
Tap Up Tap Down Switch (TUTD)	P0816	Downshift Switch Circuit	Fail Case 1 Tap Down Switch Stuck in the Down Position in Range 1 Enabled	= 1	Boolean		2011.1101.0		Special No MIL
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	= 1	Boolean				
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled		Boolean				
			Tap Down Switch Stuck in the Down Position in Range 4 Enablec		Boolean				
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled		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 Neutra Enablec		Boolean				
			Tap Down Switch Stuck in the Down Position in Range Park Enabled		Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres	shold lue	Secondary Malfunction		Enable Conditions			Time Requir		Mil Illum.
			Tap Down Switch Stuck in the Down Position in Range Reverse	=	1	Boolean								
			Enabled Tap Down Switch ON	= TF	RUE	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	= Tf	RUE	Boolean					>=	600	sec	
							Time Since Last Range Change	>=	1	Enable Time (Sec)				
							Ignition Voltage Lo Ignition Voltage Hi	>= <=	8.59961 31.99902	Volts Volts				
							Engine Speed Lo Engine Speed Hi	>= <=	400 7500	RPM RPM				
							Engline Speed in Engline Speed is within the allowable limits for	>=	5	Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions			Tir Requ		Mil Illum.
						P0816 Status is	≠	Test Failed This Key On or Fault Active					
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0815, P1877, P1915 ECM: None		P1876,				
Tap Up Tap Down Switch (TUTD)	P0826	Up and Down Shift Switch Circuit	TUTD Circuit Reads Invalid Voltage	= TRUE	Boolean		ECIVI. NOTIC			>=	60	Fail Time (Sec)	Special No MIL
(1010)						Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= <= >= <= >=	8.59961 31.99902 400 7500 5	Volts Volts RPM RPM Sec				INO IVIIL
						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 Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	8.59961 31.99902 400 7500 5	Volts Volts RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P0962	Pressure Control (PC) Solenoid A Control Circuit Low Voltage (Line Pressure VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>=	1.5	Fail Time (Sec)	One Trip
		·				Ignition Voltage	>=	8.59961	Volts	out of	1.875	Sample Time (Sec)	
						Ignition Voltage		31.99902	Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thresh Valu		Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
System	Code	Description	one.u	vaia	•	Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >=	400 7500 5	RPM RPM Sec		Keq	an eu	
					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		Boolean					>= out of	4.4	Fail Time (Sec) Sample Time (Sec)	Two Trip
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	8.59961 31.99902 400 7500 5	Volts Volts RPM RPM Sec	Oi		(361)	-
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P0966	Pressure Control (PC) Solenoid B Control Circuit Low Voltage (C35R VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Tri
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	8.59961 31.99902 400 7500 5 Test Failed This Key On or Fault	Volts Volts RPM RPM Sec	out of	0.375	Sample Time (Sec)	
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None	Active					
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					>= out	0.3	Fail Time (Sec) Sample Time	One Tri
						Ignition Voltage	>=	8.59961	Volts	of	0.373	(Sec)	-

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold lue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
2,344						Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	<= >= <= >=	31.99902 400 7500 5	Volts RPM RPM Sec				
						P0967 Status is not	=	Test Failed This Key On or Fault Active					
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P0970	Pressure Control (PC) Solenoid C Control Circuit Low Voltage (C456/CBR1 VBS)	The HWIO reports a low voltage (ground short) error flag		Boolean					>=	0.3	Fail Time (Sec)	One Trip
		,								out of	0.375	Sample Time (Sec)	
						P0970 Status is not	=	Test Failed This Key On or Fault Active					
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	8.59961 31.99902 400 7500 5	Volts Volts RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P0971	Pressure Control (PC) Solenoid C Control Circuit High Voltage (C456/CBR1 VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Trip
		,								out of	0.375	Sample Time (Sec)	
						P0971 Status is not	=	Test Failed This Key On or Fault Active					
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed	>= <= >= <=	8.59961 31.99902 400 7500	Volts Volts RPM RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold lue	Secondary Malfunction		Enable Conditions				ime Juired	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)	One Trip
										out of	1.5	Sample Time (Sec)	
						P0973 Status is not	=	Test Failed This Key On or Fault Active					
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	<= >= <=	8.59961 31.99902 400 7500 5	Volts Volts RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Shift Solinoid	P0974	Shift Solenoid A Control Circuit High (Mode 2 Solenoid)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>=	1.2	Fail Time (Sec)	Two Trips
										out of	1.5	Sample Time (Sec)	
						P0974 Status is not	=	Test Failed This Key On or Fault Active					
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	<= >= <=	8.59961 31.99902 400 7500 5	Volts Volts RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		reshold Value	Secondary Malfunction		Enable Conditions			Tir Requ		Mil Illum.
Mode 3 Multiplex Valve	P0977	Shift Solenoid B Control Circuit High (Mode 3 Solenoid)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>=	1.2	Sec	One Trip
										out of	1.5	Sec	
						P0977 Status is not	=	Test Failed This Key On or Fault Active					
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	8.59961 31.99902 400 7500 5	Volts Volts RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Transmission Control Module (TCM)	P175F	Acceleration sensor signal message counter incorrect (rolling count)	Rolling count value received from EBCM does not match expected value	= TRUE	Boolean					>=	60	seconds	Special No MIL
			OR calculated checksum value of raw data bits does not equal embedded frame checksum value or raw data bits, in fail time window							>=	60	seconds	-
						cumulative error time	>=	30	seconds				-
						Acceleration Message Health	=	TRUE	Boolean				
						Battery Voltage Battery Voltage Battery voltage is within the allowable limits for Ignition Voltage Ignition Voltage Ignition voltage conditions met	<= >= >= <= >= >=	31.99902 9 0.1 31.99902 9	Volts Volts Sec Volts Volts Volts				
					Disable Conditions	for MIL not Illuminated for DTC's:							
Tap Up Tap Down Switch (TUTD)	P1761	Tap Up and Down switch signal circuit (rolling count)	Rolling count value received from BCM does not match expected value	= TRUE	Boolean					>=	3	Fail Counter	Special No MIL
										>	10	Sample Timer (Sec)	
						Tap Up Tap Down Message Health	=	TRUE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold 'alue	Secondary Malfunction		Enable Conditions		,	Time Required	Mil Illum
Cystem	Oouc	Description	0.110.110	i	arao	Engine Speed Lo	>=	400	RPM	Ì	toquii ou	
						Engine Speed Hi	<=	7500	RPM			
						Engine Speed is within the		-	C			
						allowable limits for	>=	5	Sec			
						MIL not Illuminated for DTC's:	TCM: None					
					Conditions:		EOM N					
							ECM: None					
ap Up Tap Down Switch			Fail Case 1 Tap Up Switch Stuck in the Up									Spec
JTD)	P1765	Upshift Switch Circuit #2	Position in Range 1 Enabled	= 0	Boolean							No N
•			Tap Up Switch Stuck in the Up	0	Dooloop							
			Position in Range 2 Enabled	= 0	Boolean							
			Tap Up Switch Stuck in the Up	= 0	Boolean							
			Position in Range 3 Enabled		DUUIEAII							
			Tap Up Switch Stuck in the Up	= 0	Boolean							
			Position in Range 4 Enabled		Doolcan							
			Tap Up Switch Stuck in the Up	= 0	Boolean							
			Position in Range 5 Enabled									
			Tap Up Switch Stuck in the Up		Boolean							
			Position in Range 6 Enabled 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							
				= TRUE	Dooloop					>= 1	Fail Time (Sec)	
			Tap Up Switch ON	= TRUE	Boolean					>= 1	raii Time (Sec)	
			Fail Case 2 Tap Up Switch Stuck in the Up	= 1	Boolean							
			Position in Range 1 Enabled									
			Tap Up Switch Stuck in the Up Position in Range 2 Enabled	= 1	Boolean							
			Tap Up Switch Stuck in the Up									
			Position in Range 3 Enabled		Boolean							
			Tap Up Switch Stuck in the Up									
			Position in Range 4 Enabled		Boolean							
			Tap Up Switch Stuck in the Up									
			Position in Range 5 Enabled		Boolean							
			Tap Up Switch Stuck in the Up	1	Daalaaa							
			Position in Range 6 Enabled	= 1	Boolean							
			Tap Up Switch Stuck in the Up	= 0	Boolean							
			Position in Neutral Enabled		Poolcan							I
			Tap Up Switch Stuck in the Up	= 0	Boolean							
			Position in Park Enabled									I
			Tap Up Switch Stuck in the Up	= 0	Boolean							I
			Position in Reverse Enabled	TDUE								I
			Tap Up Switch ON NOTE: Both Failcase1 and Failcase	= TRUE	Boolean							1
			NOTE: Both Failcase Fand Failcase 2 Must Be Met							>= 600	Fail Time (Sec)	1
			Z IVIUST DE IVIET						Enable Time			1
				1		Time Since Last Range Change	>=	1	(Sec)			I
				ĺ		Ignition Voltage Lo	>=	8.59961	Volts			
			1	1		Ignition Voltage Hi		31.99902	Volts			1

Component/ System Code Description Criteria Threshold Secondary Enable Conditions	Required	Special No MIL
Engine Speed Hill C= 7500 RPM Engine Speed Hill Engine Hill Engine Speed Hill Engine Hill Engine Speed Hill Engine Hill Engine Speed Hill		
Engine Speed is within the allowable limits for P1765 Status is P1766 Status is P1766 Downshift Switch Circuit #2 Fall Case 1 Tap Down Switch Stuck in the Down Position in Range 1 Enabled Down Position in Range 2 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Posit		
Tap Up Tap Down Switch (TUTD) P1766 Downshift Switch Circuit #2 Fall Case 1 Tap Down Switch Stuck in the Down Position in Range 2 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled		
Tap Up Tap Down Switch (TUTD) P1766 Downshift Switch Circuit #2 Fail Case 1 Tap Down Switch Stuck in the Down Position in Range 2 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled		
Tap Up Tap Down Switch (TUTD) P1766 Downshift Switch Circuit #2 Fail Case 1 Tap Down Switch Stuck in the Down Position in Range 1 Enabled Tap Down Switch Stuck in the Down Position in Range 2 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled		
Disable Conditions: Tap Up Tap Down Switch (TUTD) P1766 Downshift Switch Circuit #2 Fail Case 1 Tap Down Switch Stuck in the Down Position in Range 1 Enabled Tap Down Switch Stuck in the Down Position in Range 2 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled		
Tap Up Tap Down Switch (TUTD) Fail Case 1 Tap Down Switch Stuck in the Down Position in Range 1 Enabled Tap Down Switch Stuck in the Down Position in Range 2 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled		
Tap Up Tap Down Switch (TUTD) P1766 Downshift Switch Circuit #2 Fail Case 1 Tap Down Switch Stuck in the Down Position in Range 2 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled		
Tap Up Tap Down Switch (TUTD) P1766 Downshift Switch Circuit #2 Fail Case 1 Tap Down Switch Stuck in the Down Position in Range 1 Enabled Tap Down Switch Stuck in the Down Position in Range 2 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled		
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Tap Up Tap Down Switch (TUTD) P1766 Downshift Switch Circuit #2 Fail Case 1 Tap Down Switch Stuck in the Down Position in Range 1 Enabled Tap Down Switch Stuck in the Down Position in Range 2 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled		
Tap Up Tap Down Switch (TUTD) P1766 Downshift Switch Circuit #2 Fail Case 1 Tap Down Switch Stuck in the Down Position in Range 1 Enabled Tap Down Switch Stuck in the Down Position in Range 2 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled		
Tap Up Tap Down Switch (TUTD) P1766 Downshift Switch Circuit #2 Fail Case 1 Tap Down Switch Stuck in the Down Position in Range 1 Enabled Tap Down Switch Stuck in the Down Position in Range 2 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled		
Tap Down Switch Circuit #2 P1766 Downshift Switch Circuit #2 Tap Down Switch Stuck in the Down Position in Range 1 Enabled		
Tap Down Switch Circuit #2 P1766 Downshift Switch Circuit #2 Tap Down Switch Stuck in the Down Position in Range 1 Enabled		
Tap Down Switch Stuck in the Down Position in Range 2 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled		
Down Position in Range 2 Enabled Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the		
Tap Down Switch Stuck in the Down Position in Range 3 Enabled Tap Down Switch Stuck in the		
Down Position in Range 3 Enabled Tap Down Switch Stuck in the		
Down Position in Range 3 Enabled Tap Down Switch Stuck in the		
Tap Down Switch Stuck in the		
Tap Down Switch Stuck in the Down Position in Range 4 Enabled = 0 Boolean		
Down Position in Range 4 Enabled = U Boolean		
Tap Down Switch Stuck in the Down Position in Range 5 Enabled = 0 Boolean		
DUWII POSIIUNI III Rafige 5 Elidolled		
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 = 1 Boolean		
_ Enabled		
Tap Down Switch Stuck in the		
Down Position in Range Park = 1 Boolean Enabled		
Tap Down Switch Stuck in the		
Down Position in Range Reverse = 0 Boolean		
Enabled Enabled		
Tap Down Switch ON = TRUE Boolean >=	1 sec	
Fell Case 2		-
Fail Case 2 Tap Down Switch Stuck in the = 1 Boolean		
Down Position in Range 1 Enabled = 1 Boolean		1
Tan Down Switch Stuck in the		
Tap Down Switch Stuck in the Down Position in Range 2 Enabled Boolean		
20min salion in range 2 Enducu		1
Tap Down Switch Stuck in the		
Down Position in Range 3 Enabled		

Fault Code	Monitor Strategy Description	Malfunction Criteria	Т		Secondary Malfunction		Enable Conditions					Mil Illum.
		Tap Down Switch Stuck in the Down Position in Range 4 Enabled	= 1	Boolean								
		Tap Down Switch Stuck in the Down Position in Range 5 Enabled	= 1	Boolean								
		Tap Down Switch Stuck in the Down Position in Range 6 Enabled	= 1	Boolean								
		Tap Down Switch Stuck in the Down Position in Neutral Enabled	= 0	Boolean								
		Tap Down Switch Stuck in the Down Position in Park Enabled	= 0	Boolean								
		Tap Down Switch Stuck in the Down Position in Reverse Enabled	= 0	Boolean								
		Tap Down Switch ON NOTE: Both Failcase1 and Failcase 2 Must Be Met	= TRUE	Boolean					>=	600	sec	
					Time Since Last Range Change	>=	1	Sec				
					Engine Speed Lo	>=	8.59961 18 400	Volts Volts RPM				
					Engine Speed Hi Engine Speed is within the allowable limits for	<= >=	7500 5	RPM Sec				
					P1766 Status is	. ≠	Test Failed This Key On or Fault Active					
				Disable Conditions:	MIL not Illuminated for DTC's:		, P1761, P182E,	P1915				
P1767	Up and Down Shift Switch Circuit #2	TUTD Circuit Reads Invalid Voltage	= TRUE	Boolean					>=	60	Fail Time (Sec)	Special No MIL
					Ignition Voltage Hi Engine Speed Lo	i <= >=	8.59961 31.99902 400 7500 5 Test Failed This Key On or Fault	Volts Volts RPM RPM Sec				
	Code		Code Description Tap Down Switch Stuck in the Down Position in Range 4 Enabled Tap Down Switch Stuck in the Down Position in Range 5 Enabled Tap Down Switch Stuck in the Down Position in Range 6 Enabled Tap Down Switch Stuck in the Down Position in Neutral Enabled Tap Down Switch Stuck in the Down Position in Neutral Enabled Tap Down Switch Stuck in the Down Position in Park Enabled Tap Down Switch Stuck in the Down Position in Reverse Enabled Tap Down Switch ON NOTE: Both Failcase1 and Failcase 2 Must Be Met	Tap Down Switch Stuck in the Down Position in Range 4 Enabled Tap Down Switch Stuck in the Down Position in Range 5 Enabled Tap Down Switch Stuck in the Down Position in Range 6 Enabled Tap Down Switch Stuck in the Down Position in Range 6 Enabled Tap Down Switch Stuck in the Down Position in Neutral Enabled Tap Down Switch Stuck in the Down Position in Park Enabled Tap Down Switch Stuck in the Down Position in Reverse Enabled	Tap Down Switch Stuck in the Down Position in Range 4 Enabled	Criteria Tap Down Switch Sluck in the Down Position in Range 4 Enabled Tap Down Switch Sluck in the Down Position in Range 5 Enabled Tap Down Switch Sluck in the Down Position in Range 5 Enabled Tap Down Switch Sluck in the Down Position in Range 6 Enabled Tap Down Switch Sluck in the Down Position in Range 6 Enabled Tap Down Switch Sluck in the Down Position in Park Enabled Tap Down Switch Sluck in the Down Position in Park Enabled Tap Down Switch Sluck in the Down Position in Reverse Enabled Tap Down Switch Sluck in the Down Position in Reverse Enabled Tap Down Switch Sluck in the Down Position in Reverse Enabled Tap Down Switch Sluck in the Down Position in Reverse Enabled Tap Down Switch Sluck in the Down Position in Reverse Enabled Tap Down Switch Sluck in the Down Position in Reverse Enabled Tap Down Switch Sluck in the Down Position in Reverse Enabled Tap Down Switch Sluck in the Down Position in Reverse Enabled Tap Down Switch Sluck in the Down Position in Reverse Enabled Tap Down Switch Sluck in the Down Reverse Enabled Tap Down Switch Sluck in the Down Reverse Enabled Tap Down Switch Sluck in the Down Reverse Enabled Tap Down Switch Sluck in the Down Reverse Enabled Tap Down Switch Sluck in the Down Reverse Enabled Tap Down Switch Sluck in the Down Reverse Enabled Tap Down Switch Sluck in the Down Reverse Enabled Tap Down Switch Sluck in the Down Reverse Enabled Tap Down Switch Sluck in the Down Reverse Enabled Tap Down Switch Sluck in the Down Reverse Enabled Tap Down Switch Sluck in the Down Reverse Enabled Tap D	Code Description Criteria Tap Down Switch Stuck in the Down Position in Range 4 Enabled Tap Down Switch Stuck in the Down Position in Range 5 Enabled Tap Down Switch Stuck in the Down Position in Range 6 Enabled Tap Down Switch Stuck in the Down Position in Neural Enabled Tap Down Switch Stuck in the Down Position In Neural Enabled Tap Down Switch Stuck in the Down Position In Neural Enabled Tap Down Switch Stuck in the Down Position In Neural Enabled Tap Down Switch Stuck in the Down Position In Neural Enabled Tap Down Switch Stuck in the Down Position In Neural Enabled Tap Down Switch Stuck in the Down Position In Neural Enabled Tap Down Switch Stuck in the Down Position In Neural Enabled Tap Down Switch Stuck in the Down Position In Neural Enabled Tap Down Switch Stuck in the Down Position In Neura	Tap Down Switch Stuck in the Down Position in Range 4 Enabled	Tap Down Switch Stack in the Down Position in Range 4 Enabled Tap Down Switch Stack in the Down Position in Range 5 Enabled Tap Down Switch Stack in the Down Position in Range 6 Enabled Tap Down Switch Switch Position Voltage In Switch Position Position Position Voltage In Switch Position Position Voltage In Switch Position Position Voltage In Switch Position Position Position Voltage In Switch Position P	Code Description Criteria Value Mattunction Conditions	Tap Down Statch Stuck in the Down Position in Range of Enabled Tap Down Statch Stuck in the Down Position in Range of Enabled Tap Down Statch Stuck in the Down Position in Range of Enabled Tap Down Statch Stuck in the Down Position in Range of Enabled Tap Down Statch Stuck in the Down Position in Rounge of Enabled Tap Down Statch Stuck in the Down Position in Rounge of Enabled Tap Down Statch Stuck in the Down Position in Rounge in Read Tap Down Statch Stuck in the Down Position in Rounge in Rounge in Read Tap Down Statch Stuck in the Down Position in Rounge in Read Tap Down Statch Stuck in the Down Position in Rounge in Read Tap Down Statch Stuck in the Down Position in Rounge in Read Tap Down Statch Stuck in the Down Position in Rounge in Read Tap Down Statch Stuck in the Down Position in Rounge in Read Tap Down Statch Stuck in the Down Position in Rounge in Read Tap Down Statch Stuck in the Down Position in Rounge in Read Tap Down Statch Stuck in the Down Position in Rounge in Read Tap Down Statch Stuck in the Down Position in Rounge in Read Tap Down Statch Stuck in 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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions		Time Required	1	Mil Illun
-3			İ			MIL not Illuminated for DTC's:					
				C	onditions:						
							ECM: None				
	1		Fail Case 1		-						One ⁻
ernal Mode Switch (IMS)	P182F	Internal Mode Switch - Invalid Range	Current range	= Transition 1 = (bit state 1110) Range							One
,				(bit state 1110)							
				CaTRGR a P							
			Previous range	≠ CeTRGR_e_P RNDL_Drive6 Range							
			Previous range	≠ CeTRGR_e_P ≠ RNDL_Drive5 Range							
			i revious range	RNDL_Drive5							
			Range Shift State	= Range Shift ENUM							
			, and the second	- Completed							
			Absolute Attained Gear Slip								
			Attained Gear Attained Gear	<= Sixth >= First							
			Throttle Position Available	= TRUE							
			Throttle Position								
			Output Speed	>= 200 rpm							
			Engine Torque								
			Engine Torque	<= 8191.75 Nm							
		If the above conditions are met then Increment Fail Timer					>=	1 !	Fail Seconds		
		If Fail Timer has Expired then									
			Increment Fail Counter					>=	5	Fail Counts	
			Fail Case 2 Output Speed	<= 70 rpm							1
			The following PRNDL sequence								
			events occur in this exact order:								
				Drivo 4 /hit							
			PRNDL state	= Drive 6 (bit state 0110) Range							
			PRNDL state = Drive 6 for								
				T 111 0							
			PRNDL state	= Transition 8 Range (bit state 0111)							
			PRNDL state	= Drive 6 (bit state 0110) Range							
				'							
			PRNDL state	= Transition 1 (bit state 1110) Range							
				(bit state 1110)							
			Above sequencing occurs in								
			Neutral Idle Mode If all conditions above are met	= Inactive							
			II 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					>=	2	Fail Counts	
			Increment Fail Counter Fail Case 3				CeTRGR_				
			Current range	= Transition 13 Range (bit state 0010)		Previous range	≠ e_PRNDL_				
			Suitent range	(bit state 0010) Trange		oous runge	Drive5				l

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		reshold /alue	Secondary Malfunction		Enable Conditions			Tin Requ		Mil Illum
Oyaleiii	Joue	Description	G. 10114	,				CeTRGR_		i –	ricqu		<u> </u>
			Engine Torque	>= -8192	Nm	Previous range	≠	e_PRNDL_					
								Drive5					
			Engine Torque	<= 8191.75	Nm	IMS is 7 position configuration	=	0	Boolean				
						If the "IMS 7 Position config" =							
			K. I			1 then the "previous range"							
			If the above conditions are met then, Increment Fail Timer			criteria above must also be				>=	0.225	Seconds	
			then, increment i all rinner			satsified when the "current							
						range" = "Transition 13"							
			If Fail Timer has Expired then							>=	15	Fail Counts	
			Increment Fail Counter Fail Case 4										
				Transition	8 Dangs	Disable Fail Case 4 if last							
			Current range	= Transition (bit state 01)	11) Range	positive range was Drive 6 and current range is transition 8							
						Set inhibit bit true if PRNDL =							
						1100 (rev) or 0100 (Rev-Neu							
			Inhibit bit (see definition)	= FALSE		transition 11)							
						Set inhibit bit false if PRNDL =							
			Steady State Engine Torque	>= 30	Nm	1001 (park)							
			Steady State Engine Torque	<= 8191.75									
			If the above conditions are met							>=	0.225	Seconds	
			then Increment Fail Timer							^-	0.220	Seconds	
			If the above Condtions have been							>=	15	Fail Counts	
			met, Increment Fail Counter										
			Fail Case 5 Throttle Position Available	= TRUE	Boolean								
			The following PRNDL sequence										
			events occur in this exact order:										
			PRNDL State	Reverse (b	it Nange								
				= state 1100))								
			PRNDL State	= Transition 1 (bit state 010	11 Range								
			PRNDL State	= Neutral (bi state 0101									
					•								
			PRNDL State	= Transition 1 (bit state 01)									
			Ab i	,	,								
			Above sequencing occurs in Then delay timer increments	<= 1	Sec								
			Delay timer	>= 5	sec								
			Range Shift State	_ Range Shi	ft								
			Absolute Attained Gear Slip	Complete									
			•	<= 50 <= Sixth	rpm								
			Attained Gear	>= First									
				>= 8.0002	pct					1			
			Output Speed If the above conditions are met	>= 200	rpm					1			
			In the above conditions are met Increment Fail Timer							>=	20	Seconds	1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Requir		Mil Illum.
			Fail Case 6 Current range	Illegal (bit = state 0000 or 1000 or 0001)	A Open Circuit Definition (flag set false if the following conditions are met):						
			and		Current Range	Transition ≠ 11 (bit state 0100)					
			A Open Circuit (See Definition)	= FALSE Boolean	or Last positive state	≠ Neutral (bit state 0101)					
					or Previous transition state	Transition ≠ 8 (bit state 0111)					
			If the above Condtions are met then, Increment Fail timer		Fail case 5 delay timer	= 0	sec	>=	6.25	Seconds	
			Current PRNDL State	= PRNDL circuit = ABCP = 1101 Range							
			Previous PRNDL state	= PRNDL circuit = ABCP =1111 Range							
			Input Speed Reverse Trans Ratio Reverse Trans Ratio If the above Condtions are met then, Increment Fail timer	<= 2.97595 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	>= 8.59961 <= 31.99902 >= 400 <= 7500 >= 5	Volts Volts RPM RPM Sec				
					Engine Torque Signal Valid	= TRUE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thre Va	shold lue	Secondary Malfunction	Enable Conditions			me uired	Mil Illum.
oya.a		200011,210011					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		Neutral	Range State						Special No MIL
			TUTD Enable Switch is Active	=	TRUE	Boolean			>= >=	3 5	Fail Time (Sec)	
							Ignition Voltage Lo Ignition Voltage Hi Vehicle Speed Lo Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= 8.59961 Volts <= 31.99902 Volts <= 511 KPH >= 400 RPM <= 7500 RPM >= 5 Sec				
							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				
Internal Mode Switch (IMS)	P1915	Internal Mode Switch Does Not Indicate Park/Neutral (P/N) During Start	PRNDL State is	<i>≠</i>	Park or Neutral	Enumeration						One Trip
			The following events must occur Sequentially Initial Engine speed	<=	50	RPM			>=	0.25	Enable Time	
			Then Engine Speed Between Following Cals								(Sec)	:
			Engine Speed Lo Hist Engine Speed Hi Hist		50 480	RPM RPM			>=	0.06875	Enable Time (Sec)	
			Then Final Engine Speed Final Transmission Input Speed	>=	525 100	RPM RPM			>=	1.25	Fail Time (Sec)	
							DTC has Ran this Key Cycle?	= FALSE Boolean				1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
						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	>= <= >= <= <=	6 31.99902 5 2 90	V V V rpm				
						P1915 Status is	≠	Test Failed This Key On or Fault Active					
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0722, ECM: None	P0723					
Transmission Control Module (TCM)	P2534	Ignition Switch Run/Start Position Circuit Low	TCM Run crank active (based on voltage thresholds below) Ignition Voltage High Hyst (run crank goes true when above this	= FALSE	Boolean Volts					>=	280	Fail Counts (25ms loop)	One Trip
			value) Ignition Voltage Low Hyst (run crank goes false when below this value)	2	Volts	ECM run/crank active status				Out of	280	Sample Counts (25ms loop)	-
						available ECM run/crank active status	=	TRUE TRUE	Boolean Boolean				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Transmission Control Module (TCM)	P2535	Ignition Switch Run/Start Position Circuit High	TCM Run crank active (based on voltage thresholds below) Ignition Voltage High Hyst (run crank goes true when above this	= TRUE	Boolean					>=	280	Fail Counts (25ms loop)	One Trip
			value) Ignition Voltage Low Hyst (run crank goes false when below this value)	2	Volts					Out of	280	Sample Counts (25ms loop)	
						ECM run/crank active status available ECM run/crank active status	=	TRUE FALSE	Boolean Boolean				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P2714	Pressure Control (PC) Solenoid D Stuck Off [CB26]	Fail Case 1 Case: Steady State 2nd Gear										One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			ime Juired	Mil Illum.
-			Gear slip	>= 400 RPM				Please See Table 5 Fo >= Neutral Tim Cal	r Neutral Timer	
			Intrusive test: commanded 3rd gear					Cal		
				Table Based Time Please Enable Time						
			If attained Gear = 3rd for Time	>= see Table 2 in Supporting Documents						
			If Above Conditions have been met							
			Increment 2nd gear fail count					>= 3	2nd Gear Fail Count or	
			and CB26 Fail Count					>= 14	CB26 Fail Count	t
			Fail Case 2 Case: Steady State 6th Gear					Please See		1
			Gear slip	>= 400 RPM				>= Table 5 Fo Neutral Tim Cal	r Neutral Timer	
			Intrusive test: commanded 5th gear					Oui		
			If attained Gear = 5th For Time	Table Based Time Please >= see Table 2 in Supporting Documents Table Based Enable Time (Sec)						
			If Above Conditions have been met, Increment 5th gear fail counter					>= 3	5th Gear Fail Count	
			and CB26 Fail Count					>= 14	or CB26 Fail Count	i
					PRNDL State defaulted	= FALSE	Boolean			1
					inhibit RVT IMS fault pending indication	= FALSE = FALSE	Boolean Boolean			
					TPS validity flag	= TRUE	Boolean			
					Hydraulic System Pressurized	= TRUE	Boolean			
					Minimum output speed for RVT	>= 0	RPM			
					A OR B (A) Output speed enable	>= 67	RPM			
					(B) Accelerator Pedal enable	>= 0.5005	Pct			
					Common Enable Criteria Ignition Voltage Lo	>= 8.59961	Volts			
					Ignition Voltage Lo	>= 8.59961 <= 31.99902	Volts			
					Engine Speed Lo	>= 400	RPM			
					Engine Speed Hi	<= 7500	RPM			
					Engine Speed is within the allowable limits for	>= 5	Sec			
	1				Throttle Position Signal valid	= TRUE	Boolean			

Component/	Fault	Monitor Strategy	Malfunction		Thre	shold	Secondary	Enable		Time	Mil
System	Code	Description	Criteria		Va	lue	Malfunction	Conditions	D 1	Required	Illum.
							HSD Enabled Transmission Fluid	= TRUE	Boolean		
							Temperature	>= -6.6563	°C		
							Input Speed Sensor fault	= FALSE	Boolean		
							Output Speed Sensor fault	= FALSE	Boolean		
							Default Gear Option is not	= TRUE			
							present				
						Disable	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722	. P0723.		
						Conditions:		P182E			
									D040/		
								ECM: P0101, P0102, P0103			
								P0107, P0108, P0171, P017 P0175, P0201, P0202, P020			
								P0205, P0206, P0207, P020			
								P0301, P0302, P0303, P030			
								P0306, P0307, P0308, P040	1, P042E		
	-		D: 0% : 01.11:								T
		Pressure Control (PC) Solenoid D	Primary Offgoing Clutch is exhausted (See Table 13 in								One Trip
Variable Bleed Solenoid (VBS)	P2715	Stuck On [CB26] (Dynamic)	Supporting Documents for Exhaust	=	TRUE	Boolean					
		otasi on (obzoj (oynamo)	Delay Timers)								
			Primary Oncoming Clutch Pressure	_	Maximum						
			Command Status	-	pressurized						
			Primary Offgoing Clutch Pressure		Clutch exhaus	st					
			Command Status	=	command						
				١,	Initial Clutch						
			Range Shift Status	7	Control						
			Attained Gear Slip	<=	40	RPM					
			16 1 19								
			If above coditons are true, increment appropriate Fail 1 Timers								
			Below:								
			fail timer 1		0.0000	F '1.T' (C)					
			(2-1 shifting with throttle)	>=	0.2998	Fail Time (Sec)					
			fail timer 1	>=	0.5	Fail Time (Sec)					
			(2-1 shifting without throttle)			, , ,					
			fail timer 1 (2-3 shifting with throttle)	>=	0.2998	Fail Time (Sec)					
			fail timer 1			- II - (0)					
			(2-3 shifting without throttle)	>=	0.5	Fail Time (Sec)					
			fail timer 1	>=	0.2998	Fail Time (Sec)					
			(2-4 shifting with throttle)	-	0.2770	ruii riine (See)					
			fail timer 1 (2-4 shifting without throttle)	>=	0.5	Fail Time (Sec)					
			(2-4 Siliting without throtte)								
			(6-4 shifting with throttle)	>=	0.2998	Fail Time (Sec)					
			fail timer 1		0.5	Fail Time (Sec)					
			(6-4 shifting without throttle)	>=	0.0	i all tille (SEC)					
			fail timer 1	>=	0.2998	Fail Time (Sec)					
			(6-5 shifting with throttle) fail timer 1			. ,					
	1	I	(6-5 shifting without throttle)	>=	0.5	Fail Time (Sec)	I				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers				Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail >= Timer 1, and sec Reference Supporting Table 15 for Fail Timer 2	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter					
			2nd gear fail counter				>= 3 Fail Counter From 2nd Gear	г
			6th gear fail counter				OR Fail Counter >= 3 From 6th Gear OR	
			total fail counter				>= 5 Total Fail Counter	
					TUT Enable temperature Input Speed Sensor faul Output Speed Sensor faul Command / Attained Geal High Side Driver ON output speed limit for TUT input speed limit for TUT PRNDL state defaulter IMS Fault Pending Service Fast Learn Mode HSD Enablec	= FALSE Boolean ≠ 1st Boolean = TRUE Boolean >= 100 RPM >= 150 RPM = FALSE Boolean = FALSE Boolean = 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	S) P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Steady State)	Fail Case 1 Case: Steady State 1st					One Trip
I			Attained Gear slip	>= 400 RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	M Illu
				Table Based				
				Time Please				
			If the Above is True for Time	>= Refer to Table Enable Time 4 in (Sec)				
				4 in (Sec) supporting				
				documents				
			Intrusive test:					
			(CBR1 clutch exhausted)					
			Gear Ratio Gear Ratio					
				2.24303				
			If the above parameters are true					
							>= 1.1 Fail Timer (S	Sec)
							Fail Count in	
							>= 5 Fail Count in	121
							or	
							>= 5 Total Fai	
			Fail Case 2 Case: Steady State 3rd Gear				>= 5 Counts	-
			Fall Case 2 Case: Sleady State 3rd Gear	Table Based				
				value Please				
			Max Delta Output Speed Hysteresis	>= Refer to 2D rpm/sec				
			Max Boxa Galpar opeda Trjotorosis	Table 22 in .				
				supporting documents				
				Table Based				
				value Please				
			Min Delta Output Speed Hysteresis	>= Refer to 2D rpm/sec				
			,	Table 23 in supporting				
				documents				
				Table Based				
				Time Please				
			If the Above is True for Time	Refer to Table Sec				
				supporting				
				documents				
			Intrusive test:					
			(C35R clutch exhausted)					
			Gear Ratio Gear Ratio					
				/= Z.Z4JUJ				
			If the above parameters are true					
							>= 1.1 Fail Timer (S	Sec)
							Eail Count in	` I
							>= 3 Fail Count in Gear	JIU
							or	1
							Total Fai	
			Fail Case 3 Case: Steady State 4rd Gear				>= 5 Counts	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum
•		•		Table Based				T
				value Please				
			Max Delta Output Speed Hysteresis	>= Refer to 2D Table 22 in rpm/sec				
				supporting				
				documents				
				Table Based				
				value Please				
			Min Delta Output Speed Hysteresis	>= Refer to 2D Table 23 in rpm/sec				
				supporting				
				documents				
				Table Based				
				Time Please				
			If the Above is True for Time	>= Refer to Table Sec				
				supporting				
				documents				
			Intrusive test:					
			(C1234 clutch exhausted)	0.70022				
			Gear Ratio Gear Ratio					
				0.03307				
			If the above parameters are true					
							>= 1.1 Fail Timer (Sec	:)
							Fail Count in 4th	
							>= 3 Gear	1
							or	
							>= 5 Total Fail	
			Fail Case 4 Case: Steady State 5th Gear				Counts	-
			Guse. Steady State Still Gear	Table Based				
				value Please				
			Max Delta Output Speed Hysteresis	>= Refer to 2D rpm/sec				
				Table 22 in supporting				
				documents				
				Table Based				
				value Please				
			Min Delta Output Speed Hysteresis	>= Refer to 2D Table 23 in rpm/sec				
				supporting				
				documents				
				Table Based				
				Time Please				
			If the Above is True for Time	Refer to Table Sec				
				supporting				
				documents				
			Intrusive test:					
			(C35R clutch exhausted)	0.70022				
			Gear Ratio Gear Ratio	<= 0.70032 >= 0.63367				1
			If the above parameters are true	l				1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thresho Value		Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
										>=	1.1	Fail Timer (Sec) Fail Count in 5th Gear	
										>=	5	or Total Fail Counts	
						PRNDL State defaulted inhibit RVT IMS fault pending indication output speed TPS validity flag HSD Enabled Hydraulic_System_Pressurized A OR B (A) Output speed enable	= = = = = = = = = = = = = = = = = = = =	FALSE FALSE FALSE 0 TRUE TRUE TRUE	Boolean Boolean Boolean RPM Boolean Boolean				
						(B) Accelerator Pedal enable Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi	>= >= <= >= <=	0.5005 8.59961 31.99902 400 7500	Nm Volts Volts RPM RPM				
						Engine Speed is within the allowable limits for if Attained Gear=1st FW Accelerator Pedal enable if Attained Gear=1st FW Engine Torque Enable	>= >= >=	5 5.0003	Sec Pct Nm				
						if Attained Gear=1st FW Engine Torque Enable Transmission Fluid Temperature Input Speed Sensor fault Output Speed Sensor fault	<= >= = =	8191.88 -6.6563 FALSE FALSE	Nm °C Boolean Boolean				
						Default Gear Option is not present MIL not Illuminated for DTC's:		TRUE P0717, P0722,	P0723,				
					Conditions:		P0107, P010 P0175, P020 P0205, P020 P0301, P030	P0102, P0103, 3, P0171, P017 1, P0202, P020 6, P0207, P020 2, P0303, P030 7, P0308, P040	2, P0174, 3, P0204, 8, P0300, 4, P0305,				
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 B	oolean					>= out of	0.3 0.375	Fail Time (Sec) Sample Time (Sec)	One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thres Val		Secondary Malfunction		Enable Conditions			Tim Requi		Mil Illum.
						P2770 Status is not	=	Test Failed This Key On or Fault Active					
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	8.59961 31.99902 400 7500 5	Volts Volts RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P2721	Pressure Control (PC) Solenoid D Control Circuit High (CB26 VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					out	0.3	Fail Time (Sec) Sample Time (Sec)	One Trip
						P2721 Status is not	=	Test Failed This Key On or Fault Active		OI .		(360)	
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	<= >= <=	8.59961 31.99902 400 7500 5	Volts Volts RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P2723	Pressure Control (PC) Solenoid E Stuck Off	Fail Case 1 Case: Steady State 1st Gear								ase See	N. J. IT.	One Trip
			Gear slip Intrusive test: commanded 2nd gear If attained Gear ≠ 2nd for Time	Please refer to	RPM Shift Time (Sec)					>= Neu	ole 5 For tral Time Cal	Neutral Timer (Sec)	
			If Above Conditions have been met, Increment 1st gear fail counter	Documents						>=	3	1st Gear Fail Count	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Tim Requi		Mil Illum
								or C1234 Clutch	
			and C1234 fail counter				>= 14	Fail Count	
			Fail Case 2 Case: Steady State 2nd Gear				Please See		
			Gear slip	>= 400 RPM			Table 5 For		
			Geal Sup	7- 400 KI W			Neutral Time Cal	(Sec)	
			Intrusive test:				Julius Sui		
			commanded 3rd gear	Please refer to					
			If attained Gear ≠ 3rd for Time	>= Table 3 in Shift Time (Sec)					
				Supporting Documents					
			If Above Conditions have been met,				>= 3	2nd Gear Fail	
			Increment 2nd gear fail counter] - 3	Count	
								or C1234 Clutch	
			and C1234 fail counter				>= 14	Fail Count	
			Fail Case 3 Case: Steady State 3rd Gear				Please See		
			Gear slip	>= 400 RPM			>= Table 5 For Neutral Time	Neutral Timer (Sec)	
							Cal	(380)	
			Intrusive test: commanded 4th gear						
			oommanasa nii goo	Please refer to					
			If attained Gear ≠ 4th for time	>= Table 3 in Shift Time (Sec)					
				Documents					
			If Above Conditions have been met, Increment 3rd gear fail counter				>= 3	3rd Gear Fail Count	
			incienient siù gear fair counter					or	
			and C1234 fail counter				>= 14	C1234 Clutch	
			Fail Case 4 Case: Steady State 4th Gear				2- 14	Fail Count	
			sussi statu y state iiii ssa.				Please See		
			Gear slip	>= 400 RPM			>= Table 5 For Neutral Time	Neutral Timer (Sec)	
			Intrusive test:				Cal		
			commanded 5th gear						
				Please refer to Table 3 in Shift Time (Sec.)					
			If attained Gear = 5th For Time	Supporting Still Title (Sec)					
				Documents					
			If Above Conditions have been met, Increment 4th gear fail counter				>= 3	4th Gear Fail Count	
			, g sound					or	
			and C1234 fail counter				>= 14	C1234 Clutch	
					PRNDL State defaulted	= FALSE Boolean		Fail Count	
					inhibit RVT		1		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thres Val		Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
3,555						IMS fault pending indication TPS validity flag Hydraulic System Pressurized Minimum output speed for RVT A OR B (A) Output speed enable	= >=	FALSE TRUE TRUE 0	Boolean Boolean Boolean RPM		
						(B) Accelerator Pedal enable Common Enable Criteria Ignition Voltage Lo Ignition Voltage Ho Engine Speed to Engine Speed is within the allowable limits for Throttle Position Signal valid HSD Enabled Transmission Fluid Temperature Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	>=	0.5005 8.59961 31.99902 400 7500 5 TRUE TRUE -6.6563 FALSE FALSE TRUE	Pct Volts Volts RPM RPM Sec Boolean Boolean °C Boolean Boolean		
					Disable Conditions:	MIL not Illuminated for DTC's:	P182E ECM: P0101 P0107, P010 P0175, P020 P0205, P020 P0301, P030	, P0717, P0722, , P0102, P0103, 8, P0171, P017: 11, P0202, P020: 6, P0207, P020: 2, P0303, P030: 77, P0308, P040	, P0106, 2, P0174, 3, P0204, 8, P0300, 4, P0305,		
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 Range Shift Status Attained Gear Slip If the above conditions are true increment appropriate Fail 1 Timers Below:	= Maximum pressurized Clutch exhaust command initial Clutch Control <= 40	Boolean RPM						One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			shold Ilue	Secondary Malfunction		Enable Conditions			Tir Requ		Mi Illui
			fail timer 1 (2-6 shifting with throttle)	>=	0.2998	sec								
			fail timer 1 (2-6 shifting without throttle)	>=	0.5	sec								
			fail timer 1 (3-5 shifting with throttle)	>=	0.2998	sec								
			fail timer 1 (3-5 shifting without throttle)	>=	0.5	sec								
			fail timer 1 (4-5 shifting with throttle)	>=	0.2998	sec								
			fail timer 1 (4-5 shifting without throttle)	>=	0.5	sec								
			fail timer 1 (4-6 shifting with throttle)	>=	0.2998	sec								
			fail timer 1 (4-6 shifting without throttle)	>=	0.5	sec								
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers								= 2) Tii >= T	otal Fail Tim (Fail 1 + Fa See Enable mers for Fa Timer 1, and Reference Supporting Table 15 for Fail Timer 2	il e il 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								>=	5	Total Fail Counter	
							TUT Enable temperature Input Speed Sensor fault Output Speed Sensor fault Command / Attained Gear High Side Driver ON output speed limit for TUT input speed limit for TUT PRNDL state defaulted IMS Fault Pending Service Fast Learn Mode HSD Enabled	>= = = = >= >= = =	-6.6563 FALSE FALSE 1st TRUE 100 150 FALSE FALSE FALSE TRUE	°C Boolean Boolean Boolean Boolean RPM RPM Boolean Boolean Boolean				

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction	Enable	Т	me	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions	Red	uired	Illum.
				Disable Conditions		TCM: P0716, P0717, P0722, P0723, P182E			
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E			
		December (DC) Calamaid F	F-3 C 1						O T-1-
/ariable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Steady State)	Fail Case 1 Case: 5th Gear						One Trip
			Max Delta Output Speed Hysteresis Min Delta Output Speed Hysteresis If the Above is True for Time Intrusive test: (C35R clutch exhausted)	supporting documents Table Based value Please Refer to 2D Table 23 in supporting documents Table Based Time Please Refer to Table Tin supporting documents					
			Gear Ratio Gear Ratio						
			If the above parameters are true	Z= 1.07430					
			ii 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					Counts	
			Max Delta Output Speed Hysteresis	Table Based value Please Refer to 2D Table 22 in supporting documents					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions				ime Juired	Mi Illun
· ,		-	Min Delta Output Speed Hysteresis	Table Based value Please							
			If the Above is True for Time	Table Based Time Please Refer to Table							
			Intrusive test: (CB26 clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	<= 1.20959							
								>=	1.1	Fail Timer (Sec)	
								>=	3	Fail Count in 6th	1
										Gear OR Total Fail	
					PRNDL State defaulted	= FALSE	Daalaaa	>=	3	Counts	
					inhibit RVT IMS fault pending indication output speed TPS validity flag	= FALSE = FALSE >= 0 = TRUE	Boolean Boolean Boolean RPM Boolean				
					HSD Enabled Hydraulic_System_Pressurized	= TRUE = TRUE	Boolean Boolean				
					A OR B (A) Output speed enable	>= 67	Nm				
					(B) Accelerator Pedal enable	>= 0.5005	Nm				
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the	>= 8.59961 <= 31.99902 >= 400 <= 7500	Volts Volts RPM RPM				
					allowable limits for if Attained Gear=1st FW Accelerator Pedal enable	>= 5 >= 5.0003	Sec Pct				
					if Attained Gear=1st FW Engine Torque Enable	>= 5	Nm				
					if Attained Gear=1st FW Engine Torque Enable	<= 8191.88	Nm				
					Transmission Fluid Temperature	>= -6.6563	°C				
					Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	= FALSE = FALSE = TRUE	Boolean Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	One.na			TCM: P0716, P0717, P0722, P0723, P182E	Nequired	
						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				>= 0.3 Fail Time (Sec) out 0.375 Sample Time (Sec)	One Trip
					P2729 Status is not	Test Failed This Key On or Fault Active	oi (Scc)	_
					Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	<= 31.9902 Volt >= 400 RPM <= 7500 RPM		
				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				>= 0.3 Fail Time (Sec) out 0.375 Sample Time (Sec)	One Trip
					P2730 Status is not	Test Failed This Key = On or Fault Active		
					Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	<= 31.9902 Volt >= 400 RPM <= 7500 RPM		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		reshold /alue	Secondary Malfunction	Enal Condi				me uired	Mil Illum.
- Oystelii	Oode	Description	0.10.12			MIL not Illuminated for DTC's:					unou	
Variable Bleed Solenoid (VBS)	P2763	Torque Converter Clutch Pressure High	The HWIO reports a low pressure/high voltage (open or power short) error flag	= TRUE	Boolean				>= out of	4.4	Fail Time (Sec) Sample Time (Sec)	Two Trips
						P2763 Status is not	Test f = This On or Act	Key Fault				-
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for High Side Driver Enabled	<= 31.9 ⁴ >= 40 <= 75 >= 5	902 Volt 0 RPM 10 RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0658, P0659 ECM: None					
Variable Bleed Solenoid (VBS)	P2764	Torque Converter Clutch Pressure Control Solenoid Control Circuit Low	The HWIO reports a high pressure/low vollage (ground short) error flag	= TRUE	Boolean				>= out of	4.4	Fail Time (Sec) Sample Time (Sec)	One Tri
						P2764 Status is not	Test f This On or Act	Key Fault				
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for High Side Driver Enabled	<= 31.9' >= 40 <= 75 >= 5	902 Volt 0 RPM 10 RPM Sec				
					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		Boolean				>=	62	Fail counts (≈ 10 seconds)	One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
			Delay timer	>= 0.112	25 sec					Out of	70	Sample Counts (≈ 11 seconds)	
						Stabilization delay Ignition Voltage Ignition Voltage Power Mode	>= <=	3 8.59961 31.99902 Run	sec Volt Volt				
					Disable Conditions		TCM: None ECM: None						
Communication	U0100	Lost Communications with ECM (Engine Control Module)	CAN messages from ECM are not received by the TCM		E Boolean					>=	12	sec	One Trip
		,				Stabilization delay Ignition Voltage Ignition Voltage Power Mode	>= <=	3 8.59961 31.99902 Run	sec Volt Volt				
					Disable Conditions		TCM: U0073 ECM: None						

14 OBDG05 TCM Summary Tables (Additional DTCs)

Component/	Fault	Monitor Strategy	Malfunction	Thres	hold	Secondary		Enable		I	Time		Mil
System	Code	Description	Criteria	Valu	IQ.	Malfunction		Conditions			Required	ı	Illum.
				Van	16	a.ra.ro.ro.r		Conditions			Requirec		One Trip
Transmission Output Speed Sensor (TOSS)	P077C	Output Speed Sensor Circuit Low	TOSS Analog Signal Voltage	<= 0.25	Volts					>=	0.05	sec	
			P077C Status is not	Test Failed = This Key On or Fault Active									
			If the above conditons have been met, increment the P077C Fail Counter										
			DTC P077C Sets when the Fail Counter	>= 75	Counts								
						P077C Enable Calibration	=	1	Boolean				
						Ignition Voltage Lo	>=	9	Volts				
						Ignition Voltage Hi	<=	31.99023	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	>= 4.75	Volts					>=	0.05	sec	One Trip

14 OBDG05 TCM Summary Tables (Additional DTCs)

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Time	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions	Required	Illum.
			P077D Status is not	Test Failed	manuncton	Conditions	required	
			If the above conditons have been met, increment the P077D Fail Counter					
			DTC P077D Sets when the Fail Counter	>= 75 Counts	P077D Enable Calibration Ignition Voltage Lo Ignition Voltage Hi			
				Disable Conditions	MIL not Illuminated for DTC's:	TCM: P077C		
Transmission Input Speed Sensor (TISS)	P07BF	Input/Turbine Speed Sensor A Circuit Low	TISS Analog Signal Voltage P07BF Status is not	Test Failed			>= 0.05 sec	One Trip
			If the above conditons have been met, increment the P07BF Fail Counter DTC P07BF Sets when the Fail Counter	>= 75 Counts				_
			Counci		P07BF Enable Calibration Ignition Voltage Lo Ignition Voltage Hi			
				Disable Conditions	MIL not Illuminated for DTC's:	TCM: P07C0		
Transmission Input Speed Sensor (TISS)	P07C0	Input/Turbine Speed Sensor A Circuit High	TISS Analog Signal Voltage P07C0 Status is not	Test Failed			>= 0.05 sec	One Tri
			If the above conditons have been met, increment the P07C0 Fail Counter	Fault Active				
			DTC P07C0 Sets when the Fail Counter	>= 75 Counts	P07C0 Enable Calibration Ignition Voltage Lo Ignition Voltage Hi	= 1 Boolean >= 9 Volts <= 31.99023 Volts		

14 OBDG05 TCM Summary Tables (Additional DTCs)

Component/	Fault	Monitor Strategy	Malfunction	Thr	eshold	Secondary		Enable			Ti	me	Mil
System	Code	Description	Criteria	l v	/alue	Malfunction		Conditions			Rea	uired	Illum.
						MIL not Illuminated for DTC's:	TCM: P07BF						
Mode Switch	P071D	Transmission Mode Switch B Circuit	Sport Mode Switch state	= TRUE	Boolean					>=	600	Fail Time (Sec)	Special No MIL
						Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= <= >= <= >=	8.5996094 31.990234 400 7500 5	Volts Volts RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P1762 ECM: None						
Mode Switch	P1762	Transmission Mode Switch Signal Circuit (rolling count)	Rolling count value received from BCM does not match expected value	= TRUE	Boolean					>=	3	Fail Counter	Special No MIL
										>	10	(Sec)	-
						Pattern Switch Message Health Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	= >= <= >=	TRUE 400 7500 5	Boolean RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Communication	U0293	Loss Communications with HPCM (Hybrid Powertrain Control Module)	CAN messages from HPCM are not received by the TCM	= TRUE	Boolean					>=	12	sec	Two Trips
						Stabilization delay Ignition Voltage Ignition Voltage Power Mode	>= >= <= =	3 9 31.99023 Run	sec Volt Volt				

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	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00 RPM

Table 2

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

Table 3

Axis	-6.67	-6.66	40.00	٥С
Curve	409.59	4.00	4.00	Sec

Table 4

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

Table 5

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

Table 6

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

Table 7

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

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Table 8

Axis	-6.67	-6.66	40.00	80.00	120.00	٥С
Curve	409.00	3.60	1.60	1.50	1.40	Sec

Table 9

Axis	-6.67	-6.66	40.00	80.00	120.00 °C)
Curve	409.00	3.30	1.30	1.20	1.10 S	ес

<u>Table 10</u>

Axis	-40.00	-20.00	0.00	30.00	110.00	٥С
Curve	3.03	1.86	1.00	0.75	0.58	Sec

Table 11

Axis	-40.00	-20.00	0.00	30.00	110.00	٥С
Curve	1.72	1.11	0.60	0.36	0.22	Sec

Table 12

Axis	-40.00	-20.00	0.00	30.00	110.00	٥С
Curve	2.12	1.39	0.84	0.64	0.33	Sec

Table 13

Axis	-40.00	-20.00	0.00	30.00	110.00	٥С
Curve	2.51	0.95	0.50	0.29	0.13	Sec

Table 14

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

Table 15

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

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Table 16

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

Table 17

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

Table 18

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

Table 19

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

Table 20

Axis	-40.10	-40.00	-20.00	0.00	30.00	60.00	100.00	149.00	149.10	٥С
Curve	256.00	10.00	8.00	8.00	8.00	8.00	8.00	8.00	256.00	٥С

Table 21

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

Table 22

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

Table 23

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

14 OBDG05 Trans Check List

List DTC of monitor that detects the following failure malfunction: MONITORING REQUIREMENTS - TCM

Monitor/System	OOR-low	Circuit low	OOR- high	Circuit high	open circuit	Rationality-low	Rationality- high	Other Rationality	Functional #1	Functional #2	Other Functional
Transmission Fluid Temperature Sensor	P0712	P0712	P0713	P0713	P0713	P0711	P0711	P0711	P0711		
Transmission Internal Temperature Thermistor A	P0669	P0669	P0668	P0668	P0669	P0667	P0667	P0667	P0634		
Transmission Internal Temperature Thermistor B	P06AE	P06AE	P06AD	P06AD	P06AE	P06AC	P06AC	P06AC	P06AC		
Output Speed Sensor	P077C		P077D					P0722/P0723			
Input Speed Sensor	P07BF		P07C0					P0716/P0717			
Pressure Control Solenoid A		P0962									
Pressure Control Solenoid B		P0966		P0967	P0967				P0776	P0777	
Pressure Control Solenoid C		P0970		P0971	P0971				P0796	P0797	
Pressure Control Solenoid D		P2721		P2720	P2721				P2714	P2715	
Pressure Control Solenoid E		P2729		P2730	P2730				P2723	P2724	
Shift Solenoid A		P0973		P0974	P0974				P0751	P0752	
Shift Solenoid B		P0976		P0977	P0977				P0756		
Transmission Torque Converter Solenoid		P2764		P2763	P2763				P0741	P0742	
									P0601 P0603 P0604		
Controller Memory									P062F		
Actuator Supply Voltage		P0658			P0658						
Ignition 1 Voltage									P2534	P2535	
Accessory Voltage									P2537 P071A P071D P078F P07CE P07D1		
Shift Pattern Signal	1								P07D4 P0815		P1762
Tap Switch Circuit 1	P0826		P0826			P1876			P0816		P1761
Tap Switch Circuit 2	P1767		P1767						P1765 P1766		
Internal Mode Switch									P182E P1915		
Can Bus A		U0073		U0073	U0073				U0100		
Lateral Accelaration Signal		C1252		C1253				C1251			P175F