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

Fault	Monitor Strategy	Malfunction	Thr	eshold	Secondary		Enable			Ti	ime	Mil
Code	Description	Criteria	v	alue	Malfunction		Conditions			Req	uired	Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P062F ECM: None						
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	>= 50 >= 18	°C Volts					>=	2	Fail Time (Sec)	
		Note: either fail case can set the										
					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	Volts Volts °C °C Sec				
					P0634 Status is	¥	Test Failed This Key On or Fault Active					
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
P0668	TCM internal temperature (substrate) thermistor failed at a low voltge	Type of Sensor Used	= CeTFTI_e_' tageDirectPi	/ol op								Two Trips
		If TCM Substrate Temperature Sensor = Direct Proportional and Temp	<= -249	°C								
		If TCM Substrate Temperature Sensor = Indirect Proportional and Temp	>= -249	٥C								
		Either condition above will satisfy the fail conditions							>=	60	Fail Timer (Sec)	1
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed is within the allowable limits for P0668 Status is	>= <= >= >=	8.59961 31.99902 400 7500 5 Test Failed This Key On or Fault	Volts Volts RPM RPM Sec				
	Fault Code P0634 P0668	Fault Monitor Strategy Code Description P0634 Transmission Electro-Hydraulic Control Module Internal Temperature Too High P0634 Control Module Internal Temperature Substrate Too High P0668 TCM internal temperature (substrate) thermistor failed at a low voltge	Fault Monitor Strategy Malfunction Code Description Criteria P0634 Transmission Electro-Hydraulic Control Module Internal Temperature Too High Fall Case 1 Substrate Temperature Ignition Voltage Note: either fail case can set the DTC P0668 TCM internal temperature (substrate) thermistor failed at a low voltge Type of Sensor Used If TCM Substrate Temperature Sensor = Direct Proportional and Temp If TCM Substrate Temperature Sensor = Indirect Proportional and Temp If TCM Substrate Temperature Sensor = Indirect Proportional and Temp If ther condition show will satisfy the fail conditions	Fault Monitor Strategy Mafunction Thr Code Description Criteria v P0634 Transmission Electro-Hydraulic Control Module Internal Temperature Too High Eall Case 1 Substrate Temperature >= 142.1016 Eall Case 2 Substrate Temperature Ignition Voltage >= 18 18 Note: either fail case can set the DTC DTC DTC 0 P0668 TCM Internal temperature (substrate) Internistor failed at a low voltge Type of Sensor Used If TCM Substrate Temperature Sensor = Direct Proportional and Temp If TCM Substrate Temperature Sensor = Indirect Proportional and Temp = CeTFTLe_1 Case 2 P0668 TCM Internal temperature (substrate) Internistor failed at a low voltge If TCM Substrate Temperature Sensor = Indirect Proportional and Temp = -249 Temp Either condition above will sailsfy the fail conditions Temp Temp	Fuelt Monitor Strategy Mediunction Threshold Code Description Criteria Value Disable Conditions: P0634 Transmission Electro-Hydraulic Control Module Internal Temperature Too High Eall Case 1 Substrate Temperature Fail Case 2 Substrate Temperature DTC >= 142.1016 °C P0646 TCM internal temperature termistor failed at a low volige Eall Case 1 Substrate Temperature DTC >= 50 °C P0668 TCM internal temperature termistor failed at a low volige Eall Case 2 Substrate Temperature Sensor - Direc Horportional and Sensor - Direc Horportion	Fault Monitor Strategy Mediaturation Threshold Secondary Code Description Oriteria Value Mill not illuminated for Disable Mill not illuminated for DICS: P064/ Fansmission Electro-Hydraulic Toriteria Fall Case 1 >= 142.1016 °C P064// Control Module Internal Temperature Tori High Fall Case 2 Substrate Temperature Substrate Temperature >= 142.1016 °C P064// Toriteria Fall Case 2 Substrate Temperature Substrate Temperature >= 142.1016 °C P064// Toriteria Fall Case 2 Substrate Temperature Substrate Temp Detween Temp Range for Time Substrate Temp Detween Temp Range for Time Substrate Temperature P0643 Ibitus is Mill not illuminated for Conditions Mill not illuminated for DICS:	Fault Monitor Strategy Modulation Treeshold Secondary Code Description Criteria Value Mult.not. Mult.not. TotAP062F P034 Tamenistion Elector Hydraulic Eall Case 1 Substrate Temperature >= 142.1016 "C Image: Control Mult.not. File. File.	Faul Monitor Strategy Moditure Criteria Threshol Generation Constitution Code Description Criteria Value Disability Multi not Huminated for Conditions Thresholity Thresholity	Two in the strategy in	Tauk Monitor Strategy Mathemation Threshold Second Threshold Mathemation Conditions Conditions<	Taxis Montor Strategy Instruction Instruction	Taxat Monter Statuction Other Main Centre Objective Concention Conce

Component/	Fault	Monitor Strategy	Malfunction	Threshold		Secondary		Enable			Т	ime	Mil
System	Code	Description	Criteria	Value		Malfunction		Conditions			Req	uired	Illum.
				D	isable	MIL not Illuminated for	TCM: None						
				Cond	itions:	DIC's:	ECM: None						
							ECIVI. NOTIC						
Transmission Control Module	D0//0	TCM internal temperature (substrate)	Time of Commentation	CeTFTI_e_Vol									Two Trips
(TCM)	P0669	thermistor failed at a high voltage	Type of Sensor Used	tageDirectProp									
			If TCM Substrate Temperature										
			Sensor = Direct Proportional and	>= 249 °C									
			If TCM Substrate Temperature										
			Sensor = Indirect Proportional and	<= 249 °C									
			Either condition above will satisfy										
			the fail conditions							>=	60	Fail Timer (Sec)	
						Ignition Voltage Lo	>=	8.59961	Volts				
						Engine Speed Lo	<=	400	RPM				
						Engine Speed Hi	<=	7500	RPM				
						Engine Speed is within the allowable limits for	>=	5	Sec				
								Test Failed					
						P0669 Status is	¥	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		EALCE					
						Module	=	FALSE					
						Estimated Motor Power Loss	=	FALSE					
						Fault							
							TO14 D074/	D0747 D0700	84700				
				Cond	itions:	MIL not illuminated for DTC's:	TCIVI: P0716,	P0/17, P0/22,	P0723				
							ECM: None						
Transmission Control Module		TCM power-up thermistor circuit											Two Trips
(TCM)	P06AD	voltage low	Power Up Temp	<= -59 °C						>=	60	Fail Time (Sec)	
						Ignition Voltage Lo	>=	8.59961 31.99902	Volts Volts				
						Engine Speed Lo	>=	400	RPM				
						Engine Speed Hi	<=	7500	RPM				
						allowable limits for	>=	5	Sec				
								T. 45 8 1					
								This Key					
						P06AD Status is	≠	On or Fault					
								Active					
1	1		1	1						1			I I

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Time	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions	Required	Illum.
					For Hybrids, below conditions must also be met Estimated Motor Power Loss	t s >= 0 kW		
					Estimated Motor Power Loss greater than limit for time	>= 0 Sec		
					Lost Communication with Hybrid Processor Control Module	I = FALSE		
					Estimated Motor Power Loss Fault	= FALSE		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723 ECM: None		
Transmission Control Module	P06AE	TCM power-up thermistor circuit	Power Up Temp	>= 164 °C			>= 60 Fail Time (Sec)	Two Trips
(TCM)		voitage nign			Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= 8.59961 Volts <=		-
					P06AE Status is	Test Failed This Key On or Fault Active		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None		
Transmission Fluid Temperature Sensor (TFT)	P0712	Transmission fluid temperature thermistor failed at a low voltage	Type of Sensor Used If Transmission Fluid Temperature Sensor = Direct Proportional and Temp If Transmission Fluid Temperature Sensor = Indirect Proportional and Temp	= CeTFTL_e_Vol tageDirectProp <= -74 °C >= -74 °C				Two Trips
			Either condition above will satisfy the fail conditions				>= 60 Fail Time (Sec)	
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= 8.59961 Volts <=		

Component/	Fault	Monitor Strategy	Malfunction	Thr	eshold	Secondary		Enable			Ti	me	Mil
System	Code	Description	Criteria	v	alue	Malfunction		Conditions			Requ	uired	Illum.
						P0712 Status is	¥	Test Failed This Key On or Fault Active					
						For Hybrids, below conditions must also be met							
						Estimated Motor Power Loss	>=	0	kW				
						Estimated Motor Power Loss greater than limit for time	>=	0	Sec				
						Lost Communication with Hybrid Processor Control	=	FALSE					
						Estimated Motor Power Loss Fault	=	FALSE					
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716 ECM: None	, P0717, P0722,	P0723				
Transmission Fluid	D0713	Transmission fluid temperature	Tuno of Sonsor Llood	_ CeTFTI_e_\	/ol								Two Trips
Temperature Sensor (TFT)	10/15	thermistor failed at a high voltage	If Transmission Eluid Tomporatura	tageDirectPr	ор								
			Sensor = Direct Proportional and	>= 174	°C								
			Temp If Transmission Fluid Temperature Sensor = Indirect Proportional and	<= 174	°C								
			Either condition above will satisfy							>=	60	Fail Time (Sec)	
						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				
						P0713 Status is	¥	Test Failed This Key On or Fault Active					
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0713 P0723 ECM: None	, P0716, P0717,	P0722,				
Transmission Input Speed Sensor (TISS)	P0716	Input Speed Sensor Performance	Transmission Input Speed Sensor Drops	>= 900	RPM					>=	0.8	Fail Time (Sec)	One Trip
						Engine Torque is Engine Torque is	>= <=	0 8191.88	N*m N*m				

Component/	Fault	Monitor Strategy	Malfunction	Threshold		Secondary		Enable			Tin	ne	Mil
System	Code	Description	Criteria	Value		Malfunction		Conditions			Requ	ired	Illum.
						Engine Speed Engine Speed Engine Speed is within the allowable limits for Vehicle Speed is Throttle Position is	>= <= >= >= >=	400 7500 5 10 0	RPM RPM Sec Kph Pct				
						Transmission Input Speed is The previous requirement has	>= >=	0 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 Engine Torque Signal Valid Ignition Voltage Ignition Voltage	= >= <=	TRUE TRUE 8.59961 31.99902	Boolean Boolean Volts Volts				
						P0716 Status is not	=	Test Failed This Key On or Fault Active					
				Co	Disable nditions:	MIL not Illuminated for DTC's:	TCM: P0717 ECM: P0101 P0122, P012	r, P0752, P0973 , P0102, P0103 23	, P0974 , P0121,				
Transmission Input Speed Sensor (TISS)	P0717	Input Speed Sensor Circuit Low Voltage	Fail Case 1 Transmission Input Speed is	< 33 RPM						>=	4.5	Fail Time (Sec)	One Trip
			Fail Case 2 When P0722 DTC Status equal to Test Failed and Transmission Input Speed is	< 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 Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= <= <= = =	80 8191.88 10 TRUE 8.59961 31.99902 400 7500 5 Test Failed This Key On or Fault Active	N*m N*m Boolean Volts Volts RPM RPM Sec				

Component/	Fault	Monitor Strategy	Malfunction		Thr	eshold		Secondary		Enable			т	ime	Mil
System	Code	Description	Criteria		V	alue		Malfunction		Conditions			Red	auired	Illum.
						Co	Disable anditions:	MIL not Illuminated for DTC's:	TCM: P072 ECM: P010	2, P0723 11, P0102, P0103					
Transmission Output Speed Sensor (TOSS)	P0722	Output Speed Sensor Circuit Low Voltage	Transmission Output Speed Sensor Raw Speed	<=	35	RPM						>=	4.5	Fail Time (Sec)	One Trip
								P0722 Status is not	=	Test Failed This Key On or Fault Active					
								Transmission Input Speed Check	=	TRUE	Boolean				
								Engine Torque Check Throttle Position Transmission Fluid	= >= >=	TRUE 8.0002 -40	Boolean Pct °C				
								I emperature Disable this DTC if the PTO is	=	1	Boolean				
								Engine Torque Signal Valid	=	TRUE	Boolean				
								Throttle Position Signal Valid	=	TRUE	Boolean				
								Ignition Voltage is Ignition Voltage is Engine Speed is Engine Speed is	>= <= >= <=	8.59961 31.99902 400 7500	Volts Volts RPM RPM				
								Engine Speed is within the allowable limits for	>=	5	Sec				
								Enable_Flags Defined Below							-
								The Engine Torque Check is TRUE, if either of the two following conditions are TRUE							
								Engine Torque Condition 1							
								Range Shift Status	¥	Range shift completed	ENUM				
								OR Transmission Range is Engine Torgue is	=	Park or Neutral	N*m				
								Engine Torque is	<=	8191.75	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							~

Component/	Fault	Monitor Strategy		Malfunction	Thre	eshold	Secondary		Enable		Tir	ne	Mil
System	Code	Description		Criteria	Va	alue	Malfunction		Conditions		Requ	ired	Illum.
							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	>=	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			
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, ECM: P0101, P0122, P0123	P0717, P0723 P0102, P0103 }	, P0121,			
Tap Up Tap Down Switch (TUTD)	P0815	Upshift Switch Circuit	Fail Case 1	Tap Up Switch Stuck in the Up Position in Range 1 Enabled	= 0	Boolean							Special No MIL
. ,				Tap Up Switch Stuck in the Up Position in Range 2 Enabled	= 0	Boolean							
				Tap Up Switch Stuck in the Up Position in Range 3 Enabled	= 0	Boolean							
				Tap Up Switch Stuck in the Up	= 0	Boolean							
				Tap Up Switch Stuck in the Up Position in Range 5 Enabled	= 0	Boolean							
				Tap Up Switch Stuck in the Up	= 0	Boolean							
				Tap Up Switch Stuck in the Up Position in Neutral Enabled	= 1	Boolean							
				Tap Up Switch Stuck in the Up Position in Park Enabled	= 1	Boolean							
				Tap Up Switch Stuck in the Up Position in Reverse Enabled	= 0	Boolean							
				Tap Up Switch ON	= TRUE	Boolean					>= 1	Fail Time (Sec)	
			Fail Case 2	Tap Up Switch Stuck in the Up Position in Range 1 Enabled	= 1	Boolean							
				Tap Up Switch Stuck in the Up Position in Range 2 Enabled	= 1	Boolean							
				Tap Up Switch Stuck in the Up Position in Range 3 Enabled	= 1	Boolean							
				Tap Up Switch Stuck in the Up Position in Range 4 Enabled	= 1	Boolean							
				Tap Up Switch Stuck in the Up Position in Range 5 Enabled	= 1	Boolean							
				Tap Up Switch Stuck in the Up Position in Range 6 Enabled	= 1	Boolean							

Component/	Fault	Monitor Strategy	Malfunction	Thre	shold	Secondary	Enable		Time	Mil
System	Code	Description	Criteria	Va	alue	Malfunction	Conditions		Required	Illum.
			Tap Up Switch Stuck in the Up Position in Neutral Enabled Tap Up Switch Stuck in the Up Position in Park Enabled Tap Up Switch Stuck in the Jun	= 0 = 0	Boolean Boolean					
			Position in Reverse Enabled	= 0	Boolean					
			Tap Up Switch ON NOTE: Both Failcase1 and Failcase 2 Must Be Met	= TRUE	Boolean				>= 600 Fail Time (See	.)
						Time Since Last Range Change Ignition Voltage Lio Ignition Voltage Hi Engine Speed Lo	>= 1 En: >= 8.59961 <= 31.99902 >= 400	able Time (Sec) Volts Volts RPM		_
						Engine Speed Hi Engine Speed is within the allowable limits for	<= 7500 >= 5	RPM Sec		
						P0815 Status is	Test Failed This Key On or Fault Active			
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0816, P0826, P182E, P P1877, P1915, P1761	1876,		
Tau Hu Tau David Callah			Fail Case 1 The Development Control Charles Inter				ECM: None			Special
(TUTD)	P0816	Downshift Switch Circuit	Down Position in Range 1 Enabled	= 0	Boolean					No MIL
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	= 0	Boolean					
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	= 0	Boolean					
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	= 0	Boolean					
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	= 0	Boolean					
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	= 0	Boolean					

Component/	Fault	Monitor Strategy	Malfunction		Three	shold	Secondary		Enable			Time	r -	Mil
System	Code	Description	Criteria	1	Va	lue	Malfunction		Conditions			Require	ed	Illum.
			Tap Down Switch Stuck in the Down Position in Range Neutral Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range Park Enabled Tap Down Switch Stuck in the	=	1	Boolean								
			Down Position in Range Reverse	=	0	Boolean								
			Tap Down Switch ON	= -	TRUE	Boolean					>=	1	sec	
			Fail Case 2 Tap Down Switch Stuck in the Down Position in Range 1 Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Neutral Enabled	=	0	Boolean								
			Tap Down Switch Stuck in the Down Position in Park Enabled	=	0	Boolean								
			Tap Down Switch Stuck in the Down Position in Reverse Enabled	=	0	Boolean								
			Tap Down Switch ON NOTE: Both Failcase1 and Failcase 2 Must Be Met	=	TRUE	Boolean					>=	600	sec	
							Time Since Last Range	>=	1	Enable Time				
							Change Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo	>= <= >=	8.59961 31.99902 400	(Sec) Volts Volts RPM				
							Engine Speed Hi Engine Speed is within the allowable limits for	<=	7500 5	RPM Sec				

Component/	Fault	Monitor Strategy	Malfunction	Thr	eshold	Secondary		Enable			Ti	me	Mil
System	Code	Description	Criteria	v	alue	Malfunction		Conditions			Req	uired	Illum.
						P0816 Status is	¥	Test Failed This Key On or Fault Active					
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0815, P1877, P191 ECM: None	, P0826, P182E, 5, P1761	, P1876,				
Tap Up Tap Down Switch (TUTD)	P0826	Up and Down Shift Switch Circuit	IUID Circuit Reads Invalid Voltage	= TRUE	Boolean					>=	60	Fail Time (Sec)	Special No MII
						Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= <= >= <= >=	8.59961 31.99902 400 7500 5	Volts Volts RPM RPM Sec				
						P0826 Status is	¥	Test Failed This Key On or Fault Active					
					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	5	Sample Time	
						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			(900)	
					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
										out of	1.875	Sample Time (Sec)	
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed	>= <= >= <=	8.59961 31.99902 400 7500	Volts Volts RPM RPM			X/	

Component/	Fault	Monitor Strategy	Malfunction	Thres	hold	Secondary		Enable			Tir	me	Mil
System	Code	Description	Criteria	Valu	ue	Malfunction		Conditions			Requ	uired	Illum.
						Engine Speed is within the allowable limits for	>=	5	Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None						
							ECM: None						
Variable Bleed Solenoid (VBS)	P0963	Pressure Control (PC) Solenoid A Control Circuit High Voltage (Line Pressure VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>=	4.4	Fail Time (Sec)	Two Trips
										out of	5	Sample Time (Sec)	
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed 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)	P0966	Pressure Control (PC) Solenoid B Control Circuit Low Voltage (C35R VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Trip
										out	0.375	Sample Time	
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	8.59961 31.99902 400 7500 5	Volts Volts RPM RPM Sec	01		(360)	
						P0966 Status is not	=	Test Failed This Key On or Fault Active					
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P0967	Pressure Control (PC) Solenoid B Control Circuit High Voltage (C35R VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Trip
										out of	0.375	Sample Time (Sec)	
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	8.59961 31.99902 400 7500 5	Volts Volts RPM RPM Sec			()	

Component/	Fault	Monitor Strategy	Malfunction	Thre	eshold	Secondary		Enable			Tir	ne	Mil
System	Code	Description	Criteria	Va	alue	Malfunction		Conditions			Requ	ired	Illum.
						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	= TRUE	Boolean					>= out	0.3 0.375	Fail Time (Sec)	One Trip
						P0970 Status is not	=	Test Failed This Key On or Fault Active		U		(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)	P0971	Pressure Control (PC) Solenoid C Control Circuit High Voltage (C456/CBR1 VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>= out of	0.3 0.375	Fail Time (Sec) Sample Time (Sec)	One Trip
						P0971 Status is 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/	Fault	Monitor Strategy	Malfunction	Threshold		Secondary		Enable			Ti	ime	Mil
System	Code	Description	Criteria	v	alue	Malfunction Conditions			Req	uired	Illum.		
Shift Solinoid	P0973	Shift Solenoid A Control Circuit Low (Mode 2 Solenoid)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>= out	1.2	Fail Time (Sec) Sample Time	One Trip
						P0973 Status is not Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	= <= >= <= >=	Test Failed This Key On or Fault Active 8.59961 31.99902 400 7500 5	Volts Volts RPM RPM Sec	of	1.3	(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 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						
Mode 3 Multiplex Valve	P0976	Shift Solenoid BControl Circuit Low (Mode 3 Solenoid)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>= out	1.2 1.5	Sec	Two Trips
						P0976 Status is not	=	Test Failed This Key On or Fault Active		0			

Component/	Fault	Monitor Strategy	Malfunction	Th	reshold	Secondary		Enable		1	Tir	ne	Mil
System	Code	Description	Criteria		Value	Malfunction		Conditions			Requ	ired	Illum.
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	8.5996094 31.999023 400 7500 5	Volts Volts RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
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 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						
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 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						
Internal Mode Switch (IMS)	P1915	Internal Mode Switch Does Not Indicate Park/Neutral (P/N) During Start	PRNDL State is	≠ Park or Neutral	Enumeration								One Trip
			I he following events must occur Sequentially Initial Engine speed	<= 50	RPM					>=	0.25	Enable Time (Sec)	

Component/	Fault	Monitor Strategy	Malfunction	Threshold		shold	Secondary	Enable		Time			Mil	
System	Code	Description	Criteria		Value		Malfunction	Conditions				Requ	ired	Illum.
			Then Engine Speed Between Following Cals Engine Speed Lo Hist Engine Speed Hi Hist	>= <=	50 480	RPM RPM					>=	0.06875	Enable Time	
			Then										(Sec)	
			Final Engine Speed	>=	525 100	RPM					\	1 25	Fail Time (Sec)	
				/-	100		DTC has Dan this Kau Custo?		ENICE	Deeleen	>-	1.23		
							Ignition Voltage High Ignition Voltage High	>= <=	6 31.99902	V V				
							(enables above this value) Ignition Voltage Hyst Low	>=	2	v				
							(disabled below this value) Transmission Output Speed	<=	90	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	= F	ALSE	Boolean						200	Fail Counts	One Trip
			crank goes true when above this value) value)		Э	VOIIS					>=	280	(25ms loop)	
			crank goes false when below this value)		2	Volts					Out of	280	Sample Counts (25ms loop)	
							ECM run/crank active status available	=	TRUE	Boolean				
							ECM run/crank active status	=	TRUE	Boolean				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None						
								ECIM: NONE						0
Variable Bleed Solenoid (VBS)	P2720	Control Circuit Low (CB26 VBS)	The HWIO reports a low voltage (ground short) error flag	= 1	TRUE	Boolean					>= out	0.3	Fail Time (Sec) Sample Time	Une Trip
											of	0.375	(Sec)	
							P2770 Status is not	=	Test Failed This Key On or Fault Active					

Component/	Fault	Monitor Strategy	Malfunction	Thre	shold	Secondary		Enable			Ti	me	Mil
System	Code	Description	Criteria	Va	alue	Malfunction		Conditions			Req	uired	Illum.
					Disable	Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the allowable limits for MIL not Illuminated for	>= <= >= >= TCM: None	8.59961 31.99902 400 7500 5	Volts Volts RPM RPM Sec				
					conditions.	D103.	ECM: None						
Variable Bleed Solenoid (VBS)	P2721	Pressure Control (PC) Solenoid D Control Circuit High (CB26 VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Trip
										of	0.375	(Sec)	
						P2721 Status is not	=	Test Failed This Key On or Fault Active					
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <= >= <= >=	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)	P2729	Pressure Control (PC) Solenoid E Control Circuit Low (C1234 VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>= out	0.3 0.375	Fail Time (Sec) Sample Time	One Trip
						P2729 Status is not	=	Test Failed This Key On or Fault Active				()	
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the allowable limits for	>= <= >= <=	8.59961 31.99902 400 7500 5	Volt Volt RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						

Component/	Fault	Monitor Strategy	Malfunction	Threshold		Secondary		Enable			Ti	me	Mil
System	Code	Description	Criteria	Value		Malfunction		Conditions			Req	uired	Illum.
Variable Bleed Solenoid (VBS)	P2730	Pressure Control (PC) Solenoid E Control Circuit High (C1234 VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Trip
										out of	0.375	Sample Time (Sec)	
						P2730 Status is not	=	Test Failed This Key On or Fault Active					
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the allowable limits for	>= <= >= >=	8.59961 31.99902 400 7500 5	Volt Volt RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	P2763	Torque Converter Clutch Pressure High	The HWIO reports a low pressure/high voltage (open or power short) error flag	= TRUE	Boolean					>=	4.4	Fail Time (Sec)	Two Trips
										out of	5	Sample Time (Sec)	
						P2763 Status is not	-	Test Failed This Key On or Fault Active					
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the	>= <= <=	8.59961 31.99902 400 7500 5	Volt Volt RPM RPM				
						allowable limits for High Side Driver Enabled	=	TRUE	Boolean				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0658, F ECM: None	20659					
Variable Bleed Solenoid (VBS)	P2764	Torque Converter Clutch Pressure Control Solenoid Control Circuit Low	The HWIO reports a high pressure/low voltage (ground short) error flag	= TRUE	Boolean					>=	4.4	Fail Time (Sec)	One Trip
										out of	5	Sample Time (Sec)	
						P2764 Status is not	=	Test Failed This Key On or Fault Active					
						Ignition Voltage	>=	8.59961	Volt				

Component/	Fault	Monitor Strategy	Malfunction	Threshold		Secondary	Enable		Time			Mil	
System	Code	Description	Criteria	Value		Malfunction	Conditions			Req	uired	Illum.	
						Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for High Side Driver Enabled	<= >= <= >=	31.99902 400 7500 5 TRUE	Volt RPM RPM Sec Boolean				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0658, ECM: None	P0659					
Communication	U0073	Controller Area Network Bus Communication Error	CAN Hardware Circuitry Detects a Low Voltage Error	= TRUE	Boolean					>=	62	Fail counts (≈ 10 seconds)	One Trip
			Delay timer	>= 0.1125	Sec					Out of	70	Sample Counts (≈ 11 seconds)	
						Stabilization delay Ignition Voltage Ignition Voltage Power Mode	>= >= <= =	3 8.59961 31.99902 Run	sec Volt Volt				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Communication	U0100	Lost Communications with ECM (Engine Control Module)	CAN messages from ECM are not received by the TCM	= TRUE	Boolean					>=	12	sec	One Trip
						Stabilization delay Ignition Voltage Ignition Voltage Power Mode	>= >= <= =	3 8.59961 31.99902 Run	sec Volt Volt				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: U0073 ECM: None						

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Ti	me	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions	Req	uired	Illum.
High Side Driver 1	P0658	Actuator Supply Voltage Circuit Low	The HWIO reports a low voltage (open or ground short) error flag	= TRUE Boolean			>= 4 out 6	Fail Counts	One Trip
					P0658 Status is not	Test Failed This Key On or Fault Active	of		
					High Side Driver 1 On	= True Boolean			
				Disable Conditions	MIL not Illuminated for DTC's:	TCM: None ECM: None			
Transmission Control Module (TCM)	P0667	TCM Internal Temp (substrate) Sensor Circuit Range/Performance	If transmission oil temp to substrate temp Δ	Refer to Table 19 in °C supporting documents					Two Trips
			If TCM substrate temp to power up temp Δ	Refer to Table 20 in °C supporting documents					
			Both conditions above required to increment fail counter				>= 3000	Fail Counts (100ms loop)	-
			Note: table reference temp = to the median temp of trans oil temp, substrate temp and power up temp.				Out 3750 of	Sample Counts (100ms loop)	
			Non-continuous (intermittent) fail conditions will delay resetting fail counter until				>= 700	Pass Counts (100ms loop)	
							Out 875 of	Sample Counts (100ms loop)	
					Engine Torque Signal Valid Accelerator Position Signal Valid	= TRUE Boolean = TRUE Boolean			

System Code Description Criteria Value Matruction Conditions Required Itum. Note Image: Signal s
Image: Second
Image: Speed Lightion Voltage Hi <=
Engine Speed Lo >= 400 RPM Engine Speed Hi <=
Engine Speed Hi <=
Engine Speed is within the allowable limits for Brake torque active >= 5 Sec Below describes the brake torque active = FALSE FALSE Below describes the brake torque active = 90 N*m Engine Torque >= 90 N*m Throttle >= 30.0003 Pct Transmission Input Speed <=
allowable limits for J= 3 Set Brake torque active = FALSE Below describes the brake torque entry criteria Engine Torque >= 90 N*m Throttle >= 30.0003 Pct Transmission Input Speed <=
Below describes the brake FALSE Below describes the brake torque entry criteria Engine Torque >= 90 N*m Throttle >= 30.0003 Pct Transmission Input Speed <=
Below describes the brake torque entry criteria Engine Torque >= 90 N*m Throttle >= 30.0003 Pct Transmission Input Speed <= 200 RPM
torque entry criteria Engine Torque >= 90 N*m Throttle >= 30.0003 Pct Transmission Input Speed <= 200 RPM
Engine Torque >= 90 N*m Throttle >= 30.0003 Pct Transmission Input Speed <=
Throttle >= 30.0003 Pct Transmission Input Speed <= 200 RPM
Transmission Input Speed <= 200 RPM
Makala Canada Canada Kal
Venicie Speed <= 8 Kph
Transmission Range ≠ Park
Transmission Range ≠ Neutral
PTO = Not Active
Set Brake Torque Active
TRUE if above conditions are >= 7 sec
met for:
Below describes the brake
torque exit criteria
Brake torque entry criteria = Not Met
Clutch
Cluth hydraulic Hydraulic
Ciuich nyarauic pressure ≠ Air Purge
Event
Club and the the test of t
Clutch used to exit brake = C3 Ratte
torque activenbl
The above clutch pressure is
greater than this value for one $>=$ 600 kpa
loop
Set Brake Torque Active
FALSE if above conditions are >= 20 Sec
met for
Test Failed
This Key
P0667 Status is ≠ On or Fault

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable		Time	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions		Required	Illum.
				Disable Conditions	MIL not Illuminated for DTC's:	TCM: P0658, P0668, P0669, P06AD, P06AE, P0716, P0712, P0713, P0717, P0722, P0723, P0962, P0963, P0966, P0967, P0970, P0971, P215C, P2720, P2721, P2729, P2730 ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E			
Transmission Control Module (TCM)	P06AC	TCM Power-up Temp Sensor Circuit Range/Performance	If TCM power-up temp to substrate temp Δ If transmission oil temp to power up temp Δ Both conditions above required to increment fail counter Note: table reference temp = to the median temp of trans oil temp, substrate temp and power up temp. Non-continuous (intermittent) fail conditions will delay resetting fail counter until	Refer to Table 20 in °C supporting documents Refer to Table 18 in °C supporting documents			>= Out of >= Out of	3000Fail Cour (100ms lo3750Sample Co (100ms lo)700Pass Cou (100ms lo)875Sample Co (100ms lo)	s p) ts p) ints p) ints p)
					Engine Torque Signal Valid Accelerator Position Signal Valid Ignition Voltage Lo Ignition Voltage Hi Engine Speed Hi Engine Speed is within the allowable limits for Brake torque active Below describes the brake torque entry criteria Engine Torque Throttle Transmission Input Speed Vehicle Speed Transmission Range Transmission Range	= TRUE Boolean = TRUE Boolean >= 8.59961 Volts <=			

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Time	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions	Required	Illum.
					PTO Set Brake Torque Active TRUE if above conditions are mot for:	= Not Active >= 7 sec		
					Below describes the brake torque exit criteria Brake torque entry criteria Clutch hydraulic pressure	= Not Met Clutch Hydraulic		_
					Clutch used to exit brake torque active The above clutch pressure is	Event CeTFTD_e = _C3_RattE nbl		
					greater than this value for one loop Set Brake Torque Active FALSE if above conditions are met for:	>= 600 kpa >= 20 Sec		
					P06AC Status is	Test Failed This Key On or Fault Active		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0658, P0668, P0669, P06AD, P06AE, P0716, P0712, P0713, P0717, P0722, P0723, P0962, P0963, P0966, P0967, P0970, P0971, P215C, P2720, P2721, P2729, P2730		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Transmission Fluid Temperature Sensor (TFT)	P0711	Trans Fluid Temp Sensor Circuit Range/Performance	If transmission oil temp to substrate temp Δ	Refer to Table > 19 in °C supporting documents				Two Trips
			If transmission oil temp to power up temp Δ	Refer to Table 18 in °C supporting documents				
			Both conditions above required to increment fail counter				>= 3000 Fail Counts (100ms loop)	1

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable			Ti	me	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions			Req	uired	Illum.
			Note: table reference temp = to the median temp of trans oil temp, substrate temp and power up temp.					Out of	3750	Sample Counts (100ms loop)	
			Non-continuous (intermittent) fail conditions will delay resetting fail counter until					>=	700	Pass Counts (100ms loop)	
								Out of	875	Sample Counts (100ms loop)	
					Engine Torque Signal Valid Accelerator Position Signal	= 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	<= 7500 >= 5	RPM Sec				
					Brake torque active Below describes the brake torque entry criteria	= FALSE					
					Engine Torque Throttle Transmission Input Speed	>= 90 >= 30.0003 <= 200	N*m Pct RPM				
					Transmission Range Transmission Range	<= 8 ≠ Park ≠ Neutral	крп				
					Set Brake Torque Active TRUE if above conditions are met for:	= Not Active	sec				
					Below describes the brake torque exit criteria Brake torque entry criteria	= Not Met					
					Clutch hydraulic pressure	Clutch ≠ Hydraulic Air Purge					
					Clutch used to exit brake torque active	Event CeTFTD_e = _C3_RatIE 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				
					P0711 Status is	Test Failed This Key On or Fault Active					

Component/	Fault	Monitor Strategy	Malfunction		Thre	shold	Secondary		Enable			Ti	me	Mil
System	Code	Description	Criteria		Va	lue	Malfunction		Conditions			Req	uired	Illum.
						Disabl Conditions	e MIL not Illuminated for : DTC's:	TCM: P0658 P06AE, P07 P0722, P072 P0967, P09 P2721, P272 ECM: P010 P0107, P010 P0175, P020 P0205, P020 P0306, P030	i, P0668, P0669 16, P0712, P07 23, P0962, P090 70, P0971, P21! 29, P2730 1, P0102, P010 08, P0171, P01 01, P0202, P020 16, P0207, P020 02, P0303, P030 77, P0308, P040	 P06AD, P0717, P0717, P0966, P0750, P0706, P0106, P0106, P0106, P0106, P0300, P0305, P0305, P042E 				
Transmission Output Speed	P0723	Output Speed Sensor Circuit	Transmission Output Speed	1 >=	105	RPM					>=	0	Enable Time	One Trip
Sensor (TOSS)		Intermittent	Sensor Raw Speed Output Speed Delta	1 A <=	8192	RPM					>=	0	(Sec) Enable Time	
			Output Speed Drop) >	650	RPM					>=	1.5	(Sec) Output Speed Drop Recovery Fail Time (Sec)	
			AND		Deixon ronge									
			Transmission Range is	5 =	Driven range (R,D)									
							Range_Disable		FALSE	See Below				
								-	TDUE	Soo Bolow				
							Neutral_Range_Enable And	=	TRUE	See Below				
							are TRUE concurrently		IRUE	See Relow				
							Transmission_Range_Enable) =	TRUE	See Below				
							Transmission_Input_Speed_En able	e 1	TRUE	See Below				
							No Change in Transfer Case Range (High <-> Low) for	>=	5	Seconds				
							P0723 Status is no	t =	Test Failed This Key On or Fault Active					
							Disable this DTC if the PTO is	=	1	Boolean				
							Ignition Voltage is	S >=	8.59961 31 00002	Volts				
							Engine Speed is	S >=	400	RPM				
							Engine Speed is within the	>=	5	Sec				
				t			Enable_Flags Defined Below	/						

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Time	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions	Required	Illum.
					Transmission_Input_Speed_En			
					able is TRUE when either TIS			
					Condition 1 or TIS Condition 2			
					is TRUE:			
					TIS Condition 1 is TPLIE when			
					hoth of the following conditions	S- 0 Enable Time		
					are satsified for	(Sec)		
					Input Speed Delta	<= 4095.88 RPM		
					Raw Input Speed	>= 500 RPM		
					TIS Condition 2 is TRUE when			
					ALL of the next two conditions	5		
					are satisfied			
					Input Speed	= 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 ENUM		
						Transitonal		
						Neutral/Dri		
					Transitial Draws is	Ve		
					I ransmission Range is	Transitiona		
						I		
					And when a drop occurs			
					Loop to Loop Drop of	(50 0014		
					Transmission Output Speed is	> 650 RPM		
					Range, Disable is TRUE when			
					any of the next three conditions			
					are TRUE			
					Transmission Range is	= Park ENUM		
						Park/Rever		
					Transmission Range is	= se ENUM		
					, i i i i i i i i i i i i i i i i i i i	Transitonal		
						ON (Fully		
					Input Clutch is not	= Applied) ENUM		
					Neutral_Speed_Enable is			
					TRUE when All of the next	> 1.5 Seconds		
					three conditions are satsified			
					for Transmission Output Sacad	120 004		
					mansmission Output speed	> 150 KPM		
					The loop to loop change of the	< 20 RPM		
					Iransmission Output Speed is			

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable		Time	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions		Required	Illum.
					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 Pange is	– Noutral ENLIM			
					Transmission Range is	Reverse/N			
					Transmission Range is	s = ENUM Transitiona			
					Transmission Range is	Neutral/Dri ve ENUM Transitiona I			
					Time since a driven range (R,D) has been selected	Table Based Time Please Sec Refer to Table 21 in supporting documents			
					Transmission Output Speed Sensor Raw Speed Output Speed when a fault was detected	>= 500 RPM >= 500 RPM			
				Disable Conditions	MIL not Illuminated for DTC's:	TCM: P0973, P0974, P0976, P0977 ECM: P0101, P0102, P0103, P0121, P0122, P0123			
Torque Converter Clutch (TCC)	P0741	TCC System Stuck OFF	TCC Pressure Either Condition (A) or (B) Must be Met	>= 750 Kpa			>=	2 Enable Time (Sec)	Two Trips
			(A) TCC Slip Error @ TCC On Mode	Refer to Table 1 in RPM Supporting Documents			>=	5 Fail Time (Sec)	
			(B) TCC Slip @ Lock On Mode	e >= 130 RPM			>=	5 Fail Time (Sec)	
			If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter	і , г			>=	2 TCC Stuck Off Fail Counter	
					TCC Mode	e = On or Lock			
					Ignition Voltage Lo Ignition Voltage Hi	>= 8.59961 Volts <= 31.99902 Volts			

Component/	Fault	Monitor Strategy	Malfunction	Т	hreshold	Secondary		Enable			Т	me	Mil
System	Code	Description	Criteria		Value	Malfunction		Conditions			Req	uired	Illum.
						Engine Speed	>=	400	RPM				1
						Engine Speed	<=	7500	RPM				
						Engine Speed is within the	>=	5	Sec				
						allowable limits for	-	0	000				
						Engine Torque Lo	>=	50	N*m				
						Engine Torque Hi	<=	8191.88	N°M Det				
						Throttle Position Lo	>=	8.0002	PCL				
						2nd Coar Patio Lo	<=	77.776J 2 10/82	Patio				
						2nd Gear Ratio High	<=	2.17402	Ratio				
						3rd Gear Ratio Lo	>=	1.42285	Ratio				
						3rd Gear Ratio High	<=	1.63708	Ratio				
						4th Gear Ratio Lo	>=	1.06946	Ratio				
						4th Gear Ratio High	<=	1.23047	Ratio				
						5th Gear Ratio Lo	>=	0.79053	Ratio				
						5th Gear Ratio Hi	<=	0.90955	Ratio				
						6th Gear Ratio Lo	>=	0.62305	Ratio				
						6th Gear Ratio High	<=	0.71692	Ratio				
						Transmission Fluid	>=	-6 6563	°C				
						Temperature Lo		0.0000	0				
						Transmission Fluid	<=	130	°C				
						Temperature Hi		TOUL					
						PTO Not Active	=	TRUE	Boolean				
						Engine Torque Signal Valid	=	TRUE	Boolean				
						Throttle Position Signal Valid	=	TRUE	Boolean				
						Dynamic Mode	=	FALSE	Boolean				
								Tost Epilod					
								This Kov					
						P0741 Status is	¥	On or Fault					
								Active					
								Active					
					Disable	MIL not Illuminated for	TCM: P0716	, P0717, P0722	, P0723,				
					Conditions:	DIC'S:	P0742, P27	53, P2764					
							ECM: P010	1 P0102 P0103	P0106				
							P0107 P01	1, 10102, 10103 18 P0171 P017	2 P0174				
							P0175 P02	01 P0202 P020	2,10171, 13 P0204				
							P0205, P02	06, P0207, P020	8, P0300,				
							P0301, P03	02, P0303, P030	4, P0305,				
							P0306, P03	07, P0308, P040	1, P042E				
													0
Torque Converter Clutch (TCC)	P0742	TCC System Stuck ON	TCC Slip Speed	>= -50	RPM								One Trip
			TCC Slip Speed	<= 13	RPM								
										×-	15	Eail Time (Sec)	
										>=	1.5	raii time (Sec)	
			If Above Conditions Have been										
			Met, and Fail Timer Expired,							>=	6	Fail Counter	
			Increment Fail Counter			TOOM		0#		I			-
						Fnable test if Cmpd Coor	=	UIT					
						1stFW and value true	=	1	Boolean				

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary		Enable		Time	Mil
System	Code	Description	Criteria	Value	Malfunction		Conditions		Required	Illum.
					Enable test if Cmnd Gear = 2nd		0	Dealers		
					and value true	=	0	Boolean		
					Engine Speed Hi	<=	6000	RPM		
					Engine Speed Lo	>=	500	RPM		
					Vehicle Speed HI	<=	511	KPH		
					Vehicle Speed Lo	>=	1	KPH		
					Engine Torque Hi	<=	8191.88	Nm		
					Engine Torque Lo	>=	80	Nm		
					Current Range	¥	Neutral	Range		
					Current Range	≠	Reverse	Range		
					Transmission Sump					
					Temperature	<=	130	°C		
					Transmission Sump					
					Temperature	>=	18	°C		
					Throttle Position Hyst High	>=	5.0003	Pct		
					AND					
					Max Vehicle Speed to Meet					
					Throttle Enable	<=	8	KPH		
					Once Hyst High has been met					
					the enable will remain while	>=	2 0004	Prt		
					Throttle Position	-	2.0001	1.61		
					Disable for Throttle Position	>-	75	Pct		
					Disable for Throthe Fosition	/-	15	ru		
					value true	=	1	Boolean		
					value il de					
					Disable if in D1 and value true	=	1	Boolean		
					Disable if in D2 and value true	=	1	Boolean		
					Disable if in D3 and value true	=	1	Boolean		
					Disable if in D4 and value true	=	1	Boolean		
					Disable if in D5 and value true	=	1	Boolean		
					Disable if in MUMD and value					
						=	1	Boolean		
					Disable if in TUTD and value					
					Disable il III TOTD allu value	=	1	Boolean		
					4 Wheel Drive Low Active		EVICE	Pooloan		
					4 Wheel Drive Low Active	=	FALSE	Buulean		
					Disable if All Fulge active allo	=	0	Boolean		
					DVT Diagnostic Activo		EVICE	Pooloan		
	1			1	RVI DIdyTUSTIC ACTIVE	=	FALSE 9 E0061	V		1
					Ignition Voltage	>=	31 00003	V		
	1			1	Vohicle Speed	<=	51.99902	V DH		1
					Engine Speed	<=	211	DDM		
	1			1	Engine Speed	>=	400			1
					Engine Speed is within the	<=	/ 500	KPIVI		
					allowable limits for	>=	5	Sec		
	1			1	Engine Torque Signal Valid	_	TDUE	Pooloan		1
	1			1	Engine Forque Signal Vallo	=	IKUE	DODIGSUI		1
	1			1	Throttle Position Signal Valid	=	TRUE	Boolean		1
1	1		1	1	-				1	1

Component/	Fault	Monitor Strategy	Malfunction		Thre	shold	Secondary		Enable			т	ime	Mil
System	Code	Description	Criteria		Va	lue	Malfunction		Conditions			Red	quired	Illum.
							P0742 Status is	¥	Test Failed This Key On or Fault Active					
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716 P0741, P276 ECM: P010 P0107, P010 P0175, P020 P0205, P020 P0301, P030 P0306, P030	, P0717, P0722, 3, P2764 I, P0102, P0103 I8, P0171, P017 I1, P0202, P020 I6, P0207, P020 I2, P0303, P030 I7, P0308, P040	P0723, , P0106, 2, P0174, 3, P0204, 8, P0300, 4, P0305, 1, P042E				
				<u> </u>										Two Trips
Mode 2 Multiplex Valve	P0751	Shift Solenoid Valve A Stuck Off	Commaned Gear Slip Commanded Gear Gear Ratio Gear Ratio If the above parameters are true	>= <= >=	400 1st Lock 1.20959 1.09436	RPM rpm					>= =	0.2 5	Fail Tmr Fail Counts	
											≠	0	Neutral Timer (Sec)	
											>=	0.3	Fail Timer (Sec)	
											>=	8	Counts	
							Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed is within the allowable limits for Transmission Fluid Temperature Range Shift State	>= <= >= >= =	8.59961 31.99902 400 7500 5 -6.6563 Range Shift Completed	Volts Volts RPM RPM Sec °C				
							TPS OR Output Speed Throttle Position Signal Valid from ECM Engine Torque Signal Valid from ECM, High side driver is enabled High-Side Driver is Enabled Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not	>= >=	Completed 0.5005 67 TRUE TRUE FALSE FALSE TRUE	% RPM Boolean Boolean Boolean Boolean				

Component/	Fault	Monitor Strategy	Malfunction		Thre	shold	Secondary]	Enable			Tin	ne	Mil
System	Code	Description	Criteria		Va	lue	Malfunction		Conditions			Requ	ired	Illum.
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716 P182E ECM: P0107 P0107, P011 P0175, P021 P0205, P021 P0301, P031 P0306, P03	5, P0717, P0722 1, P0102, P0103 08, P0171, P017 01, P0202, P020 06, P0207, P020 02, P0303, P030 07, P0308, P040	, P0723, , P0106, (2, P0174, 13, P0204, 18, P0300, 14, P0305, 11, P042E				
Mode 2 Multipley Valve	D0752	Shift Salapaid Valve & Stuck On	Coar Boy Slin	<u> </u>	400	DDM					┣			Ono Trin
wode z wunipiex valve	P0/52	SHILL SUPHOID VAIVE A SLUCK OFF	Geal box Silp	>=	400	RPIN								One mp
			Commanded Gear	=	3rd	Gear								
			1st Locked OR 1st Free-Wheel OR 2nd with Mode 2 Sol. Commanded On	=	TRUE	Boolean								
			If the above parameters are true	y la										
											>=	Please Refer to Table 16 in Supporting Documents	n Neutral Timer (Sec)	
			Command 4th Gear once Output	<=	400	RPM								
			If Gear Ratio	>=	3.82568									
			And Gear Ratio	<=	4.22839									
											>=	1.5	Fail Timer (Sec)	
				├			Ignition Voltage Lo	>=	8 59961	Volts	>=	5	Counts	
							Ignition Voltage Hi	<=	31.99902	Volts				
							Engine Speed Lo Engine Speed Hi	>= <=	400 7500	RPM RPM				
							Engine Speed is within the	>=	5	Sec				
							allowable limits for High-Side Driver is Enabled	=	TRUE	Boolean				
							Throttle Position Signal Valid	=	TRUE	Boolean				
							from ECM Output Speed	>=	67	RPM				
							OR		0 5005	<i></i>				
							IPS	>=	0.5005	%				
							Range Shift State	=	Range Shift Completed	ENUM				
							Transmission Fluid Temperature	>=	-6.6563	°C				
							Input Speed Sensor fault	=	FALSE	Boolean				
							Output Speed Sensor fault Default Gear Option is not	=	FALSE	Boolean				
							present	=	TRUE					
1	1	1	1	1			1	I			1			1

Component/	Fault	Monitor Strategy	Malfunction		Thres	hold	Secondary		Enable			Tim	e	Mil
System	Code	Description	Criteria		Val	ue	Malfunction		Conditions			Requi	red	Illum.
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716 P182E	, P0717, P0722,	P0723,				
								ECM: P0101 P0107, P010 P0175, P020 P0205, P020 P0301, P030 P0306, P030	, P0102, P0103, 38, P0171, P017: 31, P0202, P020 36, P0207, P0203 32, P0303, P030 37, P0308, P040	P0106, 2, P0174, 3, P0204, 3, P0300, 4, P0305, 1, P042E				
Mode 2 Multiplex Valve	P0756	Shift Solenoid Valve B Stuck Off	Fail Case 1 Commanded Gear Gear Box Slip Intrusive Shift to 2nd Commanded Gear Previous Gear Ratio Gear Ratio If the above parameters are true	r = 0 >= d = 0 <= 0 >=	1st Locked 400 1st Locked 2.48218 2.24585	RPM Gear					>=	Please Refer to Table 5 in Supporting Documents	Neutral Timer (Sec) Sec	One Trip
							Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for Output Speed OR TPS Range Shift State Transmission Fluid Temperature High-Side Driver is Enabled Throttle Position Signal Valid from ECM Input Speed Sensor fault Output Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present		8.59961 31.99902 400 7500 5 67 0.5005 Range Shift Completed -6.6563 TRUE FALSE FALSE FALSE FALSE TRUE	Volts RPM RPM Sec RPM % ENUM ©C Boolean Boolean Boolean Boolean	>=	3	counts	

Component/	Fault	Monitor Strategy	Malfunction		Three	shold	Secondary		Enable			Tim	e	Mil
System	Code	Description	Criteria		Val	ue	Malfunction		Conditions			Requi	red	Illum.
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P P182E	20717, P0722	2, P0723,				
								ECM: P0101, F P0107, P0108, P0175, P0201, P0205, P0206, P0301, P0302, P0306, P0307,	P0102, P0103 P0171, P01 P0202, P02 P0207, P02 P0303, P03 P0308, P04	3, P0106, 72, P0174, 03, P0204, 08, P0300, 04, P0305, 01, P042E				
Variable Bleed Solenoid (VBS)	P0776	Pressure Control (PC) Solenoid B	Fail Case 1 Case: Steady State 3rd Gea	r										One Trip
		Stuck Off [C35K]	Commanded Gea Gearbox Slip	r = >=< 0	3rd 400	Gear RPM					F >= to	Please Refer o Table 16 in	Neutral Timer	
			Command 4th Gear once Outpu Shaft Speer If Gear Ratic And Gear Ratic	tt d) >=) <=	400 1.09436 1.20959	RPM						Documents	(Sec)	
											>=	3	Fail Timer (Sec)	
			It the above condiations are true Increment 3rd gear fail counte	:, г							>=	3	3rd Gear Fail Counts	
			and C35R Fail counte	r							>=	14	or 3-5R Clutch Fail Counts	
			Fail Case 2 Case: Steady State 5th Gea Commanded Gea	r r =	5th	Gear					F	Please Refer		
			Gearbox Slip) >=	400	Rpm					>= 1	to Table 5 in Supporting Documents	Neutral Timer (Sec)	
			Intrusive Test: Command 6th Gea	r										
			If attained Gear=6th gear Time	9 >=	Table 3 in supporting documents	Shift Time (Sec)								
			It the above condiations are true Increment 5th gear fail counte	r, r							>=	3	5th Gear Fail Counts	
			and C35R Fail counte	r							>=	14	3-5R Clutch Fail Counts	
							PRNDL State defaulted inhibit RVT IMS fault pending indication TPS validity flag Hydraulic System Pressurized	= = =	FALSE FALSE FALSE TRUE TRUE	Boolean Boolean Boolean Boolean Boolean				

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Time	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions	Required	Illum.
					Minimum output speed for RVT			
					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		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	i <= 7500 RPM		
					Engine Speed is within the	>= 5 Sec		
					Throttle Position Signal valid	= TRUE Boolean		
					HSD Enabled	= TRUE Boolean		
					Transmission Fluid	>= -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	TCM: P0716, P0717, P0722, P0723,		
				Conditions:	DICS:	PIOZE		
						ECM: P0101, P0102, P0103, P0106,		
						P0107, P0108, P0171, P0172, P0174,		
						P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300,		
						P0301, P0302, P0303, P0304, P0305,		
						P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solinoid B	Fail Case 1 Case: Steady State 1st					One Trip
	10///	Stuck On [C35R] (Steady State)	Attained Coar slin	>- 400 DDM				
			Attained Gear Sip	Table Based				
				Time Please				
			If the Above is True for Time	>= Refer to Table Enable Time				
				supporting				
				documents				
			Intrusive test:					
			(CBRT Clutch exhausted) Gear Ratio	<= 1.60864				
			Gear Ratio	>= 1.45544				
			If the above parameters are true					
							11 Foil Timer (Coo)	
							>= 1.1 Fall limer (Sec)	
							>= 2 Fail Count in 1st	
							or	
							>= 3 Total Fail	
			Fail Case 2 Case: Steady State 2nd gear				Counts	1

15 OBDG07 TCM Summar	y Tables	(Truck Specific)
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Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Time	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions	Required	Illum.
			Max Delta Output Speed Hysteresis	Table Based value Please >= Refer to Table 22 in supporting documents				
			Min Delta Output Speed Hysteresis	Table Based value Please >= Refer to Table 23 in supporting documents Table Based				
			If the Above is True for Time	Time Please >= Refer to Table 17 in Sec supporting				
			Intrusive test: (CB26 clutch exhausted) Gear Ratio Gear Ratio	documents <= 1.60864 >= 1.45544				
			If the above parameters are true					
							>= 1.1 Fail Timer (Sec)	1
							>= 3 Fail Count in 2nd Gear	
							>= 3 Total Fail Counts	
			Fail Case 3 Case: Steady State 4th gear	Table Based				
			Max Delta Output Speed Hysteresis	>= Refer to Table 22 in supporting documents				
			Min Delta Output Speed Hysteresis	lable Based value Please >= Refer to Table 23 in supporting documents				
			If the Above is True for Time	Table Based Time Please >= Refer to Table 17 in supporting				
			Intrusive test: (C1234 clutch exhausted) Gear Ratio Gear Ratio	<= 0.89465 >= 0.80945				
			If the above parameters are true					

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary		Enable		Time		me	Mil
System	Code	Description	Criteria	Value	Malfunction		Conditions		Required		uired	Illum.
									>=	1.1	Fail Timer (Sec)	
									>=	3	Fail Count in 4th Gear	
									>=	3	or Total Fail Counts	
			Fail Case 4 Case: Steady State 6th gear Max Delta Output Speed Hysteresis Min Delta Output Speed Hysteresis	Table Based value Please Refer to Table 22 in supporting documents Table Based value Please >= Refer to Table 23 in supporting documents Table Based Time Please								
			If the Above is True for Time Intrusive test: (CB26 clutch exhausted)	>= Refer to Table 17 in supporting documents								
			Gear Ratio	<= 0.89465					>=	1.1	Fail Timer (Sec)	
			Gear Ratio If the above parameters are true	>= 0.80945					>=	3	counts	
									>=	1.1	Fail Timer (Sec)	
									>=	3	Fail Count in 6th Gear	
									>=	3	or Total Fail Counts	
					PRNDL State defaulted inhibit RVT IMS fault pending indication output speed TPS validity flag HSD Enabled Hydraulic_System_Pressurized A OR B (A) Output speed enable (B) Accelerator Pedal enable Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo	= = = = = >= >= >= >= >= >= >=	FALSE FALSE FALSE 0 TRUE TRUE TRUE 67 0.5005 8.59961 31.99902 400	Boolean Boolean RPM Boolean Boolean Boolean Nm Nm Volts Volts RPM				
15 OBDG07 TCM Summary	/ Tables	(Truck	Specific)									
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Component/	Fault	Monitor Strategy	Malfunction	Th	reshold	Secondary	Enabl)	Time	Mil
System	Code	Description	Criteria		Value	Malfunction	Conditio	ns	Required	Illum.
						Engine Speed is within the allowable limits for if Attained Gear=1st FW Accelerator Pedal enable if Attained Gear=1st FW Engine Torque Enable if Attained Gear=1st FW Engine Torque Enable Transmission Fluid Temperature Input Speed Sensor fault Output Speed Sensor fault	>= 5 >= 5.000 >= 5 <= 8191. >= -6.65 = FALS = FALS	Sec 3 Pct Nm 88 Nm 3 °C E Boolean Boolean		
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P P182E	1722, P0723,		
							ECM: P0101, P0102, P P0107, P0108, P0171, P0175, P0201, P0202, P0205, P0206, P0207, P0301, P0302, P0303, P0306, P0307, P0308,	0103, P0106, 20172, P0174, 20203, P0204, 20208, P0300, 20304, P0305, 20401, P042E		
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solenoid B StuckOn [C35R] (Dymanic)	Primary Offgoing Clutch is exhausted (See Table 12 in Supporting Documents for Exhaust	= TRUE	Boolean					One Trip
			Primary Oncoming Clutch Pressure Command Status	= Maximur pressuriz	m ed					
			Primary Offgoing Clutch Pressure Command Status	= Clutch exh comman	aust Id					
			Range Shift Status Attained Gear Slip	≠ Initial Clut Control <= 40	RPM					
			If the above conditions are true run appropriate Fail 1 Timers Below:							
			fail timer 1 (3-1 shifting with Closed Throttle)	>= 0.5	Fail Time (Sec)					
			fail timer 1 (3-2 shifting with Throttle)	>= 0.2998	Fail Time (Sec)					
			fail timer 1 (3-2 shifting with Closed Throttle)	>= 0.5	Fail Time (Sec)					
			fail timer 1 (3-4 shifting with Throttle) fail timer 1	>= 0.2998	Fail Time (Sec)					
			(3-4shifting with Closed Throttle)	>= 0.5	Fail Time (Sec)					
			fail timer 1 (3-5 shifting with Throttle)	>= 0.2998	Fail Time (Sec)					

Component/	Fault	Monitor Strategy	Malfunction	Threshold		shold	Secondary	Enable			Time		9	Mil
System	Code	Description	Criteria		Val	lue	Malfunction		Conditions			Requir	ed	Illum.
			fail timer 1 (3-5 shifting with Closed 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 with Closed Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (5-4 shifting with Throttle)	>=	0.2998	Fail Time (Sec)								
			fail timer 1 (5-4 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (5-6 shifting with Throttle)	>=	0.2998	Fail Time (Sec)								
			fail timer 1 (5-6 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)								
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers								Tota = (F 2) S Tim >= Tir R SI Ta Fa	al Fail Time Fail 1 + Fail See Enable lers for Fail ner 1, and eference upporting ible 15 for iil Timer 2	sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter											
			3rd gear fail counter								>=	3	3rd gear fail counts OR	
			5th gear fail counter								>=	3	5th gear fail counts	
			Total fail counter								>=	5	total fail counts	
							TUT Enable temperature Input Speed Sensor fault Output Speed Sensor fault Command / Attained Gear High Side Driver ON output speed limit for TUT input speed limit for TUT PRNDL state defaulted IMS Fault Pending Service Fast Learn Mode HSD Enabled Default Gear Option is not present	× = * = ∧ ∧ = = = = =	-6.6563 FALSE FALSE 1st TRUE 100 150 FALSE FALSE FALSE TRUE TRUE	°C Boolean Boolean Boolean RPM RPM Boolean Boolean Boolean				

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

15 OBDG07 TCM Summa	ry Tables (Trι	uck Specific)
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Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Enable		Time	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions	Required	Illum.
			If attained Gear ≠ 5th for time if the above conditions have been met Increment 6th Gear Fail Counter and C456 Fail Counter and C456 Fail Counter	Please refer to Table 3 in Supporting Documents	PRNDL State defaulted	= FALSE Boolean = FALSE Boolean	>= 3 6th Gear Fail OR >= 14 C456 Fail Counts	
					IMS fault pending indication TPS validity flag	= FALSE Boolean = TRUE Boolean		
					Hydraulic System Pressurized Minimum output speed for RVT	= TRUE Boolean >= 67 RPM		
					A OR B (A) Output speed enable	>= 67 RPM		
					(B) Accelerator Pedal enable Common Enable Criteria Ignition Voltage Lo Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for Throttle Position Signal valid HSD Enabled Transmission Fluid Temperature Input Speed Sensor fault OutputSpeed Sensor fault Default Gear Option is not present	>= 0.5005 Pct >= 8.59961 Volts <= 31.99902 Volts >= 400 RPM <= 7500 RPM >= 5 Sec = TRUE Boolean = TRUE Boolean = FALSE Boolean = FALSE Boolean = TRUE		
				Disable Conditions	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Steady State)	Fail Case 1 Case: Steady State 1st Attained Gear slip	>= 400 RPM				One Trip

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Time		Mil	
System	Code	Description	Criteria	Value	Malfunction	Conditions		Requ	uired	Illum.
			If the Above is True for Time Intrusive test: (CBR1 clutch exhausted) Gear Ratio Gear Ratio	Table Based Time Please Refer to Table Enable Time 4 in (Sec) supporting documents <= 1.20959 >= 1.09436						
			If the above parameters are true							
							>=	1.1	Fail Timer (Sec) Fail Count in 1st	
							>=	2	Gear or Total Fail	
							>=	3	Counts	
			<u>Pair Case 3</u> Max Delta Output Speed Hysteresis Min Delta Output Speed Hysteresis	Table Based value Please 22 in supporting documents Table Based value Please Refer to Table 22 in supporting documents Table Based value Please 23 in rpm/sec						
			If the Above is True for Time	supporting documents Table Based Time Please Refer to Table 17 in supporting document						
			Intrusive test: (CB26 clutch exhausted) Gear Ratio Gear Ratio	<= 1.20959 >= 1.09436						
			ii the above parameters are true							
							>=	1.1	Fail Timer (Sec)	
							>=	3	Fail Count in 2nd Gear or	
							>=	3	Total fail counts	
			Fail Case 3 Case Steady State 3rd					-		

15 OBDG07 TCM Summa	ry Tables (Truck Specific)
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Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable		Time		Mil
System	Code	Description	Criteria	Value	Malfunction	Condi	ions		Required	Illum.
				Table Based						
				value Please						
			Max Delta Output Speed	>= Refer to Table rpm/sec						
			rysteresis	supporting						
				documents						
				Table Based						
				value Please						
			Min Delta Output Speed Hysteresis	>= Refer to Table rpm/sec						
				supporting						
				documents						
				Table Based						
				Lime Please						
			If the Above is True for Time	>= 17 in Sec						
				supporting						
				documents						
			Intrusive test:							
			(C35R Clutch exhausted)	<- 1 20050						
			Gear Ratio	>= 1.09436						
			If the above parameters are true							
			in the above parameters are rule							
								>=	1.1 Fail Timer (Se	c)
								>=	3 Fail Count in	
								· ·	3rd Gear	
									UR Total Fail	
								>=	3 Counts	
					PRNDL State defaulted	= FAL	SE Boolean			
					inhibit RVT	= FAL	SE Boolean			
					INIS fault pending indication	= FAL	SE Boolean			
					TPS validity flag	= TR	JF Boolean			
					HSD Enabled	= TR	JE Boolean			
					Hydraulic System Pressurized	= TR	JE Boolean			
					(A) Output speed enable	>= 6	7 Nm			
					(B) Accelerator Pedal enable	>= 0.50	05 Nm			
					Ignition Voltage Lo	>= 8.59	961 Volts			
					Ignition Voltage Hi	<= 31.9	902 Volts			
					Engine Speed Lo	>= 4(1		
					Engine Speed is within the	<= /0				
					allowable limits for	>= 5	Sec			
					if Attained Gear=1st FW	>= 5.00	IN3 Pot			
					Accelerator Pedal enable	>= 5.00	ioo ru	1		
					if Attained Gear=1st FW	>= 5	Nm	1		
					Engine Lorque Enable					
					Engine Torgue Fnable	<= 819	.88 Nm			

Component/	Fault	Monitor Strategy	Malfunction		Thres	shold	Secondary	Enable		Time	Mil
System	Code	Description	Criteria		Val	ue	Malfunction	Conditions		Required	Illum.
							Transmission Fluid Temperature Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	>= -6.6563 = FALSE = FALSE = TRUE	°C Boolean Boolean		
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722 P182E	e, P0723,		
								ECM: P0101, P0102, P0103 P0107, P0108, P0171, P01 P0175, P0201, P0202, P021 P0205, P0206, P0207, P021 P0301, P0302, P0303, P031 P0306, P0307, P0308, P044	8, P0106, 72, P0174, 03, P0204, 08, P0300, 04, P0305, 01, P042E		
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 11 in Supporting Documents for Exhaust Delay Timers)	=	TRUE	Boolean					One Trip
			Primary Oncoming Clutch Pressure Command Status	=	Maximum pressurized						
			Primary Offgoing Clutch Pressure Command Status	=	Clutch exhaus command	it					
			Range Shift Status	≠	Initial Clutch						
			Attained Gear Slip	<=	40	RPM					
			If the above conditions are true increment appropriate Fail 1 Timers Below:								
			(4-1 shifting with throttle)	>=	0.2998	Fail Time (Sec)					
			(4-1 shifting without throttle)	>=	0.5	Fail Time (Sec)					
			tail timer 1 (4-2 shifting with throttle)	>=	0.2998	Fail Time (Sec)					
			tail timer 1 (4-2 shifting without throttle)	>=	0.5	Fail Time (Sec)					
			fail timer 1 (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)					
			(6-2 shifting with throttle)	>=	0.2998	Fail Time (Sec)					
			tail timer 1 (6-2 shifting without throttle)	>=	0.5	Fail Time (Sec)					

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Time	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions	Required	Illum.
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers				Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail >= Timer 1, and sec Reference Supporting Table 15 for Fail Timer 2	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter					
			4th gear fail counter				>= 3 Fail Counter From 4th Gear	
			5th gear fail counter				>= 3 Fail Counter From 5th Gear OR	
			6th gear fail counter				>= 3 Fail Counter From 6th Gear	
			Total fail counter			(15(2) 00	>= 5 Total Fail Counter	
				Disable	Input Speed Sensor fault Output Speed Sensor fault Command / Attained Gear High Side Driver ON output speed limit for TUT PRNDL state defaulted IMS Fault Pending Service Fast Learn Mode HSD Enabled	 >= -0.0003 FALSE Boolean = FALSE Boolean ≠ 1st Boolean = TRUE Boolean >= 100 RPM >= 150 RPM = FALSE Boolean = FALSE Boolean = FALSE Boolean = FALSE Boolean = TRUE Boolean = TRUE Boolean 		
				Conditions:	DTC's:	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		
Internal Mode Switch (IMS)	P182E	Internal Mode Switch - Invalid Range	Fail Case 1 Current range	= Transition 1 (bit state 1110) Range				One Trip
			Previous range	≠ CeTRGR_e_P RNDL_Drive6 Range				

Component/ Fault Monitor Strategy Malfunction Threshold Secondary Enable Time Criteria Code Description Value Malfunction Conditions Required CeTRGR_e_P Range Previous range RNDL_Drive4 Range Shift Range Shift State ENUM Completed 50 Absolute Attained Gear Slip rpm Attained Gear Sixth Attained Gear First Throttle Position Available TRUE Throttle Position 8.0002 >= pct Output Speed >= 200 rpm Engine Torque 50 Nm >= Engine Torque <= 8191.75 Nm If the above conditions are me Fail Seconds >= 1 then Increment Fail Time If Fail Timer has Expired the Fail Counts $\geq =$ 5 Increment Fail Counte Fail Case 2 Output Speed <= 70 rpm The following PRNDL sequence events occur in this exact order Drive 6 (bit PRNDL state Range state 0110) PRNDL state = Drive 6 for 1 Sec Transition 8 (bit state 0111) Range PRNDL state Drive 6 (bit Range PRNDL state state 0110) (bit state 1110) Range Transition 1 PRNDL state Above sequencing occurs in <= 1 Sec Neutral Idle Mode Inactive If all conditions above are met Increment delay Time If the below two conditions are me 3 Fail Seconds >= Increment Fail Time delay timer 1 Sec

>=

>=

400

-8192

Transition 13 (bit state 0010) Range

8191.75 Nm

Sec

Nm

Input Speed

Current range

Engine Torque

Engine Torque <=

If Fail Timer has Expired the

If the above conditions are met

then, Increment Fail Timer

Fail Case 3

Increment Fail Counte

15 OBDG07 TCM Summary Tables (Truck Specific)

System

Fail Counts

Seconds

 $\geq =$

>=

CeTRGR_

e_PRNDL_

Drive1 CeTRGR_

e_PRNDL_ Drive2

1

Boolean

≠

≠

=

Previous range

Previous range

IMS is 7 position configuration

If the "IMS 7 Position config" 1 then the "previous range

criteria above must also be

satsified when the "current range" = "Transition 13" 2

0.225

Mil

Illum.

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Time		e	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions		Requi	red	Illum.
			If Fail Timer has Expired then				>=	15	Fail Counts	
			Fail Case 4 Current range	Transition 8 = (bit state 0111)	Disable Fail Case 4 if last positive range was Drive 6 and current range is transition 8					
			Inhibit bit (see definition)	= FALSE	Set inhibit bit true if PRNDL = 1100 (rev) or 0100 (Rev-Neu transition 11) Set inhibit bit false if PRNDL = 1001 (park)					
			Steady State Engine Torque Steady State Engine Torque If the above conditions are met then Increment Fail Timer	>= 100 Nm <= 8191.75 Nm			>=	0.225	Seconds	
			If the above Condtions have been met, Increment Fail Counter				>=	15	Fail Counts	
			Fail Case 5 Throttle Position Available	= TRUE Boolean						
			The following PRNDL sequence events occur in this exact order:							
			PRNDL State	= Reverse (bit state 1100) Range						
			PRNDL State	Transition 11 = (bit state 0100)						
			PRNDL State	= Neutral (bit state 0101) Range						
			PRNDL State	Transition 11 = (bit state 0100)						
			Above sequencing occurs in Then delay timer increments	<= 1 Sec						
			Delay limer	>= 5 sec Range Shift			1			
			Range Shift State	Complete			1			
			Absolute Attained Gear Slip Attained Gear	<= 50 rpm <= Sixth			1			
			Attained Gear	>= First			1			
			Throttle Position Output Speed	>= 8.0002 pct >= 200 rpm			1			
			If the above conditions are met	r. r			>=	20	Seconds	
			Fail Case 6	Illegal (bit	A Open Circuit Definition (flag		<u> </u>			
			Current range	= state 0000 or	set false if the following		1			
				1000 or 0001)	conditions are met):	T	1			
			and		Current Range	i ransition ≠ 11 (bit state 0100)				
			A Open Circuit (See Definition)	= FALSE Boolean	OF					
					Last positive state	✓ Neutral (bit state 0101)				
					or		1			I

Component/ Fault Monitor Strategy Malfunction Threshold Secondary Enable Time Mil Criteria System Code Description Value Malfunction Conditions Required Illum. Transition Previous transition state ≠ 8 (bit state 0111) Fail case 5 delay timer 0 sec If the above Condtions are met $\geq =$ 6.25 Seconds then, Increment Fail time Fail Case 7 PRNDL circuit ABCP = 1101 Range Current PRNDL State and PRNDL circuit ABCP =1111 Range Previous PRNDL state Input Speed 150 RPM Reverse Trans Ratio <= 2.84583 ratio Reverse Trans Ratio >= 3.27417 ratio If the above Condtions are me >= 6.25 Seconds then, Increment Fail time P182E will report test fail when any of the above 7 fail cases are met Ignition Voltage Lo >= 8.59961 Volts Ignition Voltage Hi <= 31.99902 Volts Engine Speed Lo 400 RPM >= Engine Speed Hi RPM <= 7500 Engine Speed is within the >= 5 Sec allowable limits for Engine Torque Signal Valid = TRUE Boolean Disable MIL not Illuminated for TCM: P0716, P0717, P0722, P0723, Conditions DTC's: 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 One Trip Transmission Control Module gnition Switch Run/Start Position TCM Run crank active (based on P2535 TRUE Boolean (TCM) Circuit High voltage thresholds below) Ignition Voltage High Hyst (run Fail Counts crank goes true when above this 5 Volts 280 $\geq =$ (25ms loop) value) Ignition Voltage Low Hyst (run Out Sample Counts 280 crank goes false when below this 2 Volts of (25ms loop) value ECM run/crank active status = TRUE Boolean available ECM run/crank active status FALSE Boolean =

Component/	Fault	Monitor Strategy		Malfunction	Threshold	d	Secondary		Enable			Time		Mil
System	Code	Description		Criteria	Value		Malfunction		Conditions			Require	ed	Illum.
						Disable	MIL not Illuminated for	TCM: None						
						Conditions:	DIC's:	FCM: None						
								Lonnitonio						
Variable Bleed Solenoid (VBS)	P2714	Pressure Control (PC) Solenoid D	Fail Case 1	Case: Steady State 2nd Gear										One Trip
											Р	lease See		
				Gear slip	>= 400 RP	PM					>= T	able 5 For	Neutral Timer	
											INE	Cal	(Sec)	
				Intrusive test:										
				commanded 3rd gear	Table Based									
					Time Please En	able Time								
				If attained Gear = 3rd for Time	>= see Table 2 in (Se	ec)								
					Documents									
				If Above Conditions have been met										
				Incroment 2nd dear fail count							~-	2	2nd Gear Fail	
				increment zhù gear fair count							>-	J	Count	
				and CP24 Fail Count							<u>.</u>	14	CB26 Fail	
			Epil Caso 2	Caso: Steady State 6th Coar							>-	14	Count	
			<u>Fall Case 2</u>	Case. Sleady State our Gear							P	lease See		
				Gear slip	>= 400 RP	PM					>= T	able 5 For	Neutral Timer	
											INE	Cal	(Sec)	
				Intrusive test:										
				commanded 5th gear	Table Based									
				Kallahad Osan - Elli Fan Tina	Time Please En	able Time								
				If attained Gear = 5th For Time	>= see Table 2 In Supporting (Se	ec)								
					Documents									
				If Above Conditions have been met. Increment 5th gear fail							>=	3	5th Gear Fail	
				counter									Count	
													or CB26 Fail	
				and CB26 Fail Count							>=	14	Count	
							PRNDL State defaulted	=	FALSE	Boolean				
							IMS fault pending indication	=	FALSE	Boolean				
							TPS validity flag	=	TRUE	Boolean				
							Hydraulic System Pressurized	=	TRUE	Boolean				
							Minimum output speed for RVT	>=	0	RPM				
							A OR B							
							(A) Output speed enable	>=	67	RPM				
							(B) Accelerator Pedal enable	>=	0.5005	Pct				
							Common Enable Criteria							
I	I	I	I				Ignition Voltage Lo	>=	8.59961	Volts	I			

15 OBDG07 TCM Summa	ry Tables (Truc	k Specific)
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Component/	Fault	Monitor Strategy	Malfunction		Threshold		Secondary		Enable		Time	Mil
System	Code	Description	Criteria		Value		Malfunction		Conditions		Required	Illum.
							Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for Throttle Position Signal valid HSD Enabled Transmission Fluid Temperature Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	<= >= <= = = = = =	31.99902 400 7500 5 TRUE TRUE -6.6563 FALSE FALSE TRUE	Volts RPM Sec Boolean Boolean °C Boolean Boolean		
					(Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, I P182E	P0717, P0722,	, P0723,		
								ECM: P0101, P0107, P0108 P0175, P0201 P0205, P0206 P0301, P0302 P0306, P0307	P0102, P0103 , P0171, P017 , P0202, P020 , P0207, P020 , P0303, P030 , P0308, P040	, P0106, 72, P0174, 93, P0204, 98, P0300, 94, P0305, 91, P042E		
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 13 in Supporting Documents for Exhaust Delay Timers) Primary Oncoming Clutch Pressure	= TI = Ma:	FRUE Book	ean						One Trip
			Primary Offgoing Clutch Pressure Command Status	= Clutch com	h exhaust mmand							
			Range Shift Status Attained Gear Slip	≠ Initia <=	al Clutch control 40 RPM	1						
			If above coditons are true, increment appropriate Fail 1 Timers Below: fail timer 1		2000 5-11	The Carl						
			(2-1 shifting with throttle) fail timer 1 (2-1 shifting without throttle)	>= 0	0.5 Fail	Time (Sec)						
			fail time 1 (2-3 shifting with throttle)	>= 0.1	.2998 Fail 1	Time (Sec)						
			fail timer 1 (2-3 shifting without throttle) fail timor 1	>=	0.5 Fail	Time (Sec)						
			(2-4 shifting with throttle) fail timer 1	>= 0.	0.5 Fail 1	Time (Sec)						
			(2-4 shifting without throttle) fail timer 1 (6-4 shifting with throttle)	>= 0.	.2998 Fail 1	Time (Sec)						

Component/	Fault	Monitor Strategy	Malfunction	Threshold			Secondary	Enable	Time	Mil
System	Code	Description	Criteria		Va	lue	Malfunction	Conditions	Required	Illum.
			fail timer 1 (6-4 shifting without throttle)	>=	0.5	Fail Time (Sec)				
			fail timer 1 (6-5 shifting with throttle)	>=	0.2998	Fail Time (Sec)				
			fail timer 1 (6-5 shifting without throttle)	>=	0.5	Fail Time (Sec)				
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers	1					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 Gea	r
			6th gear fail counter	-					>= 3 Fail Counter From 6th Gear OR	r
			total fail counter						>= 5 Counter	
							TUT Enable temperature Input Speed Sensor fault Output Speed Sensor fault Command / Attained Gear High Side Driver ON output speed limit for TUT input speed limit for TUT PRNDL state defaulted IMS Fault Pending Service Fast Learn Mode HSD Enabled	 >= -6.6563 °C = FALSE Boolean = FALSE Boolean ≠ 1st Boolean = TRUE Boolean >= 100 RPM >= 150 RPM = FALSE Boolean = FALSE Boolean = FALSE Boolean = TRUE Boolean 		
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E		
								ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS	S) P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Steady State)	Fail Case 1 Case: Steady State 1st	t						One Trip

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Time	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions	Required	Illum.
			Attained Gear slip If the Above is True for Time Intrusive test:	>= 400 RPM Table Based Time Please Refer to Table Enable Time = 4 in (Sec) supporting documents				
			(CBR1 clutch exhausted) Gear Ratio Gear Ratio	<= 2.48218 >= 2.24585				
			If the above parameters are true					
							>= 1.1 Fail Timer (Sec)	
							>= 5 Fail Count in 1st Gear	
							>= 5 Total Fail Counts	
			Fail Case 2 Case: Steady State 3rd Gear	Table Based				
			Max Delta Output Speed	<pre>value Please >= Refer to Table rpm/sec</pre>				
			Min Delta Output Speed Hysteresis	<pre>>22 III supporting documents Table Based value Please >= Refer to Table 23 in cumenting rpm/sec</pre>				
			If the Above is True for Time	documents Table Based Time Please >= Refer to Table 17 in Sec				
			Intrusive test: (C35R clutch exhausted)	supporting documents				
			Gear Ratio Gear Ratio	<= 2.48218 >= 2.24585				
			ii the above parameters are true					
							>= 1.1 Fail Timer (Sec)	
							>= 3 Fail Count in 3rd Gear or	
							>= 5 Total Fail Counts	-
			Fail Case 3 Case: Steady State 4rd Gear				1	1

15 OBDG07 TCM Summar	y Tables	(Truck Specific)
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Component/	Fault	Monitor Strategy	Malfunction	Threshold Secondary Enable Time		Time	Mil	
System	Code	Description	Criteria	Value	Malfunction	Conditions	Required	Illum.
			Max Delta Output Speed Hysteresis	Table Based value Please >= Refer to Table 22 in supporting documents Table Based				
			Min Delta Output Speed Hysteresis	value Please Refer to Table 23 in supporting documents Table Based Time Please				
			If the Above is True for Time	>= Refer to Table 17 in supporting				
			Intrusive test: (C1234 clutch exhausted) Gear Ratio Gear Ratio	documents <= 0.70032 >= 0.63367				
			If the above parameters are true					
							>= 1.1 Fail Timer (Sec)	
							>= 3 Fail Count in 4th Gear or Total Fail	
			Fail Case 4 Case: Steady State 5th Gear				>= 5 Counts	
			Max Delta Output Speed Hysteresis	Table Based value Please >= Refer to Table 22 in supporting documents Table Based				
			Min Delta Output Speed Hysteresis	value Please Refer to Table 23 in supporting documents Table Based				
			If the Above is True for Time	Time Please Refer to Table 17 in Sec supporting documents				
			Intrusive test: (C35R clutch exhausted) Gear Ratio Gear Ratio	<= 0.70032 >= 0.63367				
			If the above parameters are true					

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Ena	ble		Ti	me	Mil
System	Code	Description	Criteria	Value	Malfunction	Condi	tions		Req	uired	Illum.
								>=	1.1	Fail Timer (Sec)	
										Fail Count in 5th	
								>=	3	Gear	
										Or Total Fail	
								>=	5	Counts	
					PRNDL State defaulted	= FA	.SE Boolean				
					inhibit RVT	= FA	SE Boolean				
					output speed	= FA	SE DOUIEAIT				
					TPS validity flag	= TR	UE Boolean				
					HSD Enabled	= TR	UE Boolean				
					Hydraulic_System_Pressurized	= TR	UE Boolean				
					A OR B						
					(A) Output speed enable	>= 6	7 Nm				
					(B) Accelerator Pedal enable	>= 0.5	005 Nm				
					Ignition Voltage Lo	>= 8.59	961 Volts				
					Ignition Voltage Hi	<= 31.9	9902 Volts				
					Engine Speed Lo	>= 40	0 RPM				
					Engine Speed Hi	<= 75	00 RPM				
					allowable limits for	>=	Sec				
					if Attained Gear=1st FW		Dot Dot				
					Accelerator Pedal enable	>= 5.0	JUS PLI				
					if Attained Gear=1st FW	>=	Nm				
					if Attained Gear=1st FW						
					Engine Torque Enable	<= 819	1.88 Nm				
					Transmission Fluid	>= -6.6	563 °C				
					Temperature	. 610	CE Declear				
					Output Speed Sensor fault	= FA	SE Boolean				
					Default Gear Option is not	то					
					present	= 18	UE				
				Disable	MIL not Illuminated for	TCM: P0716, P0717,	P0722, P0723,				
				Conditions:	DTC's:	P182E					
						ECM: P0101, P0102,	P0103, P0106,				
						P0107, P0108, P017	, P0172, P0174,				
						P0175, P0201, P0202	, P0203, P0204,				
						P0205, P0206, P0207	, P0208, P0300,				
						P0306, P0307, P0308	, P0401, P042F				
Variable Bleed Solenoid (VBS)	P2723	Pressure Control (PC) Solenoid E Stuck Off	Fail Case 1 Case: Steady State 1st Gear								One Trip

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Time	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions	Required	Illum.
			Gear slip Intrusive test:	>= 400 RPM			Please See Table 5 For Neutral Timer Neutral Time (Sec) Cal	
			commanded 2nd gear	Please refer to				
			If attained Gear ≠ 2nd for Time	>= Table 3 in Supporting Documents				
			If Above Conditions have been met, Increment 1st gear fail counter				>= 3 1st Gear Fail Count	
			and C1234 fail counter				>= 14 Or Fail Count	
			Fail Case 2 Case: Steady State 2nd Gear				Please See	
			Gear slip	>= 400 RPM			>= Table 5 For Neutral Timer Neutral Time (Sec) Cal	
			Intrusive test: commanded 3rd gear					
				Please refer to Table 3 in				
			If attained Gear ≠ 3rd for Time	>= Supporting Documents				
			If Above Conditions have been met, Increment 2nd gear fail counter				>= 3 2nd Gear Fail Count	
							OF C1224 Clutch	
			and C1234 fail counter				>= 14 Fail Count	
			Fail Case 3 Case: Steady State 3rd Gear Gear slip	>= 400 RPM			Please See Table 5 For Neutral Timer	
			Intrusius tech				Cal	
			commanded 4th gear	Please refer to				
			If attained Gear ≠ 4th for time	>= Table 3 in Supporting Documents				
			If Above Conditions have been met, Increment 3rd gear fail counter				>= 3 3rd Gear Fail Count	
			and C1234 fail counter				>= 14 Or C1234 Clutch	
			Fail Case 4 Case: Steady State 4th Gear					
			Gear slip	>= 400 RPM			Please See Table 5 For Neutral Timer Neutral Time (Sec) Cal	

Component/	Fault	Monitor Strategy	Malfunction	Threshold	old Secondary Enable		Time	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions	Required	Illum.
Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria Intrusive test: commanded 5th gear If attained Gear = 5th For Time If Above Conditions have been met, Increment 4th gear fail counter and C1234 fail counter	Threshold Value Please refer to Table 3 in Supporting Documents Documents Disable Conditions:	Secondary Malfunction PRNDL State defaulted inhibit RVT IMS fault pending indication TPS validity flag Hydraulic System Pressurized Minimum output speed for RVT A OR B (A) Output speed enable (B) Accelerator Pedal enable Common Enable Criteria Ignition Voltage Hi Engine Speed I is within the allowable limits for Throttle Position Signal valid HSD Enabled Transmission Fluid Temperature Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present MIL not Illuminated for DTC's:	Enable Conditions = FALSE Boolean = FALSE Boolean = FALSE Boolean = TRUE Boolean >= 0 RPM >= 67 RPM >= 0.5005 Pct >= 8.59961 Volts <=	Time Required >= 3 4th Gear Fail Count or 0r >= 14 Fail Count	Mil Illum.
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		

Component/	Fault	Monitor Strategy	Malfunction	Threshold		shold	Secondary	Enable		Tim	e	Mil
System	Code	Description	Criteria		Val	ue	Malfunction	Conditions		Requi	red	Illum.
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	=	TRUE Maximum pressurized	Boolean						One Trip
			Primary Offgoing Clutch Pressure Command Status	; 5 = (Clutch exhaus command	t						
			Range Shift Status	; ≠	Initial Clutch							
			Attained Gear Slip If the above conditions are true increment appropriate Fail 1 Timers Below:	<=	40	RPM						
			(2-6 shifting with throttle)) >=	0.2998	sec						
			fail timer 1 (2-6 shifting without throttle)	>=	0.5	sec						
			(3-5 shifting with throttle)	>=	0.2998	sec						
			fail timer 1 (3-5 shifting without throttle) fail timer 1	>=	0.5	Sec						
			(4-5 shifting with throttle)	>=	0.2998	sec						
			tail timer 1 (4-5 shifting without throttle)) >=	0.5	sec						
			fail timer 1 (4-6 shifting with throttle)	>=	0.2998	sec						
			(4-6 shifting without throttle)) >=	0.5	sec						
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers	1					Tot = ((2) : Tin >= Tii F S Ta Fa	al Fail Time Fail 1 + Fail See Enable ners for Fail ner 1, and reference upporting able 15 for ail Timer 2	sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter	l I								
			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	

15 OBDG07 TCM Summary	/ Tables	(Truck Spe	cific)
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Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable		Time		Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions		Required		Illum.
			total fail counter				>=	5 T	Fotal 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 PRNDL state defaulted IMS Fault Pending Service Fast Learn Mode HSD Enabled	>= -6.6563 °C = FALSE Boolean = FALSE Boolean ≠ 1st Boolean >= TRUE Boolean >= 100 RPM >= 150 RPM = FALSE Boolean = FALSE Boolean = FALSE Boolean = TRUE Boolean				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E				
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E				
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E	Fail Case 1 Case: 5th Gear							One Trip
		Stuck On (Steady State)	Max Delta Output Speed Hysteresis	Table Based value Please Refer to Table 22 in supporting documents Table Based value Please Pofor to Table						
			Min Delta Output Speed Hysteresis	>= Refer to Table rpm/sec 23 in supporting documents Table Based Time Please						
			If the Above is True for Time	>= Refer to Table Sec 17 in Supporting documents						
			intrusive test: (C35R clutch exhausted) Gear Ratio Gear Ratio	<= 1.20959 >= 1.09436						
			If the above parameters are true							
							>= 1	1.1 Fail	Timer (Sec)	
							>=	3 Fail	Count in 5th Gear	

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable		Tir	me	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions		Requ	uired	Illum.
							>=	3	OR Total Fail Counts	
			Fail Case 2 Case: 6th Gear Max Delta Output Speed Hysteresis	Table Based value Please Refer to Table 22 in rpm/sec supporting documents Table Based						
			Min Delta Output Speed Hysteresis	value Please Refer to Table 23 in supporting documents Table Based Time Please						
			If the Above is True for Time Intrusive test: (CB26 clutch exhausted) Gear Ratio	>= Refer to Table 17 in Sec supporting documents <= 1.20959						
			Gear Ratio If the above parameters are true	>= 1.09436			>=	11	Fail Timer (Sec)	
							>=	3	Fail Count in 6th Gear OR	1
							>=	3	Total Fail	
					PRNDL State defaulted inhibit RVT IMS fault pending indication output speed TPS validity flag HSD Enabled Hydraulic_System_Pressurized A OR B (A) Output speed enable (B) Accelerator Pedal enable	= FALSE Boolean = FALSE Boolean = FALSE Boolean >= 0 RPM = TRUE Boolean = TRUE Boolean = TRUE Boolean >= 67 Nm >= 0.5005 Nm			Counts	
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for if Attained Gear-1st FW Accelerator Pedal enable	>= 8.59961 Volts <= 31.99902 Volts >= 400 RPM <= 7500 RPM >= 5 Sec >= 5.0003 Pct				

Component/	Fault	Monitor Strategy	Malfunction	Thre	eshold	Secondary		Enable			Ti	me	Mil
System	Code	Description	Criteria	Va	alue	Malfunction		Conditions			Req	uired	Illum.
					Disable	if Attained Gear=1st FW Engine Torque Enable if Attained Gear=1st FW Engine Torque Enable Transmission Fluid Temperature Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present MIL not Illuminated for	>= <= = = TCM: P0716, F	5 8191.88 -6.6563 FALSE FALSE TRUE 20717, P0722	Nm Nm °C Boolean Boolean				
					Conditions:	DTC's:	P182E ECM: P0101, F P0107, P0108, P0175, P0201, P0205, P0206, P0301, P0302, P0306, P0307,	P0102, P0103 , P0171, P017 , P0202, P020 , P0207, P020 , P0303, P030 , P0308, P040	, P0106, '2, P0174, J3, P0204, J8, P0300, J4, P0305, J1, P042E				
Communication	U0073	Controller Area Network Bus Communication Error	CAN Hardware Circuitry Detects a Low Voltage Error Delav timer	= TRUE	Boolean					>= Out	62 70	Fail counts (≈ 10 seconds) Sample Counts	One Trip
					Disable Conditions:	Stabilization delay Ignition Voltage Ignition Voltage Power Mode MIL not Illuminated for DTC's:	>= >= = TCM: None ECM: None	3 8.59961 31.99902 Run	sec Volt Volt	of		(≈ 11 seconds)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Ti Rec	ime quired	Mil Illum.
High Side Driver 1	P0658	Actuator Supply Voltage Circuit Low	The HWIO reports a low voltage (open or ground short) error flag	= TRUE Boolean				>= out	3 5	Fail Counts Sample Counts	One Trip
					P0658 Status is not	Test Failed This Key t = On or Fault Active		01			
					High Side Driver 1 On	n = True	Boolean				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None : ECM: None					
Transmission Control Module (TCM)	P0667	TCM Internal Temp (substrate) Sensor Circuit Range/Performance	If transmission oil temp to substrate temp Δ	Refer to Table > 19 in °C supporting documents							Two Trips
			If TCM substrate temp to power up temp Δ	Refer to Table 20 in °C supporting documents							
			Both conditions above required to increment fail counter					>=	3000	Fail Counts (100ms loop)	
			the median temp of trans oil temp, substrate temp and power up					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	a = TRUE I = TRUE	Boolean Boolean				
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the	i <= 8.5996094 i <= 31.999023 b >= 400 i <= 7500	Volts Volts RPM RPM				
					allowable limits for Brake torque active Below describes the brake	>= 5 = FALSE	Sec				
					torque entry criteria Engine Torque Throttle Transmission Input Speed	>= 90 >= 30.000305 <= 200	N*m Pct RPM				

Component/	Fault	Monitor Strategy	Malfunction	Threshold		Secondary Malfunction		Enable		Time	Mil Illum
System	Coue	Description	Gineria	Value		Vohiclo Spood	-	0	Knh	Required	
						Transmission Dange	<= -	Dork	крп		
						Transmission Dange	: ≁ -	Pdik			
							÷ +	Net Activo			
						PTU Set Broke Tergue Active	=	NOT ACTIVE			
						Set blake forque Active	2	7			
						TRUE If above conditions are	>=	/	Sec		
						met for:					-
						Below describes the brake					
						torque exit criteria					
						Brake torque entry criteria	=	Not Met			
								Clutch			
						Clutch hydraulic pressure	≠	Hydraulic			
						olateri nyaraane pressare	. ,	Air Purge			
								Event			
						Clutch used to exit brake		CeTFTD_e			
							=	_C3_RatlE			
						torque active		nbl			
						The above clutch pressure is					
						greater than this value for one	>=	600	kpa		
						loop					
						Set Brake Torque Active					
						FALSE if above conditions are	>=	20	Sec		
						met for:		20	000		
						metro.					
								Test Failed			
								This Key			
						P0667 Status is	; ≠	On or			
								Fault			
								Active			
					Disable	MIL not Illuminated for	TCM: P065	8, P0668, P0669	P06AD,		
				(Conditions:	DTC's:	P06AE, P07	716, P0712, P071	3, P0717,		
							P0722, P07	23, P0962, P096	3, P0966,		
							P0967, P09	70, P0971, P215	C, P2720,		
							P2721, P27	29, P2730			
							FCM: P010	1. P0102. P0103	. P0106.		
							P0107 P01	08 P0171 P017	2 P017/		
							D0175 D02	00, 1 0171, 1 017	2,10174, 3 D0204		
							D020E D02	01,10202,1020	0 00204,		
							P0203, P02	00, PUZU7, PUZU	0, PU300,		
							P0301, P03	02, P0303, P030	4, P0305,		
1							PU300, PU3	07, P0308, P040	1, PU42E		
		1	1	Refer to Table			1			1	Two
Transmission Control Module		TCM Power-up Temp Sensor Circuit	If TCM power-up temp to	20 in							Trins
(TCM)	P06AC	Range/Performance	substrate temp A	> supporting °C							inpo
(I OW)		Rangen enormance	Substitute temp 4	documents							
				uocuments							
				Refer to Table							1
			If transmission oil town to new or	10 10							1
				> 10 III °C							1
			up temp Δ	supporting							1
1				documents							
1											
1	I	1				1	1			1	1

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Component/	Fault	Monitor Strategy	Malfunction	Threshold Value	Secondary Malfunction		Enable Conditions			Ti Reg	me uired	Mil Illum.
oystem	Coue	Description	Both conditions above required to	Value			oonaniono				Fail Counts	
			increment fail counter						>=	3000	(100ms loop)	
			Note: table reference temp = to								(100113-100p)	
			the median temp of trans oil temp						Out		Sample Counts	
			substrate temp and nower up						of	3750	(100ms loon)	
			substrate temp and power up						01		(1001131000)	
			Non-continuous (intermittent) fail									
			conditions will delay resetting fail						>-	700	Pass Counts	
			counter until						/-	700	(100ms loop)	
									Out	875	Sample Counts	
									of	070	(100ms loop)	
					Engine Torque Signal Valid	=	TRUF	Boolean				
					Accelerator Position Signal		IntoL	Dooloan				
					Valid	=	TRUE	Boolean				
					Ignition Voltage Lo	>=	8,5996094	Volts				
					Ignition Voltage Hi	<=	31,999023	Volts				
					Engine Speed Lo	>=	400	RPM				
					Engine Speed Hi	<=	7500	RPM	1			
					Engine Speed is within the	-	-		1			
					allowable limits for	>=	5	Sec				
					Brake torque active	=	FALSE					
					Below describes the brake							
					torque entry criteria							
					Engine Torque	>=	90	N*m				
					Throttle	>=	30.000305	Pct				
					Transmission Input Speed	<=	200	RPM				
					Vehicle Speed	<=	8	Kph				
					Transmission Range	¥	Park	r				
					Transmission Range	¥	Neutral					
					PTO	=	Not Active					
					Set Brake Torque Active							
					TRUE if above conditions are	>=	7	Sec				
					met for:							
					Below describes the brake							
					torque exit criteria							
					Brake torque entry criteria	=	Not Met					
							Clutch		1			
					Clutch hydrouilio processes	4	Hydraulic		1			
					Ciulon nyuraulic pressure	+	Air Purge					
							Event					
					Clutch used to exit brake		CeTFTD_e					
					torque active	=	_C3_RatlE					
					iorque active		nbl		1			
					The above clutch pressure is				1			
					greater than this value for one	>=	600	kpa	1			
					loop							
					Set Brake Torque Active				1			
					FALSE if above conditions are	>=	20	Sec	1			
					met for:				1			
							Tost Failed					
							This Koy		1			
					DOLAC Status Is	4	On or		1			
					PUDAL STATUS IS	Ŧ	Un or					
							Fault					
							ACTIVE					

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Component/ System	Fault	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions		Ti Rec	ime wired	Mil Illum.
				(Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0658, P0668, P0669, P06AD, P06AE, P0716, P0712, P0713, P0717, P0722, P0723, P0962, P0963, P0966, P0967, P0970, P0971, P215C, P2720, P2721, P2729, P2730 ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E				
Transmission Fluid Temperature Sensor (TFT)	P0711	Trans Fluid Temp Sensor Circuit Range/Performance	If transmission oil temp to substrate temp Δ If transmission oil temp to power up temp Δ Both conditions above required to increment fail counter Note: table reference temp = to the median temp of trans oil temp, substrate temp and power up temp. Non-continuous (intermittent) fail conditions will delay resetting fail counter until	Refer to Table 19 in °C supporting documents Refer to Table 18 in °C supporting documents				>= Out of >= Out of	3000 3750 700 875	Fail Counts (100ms loop) Sample Counts (100ms loop) Pass Counts (100ms loop) Sample Counts (100ms loop)	Two Trips
						Engine Torque Signal Valid Accelerator Position Signal Ignition Voltage Lo Ignition Voltage Hi Engine Speed Ji Engine Speed is within the allowable limits for Brake torque active Below describes the brake torque entry criteria Engine Torque Throttle Transmission Input Speed Vehicle Speed Transmission Range	= TRUE Boolean = TRUE Boolean >= R.5996094 Volts <= 31.999023 Volts >= 400 RPM <= 7500 RPM >= 5 Sec = FALSE >= 90 N*m >= 30.000305 Pct <= 200 RPM <= 8 Kph ≠ Park ≠ Neutral				

Component/	Fault	Monitor Strategy	Malfunction Criteria		Thro	eshold alue	Secondary Malfunction		Enable Conditions			T	ime wired	Mil Illum.
oystem	Code	Description	ontena				PTO	=	Not Active				lanoa	
							Set Brake Torque Active	_	Not Active					
							TRUE if above conditions are	>=	7	sec				
							met for-			000				
							Below describes the brake							
							torque exit criteria							
							Brake torque entry criteria	_	Not Met					
							brake torque entry chiena	_	Clutch					
									Hydraulic					
							Clutch hydraulic pressure	≠	Air Durgo					
									Evont					
									Cotetto o					
							Clutch used to exit brake		C2 Patte					
							torque active	=	_C3_KdllE					
							The should slutch pressure is		Idn					
							The above clutch pressure is		(00					
							greater than this value for one	>=	600	кра				
							loop							
							Set Brake Forque Active							
							FALSE if above conditions are	>=	20	Sec				
							met for:							
									Test Failed					
									This Key					
							P0711 Status is	±	On or					
							10/11 5/4/03/13	-	Fault					
									Activo					
									Active					
						Disable	MIL not Illuminated for	TCM: P06	58, P0668, P066	9, P06AD,				
						Conditions	DTC's:	P06AE, P	0716, P0712, P07	13, P0717,				
								P0722, P0	0723, P0962, P09	63. P0966.				
								P0967, P0	0970, P0971, P21	5C. P2720.				
								P2721 P2	2729 P2730					
								ECM: PO	101 P0102 P010	13 P0106				
								D0107 D0	101, 10102, 1010 1108 D0171 D01	72 D0174				
								D0175 D0	200, 10171, 101 201 00202 002	02 D0204				
								D0205 D0	201, 1 0202, 1 02	00, 10204,				
								P0205, P0	J206, P0207, P02	08, P0300,				
								P0301, P0	J302, P0303, P03	04, P0305,				
								P0306, P0	J307, P0308, P04	01, P042E				
Transmission Output Speed		Output Speed Sensor Circuit	Transmission Output Speed	i									Enable Time	One Trip
Sensor (TOSS)	P0723	Intermittent	Sensor Raw Speed	>=	105	RPM					>=	0	(Sec)	ono mp
													Enable Time	
			Output Speed Delta	=> 1	8192	RPM					>=	0	(Sec)	
													(000)	
													Output Speed	
			Output Speed Drop) >	650	RPM					>=	1.5	Drop Recovery	
													Fail Time (Sec)	
			AND)										
				D	riven rang	e								
			Transmission Range is	5 =	(R D)									
				1	(19)									1
		1		1			Range Disable	=	FALSE	See Below				
				1			OR							
		1		1										
		1		1			Neutral Range Enable	=	TRUF	See Below				
1	1	1	1	1				I	INCL	See Delow	1			

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Component/ Svstem	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enal Condi	le ons	Time Required	Mil Illum.
					And Neutral_Speed_Enable are TRUE concurrently	= TR	JE See Below		
					Transmission_Range_Enable	= TR	JE See Below		
					Transmission_Input_Speed_E nable	= TR	JE See Below		
					No Change in Transfer Case Range (High <-> Low) for	>= 5	Seconds		
					P0723 Status is not	Test F This = On Fa Act	ailed Key or It		
					Disable this DTC if the PTO is	= 1	Boolean		
					Ignition Voltage is	>= 8.599	0094 Volts		
					Engine Speed is	<= 31.99 >= 4(D RPM		
					Engine Speed is Engine Speed is within the allowable limits for	<= /5 >= 5	O RPM Sec		
					Enable_Flags Defined Below				
					Transmission_Input_Speed_E nable is TRUE when either TIS Condition 1 or TIS Condition 2 is TRUE:				
					TIS Condition 1 is TRUE when both of the following conditions are satsified for Input Speed Delta Raw Input Speed	>= (<= 4095 >= 50	Enable Time (Sec) 875 RPM 0 RPM		
					TIS Condition 2 is TRUE when ALL of the next two conditions are satisfied Input Speed A Single Power Supply is used for all speed sensors	= (= TR	RPM JE Boolean		
					Neutral_Range_Enable is TRUE when any of the next 3 conditions are TRUE Transmission Range is	= Neu	ral ENUM		
					Transmission Range is	Reve = eut Trans	se/N al ENUM tonal		
					Transmission Range is	Neutr v = Trans	I/Dri ENUM		

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
					And when a drop occurs					
					Loop to Loop Drop of	>	650	RPM		
					Transmission Output Speed is					
					Range Disable is TRUE when					
					any of the next three					
					conditions are TRUE	_	Park	ENILIM		
					nansinission Range is	_	Dark/Dovo	LINOW		
					Transmission Range is	=	rse	ENUM		
							Transitonal			
					Input Clutch is not	=	ON (Fully	ENUM		
							Applied)			
					Neutral_Speed_Enable is					
					TRUE when All of the next three conditions are satsified	>	1.5	Seconds		
					for					
					Transmission Output Speed	>	100	RPM		
					The loop to loop change of the	<	20	RPM		
					Transmission Output Speed is					
					The loop to loop change of the	>	-60	RPM		
					Transmission Output Speed is					
					Transmission_Range_Enable					
					is TRUE when one of the next					
					six conditions is TRUE Transmission Range is	=	Neutral	FNUM		
					n anom o o o n ango io		Reverse/N	Litoin		
					Transmission Range is	=	eutral	ENUM		
							Neutral/Dri			
					Transmission Range is	=	Transitiona	ENUM		
							I			
							T 11			
							l able Based			
							Time			
					Time since a driven range	>=	Please Defer to	Sec		
					(R,D) has been selected		Table 21 in			
							supporting			
							documents			
					Transmission Output Speed					
					Sensor Raw Speed	>=	500	RPM		
					Output Speed when a fault was detected	>=	500	RPM		
					was detected					
									1	

Image: Torque Converter Clutch (TCC) P0741 TCC System Stuck OFF TCC System Stuck OFF TCC Pressure Either Condition (A) or (B) Must be Meter >= 750 Kpa Image: Kpa Im	1: P0973, P0974, P0976, P0977 1: P0101, P0102, P0103, P0121, 22, P0123	>= 2 Enable Time (Sec)	Two Trips
Torque Converter Clutch (TCC) P0741 TCC System Stuck OFF TCC Pressure Either Condition (A) or (B) Must be Met >= 750 Kpa		>= 2 Enable Time (Sec)	Two Trips
(4) TCC Silp Error @ TCC dn Supporting (6) TCC Silp @ Lo Mode Documents 0 (6) TCC Silp @ Lo Mode 1 # Above Conditions Have been Met, and Fal Timer Expired, Increment Fall Counter Engine Speed S Engine Speed S Engine Speed S Engine Speed S Engine Speed S Engine Speed S Engine Torque H 2 2nd Gear Ratio L0 2 2nd Gear Ratio L0 2 2nd Gear Ratio L0 2 2nd Gear Ratio L0 3 2nd Gear Ratio L0 3 2nd Gear Ratio L0 5 5ht Gear Ratio L0 5 5ht Gear Ratio High C Transmission Fluid C Transmission Fluid C T Trothe Position H C T Trothe Position H C T Trothe Position H C T Trothe Position H C T Trothe Position H C T Trothe Position H C T Trothe Position H C T T Trothe Position H C T T T T T T T T T T T T T	= On or Lock >= 8.5996094 Volts <= 31.999023 Volts >= 400 RPM <= 7500 RPM >= 5 Sec >= 50 N*m <= 8191.875 N*m >= 8.0001831 Pct <= 99.998474 Pct >= 2.1948242 Ratio <= 2.5251465 Ratio <= 1.4228516 Ratio <= 1.4228516 Ratio >= 1.637085 Ratio >= 0.7905273 Ratio >= 0.6230469 Ratio >= 0.6230469 Ratio >= 0.665625 °C <= 130 °C = TRUE Boolean = TRUE Boolean = FALSE Boolean = FALSE Boolean	>= 6 Fail Time (Sec) >= 6 Fail Time (Sec) >= 2 TCC Stuck Off Fail Counter	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thr V	eshold alue	Secondary Malfunction		Enable Conditions			T Rec	ime juired	Mil Illum.
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P0742, P2763, P2764						
								P0107, P01 P0107, P01 P0175, P02 P0205, P02 P0301, P03 P0306, P03	01, P0102, P010 08, P0171, P017 01, P0202, P020 06, P0207, P020 02, P0303, P030 07, P0308, P040	3, P0106, 72, P0174, 03, P0204, 08, P0300, 04, P0305, 01, P042F				
Torque Converter Clutch	D0740	Too Sustem Study ON	TCC Clip Crossed		50	DDM								One Trip
(TCC)	P0742	TCC System Stuck ON	TCC Slip Speed	>= <=	-50 13	RPM								
			· · · · · · · · · · · · · · · · · · ·								>=	2.5	Fail Time (Sec)	
			If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter								>=	6	Fail Counter	
							TCC Mode	=	Off					
							1stFW and value true	=	1	Boolean				
							Enable test if Cmnd Gear = 2nd and value true	=	0	Boolean				
							Engine Speed Hi	<=	6000	RPM				
							Engine Speed Lo Vehicle Speed HI	>= <=	500 511	RPM KPH				
							Vehicle Speed Lo	>=	1	KPH				
							Engine Torque Hi Engine Torque Lo	<=	8191.875	Nm				
							Current Range	≠	Neutral	Range				
							Current Range Transmission Sump	≠	Reverse	Range				
							Temperature	<=	130	°C				
							Transmission Sump Temperature	>=	18	°C				
							Throttle Position Hyst High	>=	5.0003052	Pct				
							AND Max Vehicle Speed to Meet Throttle Enable	<=	5	KPH				
							Once Hyst High has been met, the enable will remain while Throttle Position	>=	2.0004272	Pct				
							Disable for Throttle Position	>=	75	Pct				
							Disable if PTO active and value true	=	1	Boolean				
							Disable if in D1 and value true	=	1	Boolean				
							Disable if in D2 and value true	=	1	Boolean				
							Disable if in D3 and value true	=	1	Boolean				
							Disable if in D4 and value true	=	1	Boolean				
							Disable if in D5 and value true	=	1	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Tim Requi	e red	Mil Illum.
					Disable if in MUMD and value	= 1 Boolean	1		
					true Disable if in TUTD and value				
					true	= 1 Boolean			
					4 Wheel Drive Low Active	= FALSE Boolean			
					value false	= 0 Boolean			
					RVT Diagnostic Active	= FALSE Boolean			
					Ignition Voltage	>= 8.5996094 V			
					Vehicle Speed	<= 31.999023 V <= 511 KPH			
					Engine Speed	>= 400 RPM			
					Engine Speed	<= 7500 RPM			
					allowable limits for	>= 5 Sec			
					Engine Torque Signal Valid	= TRUE Boolean			
					Throttle Position Signal Valid	= TRUE Boolean			
						Test Failed			
					DOZIO Chabas la	This Key			
					PU/42 Status Is	. ≠ On or Fault			
						Active			
				Disable Conditions:	MIL not Illuminated for	TCM: P0/16, P0/17, P0/22, P0/23, P0741 P2763 P2764			
				ourianons.	5103.	10741,12703,12704			
						ECM: P0101, P0102, P0103, P0106,			
						P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204			
						P0205, P0206, P0207, P0208, P0300,			
						P0301, P0302, P0303, P0304, P0305,			
						P0306, P0307, P0308, P0401, P042E			
Mode 2 Multiplex Valve	P0751	Shift Solenoid Valve A Stuck Off	Commaned Gear Slip	>= 400 RPM					Two
			Commanded Gear	= 1st Lock rpm					TTIPS
			Gear Ratio	<= 1.209594727			>= 0.2	Fail Tmr	
			Gear Ratio	>= 1.094360352			= 8	Fail Counts	
			If the above parameters are true						
							≠ 0	Neutral Timer	
							, .	(Sec)	
							>= 0.3	Fail Timer (Sec)	
					Institut Valta 1 -	0.500/004	>= 8	Counts	
					Ignition voltage Lo	>= 8.5996094 Volts <= 31.999023 Volts			
					Engine Speed Lo	>= 400 RPM			
					Engine Speed Hi	<= 7500 RPM			
					Engine Speed is within the allowable limits for	>= 5 Sec			
					Transmission Fluid	>= 6 45425 °C			
1					Temperature	>= -0.00020 °C			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Th	reshold /alue		Secondary Malfunction			Enable Conditions		Tii Requ	ne Jired	Mil Illum.
								Range Shift State	e	=	Range Shift Completed	ENUM			
								TPS	S	>=	0.5004883	%			
								Output Speed	d	>=	16	RPM			
								Throttle Position Signal Valid from FCM	d M	=	TRUE	Boolean			
								Engine Torque Signal Valid from ECM. High side driver is	d S	=	TRUE	Boolean			
								enabled	d		TOUE	Deeleen			
								Input Speed Sensor fault	a It	=	FALSE	Boolean			
								Output Speed Sensor faul	lt	=	FALSE	Boolean			
								Detault Gear Option is not present	ot nt	=	TRUE				
						Disa Conditio	able ons:	MIL not Illuminated for DTC's:	r TCM 5: P182	1: P0716, 2E	, P0717, P0722	, P0723,			
									ECM	1: P0101	, P0102, P0103	, P0106,			
									P010	75, P010)8, P0171, P017)1, P0202, P020	2, P0174,)3, P0204,			
									P020	05, P020	6, P0207, P020	8, P0300,			
									P030	06, P030	02, P0303, P030 07, P0308, P040	14, P0305, 11, P042E			
Mode 2 Multiplex Valve	P0752	Shift Solenoid Valve A Stuck On	Gear Box Slip	>=	400	RPM			-						One Trip
			Commanded Gear	=	3rd	Gear									
			Commanded Gear has Achieved												
			OR 2nd with Mode 2 Sol.	=	TRUE	Boolean									
			Commanded On												
			If the above parameters are true												
													>= Please Refe to Table 16 in Supporting Documents	r n Neutral Timer (Sec)	
			Command 4th Gear once Output Shaft Speed If Gear Ratio And Gear Ratio	<= >= <=	400 3.8256835 4.2283935	RPM 94 55							>= 1.5	Fail Timer (Sec))
							_	Ignition Voltage Lo	0	>=	8,5996094	Volts	>= 5	Counts	-
								Ignition Voltage H Engine Speed Lo Engine Speed H	li O Ii	<= >= <=	31.999023 400 7500	Volts RPM RPM			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions			Tim Requi	e red	Mil Illum.
					Engine Speed is within the	>=	5	Sec				
					High-Side Driver is Enabled	= k	TRUE	Boolean				
					Throttle Position Signal Valid	=	TRUE	Boolean				
					Output Speed	=< k	16	RPM				
					OR TPS	2 >=	0.5004883	%				
							Range					
					Range Shift State	9 =	Shift Completed	ENUM				
					Transmission Fluid	=<	-6.65625	°C				
					Input Speed Sensor faul	t =	FALSE	Boolean				
					Output Speed Sensor faul Default Gear Option is not	t =	FALSE	Boolean				
					presen	t =	TRUE					
				Disable	MIL not Illuminated for		6 P0717 P072) P0723				
				Conditions	DTC's	: P182E	5,10717,1072	.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				
						ECM: P010 P0107, P01	1, P0102, P010 08, P0171, P01	3, P0106, 72, P0174,				
						P0175, P02	01, P0202, P02	03, P0204,				
						P0205, P02 P0301, P03	06, P0207, P02 02, P0303, P03	08, P0300, 04, P0305,				
						P0306, P03	07, P0308, P04	01, P042E				
Mode 2 Multiplex Valve	P0756	Shift Solenoid Valve B Stuck Off	Fail Case 1 Commanded Gear	= 1st Locked								One Trip
			Cores Devi Olis	100 DDM						to Table 5 in	Neutral Timer	
			Gear Box Slip	>= 400 RPIM					>=	Supporting	(Sec)	
			Intrusive Shift to 2nd							Documents		
			Commanded Gear Previous	= 1st Locked Gear								
			Gear Ratio	>= 2.245849609								
			If the above parameters are true									
									>=	1	sec	
					Ignition Voltage Lo) >=	8 5996094	Volts	>=	3	counts	4
					Ignition Voltage H	i <=	31.999023	Volts				
					Engine Speed Lo Engine Speed H) >= i <=	400 7500	RPM RPM				
					Engine Speed is within the	>=	5	Sec				
					allowable limits for Output Speed	r >=	16	RPM				
					OF	2	0 500 4000					
					IPS	>=	0.5004883	%				
					Range Shift State	9 =	Range Shift	ENUM				
							Completed					

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Reguired	Mil Illum.
System	Code	Description	Criteria	Value	Malfunction Transmission Fluid Temperature High-Side Driver is Enabled Throttle Position Signal Valid from ECM Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	Conditions >= -6.65625 °C = TRUE Boolean = TRUE Boolean = FALSE Boolean = FALSE Boolean = TRUE Boolean	Required	Illum.
				Disable	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0776	Pressure Control (PC) Solenoid B Stuck Off [C35R]	Fail Case 1 Case: Steady State 3rd Gear Commanded Gear Gearbox Slip	r = 3rd Gear p >= 400 RPM			Please Refer	One Trip
			Command 4th Gear once Outpu Shaft Speec If Gear Ratic And Gear Ratic	t d <= 400 RPM d >= 1.094360352 d <= 1.209594727			Supporting (Sec) Documents	
			It the above condiations are true Increment 3rd gear fail counter	, r			>= 3 Fail Timer (Sec) >= 3 3rd Gear Fail Counts)
			and C35R Fail counter	r r			>= 14 3-5R Clutch Fail Counts	-
			Gearbox Slip	- 301 Gean			Please Refer to Table 5 in Neutral Timer Supporting (Sec) Documents	
			Intrusive Test: Command 6th Gear If attained Gear=6th gear Time	r Please refer to Table 3 in supporting documents				

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	;		T Rec	ime luired	Mil Illum.
			It the above condiations are true, Increment 5th gear fail counter					>=	3	5th Gear Fail Counts	
			and C35R Fail counter					>=	14	or 3-5R Clutch Fail Counts	
					PRNDL State defaulted inhibit RVT IMS fault pending indication TPS validity flag Hydraulic System Pressurized	= FALSE = FALSE = FALSE = TRUE = TRUE	Boolean Boolean Boolean Boolean Boolean				
					Minimum output speed for RVT A OR B	>= 0	RPM				
					(A) Output speed enable (B) Accelerator Pedal enable	>= 16	RPM Pct				
				Disable	Common Enable Criteria Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo 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	>= 8.5996094 <= 31.999023 >= 400 <= 7500 >= 5 = TRUE = TRUE >= -6.65625 = FALSE = FALSE = TRUE	Volts Volts RPM RPM Sec Boolean Boolean °C Boolean Boolean				
				Conditions:	DTC's:	P182E ECM: P0101, P0102, P010 P0107, P0108, P0171, P0 P0175, P0201, P0202, P0 P0205, P0206, P0207, P0 P0301, P0302, P0303, P0 P0306, P0307, P0308, P0	03, P0106, 172, P0174, 203, P0204, 208, P0300, 304, P0305, 401, P042E				
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solinoid B Stuck On [C35R] (Steady State)	Fail Case 1 Case: Steady State 1st Attained Gear slip If the Above is True for Time Intrusive test: (CBR1 clutch exhausted) Gear Ratio	>= 400 RPM Table Based Time Please Refer to Table Enable Time 4 in (Sec) supporting documents <= 1.608642578							One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Tim Requi	ired	Mil Illum.
			Gear Ratio	>= 1.455444336						
			If the above parameters are true							
							>=	1.1	Fail Timer (Sec)	
							\	2	Fail Count in	
								2	1st Gear	
							>=	3	Total Fail Counts	
			Fail Case 2 Case: Steady State 2nd gear	T. I. D. I.						
				l able Based value Please						
			Max Delta Output Speed	>= Refer to 3D						
			Hysteresis	supporting						
				documents Table Based						
				value Please						
			Min Delta Output Speed Hysteresis	>= Refer to 3D Table 2 in rpm/sec						
				supporting						
				Table Based						
				Time Please Refer to Table						
			If the Above is True for Time	>= 17 in						
				supporting documents						
			Intrusive test:							
			Gear Ratio	<= 1.608642578						
			Gear Ratio	>= 1.455444336						
			If the above parameters are true							
							>=	1.1	Fail Timer (Sec)	
							>=	3	Fail Count in	
									Or	
							>=	3	Total Fail Counts	
			Fail Case 3 Case: Steady State 4th gear	Table Paced						
				value Please						
			Max Delta Output Speed	>= Refer to 3D Table 1 in rpm/sec						
			nysieresis	supporting						
				documents Table Based						
			Min Dalka O. J. 10	value Please						
			Min Deita Output Speed Hysteresis	>= Refer to 3D Table 2 in rpm/sec						
			,	supporting						
	I I	l		documents	I		I		I	

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	c	Enable Conditions			Ti Req	me uired	Mil Illum.
			If the Above is True for Time Intrusive test: (C1234 clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	Table Based Time Please Refer to Table 17 in supporting documents <= 0.89465332 >= 0.809448242					>=	1.1	Fail Timer (Sec) Fail Count in	
									>=	3	4th Gear or Total Fail	
			Fail Case 4 Case: Steady State 6th gear Max Delta Output Speed Hysteresis Min Delta Output Speed Hysteresis If the Above is True for Time Intrusive test: (CB26 clutch exhausted) Intrusive test:	Table Based value Please Refer to 3D Table 1 in supporting documents Table Based value Please Refer to 3D Table Based value Please Refer to 3D Table Based rpm/sec supporting documents Table Based Time Please 17 in supporting documents					~~	2	Counts	
			Gear Ratio	<= 0.89465332					>=	1.1	Fail Timer (Sec)	
			Gear Ratio If the above parameters are true	>= 0.809448242					>=	3	counts	
									>=	1.1	Fail Timer (Sec)	
									>=	3	Fail Count in 6th Gear	
									>=	3	Total Fail Counts	
					PRNDL State defaulted inhibit RVT IMS fault pending indication output speed TPS validity flag	= = >= =	FALSE FALSE FALSE 0 TRUE	Boolean Boolean Boolean RPM Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thre	shold lue	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
Gystem	oouc	Description	o no na			HSD Enabled	=	TRUF	Boolean		_
						Hydraulic System Pressurize	_	INCE	Doolcan		
						d	=	TRUE	Boolean		
						A OR B					
						(A) Output speed enable	>=	16	Nm		
						(i) Output speed enable		10			
						(B) Accelerator Pedal enable	>=	0.5004883	Nm		
						Ignition Voltage Lo	>=	8 5996094	Volts		
						Ignition Voltage Hi	<=	31 999023	Volts		
						Engine Speed Lo	>-	/00	RPM		
						Engine Speed Hi		7500	DDM		
						Engine Speed is within the	~-	7500	IXI IVI		
						allowable limits for	>=	5	Sec		
						if Attained Cear-1st EW	,				
						Accelerator Dodal onable	>=	5.0003052	Pct		
						if Attained Coar-1st EW					
						Engine Tergue Englie	>=	5	Nm		
						if Attained Coor, 1st EW	, ,				
						II Attaineu Geal=TSt FW	<=	8191.875	Nm		
						Engine Torque Enable					
							>=	-6.65625	°C		
						Temperature		EALCE	Dealers		
						Input Speed Sensor fault	=	FALSE	Boolean		
						Output Speed Sensor fault	=	FALSE	Boolean		
					D		TOLL DOTA		00700		
					Disable	MIL not Illuminated for	TCM: P0/1	6, P0/17, P0/22	, P0723,		
					Conditions:	DIC's:	P182E				
							ECM: P010	1, P0102, P0103	, P0106,		
							P0107, P01	08, P0171, P017	2, P0174,		
							P0175, P02	201, P0202, P020)3, P0204,		
							P0205, P02	206, P0207, P020)8, P0300,		
							P0301, P03	802, P0303, P030)4, P0305,		
							P0306, P03	807, P0308, P040)1, P042E		
			Delevere Officelan Olistek is								0 T.
		Deserves Comberl (DO) Coloradid D	Primary Offgoing Clutch is								One Trip
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solenoid B	exnausted (See Lable 12 In	= TRUE	Boolean						
		StuckOn [C35R] (Dymanic)	Supporting Documents for								
			Exhaust Delay Timers)								
			Primary Oncoming Clutch	= iviaximum							
			Pressure Command Status	pressurized							
			Primary Offgoing Clutch Pressure	Cluich							
			Command Status	= exnaust							
				command Initial Clutch							
			Range Shift Status	≠ Initial Clutch							
			Attained Coord Clin	Control	DDM						
			Attained Gear Slip	<= 40	KPIVI						
			If the above conditions are true								
			II the above conditions are the								
			run appropriate nam numers								
			Below:								
			fail timer 1	<u>>−</u> 0.5	Fail Time (Sec)						
			(3-1 shifting with Closed Throttle)	- 0.5							
			fail timer 1								
			(3-2 shifting with Throttle)	>= 0.299804688	Fail Time (Sec)						
1	•	I	(3-2 Shinung with Thiottie)			1	1			I	1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres	shold ue	Secondary Malfunction		Enable Conditions			Tim Requi	e red	Mil Illum.
		Doorphon	fail timer 1 (3-2 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (3-4 shifting with Throttle)) >=	0.299804688	Fail Time (Sec)								
			fail timer 1 (3-4shifting with Closed Throttle) foil timer 1	>=	0.5	Fail Time (Sec)								
			(3-5 shifting with Throttle)) >=	0.299804688	Fail Time (Sec)								
			fail timer 1 (3-5 shifting with Closed Throttle)) >=	0.5	Fail Time (Sec)								
			fail timer 1 (5-3 shifting with Throttle)) >=	0.299804688	Fail Time (Sec)								
			fail timer 1 (5-3 shifting with Closed Throttle)) >=	0.5	Fail Time (Sec)								
			fail timer 1 (5-4 shifting with Throttle)	>=	0.299804688	Fail Time (Sec)								
			fail timer 1 (5-4 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (5-6 shifting with Throttle)) >=	0.299804688	Fail Time (Sec)								
			fail timer 1 (5-6 shifting with Closed Throttle)) >=	0.5	Fail Time (Sec)								
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers	1							Tim + f >= Fa R S Ta	Total Fail the = (Fail 1 Fail 2) See Enable imers for il Timer 1, and eference upporting ble 15 for	sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail	ı J							Fa	il Timer 2		
			counter 3rd gear fail counter	r							>=	3	3rd gear fail counts	
			5th gear fail counter	r							>=	3	5th gear fail counts	
			Total fail counter	r					((5(05		>=	5	OR total fail counts	
							I U I Enable temperature Input Speed Sensor fault Output Speed Sensor fault Command / Attained Gear High Side Driver ON output speed limit for TUT	>= = ≠ = >=	-0.00025 FALSE FALSE 1st TRUE 100	Boolean Boolean Boolean Boolean RPM				
							input speed limit for TUT PRNDL state defaulted	>= =	150 FALSE	RPM Boolean				

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Component/	Fault	Monitor Strategy	Malfunction	Threshold Value	Secondary Malfunction	Enable	Time Required	Mil Illum.
Gystem	Code	Description			IMS Fault Pending Service Fast Learn Mode HSD Enabled Default Gear Option is not	= FALSE Boolean = FALSE Boolean = TRUE Boolean = TRUF		
				Disable Conditions:	present 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 Plead Salenoid (VPS)	D0706	Pressure Control (PC) Solenoid C	Fail Case 1 Case: Steady State 4th Coar					One Trip
	10750	Stuck Off [C456] (Steady State)	Gear slip	>= 400 RPM			Please See >= Table 5 For Neutral Timer Neutral Time (Sec) Cal	
			Intrusive test: commanded 5th gear If attained Gear ≠5th for time	Please refer to Table 3 in Shift Time (Sec)				
			if the above conditions have been met	Supporting Documents			4th Gear Fail	
			Increment 4th Gear Fail Counter				>= 3 Count OR OR	
			and C456 Fail Counters				>= 14 C456 Fall Counts	
			Fail Case 2 Case: Steady State 5th Gear Gear slip	>= 400 RPM			Please See >= Table 5 For Neutral Timer Neutral Time (Sec) Cal	
			Intrusive test: commanded 6th gear	Please Refer				
			If attained Gear ≠ 6th for time	>= to Table 3 in Supporting Documents				
			if the above conditions have been mel Increment 5th Gear Fail Counter				>= 3 5th Gear Fail	
			and C456 Fail Counters				>= 14 Counts	
1			Fail Case 3 Case: Steady State 6th Gear					

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction		Enable Conditions			Tin Reau	ne ired	Mil Illum.
Oystem	coue	Description	onena	, and				oonanono		P	lease See		
			Coar slip	>= 100 PDM						T	able 5 For	Neutral Timer	
			Geal sip	>= 400 KFIVI						>= Ne	eutral Time	(Sec)	
			Index a first data da								Cal		
			Intrusive test:										
			commanded stri gear	Please refer									
			If attained Cooper of 5th featility	to Table 3 in Chille	Thur (C)								
			li attained Gear ≠ 5th for time	>= Supporting Shift	nme (Sec)								
				Documents									
			if the above conditions have been										
			Increment 6th Gear Fail Counter									6th Gear Fail	
			and C456 Fail Counter							>=	3	Count	
												OR	
			and C456 Eail Counter							~-	14	C456 Fail	
										/-	14	Counts	
						PRNDL State defaulted	=	FALSE	Boolean				
						INDURATION INTERVI	=	FALSE	Boolean				
						TPS validity flag	=	TRUE	Boolean				
						Hudraulic Sustam Draccurized	_	TDUE	Pooloan				
						nyulaulic System Plessunzeu	=	IKUE	DUUIEdII				
						Minimum output speed for	>=	0	RPM				
						RVI							
						A UR B (A) Output speed enable	>=	16	RPM				
						(P) Asselsester Dadel seekle	-	0 500 4000	Det				
						(B) Accelerator Pedal enable	>=	0.5004883	Pct				
						Common Enable Criteria							
						Ignition Voltage Lo	>=	8.5996094	Volts				
						Ignition Voltage Hi	<=	31.999023	VOIIS				
						Engine Speed Lu	>=	7500	RPM				
						Engine Speed is within the			C				
						allowable limits for	>=	э	Sec				
						Throttle Position Signal valid	=	TRUE	Boolean				
						HSD Enabled	=	TRUE	Boolean				
						Tansmission Fluid	>=	-6.65625	°C				
						Input Speed Sensor fault	=	FALSE	Boolean				
						OutputSpeed Sensor fault	=	FALSE	Boolean				
						Default Gear Option is not	-	TRUE					
						present		INCE					
					Disable	MIL not Illuminated for	TCM· P0716	P0717 P0722	P0723				
				C	Conditions:	DTC's:	P182E	1. 57 17, 1 0722	. 5720,				
							-						
							ECM: P0101	, P0102, P0103	P0106,				
							P0107, P010	8, P0171, P017	2, P0174,				
							PU1/5, P020	1, PUZUZ, PUZU	3, PUZU4, 8 DN300				
							P0301, P030	2. P0303. P030	4. P0305.				
							P0306, P030	7, P0308, P040	1, P042E				
1	1												

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Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction	Enable	Time Required	Mil Illum
System	Coue	Drossura Control (DC) Salanaid C	Epil Caso 1	Vulue		Conditions	Required	Ono Trin
Variable Bleed Solenoid (VBS)	P0797	Stuck On [C456] (Steady State)	Case: Steady State 1st					One mp
			Attained Gear slip	>= 400 RPM			1	
			· ········	Table Based			1	
				Time Please			1	
			If the Alexander Transford Time	Refer to Table Enable Time			1	
			If the Above is True for Time	>= 4 in (Sec)			1	
				supporting			1	
				documents			1	
			Intrusive test:				1	
			(CBR1 clutch exhausted)				1	
			Gear Ratio	<= 1.209594727			1	
			Gear Ratio	>= 1.094360352			1	
			If the above parameters are true					
							>= 1.1 Fail Timer (Sec))
							Fail Count in	
							>= 2 1st Gear	
							or	
							>= 3 Total Fail	
			Eail Case 2 Case Steady State 2nd				Counts	-
			<u>Fail Case 2</u> Case Sleady State 210	Table Based			1	
				value Please			1	
			Max Delta Output Speed	Refer to 3D			1	
			Hysteresis	>= rpm/sec			1	
			5	supporting			1	
				documents			1	
				Table Based			1	
				value Please			1	
			Min Delta Output Speed	>= Refer to 3D rpm/sec			1	
			Hysteresis	Table 2 in			1	
				supporting			1	
				documents Table Based			1	
				Time Please			1	
				Refer to Table			1	
			If the Above is True for Time	>= 17 in Sec			1	
				supporting			1	
				documents			1	
			Intrusive test:				1	
			(CB26 clutch exhausted)				1	
			Gear Ratio	<= 1.209594727			1	
			Gear Ratio	>= 1.094360352			1	
			If the above parameters are true				1	
							>= 1.1 Fail Timer (Sec))
		1					Fail Count in	
		1					2nd Gear	
		1					or	
							>= 3 Total fail counts	s
			Fail Case 3 Case Steady State 3rd					1

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Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction		Enable			T	ime	Mil
System	Code	Description	Criteria	Table Paced	Manufiction		Conditions		╂───	Rec	quirea	mum.
				value Diase								
			Max Delta Output Speed	Pofer to 3D								
			Iviax Della Output Speed	>= Toble 1 in rpm/sec								
			nystelesis									
				supporting								
				documents								
				Table Daseu								
			Min Dalta Output Croad	Value Please								
			Will Della Oulput Speeu	>= Tells 2 is rpm/sec								
			nystelesis	Table 2 In								
				supporting								
				documents Table Pased								
				Time Diasco								
				Defer to Table								
			If the Above is True for Time	>= Kelel to Table Sec								
				17 Iff								
				supporting								
			Intrusivo tost-	documents								
			(C2ED slutsh subsusted)									
			(C35R Cluich exhausted)	1 200504727								
			Geal Ralio	<= 1.209394727								
			Gedi Ralio	>= 1.094300332								
			If the above parameters are true									
									>=	1.1	Fail Timer (Sec)	
											Fail Count in	
									>=	3	2rd Coor	
										OP	Siù Geal	
										UK	Total Fail	
									>=	3	Counts	
					DDNDL State defaulted	-	EVICE	Roolean	<u> </u>		Counts	
					inhibit RVT	_	FALSE	Boolean				
					IMS fault pending indication	_	FALSE	Boolean				
					output speed	~	0	RPM				
					TPS validity flag	-	TRUE	Roolean				
					HSD Enabled	=	TRUE	Boolean				
					Hydraulic System Pressurize		INCL	Booloan				
					hjuruune_ojstem_tressuize	=	TRUE	Boolean				
					A OR B							
					(A) Output speed enable	>=	16	Nm				
					(B) Accelerator Pedal enable	>=	0.5004883	Nm				
					Ignition Voltage Lo	>=	8.5996094	Volts				
					Ignition Voltage Hi	<=	31.999023	Volts				
					Engine Speed Lo	>=	400	RPM				
					Engine Speed Hi	<=	7500	RPM				
					Engine Speed is within the		-					
					allowable limits for	>=	5	Sec				
					if Attained Gear=1st FW		5 0000050					
					Accelerator Pedal enable	>=	5.0003052	Pct				
					if Attained Gear=1st FW		F	Nur				
	1				Engine Torque Enable	>=	5	INM	1			
					if Attained Gear=1st FW		0101 075	Nee				
	1				Engine Torque Enable	<=	8141.875	INM	1			
	1				Transmission Fluid		/ / 5 / 05		1			
	1				Temperature	>=	-0.05625	°C	1			

Component/	Fault	Monitor Strategy	Malfunction	Threshold		Secondary Malfunction	Enable		Time	Mil
System	Code	Description	Criteria	value		Innut Sneed Sensor fault	- FALSE Bool	ean	Required	mum.
						Output Speed Sensor fault	= FALSE Bool	ean		
						Default Gear Option is not	= TRUF			
						present	- INOL			
					Disable	MIL not Illuminated for	TCM: P0716, P0717, P0722, P072	3.		
				Co	nditions:	DTC's:	P182E	· /		
							CCM 00101 00102 00102 0010	,		
							ECIM: PUTUT, PUTU2, PUTU3, PUTU P0107 P0108 P0171 P0172 P01	о, 7Л		
							P0175, P0201, P0202, P0203, P02	04.		
							P0205, P0206, P0207, P0208, P03	00,		
							P0301, P0302, P0303, P0304, P03	05,		
							P0306, P0307, P0308, P0401, P04	2E		
			Primary Offgoing Clutch is							One Trip
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C	exhausted (See Table 11 in	= TRUE Boolean	n					
		Stuck On [C456] (Dynamic)	Supporting Documents for Exhaust Dolay Timore)							
			Primary Oncoming Clutch	Maximum						
			Pressure Command Status	= pressurized						
			Primary Offgoing Clutch Pressure	Clutch						
			Command Status	= exnaust						
				, Initial Clutch						
			Range Shift Status	✓ Control						
			Attained Gear Slip	<= 40 RPM						
			If the above conditions are true							
			increment appropriate Fail 1							
			Timers Below:							
			fail timer 1 (4.1 shifting with throttle)	>= 0.299804688 Fail Tim	ne (Sec)					
			fail timer 1		(0)					
			(4-1 shifting without throttle)	>= 0.5 Fail lin	ne (Sec)					
			fail timer 1	>= 0.299804688 Fail Tim	ne (Sec)					
			(4-2 shifting with throttle)		. ,					
			(4-2 shifting without throttle)	>= 0.5 Fail Tim	ne (Sec)					
			fail timer 1	>= 0.299804688 Fail Tim	ne (Sec)					
			(4-3 shifting with throttle)	>= 0.277004000 Tail Till	10 (000)					
			Tall umer 1 (4-3 shifting without throttle)	>= 0.5 Fail Tim	ne (Sec)					
			fail timer 1	0.200004/00 Fail Tim	(Caa)					
			(5-3 shifting with throttle)	>= 0.299804088 Fall III	ie (Sec)					
			fail timer 1	>= 0.5 Fail Tim	ne (Sec)					
			(5-3 Shirting Without throttle) fail timer 1							
			(6-2 shifting with throttle)	>= 0.299804688 Fail Tim	ne (Sec)					
			fail timer 1	>= 0.5 Fail Tim	ne (Sec)					
	I	1	(6-2 shifting without throttle)							I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thr V	eshold alue	Secondary Malfunction		Enable Conditions			Ti Req	me uired	Mil Illum.
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers If fail timer is greater than threshold increment corresponding gear fail counter and total fail							Tiir + >= Fi S T F	Total Fail me = (Fail Fail 2) Se Enable Timers for ail Timer 1 and Reference Supporting able 15 fo fail Timer 2	1 e , sec r 2	
			gour fail counter 4th gear fail counter							>=	3	Fail Counter From 4th Gear OR	
			5th gear fail counter							>=	3	Fail Counter From 5th Gear OR Fail Counter	
			6th gear fail counter							>=	3	From 6th Gear OR Total Fail	
					Disable Conditions:	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 MIL not Illuminated for DTC's:	>= = = = = = = = TCM: P0716, P182E ECM: P0101, P0107, P0108 P0175, P0201	-6.65625 FALSE FALSE 1st TRUE 100 150 FALSE FALSE FALSE TRUE P0717, P0722 P0102, P0102 3, P0171, P011 1, P0202, P022	°C Boolean Boolean Boolean RPM RPM Boolean Boolean Boolean Boolean 2, P0723, 3, P0106, 72, P0174, 03, P0204, 08, P0204,			Counter	
							P0301, P0302 P0306, P0307	5, F0207, P020 2, P0303, P030 7, P0308, P040	06, P0300, 04, P0305, 01, P042E				Creater
Mode Switch	P07CE	Transmission Mode Switch D Circuit	Tour Mode Switch state	= TRUE	Boolean	Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi	>= <= >= <=	8.5996094 31.999023 400 7500	Volts Volts RPM RPM	>=	600	Fail Time (Sec)	Special No MIL

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thr V	eshold 'alue	Secondary Malfunction		Enable Conditions			Ti Req	me uired	Mil Illum.
						Engine Speed is within the allowable limits for	>=	5	Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P1762 ECM: None						
Mode Switch	P07D1	Transmission Mode Switch E Circuit	Comfort 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 31.999023 400 7500 5	Volts Volts RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P1762 ECM: None						
Mode Switch	P07D4	Transmission Mode Switch F Circuit	Normal Mode Switch state	= TRUE	Boolean					>=	600	Fail Time (Sec)	Special No MIL
Vode Switch F						Ignition Voltage Lo Ignition Voltage H Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= <= >= <=	8.5996094 31.999023 400 7500 5	Volts Volts RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P1762 ECM: None						
Shift Solinoid	P0973	Shift Solenoid A Control Circuit Low (Mode 2 Solenoid)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean					>= out of	1.2 1.5	Fail Time (Sec) Sample Time (Sec)	One Trip
						P0973 Status is not	=	Test Failed This Key On or Fault Active					
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the allowable limits for	>= <= <= >=	8.5996094 31.999023 400 7500 5	Volts Volts RPM RPM Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None		
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 1.5 Sample Time of 1.5 (Sec)	
					P0974 Status is not	Test Failed This Key = On or Fault Active		
					Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the allowable limits for	>= 8.5996094 Volts <= 31.999023 Volts >= 400 RPM <= 7500 RPM >= 5 Sec		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None		
Internal Mode Switch (IMS)	P182E	Internal Mode Switch - Invalid Range	<u>Fail Case 1</u> Current range Previous range	Transition 1 = (bit state Range 1110) CeTRGR_e_ ≠ PRNDL_Drive Range				One Trip
			Previous range	6 CeTRGR_e_ ≠ PRNDL_Drive Range 4 Range Shift ENUM				
			Absolute Attained Gear Slip Attained Gear Attained Gear Throttle Position Available Throttle Position	 Completed Entrin (1997) Sixth First TRUE 8.000183105 pct 				
			Output Speed Engine Torque Engine Torque If the above conditions are met then Increment Fail Timer If Fail Timer has Expired then	>= 200 rpm >= 50 Nm <= 8191.75 Nm			>= 1 Fail Seconds >= 5 Fail Counts	
			Fail Case 2 Output Speed The following PRNDL sequence events occur in this exact order:	<= 70 rpm				

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Val	shold ue	Secondary Malfunction		Enable Conditions			Tin Requ	ne ired	Mil Illum.
			PRNDL state	=	Drive 6 (bit	Range								
			PRNDL state = Drive 6 for	>=	1 state 0110	Sec								
					Transition 8									
			PRNDL state	=	(bit state 0111)	Range								
			PRNDL state	=	Drive 6 (bit	Ranne								
					state 0110) Transition 1	rango								
			PRNDL state	=	(bit state	Range								
			Above conventing ecours in		1110)	Soc								
			Above sequencing occurs in Neutral Idle Mode	<=	Inactive	Sec								
			If all conditions above are met											
			Increment delay Limer If the below two conditions are met											
			Increment Fail Timer								>=	3	Fail Seconds	
			delay timer	>=	1	Sec								
			If Fail Timer has Expired then	-	400	500					~-	2	Fail Counts	
			Increment Fail Counter		Transition 13				CATPOP			L		
			Current range	=	(bit state	Range	Previous range	¥	e_PRNDL					
					0010)		_		_Drive4					
			Engine Torque	>=	-8192	Nm	Previous range	≠	e PRNDL					
							J. J		_Drive4					
			Engine Torque	<=	8191.75	Nm	IMS is 7 position configuration	=	0	Boolean				
							If the "IMS 7 Position config" =							
			If the above conditions are met				1 then the "previous range"							
			then, Increment Fail Timer				criteria above must also be satsified when the "current				>=	0.225	Seconds	
							range" = "Transition 13"							
			If Fail Timer has Expired then								~-	15	Fail Counts	
			Increment Fail Counter									15		
			Current range		Transition 8	Dango	Disable Fail Case 4 if last							
			Current range	-	0111)	Kaliye	current range is transition 8							
							Set inhibit bit true if PRNDL =							
			Inhibit hit (coo definition)		FALSE		1100 (rev) or 0100 (Rev-Neu							
			minute bit (see demittion)	-	FALSE		Set inhibit bit false if PRNDL =							
			Charle Chata Facility Territy		100	Nex	1001 (park)							
			Steady State Engine Torque Steady State Engine Torque	>= <=	8191.75	Nm Nm								
			If the above conditions are met								>=	0.225	Seconds	
			then Increment Fail Timer											
			If the above Conduons have been met. Increment Fail Counter								>=	15	Fail Counts	
			Fail Case 5 Throttle Position Available	=	TRUE	Boolean								
			The following PRNDL sequence											
			events occur in this exact order:											
I		. I		•										

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Coue	Description		Reverse (bit		Conditions	Required	
			PRNDL State	state 1100)				
				Transition 11				
			PRNDL State	= (bit state Range				
				Neutral (bit				
			PRNDL State	= state 0101) Range				
				Transition 11				
			PRNDL State	= (bit state Range				
				0100)				
			Above sequencing occurs in Then delay timer increments	<= 1 Sec				
			Delay timer	>= 5 sec				
			Dana Chift Chata	Range Shift				
			Range Shirt State	= Complete				
			Absolute Attained Gear Slip	<= 50 rpm				
			Attained Gear	<= Sixth				
			Allalfied Gear Throttle Position	>= FIISI				
			Output Speed	>= 200 rpm				
			If the above conditions are met	·			>= 20 Seconds	
			Increment Fail Timer				>- 20 3600103	
			Fail Case 6	Illegal (bit	A Open Circuit Definition (flag			
			Current range	= state 0000 or	set false if the following			
				1000 or 0001)	conditions are met):			
						Transition		
			and		Current Range	≠ 11 (bit		
					Ū	State 0100)		
			A Open Circuit (See Definition)	= FALSE Boolean	or	0100)		
						Neutral (bit		
					Last positive state	≠ state		
						0101)		
					O	Transition		
					Previous transition state	≠ 8 (bit state		
						0111)		
					Fail case 5 delay timer	= 0 sec		
			If the above Conditions are met then Increment Fail timer				>= 6.25 Seconds	
			Fail Case 7					
			Current PRNDL State	= ARCD 1101 Range				
				ADCP = ITUT				
			and					
			Previous PRNDL state	= PRNDL circuit Range				
			FICTIONS FILTER SUBE	ABCP =1111				
			Input Speed	>= 150 RPM				
			Reverse Trans Ratio	<= 2.845825195 ratio				
			Reverse Trans Ratio	>= 3.2/4169922 ratio				
			then, Increment Fail timer				>= 6.25 Seconds	
								I

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Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	P182E will report test fail when any of the above 7 fail cases are met	Disable	Ignition Voltage Lo Ignition Voltage Lo Ignition Voltage Hi Engine Speed Fi Engine Speed swithin the allowable limits for Engine Torque Signal Valid MIL not Illuminated for DTC's:	>= 8.5996094 Volts <= 31.999023 Volts >= 400 RPM <= 7500 RPM >= 5 Sec = TRUE Boolean TCM: P0716, P0717, P0722, P0723, P0720, P070F ECM: P0101, P0102, P0103, P0106, P0107, P0174, P0172, P0174, P0172, P0204	Required	Illum.
						P0205, P0206, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2714	Pressure Control (PC) Solenoid D Stuck Off [CB26]	Fail Case 1 Case: Steady State 2nd Gear					One Trip
			Gear slip Intrusive test: commanded 3rd gear	>= 400 RPM			Please See Table 5 For Neutral Timer Neutral Time (Sec) Cal	
			If attained Gear = 3rd for Time	Table Based Time Please see Table 2 in Supporting Documents				
			If Above Conditions have been met					
			Increment 2nd gear fail count				>= 3 2nd Gear Fail Count or	
			and CB26 Fail Count				>= 14 CB26 Fail Count	
			<u>Fail Case 2</u> Case: Steady State 6th Gear Gear slip Intrusive test:	>= 400 RPM			Please See Table 5 For Neutral Timer >= Neutral Time (Sec) Cal	
			commanded 5th gear If attained Gear = 5th For Time	Table Based Time Please see Table 2 in Supporting Documents				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions			Tin Requ	ne iired	Mil Illum.
			If Above Conditions have been met, Increment 5th gear fail counter						>=	3	5th Gear Fail Count	
			and CB26 Fail Count						>=	14	or CB26 Fail Count	
					PRNDL State defaulted inhibit RVT IMS fault pending indication TPS validity flag Hydraulic System Pressurized Minimum output speed for RVT A OR B (A) Output speed enable (B) Accelerator Pedal enable (B) Accelerator Pedal enable Common Enable Criteria Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for Throttle Position Signal valid HSD Enabled Tramsmission Fluid Temperature Input Speed Sensor fault		FALSE FALSE FALSE TRUE 0 16 0.5004883 8.5996094 31.999023 400 7500 5 TRUE TRUE TRUE -6.65625 FALSE	Boolean Boolean Boolean RPM RPM Pct Volts Volts RPM RPM Sec Boolean Boolean °C			Count	
				Disat Condition	Output Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present ile MIL not Illuminated for s: DTC's:	= = TCM: P071 P182E ECM: P010 P0107, P01 P0107, P0205, P02 P0301, P03 P0306, P03	FALSE FALSE TRUE 6, P0717, P0722 1, P0102, P0103 08, P0171, P013 01, P0202, P020 06, P0207, P020 02, P0303, P030 07, P0308, P040	Boolean Boolean 2, P0723, 3, P0106, 72, P0174, 33, P0204, 98, P0300, 94, P0305, 91, P042E				
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 13 in Supporting Documents for Exhaust Delay Timers) Primary Oncoming Clutch Pressure Command Status Primary Offgoing Clutch Pressure Command Status Range Shift Status	 TRUE Boolean Maximum pressurized Clutch exhaust command Initial Clutch ✓ Control 								One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Oystem	oouc	Description	Attained Gear Slip	<= 40 RPM				
			It above coditons are true, increment appropriate Fail 1					
			Timers Below:					
			fail timer 1	>= 0.299804688 Fail Time (Sec)				
			(2-1 shifting with throttle) fail timer 1					
			(2-1 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1	>= 0.299804688 Fail Time (Sec)				
			(2-3 shifting with throttle) fail timer 1					
			(2-3 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1	>= 0.299804688 Fail Time (Sec)				
			(2-4 shifting with throttle) fail timer 1					
			(2-4 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1	>= 0.299804688 Fail Time (Sec)				
			(6-4 shifting with throttle) fail timer 1					
			(6-4 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			fail timer 1	>= 0.299804688 Fail Time (Sec)				
			(6-5 shifting with throttle) fail timer 1					
			(6-5 shifting without throttle)	>= 0.5 Fail Time (Sec)				
							Total Fail	
							Time = (Fail 1	
							+ Fail 2) See	
							Enable	
			If Attained Gear Slip is Less than				Limers for	
			Above Cal Increment Fail Timers				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				E-1 O-uniter	
			2nd gear fail counter				>= 3 Fall Counter From 2nd Gear	
							OP	
			(the second fail - surface				Fail Counter	
			oth gear fail counter				>= 3 From 6th Gear	
							OR Total Fail	
			total fail counter				>= 5 Counter	
					TUT Enable temperature	>= -6.65625 °C		
					Input Speed Sensor fault	= FALSE Boolean		
					Command / Attained Gear	= FALSE BUOIEBN ≠ 1st Boolean		
					High Side Driver ON	= TRUE Boolean		
					output speed limit for TUT	>= 100 RPM		
				I	input speed limit for TUT	>= 150 RPM	1	I

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Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction	Enable	Time	Mil
System	Code	Description	Criteria	Value	PRNDL state defaulted	= FALSE Boolean	Nequireu	
					IMS Fault Pending	= FALSE Boolean		
					Service Fast Learn Mode	= FALSE Boolean		
					HSD Enabled	= TRUE Boolean		
				Disable	MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723,		
				Conditions:	DTC's:	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		
Verlahla Disad Calaraid (VDC)	D0715	Pressure Control (PC) Solenoid D	Fail Case 1				1	One Trip
Variable Bleed Solenoid (VBS)	P2/15	Stuck On [CB26] (Steady State)	Case: Steady State 1st					
			Attained Gear slip	>= 400 RPM				
				Table Based				
				Time Please				
			If the Above is True for Time	>= Refer to Table Enable Time				
				4 in (Sec)				
				supporting				
			Intrusive test	documents				
			(CBR1 clutch exhausted)					
			Gear Ratio	<= 2.482177734				
			Gear Ratio	>= 2.245849609				
			If the above parameters are true					
			If the above parameters are true					
							>= 1.1 Fail Timer (Se	ec)
							Fail Count i	
							>= 2 Ist Gear	1
							or	
							Total Fail	
							>= 3 Counts	
			Fail Case 2 Case: Steady State 3rd Gear					
				Table Based				
			May Dalla Ordered Careed	value Please				
			Max Delta Output Speed	>= Refer to 3D rpm/sec				
			nysteresis	Table T III				
				documents				
				Table Based				
				value Please				
			Min Delta Output Speed	Refer to 3D				
			Hysteresis	>= Table 2 in Tpm/sec				
				supporting				
				documents				
				Table Based				
				Defer to Table				
			If the Above is True for Time	>= Keler to Table Sec				
				supporting				
				documents				
1	1	1	I	uocuments	1	I	1	1

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction	Enable		Tim	1e ired	Mil Illum
System	Code	Description	Intrusive test:	Value	Manufiction	Conditions	<u> </u>	Nequ	lieu	mann.
			(C35R clutch exhausted)							
			Gear Ratio	<= 2.482177734						
			Gear Ratio	>= 2.245849609						
			If the above parameters are true							
							>=	1.1	Fail Timer (Sec)	
							>=	3	Fail Count in	
							>-	5	3rd Gear	
									Or Total Fail	
							>=	3	Counts	
			Fail Case 3 Case: Steady State 4rd Gear						oodiito	
				Table Based						
				value Please						
			Max Delta Output Speed	>= Refer to 3D Table 1 in rpm/sec						
			nysielesis	supporting						
				documents						
				Table Based						
				value Please						
			Min Delta Output Speed	>= Refer to 3D rpm/sec						
			Hysteresis	Lable 2 In .						
				documents						
				Table Based						
				Time Please						
			If the Above is True for Time	>= Refer to Table Sec						
				I / In						
				documents						
			Intrusive test:	accamons						
			(C1234 clutch exhausted)							
			Gear Ratio	<= 0.700317383						
			Gear Ratio	>= 0.633666992						
			If the above parameters are true							
							>=	11	Fail Timor (Soc)	
								1.1		
							>=	3	Fail Count in	
									or	
								2	Total Fail	
							>=	3	Counts	
			Fail Case 4 Case: Steady State 5th Gear	Tabla Dacad						
				value Please						
			Max Delta Output Speed	Refer to 3D ,						
			Hysteresis	>= rpm/sec Table 1 in						
				supporting						
				documents			1			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions			T Req	ime uired	Mil Illum.
Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria Min Delta Output Speed Hysteresis If the Above is True for Time Intrusive test: (C35R clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	Threshold Value Table Based value Please >= Refer to 3D Table 2 in supporting documents Table Based Time Please Refer to Table Sec 17 in supporting documents <= 0.700317383 >= 0.633666992	Secondary Malfunction PRNDL State defaulted inhibit RVT IMS fault pending indication output speed TPS validity flag HSD Enabled Hydraulic_System_Pressurize d A OR B (A) Output speed enable Ignition Voltage Lo Ignition Voltage Hi Engine Speed Japition Voltage Lo Ignition Voltage Hi Engine Speed Is within the allowable limits for if Attained Gear–1st FW Engine Torque Enable if Attained Gear–1st FW	= = = = >= >= >= >= >= >= = >= >= = >= >	Enable Conditions	Boolean Boolean Boolean RPM Boolean Boolean Boolean Boolean Nm Nm Volts Volts RPM RPM Sec Pct Nm Sec Pct Nm	>= >= >=	1.1 3 3	Fail Timer (Sec) Fail Count in 5th Gear or Total Fail Counts	Mii Illum.
					Engine Torque Enable Transmission Fluid Temperature Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	<= = = =	-6.65625 FALSE FALSE TRUE	°C Boolean Boolean				

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction	Enable	Time	Mil
System	Coue	Description	Gineria	Value		Conditions	Required	
				Disable	MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723,		
				Conditions:	DTC's:	P182E		
						ECM: P0101, P0102, P0103, P0106,		
						P0107, P0108, P0171, P0172, P0174,		
						P0175, P0201, P0202, P0203, P0204,		
						P0205, P0206, P0207, P0208, P0300, P0301 P0302 P0303 P0304 P0305		
						P0306, P0307, P0308, P0401, P042E		
		Pressure Control (PC) Solenoid F	Eail Caso 1					Ono Trin
Variable Bleed Solenoid (VBS)	P2723	Stuck Off	Case: Steady State 1st Gear					One mp
							Please See	
			Gear slip	>= 400 RPM			>= Table 5 For Neutral Time	
							Cal	
			Intrusive test				Gui	
			commanded 2nd gear	Dia ana safa s				
				to Table 3 in				
			If attained Gear ≠ 2nd for Time	>= Supporting Shift Time (Sec)				
				Documents				
			If Above Conditions have been met Increment 1st geer fai				1st Gear Fail	
			counter				Count	
							or	
			and C1234 fail counter				>= 14 C1234 Clutch	1
			Fail Case 2 Case: Steady State 2nd Gear				Fair Count	-
							Please See	
			Gear slip	>= 400 RPM			>= Table 5 For Neutral Time	
							Cal	
			Intrusive test				Gui	
			commanded 3rd gear					
				Please reter to Table 3 in				
			If attained Gear ≠ 3rd for Time	<pre>>= to rable 5 if Shift Time (Sec)</pre>				
				Documents				
			If Above Conditions have been mot Increment 2nd gear fai				2nd Gear Fai	1
			counter				>= 5 Count	
							or	
			and C1234 fail counter				>= 14 Clutch	
			Fail Case 3 Case: Steady State 3rd Gear				raii Count	-
							Please See	1
			Gear slip	>= 400 RPM			>= Table 5 For Neutral Time	
							Cal	1
			Intrusive test				Gui	
		1	commanded 4th gear			1	1	1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	Criteria If attained Gear ≠ 4th for time If Above Conditions have been met, Increment 3rd gear fail counter and C1234 fail counter Fail Case 4 Case: Steady State 4th Gear Gear slip	Value Please refer to Table 3 in Supporting Documents >= 400 RPM	Malfunction	Conditions	Required >= 3 3rd Gear Fail Count >= 14 0r C1234 Clutch Fail Count >= 14 Fail Count >= Please See Table 5 For Neutral Time Neutral Timer (Sec)	um.
			Intrusive test: commanded 5th gear If attained Gear = 5th For Time If Above Conditions have been met, Increment 4th gear fail counter and C1234 fail counter	Please refer to Table 3 in Supporting Documents	PRNDL State defaulted	= FALSE Boolean	Cal >= 3 4th Gear Fail Count or >= 14 Fail Count	_
					inhibit RVT IMS fault pending indication TPS validity flag Hydraulic System Pressurized Minimum output speed for RVT A OR B (A) Output speed enable (B) Accelerator Pedal enable	= FALSE Boolean = FALSE Boolean = TRUE Boolean = TRUE Boolean >= 0 RPM >= 16 RPM >= 0.5004883 Pct		
					Common Enable Criteria Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for Throttle Position Signal valid HSD Enabled Transmission Fluid Temperature Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	>= 8.5996094 Volts <=		

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction	Enable	Time Required	Mil Illum
System	Code	Description	Chiena	Value	Mananotion	Conditions	Kequileu	indini.
				D	sable MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723,		
				Condi	tions: DTC's:	P182E		
						ECM: P0101, P0102, P0103, P0106,		
						P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204		
						P0205, P0206, P0207, P0208, P0300,		
						P0301, P0302, P0303, P0304, P0305,		
						P0306, P0307, P0308, P0401, P042E		
			Primary Offgoing Clutch is				<u> </u>	One Trin
Mariable Disert Calensid (MDC)	D0704	Pressure Control (PC) Solenoid E	exhausted (See Table 10 in	TOUE				one mp
Variable Bleed Solenoid (VBS)	P2724	Stuck On (Dynamic)	Supporting Documents for	= IRUE Boolean				
			Exhaust Delay Timers)					
			Primary Oncoming Clutch	= Maximum				
			Pressure Command Status	Clutch				
			Primary Offgoing Clutch Pressure	= exhaust				
			Command Status	command				
			Range Shift Status	∠ Initial Clutch				
			Attained Gran Clin	' Control				
			Attained Gear Slip	<= 40 RPIVI				
			increment appropriate Fail 1					
			Timers Below:					
			fail timer 1	>- 0.20080/688 sec				
			(2-6 shifting with throttle)	>= 0.277004000 300				
			fail timer 1	>= 0.5 sec				
			fail timer 1					
			(3-5 shifting with throttle)	>= 0.299804688 sec				
			fail timer 1	>- 0.5 sec				
			(3-5 shifting without throttle)	>= 0.0 300				
			Tall timer (4 E chifting with throttle)	>= 0.299804688 sec				
			(4-5 Shinting with throtte) fail timer 1					
			(4-5 shifting without throttle)	>= 0.5 sec				
			fail timer 1	>= 0.299804688 sec				
			(4-6 shifting with throttle)	- 0.277001000 300				
			Tall timer (4.6 shifting without throttle)	>= 0.5 sec				
			(4-0 stilling without through)				Total Fail	
							Time = (Fail 1	
							+ Fail 2) See	
							Enable	
			If Attained Gear Slip is Less than				Limers for	
			Above Cal Increment Fail Timers				>= raii filiterit, sec	
							Reference	
							Supporting	
							Table 15 for	
	I	1	l	I	1	l	Fail Timer 2	

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					
			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			((5/25 - 20	>= 5 Total Fail Counter	-
				Disable Conditions:	TUT Enable temperature Input Speed Sensor fault Output Speed Sensor fault Command / Attained Gear High Side Driver ON output speed limit for TUT PRNDL state defaulted IMS Fault Pending Service Fast Learn Mode HSD Enabled	 >= -6.65625 °C = FALSE Boolean = FALSE Boolean ≠ 1st Boolean = TRUE Boolean >= 100 RPM >= 150 RPM = FALSE Boolean = FALSE Boolean = FALSE Boolean = FALSE Boolean = TRUE Boolean = TRUE Boolean = TRUE Boolean = TRUE Boolean = CALSE Boolean = CALSE Boolean = CALSE Boolean = CALSE Boolean = TRUE Boolean 		
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Steady State)	Fail Case 1 Case: 5th Gear					One Trip
			Max Delta Output Speed Hysteresis	Table Based value Please >= Refer to 3D Table 1 in supporting documents Table Based				
			Min Delta Output Speed Hysteresis	<pre>>= value Please Refer to 3D Table 2 in supporting documents</pre>				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Ti Req	me uired	Mil Illum.
			If the Above is True for Time Intrusive test: (C35R clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	Table Based Time Please Refer to Table 17 in supporting documents <= 1.209594727 >= 1.094360352							
								>=	1.1	Fail Timer (Sec)	
								>=	3	Fail Count in 5th Gear OR	
								>=	3	Total Fail	
			Fail Case 2 Case: 6th Gear Max Delta Output Speed Hysteresis Min Delta Output Speed Hysteresis If the Above is True for Time Intrusive test: (CB26 clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	Table Based value Please Refer to 3D Table 1 in supporting documents Table Based value Please rpm/sec >= Refer to 3D Table 2 in supporting documents Table Based Time Please rpm/sec >= Refer to Table 17 in supporting documents Sec >= Refer to Table 17 in supporting documents Sec <=						Counts	
								>=	1.1	Fail Timer (Sec)	
								>=	3	Fail Count in 6th Gear OR	
								>=	3	Total Fail Counts	
					PRNDL State defaulted inhibit RVT IMS fault pending indication output speed TPS validity flag HSD Enabled	= FALSE = FALSE = FALSE >= 0 = TRUE = TRUE	Boolean Boolean Boolean RPM Boolean Boolean				

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Component/ System	Fault	Monitor Strategy	Malfunction Criteria	1	Threshold Value	Secondary Malfunction		Enable Conditions			Ti Rea	me uired	Mil Illum.
- Oystelli	ooue	Description				Hydraulic_System_Pressurize	_	TDUE	Boolean				
						d A OD R	-	INUL	Doolean				
						(A) Output speed enable	>=	16	Nm				
						(B) Accelerator Pedal enable	>-	0 500/1883	Nm				
						(b) Accelerator i edal enable	~-	0.5004005	NIII				
						Ignition Voltage Lo	>= <=	8.5996094	Volts				
						Engine Speed Lo	>=	400	RPM				
						Engine Speed Hi	<=	7500	RPM				
						Engine Speed is within the	>=	5	Sec				
						allowable limits for							
						II Allained Gear=TSLEW Accelerator Pedal enable	>=	5.0003052	Pct				
						if Attained Gear=1st FW							
						Engine Torque Enable	>=	5	Nm				
						if Attained Gear=1st FW	<=	8191 875	Nm				
						Engine Torque Enable	-	0171.070					
						Transmission Fluid	>=	-6.65625	°C				
						Input Speed Sensor fault	=	FALSE	Boolean				
						Output Speed Sensor fault	=	FALSE	Boolean				
						Default Gear Option is not	_	TRUE					
						present	_	INCL					
					Disable	MIL not Illuminated for	TCM: P0716	. P0717, P0722	. P0723.				
					Conditions:	DTC's:	P182E						
							ECM: P0101	, P0102, P0103	3, P0106,				
							P0107, P010 P0175 P020	06, PUT/T, PUT 11 P0202 P020	72, P0174, 13 P0204				
							P0205, P020)6, P0207, P020	08, P0300,				
							P0301, P030	02, P0303, P030	04, P0305,				
							P0306, P030	07, P0308, P040	01, P042E				
		Controller Area Network Bus	CAN Hardware Circuitry Detects a									Fail counts (≈	One Trip
Communication	00073	Communication Error	Low Voltage Error	= IRUI	E Boolean					>=	62	10 seconds)	· · · ·
					_					Out		Sample Counts	
			Delay timer	>= 0.112	5 sec					of	/0	(≈ 11 seconds)	
						Stabilization delay	>=	3	Sec				
						Ignition Voltage	>=	8.5996094	Volt				
						Ignition Voltage	<=	31.999023	Volt				
						Power Mode	=	Run					
					Disable	MIL not Illuminated for	TCM: None						
					Conditions:	DTC's:							
							ECM: None						
	1						1						

.....

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	°C
Curve	409.59	2.00	2.00	Sec

Table 3

Axis	-6.67	-6.66	40.00	°C
Curve	409.59	4.00	4.00	Sec

Table 4

Axis	-6.67	-6.66	40.00	°C
Curve	409.59	2.00	2.00	Sec

Table 5

Axis	-6.67	-6.66	40.00	°C
Curve	409.59	3.00	3.00	Sec

Table 6

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

Table 7

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

Table 8							
	Axis	-6.67	-6.66	40.00	80.00	120.00 °C	
	Curve	409.00	3.60	1.60	1.50	1.40 Sec	
Table 9	_						
	Axis	-6.67	-6.66	40.00	80.00	120.00 °C	
	Curve	409.00	3.30	1.30	1.20	1.10 Sec	
<u> Table 10</u>							
	Axis	-40.00	-20.00	0.00	30.00	110.00 °C	
	Curve	3.03	1.86	1.00	0.75	0.58 Sec	
T-1-1- 44							
<u>I able 11</u>		40.00	00.00	0.00	00.00	110.00	
	AXIS	-40.00	-20.00	0.00	30.00	110.00 °C	
	Curve	1.72	1.11	0.60	0.36	0.22 Sec	
Table 12							
	Avio	40.00	20.00	0.00	20.00	110.000	
	AXIS	-40.00	-20.00	0.00	30.00	0.22 500	
	Curve	Z. 1Z	1.39	0.04	0.04	0.33 Sec	
Table 13							
	Avis	-40 00	-20.00	0.00	30.00	110.00 °C	
	Curve	2.51	0.05	0.00	0.20	0.13 Sec	
	Curve	2.01	0.35	0.00	0.23	0.10 000	
Table 14							
	Axis	-40 00	-20.00	0.00	30.00	110 00 °C	
	Curve	2.97	0.82	0.00	0.20	0.13 Sec	
	Surve	2.51	0.02	0.47	0.20	0.10	

15 OBDG07 TCM Diagnostic 2D Tables (Truck Specific)

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
	-									

<u>Table 16</u>

Axis	-6.67	-6.66	40.00	°C
Curve	409.59	2.50	2.50	Sec

<u>Table 17</u>

Axis	-6.67	-6.66	40.00	°C
Curve	0.40	0.35	0.30	Sec

<u>Table 18</u>

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

<u>Table 19</u>

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

<u>Table 20</u>

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

<u>Table 21</u>

Axis	-40.00	-20.00	40.00	°C
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

<u>Table 23</u>



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	°C
Curve	409.59	2.00	2.00	Sec

Table 3

Axis	-6.67	-6.66	40.00	°C
Curve	409.59	4.00	4.00	Sec

Table 4

Axis	-6.67	-6.66	40.00	°C
Curve	409.59	2.00	2.00	Sec

Table 5

Axis	-6.67	-6.66	40.00	°C
Curve	409.59	3.00	3.00	Sec

Table 6

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

Table 7

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

Table 8	_					
	Axis	-6.67	-6.66	40.00	80.00	120.00 °C
	Curve	409.00	3.60	1.60	1.50	1.40 Sec
	-					
<u>l able 9</u>		0.07	0.00	40.00	00.00	400.00
	AXIS	-6.67	-6.66	40.00	80.00	120.00 °C
	Curve	409.00	3.30	1.30	1.20	1.10 Sec
Table 10						
	Avis	-40.00	-20.00	0.00	30.00	110 00 °C
	Curve	3.03	1.86	1.00	0.75	0.58 Sec
	ourre	0.00	1.00	1.00	0.10	0.00
Table 11						
	Axis	-40.00	-20.00	0.00	30.00	110.00 °C
	Curve	1.72	1.11	0.60	0.36	0.22 Sec
		!				
<u>Table 12</u>	_					
	Axis	-40.00	-20.00	0.00	30.00	110.00 °C
	Curve	2.12	1.39	0.84	0.64	0.33 Sec
l able 13		10.00	00.00	0.00		
	Axis	-40.00	-20.00	0.00	30.00	110.00 °C
	Curve	2.51	0.95	0.50	0.29	0.13 Sec
Table 14						
	Avia	-40.00	-20.00	0.00	30.00	110.00 %
	CUIVO	2 07	-20.00	0.00	0.00	0.13 Sec
	Surve	2.31	0.02	0.77	0.20	0.10 000

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
Table 16										
	Axis	-6.67	-6.66	40.00	°C					
	Curve	409.59	1.50	1.50	Sec					
Table 17	_									
	Axis	-6.67	-6.66	40.00	°C					
	Curve	0.40	0.35	0.30	Sec					
	-									
Table 18										
	Axis	-40.10	-40.00	-20.00	0.00	30.00	60.00	100.00	149.00	149.10 °C
	Curve	256.00	50.00	45.00	40.00	34.00	25.00	20.00	20.00	256.00 °C
							·		•	

<u>Table 19</u>

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

<u>Table 20</u>

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

<u>Table 21</u>

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

3D_Table 1

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

3D_Table 2

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

100.00

8191.75

8191.75 8191.75

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

X-Axis Calibration %

Y-Axis Calibration °C

Table Calibration