Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction		Enable Conditions			Tim Requi		Mil Illum.
Transmission Control Module (TCM)	C124F	The lateral accleration sensor signal failed at a low voltge	hardware configuration	CeLATR_e_V = oltageDirectPr op		transient delay timer	>=	30	Sec	>=	75	Sec	Specia No MIL
			Lateral accleration sensor raw signal	<= -3.849999905 g's						out of	120	Sec	
			hardware configuration	CeLATR_e_V = oltageDirectPr									
			Lateral accleration magnitude	op >= -3.849999905 g's									
						Lateral acceleration low voltage diagnostic enable calibration	=	1					
						Battery Voltage	<=	31.999023 9	Volts Volts				
						Battery Voltage Battery voltage is within the allowable limits for	>= >=	0.1	Sec				
						Ignition Voltage Ignition Voltage	<= >=	31.999023 9	Volts Volts				
						Service Fast Learn (SFL) Mode VBS Failsafe	>=	FALSE	Boolean				
						Ignition voltage and SFL conditions met for	>=	0.1	Sec				
				Co	Disable anditions:	MIL not Illuminated for DTC's:							
							ECM: None						
Transmission Control Module (TCM)	C1250	The lateral accleration sensor signal failed at a high voltge	hardware configuration	CeLATR_e_V = oltageDirectPr		transient delay timer	>=	30	Sec	>=	75	Sec	Specia No MIL
			Lateral accleration sensor raw	op >= 3.849999905 g's						out	120	Sec	
			signal hardware configuration	CeLATR_e_V						of			
			Lateral accleration magnitude	= oltageDirectPr op <= 3.849999905 g's									
			Later at accier attorn magnitude	<= 3.049999900 ys		Lateral acceleration high voltage diagnostic enable	=	1					1
						calibration Battery Voltage	<=	31.999023	Volts				
						Battery Voltage Battery voltage Battery voltage is within the	>=	9	Volts				
						allowable limits for Ignition Voltage	>= <=	0.1 31.999023	Sec Volts				
						Ignition Voltage Service Fast Learn (SFL)	>=	9	Volts				
						Mode VBS Failsafe Ignition voltage and SFL	=	FALSE	Boolean				
						conditions met for	>=	0.1	Sec				
					Disable	MIL not Illuminated for	TCM: U0073						
				Co	nditions:	DTC's:	ECM: None						
Transmission Control Module (TCM)	C1251	The lateral accleration signal is stuck at a high magnitude in range	absolute value (lateral accleration)	>= 0.520000071 g/s		absolute value (lateral	>=	0.53	g's	>=	75	Sec	Specia No MIL

Component/	Fault	Monitor Strategy	Malfunction	Threshold		Secondary	1	Enable		1	Time	9	Mil
System	Code	Description	Criteria	Value		Malfunction		Conditions			Requir		Illum.
			abaaluta valva (lataral agalaratian)	2.04000000		absolute value (lateral		2.0400000	ala.				
			absolute value (lateral accleration)	<= 3.849999905 gs		accleration) for stablity	<=	3.8499999	g's				
						stability time	>=	30	Sec				
						Diagnostic shifting override		FALCE	Daalaan				1 1
						command	=	FALSE	Boolean				
								4 -4 41					
						Attained Gear State	=	1st through					
								8th					
						Attained Gear Slip	<=	100	RPM				
								Clutch to					
								Clutch					
						Transmission Type	=	Transmissi					
								on					
						High Side Drivers enabled	=	TRUE	Boolean				
						Vehicle Speed	>=	15	kph				
						Lateral acceleration stuck in							
						range diagnostic enable	=	1					
						calibration							
						Battery Voltage		31.999023	Volts				
						Battery Voltage	>=	9	Volts				
						Battery voltage is within the							
						allowable limits for		0.1	Sec				
						Ignition Voltage		31.999023	Volts				
						Ignition Voltage	>=	9	Volts				
						Service Fast Learn (SFL)	>=	7	VUIIS				
						Mode VBS Failsafe	=	FALSE	Boolean				
						Ignition voltage and SFL conditions met for	>=	0.1	Sec				
						Conditions met for							
				_	Disable	MIL not Illuminated for	TCM, D071	D0717 D0701	D0722				
						MIL not Illuminated for	D0722 D07	D, PU/17, PU/21	, PU122,				
				Cond	ditions:	DIC S.		BF, P07C0, P07	/B, P0//C,				
							P077D, P21	50, 00073					
							ECM. None						
							ECM: None						
	1			O LATE V						<u> </u>			0 11
Towns and a deal of Control Mandala (TOM)	01050	The longitudinal accleration sensor	handara and market	CeLATR_e_V		to a stant delevation of		20	C		75	C	Special
Transmission Control Module (TCM)	C1252	signal failed at a low voltge	hardware configuration	= oltageDirectPr		transient delay timer	>=	30	Sec	>=	75	Sec	No MIL
				ор						l .			
			longitudinal accleration sensor raw	<= -3.849999905 g's						out	120	Sec	
			signal							of			
				CeLATR_e_V									
			hardware configuration	= oltageDirectPr									
				ор									
			longitudinal accleration sensor raw	>= -3.849999905 g's									
			signal	J		1 9 8 1 1 0 1							- 1
						longitudinal acceleration low		_					
						voltage diagnostic enable	=	1					
						calibration		04 65555	17.5				
						Battery Voltage		31.999023	Volts				
						Battery Voltage	>=	9	Volts				
						Battery voltage is within the		0.1	Sec				
						allowable limits for							
						Ignition Voltage		31.999023	Volts				
						Ignition Voltage	>=	9	Volts				
						Service Fast Learn (SFL)	=	FALSE	Boolean				
						Mode VBS Failsafe	1						
						Ignition voltage and SFL	>=	0.1	Sec				
1	I	1			I	conditions met for	1			I			1 1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction		Enable Conditions			Tim Requi		Mil Illum.
·					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: U0073 : ECM: None						
Transmission Control Module (TCM)	C1253	The longitudinal accleration sensor signal failed at a high voltge	hardware configuration			transient delay timer	r >=	30	Sec	>=	75	Sec	Special No MIL
			longitudinal accleration sensor raw signal	op >= 3.849999905 g's						out of	120	Sec	
			hardware configuration	CeLATR_e_V						Oi			
			longitudinal accleration sensor raw	op									
			signal	<= 3.849999905 g's		longitudinal acceleration high	,						
						voltage diagnostic enable calibration	=	1					
						Battery Voltage	<=	31.999023	Volts				
						Battery Voltage Battery voltage is within the		9 0.1	Volts Sec				
						allowable limits for Ignition Voltage	<=	31.999023	Volts				
						Ignition Voltage Service Fast Learn (SFL) Mode VBS Failsafe	>=	9 FALSE	Volts Boolean				
						Ignition voltage and SFL	>=	0.1	Sec				
						conditions met for							
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: U0073						
					Conditions.	D103.	ECM: None						
Transmission Control Module (TCM)	C1254	The longitudinal accleration signal is stuck at a high magnitude in range	absolute value (longitudinal accleration)	>= 0.529999971 g's		absolute value (longitudinal accleration) for stability	>=	0.53	g's	>=	75	Sec	Special No MIL
			absolute value (longitudinal accleration)	<= 3.849999905 g's		absolute value (longitudinal accleration) for stablity	<=	3.8499999	g's	out of	120	Sec	
						stability time Diagnostic shifting override	>=	30	Sec	-			-
						command		FALSE	Boolean				
						Attained Gear State	=	1st through 8th					
						Attained Gear Slip	<=	100 Clutch to	RPM				
						Transmission Type	=	Clutch Transmissi					
						High Side Drivers enabled	1 =	on TRUE	Boolean				
						transmssion output speed acceleration	i		meter/second /second				
						Vehicle Speed longitudinal acceleration stuck	>=	15	kph				
						in range diagnostic enable calibration	=	1					
						Battery Voltage	<=	31.999023	Volts				
	1	1	I	I		Battery Voltage	>=	9	Volts	I			1

Component/	Fault	Monitor Strategy	Malfunction	Thre	eshold	Secondary	T T	Enable			Tim	ie .	Mil
System	Code	Description	Criteria		alue	Malfunction		Conditions			Requi		Illum.
						Battery voltage is within the allowable limits for Ignition Voltage	>= <=	0.1 31.999023	Sec Volts				
						Ignition Voltage	>=	9	Volts				
						Service Fast Learn (SFL)		FALSE	Boolean				
						Mode VBS Failsafe	=	FALSE	Doolean				
						Ignition voltage and SFL		0.1	Sec				
						conditions met for	>=	0.1	Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0723, P07BI	P0717, P0721 F, P07C0, P07	I, P0722, I7B, P077C,				
							P077D, P215	C, U0073					
							ECM: None						
Transmission Control Module (TCM)	P0561	Battery to ignition voltage performance error at the TCM for an extended period of time.	delta = ABS(TCM battery voltage - TCM ignition voltage)	>= 3	Volts					=	40	Fail counts (100ms loop)	One Trip
				1						Out	50	Sample Counts	
										of	50	(100ms loop)	
						battery to ignition voltage						(
						performance diagnostic enable	=	1					
						calibration							
						TCM has battery voltage circuit	=	1	Boolean				
						Service mode \$04 active and	=	FALSE	Boolean				
						end of trip pocessing active							
						Ignition Voltage Hyst Hi	>	5	Volts				
						(enabled above this value)							
						Ignition Voltage Hyst Lo disabled below this value)	<=	2	Volts				
						disabled below this value)							
					Disable	MIL not Illuminated for	TCM: None						
					Conditions:	DTC's:	I CIVI. INOTIC						
					oonanions.	D10 3.	ECM: None						
							201111110110						
Transmission Control Module (TCM)	P0601	Transmission Electro-Hydraulic Control Module Read Only Memory	Incorrect program/calibrations checksum	= TRUE	Boolean					>=	5	Fail Counts (background task continuous)	One Trip
						NVM write error diagnotic				1		continuous)	1 1
						enable	=	1	Boolean				
						ondaro							
					Disable	MIL not Illuminated for	TCM: P0601						
					Conditions:	DTC's:							
				1			ECM: None						
		Transmission Electro-Hydraulic	Non-volatile memory (static or	1							Runs		One Trip
Transmission Control Module (TCM)	P0603	Control Module Long-Term Memory	dynamic) checksum failure at	= TRUE	Boolean					_	ontinously		
		Reset	controller initialization								o. m. lousiy		
						not programmed diagnotic	=	1	Boolean				
				1		enable							
				1									
1	I	l l		I		l	I			I			l l

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Valu		Secondary Malfunction		Enable Conditions			Tii Reqi		Mil Illum.
- Cystem	Joue	Description	Ontena		van	Disable	MIL not Illuminated for					поц	2.00	
						Conditions:	DTC's:	ECM: None						
		Topograficate Floring Hodge III												0 7
Transmission Control Module (TCM)	P0604	Transmission Electro-Hydraulic Control Module Random Access	secondary micro processor RAM	=	TRUE	Boolean							1000 ms cont.	One Trip
		Memory	error OR											
			UR UR										seconds	
			dual store RAM write time out	_	TRUE	Boolean					>	175	(interrupt driven	
			error		TROL	Doolean						170	based on calling functions)	
			OR										,	
													counts (controller	
			system RAM fault	=	TRUE	Boolean					>=	3	initialization and	
			System IV III Idail		TROL	Doolean							background task	
													continuous)	
			OR										counts	
													(controller initialization and	
			cashe RAM fault	=	TRUE	Boolean					>=	3	background	
													task continuous)	
			OR											
													counts (controller	
			secondary micro processor micro code error	=	TRUE	Boolean					>=	3	initialization and background	
			code enor										task	
			OR										continuous)	
							Service mode \$04 active or end of trip processing active	=	FALSE	Boolean				
							end of trip processing active						counts	
			write attempt occurred during RAM lock	=	TRUE	Boolean					>	65534	(background task	
													continuous)	
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None						
						oonaniono.	2.00.	ECM: None						
			Loss or invalid message of SPI	Η.	Loss or invalid						-			One Trip
			communication from the		message at									
			secondary rrocessor at initialization detected by the		initialization detected or									
Internal TCM Processor Integrity Fault	P0606	Transmission Electro-Hydraulic Control Module Processor Integrity	rrimary processor or loss or invalid		loss or invalid									
			message of SPI communication from the secondary processor	'	message after a valid									
			after a valid message was		message was recieved									
			received by the primary processor		recievea									
ı	ı	I	OR	1			I				ı			ı I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
			main processor RAM circuit hardware failure	=	TRUE	Boolean	RAM diagnotic test enable	=	1	Boolean	>=	5	counts (controller initialization)	
			OR				hardware reset source is controller power up reset	=	TRUE	Boolean			mitialization	
			main processor flash EPROM circuit hardware failure	=	TRUE	Boolean	flash EPROM diagnotic test enable	=	1	Boolean	>=	5	counts (controller initialization)	
			OR				hardware reset source is controller power up reset	=	TRUE	Boolean			mitialization	
			main processor memory stack failure	=	TRUE	Boolean	Service mode \$04 active and end of trip pocessing active	=	FALSE	Boolean	>=	5	counts (100 msec continuous)	
			OR				main processor memory stack test enable	=	1	Boolean			continuous)	
			secondary processor memory stack failure	=	TRUE	Boolean	secondary processor memory stack test enable	=	1	Boolean	>=	5	counts (12.5 msec continuous)	
			OR secondary micro processor remedial action active on request	=	FALSE	Boolean					>=	1	counts (controller power up, 12.5 ms continuous)	
			OR main processor ROM first test complete	=	FALSE	Boolean					>=	35	counts (12.5 msec continuous)	
			OR secondary processor to main processor seed sequence fault OR	=	TRUE	Boolean					>=	0.5	seconds	
			seed sequence error	≠	FALSE	Boolean	program sequence watch communication fault	=	FALSE	Boolean	>=	3	counts (12.5 msec continuous)	
							main processor to secondary processor serial peripheral interface error	=	FALSE	Boolean	>=	17	counts (12.5 msec continuous)	
							seed sequence test enable	=	see table 50 in supporting documents	Boolean				
			OR				battery voltage ignition voltage	>=	11 11	Volts volts				
			seed key fault current loop		TRUE	Boolean	seed key test enable	=	see table 50 in supporting documents	Boolean				
							seed key fault previous loop Service mode \$04 active and	=	TRUE FALSE	Boolean Boolean				
			OR				end of trip processing active							l

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		reshold /alue	Secondary Malfunction		Enable Conditions			Time Require		Mil Illum.
.,			normalize 0-5 volt (absolute value (analog to digital test voltage commanded - actual analog to digital voltage feedback))	> 3.2989501		analog to digital voltage test enabled	=	1	Boolean	>=	3	counts (50 msec continuous)	
						ignition voltage	>=	7	Volts	>=	8	counts (50 msec continuous)	
						analog to digital voltage channel enabled	=	see Table 46 in supporting documents	Boolean				
						analog to digital test voltage command	=	see Table 47 in supporting documents	Volts	>=	0.2	seconds	
			OR			Service mode \$04 active and end of trip processing active	=	FALSE	Boolean				
			arithmatic logic unit 1 test pass		Boolean	arithmatic logic unit test enable	=	1	Boolean	ir	t controller itialization, en 12.5 ms cont.		
						arithmatic logic unit 1 test pass previous loop	=	FALSE	Boolean				
						Service mode \$04 active and end of trip processing active	=	FALSE	Boolean				
						A and B and C must occur A: starter motor engaged B: ignition voltage	= <=	TRUE 11	Boolean Volts				
						C: starter motor engaged time	<	0.025	sec				
						A and B must occur A: ignition voltage B: ignition low voltage time	<= >=	6.4091797 2.50E-02	Volts sec	a	t controller		
			arithmatic logic unit 2 test pass	= FALSE	Boolean	arithmatic logic unit test enable	=	1	Boolean	ir	itialization, en 12.5 ms cont.		
						arithmatic logic unit 1 test pass previous loop	=	FALSE	Boolean				
						Service mode \$04 active and end of trip processing active A and B and C must occur	=	FALSE	Boolean				
						A: starter motor engaged B: ignition voltage	= <=	TRUE 11	Boolean Volts				
						C: starter motor engaged time	<	0.025	sec				
			OR secondary processor arithmatic logic unit fault OR	= TRUE	Boolean								
			clock test fail current loop		Boolean	clock test enable	=	1	Boolean	ir	t controller itialization, en 12.5 ms		
						clock test fail previous loop	=	TRUE	Boolean		cont.		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Val	shold lue	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
							Service mode \$04 active and end of trip processing active A and B and C must occur A: starter motor engaged	=	FALSE TRUE	Boolean		
							B: ignition voltage	<=	11	Volts		
							C: starter motor engaged time	<	0.025	sec		
							A and B must occur A: ignition voltage	<=	6.4091797	Volts		
							B: ignition low voltage time	>=	2.50E-02	sec		
			OR configuration register test fail current loop		TRUE	Boolean	configuration register test enable	=	1	Boolean	at controller initialization, then 12.5 ms cont.	
							configuration register test fail previous loop	=	TRUE	Boolean	cont.	
							Service mode \$04 active and end of trip processing active A and B and C must occur	=	FALSE	Boolean		
							A: starter motor engaged B: ignition voltage	= <=	TRUE 11	Boolean Volts		
							C: starter motor engaged time	<	0.025	sec		
							A and B must occur A: ignition voltage	<=	6.4091797	Volts		
			OR				B: ignition low voltage time	>=	2.50E-02	sec		
			secondary processor configuration register fault OR	=	TRUE	Boolean						
			A or B occur									
			A: direct memeory access (DMA) read/write test result		FALSE	Boolean	flash data transfer test enable	=	1	Boolean	normal controller initialization	
			B: direct memeory access (DMA) read/write value		\$5AA5A55A	hexadecimal value	flash data transfer test enable	=	1	Boolean	normal controller initialization	
			software uses DMA peripheral function to write and read \$5AA5A55A to flash memory locations to verify each flash	,			running reset	=	FALSE	Boolean	III.KUIZUUTI	
			memory location									
			OR				normal power up reset	=	TRUE	Boolean		
			secondary micro processor detects main micor processor SPI fault OR	=	TRUE	Boolean						
			A or B or C or D occur	1			seed and key store fault test enable	=	0	Boolean		
			A: last 6.25 msec seed and key time	>	see Table 48 in supporting documents							
			B: last 12.5 msec seed and key time		see Table 48 in supporting documents							

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	T .	reshold Value	Secondary Malfunction		Enable Conditions			Time Require	ed	Mil Illum.
- Cyston		Description	C: last 50 msec seed and key time	see Table > in support documer	48 ing sec ts			25.13.115			rogalit		
			D: last lores engine interrupt seed and key time OR	see Table > in support documer	ing sec								
			A or B or C or D occur			prgram sequence watch test enable	=	see 3D_Table 1 in supporting documents					
			A: 6.25 msec program sequence fault fail count	see Table >= in support documer	ing 6.25 msec time								
			B: 12.5 msec program sequence fault fail count	see Table >= in support documer	counts (50 msec continuous on 12.5 msec time interrupt)								
			C: 50 msec program sequence fault fail count	see Table >= in support documer	counts (50 msec continuous)								
			D: engine lores interrupt program sequence fault fail count	>= in support	counts (on 49 execution of ing engine lores interrupts ECM only)								
			OR secondary processor reports SPI communication fault	= TRUE	Boolean	Service mode \$04 active and end of trip processing active secondary processor reports	=	FALSE	Boolean				
			OR			SPI communication fault previous loop	=	TRUE	Boolean				
			SPI valid messsage received by main micro processor	= FALSE	Boolean						vious SPI sage type		
										>=	10	counts (12.5 msec continuous) counts (12.5	
									counts (12.5	>=	100	msec continuous) counts (12.5	
						out of sample count A and B and C must occur	>=	16	msec continuous)	>=	8	msec continuous)	
						A: starter motor engaged B: ignition voltage	= <=	TRUE 11	Boolean Volts				
						C: starter motor engaged time	<	0.025	sec				l l
						SPI message checksum fault	≠	FASLE	Boolean				l l

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			shold ilue	Secondary Malfunction		Enable Conditions			Time Require		Mil Illum.
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None				- 4		
Indicates that the TCM has detected an internal processor integrity fault	P062F	Transmission Electro-Hydraulic Control Module Long Term Memory Performance	TCM Non-Volatile Memory read or write error		TRUE	Boolean					CO	every entroller alization		One Trip
							NVM write error diagnotic enable	=	1	Boolean				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P062F ECM: None						
High Side Driver 1	P0658	Actuator Supply Voltage Circuit Low	The HWIO reports a low voltage (ground short) error flag	=	TRUE	Boolean					>= out of	6 2395	Fail Counts (6.25 msec continuous) Sample Counts (6.25 msec continuous)	One Trip
							actuator supply voltage circuit low enable calibration Service mode \$04 active and end of trip pocessing active		1 FALSE	Boolean			,	
							P0658 Status is not	=	Test Failed This Key On or Fault Active					
							P0658 Status is not	=	Test Failed This Key On or Fault Active					
							Service Fast Learn (SFL) Mode VBS Failsafe High Side Driver 1 On	=	FALSE True	Boolean Boolean				
						Disable Conditions:		TCM: None ECM: None						
Transmission Fluid Temperature Sensor (TFT)	P0711	transmission fluid temperature sensor rationality	Fail Case 1 transmission fluid temperature warm up tes transmission fluid temperature raw		15	°C					>= in su	Table 26 upporting cuments	seconds	Two Trips
							transmission fluid temperature sensor performance diagnsotic enable calibration		1 Fault	Boolean				
							P0712 and P0713 Battery Voltage Battery Voltage Battery voltage is within the allowable limits for	<= >= >=	Active 31.999023 9 0.1	Volts Volts Sec Volts				
							Battery voltage is within the allowable limits for Ignition Voltage Ignition Voltage	>= <=	0.1 31.999023 9	Sec Volts Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions			Tim Requi		Mi Illur
					Service Fast Learn (SFL) Mode VBS Failsafe Ignition voltage and SFL	= >=	FALSE 0.1	Boolean Sec				
					conditions met for transmission fluid temperature warm up test calibration enable	=	1	Boolean				
					driver accelerator pedal position valid	=	TRUE	Boolean				
					driver accelerator pedal position	>=	5	%				
					engine torque valid	=	TRUE	Boolean				
					engine torque steady state raw	>=	50	N*m				
					engine speed valid	=	TRUE 500	Boolean RPM				
					engine speed	>=	Fault	KPIVI				
					P0722, P0723, P077C, P077D Vehicle Speed	≠ >=	Active 10	KPH				
					P2809 TCC stuck on fault fault status	<i>≯</i> −	Test Failed This Key On or Fault Active	KIII				
					transmission fluid temperature	>=	-40	°C				
					transmission fluid temperature engine coolant temperature	<=	150	°C				
					valid	=	TRUE	Boolean				
					engine coolant temperature engine coolant temperature	>= <=	-40 150	°C				
			Fail Case 2 transmission fluid temperature intermittent delta temperature test transmission fluid temperature delta (100 ms loop to loop)	>= 10 °C				-	>=	8	seconds (100 ms cont.)	
					transmission fluid temperature				>=	12	seconds (100 ms cont.)	
					sensor performance diagnsotic enable calibration	=	1	Boolean				
					P0712 and P0713	≠	Fault Active					
					Battery Voltage	<=	31.999023	Volts				
					Battery Voltage Battery voltage is within the	>=	9	Volts				
					allowable limits for	>=	0.1	Sec				
					Ignition Voltage	<=	31.999023	Volts				
					Ignition Voltage Service Fast Learn (SFL)	>=	9 FALSE	Volts Boolean				
					Mode VBS Failsafe Ignition voltage and SFL							
					conditions met for transmission fluid temperature	>=	0.1	Sec				
					intermittent delta temperature test calibration enable	=	1	Boolean				
					propulsion system active	=	TRUE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Require	d	Mil Illum.
			Fail Case 3 transmission fluid temperature stuck in range tes transmission fluid temperature delta (100 mg/spa. lagar	<= 0 °C			>=	300	seconds (100 ms cont.)	
			delta (100 ms loop to loop		transmission fluid temperature sensor performance diagnsotic enable calibration	= 1 Boolean				
					P0712 and P0713	≠ Fault Active				
					Battery Voltage Battery Voltage	<= 31.999023 Volts >= 9 Volts				
					Battery voltage is within the allowable limits for	0.1 500				
					Ignition Voltage Ignition Voltage	<= 31.999023 Volts				
					Service Fast Learn (SFL) Mode VBS Failsafe	= FALSE Boolean				
					Ignition voltage and SFL conditions met for	>= 0.1 Sec				
					transmission fluid temperature stuck in range test calibration	= 1 Boolean				
					enable propulsion system active					
					transmission fluid temperature transmission fluid temperature	<= 150 °C >= -40 °C				
				Disable Conditions		TCM: P0716, P0712, P0713, P0717, P0722, P0723, P077C, P077D, P02809				
						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, P0305, P0304, P0305, P0				
						P0306, P0307, P0308, P0401, P042E	<u> </u>			
Transmission Fluid Temperature Sensor (TFT)	P0712	Transmission fluid temperature sensor failed at a low voltage	If Transmission Fluid Temperature Sensor Raw Resistance	<= 47.45000076 Ohms			>=	10 I	Fail Time (Sec)	Two Trips
							out of	12	Sample Time (Sec)	
					trans fluid temp sensor low voltage diagnostic enable	= 1 Boolean	- 01		(380)	
					Battery Voltage Battery Voltage	<= 31.999023 Volts				
					Battery voltage is within the allowable limits for	0.1 \$00				
					Ignition Voltage	<= 31.999023 Volts				
					Service Fast Learn (SFL) Mode VBS Failsafe	= FALSE Boolean				
					Ignition voltage and SFL conditions met for	>= 0.1 Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			shold lue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
,						Disable Conditions:	MIL not Illuminated for	TCM: None ECM: None						
Transmission Fluid Temperature Sensor (TFT)	P0713	Transmission fluid temperature sensor failed at a high voltage	If Transmission Fluid Temperature Sensor Raw Resistance		105445	Ohms					>= out	10	Fail Time (Sec) Sample Time	Two Trip
						Disable		= <= >= >=	1 31.999023 9 0.1 31.999023 9 FALSE 0.1	Boolean Volts Volts Sec Volts Volts Boolean Sec	of	12	(Sec)	
Transmission Input Speed Sensor (TISS)	P0716	Input Speed Sensor Performance	Abolute Value Of Transmission Input Speed Sensor Delta (loop to loop)	>=	850	Conditions	DTC's:	ECM: None						One Triț
							speed sensor processing	=	time based		>= >=	1.5 5	seconds fail events	-
							Service mode \$04 active and end of trip pocessing active transmission input speed	=	FALSE	Boolean				
							sensor performance diagnostic enable Ignition Voltage Hyst Hi	=	1	Boolean				
							(enabled above this value) Ignition Voltage Hyst Lo	> <=	5 2	Volts Volts				
							disabled below this value) Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean				
							Ignition Voltage Max (disabled above this value) Ignition Voltage Min (enabled	<=	31.999023	Volts				
							above this value) P0717 Status is not	>=	9 Test Failed This Key	Volts				
							P07BF Status is not	=	On Test Failed This Key On					
							P07C0 Status is not	=	Test Failed This Key On					

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions			Tim Requi		Mil Illum.
								last valid transmission input speed OR transmission input speed raw transmssion input speed last valid or raw timer	> >= >=	148 148 2	RPM RPM Seconds				
								transmission input speed sensor performance test complete (initialized to FALSE set to TRUE when P0716 fails)	_	FALSE	Boolean				
								transmission hydraulic system pressurized	=	TRUE	Boolean				
								driver accelerator pedal position available	=	TRUE	Boolean				
								engine torque inaccurate Transmission Output Speed		FALSE 230	Boolean RPM				
								Sensor Raw Speed driver accelerator pedal	>=	5.0003052	Pct				
								position engine actual torque steady	,	8191.875	N*m				
								state raw engine actual torque steady state raw		30	N*m				
								P0716 Status is not		Test Failed This Key On or Fault Active					
							Disable Conditions			1, P0102, P0103					
Transmission Input Speed Sensor (TIS	S) P0717	Input Speed Sensor Circuit Low Voltage	Fail Case 1	Transmission Input Speed is	<	100	RPM					>=	4	Fail Time (Sec)	One Trip
			Fail Case 2	OR P0722 DTC Status is Test Failed This Key On and and controller uses single power feed Transmission Input Speed is	<	175	RPM								
								Controller uses a single power supply for the speed sensors	=	0	Boolean				
								speed sensor processing	=	time based					
								Service mode \$04 active and end of trip pocessing active transmission input speed	=	FALSE	Boolean				
								sensor low diagnostic enable transmission hydraulic system	=	1	Boolean				
								pressurized Ignition Voltage Hyst Hi	=	TRUE	Boolean				
								(enabled above this value)	>	5	Volts				
								Ignition Voltage Hyst Lo disabled below this value) speed sensor connected to	<=	2	Volts				
								controller	=	1	Boolean				

Component/ System		ault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value	I	Secondary Malfunction		Enable Conditions			Ti Req	me uired	Mil Illum.
System		oae	Description	Criteria		value		P0722 Status is not	=	fault active			Keq	uirea	mum.
								P0723 Status is not	=	fault active					
								P077C Status is not	=	fault active					
								P077D Status is not		fault active 69.999695	Pct				
								brake pedal position is not engine torque inaccurate		FALSE	Boolean				
								engine torque maccurate	-	Test Failed	boolean				
								P0716 Status is not	=	This Key					
										On					
										Test Failed					
								P07BF Status is not	=	This Key					
										On					
										Test Failed					
								P07C0 Status is not	=	This Key					
										On					
								driver accelerator pedal		5	Pct				
								position engine actual torque steady							
								state raw	<=	8191.875	N*m				
								engine actual torque steady							
								state raw		30	N*m				
								State raw		CeCGSR_					
								attained gear low	<	e_CR_Sixt					
										h					
								Transmission Output Speed							
								Sensor Raw Speed when	>=	72	RPM				
								attained gear low	1						
										CeCGSR_					
								attained gear high	>=	e_CR_Sixt					
										h					
								Transmission Output Speed		222	DDM				
								Sensor Raw Speed when attained gear high	>=	230	RPM				
								attaineu year nign							
										Test Failed					
								P0717 Status is not	=	This Key					
								1 07 17 010100 10 1101		On or Fault					
										Active					
							Disable	MIL not Illuminated for			, P077C,				
							Conditions:	DTC's:	P077D, P0	7BF, P07C0					
									ECM: P010	1, P0102, P0103					
										CeCGSR_					One Trip
Transmission Output Speed	l Sensor		Output Speed Sensor Circuit Low	Transmission Output Speed		30 RPM		attained gear high	>	e_CR_Fou	ENUM	>=	5	Fail Time (Sec)	One Trip
(TOSS)		0722	Voltage	Sensor Raw Speed	<=	OU KFI	VI	attained year nigh		rth	LIVUIVI	>=	J	raii riille (Sec)	
										101					
										CeCGSR_					
								attained gear low	<=		ENUM	>=	3.5	Fail Time (Sec)	
										rth				,	
										Test Failed					1
										This Key					
	1							P0722 Status is not	=	On or Fault					
	1									Active					
												1			
								Complete months (CA and							
								Service mode \$04 active and end of trip pocessing active		FALSE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum
System	Code	Description	Cinteria	value	manariotion		CONTRICTIONS		Kequileu	mum
					transmission output speed sensor low diagnostic enable	=	1	Boolean		
					power flow not active (garage					
					shift not complete, PRNDL = P or PRNDL = N, transmission	=	TRUE	Boolean		
					range control in progress)					
					engine actual torque steady state raw power flow not active	>=	8192	N*m		
					driver accelerator position	>=	99.998474	Pct		
					power flow not active (garage					
					shift not complete, PRNDL = P		FALCE	Daalaan		
					or PRNDL = N, transmission	=	FALSE	Boolean		
					range control in progress)		0.0005			
					attained gear high	>	CeCGSR_ e_CR_Fou	ENUM		
					anamou gour mgm	,	rth	2.10		
					high gear engine actual torque					
					steady state raw power flow	>=	50	N*m		
					active hysteresis high					
					high gear engine actual torque					
					steady state raw power flow	<=	30	N*m		
					active hysteresis low not					
					high gear accelerator pedal					
					position power flow active	>=	4.9987793	Pct		
					hysteresis high					
					high gear accelerator pedal					
					position power flow active	<=	2.9998779	Pct		
					hysteresis low not		0.0000			
							CeCGSR_	E111111		
					attained gear low	<=	e_CR_Fou	ENUM		
					low many angles actual torque		rth			
					low gear engine actual torque		00	N/*m		
					steady state raw power flow active hysteresis high	>=	80	N*m		
					low gear engine actual torque					
					steady state raw power flow	<=	50	N*m		
					active hysteresis low not	<=	50	IN III		
					low gear accelerator pedal					
					position power flow active	>=	7.9986572	Pct		
					hysteresis high					
					low gear accelerator pedal					
					position power flow active	<=	4.9987793	Pct		
					hysteresis low not					
					uso transmission input spood					
					use transmission input speed sensor	=	TRUE	Boolean		
					speed sensors have single		0	Deeleen		
					power feed	=	0	Boolean		
					transmission input speed	<=	8191.875	RPM		
					sensor signal raw	<=	0171.073	KFIVI		1
					transmission input speed	>=	175	RPM		
	1 1				sensor signal raw	-	.,,			1

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary		Enable			Tin		Mil
System	Code	Description	Criteria	Value	Malfunction		Conditions			Requ	ired	Illum.
					use transmission input speed	=	FALSE	Boolean				
					sensor		.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Booloan				
					speed sensors have single	=	0	Boolean				
					power feed							
					engine speed sensor signal		8191.875	RPM				
					engine speed sensor signal	>=	3500	RPM				
						·	- "					
					P0716 Status is not	=	Fault					
							Active					
					P0717 Status is not	=	Fault					
							Active					
					P07BF Status is not	=	Fault Active					
							Fault					
					P07C0 Status is not	=	Active					
					PTO disable	=	1	Boolean				
					PTO disable		FALSE	Boolean				
					driver accelerator pedal	=						
					position available	=	TRUE	Boolean				
					engine torque inaccurate	=	FALSE	Boolean				
					transmission hydraulic system	_						
					pressurized	=	TRUE	Boolean				
					Ignition Voltage Hyst H							
					(enabled above this value)	>	5	Volts				
					Ignition Voltage Hyst Lo							
					disabled below this value)	<=	2	Volts				
					Service Fast Learn (SFL)							
					Mode VBS Failsafe	=	FALSE	Boolean				
					Ignition Voltage Max (disabled							
					above this value)		31.999023	Volts				
					Ignition Voltage Min (enabled							
					above this value)	>=	9	Volts				
					transmssion fluid temperature		40	0.0				
					sensor	>=	-40	°C				
							Test Failed					
					P0723 Status is not	=	This Key					
							On					
							Test Failed					
					P077C Status is not	=	This Key					
							On					
							Test Failed					
					P077D Status is not	=	This Key					
							On					
				Disab		TCM: P0716	6, P0717, P0723					
				Condition	s: DTC's:							
							1, P0102, P0103,	P0121,				
1						P0122, P01	23					
	-			coo "cot foil					-			One Trin
Transmission Output Speed Sensor	D0722	Output Speed Sensor Circuit	transmission subsut and delicate	see "set fail						1 5	Foil Time (Cc-)	One Trip
(TOSS)	P0723	Intermittent	transmission output speed delta	a >= RPM RPM threshold"					>=	1.5	Fail Time (Sec)	
				II II estiviu								
									\	5	fail events	
					transmission output speed	>=	36	RPM	>=	J	ומוו בעבוונט	
					OR		30	IXI IVI				
I	ı	ı	I	I	I	1			ı			ı l

Statement of the control of the cont	Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
To Total Age Seed and Tota						transmission output speed last	>=		RPM		
TOSS lets visit on Juny region 2 2 2 2 2 2 2 2 2								30			
### See But 1674 Primote for the state of 1700 Primote for the sta								2			
### Set of 1614 Processing of 1514 Processing of 15							>=	2	seconds		
### Committee											
2007 Ordina benombers conjugal 400 part actor 1700 1700 1700 400 part actor 1700 1700 400 part actor 1700 1700 400 part actor 1700 part actor 400 part actor 1											
spoof of the feeders of the control							=				
Find distal transmission copies 1355 BPM AVID tes state of the Control of th						speed fail threshold	=	500	RPM		
speed all threshold of the color of the colo						4WD gear ratio	=	2.71			
AWD lost state wall AWD lo						speed fail threshold	=	1355	RPM		
AWD loss state valid Will loss state valid Will loss state valid Will loss state valid Will loss state valid Byood Gill househal Spood Gill househal Range Disable						OR					
AVD tow size void Special threshold Find does in manifestor output Special interview of the size of							=				
### AVID Now state void FALSE Brocken							=	FALSE	Boolean		
gened fall threshold Fall delta transmission update Renga_Disable						4WD low state valid	=	FALSE	Boolean		
Transmission rought Render Library Enable Transmission lingual, Speed Enable and the Community Transmission upput Speed Enable Transmission upput Speed Enable Render SMA anchole and end of tip pocessing active No Change in Transfer Case Render English Ch							=	500	RPM		
Speed fall Interstood Range_Disable Range_Disable Range_Enable Noutial_Range_Enable And Neural_Speed_Enable are TRUE See Below Range_Enable And Neural_Speed_Enable are TRUE See Below Transmission_Input_Speed_E Transmission_Input_Speed_E Transmission_Input_Speed_E Transmission_Input_Speed_E Transmission_Input_Speed_E Transmission_Input_Speed_E Transmission_Input_Speed_E TRUE See Below TRUE See Belo											
Neutral Range_Enable Neutral_Speed_Enable are TRUE Concurrently Transmission_Range_Enable Transmission_Input_Speed_E Transmission_Input_Speed_Enable Transmission_Input_Spe							=	500	RPM		
Neutral Range_Enable Neutral_Speed_Enable are TRUE Concurrently Transmission_Range_Enable Transmission_Input_Speed_E Transmission_Input_Speed_Enable Transmission_Input_Spe						Disable		EALCE	Car Dalam		
Neutral_Range_Enable TRUE See Below All Neutral_Speed_Enable TRUE See Below TRUE See Below TRUE See Below Transmission_Input_Speed_Enable TRUE See Below Transmission_Called_Paid_Enable True T							=	FALSE	266 Relow		
Neutral_Speed_Enable are TRUE concurrently Transmission_Range_Enable Transmission_Input_Speed = TRUE See Below Insuransmission_Input_Speed = TRUE See Below											
Neutral Speed Enable are TRUE concurrently Transmission, Range, Enable Transmission, Input, Speed, E Belle transmission upput Speed Transmission							=	TRUE	See Below		
Transmission_Range_Enable TRUE See Below Transmission_unput_Speed mabbit Transmission_unput_Speed mabbit Transmission_unput_Speed mabbit Transmission_unput_Speed mabbit Transmission_unput_Speed mabbit TRUE See Below TRUE See Below TRUE See Below TRUE See Below Transmission_unput_Speed Service mode Sold active and end of this pocessing active No Change in Transfer Case Range (High <> Low) for FALSE Boolean Test Falled This Key On or Pault Active Active Test Falled This Key On or Pault Active Test Falled Test Falled Test Falled This Key Test Falled Test Falled Test Falled This Key Test Falled Test Fal							=	TRUE	See Relow		
Transmission Input, Speed, E anable transmission output speed sensor performance diagnostic enabled Service mode 90 da active and end of the processing active No Change in Transfer Case Range (High <> Low) for P0723 Status is not P0723 Status is								INOL	See Below		
Transmission Input, Speed, E anable transmission output speed sensor performance diagnostic enabled Service mode 90 da active and end of the processing active No Change in Transfer Case Range (High <> Low) for P0723 Status is not P0723 Status is						Transmission Dance Frankla		TDUE	Can Dalaw		
Inable transmission output speed sensor performance diagnostic enable Service mode \$04 active and end of trip pocessing active No Change in Transfer Case Range (High <> Low) for P0723 Status is not Disable this DTC if the PTO is active Ignition Voltage Hyst Is (enabled above this value) Ignition Voltage Hyst Is disable below this value) Service Fast Learn (SFL) Mode VBS Failsate Ignition Voltage Mar (disabled above this value) Service Fast Learn (SFL) Mode VBS Failsate Ignition Voltage Mar (disabled above this value) Service Fast Learn (SFL) Mode VBS Failsate Ignition Voltage Mar (disabled above this value) Service Fast Learn (SFL) Mode VBS Failsate Ignition Voltage Mar (disabled above this value) Service Fast Learn (SFL) Mode VBS Failsate Ignition Voltage Mar (disabled above this value) Service Fast Learn (SFL) Mode VBS Failsate Ignition Voltage Mar (disabled above this value) Service Fast Learn (SFL) Mode VBS Failsate Ignition Voltage Mar (disabled above this value) Service Fast Learn (SFL) Mode VBS Failsate Ignition Voltage Mar (disabled above this value) Service Fast Learn (SFL) Mode VBS Failsate Ignition Voltage Mar (disabled above this value) Service Fast Learn (SFL) Mode VBS Failsate Ignition Voltage Mar (disabled above this value) Service Fast Learn (SFL) Mode VBS Failsate Ignition Voltage Mar (disabled above this value) Service Fast Learn (SFL) Mode VBS Failsate Ignition Voltage Mar (disabled above this value) Service Fast Learn (SFL) Mode VBS Failsate Ignition Voltage Mar (disabled above this value) Service Fast Learn (SFL) Mode VBS Failsate Service Fast Learn (SFL) Service											
sensor performance diagnostic enable Service mode \$04 active and end of trip pocessing active No Change in Transfer Case No Change (High <> Low) for P0723 Status is not P0723 Status is not Disable this DTC if the PTO is active Ignition Voltage Hyst Hi (enabled above this value) Ignition Voltage Hyst Learn (SFL) Mode VBS Failsade Ignition Voltage Max (disabled above this value) Ignition Voltage MMx (disabled above this value)						nable	=	TRUE	See Below		
enable Service mode \$04 active and end of frip pocessing active No Change in Transfer Case Range (High <-> Low) for P0723 Status is not Disable this DTC if the PTO is active liquition Voltage Hyst Hill (enabled above this value) Ignition Voltage Hyst Lidisabled below this value) Service Fast Learn (SFL) Mode VBS Falisable Ignition Voltage Max (disabled above this value) Ignition Voltage Mine (nabled)								1	Daalaan		
Service mode \$04 active and end of trip pocessing active No Change in Transfer Case Range (High <> Low) for P0723 Status is not P0723 Status is not Institute Institut							=	1	Boolean		
No Change in Transfer Case No Change in The Seconds No Change in Transfer Case No Change in The Seconds No Change in Transfer Case No Change in The Seconds No Change in The Secon						Service mode \$04 active and	_	ENISE	Rooloan		
Range (High <>> Low) for						end of trip pocessing active	=	FALSE	Doolean		
P0723 Status is not P0723 Status is not Disable this DTC if the PTO is active Ignition Voltage Hyst Hi (enabled above this value) Ignition Voltage Hyst Lo disabled below this value) Service Fast Learn (SFL) Mode VBS Failsafe Ignition Voltage Max (disabled above this value) Ignition Voltage Max (disabled above this value) Service Fast Learn (SFL) Mode VBS Failsafe Ignition Voltage Max (disabled above this value) Ignition Voltage Min (enabled below this valu						No Change in Transfer Case Range (High <-> Low) for	>=	5	Seconds		
P0723 Status is not P0723 Status is not								Tost Failed			
Disable this DTC if the PTO is active Ignition Voltage Hyst Hi (enabled above this value) Service Fast Learn (SFL) Mode VBS Failsafe Ignition Voltage Mis value) Ignition Voltage Mis (sabled above this value) Service Fast Learn (SFL) Enabled above this value) Ignition Voltage Min (enabled above this value) Ignition Voltage Min						B0700 01 1 1					
Disable this DTC if the PTO is active Ignition Voltage Hyst Hi (enabled above this value) Ignition Voltage Hyst Lo disabled below this value) Service Fast Learn (SFL) Mode VBS Fallsafe Ignition Voltage Max (disabled above this value) Ignition Voltage Min (enabled Service Fast Learn (SFL) = FALSE Boolean Service Fast Learn (SFL) = Service Fast						P0/23 Status is not	=	On or Fault			
active Ignition Voltage Hyst Hi (enabled above this value) Ignition Voltage Hyst Lo disabled below this value) Service Fast Learn (SFL) Mode VBS Failsafe Ignition Voltage Max (disabled above this value) Ignition Voltage Min (enabled Service Fast Learn (SFL) Above this value) Ignition Voltage Min (enabled Service Fast Learn (SFL) Above this value) Ignition Voltage Min (enabled Service Fast Learn (SFL) Above this value) Ignition Voltage Min (enabled Service Fast Learn (SFL) Above this value) Ignition Voltage Min (enabled Service Fast Learn (SFL) Above this value) Ignition Voltage Min (enabled Service Fast Learn (SFL) Above this value) Ignition Voltage Min (enabled Service Fast Learn (SFL) Above this value) Ignition Voltage Min (enabled Service Fast Learn (SFL) Above this value) Ignition Voltage Min (enabled Service Fast Learn (SFL) Above this value) Ignition Voltage Min (enabled Service Fast Learn (SFL) Above this value) Ignition Voltage Min (enabled Service Fast Learn (SFL) Above this value) Ignition Voltage Min (enabled Service Fast Learn (SFL) Above this value) Ignition Voltage Min (enabled Service Fast Learn (SFL) Above this value) Ignition Voltage Min (enabled Service Fast Learn (SFL) Above this value) Ignition Voltage Min (enabled Service Fast Learn (SFL) Above this value) Ignition Voltage Min (enabled Service Fast Learn (SFL) Above this value) Ignition Voltage Min (enabled Service Fast Learn (SFL) Above this value) Ignition Voltage Min (enabled Service Fast Learn (SFL) Above this value) Ignition Voltage Min (enabled Service Fast Learn (SFL) Above this value) Ignition Voltage Min (enabled Service Fast Learn (SFL) Above this value) Ignition Voltage Min (enabled Service Fast Learn (SFL) Above this value) Ignition Voltage Min (enabled Service Fast Learn (SFL) Above this value) Ignition Voltage Min (enabled Service Fast Learn (SFL) Above this value) Ignition Voltage Min (enabled Service Fast Learn (SFL) Above this value (Ignition Voltage Min (enabled Service Fast Learn (SFL) Above this value (Ignition Voltage M								Active			
Ignition Voltage Hyst Hi (enabled above this value) Ignition Voltage Hyst Lo disabled below this value) Service Fast Learn (SFL) Mode VBS Failsafe Ignition Voltage Max (disabled above this value) Ignition Voltage Min (enabled							=	1	Boolean		
Cenabled above this value Society Societ											
Ignition Voltage Hyst Lo disabled below this value) Service Fast Learn (SFL) Mode VBS Fallsafe Ignition Voltage Max (disabled above this value) Ignition Voltage Min (enabled A Volts							>	5	Volts		
Service Fast Learn (SFL) Mode VBS Fallsafe Ignition Voltage Max (disabled above this value) Ignition Voltage Min (enabled above this value)						Ignition Voltage Hyst Lo	<=	2	Volts		
Mode VBS Failsafe = FALSE Boolean Ignition Voltage Max (disabled above this value) Ignition Voltage Min (enabled a volts)							-				
above this value) <= 31.797023 voits Ignition Voltage Min (enabled g Volts							=	FALSE	Boolean		
Ignition Voltage Min (enabled						Ignition Voltage Max (disabled	<=	31 999023	Volts		
							_	31.777023	VOIG		1
						ignition voltage Min (enabled above this value)	>=	9	Volts		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Condition	s	Time Required	Mil Illum.
					P077C Status is not	Test Faile = This Key On			
					P077D Status is not	Test Faile = This Key On			
					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	>= 2 <= 4095.875 >= 148	Enable Time (Sec) RPM 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	= 0 = TRUE	RPM Boolean		
					Neutral_Range_Enable is TRUE when any of the next 3 conditions are TRUE Transmission Range is	= Neutral	ENUM		
					Transmission Range is	Reverse/I = eutral Transitona Neutral/D	ENUM al		
					Transmission Range is	= ve Transition	a ENUM		
					KeTOSI_n_OutSpdInNeutNois eMaxLim	< 50	RPM		
					and when Loop to Loop Drop of Transmission Output Speed is	> 500	RPM		
					Range_Disable is TRUE when any of the next three conditions are TRUE				
					Transmission Range is	= Park Park/Reve			
					Transmission Range is	= se Transitona ON (Fully Applied)	FNIIM		
					Neutral_Speed_Enable is TRUE when All of the next three conditions are satsified	> 2	Seconds		
					for Transmission Output Speed	>= 50	RPM		

Component/	Fault	Monitor Strategy	Malfunction	Т	nreshold	Secondary		Enable			Tin	ne	Mil
System	Code	Description	Criteria		Value	Malfunction		Conditions			Requ		Illum.
						The loop to loop change of the Transmission Output Speed is	<	20	RPM				
						The loop to loop change of the Transmission Output Speed is	>	-140	RPM				
						Transmission_Range_Enable is TRUE when one of the next							
						six conditions is TRUE Transmission Range is	=	Neutral Reverse/N	ENUM				
						Transmission Range is	=	eutral Transitiona I Neutral/Dri					
						Transmission Range is	=	ve Transitiona	ENHM				
						Time since a driven range (R,D) has been selected	>=	see Table 21 in supporting documents	Sec				
						Transmission Output Speed Sensor Raw Speed Output Speed when a fault	>=	250 250	RPM RPM				
					Disable Conditions:								
	+	Pressure Control Solenoid A Stuck						.,,					One Trip
Variable Force Solenoid (VFS)	P0746	Off (clutch1/CB1278R)	absolute value (attained gear slip)	>= 400	RPM					>=	3	seconds when fail time	One mp
											3	reaches fail limit increment fail event count	
						clutch solenoid stuck on performance diagnostic monitor test deceleration limit	=	TRUE	boolean	>=	3	event counts	
						clutch solenoid stuck on performance diagnostic monitor test return to previous	=	TRUE	boolean				
						range not PRNDL State not PRNDL State not PRNDL State not while conditinos A and B and	=	park neutral	enumeration enumeration				
						C are met, time down delay from clibration to 0.0 seconds delay time calibration A) neutral condition fault	=	0.5 FALSE	seconds				
						pending B) intrusive shift active	=	FALSE	boolean boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					C) range shift state intrusive shift allowed intrusive shift active steady state pressure adapt in progress transmission output speed accelerator pedal position	= shift complete enumeration = TRUE boolean = FALSE boolean = FALSE boolean >= 100 RPM >= 0.5004883 %		
					accelerator pedal position valid engine speed valid	= TRUE Boolean = TRUE Boolean		
					D or E D) select battery voltage to to enable diagnsotic monitor E) battery voltage E) battery voltage E) battery voltage time	= 0 Boolean <= 31.999023 volts >= 9 volts >= 0.1 sec		
					F or G F) select ignition voltage to to enable diagnsotic monitor G) Ignition Voltage G) Ignition Voltage Service Fast Learn (SFL) Mode VBS Failsafe	= 0 Boolean		
					Ignition voltage and SFL conditions met for Hydraulic System Pressurized high side driver 1 enabled high side driver 2 enabled	= TRUE Boolean		
				Disable Conditions		TCM: P0716, P0717, P0722, P0723, P077C, P077D, P07BF, P07C0, P1824, P182A, P182B, P182C, P182D, P182E, P182F, P1838, P1839, P1840, P1841, P18B5, P18B6, P18B7, P18B8, P18B9, P18BA, P18BB, P18BC, P18BD, P18BE, P18BF, P18C0, P18C1, P18C2, P18C3, P1915, P2534		
						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 Force Solenoid (VFS)	P0747	Pressure Control Solenoid A Stuck On (clutch1/CB1278R)	automatic transmission shift torque phase test (A) or inertia phase test (B) fail event count deceleration limited automatic transmission shift torque phase test (A) or inertia phase test (B) fail event count no deceleration	see Table 32 >= in supporting fail event counts documents see Table 33 >= in supporting fail event counts documents				One Trip
			A) absolute value (attained gear slip), fail during post torque phase of transmission automatic shift, before engine speed change, pull up or pull down occurs	<= 40 RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Require	ed	Mil Illum.
			increment fail time when slip criteria met, fail time for power down shift increment fail time when slip criteria met, fail time for up shift or closed throttle down shift deceleration limited					see Table 29 >= in supporting documents see Table 30 >= in supporting documents	seconds seconds	
			increment fail time when slip criteria met, fail time for up shift or closed throttle down shift no deceleration						seconds when fail time reaches fail limit	
			B) absolute value (command gear slip), fail during inertia phase of transmission automatic shift,	>= 70 RPM					increment fail event count above	
			engine speed change begins, pull up or pull down increment fail time when slip criteria met, fail time during shift deceleration limited increment fail time when slip criteria met, fail time during shift no deceleration					see Table 35 >= in supporting documents see Table 36 >= in supporting documents	seconds	
					inertia phase test measured				when fail time reaches fail limit increment fail event count above	
					gear ratio inertia phase test measured	>= 0.558				
					gear ratio inertia phase test measured gear ratio time	>= 0.15	seconds			
					clutch test enabled	see Table 10 in supporting documents	boolean			
					post torque phase test engine torque hysteresis high enable for upshift or power on down shift	see Table 11 in supporting documents	N*m			
					post torque phase test engine torque hysteresis low disable for upshift or power on down shift	see Table 12 in supporting documents	N*m			
					post torque phase test engine torque hysteresis high enable for closed throttle down shift	see Table 13 in supporting documents	N*m			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
					post torque phase test engine torque hysteresis low disable for closed throttle down shift	>	see Table 14 in supporting documents	N*m		
					inertia phase test engine torque hysteresis high enable for upshift or power on down shift	>=	see Table 15 in supporting documents	N*m		
					inertia phase test engine torque hysteresis low disable for upshift or power on down shift	>	see Table 16 in supporting documents	N*m		
					inertia phase test engine torque hysteresis high enable for closed throttle down shift	>=	see Table 17 in supporting documents	N*m		
					inertia phase test engine torque hysteresis low disable for closed throttle down shift	>	see Table 18 in supporting documents	N*m		
					off going clutch pressure	<=	see Table 37 in supporting documents	kPa		
					off going clutch pressure closed throttle down shift delay time	>=	see Table 2 in supporting documents	seconds		
					off going clutch pressure closed power down shift delay time	>=	see Table 38 in supporting documents	seconds		
					off going clutch pressure up shift delay time	>=	see Table 59 in supporting documents	seconds		
					on coming clutch pressure for up shift	>=	see Table 8 in supporting documents	kPa		
					on coming clutch pressure for down shift	>=	see Table 7 in supporting documents	kPa		
					brake pedal position hysteresis high disable brake pedal position hysteresis low enable	>= <=	27.000427 25	%		

Component/	Fault	Monitor Strategy	Malfunction		Thres		Secondary Malfunction		Enable			Tin		Mil Illum.
System	Code	Description	Criteria		Valu	ue	absolute value (attained gear		Conditions			Requ	iirea	ilium.
							slip)	<=	40	RPM				
							5.ip)		T					
									see Table 45 in					
							shift type enable	=	supporting	boolean				
									documents					
							clucth solenoid stuck off	=	TRUE	boolean				
							intrusive shift request not traction control event test							
							suspend not	=	TRUE	boolean				
							transmission output speed	>=	100	RPM				
							accelerator pedal position valid		TRUE	Boolean				
								_						
							engine speed valid	=	TRUE	Boolean				
							D or E							
							D) select battery voltage to	=	0	Boolean				
							enable diagnsotic monitor		31.999023	volts				
							E) battery voltage E) battery voltage	<= >=	31.999023 9	volts				
							E) battery voltage time	>=	0.1	sec				
							F or G		0.1	500				
							F) select ignition voltage to		0	Dooloon				
							enable diagnsotic monitor	=	0	Boolean				
							G) Ignition Voltage	<=	31.999023	Volts				
							G) Ignition Voltage	>=	9	Volts				
							Service Fast Learn (SFL)	=	FALSE	Boolean				
							Mode VBS Failsafe							
							Ignition voltage and SFL conditions met for	>=	0.1	Sec				
							Hydraulic System Pressurized		TRUE	Boolean				
							high side driver 1 enabled		TRUE	Boolean				
							high side driver 2 enabled		TRUE	Boolean				
							, and the second							
						Disable	MIL not Illuminated for							
						Conditions:	DIC's:		7D, P07BF, P07					
									2B, P182C, P18					
									88, P1839, P184 86, P18B7, P18					
									3B, P18BC, P18					
									CO, P18C1, P18					
								P1915, P253						
									, P0102, P0103					
									8, P0171, P017					
									1, P0202, P020					
									6, P0207, P020					
									2, P0303, P030 7, P0308, P040					
W. I.I. 5 O. L. 1175	D0==:	Pressure Control Solenoid B Stuck						. 5555, 1 550	.,. 5550,1 040	.,	\vdash			One Trip
Variable Force Solenoid (VFS)	P0776	Off (clutch2/CB12345R)	absolute value (attained gear slip)	>=	400	RPM					>=	3	seconds	
		· ·											when fail time	
													reaches fail limit	
													increment fail	
												2	event count	
I	I	I	I	I			l	l			>=	3	event counts	ı l

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum
					clutch solenoid stuck on					
					performance diagnostic		TRUE	boolean		
					monitor test deceleration limit	=	IKUE	DUDIEALI		
					not					
					clutch solenoid stuck on					
					performance diagnostic		TRUE	hooloon		
					monitor test return to previous	=	TRUE	boolean		
					range not					
					PRNDL State not	=	park	enumeration		
					PRNDL State not	=	neutral	enumeration		
					while conditinos A and B and					
					C are met, time down delay					
					from clibration to 0.0 seconds					
					delay time calibration	=	0.5	seconds		
					A) neutral condition fault	=	FALSE	boolean		
					pending	=				
					B) intrusive shift active	=	FALSE	boolean		
					C) range shift state	=	shift	enumeration		
						=	complete	enumeration		
					intrusive shift allowed	=	TRUE	boolean		
					intrusive shift active	=	FALSE	boolean		
					steady state pressure adapt in	=	FALSE	boolean		
					progress	=	FALSE	boolean		
					transmission output speed	>=	100	RPM		
					accelerator pedal position	>=	0.5004883	%		
					accelerator pedal position valid	=	TRUE	Boolean		
						=				
					engine speed valid	=	TRUE	Boolean		
					D or E					
					D) select battery voltage to	=	0	Boolean		
					enable diagnsotic monitor	_	U	Doolean		
					E) battery voltage	<=	31.999023	volts		
					E) battery voltage	>=	9	volts		
					E) battery voltage time	>=	0.1	sec		
					F or G					
					F) select ignition voltage to	=	0	Boolean		
					enable diagnsotic monitor	=				
					G) Ignition Voltage	<=	31.999023	Volts		
					G) Ignition Voltage	>=	9	Volts		
					Service Fast Learn (SFL)	=	FALSE	Boolean		
					Mode VBS Failsafe	=	FALSE	DUUICAIT		
					Ignition voltage and SFL	>=	0.1	Sec		
					conditions met for	>=	U. I	200		
					Hydraulic System Pressurized	=	TRUE	Boolean		
					high side driver 1 enabled	=	TRUE	Boolean		
					high side driver 2 enabled	=	TRUE	Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Requir		Mil Illum.
System	Code	Description	Griteria	Value Disa Conditio	ole MIL not Illuminated for		Kequir	eu	mum.
Variable Force Solenoid (VFS)	P0777	Pressure Control Solenoid B Stuck On (clutch2/CB12345R)	automatic transmission shift torque phase test (A) or inertia phase test (B) fail event count deceleration limited automatic transmission shift	see Table 32 >= in supporting fail event coun documents see Table 33	IS				One Trip
			torque phase test (A) or inertia phase test (B) fail event count no deceleration A) absolute value (attained gear slip), fail during post torque phase of transmission automatic shift,	>= in supporting fail event coundocuments <= 40 RPM	ds				
			before engine speed change, pull up or pull down occurs increment fail time when slip criteria met, fail time for power down shift				see Table 29 >= in supporting documents	seconds	
			increment fail time when slip criteria met, fail time for up shift or closed throttle down shift deceleration limited increment fail time when slip				see Table 30 >= in supporting documents see Table 31	seconds	
			criteria met, fail time for up shift or closed throttle down shift no deceleration				>= in supporting documents	seconds when fail time reaches fail limit	
			B) absolute value (command gear					increment fail event count above	
			slip), fail during inertia phase of transmission automatic shift, engine speed change begins, pull up or pull down increment fail time when slip	>= 70 RPM			see Table 35		
			criteria met, fail time during shift deceleration limited increment fail time when slip criteria met, fail time during shift				>= in supporting documents see Table 36 >= in supporting	seconds	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Condition	ıs	Time Required	Mil Illum
								when fail time reaches fail limit increment fail event count above	
					inertia phase test measured gear ratio inertia phase test measured	>= 0.558	12	33010	
					gear ratio inertia phase test measured gear ratio time	>= 0.15	seconds		
					clutch test enabled	see Tab 10 in supporti documen	boolean		
					post torque phase test engine torque hysteresis high enable for upshift or power on down shift	see Tab 11 in supporti documei	N*m		
					post torque phase test engine torque hysteresis low disable for upshift or power on down shift	see Tab 12 in supporti documer	ng N*m		
					post torque phase test engine torque hysteresis high enable for closed throttle down shift	>= see Tab 13 in supporti documer	N*m		
					post torque phase test engine torque hysteresis low disable for closed throttle down shift	see Tab 14 in supporti documer	N*m		
					inertia phase test engine torque hysteresis high enable for upshift or power on down shift	see Tab 15 in supporti documen	ng N*m		
					inertia phase test engine torque hysteresis low disable for upshift or power on down shift	see Tab 16 in supporti documer	N*m		
					inertia phase test engine torque hysteresis high enable for closed throttle down shift	see Tab 17 in supporti documer	N*m		
					inertia phase test engine torque hysteresis low disable for closed throttle down shift	see Tab 18 in supporti documer	ng N*m		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
					off going clutch pressure	<=	see Table 37 in supporting documents	kPa	·	
					off going clutch pressure closed throttle down shift delay time	>=	see Table 3 in supporting documents	seconds		
					off going clutch pressure closed power down shift delay time	>=	see Table 39 in supporting documents	seconds		
					off going clutch pressure up shift delay time	>=	see Table 60 in supporting documents	seconds		
					on coming clutch pressure for up shift	>=	see Table 8 in supporting documents	kPa		
					on coming clutch pressure for down shift	>=	see Table 7 in supporting documents	kPa		
					brake pedal position hysteresis high disable	>=	27.000427	%		
					brake pedal position hysteresis low enable	<=	25	%		
					absolute value (attained gear slip)	<=	40	RPM		
					shift type enable	=	see Table 45 in supporting documents	boolean		
					clucth solenoid stuck off intrusive shift request not	=	TRUE	boolean		
					traction control event test suspend not	=	TRUE	boolean		
					transmission output speed	>=	100	RPM		
					accelerator pedal position valid	=	TRUE	Boolean		
					engine speed valid D or E	=	TRUE	Boolean		
					 D) select battery voltage to enable diagnsotic monitor 	=	0	Boolean		
					E) battery voltage	<=	31.999023	volts		
					E) battery voltage E) battery voltage time	>= >=	9 0.1	volts sec		
					F or G F) select ignition voltage to	~-	J. I	300		
					enable diagnsotic monitor	=	0	Boolean		
	I		l	l	G) Ignition Voltage	<=	31.999023	Volts	1	I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thres Val		Secondary Malfunction		Enable Conditions			Time Required		Mil Illum.
System	Code	Description	Criteria	Vai	ue	G) Ignition Voltage	>=	9	Volts		Required		mum.
						Service Fast Learn (SFL)	=	FALSE	Boolean				
						Mode VBS Failsafe	_	TALSE	Doolcan				
						Ignition voltage and SFL conditions met for	>=	0.1	Sec				
						Hydraulic System Pressurized		TRUE	Boolean				
						high side driver 1 enabled		TRUE	Boolean				
						high side driver 2 enabled	=	TRUE	Boolean				
					Disable								
					Conditions:	DTC's:		D, P07BF, P07					
								B, P182C, P18 8, P1839, P18					
								6, P18B7, P18					
								B, P18BC, P1					
							P18BF, P18C	0, P18C1, P18	3C2, P18C3,				
							1 1713,1 233-	T					
								P0102, P0103					
								3, P0171, P017 1, P0202, P020					
								1, F0202, F020 5, P0207, P020					
							P0301, P0302	2, P0303, P030	04, P0305,				
Tarana lada Ostart Carad Caran							P0306, P0307	7, P0308, P040)1, P042E				On a Tala
Transmission Output Speed Sensor (TOSS)	P077C	Output Speed Sensor Circuit Low	TOSS Analog Signal Voltage	<= 0.25	Volts					>= 5.	00E-02	sec	One Trip
(122)				Test Failed									
			P077C Status is not										
			If the above conditons have been	or Fault Active									
			met, increment the P077C Fail										
			Counter										
			DTC P077C Sets when the Fail	>= 16	Counts (6.25 msec								
			Counter	7- 10	continuous)								
						P077C Enable Calibration		1					
						Service mode \$04 active and end of trip pocessing active		FALSE	Boolean				
						Ignition Voltage Hyst Hi		-	\ / - It -				
						(enabled above this value)		5	Volts				
						Ignition Voltage Hyst Lo disabled below this value)	<=	2	Volts				
						Service Fast Learn (SFL)		E41.0E					
						Mode VBS Failsafe	=	FALSE	Boolean				
						Battery Voltage Max (disabled	<=	31.999023	Volts				
						above this value) Battery Voltage Min (disabled							
						below this value)	<=	10	Volts				
						Ignition Voltage Min (disabled	>=	10	Volts				
						below this value) for voltage stablity time	>=	5	seconds				
						Tor voltage stability tillle		5	30001103				
					=.		TOM 5						
					Disable Conditions:		ICM: P077D						
					Conditions.	D10 3.							

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thre: Va	shold lue	Secondary Malfunction		Enable Conditions			Tiı Reqı	me uired	Mil Illum.
Transmission Output Speed Sensor (TOSS)		Output Speed Sensor Circuit High	TOSS Analog Signal Voltage) >=		Volts					>=	5.00E-02	sec	One Trip
(1033)					Test Failed									
			P077D Status is not		This Key On r Fault Active									
			If the above conditons have been	n	i i duit Active	•								
			met, increment the P077D Fail Counter											
			DTC P077D Sets when the Fail			Counts (12.5								
			Counter		16	msec continuous)								
							P077D Enable Calibration	=	1					
							Service mode \$04 active and end of trip pocessing active	=	FALSE	Boolean				
							Ignition Voltage Hyst Hi	>	5	Volts				
							(enabled above this value) Ignition Voltage Hyst Lo							
							disabled below this value)	<=	2	Volts				
							Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean				
							Battery Voltage Max (disabled	<=	31.999023	Volts				
							above this value) Battery Voltage Min (disabled							
							below this value)	<=	10	Volts				
							Ignition Voltage Min (disabled below this value)	>=	10	Volts				
							for voltage stablity time	>=	5	seconds				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P077C							
						Conditions.	DICS.							
		Pressure Control Solenoid C Stuck		\vdash										One Trip
Variable Force Solenoid (VFS)	P0796	Off (clutch3/C13567)	absolute value (attained gear slip)	>=	400	RPM					>=	3	seconds	'
													when fail time reaches fail lim	
													increment fail	
											>=	3	event count event counts	
							clutch solenoid stuck on							
							performance diagnostic monitor test deceleration limit	=	TRUE	boolean				
							not clutch solenoid stuck on							
							performance diagnostic	=	TRUE	boolean				
							monitor test return to previous range not	_	TRUL	boolean				
							PRNDL State not	=	park	enumeration				
							PRNDL State not while conditinos A and B and	=	neutral	enumeration				
							C are met, time down delay							
							from clibration to 0.0 seconds delay time calibration	=	0.5	seconds				
							A) neutral condition fault	=	FALSE	boolean				
							pending B) intrusive shift active	=	FALSE	boolean				
							C) range shift state	=	shift	enumeration				
l		l		I			C) range stillt state	_	complete	CHUITICIANUII	I			

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable		Time	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions		Required	Illum.
					intrusive shift allowed		boolean boolean		
					intrusive shift active		boolean		
					steady state pressure adapt in	= FALSE	boolean		
					progress	>= 100	RPM		
					transmission output speed				
					accelerator pedal position	>= 0.5004883	%		
					accelerator pedal position valid	= TRUE	Boolean		
					engine speed valid	I = TRUE	Boolean		
					D or E		Doolean		
					D) select battery voltage to				
							Boolean		
					enable diagnsotic monitor		volto		
					E) battery voltage				
					E) battery voltage	>= 9	volts		
					E) battery voltage time		sec		
					F or G				
					F) select ignition voltage to		Boolean		
					enable diagnsotic monitor		17-11-		
	1				G) Ignition Voltage				
					G) Ignition Voltage	>= 9	Volts		
					Service Fast Learn (SFL)	= FALSE	Boolean		
					Mode VBS Failsafe				
					Ignition voltage and SFL	>= 0.1	Sec		
					conditions met for				
					Hydraulic System Pressurized		Boolean		
					high side driver 1 enabled		Boolean		
					high side driver 2 enabled	= TRUE	Boolean		
				Disable		TCM: P0716, P0717, P072			
				Conditions	DTC's:	P077C, P077D, P07BF, P0			
						P182A, P182B, P182C, P1			
						P182F, P1838, P1839, P18			
						P18B5, P18B6, P18B7, P1			
						P18BA, P18BB, P18BC, P			
						P18BF, P18C0, P18C1, P1	8C2, P18C3,		
						P1915, P2534			
						ECM: P0101, P0102, P010			
						P0107, P0108, P0171, P01			
						P0175, P0201, P0202, P02			
						P0205, P0206, P0207, P02			
						P0301, P0302, P0303, P03			
	1				ļ	P0306, P0307, P0308, P04	U1, P042E		
	1	L	automatic transmission shift	see Table 32					One Trip
Variable Force Solenoid (VFS)	P0797	Pressure Control Solenoid C Stuck	torque phase test (A) or inertia	>= in supporting fail event counts					
variable i elec colonela (vi e)		On (clutch3/C13567)	phase test (B) fail event count	documents					
	1		deceleration limited	2004.1101.110					
			automatic transmission shift	see Table 33					
			torque phase test (A) or inertia	>= in supporting fail event counts					
	1		phase test (B) fail event count no	documents					
			deceleration	23041101110					
	1		A) absolute value (attained gear						
	1		slip), fail during post torque phase						
			of transmission automatic shift,	<= 40 RPM					
	1		before engine speed change, pull						
1	1	1	up or pull down occurs	l		1			
									· · · · · · · · · · · · · · · · · · ·

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Require	ed	Mil Illum.
			increment fail time when slip criteria met, fail time for power down shift increment fail time when slip criteria met, fail time for up shift or closed throttle down shift deceleration limited					see Table 29 >= in supporting documents see Table 30 >= in supporting documents	seconds seconds	
			increment fail time when slip criteria met, fail time for up shift or closed throttle down shift no deceleration						seconds when fail time reaches fail limit	
			B) absolute value (command gear slip), fail during inertia phase of transmission automatic shift,	>= 70 RPM					increment fail event count above	
			engine speed change begins, pull up or pull down increment fail time when slip criteria met, fail time during shift deceleration limited increment fail time when slip criteria met, fail time during shift no deceleration					see Table 35 >= in supporting documents see Table 36 >= in supporting documents	seconds	
					inertia phase test measured				when fail time reaches fail limit increment fail event count above	
					gear ratio inertia phase test measured	>= 0.558				
					gear ratio inertia phase test measured gear ratio time	>= 0.15	seconds			
					clutch test enabled	see Table 10 in supporting documents	boolean			
					post torque phase test engine torque hysteresis high enable for upshift or power on down shift	see Table 11 in supporting documents	N*m			
					post torque phase test engine torque hysteresis low disable for upshift or power on down shift	see Table 12 in supporting documents	N*m			
					post torque phase test engine torque hysteresis high enable for closed throttle down shift	see Table 13 in supporting documents	N*m			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
,					post torque phase test engine torque hysteresis low disable for closed throttle down shift	>	see Table 14 in supporting documents	N*m	·	
					inertia phase test engine torque hysteresis high enable for upshift or power on down shift	>=	see Table 15 in supporting documents	N*m		
					inertia phase test engine torque hysteresis low disable for upshift or power on down shift	>	see Table 16 in supporting documents	N*m		
					inertia phase test engine torque hysteresis high enable for closed throttle down shift	>=	see Table 17 in supporting documents	N*m		
					inertia phase test engine torque hysteresis low disable for closed throttle down shift	>	see Table 18 in supporting documents	N*m		
					off going clutch pressure	<=	see Table 37 in supporting documents	kPa		
					off going clutch pressure closed throttle down shift delay time	>=	see Table 4 in supporting documents	seconds		
					off going clutch pressure closed power down shift delay time	>=	see Table 40 in supporting documents	seconds		
					off going clutch pressure up shift delay time	>=	see Table 61 in supporting documents	seconds		
					on coming clutch pressure for up shift	>=	see Table 8 in supporting documents	kPa		
					on coming clutch pressure for down shift	>=	see Table 7 in supporting documents	kPa		
					brake pedal position hysteresis high disable brake pedal position hysteresis low enable	>= <=	27.000427 25	%		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions			Time Required		Mil Illum.
		·			absolute value (attained gea	<=	40	RPM				
					slip)	10	101 101				
							see Table					
					shift type enable	=	45 in supporting	boolean				
							documents					
					clucth solenoid stuck of	f	TOUE					
					intrusive shift request no	t =	TRUE	boolean				
					traction control event tes		TRUE	boolean				
					suspend no transmission output speed		100	RPM				
					accelerator pedal position valid		TRUE	Boolean				
					engine speed valid		TRUE	Boolean				
					D or E		INUL	boolean				
					D) select battery voltage to		0	Boolean				
					enable diagnsotic monito E) battery voltage	r	31.999023	volts				
					E) battery voltage	>=	9	volts				
					E) battery voltage time	>=	0.1	sec				
					F or (F) select ignition voltage to	i i						
					enable diagnsotic monito	r =	0	Boolean				
					G) Ignition Voltage	<=	31.999023	Volts				
					G) Ignition Voltago Service Fast Learn (SFL	>=	9	Volts				
					Mode VBS Failsafe	=	FALSE	Boolean				
					Ignition voltage and SFI	>=	0.1	Sec				
					conditions met fo Hydraulic System Pressurized		TRUE	Boolean				
					high side driver 1 enable		TRUE	Boolean				
					high side driver 2 enable	=	TRUE	Boolean				
				Di	sable MIL not Illuminated fo	TCM: P0716,	P0717, P0722	, P0723,				
				Condi	ions: DTC's	: P077C, P077						
							B, P182C, P18 8, P1839, P184					
							6, P18B7, P18					
							BB, P18BC, P1					
						P188F, P180	CO, P18C1, P18 4	3C2, P18C3,				
							. P0102, P0103 8, P0171, P017					
							6, P0171, P017 1, P0202, P020					
						P0205, P020	6, P0207, P020	08, P0300,				
							2, P0303, P030 7, P0308, P040					
T	0) 00755	Input/Turbine Speed Sensor A Circuit				FU3U0, PU3U	1, FU3U0, PU4U	71, PU4ZE				One Trip
Transmission Input Speed Sensor (TISS	S) P07BF	Low	TISS Analog Signal Voltage						>= 5.00	E-02	sec	
			DOZDE Challes to make	Test Failed								
			P07BF Status is not	 This Key On or Fault Active 								
			If the above conditons have been									
			met, increment the P07BF Fail									
I	I		Counter	1	I	I			I			1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold alue	Secondary Malfunction		Enable Conditions		Ti Req	me uired	Mil Illum.
		·	DTC P07BF Sets when the Fail Counter	>= 16	Counts (12.5 msec continuous)							
					,	speed sensor processing	=	time based				
						P07BF Enable Calibration	=	1				
						Service mode \$04 active and end of trip pocessing active	=	FALSE	Boolean			
						Ignition Voltage Hyst Hi	>	5	Volts			
						(enabled above this value) Ignition Voltage Hyst Lo	<=	2	Volts			
						disabled below this value) Service Fast Learn (SFL)						
						Mode VBS Failsafe	=	FALSE	Boolean			
						Battery Voltage Max (disabled above this value)	<=	31.999023	Volts			
						Battery Voltage Min (disabled below this value)	<=	10	Volts			
						Ignition Voltage Min (disabled below this value)	>=	10	Volts			
						for voltage stablity time	>=	5	seconds			
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P07C0					
					Conditions.	D10 3.						
Transmission Input Speed Sensor (TISS) P07C0	Input/Turbine Speed Sensor A Circuit	TISS Analog Signal Voltage	>= 4.75	Volts					>= 5.00E-02	sec	One Trip
Transmission input opecu scrisor (1100	1 0700	High	1133 / Wallog Signar Voltage	Test Failed	VOILS					y= 0.00E 02	300	
			P07C0 Status is not	 This Key On or Fault Active 								
			If the above conditons have been	OI Fault Activ	e							
			met, increment the P07C0 Fail Counter									
			DTC P07C0 Sets when the Fail	>= 16	Counts (12.5 msec							
			Counter	>= 10	continuous)							
						speed sensor processing	=	time based				
						P07C0 Enable Calibration Service mode \$04 active and	=	1				
						end of trip pocessing active	=	FALSE	Boolean			
						Ignition Voltage Hyst Hi (enabled above this value)	>	5	Volts			
						Ignition Voltage Hyst Lo disabled below this value)	<=	2	Volts			
						Service Fast Learn (SFL)	=	FALSE	Boolean			
						Mode VBS Failsafe Battery Voltage Max (disabled	<=	31.999023	Volts			
						above this value) Battery Voltage Min (disabled						
						below this value)	<=	10	Volts			
						Ignition Voltage Min (disabled below this value)	>=	10	Volts			
						for voltage stablity time	>=	5	seconds			
										1		

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria		eshold /alue	Secondary Malfunction	Enable Conditions		me uired	M Illu
- Cystem	Jour	Description		Ontona	-	Disable	MIL not Illuminated for				
						Conditions:	DTC's:				
	-		Fall Case 1	Ton Un Cruitale Ctual, in the Un							Cno
p Up Tap Down Switch (TUTD)	P0815	Upshift Switch Circuit	Fail Case 1	Tap Up Switch Stuck in the Up Position in Range 1 Enabled	= 1	Boolean					Spe No I
				Tap Up Switch Stuck in the Up							1001
				Position in Range 2 Enabled	= 1	Boolean					
				Tap Up Switch Stuck in the Up	= 1	Davis					
				Position in Range 3 Enabled	= 1	Boolean					
				Tap Up Switch Stuck in the Up	= 1	Boolean					
				Position in Range 4 Enabled		Booloan					
				Tap Up Switch Stuck in the Up	= 1	Boolean					
				Position in Range 5 Enabled Tap Up Switch Stuck in the Up							
				Position in Range 6 Enabled	= 1	Boolean					
				Tap Up Switch Stuck in the Up							
			Position in Range 7 Enabled	= 1	Boolean						
				Tap Up Switch Stuck in the Up	= 1	Boolean					
				Position in Range 8 Enabled	- 1	Doolean					
				Tap Up Switch Stuck in the Up	= 0	Boolean					
				Position in Neutral Enabled							
				Tap Up Switch Stuck in the Up Position in Park Enabled	= 0	Boolean					
				Tap Up Switch Stuck in the Up							
				Position in Reverse Enabled	= 0	Boolean					
				Tap Up Switch ON	= TRUE	Boolean			>= 1	Fail Time (Sec)
			Fail Case 2	Tap Up Switch Stuck in the Up	= 1	Boolean					
				Position in Range 1 Enabled	- '	Doolcan					
				Tap Up Switch Stuck in the Up	= 1	Boolean					
				Position in Range 2 Enabled Tap Up Switch Stuck in the Up							
				Position in Range 3 Enabled	= 1	Boolean					
				Tap Up Switch Stuck in the Up							
				Position in Range 4 Enabled	= 1	Boolean					
				Tap Up Switch Stuck in the Up	= 1	Boolean					
				Position in Range 5 Enabled	= 1	DUUIEAII					
				Tap Up Switch Stuck in the Up	= 1	Boolean					
				Position in Range 6 Enabled							
				Tap Up Switch Stuck in the Up Position in Range 7 Enabled	= 1	Boolean					
				Tap Up Switch Stuck in the Up							
				Position in Range 8 Enabled	= 1	Boolean					
				Tap Up Switch Stuck in the Up	= 0	Dooloon					
			Position in Neutral Enabled	= 0	Boolean						
			Tap Up Switch Stuck in the Up	= 0	Boolean						
			Position in Park Enabled	-							
			Tap Up Switch Stuck in the Up Position in Reverse Enabled	= 0	Boolean						
			Tap Up Switch ON	= TRUE	Boolean						
			NOTE: Both Failcase1 and	INOL	500.00.1				E 11 T1 (0.1)		
			Failcase 2 Must Be Met					>= 120	Fail Time (Sec)	
											1
									1		1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
						upshift switch diagnostic monitor enable calibration Service mode \$04 active and	- FALSE Roolean		
						end of trip pocessing active Ignition Voltage Hyst Hi (enabled above this value)	5 Volte		
						Ignition Voltage Hyst Lo disabled below this value)) /olts		
						Service Fast Learn (SFL) Mode VBS Failsafe			
						Ignition Voltage Max (disabled above this value) Ignition Voltage Min (enabled	<= 31.999023 VOIIS		
						above this value) Time Since Last Range	>= 9 VOITS Fnable Time		
						Change			
						P0815 Status is	This Man		
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0826, P1824, P182A, P182B, P182C, P182D, P182E, P182F, P1838, P1839, P1840, P1841, P18B5, P18B6, P18B7, P18B8, P18B9, P18BA, P18BB, P18BC, P18BD, P18BE, P18BF, P18C0, P18C1, P18C2, P18C3,		
							P1915, P1761		
Tap Up Tap Down Switch (TUTD)	P0816	Downshift Switch Circuit	Fail Case 1 Tap Down Switch Stuck in the Down Position in Range 1 Enabled	=	1 Boolean		ECM: None		Special No MIL
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	=	1 Boolean				
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	=	1 Boolean				
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	=	1 Boolean				
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	=	1 Boolean				
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	=	1 Boolean				
			Tap Down Switch Stuck in the Down Position in Range 7 Enabled	=	1 Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Т	hreshold Value	Secondary Malfunction	Enable Conditions	Time Require	ed	Mil Illum.
			Tap Down Switch Stuck in the Down Position in Range 8 Enabled	= 1	Boolean					
			Tap Down Switch Stuck in the Down Position in Range Neutral Enabled	= 0	Boolean					
			Tap Down Switch Stuck in the Down Position in Range Park Enabled	= 0	Boolean					
			Tap Down Switch Stuck in the Down Position in Range Reverse Enabled	= 0	Boolean					
			Tap Down Switch ON	= TRUE	Boolean			>= 1	sec	
			Fail Case 2 Tap Down Switch Stuck in the Down Position in Range 1 Enabled	= 1	Boolean					
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	= 1	Boolean					
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	= 1	Boolean					
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	= 1	Boolean					
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	= 1	Boolean					
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	= 1	Boolean					
			Tap Down Switch Stuck in the Down Position in Range 7 Enabled	= 1	Boolean					
			Tap Down Switch Stuck in the Down Position in Range 8 Enabled	= 1	Boolean					
			Tap Down Switch Stuck in the Down Position in Neutral Enabled Tap Down Switch Stuck in the	= 0	Boolean					
			Down Position in Park Enabled Tap Down Switch Stuck in the	= 0	Boolean					
			Down Position in Reverse Enabled Tap Down Switch ON	= 0 = TRUE	Boolean Boolean					
			NOTE: Both Failcase1 and Failcase 2 Must Be Met	= TRUE	вооцеан			>= 120	sec	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					downshift switch diagnostic	1 = 1		
					Service mode \$04 active and end of trip pocessing active Ignition Voltage Hyst H	= FALSE ROOIGAN		
					(enabled above this value)) > 5 VOILS		
					disabled below this value; Service Fast Learn (SFL)) <= Z VOIIS - FALSE Roolean		
					Mode VBS Failsafe Ignition Voltage Max (disabled	31 000023 Volts		
					above this value) Ignition Voltage Min (enabled above this value)) d		
					Time Since Last Range	Enable Time		
					P0816 Status is	Test Failed		
				Disable Conditions:		r TCM: P0826, P1824, P182A, P182B, : P182C, P182D, P182E, P182F, P1838, P1839, P1840, P1841, P18B5, P18B6, P18B7, P18B8, P18B9, P18BA, P18BB, P18BC, P18BD, P18BE,		
						P18BF, P18C0, P18C1, P18C2, P18C3, P1915, P1761 ECM: None		
Tap Up Tap Down Switch (TUTD)	P0826	Up and Down Shift Switch Circuit	TUTD Circuit Reads Invalid Voltage	= TRUE Boolean			>= 60 Fail Time (Sec	Special No MIL
					Service mode \$04 active and end of trip pocessing active upshift downshift switch circuit diagnostic monitor enable	t = FALSE Boolean		
					calibration Ignition Voltage Hyst H	i . 5 Volts		
					(enabled above this value) Ignition Voltage Hyst Lo disabled below this value)) 0		
					Service Fast Learn (SFL) Mode VBS Failsafe	EALSE Boolean		
					Ignition Voltage Max (disabled above this value)	<= 31.999023 VOIIS		
					Ignition Voltage Min (enabled above this value)) >= 9 VOIIS		
					P0826 Status is	Test Failed This Key S ≠ On or Fault Active		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
_,	-				Disak Condition	le MIL not Illuminated fo							
Variable Force Solenoid (VFS)		Pressure Control Solenoid A Control Circuit Open (clutch1/CB1278R VFS)	The HWIO reports open crcuit error flag	= T	TRUE Boolean					>= out	0.3	Fail Time (Sec)	One Trip
						diagnostic monitor enabl calibratio VFS source must be high sid driver 1 or 2 or	n = e	TRUE	Boolean	of	0.5	(Sec)	_
						high side driver VFS source i	S =	CeTSCR_ e_HSD2 TRUE	enumeration Boolean				
						controller power mode state i ignition or accessor battery voltage in range fo stability tim	s y r	TRUE	Boolean				
						battery voltage stability tim battery voltag battery voltag	e >= e >=	1 8 32	seconds volts Volts				
					Disat Condition		TCM: None : ECM: None						
Variable Force Solenoid (VFS)	P0962	Pressure Control Solenoid A Control Circuit Low (clutch1/CB1278R VFS)	The HWIO reports open crcuit error flag	= T	TRUE Boolean					>= out	0.3	Fail Time (Sec)	One Trip
						diagnostic monitor enabl calibratio VFS source must be high sid	n =	TRUE	Boolean	of	0.5	(Sec)	_
						driver 1 or 2 or high side driver VFS source i high side driver VFS sourc	S =	CeTSCR_ e_HSD2 TRUE	enumeration Boolean				
						enable controller power mode state i ignition or accessor battery voltage in range fo	d S = y	TRUE	Boolean				
						stability tim battery voltage stability tim battery voltag battery voltag	e >= e >=	1 8 32	seconds volts Volts				
					Disat Condition								
Variable Force Solenoid (VFS)		Pressure Control Solenoid A Control Circuit High (clutch1/CB1278R VFS)	The HWIO reports open crcuit error flag	= T	TRUE Boolean					>=	0.3	Fail Time (Sec)	One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		reshold Value	Secondary Malfunction		Enable Conditions			Tir Requ	uired	Mil Illum.
										out of	0.5	Sample Time	
						diagnostic monitor enable	=	TRUE	Boolean	OT		(Sec)	
						calibration VFS source must be high side		TRUE	boolean				
						driver 1 or 2 or 3							
						high side driver VFS source is	=	CeTSCR_ e_HSD2	enumeration				
						high side driver VFS source enabled	=	TRUE	Boolean				
						controller power mode state is		TRUE	Boolean				
						ignition or accessory battery voltage in range for	1	TROL	Doolcan				
						stability time	:						
						battery voltage stability time battery voltage	>= >=	1 8	seconds volts				
						battery voltage	<=	32	Volts				
					Disable Conditions:		TCM: None						
							ECM: None						
		Pressure Control Solenoid B Control	The HWIO reports open crcuit										One Trip
Variable Force Solenoid (VFS)	P0964	Circuit Open (clutch2/CB12345R VFS)	error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	
										out of	0.5	Sample Time (Sec)	
						diagnostic monitor enable	=	TRUE	Boolean	UI		(360)	1
						calibration VFS source must be high side		TROE	Doolcan				
						driver 1 or 2 or 3		CoTCCD					
						high side driver VFS source is	=	CeTSCR_ e_HSD2	enumeration				
						high side driver VFS source enabled	=	TRUE	Boolean				
						controller power mode state is	=	TRUE	Boolean				
						ignition or accessory battery voltage in range for							
						stability time battery voltage stability time	>=	1	seconds				
						battery voltage	>=	8	volts				
						battery voltage	<=	32	Volts				
					Disable	MIL not Illuminated for	TCM: None						
					Conditions								
							ECM: None						
Variable Force Solenoid (VFS)	P0966	Pressure Control Solenoid B Control Circuit Low	The HWIO reports open crcuit	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Trip
Tanable Force Soleliold (VFS)	1.0700	(clutch2/CB12345R VFS)	error flag	INOL	Doolodii						0.0		
										out of	0.5	Sample Time (Sec)	
						diagnostic monitor enable calibration	=	TRUE	Boolean				
						VFS source must be high side	:						
1		I		l		driver 1 or 2 or 3	I						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions			Tir Requ		Mil Illum.
.,,=====						high side driver VFS source is	=	CeTSCR_	enumeration		- 1		
						high side driver VFS source		e_HSD2					
						enabled	=	TRUE	Boolean				
						controller power mode state is ignition or accessory	=	TRUE	Boolean				
						battery voltage in range for							
						stability time		1					
						battery voltage stability time battery voltage	>= >=	1 8	seconds volts				
						battery voltage	<=	32	Volts				
					Disable	MIL not Illuminated for	TCM: None						
					Conditions:	DTC's:	ECM: None						
							ECM: None						
V	D00/7	Pressure Control Solenoid B Control	The HWIO reports open crcuit	TO.15							0.0	F 11 T1 (0)	One Trip
Variable Force Solenoid (VFS)		Circuit High (clutch2/CB12345R VFS)	error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	
		(out	0.5	Sample Time	
						diagnostic monitor enable				of	0.0	(Sec)	
						calibration	=	TRUE	Boolean				
						VFS source must be high side driver 1 or 2 or 3							
								CeTSCR_					
						high side driver VFS source is	=	e_HSD2	enumeration				
						high side driver VFS source enabled	=	TRUE	Boolean				
						controller power mode state is	=	TRUE	Boolean				
						ignition or accessory battery voltage in range for		INOL	Doolcan				
						stability time							
						battery voltage stability time	>=	1 8	seconds				
						battery voltage battery voltage	>= <=	32	volts Volts				
					Disable	MIL not Illuminated for	TCM: None						
					Conditions								
							ECM: None						
		Pressure Control Solenoid C Control	The HWIO reports open crcuit										One Trip
Variable Force Solenoid (VFS)		Circuit Open (clutch3/C13567 VFS)	error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	
		(CIUICII3/C 1330/ VF3)								out	0.5	Sample Time	
						diamentia manta.				of	0.5	(Sec)	1
						diagnostic monitor enable calibration	=	TRUE	Boolean				
						VFS source must be high side							
						driver 1 or 2 or 3		CeTSCR_					
						high side driver VFS source is	=	e_HSD2	enumeration				
						high side driver VFS source	=	TRUE	Boolean				
						enabled controller power mode state is			Deeleer				
	1					ignition or accessory	=	TRUE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold llue	Secondary Malfunction		Enable Conditions				ime Juired	Mil Illum.
						battery voltage in range for stability time battery voltage stability time battery voltage battery voltage	>= >= <=	1 8 32	seconds volts Volts				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Force Solenoid (VFS)	P0970	Pressure Control Solenoid C Control Circuit Low (clutch3/C13567 VFS)	The HWIO reports open crcuit error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Tri
										out of	0.5	Sample Time (Sec)	
						diagnostic monitor enable calibration VFS source must be high side driver 1 or 2 or 3	=	TRUE	Boolean				
						high side driver VFS source is high side driver VFS source	=	CeTSCR_ e_HSD2 TRUE	enumeration Boolean				
						enabled controller power mode state is ignition or accessory battery voltage in range for	=	TRUE	Boolean				
						battery voltage in range for stability time battery voltage stability time battery voltage battery voltage	>= >=	1 8 32	seconds volts Volts				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None						
Variable Force Solenoid (VFS)	P0971	Pressure Control Solenoid C Control Circuit High (clutch3/C13567 VFS)	The HWIO reports open crcuit error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Tri
		(diddinare rood) vi ey								out of	0.5	Sample Time (Sec)	
						diagnostic monitor enable calibration VFS source must be high side	=	TRUE	Boolean				
						driver 1 or 2 or 3 high side driver VFS source is high side driver VFS source	=	CeTSCR_ e_HSD2	enumeration				
						enabled controller power mode state is ignition or accessory	=	TRUE	Boolean Boolean				
						battery voltage in range for stability time battery voltage stability time	>=	1	seconds				
						battery voltage battery voltage	>= <=	8 32	volts Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			shold ilue	Secondary Malfunction		Enable Conditions			Tir Requ		Mil Illum.
System	Code	Безоприон	Ontella		¥a	Disable	MIL not Illuminated for	TCM: None	Jonations			requ		
						Conditions	DTC's:	1						
								ECM: None						
			diagnostic monitor fails when any											One Trip
Transmission Control Module (TCM)	P16F3	Transmission Control Module	of the following conditions occur A											
			or B or C											-
			A) command pressure and its dual	= TF	RUE	Boolean	redundent memory command		TRUE	Boolean				
			store do not equal				pressure disable calibration not							
							OR							
							redundent memory command pressure enable calibration		TRUE	Boolean				
			OR				F							
			B) command shift and its dual	= TF	RUE	Boolean	redundent memory command	=	FALSE	Boolean				
			store do not equal				shift disable calibration not OR			Boolean				
							redundent memory command		TRUE	Boolean				
							shift enable calibration	=	IKUE	DUUleall				
			OR										counts (25	-
			C) rate limited vehicle speed and its dual store do not equal	= TF	RUE	Boolean	rate limited vehicle speed dua store enable calibration	=	TRUE	Boolean	>=	10	msec	
			its dual store do not equal				Store eriable calibration						continuous)	
											>=	20	counts (25 msec	
											>=	20	continuous)	
													,	
						Disable	MIL not Illuminated for	TCM: None						
						Conditions		: None						
								ECM: None						
	-		redundent path calculation of										counts (25	One Trip
Transmission Control Module (TCM)	P16F4	Transmission Control Module	driver selected transmission range	= TF	RUE	Boolean					>=	6	msec	0.10 1.10
			error										continuous)	
											>=	8	counts (25 msec	
											>=	0	continuous)	
							secureed controller or						,	1
							emission critical ignition voltage		11	volts				
									test pass					
							P16F4 status is not	=	this key on	Boolean				
						Disable	MIL not Illuminated for	TCM: None						
						Conditions		:						
								ECM: None						
	+		transmission output speed raw (25					 						One Trip
Transmission Control Module (TCM)	P16FR	Transmission Control Module	ms loop value) - transmission	\	60	RPM					>=	8	seconds	
Transmission control Module (TCM)	1 101 5	Transmission Control Module	output speed raw (6.25 ms loop	/-	00	IXI IVI						U	Seconds	
			value)								>=	10	seconds	
							Service Fast Learn (SFL)		FALSE	Boolean		10	30001103	1
							Mode VBS Failsafe		FALSE	DUUIEdil				
							Battery Voltage Max (disabled above this value)		31.999023	Volts				
I	I	I	I				above tris value,	1			I			I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		hreshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum
cystem	Oode	Description	Ontena			Battery Voltage Min (disabled) / II	1	1104		
						below this value)	<=	10	Volts				
						Ignition Voltage Min (disabled		10	Valta				
						below this value)	>=	10	Volts				
						for voltage stablity time	>=	5	seconds				
						transmission output speed raw		150	DDM				
						(6.25 ms loop value)	>=	150	RPM				
						transmission output speed raw		450	DDM				
						(25 ms loop value)	>=	150	RPM				
						Service mode \$04 active and		E41.0E	Б				
						end of trip pocessing active	=	FALSE	Boolean				
						diagnostic monitor enable							
						calibration	=	1	Boolean				
						odiibration							
					Disable	MIL not Illuminated for	TCM: None						
					Conditions	DTC's:	T CIVI. TVOITC						
					oonanions.	1	ECM: None						
							LCIVI. INDITE						
	_		P175F will fail when A: message			<u> </u>							Specia
ateral acceleration signal	P175F	Lateral acceleration signal circuit	alive rolling count erroror or B:										No MI
ateral acceleration signal	1 1731	(rolling count or checksum)	message checksum error										I VO IVII
			A: Rolling count value received			 						Fail Counter (50	1
			from EBCM and expected TCM	= TRUE	Boolean					>=	9	msec	1
			calculated value not	= IKUL	boolean					>=	7	continuous)	
			Calculated value not									continuous)	
										>	54	Fail Timer (Sec)	
						Lateral assolutation massage							
						Lateral acceleration message		TDUE	Deeleen				
						health (message receive	=	TRUE	Boolean				
						occur)							
						Lateral acceleration signal							
						circuit rolling count diagnostic	=	1	Boolean				
						monitor enable calibration							
						battery voltage	<=	31.999023	volts				
						battery voltage	>=	9	volts				
						battery voltage time	>=	0.1	sec				
						Ignition Voltage	<=	31.999023	Volts				
						Ignition Voltage	>=	9	Volts				
						Service Fast Learn (SFL)	=	FALSE	Boolean				
						Mode VBS Failsafe	_	FALSE	boolean				
						Ignition voltage and SFL	>=	0.1	Sec				
						conditions met for	>=	0.1	366				1
			B: checksum of lateral	= TRUE	Boolean					×-	54	Fail Timer (Sec)	1
			acceleration message value error	= IKUL	boolean					>=	34	raii riiriei (Sec)	
						Lateral acceleration message							
						health (message receive	=	TRUE	Boolean				
						occur)							l
						Lateral acceleration signal							
						circuit checksum diagnostic	=	1	Boolean				
						monitor enable calibration				1			
						battery voltage	<=	31.999023	volts				
						battery voltage	>=	9	volts	1			l
						battery voltage time	>=	0.1	sec	1			
						Ignition Voltage		31.999023	Volts	1			
						Ignition Voltage	>=	9	Volts	1			
						Service Fast Learn (SFL)	^-			1			
						Mode VBS Failsafe	=	FALSE	Boolean				l
						Ignition voltage and SFL							
	l l	i		l			>=	0.1	Sec	I			I
						conditions met for	/-	0.1	000				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			shold ilue	Secondary Malfunction		Enable Conditions			Tii Reqi		Mil Illum.
- System	9340	2500, p. 10.	C. C			Disable	normal serial data communication enabled MIL not Illuminated for		TRUE	Boolean				
						Conditions:	DTC's:	ECM: None						
Tap Up Tap Down Switch (TUTD)	P1761	Tap Up and Down switch signal circuit (rolling count)	Rolling count value received from BCM and expected TCM calculated value not	=	TRUE	Boolean					>=	3	Fail Counter (100 msec continuous)	Special No MIL
							Tap up/down message health (message receive occur) Tap up/downswitch signal	=	TRUE	Boolean	>	10	Fail Timer (Sec)	
							circuit (rolling count) diagnostic monitor enable calibration Ignition Voltage	= <=	1 31.999023	Boolean Volts				
							Ignition Voltage Service Fast Learn (SFL) Mode VBS Failsafe Ignition voltage and SFL	=	9 FALSE	Volts Boolean				
							conditions met for Service mode \$04 active and end of trip pocessing active	l _	0.1 FALSE	Sec Boolean				
						Disable Conditions:	MIL not Illuminated for DTC's:							
Transmission Intermediate Speed Sensor	P176B	Transmission Intermediate Speed Sensor Performance	attained gear is Reverse or 1st or 2nd transmssion intermediate speed	>	60	PRM	fail time	>=	4	seconds	>=	4	counts (25 msec continuous)	Two Trips
			attained gear is 3rd or 4th or 5th or 6th or 7th or 8th calculated intermediate gear slip = absolute value (transmission input speed - (transmission intermediate speed * command gear	>	60	PRM								
			intermediate ratio))				calculated gear slip = absolute value (transmission input speed - (transmission output speed * command gear ratio))	<=	60	RPM				
							calculated gear slip stablity time when all of the conditions below are met diagnostic monitor enable	>=	1	seconds				
							calibration transmission output speed transmission input speed	>= >= >=	1 100 100	Boolean RPM RPM				
							neutral idle mode requesting holding clutch disable range shift state is	=	FALSE shift complete	Boolean				
							Hydraulic System Pressurized		TRUE	Boolean				

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction		nable		Time		Mil
System	Code	Description	Criteria	Value Disable Conditions	battery voltage battery voltage battery voltage time lgnition Voltage lgnition Voltage Service Fast Learn (SFL) Mode VBS Failsafe Ignition voltage and SFL conditions met for	<= 31 >= >= <= 31 >= = = = >=	0.1 17, P07BF, I		Require	ed	Illum.
Transmission Intermediate Speed Sensor	P176C	Intermediate Speed Sensor Circuit Low	speed sensor1 voltage	see Table 51 <= in supporting volts documents	speed sensor1 fail time	>= St	ee Table	seconds	see Table 52 >= in supporting documents	counts (12.5 msec continuous)	Two Trips
					speed sensor1 circuit low diagnostic monitor enable calibration	= SL	ee Table 54 in upporting ocuments	Boolean			
					Service mode \$04 active and end of trip pocessing active Service Fast Learn (SFL) Mode VBS Failsafe	=		Boolean Boolean			
					Battery Voltage Max (disabled above this value) Battery Voltage Min (disabled	<= 3	1.999023	Volts			
					below this value) Ignition Voltage Min (disabled below this value)	<= >=	10 10	Volts Volts			
					for voltage stablity time		5 est Failed	seconds			
					P176C Status is not	= T Or	This Key n or Fault Active				
				Disable Conditions		TCM: P176D					
Transmission Intermediate Speed Sensor	P176D	Intermediate Speed Sensor Circuit High	speed sensor1 voltage	see Table 55 >= in supporting volts documents	speed sensor1 fail time	>= SL	ee Table 57 in upporting ocuments	seconds	see Table 56 >= in supporting documents	counts (12.5 msec continuous)	Two Trips
					speed sensor1 circuit high diagnostic monitor enable calibration	= SL	ee Table 58 in upporting ocuments	Boolean			
					Service mode \$04 active and end of trip pocessing active		FALSE	Boolean			

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary		Enable				me	Mil
System	Code	Description	Criteria	Value	Malfunction Service Fast Learn (SFL) Mode VBS Failsafe Battery Voltage Max (disabled above this value) Battery Voltage Min (disabled below this value) Ignition Voltage Min (disabled below this value) for voltage stablity time P176D Status is not	= <= <= >= >=	FALSE 31.999023 10 10 5 Test Failed This Key On or Fault Active	Boolean Volts Volts Volts seconds		Requ		Illum.
				Disable Conditions:		TCM: P176C						
Internal Mode Switch (IMS)	P1824	Internal Mode Switch P Circuit High Voltage	IMS switch P voltage	> 2.380000114 volts					>= out of	70 80	Fail Counts (25ms loop) Sample Counts (25ms loop)	Two Trips
				Disable		= >= <= <= TCM: None	1 9 31.999023 7 9 7.50E-02	Boolean Volts Volts Volts volts seconds	Oi		(zailis loup)	
Internal Marks Carlish (MCC)	D100A	Internal Mode Switch A Circuit Low	INC solida Asalisas	Conditions:	DTC's:	ECM: None				70	Fail Counts	Two Trips
Internal Mode Switch (IMS)	P182A	Voltage	IMS switch A voltage	< 0.699999988 volts	Diagnostic monitor enable				>= out of	70 80	(25ms loop) Sample Counts (25ms loop)	
					calibration light enable calibration lgnition Voltage Lo Ignition Voltage Hi If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event Ignition Voltage Lo Ignition Voltage Hi	= >= <= >= >= <	1 9 31.999023	Poolean Volts Volts Volts Volts Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
					Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds				
				Disable Conditions								
Internal Mode Switch (IMS)	P182B	Internal Mode Switch B Circuit Low Voltage	IMS switch B voltage		Diagnostic monitor enable calibration Ignition Voltage Lo Ignition Voltage Hi If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event Ignition Voltage Lo Ignition Voltage Hi Ignition Voltage within the above low / high thresholds for	=	1 9 31.999023 7 9 7.50E-02	Boolean Volts Volts Volts Seconds	>= out of	70 80	Fail Counts (25ms loop) Sample Counts (25ms loop)	Two Trips
				Disable Conditions:								
Internal Mode Switch (IMS)	P182C	Internal Mode Switch B Circuit High Voltage	IMS switch B voltage	> 2.380000114 volts					>= out of	70 80	Fail Counts (25ms loop) Sample Counts (25ms loop)	Two Trips
					Diagnostic monitor enable calibration lgnition Voltage Lo Ignition Voltage Hi If ignition Voltage Hi If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event Ignition Voltage Lo Ignition Voltage Hi Ignition Voltage Hi Ignition Voltage within the above low / high thresholds for	=	1 9 31.999023 7 9 7.50E-02	Boolean Volts Volts Volts Volts seconds				
		Internal Mode Switch P Circuit Low		Disable Conditions:		TCM: None ECM: None					Fail Counts	Two Trips
Internal Mode Switch (IMS)	P182D	Voltage	IMS switch P voltage	< 0.699999988 volts	1				>=	70	(25ms loop)	Two mps

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold lue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
Oystem	Code	Description	Onteria	74	iuc			Conditions		out	80	Sample Counts	
						Discountie manifestant and bla				of	00	(25ms loop)	4
						Diagnostic monitor enable calibration	=	1	Boolean				
						Ignition Voltage Lo	>=	9	Volts				
						Ignition Voltage Hi	<=	31.999023	Volts				
						If ignition voltage was							
						previously between the above low / high thresholds, then the							
						following conditions apply once							
						per auto start event							
						Ignition Voltage Lo	>=	7	Volts				
						Ignition Voltage Hi	<	9	Volts				
						Ignition Voltage within the	<=	7.50E-02	seconds				
						above low / high thresholds for							
					Disable	MIL not Illuminated for	TCM: None						
					Conditions:	DTC's:							
							ECM: None						
				Illegal									Two Trips
				(SABCP=								F-11 0t-	
Internal Mode Switch (IMS)	P182E	Internal Mode Switch Illegal Range	Range	= 00000 or	enumeration					>=	108	Fail Counts (25ms loop)	
				SABCP=								(231113 100p)	
				10000)									
										out of	125	Sample Counts (25ms loop)	
						Diagnostic monitor enable		1	Dooloon	UI		(231113 100p)	1
						calibration	=		Boolean				
						Ignition Voltage Lo	>=	9	Volts				
						Ignition Voltage Hi If ignition voltage was	<=	31.999023	Volts				
						previously between the above							
						low / high thresholds, then the							
						following conditions apply once							
						per auto start event Ignition Voltage Lo	>=	7	Volts				
						Ignition Voltage Hi	<	9	Volts				
						Ignition Voltage within the							
						above low / high thresholds for	<=	7.50E-02	seconds				
					Disable	MIL not Illuminated for	TCM: None						
					Conditions:	DTC's:	I SIVI. INUITE						
							ECM: None						
	F	Internal Mode Switch C Circuit High		0.00							7.0	Fail Counts	Two Trips
Internal Mode Switch (IMS)	P182F	Voltage	IMS switch C voltage	> 2.380000114	volts					>=	70	(25ms loop)	
										out	80	Sample Counts	
						Diagnostic monitor enable				of	-	(25ms loop)	1
						calibration	=	1	Boolean				
						Ignition Voltage Lo	>=	9	Volts				
	I					Ignition Voltage Hi	<=	31.999023	Volts	l			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
Jyaem	3048	Беобіримі	J. Moria		If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event Ignition Voltage Lo Ignition Voltage Hill Ignition Voltage within the above low / high thresholds for	>= <	7 9 7.50E-02	Volts Volts seconds			***************************************	
				Disable Conditions:								
Internal Mode Switch (IMS)	P1838	Internal Mode Switch A Circuit High Voltage	IMS switch A voltage	> 2.380000114 volts					>= out of	70 80	Fail Counts (25ms loop) Sample Counts (25ms loop)	Two Trips
					Diagnostic monitor enable calibration Ignition Voltage Lo Ignition Voltage Hi If ignition voltage was previously between the above low / high thresholds, then the per auto start event Ignition Voltage Lo		1 9 31.999023 7	Boolean Volts Volts				
					Ignition Voltage Hi Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	Volts Volts seconds				
				Disable Conditions:		TCM: None ECM: None						
Internal Mode Switch (IMS)	P1839	Internal Mode Switch C Circuit Low Voltage	IMS switch C voltage	< 0.699999988 volts					>= out of	70 80	Fail Counts (25ms loop) Sample Counts (25ms loop)	Two Trips
					Diagnostic monitor enable calibration lgnition Voltage Lo Ignition Voltage Hi If ignition voltage His ignition voltage was previously between the above low / high thresholds, then the following conditions apply once	>= <=	1 9 31.999023	Boolean Volts Volts				
					per auto start event Ignition Voltage Lo Ignition Voltage Hi	>= <	7 9	Volts Volts				
					above low / high thresholds for	<=	7.50E-02	seconds				

Component/	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				ime uired	Mil Illum.
System	Code	Description	Criteria	Disable Conditions	e MIL not Illuminated for	TCM: None : ECM: None	Conditions			Neu	uneu	muni.
Internal Mode Switch (IMS)	P1840	Internal Mode Switch S Circuit Low Voltage	IMS switch S voltage	< 0.699999988 volts					>= out of	70 80	Fail Counts (25ms loop) Sample Counts (25ms loop)	Two Trips
					Diagnostic monitor enable calibration Ignition Voltage Lc Ignition Voltage Harmonian If Ignition voltage was previously between the above low / high thresholds, then the following conditions apply once	>= i <=	1 9 31.999023	Boolean Volts Volts	UI .		(20113-1004)	
					per auto start even Ignition Voltage Lo Ignition Voltage H Ignition Voltage within the above low / high thresholds for	; >= ; <	7 9 7.50E-02	Volts Volts seconds				
				Disable Conditions		TCM: None : ECM: None						
Internal Mode Switch (IMS)	P1841	Internal Mode Switch S Circuit High Voltage	IMS switch S voltage	> 2.380000114 volts					>= out of	70 80	Fail Counts (25ms loop) Sample Counts (25ms loop)	Two Trips
					Diagnostic monitor enable calibratior Ignition Voltage LG Ignition Voltage H If ignition voltage was previously between the above low / high thresholds, then the	>= i <=	1 9 31.999023	Boolean Volts Volts			(20110-1009)	
					following conditions apply once per auto start eveni Ignition Voltage Lo Ignition Voltage H) >= i <	7 9	Volts Volts				
					Ignition Voltage within the above low / high thresholds for		7.50E-02	seconds				
				Disable Conditions								
Internal Mode Switch (IMS)	P18B5	Internal Mode Switch A Circuit Shorted	IMS switch A voltage	< 1.679999948 volts > 0.966000021 volts					>= out of	70 80	Fail Counts (25ms loop) Sample Counts (25ms loop)	Two Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
					Diagnostic monitor enable calibration Ignition Voltage Lo Ignition Voltage Lo Ignition Voltage Hi If Ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event Ignition Voltage Lo Ignition Voltage Hi Ignition Voltage within the above low / high thresholds for	>= <	1 9 31.999023 7 9 7.50E-02	Boolean Volts Volts Volts Volts seconds				
				Disabl Conditions		TCM: None ECM: None						
Internal Mode Switch (IMS)	P18B6	Internal Mode Switch B Circuit Shorted	IMS switch B voltage	< 1.679999948 volts > 0.966000021 volts					>= out of	70 80	Fail Counts (25ms loop) Sample Counts (25ms loop)	Two Trips
					Diagnostic monitor enable calibration lgnition Voltage Lo Ignition Voltage Hi If ignition voltage Hi If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event lgnition Voltage Lo Ignition Voltage Hi	>= <=	1 9 31.999023	Boolean Volts Volts Volts				
		Internal Mode Switch C Circuit		Disabl Conditions		. <=	7.50E-02	seconds			Fail Counts	Two Trip:
Internal Mode Switch (IMS)	P18B7	Shorted	IMS switch C voltage	< 1.679999948 volts > 0.966000021 volts	Diagnostic monitor enable	_	1	Boolean	>= out of	70 80	(25ms loop) Sample Counts (25ms loop)	TWO IIIPS
					calibration Ignition Voltage Lo Ignition Voltage Hi If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event	>= >= <=	9 31.999023	Volts Volts				

System	Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions			Tir Requ		Mil Illum.
- Cystein	Code	Description	Onteria	Value	Ignition Voltage L	0 >=	7	Volts		rioqi	anca	
					Ignition Voltage F		9	Volts				
					Ignition Voltage within th		7.50E-02	seconds				
					above low / high thresholds for	r	7.50L-02	3600103				
				Disa	ole MIL not Illuminated fo	r TCM: None						
				Condition								
						ECM: None						
	+	Internal Mode Switch P Circuit			+	+					Fail Counts	Two Trips
Internal Mode Switch (IMS)	P18B8	Shorted	IMS switch P voltage	< 1.679999948 volts					>=	70	(25ms loop)	
			IMS switch P voltage	> 0.966000021 volts					out	80	Sample Counts	
									of		(25ms loop)	
					Diagnostic monitor enabl		1	Boolean				1
					calibratio	n	9					
					Ignition Voltage L Ignition Voltage F		31.999023	Volts Volts				
					If ignition voltage wa	s						
					previously between the abov	е						
					low / high thresholds, then th following conditions apply onc							
					per auto start ever	ıt						
					Ignition Voltage L		7	Volts				
					Ignition Voltage F		9	Volts				
					Ignition Voltage within th above low / high thresholds for		7.50E-02	seconds				
					above low / flight till esholds to	"						
				Disa								
				Condition	ns: DTC's							
						ECM: None						
Internal Mode Switch (IMS)	P18B9	Internal Mode Switch S Circuit	IMS switch S voltage	< 1.679999948 volts					>=	70	Fail Counts	Two Trips
internal wode Switch (iwis)	1 1057	Shorted	iivio switch o voltage	1.07777710 Volto						70	(25ms loop) Sample Counts	
			IMS switch S voltage	> 0.966000021 volts					out of	80	(25ms loop)	1
					Diagnostic monitor enabl calibratio		1	Boolean				
					Ignition Voltage L		9	Volts				
					Ignition Voltage F		31.999023	Volts				
					If ignition voltage wa previously between the abov							
					low / high thresholds, then th							
					following conditions apply onc							
					per auto start ever Ignition Voltage L	ıt .	7	Volts				
					Ignition Voltage E	0 >= li <	9	Volts				
					Ignition Voltage within th			. 51.0				
					above low / high thresholds for		7.50E-02	seconds				
	1											

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold lue	Secondary Malfunction		Enable Conditions				ime uired	Mil Illum.
- Cystem	Gode	Description	one in		Disable Conditions	MIL not Illuminated for	TCM: None ECM: None					, m. 0 u	
Internal Mode Switch (IMS)	P18BA	Internal Mode Switch A Stuck Off	Range Switch A	00001)	enumeration					>= out of	108 125	Fail Counts (25ms loop) Sample Counts (25ms loop)	Two Trips
				cycle)		Diagnostic monitor enable calibration Ignition Voltage Lo Ignition Voltage H If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start even Ignition Voltage Lo Ignition Voltage H Ignition Voltage within the above low / high thresholds for	>= <= >> >>= <	1 9 31.999023 7 9 7.50E-02	Boolean Volts Volts Volts seconds	OI		(zoms loop)	
					Disable Conditions		TCM: None : ECM: None						
Internal Mode Switch (IMS)	P18BB	Internal Mode Switch B Stuck Off	Range Prev Range	00010) Transition 14	enumeration					>= out of	108 125	Fail Counts (25ms loop) Sample Counts (25ms loop)	Two Trips
						Diagnostic monitor enable calibration Ignition Voltage Lc. Ignition Voltage H If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event Ignition Voltage Lc. Ignition Voltage H	>=	1 9 31.999023	Boolean Volts Volts				
					Disable Conditions		<= TCM: None	7.50E-02	seconds				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
Internal Mode Switch (IMS)	P18BC	Internal Mode Switch C Stuck Off	Range	Transition 27 = (SABCP= 00100)	7 enumeration					>=	108	Fail Counts (25ms loop)	Two Trips
										out of	125	Sample Counts (25ms loop)	
						Diagnostic monitor enable calibration	=	1	Boolean				
						Ignition Voltage Lo	>= <=	9 31.999023	Volts Volts				
						If ignition voltage was previously between the above low / high thresholds, then the							
						following conditions apply once per auto start event							
						Ignition Voltage Lo Ignition Voltage Hi	>= <	7 9	Volts Volts				
						Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds				
					D								
					Disable Conditions	e MIL not Illuminated for DTC's:	ECM: None						
				Transition 23								Fail Counts	Two Trips
Internal Mode Switch (IMS)	P18BD	Internal Mode Switch P Stuck Off	Range	= (SABCP= 01000) Transition 1	enumeration					>=	108	(25ms loop)	
			Prev Range		1					out of	125	Sample Counts (25ms loop)	
						Diagnostic monitor enable calibration	=	1	Boolean				
						Ignition Voltage Lo Ignition Voltage Hi	>= <=	9 31.999023	Volts Volts				
						If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once							
						per auto start event	>=	7	Volts				
						Ignition Voltage Hi	<	9	Volts				
						above low / high thresholds for		7.50E-02	seconds				
					Disable		TCM: None						
					Conditions	: DTC's:	ECM: None						
Internal Mode Switch (IMS)	P18BE	Internal Mode Switch S Stuck Off	Range	= Drive 8	enumeration					>=	108	Fail Counts (25ms loop)	Two Trips
			Prev Range	Transition 26 = (SABCP= 00101)	5					out of	125	Sample Counts (25ms loop)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Va	shold lue	Secondary Malfunction		Enable Conditions	_		Tii Reqi	me uired	Mil Illum.
,			Switch A	= Tr ≠ Tr	ue (this key cycle) ue (this key	boolean								
					cycle)		Diagnostic monitor enable calibration Ignition Voltage Lo Ignition Voltage Hi If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once	<=	1 9 31.999023	Boolean Volts Volts				
							per auto start event Ignition Voltage Lo Ignition Voltage Hi Ignition Voltage within the above low / high thresholds for	<	7 9 7.50E-02	Volts Volts seconds				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Internal Mode Switch (IMS)	P18C0	Internal Mode Switch B Stuck On	Range Prev Range = Park for Switch B	>= F	Drive 8 80 False (this	enumeration counts (25ms loop) boolean					>= out of	108 125	Fail Counts (25ms loop) Sample Counts (25ms loop)	Two Tri
					key cycle)		Diagnostic monitor enable calibration Ignition Voltage Lo Ignition Voltage Hi If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once	<=	1 9 31.999023	Boolean Volts Volts				
							per auto start event Ignition Voltage Lo Ignition Voltage Hi Ignition Voltage within the above low / high thresholds for	<	7 9 7.50E-02	Volts Volts seconds				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Internal Mode Switch (IMS)	P18C1	Internal Mode Switch C Stuck On	Range	=	01011)	enumeration					>=	108	Fail Counts (25ms loop)	Two Trip
			Switch C	≠ F	alse (this key cycle)	boolean					out of	125	Sample Counts (25ms loop)	
							Diagnostic monitor enable calibration Ignition Voltage Lo	= >=	1 9	Boolean Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thre Va	shold ilue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
						Ignition Voltage Hi If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event Ignition Voltage Lo Ignition Voltage Hi Ignition Voltage within the above low / high thresholds for	<= >= < <=	7 9 7.50E-02	Volts Volts Volts Volts seconds		•		
					Disable Conditions:		TCM: None ECM: None						
Internal Mode Switch (IMS)	P18C2	Internal Mode Switch P Stuck On	Range	Transition 2 ² = (SABCP= 00111)	enumeration					>= out of	108 125	Fail Counts (25ms loop) Sample Counts (25ms loop)	Two Trips
						Diagnostic monitor enable calibration lgnition Voltage Lo Ignition Voltage Ho If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event Ignition Voltage Lo	>=	1 9 31.999023	Boolean Volts Volts				
						Ignition Voltage Hi Ignition Voltage within the above low / high thresholds for	4-	9 7.50E-02	Volts seconds				
					Disable Conditions:		TCM: None ECM: None						
Internal Mode Switch (IMS)	P18C3	Internal Mode Switch S Stuck On	Range Prev Range = Park for Switch S	>= 80 False (this	enumeration counts (25ms loop) boolean					>= out of	108 125	Fail Counts (25ms loop) Sample Counts (25ms loop)	Two Trips
						Diagnostic monitor enable calibration Ignition Voltage Lo Ignition Voltage His If ignition voltage was previously between the above low / high thresholds, then the following conditions apply once per auto start event Ignition Voltage Lo	>= <=	1 9 31.999023	Boolean Volts Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction		Enable Conditions		Tii Req	me uired	Mil Illum.
- 1000111	3000					Ignition Voltage Hi	<	9	Volts			
						Ignition Voltage within the above low / high thresholds for	<=	7.50E-02	seconds			
				D Cond	isable itions:	MIL not Illuminated for DTC's:						
Internal Mode Switch (IMS)	P1915	Internal Mode Switch Does Not Indicate Park/Neutral (P/N) During Start	Range The following events must occur Sequentially	Transition 17 (SABCP= 01110) Transition 18 (SABCP= 01101) Transition 21 (SABCP= 01010)	on							Two Trips
			Initial Engine speed	<= 50 RPM						>= 0.475	Enable Time (Sec)	
			Then Engine Speed Between Following Cals Engine Speed Lo Hist Engine Speed Hi Hist							>= 0.06875	Enable Time	
			Then Final Engine Speed Final Transmission Input Speed							>= 0.00673	(Sec) Fail Time (Sec)	
						DTC has Ran this Key Cycle Ignition Voltage Lo Ignition Voltage His Ignition Voltage Hyst High (enables above this value) Ignition Voltage Hyst Low (disabled below this value) Transmission Output Speed	<= >= <= <=	FALSE 6 31.900391 5 2 90 Test Failed This Key On or Fault Active	Boolean V V V V rpm			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	L		eshold alue	Secondary Malfunction	<u> </u>	Enable Conditions				me uired	Mil Illum.
						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)	=	FALSE	Boolean								One Trip
			lgnition Voltage High Hyst (run crank goes true when above this value)	>	5	Volts					>=	280	one fail count per 25 ms loop	
			Ignition Voltage Low Hyst (run crank goes false when below this value)	<	2	Volts					Out of	280	one sample count per 25 ms loop	
							Ignition Switch Run/Start Position Circuit Low diagnaotic enable calibration	=	1	Boolean				
							ECM run/crank active status available from serial data	=	TRUE	Boolean				
							ECM run/crank active status Service mode \$04 active and end of trip pocessing active	=	TRUE FALSE	Boolean Boolean				
						Disable		TCM: None						
						Conditions	DTC's:	ECM: None						
Transmission Control Module (TCM)	P2535	Ignition Switch Run/Start Position Circuit High	TCM Run crank active (based on voltage thresholds below) Ignition Voltage High Hyst (run	=	TRUE	Boolean								One Trip
			crank goes true when above this value)	>	5	Volts					>=	280	one fail count per 25 ms loop	
			Ignition Voltage Low Hyst (run crank goes false when below this value)	<	2	Volts					Out of	280	one sample count per 25 ms loop	
							Ignition Switch Run/Start Position Circuit High diagnaotic enable calibration		1	Boolean				
							ECM run/crank active status available from serial data	=	TRUE	Boolean				
							ECM run/crank active status Service mode \$04 active and end of trip pocessing active		FALSE FALSE	Boolean Boolean				
						Disable		TCM: None						
						Conditions	: DTC's:	ECM: None						
High Side Driver 2	P2670	Actuator Supply Voltage B Circuit Low	The HWIO reports a low voltage (ground short) error flag	=	TRUE	Boolean					>=	6	Fail Counts (6.25 msec continuous)	One Trip
											out of	2395	Sample Counts (6.25 msec continuous)	
							actuator supply voltage circuit low enable calibration Service mode \$04 active and	=	1					
1							end of trip pocessing active		FALSE	Boolean				

Component/	Fault	Monitor Strategy	Malfunction		reshold	Secondary Malfunction		Enable				me	Mil Illum.
System	Code	Description	Criteria		Value	P2670 Status is not	=	Test Failed This Key On or Fault Active			Requ	uirea	ilium.
						P2670 Status is not	=	Test Failed This Key On or Fault Active					
						Service Fast Learn (SFL) Mode VBS Failsafe High Side Driver 2 On	=	FALSE True	Boolean Boolean				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Force Solenoid (VFS)	P2714	Pressure Control Solenoid D Stuck Off (clutch4/C23468)	absolute value (attained gear slip)	>= 400	RPM					>=	3	seconds when fail time reaches fail limi increment fail event count	One Trip
						clutch solenoid stuck on performance diagnostic monitor test deceleration limit		TRUE	boolean	>=	3	event counts	
						clutch solenoid stuck on performance diagnostic monitor test return to previous range not	=	TRUE	boolean				
						PRNDL State not PRNDL State not while conditinos A and B and C are met, time down delay from clibration to 0.0 seconds	=	park neutral	enumeration enumeration				
						delay time calibration A) neutral condition fault pending B) intrusive shift active	=	0.5 FALSE FALSE	seconds boolean boolean				
						C) range shift state intrusive shift allowed intrusive shift active	=	shift complete TRUE FALSE	enumeration boolean boolean				
						steady state pressure adapt in progress transmission output speed accelerator pedal position	= >=	FALSE 100 0.5004883	boolean RPM %				
						accelerator pedal position valid engine speed valid D or E	=	TRUE TRUE	Boolean Boolean				
						D) select battery voltage to enable diagnsotic monitor E) battery voltage E) battery voltage	. =	0 31.999023 9	Boolean volts volts				

Component/ Fau		Malfunction	Threshold	Secondary	Enable	Time	Mil
System Cod		Criteria	Value	Malfunction	Conditions	Required	Illum.
	Description Description Description	automatic transmission shift torque phase test (A) or inertia phase test (B) fail event count deceleration limited automatic transmission shift torque phase test (A) or inertia phase test (B) fail event count of deceleration A) absolute value (attained gear slip), fail during post torque phase	Threshold	Secondary Malfunction E) battery voltage time F or G F) select ignition voltage to enable diagnsotic monitor G) Ignition Voltage G) Ignition Voltage Service Fast Learn (SFL) Mode VBS Failsafe Ignition voltage and SFL conditions met for Hydraulic System Pressurized high side driver 1 enabled high side driver 2 enabled MIL not Illuminated for DTC's:	Conditions Sec Sec		Mil Illum.

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum.
Cystom		2000,000	B) absolute value (command gear slip), fail during inertia phase of transmission automatic shift, engine speed change begins, pull up or pull down increment fail time when slip criteria met, fail time during shift deceleration limited increment fail time when slip criteria met, fail time during shift no deceleration	>= 70 RPM				see Table 35 >= in supporting seconds documents see Table 36 >= in supporting seconds documents when fail time reaches fail limi increment fail event count above	it
					inertia phase test measured gear ratio	>= 0.558		авоче	1
					inertia phase test measured gear ratio	<= 4.7150002			
					inertia phase test measured gear ratio time	>= 0.15	seconds		
					clutch test enabled	see Table 10 in supporting documents	boolean		
					post torque phase test engine torque hysteresis high enable for upshift or power on down shift	>= see Table 11 in supporting documents	N*m		
					post torque phase test engine torque hysteresis low disable for upshift or power on down shift	see Table 12 in supporting documents	N*m		
					post torque phase test engine torque hysteresis high enable for closed throttle down shift	>= see Table 13 in supporting documents	N*m		
					post torque phase test engine torque hysteresis low disable for closed throttle down shift	see Table 14 in supporting documents	N*m		
					inertia phase test engine torque hysteresis high enable for upshift or power on down shift	>= see Table 15 in supporting documents	N*m		
					inertia phase test engine torque hysteresis low disable for upshift or power on down shift	see Table 16 in supporting documents	N*m		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
·					inertia phase test engine torque hysteresis high enable for closed throttle down shift	>=	see Table 17 in supporting documents	N*m		
					inertia phase test engine torque hysteresis low disable for closed throttle down shift	>	see Table 18 in supporting documents	N*m		
					off going clutch pressure	<=	see Table 37 in supporting documents	kPa		
					off going clutch pressure closed throttle down shift delay time	>=	see Table 5 in supporting documents	seconds		
					off going clutch pressure closed power down shift delay time	>=	see Table 41 in supporting documents	seconds		
					off going clutch pressure up shift delay time	>=	see Table 62 in supporting documents	seconds		
					on coming clutch pressure for up shift	>=	see Table 8 in supporting documents	kPa		
					on coming clutch pressure for down shift	>=	see Table 7 in supporting documents	kPa		
					brake pedal position hysteresis high disable	>=	27.000427	%		
					brake pedal position hysteresis low enable	<=	25	%		
					absolute value (attained gear slip)	<=	40	RPM		
					shift type enable	=	see Table 45 in supporting documents	boolean		
					clucth solenoid stuck off intrusive shift request not	=	TRUE	boolean		
					traction control event test suspend not	=	TRUE	boolean		
					transmission output speed	>=	100	RPM		
					accelerator pedal position valid	=	TRUE	Boolean		
					engine speed valid	=	TRUE	Boolean	1	1

Component/	Fault	Monitor Strategy	Malfunction	Thresh		Secondary		Enable			Tin		Mil
System	Code	Description	Criteria	Value	е	Malfunction		Conditions			Requ	ired	Illum.
						D or E							
						 D) select battery voltage to enable diagnsotic monitor 	=	0	Boolean				
						E) battery voltage	<=	31.999023	volts				
						E) battery voltage		9	volts				
						E) battery voltage time	>=	0.1	sec				
						F or G		0.1	300				
						F) select ignition voltage to							
						enable diagnsotic monitor	=	0	Boolean				
						G) Ignition Voltage	<=	31.999023	Volts				
						G) Ignition Voltage	>=	9	Volts				
						Service Fast Learn (SFL)	=	FALSE	Boolean				
						Mode VBS Failsafe	_	TALSE	Doolcan				
						Ignition voltage and SFL	>=	0.1	Sec				
						conditions met for							
						Hydraulic System Pressurized	=	TRUE	Boolean				
						high side driver 1 enabled		TRUE	Boolean				
						high side driver 2 enabled	=	TRUE	Boolean				
					Disable	MIL not Illuminated for	TCM: D0716	D0717 D0722	D0723				
					Conditions:			7D, P07BF, P07					
					Conditions	5.00.		2B, P182C, P18					
								38, P1839, P18					
								B6, P18B7, P18					
								BB, P18BC, P1					
							P18BF, P186	C0, P18C1, P18	3C2, P18C3,				
							P1915, P253	34					
								, P0102, P0103					
								08, P0171, P017					
)1, P0202, P020					
								06, P0207, P020					
)2, P0303, P030)7, P0308, P040					
	-	Pressure Control Solenoid D Control					P0300, P030	J7, PU306, PU40	71, PU42E				One Trip
Variable Force Solenoid (VFS)	D2710	Circuit Open	The HWIO reports open crcuit	= TRUE E	Boolean					>=	0.3	Fail Time (Sec)	One Trip
Variable Force Solellold (VFS)		(clutch4/C23468 VFS)	error flag	= INUE E	boolean					>=	0.3	raii Time (Sec)	
		(CIGICITA/ 023400 VI 3)								out		Sample Time	
										of	0.5	(Sec)	
						diagnostic monitor enable				- 0.		(000)	
						calibration	=	TRUE	Boolean				
						VFS source must be high side							
						driver 1 or 2 or 3							
						high side driver VFS source is	=	CeTSCR_	enumeration				
						· ·	_	e_HSD1	CHUITICIALION				
						high side driver VFS source	=	TRUE	Boolean				
						enabled							
						controller power mode state is	=	TRUE	Boolean				
						ignition or accessory battery voltage in range for							
						stability time							
						battery voltage stability time	>=	1	seconds				
						battery voltage stability time battery voltage	>=	8	volts				
						battery voltage		32	Volts				
						Saller, Tollage							
•	•	-	•	•		-	-			•			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	'	hreshold Value	Secondary Malfunction		Enable Conditions				ime Juired	Mil Illum.
					Disable Conditions		TCM: None ECM: None						
Variable Force Solenoid (VFS)	P2720	Pressure Control Solenoid D Control Circuit Low (clutch4/C23468 VFS)	The HWIO reports open crcuit error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Trip
		,								out of	0.5	Sample Time (Sec)	
						diagnostic monitor enable calibration VFS source must be high side	9	TRUE	Boolean				
						driver 1 or 2 or 3 high side driver VFS source is		CeTSCR_ e_HSD1	enumeration				
						high side driver VFS source enabled	=	TRUE	Boolean				
						controller power mode state is ignition or accessory battery voltage in range fo	= /	TRUE	Boolean				
						stability time battery voltage stability time battery voltage battery voltage	>= >=	1 8 32	seconds volts Volts				
					Disable Conditions		:						
							ECM: None						
Variable Force Solenoid (VFS)	P2721	Pressure Control Solenoid D Control Circuit High (clutch4/C23468 VFS)	The HWIO reports open crcuit error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Trip
										out of	0.5	Sample Time (Sec)	=
						diagnostic monitor enable calibration VFS source must be high side driver 1 or 2 or 3	=	TRUE	Boolean				
						high side driver VFS source is	=	CeTSCR_ e_HSD1	enumeration				
						high side driver VFS source enabled controller power mode state is	=	TRUE	Boolean				
						ignition or accessory battery voltage in range fo stability time	= r	TRUE	Boolean				
						battery voltage stability time battery voltage battery voltage	>= >=	1 8 32	seconds volts Volts				
					Disable			32	VOILS				
					Conditions								
Variable Force Solenoid (VFS)	P2723	Pressure Control Solenoid E Stuck Off (clutch5/C45678R)	absolute value (attained gear slip)	>= 400	RPM					>=	3	seconds	One Tri

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions			Tim Requi		Mi Illur
-		•								-	when fail time reaches fail limit increment fail	t
									>=	3	event count event counts	
					clutch solenoid stuck on performance diagnostic monitor test deceleration limit	=	TRUE	boolean				
					not clutch solenoid stuck on							
					performance diagnostic monitor test return to previous range not	=	TRUE	boolean				
					PRNDL State not PRNDL State not while conditinos A and B and	= =	park neutral	enumeration enumeration				
					C are met, time down delay from clibration to 0.0 seconds delay time calibration	=	0.5	seconds				
					A) neutral condition fault	=	FALSE	boolean				
					pending B) intrusive shift active	_	FALSE	boolean				
					C) range shift state	=	shift	enumeration				
					intrusive shift allowed	=	complete TRUE	boolean				
					intrusive shift active	=	FALSE	boolean				
					steady state pressure adapt in progress	=	FALSE	boolean				
					transmission output speed	>= >=	100 0.5004883	RPM %				
					accelerator pedal position accelerator pedal position valid	=	TRUE	Boolean				
					engine speed valid	=	TRUE	Boolean				
					D or E							
					 D) select battery voltage to enable diagnsotic monitor 	=	0	Boolean				
					E) battery voltage	<=	31.999023	volts				
					E) battery voltage E) battery voltage time	>= >=	9 0.1	volts sec				
					F or G F) select ignition voltage to							
					enable diagnsotic monitor	=	0	Boolean				
					G) Ignition Voltage G) Ignition Voltage	<= >=	31.999023 9	Volts Volts				
					Service Fast Learn (SFL)	=	FALSE	Boolean				
					Mode VBS Failsafe Ignition voltage and SFL	>=	0.1	Sec				
					conditions met for Hydraulic System Pressurized	>=	TRUE	Boolean				
					high side driver 1 enabled	=	TRUE	Boolean				
					high side driver 2 enabled	=	TRUE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Requir		Mil Illum.
System	Code	Description	Criteria	Value Disab Condition	le MIL not Illuminated for		Kequir	eu	muni.
Variable Force Solenoid (VFS)	P2724	Pressure Control Solenoid E Stuck On (clutch5/C45678R)	automatic transmission shift torque phase test (A) or inertia phase test (B) fail event count deceleration limited automatic transmission shift	see Table 32 >= in supporting fail event count: documents see Table 33	;				One Trip
			torque phase test (A) or inertia phase test (B) fail event count no deceleration A) absolute value (attained gear slip), fail during post torque phase of transmission automatic shift,	>= in supporting fail event counts documents	3				
			before engine speed change, pull up or pull down occurs increment fail time when slip criteria met, fail time for power down shift increment fail time when slip				see Table 29 >= in supporting documents	seconds	
			criteria met, fail time for up shift or closed throttle down shift deceleration limited increment fail time when slip				see Table 30 >= in supporting documents see Table 31	seconds	
			criteria met, fail time for up shift or closed throttle down shift no deceleration				>= in supporting documents	seconds when fail time reaches fail limit	
			B) absolute value (command gear					increment fail event count above	
			slip), fail during inertia phase of transmission automatic shift, engine speed change begins, pull up or pull down increment fail time when slip	>= 70 RPM			see Table 35		
			criteria met, fail time wieri siip criteria met, fail time during shift deceleration limited increment fail time when slip criteria met, fail time during shift				>= in supporting documents see Table 36 >= in supporting	seconds seconds	
			no deceleration				>= in supporting documents	SECUIUS	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Condition	ıs	Time Required	Mil Illum
								when fail time reaches fail limit increment fail event count above	
					inertia phase test measured gear ratio inertia phase test measured	>= 0.558	12	33010	
					gear ratio inertia phase test measured gear ratio time	>= 0.15	seconds		
					clutch test enabled	see Tab 10 in supporti documen	boolean		
					post torque phase test engine torque hysteresis high enable for upshift or power on down shift	see Tab 11 in supporti documei	N*m		
					post torque phase test engine torque hysteresis low disable for upshift or power on down shift	see Tab 12 in supporti documer	ng N*m		
					post torque phase test engine torque hysteresis high enable for closed throttle down shift	>= see Tab 13 in supporti documer	N*m		
					post torque phase test engine torque hysteresis low disable for closed throttle down shift	see Tab 14 in supporti documer	N*m		
					inertia phase test engine torque hysteresis high enable for upshift or power on down shift	see Tab 15 in supporti documen	ng N*m		
					inertia phase test engine torque hysteresis low disable for upshift or power on down shift	see Tab 16 in supporti documer	N*m		
					inertia phase test engine torque hysteresis high enable for closed throttle down shift	see Tab 17 in supporti documer	N*m		
					inertia phase test engine torque hysteresis low disable for closed throttle down shift	see Tab 18 in supporti documer	ng N*m		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
•					off going clutch pressure	<=	see Table 37 in supporting documents	kPa		
					off going clutch pressure closed throttle down shift delay time	>=	see Table 6 in supporting documents	seconds		
					off going clutch pressure closed power down shift delay time	>=	see Table 42 in supporting documents	seconds		
					off going clutch pressure up shift delay time	>=	see Table 63 in supporting documents	seconds		
					on coming clutch pressure for up shift	>=	see Table 8 in supporting documents	kPa		
					on coming clutch pressure for down shift	>=	see Table 7 in supporting documents	kPa		
					brake pedal position hysteresis high disable	>=	27.000427	%		
					brake pedal position hysteresis low enable	<=	25	%		
					absolute value (attained gear slip)	<=	40	RPM		
					shift type enable	=	see Table 45 in supporting documents	boolean		
					clucth solenoid stuck off intrusive shift request not	=	TRUE	boolean		
					traction control event test suspend not	=	TRUE	boolean		
					transmission output speed	>=	100	RPM		
					accelerator pedal position valid	=	TRUE	Boolean		
					engine speed valid D or E	=	TRUE	Boolean		
					 D) select battery voltage to enable diagnsotic monitor 	=	0	Boolean		
					E) battery voltage	<=	31.999023	volts		
					E) battery voltage E) battery voltage time	>= >=	9 0.1	volts sec		
					F or G F) select ignition voltage to	-	5.1	330		
					enable diagnsotic monitor	=	0	Boolean		
	I		l	l	G) Ignition Voltage	<=	31.999023	Volts	1	I

Component/	Fault	Monitor Strategy	Malfunction		eshold	Secondary		Enable				me	Mil
System	Code	Description	Criteria	V	alue	Malfunction		Conditions			Req	uired	Illum.
						G) Ignition Voltage	>=	9	Volts				
						Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean				
						Ignition voltage and SFL			_				
						conditions met for	>=	0.1	Sec				
						Hydraulic System Pressurized	=	TRUE	Boolean				
						high side driver 1 enabled		TRUE	Boolean				
						high side driver 2 enabled	=	TRUE	Boolean				
					Disable	MIL not Illuminated for	TCM: P0716.	P0717. P072:	2. P0723.				
					Conditions:		P077C, P077[
							P182A, P182E						
							P182F, P1838						
							P18B5, P18B6						
							P18BA, P18BI P18BF, P18C						
							P1915, P2534		002,1 1003,				
							ECM: P0101,						
							P0107, P0108						
							P0175, P0201						
							P0205, P0206 P0301, P0302						
							P0306, P0307						
		Pressure Control Solenoid E Control	The LIMIO reports onen erquit						-				One Trip
Variable Force Solenoid (VFS)	P2727	Circuit Open	The HWIO reports open crcuit error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	
		(clutch5/C45678 VFS)	error nag									0 1 7	
										out of	0.5	Sample Time (Sec)	
						diagnostic monitor enable				OI		(Sec)	-
						calibration	=	TRUE	Boolean				
						VFS source must be high side	:						
						driver 1 or 2 or 3							
						high side driver VFS source is	=	CeTSCR_	enumeration				
						high side driver VFS source		e_HSD1					
						enabled	=	TRUE	Boolean				
						controller power mode state is		TRUE	Daalaan				
						ignition or accessory	=	TRUE	Boolean				
						battery voltage in range for							
						stability time battery voltage stability time	1	1	seconds				
						battery voltage stability time	>= >=	8	volts				
						battery voltage		32	Volts				
]							
					p								
					Disable Conditions:								
					Conditions:	DTC's:	ECM: None						
							LOWI. NOTE						
		Pressure Control Solenoid E Control	The HWIO reports open crcuit										One Trip
Variable Force Solenoid (VFS)	P2729	Circuit Low	error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	
		(clutch5/C45678 VFS)	Sitor nag							a		Comple The	
										out of	0.5	Sample Time (Sec)	
						diagnostic monitor enable				UI		(366)	1
						calibration	=	TRUE	Boolean				
•	•	•	•	•		•	•			•			•

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				ime uired	Mil Illum
2,300					·	VFS source must be high side	e						
						driver 1 or 2 or 3		CeTSCR_					
						high side driver VFS source is		e_HSD1	enumeration				
						high side driver VFS source enabled		TRUE	Boolean				
						controller power mode state is		TDUE	Deelees				
						ignition or accessory		TRUE	Boolean				
						battery voltage in range for stability time							
						battery voltage stability time	>=	1	seconds				
						battery voltage battery voltage	>= >= <=	8 32	volts Volts				
						battery voltage	-	32	VOIIS				
					B: 11								
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None						
							ECM: None						
		Pressure Control Solenoid E Control											One T
Variable Force Solenoid (VFS)	P2730	Circuit High	The HWIO reports open crcuit error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	
		(clutch5/C45678 VFS)	enor nay									Canada Tima	
										out of	0.5	Sample Time (Sec)	
						diagnostic monitor enable	=	TRUE	Boolean			(222)	1
						calibration VFS source must be high side	1	11102	Boologii				
						driver 1 or 2 or 3	8						
						high side driver VFS source is	=	CeTSCR_ e_HSD1	enumeration				
						high side driver VFS source							
						enabled	=	TRUE	Boolean				
						controller power mode state is ignition or accessory		TRUE	Boolean				
						battery voltage in range for	f						
						stability time battery voltage stability time		1	seconds				
						battery voltage stability time		8	volts				
						battery voltage	<=	32	Volts				
					Disable		TCM: None						
					Conditions	DTC's:	ECM: None						
							EGIVI. NOTIC						
Variable Force Solenoid (VFS)	D2724	Pressure Control Solenoid F Control Circuit Open	The HWIO reports open crcuit	= TRUE	Boolean						0.3	Fail Time (Sec)	One T
Valiable Force Solelloid (VFS)	P2/30	(line pressure VFS)	error flag	= IRUE	boolean					>=	0.3	rali Time (Sec)	
										out	0.5	Sample Time	
						diagnostic monitor enable				of		(Sec)	1
						calibration		TRUE	Boolean				
						VFS source must be high side driver 1 or 2 or 3							
								CeTSCR_	onum crotic				
						high side driver VFS source is		e_HSD2	enumeration				
	1			I		high side driver VFS source	=	TRUE	Boolean				1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
- Cystem	6000	boorgan	One. II			controller power mode state is ignition or accessory battery voltage in range for stability time battery voltage stability time battery voltage battery voltage	>= >=	TRUE 1 8 32	Boolean seconds volts Volts				
					Disable Conditions:		TCM: None ECM: None						
Variable Force Solenoid (VFS)	P2738	Pressure Control Solenoid F Control Circuit Low (line pressure VFS)	The HWIO reports open crcuit error flag	= TRUE	Boolean					>= Out	0.3	Fail Time (Sec)	One Trip
						diagnostic monitor enable	=	TRUE	Boolean	out of	0.5	(Sec)	_
						VFS source must be high side driver 1 or 2 or 3 high side driver VFS source is	=	CeTSCR_ e_HSD2	enumeration				
						high side driver VFS source enabled controller power mode state is ignition or accessory	=	TRUE TRUE	Boolean Boolean				
						battery voltage in range for stability time battery voltage stability time	>=	1	seconds				
						battery voltage battery voltage	>= <=	8 32	volts Volts				
					Disable Conditions:		TCM: None ECM: None						
Variable Force Solenoid (VFS)	P2739	Pressure Control Solenoid F Control Circuit High (line pressure VFS)	The HWIO reports open crcuit error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Trip
						diagnostic monitor enable	=	TRUE	Boolean	out of	0.5	Sample Time (Sec)	
						calibration VFS source must be high side driver 1 or 2 or 3							
						high side driver VFS source is high side driver VFS source enabled	=	CeTSCR_ e_HSD2 TRUE	enumeration Boolean				
						controller power mode state is ignition or accessory battery voltage in range for	_	TRUE	Boolean				
						stability time battery voltage stability time battery voltage battery voltage	>= >= <=	1 8 32	seconds volts Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thr V	reshold /alue	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None : ECM: None				
VFS characterization	P27A7	VFS characterization	clutch1/CB1278R pressure control solenoid characterization not programmed	= TRUE	Boolean						One Trip
			, ,			manufacture enable counter		0 non- volatile memory	counts		
					Disable Conditions:	MIL not Illuminated for DTC's:					
VFS characterization	P27A8	VFS characterization	clutch2/CB12345R pressure control solenoid characterization not programmed	= TRUE	Boolean						One Trip
			not programmed			manufacture enable counter		0 non- volatile memory	counts		
					Disable Conditions:	MIL not Illuminated for DTC's:					
VFS characterization	P27A9	VFS characterization	clutch3/C13567 pressure control solenoid characterization not programmed	= TRUE	Boolean						One Trip
						manufacture enable counter		0 non- volatile memory	counts		
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None : ECM: None				
VFS characterization	P27AA	VFS characterization	clutch4/C23468 pressure control solenoid characterization not programmed	= TRUE	Boolean						One Trip
						manufacture enable counter		0 non- volatile memory	counts		
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None : ECM: None				

Component/	Fault	Monitor Strategy	Malfunction		Thres	shold	Secondary		Enable		I	Ti	me	Mil
System	Code	Description	Criteria		Val		Malfunction		Conditions				uired	Illum.
VFS characterization	P27AB	VFS characterization	clutch5/C45678R pressure control solenoid characterization not	=	TRUE	Boolean								One Trip
			programmed				manufacture enable counter memory type updated	=	0 non- volatile memory	counts				-
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
VFS characterization	P27AC	VFS characterization	line pressure control solenoid characterization not programmed	=	TRUE	Boolean								One Trip
							manufacture enable counter memory type updated	=	0 non- volatile memory	counts				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
VFS characterization	P27AD	VFS characterization	TCC pressure control solenoid characterization not programmed	=	TRUE	Boolean	manufacture enable counter	=	0 non-	counts				One Trip
							memory type updated	=	volatile memory					
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Torque Converter Clutch (TCC)	P2808	TCC System Stuck OFF	TCC Pressure			Кра					>=	2	Enable Time (Sec) Enable Time	Two Trips
			TCC capacity Either Condition (A) or (B) Must be Met		0	%					>=	0	(Sec)	
			(A) TCC Slip Error @ TCC On Mode	>= 5	e Table 1 in Supporting Documents	RPM					>=	4	Fail Time (Sec)	
			(B) TCC Slip @ Lock On Mode If Above Conditions Have been Met, and Fail Timer Expired,	>=	130	RPM					>= >=	3	Fail Time (Sec) TCC Stuck Off	
			Increment Fail Counter				TCC Mode	=	On or Lock				Fail Counter	
							TCC system stuck off diagnostic monitor enable c	=	1					
							default valve state absolute value of attained gear	=	high (active)	DD:4				
							slip	>=	25	RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		hreshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
					_	attained gear	>=	CeCGSR_ e_CR_Fou rth				_	
						range shift state	=	shift					
						Hydraulic System Pressurized	=	complete TRUE	Boolean				
						battery voltage		31.999023	volts				
						battery voltage	>=	9	volts				
						battery voltage time	>=	0.1	sec Volts				
						Ignition Voltage Ignition Voltage	<= >=	31.999023 9	Volts				
						Service Fast Learn (SFL)							
						Mode VBS Failsafe	=	FALSE	Boolean				
						Ignition voltage and SFL	>=	0.1	Sec				
						conditions met for Engine Torque	>=	50	N*m				
						Engine Torque		8191.75	N*m				
						Throttle Position	>=	8.0001831	Pct				
						Throttle Position	<=	99.998474	Pct				
						Transmission Fluid Temperature	>=	-6.65625	°C				
						Transmission Fluid							
						Temperature	<=	130	°C				
						PTO Not Active	=	TRUE	Boolean				
						Engine Torque Signal Valid Accelerator Pedal Position	=	TRUE	Boolean				
						Signal Valid		TRUE	Boolean				
						9		Test Failed					
						P2808 Status is	≠	This Key					
								On					
					Disable								
					Conditions	: DTC's:		23, P077C, P07	77D, P2808,				
							P2812, P281	14, P2815					
							FCM: P010	1, P0102, P010	3. P0106.				
								08, P0171, P01					
								01, P0202, P020					
)6, P0207, P020)2, P0303, P030					
								02, P0303, P030 07, P0308, P040					
							·						
Torque Converter Clutch (TCC)	P2809	TCC System Stuck ON	TCC Slip Speed	>= -50	RPM								One Trip
			TCC Slip Speed	<= 30	RPM						1.5	Fail Time (Sec)	
			If Above Conditions Have been							>=	1.5	rali Time (Sec)	
			Met, and Fail Timer Expired,							>=	6	Fail Counter	
			Increment Fail Counter										
						TCC Mode	=	Off					
						default valve state	=	high (active)					
						default valve state previous	=	low to high					
								see Table					
						ant default value state *****		24 in					
						set default valve state time	=	Supporting Document	seconds				
								S					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum
					default valve state timer times down to zero (0.0) when default valve state not	=	high (active)			
					default valve state timer times down to zero (0.0) when default valve state previous not	=	low to high			
					either A or B ro C must be met					
					A) default valve state	=	low to high			
					B) default valve state timer	>	0	seconds		
					 C) low TCC slip fail timer clutch solenoid stuck off 	>	0	seconds		
					performance (neutral) test	=	FALSE	Boolean		
					active					
					clutch solenoid stuck on performance (tie-up) test	=	FALSE	Boolean		
					active					
					TCC Slip Speed	<=	300 see Table	RPM		
							25 in			
					derivative TCC slip speed	<=	Supporting	RPM/sec		
							Document s			
					TCC system stuck on					
					diagnostic monitor enable c	=	1			
					Engine Speed Engine Speed	<=	5500	RPM RPM		
					Vehicle Speed HI	>= <=	400 45	KPIVI		
					Engine Torque	<=	800	Nm		
					Engine Torque	>=	55	Nm		
					Current Range Current Range	≠ ≠	Neutral Reverse	Range Range		
					Transmission Fluid			°C		
					Temperature	<=	130			
					Transmission Fluid Temperature	>=	-6.65625	°C		
					Throttle Position Hyst High	>=	3.9993286	Pct		
					AND					
					Max Vehicle Speed to Meet Throttle Enable	<=	8	KPH		
					Once Hyst High has been met,					
					the enable will remain while	>=	0.9994507	Pct		
					Throttle Position		04.000/05	D-4		
					Disable for Throttle Position Disable if PTO active and	>=	94.999695	Pct		
					value true	=	1			
					enable if tap up/down mode is					
					false or tap up/down TCC calibration value is false	=	0	Boolean		
					enable if manual up/down					
					mode is false or manual	=	0	Boolean		
					up/down TCC calibration value		O	Doorcan		
					is false enable if misfire disengage					
					TCC is false or value TCC	_	0	Rooloon		
					misfire calibration value is	=	U	Boolean		
					false 4 Wheel Drive Low Active	=	FALSE	Boolean		

System Golds	Component/	Fault	Monitor Strategy	Malfunction	Thre	shold	Secondary	1	Enable	1		Tir	ne	Mil
Marie Mari			Description				Malfunction							Illum.
Design D	·		·				battery voltage	<=	31.999023	volts				
International Control Inte								>=	9	volts				
Person Control Salervid G Control Person								>=	0.1	sec				
Part							Ignition Voltage	<=	31.999023	Volts				
Mote visits Factors Find a							Ignition Voltage	>=	9	Volts				
Page 2 Page 2 Page 3 P								_	EVICE	Poologn				
Conditions Con								=	FALSE	Boolean				
Figure Tourish British a TRUE Booksta Thresh Facilities Signal Valid Thresh Facilities Signal									0.1	Soc				
Throttle Position Signal Votal First Fated Florid Statute Florid														
Disable Conditions: Disable Disab														
Part							Throttle Position Signal Valid	=						
Disable Conditions														
Disable Conditions: MIL not Illuminated for TOM: P0716_P0717_P078F_P07C0, DTC's P0722_P073							P0742 Status is	≠						
Variable Force Solenoid (VFS) P281 Pressure Control Solenoid & Control									On					
Variable Force Soleroid (VFS) P2212 P231 - P2712, P2713 P2714, P2714, P2714 P2715 P2714 P271														
Variable Force Soleroid (VFS) P2212 P231 - P2712, P2713 P2714, P2714, P2714 P2715 P2714 P271						D: 11								
P2812, P2814, P2815 FEM. P0101, P0102, P0103, P0104, P0107, P														
ECM: P0101, P0102, P0103, P0104, P0107, P0104, P0107, P0104, P0107, P0107, P0104, P0107, P0						Conditions:	DICS			77D, P2809,				
Page								P2812, P2814	1, P2815					
Page								FCM. D0101	D0102 D010	12 D010/				
Partiable Force Solenoid (VFS) Partiable Force Solenoid (VFS) Patient Control Solenoid G Control (TCC pressure VFS) The HWIO reports open crust error flag The HWIO reports open crust error flag TRUE Boolean														
Variable Force Solenoid (VFS) Passure Control Solenoid G Control Crount Cypen (TCC pressure VFS) The HWIO reports open crount error flag error flag (TCC pressure VFS) The HWIO reports open crount error flag error flag (TCC pressure VFS) The HWIO reports open crount error flag error flag (TCC pressure VFS) The HWIO reports open crount error flag error flag (TCC pressure VFS) The HWIO reports open crount error flag error flag (TCC pressure VFS) The HWIO reports open crount error flag error flag (TCC pressure VFS) The HWIO reports open crount error flag error flag (TCC pressure VFS) The HWIO reports open crount error flag error flag (TCC pressure VFS) The HWIO reports open crount error flag (TCC pressure VFS)														
Variable Force Solenoid (VFS) P2812 Pressure Control Solenoid G Control (TCC pressure VFS) P1815														
Variable Force Solenoid (VFS) Past 2 Cracill Open (TCC pressure VFS) The HWIO reports open cruit error flag The HWIO reports open cruit error flag TRUE Boolean VFS source must be high side driver VFS source is eabled controller power mode state is ignition or accessory battery voltage in range for stability time battery voltage in range for stability time battery voltage = 8 volts Disable Conditions: Past 2 TRUE Boolean TRUE														
Variable Force Solenoid (VFS) P2812 Pressure Control Solenoid G Control Circuit Open (TCC pressure VFS) The HWIO reports open cruzit error flag The HWIO reports open cruzit error flag The HWIO reports open cruzit error flag														
Variable Force Solenoid (VFS) P2812 Circuit Open (TCC pressure VFS) P2812 Circuit Open (TCC pressure VFS) P2813 Circuit Open (TCC pressure VFS) P2814 P2815 Circuit Open (TCC pressure VFS) P2815								0300, 1 030	, 1 0300, 1 04	01,1 04ZL				
Variable Force Solenoid (VFS) P2812 Circuit Open (TCC pressure VFS) P2812 Circuit Open (TCC pressure VFS) P2813 Circuit Open (TCC pressure VFS) P2814 P2815 Circuit Open (TCC pressure VFS) P2815			Pressure Control Solenoid G Control											One Trip
(TCC pressure VFS) Controller power mode state is ginition or accessory battery voltage stability time battery voltage stability time battery voltage stability time battery voltage Stability time Stability time battery voltage Stability time battery voltage Stability time Stability time Stability time Stability	Variable Force Solenoid (VFS)	P2812			= TRUF	Boolean					>=	0.3	Fail Time (Sec)	One mp
diagnostic monitor enable calibration VFS source must be high side driver 1 or 2 or 3 high side driver VFS source is = CeTSCR_e.HSD2 high side driver VFS source = TRUE Boolean enabled controller power mode state is ignition or accessory battery voltage stability time battery voltage stability	variable i orde Solenoia (vi S)	1 2012		error flag	- INGE	Doolean						0.0	Tull Tille (See)	
diagnostic monitor enable calibration VFS source must be high side diver VFS source is lightlen or accessory battery voltage in range for stability time battery voltage stability time battery voltage battery voltage conditions: Disable Conditions: MIL not Illuminated for TCM: None MIL not Illuminated for TCM: None MIL not Illuminated for TCM: None Of U.S (Sec) TRUE Boolean FRUE Boolean FRUE Boolean FRUE Boolean FRUE Boolean Of U.S (Sec) Of U.S (Sec) Of U.S (Sec)			(100 pressure v10)								out		Sample Time	
diagnostic monitor enable calibration VFS source must be high side driver VFS source is high side driver VFS source is high side driver VFS source is high side driver VFS source enabled controller power mode state is ignition or accessory battery voltage in range for stability time battery voltage stability time battery voltage stability time battery voltage stability time Disable Conditions: MIL not Illuminated for TCM: None Disable Conditions: ECM: None TRUE Boolean												0.5		
calibration VFS source must be high side driver 1 or 2 or 3 high side driver VFS source is high side driver VFS source enabled controller power mode state is ignition or accessory battery voltage in range for Stability time battery voltage stability time battery voltage stability time battery voltage stability time battery voltage >= 8 volts battery voltage >= 8 volts battery voltage >= 32 Volts Disable Conditions: MIL not Illuminated for TCM: None Conditions: ECM: None							diagnostic monitor enable				0.		(000)	1
VFS source must be high side driver 1 or 2 or 3 high side driver VFS source is e_HSD2 enumeration high side driver VFS source enabled controller power mode state is ignition or accessory battery voltage in range for stability time battery voltage stability time battery voltage stability time battery voltage battery voltage battery voltage can be determined by the can be determin								=	TRUE	Boolean				
driver 1 or 2 or 3 high side driver VFS source is e_HSD2 enumeration e_HSD2 high side driver VFS source = TRUE Boolean enumeration enabled controller power mode state is ignition or accessory battery voltage in range for stability time battery voltage stability time battery voltage stability time battery voltage = 1 seconds battery voltage = 8 volts battery voltage = 32 Volts Disable Conditions: MIL not Illuminated for TCM: None CCM: None														
high side driver VFS source is high side driver VFS source enabled controller power mode state is guilding or accessory battery voltage in range for stability time battery voltage stability time battery voltage is battery voltage.														
high side driver VFS source enabled controller power mode state is ignition or accessory battery voltage in range for stability time battery voltage stability time battery voltage >= 8 volts battery voltage >= 8 volts battery voltage >= 32 Volts Disable Conditions: DTC's: ECM: None									CeTSCR_					
enabled controller power mode state is ignition or accessory battery voltage in range for stability time battery voltage stability time battery voltage stability time battery voltage >= 1 seconds battery voltage >= 8 volts battery voltage <= 32 Volts Disable Conditions: MIL not Illuminated for TCM: None DTC's:							nigh side driver VES source is	=	e_HSD2	enumeration				
controller power mode state is ignition or accessory battery voltage in range for stability time battery voltage stability time battery voltage stability time battery voltage stability time >= 1 seconds battery voltage >= 8 volts battery voltage <= 32 Volts Disable Conditions: MIL not Illuminated for TCM: None DTC's: ECM: None							high side driver VFS source	:	TDUE	Dooloon				
controller power mode state is ignition or accessory battery voltage in range for stability time battery voltage stability time battery voltage to							enabled	=	TRUE	Boolean				
Disable Conditions: Disable C								_	TDHE	Poologn				
Stability time battery voltage stability time battery voltage stability time battery voltage >= 1 seconds battery voltage >= 8 volts battery voltage <= 32 Volts Disable Conditions: DISABLE CONDITIONS DISABLE CONDITIONS DISABLE CONDITIONS ECM: None								_	INUL	Doolean				
battery voltage stability time >= 1 seconds battery voltage >= 8 volts battery voltage <= 32 Volts Disable Conditions: DTC's:														
battery voltage >= 8 volts battery voltage <= 32 Volts Disable Conditions: Disable Conditio														
Disable Conditions: Disable TCM: None DTC's: ECM: None														
Disable Conditions: DTC's: ECM: None														
Conditions: DTC's: ECM: None							battery voltage	<=	32	Volts				
Conditions: DTC's: ECM: None														
Conditions: DTC's: ECM: None						5.	AMI	TOM N						
ECM: None								ICM: None						
						Conditions:	DIC's:	ECM, None						
								ecivi: Noné						
Dracsura Control Solanoid C Control			Pressure Control Solenoid G Control					-						One Trip
Variable Force Solonoid (VES) D2814 Circuit Low The Hwito reports open circuit Tour Solonoid (VES) D2814 Circuit Low TDUE Boolean	Variable Force Solenoid (VES)	D2811			_ TDITE	Roolean					\	0.3	Fail Time (See)	One mp
variable Force Solehold (VFS) P2814 Circuit Low Fall Time (Sec) (TCC pressure VFS)	variable Fulle Suletiulu (VFS)	FZ014		error flag	- IKUE	DUUICAIT					>=	0.3	raii riille (Sec)	
out Sample Time			(100 pressure vi 3)								out		Sample Time	
											of	0.5	(Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
System	Code	Description	Criteria		aiue	diagnostic monitor enable			Boolean		Req	ulleu	mum.
						calibration	=	TRUE	Boolean				
						VFS source must be high side driver 1 or 2 or 3							
						high side driver VFS source is	=	CeTSCR_	enumeration				
						high side driver VFS source		e_HSD2	chameration				
						enabled	=	TRUE	Boolean				
						controller power mode state is	=	TRUE	Boolean				
						ignition or accessory battery voltage in range for							
						stability time							
						battery voltage stability time battery voltage	>= >=	1 8	seconds volts				
						battery voltage		32	Volts				
					Disable	MIL not Illuminated for	TCM: None						
					Conditions	DTC's:							
							ECM: None						
		Pressure Control Solenoid G Control	The LIMIO reports open erquit										One Trip
Variable Force Solenoid (VFS)	P2815	Circuit High	The HWIO reports open crcuit error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	
		(TCC pressure VFS)	_							out		Sample Time	
										of	0.5	(Sec)	
						diagnostic monitor enable calibration	=	TRUE	Boolean				
						VFS source must be high side							
						driver 1 or 2 or 3		Catson					
						high side driver VFS source is	=	CeTSCR_ e_HSD2	enumeration				
						high side driver VFS source	=	TRUE	Boolean				
						enabled controller power mode state is							
						ignition or accessory	=	TRUE	Boolean				
						battery voltage in range for stability time							
						battery voltage stability time	>=	1	seconds				
						battery voltage	>=	8	volts				
						battery voltage	<=	32	Volts				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None						
					Conditions.	D10 3.	ECM: None						
	4					(1)							0 7
default valve on/off valve solenoid	P2817	Hydraulic on/off Control Solenoid H Stuck Off (default valve on/off	absolute value (attained gear slip)	>= 400	RPM	6th gear intrusive shift command when fail time				>=	3	seconds	One Trip
		solenoid)	4th gear commanded			reaches fail limit							
						attained gear when intrusive 6th gear command	=	3rd					
						attained gear slip 3rd gear	<=	75	RPM				
						3rd gear attained time	>=	0.5	seconds				
						intrusive 6th gear commanded event count	>=	2	counts				
I	I	I I				I				>=	2	counts	1 1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum
					clutch solenoid stuck on					
					performance diagnostic		TRUE	boolean		
					monitor test deceleration limit	=	IKUE	DUDIEALI		
					not					
					clutch solenoid stuck on					
					performance diagnostic		TRUE	hooloon		
					monitor test return to previous	=	TRUE	boolean		
					range not					
					PRNDL State not	=	park	enumeration		
					PRNDL State not	=	neutral	enumeration		
					while conditinos A and B and					
					C are met, time down delay					
					from clibration to 0.0 seconds					
					delay time calibration	=	0.5	seconds		
					A) neutral condition fault	=	FALSE	boolean		
					pending	=				
					B) intrusive shift active	=	FALSE	boolean		
					C) range shift state	=	shift	enumeration		
						=	complete	enumeration		
					intrusive shift allowed	=	TRUE	boolean		
					intrusive shift active	=	FALSE	boolean		
					steady state pressure adapt in	=	FALSE	boolean		
					progress	=	FALSE	boolean		
					transmission output speed	>=	100	RPM		
					accelerator pedal position	>=	0.5004883	%		
					accelerator pedal position valid	=	TRUE	Boolean		
						=				
					engine speed valid	=	TRUE	Boolean		
					D or E					
					D) select battery voltage to	=	0	Boolean		
					enable diagnsotic monitor	_	U	Doolean		
					E) battery voltage	<=	31.999023	volts		
					E) battery voltage	>=	9	volts		
					E) battery voltage time	>=	0.1	sec		
					F or G					
					F) select ignition voltage to	=	0	Boolean		
					enable diagnsotic monitor	=				
					G) Ignition Voltage	<=	31.999023	Volts		
					G) Ignition Voltage	>=	9	Volts		
					Service Fast Learn (SFL)	=	FALSE	Boolean		
					Mode VBS Failsafe	=	FALSE	DUUICAIT		
					Ignition voltage and SFL	>=	0.1	Sec		
					conditions met for	>=	U. I	200		
					Hydraulic System Pressurized	=	TRUE	Boolean		
					high side driver 1 enabled	=	TRUE	Boolean		
					high side driver 2 enabled	=	TRUE	Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold ilue	Secondary Malfunction		Enable Conditions			Tiı Reqı		Mil Illum.
System	Code	Description	Criteria	Ye	Disable Conditions:	MIL not Illuminated for	P077C, P077 P182A, P182 P182F, P183 P18B5, P18E P18BF, P18C P1915, P253 ECM: P0101 P0107, P010 P0175, P020 P0205, P020 P0301, P030	, P0717, P0722 7D, P07BF, P0 8B, P182C, P18 8B, P1839, P18 86, P18B7, P18 BB, P18BC, P1 C0, P18C1, P1	7C0, P1824, 32D, P182E, 40, P1841, 1888, P1889, 8BD, P18BE, 3C2, P18C3, 3, P0106, 72, P0174, 33, P0204, 38, P0300, 04, P0305,		Грел	an eu	munt.
default valve on/off valve solenoid		Hydraulic on/off Control Solenoid H Stuck On (default valve on/off solenoid)	TCC slip speed	<= 6	RPM					>=	0.5	seconds	Two Trips
										>= >=	3 5	counts counts	
						delay time after TCC intrusive command pressure reaches intrusive value TCC intrusive command	>=	see Table 28 in supporting documents	seconds				
						pressure test delay timer calibration test delay timer times down	>=	600 0.5	kPa seconds				
						from calibration to zero (0.0) when all of the following conditinos are met							
						engine speed engine speed transmission temperature transmission temperature		400 900 0 40	RPM RPM °C °C				
						PRNDL state Hydraulic System Pressurized battery voltage	= =	park TRUE 31.999023	enumeration Boolean volts				
						battery voltage battery voltage time Ignition Voltage	>=	9 0.1 31.999023	volts sec Volts				
						Ignition Voltage Service Fast Learn (SFL)	>=	9 FALSE	Volts Boolean				
						Mode VBS Failsafe Ignition voltage and SFL conditions met for		0.1	Sec				
					Disable Conditions:		P2812, P281		F, P07C0,				
default valve on/off solenoid	P281D	Pressure Control Solenoid H Control Circuit Low	The HWIO reports open crcuit error flag	= TRUE	Boolean		ECM: none			>=	0.3	Fail Time (Sec	One Trip
		(default valve on/off solenoid)	Citor inag							out of	0.5	Sample Time (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions			Ti: Req		Mil Illum.
						diagnostic monitor enable calibration VFS source must be high side driver 1 or 2 or 3	=	TRUE	Boolean		'		
						high side driver VFS source is	=	CeTSCR_ e_HSD1	enumeration				
						high side driver VFS source enabled	=	TRUE	Boolean				
						controller power mode state is ignition or accessory battery voltage in range for	=	TRUE	Boolean				
						stability time battery voltage stability time	>=	1	seconds				
						battery voltage battery voltage		8 32	volts Volts				
					Disable Conditions:		TCM: None						
							ECM: None						
default valve on/off solenoid	P281E	Pressure Control Solenoid H Control Circuit High (default valve on/off solenoid)	The HWIO reports open crcuit error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Trip
										out of	0.5	Sample Time (Sec)	
						diagnostic monitor enable calibration VFS source must be high side	=	TRUE	Boolean				
						driver 1 or 2 or 3 high side driver VFS source is	=	CeTSCR_	enumeration				
						high side driver VFS source enabled	=	e_HSD1 TRUE	Boolean				
						controller power mode state is ignition or accessory battery voltage in range for	=	TRUE	Boolean				
						stability time battery voltage stability time	>=	1	seconds				
						battery voltage battery voltage	>=	8 32	volts Volts				
					Disable Conditions:								
							ECM: None						
clutch2/CB12345R boost valve on/off solenoid	P2826	Pressure Control Solenoid J Control Circuit Low clutch2/CB12345R boost valve on/off	The HWIO reports open crcuit error flag	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Trip
		solenoid)								out of	0.5	Sample Time (Sec)	
						diagnostic monitor enable calibration VFS source must be high side	=	TRUE	Boolean	J.		(500)	
						driver 1 or 2 or 3	=	CeTSCR_	enumeration				
l	1					riigh side driver vi 5 source is	_	e_HSD2	CHUITICIAIIUII				I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		hreshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
Gystein	Code	Description	Citeria		Value	high side driver VFS source enabled controller power mode state is ignition or accessory battery voltage in range for	=	TRUE TRUE	Boolean Boolean		Noq	uncu	
						stability time battery voltage stability time battery voltage battery voltage	>= >= <=	1 8 32	seconds volts Volts				
					Disable Conditions	DTC's:	TCM: None ECM: None						
clutch2/CB12345R boost valve on/off solenoid	P2827	Pressure Control Solenoid J Control Circuit High (clutch2/CB12345R boost valve on/off solenoid)	The HWIO reports open crcuit error flag	= TRUI	Boolean					>=	0.3	Fail Time (Sec)	One Trip
		on on sociolay								out of	0.5	Sample Time (Sec)	
						diagnostic monitor enable calibration VFS source must be high side driver 1 or 2 or 3	=	TRUE	Boolean				
						high side driver VFS source is	=	CeTSCR_ e_HSD2	enumeration				
						high side driver VFS source enabled	=	TRUE	Boolean				
						controller power mode state is ignition or accessory battery voltage in range for stability time	=	TRUE	Boolean				
						battery voltage stability time battery voltage battery voltage		1 8 32	seconds volts Volts				
					Disable Conditions		TCM: None ECM: None						
Communication	U0073	Controller Area Network Bus Communication Error	CAN Hardware Circuitry Detects a Bus Voltage Error (CAN bus off)	= TRUI	Boolean					>=	62	counts	One Trip
			Bus off delay time	>= 0.112	5 sec	all conditions A and B and C				>=	70	counts	
						below must occur for stabilization time Bus Stabilization time A) Service mode \$04 active	>=	3	seconds				
						and end of trip pocessing active		FALSE	Boolean				
						A) normal serial data communication enabled A) P0073 status not		TRUE fault active	Boolean				
						B) secured controller or emission critical then use ignition voltage	=	CeCANR_ e_OBDII_ Dsbl	Boolean				

Component/	Fault	Monitor Strategy	Malfunction	Thre	eshold	Secondary Malfunction		Enable		Time		Mil
System	Code	Description	Criteria	Va	alue	B) secureed controller or		Conditions		Require	1	Illum.
						emission critical Ignition	>=	11	volts			
						Voltage						
						B) Power Mode	=	Run				
						B) secured controller or emission critical then use	=	CeCANR_ e_OBDII_	Boolean			
						controller power mode		Dsbl	Boolean			
						B) Power Mode	=	Run				
						C) ignition off enable		TRUE	Boolean			
						C) Power Mode C) battery voltage	= >=	accessory 11	volts			
						all conditions A and B below						
						must occur						
						A) post clear code timer D) when Brenulsian System	>=	0.15	seconds			
						B) when Propulsion System Active use low voltage check	=	FALSE	Boolean			
						conditions A or B below during						
						low voltage occur while low						
						voltage mode hysteresis time						
						low voltage mode hysteresis	<=	0.1	seconds			
						time	=		enumeration			
						A) system voltage mode B) ignition voltage, set low						
						voltage mode	<=	6.4091797	volts			
						conditions A or B above occur						
						while low voltage mode hysteresis time and low						
						voltage time						
						low voltage mode time	>=	2.50E-02	seconds			
					Disable	MIL not Illuminated for	TCM: None					
					Conditions:		TOWN TOOLS					
							ECM: None					
						fall times are appulated based						One Trin
		Lost Communications with ECM				fail times are caculated based on Rx message enable		Tx				One Trip
Communication	U0100	(Engine Control Module)	TCM Rx message missed frame			calibration set to		controller				
						CeCANR_e_BusA_ECM						
								see Table		see Table 65		
			TCM Rx frame message missed	= TRUE	Boolean	TCM Rx frame calibration	<i>≠</i>	64 in	enumeration	>= in supporting	seconds	
			frame			enabled		supporting documents		documents		
						E		documents				
						Frame recovery stabilization delay	>=	0.5	seconds			
						all conditions A and B and C						
						below must occur for						
						stabilization time		2	coccado			
						Bus Stabilization time A) Service mode \$04 active	>=	3	seconds			
						and end of trip pocessing	=	FALSE	Boolean			
						active						
						A) normal serial data communication enabled	=	TRUE	Boolean			
						A) P0073 status not		fault active				
1	1	1		ı		7.9. 0070 314143 1101		.aan donvo		•		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold 'alue	Secondary Malfunction		Enable Conditions		Time Require		Mil Illum.
·						B) secured controller or emission critical then use ignition voltage	=	CeCANR_ e_OBDII_ Dsbl	Boolean			
						B) secureed controller or emission critical Ignition Voltage	>=	11	volts			
						B) Power Mode B) secured controller or	=	Run CeCANR_	Poologn			
						emission critical then use controller power mode B) Power Mode	=	e_OBDII_ Dsbl Run	Boolean			
						C) ignition off enable C) Power Mode C) battery voltage	= >=	TRUE accessory 11	Boolean volts			
						all conditions A and B below must occur A) post clear code timer	>=	0.15	seconds			
						B) when Propulsion System Active use low voltage check conditions A or B below during	=	FALSE	Boolean			
						low voltage occur while low voltage mode hysteresis time	:					
						low voltage mode hysteresis time A) system voltage mode	=	0.1 2.50E-02	seconds enumeration			
						B) ignition voltage, set low voltage mode conditions A or B above occur	<=	6.4091797	volts			
						while low voltage mode hysteresis time and low voltage time	1					
						low voltage mode time U0100 fault status is not	>=	2.50E-02 fault active				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: U0073					
	1						201111110110					-
Communication	U0121	Loss Communications with ABS (Anti- lock Brake System)	TCM Rx message missed frame			fail times are caculated based on the following Rx messages enable calibration set to CeCANR_e_BusA_ABS	5	Tx controller				Special No MIL
			TCM Rx frame message missed frame	= TRUE	Boolean	TCM Rx frame calibration enabled		see Table 64 in supporting documents	enumeration	see Table 65 >= in supporting documents	seconds	
						Frame recovery stabilization delay all conditions A and B and C		0.5	seconds			
						below must occur for stabilization time Bus Stabilization time	r 2	2	sacanda			
						A) Service mode \$04 active and end of trip pocessing active	=	3 FALSE	seconds Boolean			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold Ilue	Secondary Malfunction		Enable Conditions		Time Require	d	Mil Illum.
	1					A) normal serial data			Dealine			
						communication enabled	=	TRUE	Boolean			
						A) P0073 status not	=	fault active				
						B) secured controller or	1	CeCANR_				
						emission critical then use	=	e_OBDII_	Boolean			
						ignition voltage		Dsbl				
						B) secureed controller or						
						emission critical Ignition	>=	11	volts			
						Voltage						
						B) Power Mode	=	Run				
						B) secured controller or		CeCANR_				
						emission critical then use	=	e_OBDII_	Boolean			
						controller power mode		Dsbl				
						B) Power Mode	=	Run				
						C) ignition off enable	=	TRUE	Boolean			
						C) Power Mode	=	accessory				
						C) battery voltage	>=	11	volts			
						all conditions A and B below						
						must occur						
						 A) post clear code timer 	>=	0.15	seconds			
						B) when Propulsion System	=	FALSE	Boolean			
						Active use low voltage check	_	TALJE	Doolcan			
						conditions A or B below during						
						low voltage occur while low						
						voltage mode hysteresis time						
						low voltage mode hysteresis	<=	0.1	seconds			
						time		0.1	Seconds			
						 A) system voltage mode 	=	2.50E-02	enumeration			
						B) ignition voltage, set low	<=	6.4091797	volts			
						voltage mode	_	0.4071777	VOILS			
						conditions A or B above occur						
						while low voltage mode						
						hysteresis time and low						
						voltage time						
						low voltage mode time	>=	2.50E-02	seconds			
						U0121 fault status is not	=	fault active				
					Disable	MIL not Illuminated for	TCM: U0073					
					Conditions:	DTC's:						
							ECM: None					
						fall times are appulated based						Chaolal
		Loop Communications with DCM				fail times are caculated based		т.,				Special
Communication	U0140	Loss Communications with BCM	TCM Rx message missed frame			on the following Rx messages		Tx				No MIL
		(Body Control Module)				enable calibration set to		controller				
						CeCANR_e_BusA_BCM						
								see Table		000 T-LI- /5		
			TCM Rx frame message missed	TDUE	Deeleen	TCM Rx frame calibration		64 in		see Table 65		
			frame	= TRUE	Boolean	enabled	≠	supporting	enumeration		seconds	
								documents		documents		
						Frame recovery stabilization						1
						delay	>=	0.5	seconds			
	1					all conditions A and B and C						
						below must occur for						
	1					stabilization time						
	1					Bus Stabilization time	>=	3	seconds			
I	1	1	ı	ı		Dus Stabilization time	. /-	J	SCOTIUS	I		1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	IIIu
					A) Service mode \$04 active					
					and end of trip pocessing	=	FALSE	Boolean		
					active					
					A) normal serial data	=	TRUE	Boolean		
					communication enabled			Doolean		
					A) P0073 status not	=	fault active			
					B) secured controller or		CeCANR_			
					emission critical then use	=	e_OBDII_	Boolean		
					ignition voltage		Dsbl			
					B) secureed controller or					
					emission critical Ignition	>=	11	volts		
					Voltage					
					B) Power Mode	=	Run			
					B) secured controller or		CeCANR_			
					emission critical then use	=	e_OBDII_	Boolean		
					controller power mode		Dsbl			
					B) Power Mode	=	Run			
					C) ignition off enable	=	TRUE	Boolean		
					C) Power Mode	=	accessory			
					C) battery voltage	>=	11	volts		
					all conditions A and B below					
					must occur					
					A) post clear code timer	>=	0.15	seconds		
					B) when Propulsion System	=	FALSE	Boolean		
					Active use low voltage check		TALSE	Doolean		
					conditions A or B below during					
					low voltage occur while low					
					voltage mode hysteresis time					
					low voltage mode hysteresis	<=	0.1	seconds		
					time					
					A) system voltage mode	=	2.50E-02	enumeration		
					B) ignition voltage, set low	<=	6.4091797	volts		
					voltage mode	•	3.137177			
					conditions A or B above occur					
					while low voltage mode					-1
					hysteresis time and low					
					voltage time					
					low voltage mode time	>=	2.50E-02	seconds		
					U0140 fault status is not	=	fault active			

ัล	ahl	able

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	-40.00	-20.00	0.00	30.00	110.00 °C
Curve	1.6000	1.1000	0.9500	0.8500	0.8500 seconds

Table 3

Axis	-40.00	-20.00	0.00	30.00	110.00	°C
Curve	1.5500	1.0500	0.9000	0.8000	0.8000	seconds

Table 4

Axis	-40.00	-20.00	0.00	30.00	110.00	°C
Curve	1.4000	0.9000	0.7500	0.6500	0.6500	seconds

Table 5

Axis	-40.00	-20.00	0.00	30.00	110.00	°C
Curve	1.5500	1.0500	1.0000	1.0000	1.0000	seconds

Table 6

Axis	-40.00	-20.00	0.00	30.00	110.00	°C
Curve	1.5500	1.0500	0.9000	0.8000	0.8000	seconds

Table 7

Axis	R_e_CD_21	R_e_CD_31	R_e_CD_32	SR_e_CD_42	R_e_CD_43	SR_e_CD_51	R_e_CD_53	R_e_CD_54	SR_e_CD_63	R_e_CD_64	R_e_CD_65	SR_e_CD_71	R_e_CD_75	R_e_CD_76
Curve	750.0	750.0	750.0	750.0	750.0	750.0	750.0	750.0	750.0	750.0	750.0	750.0	750.0	750.0
_	Axis	R_e_CD_82	R_e_CD_84	R_e_CD_86	R_e_CD_87	closed throttle	e down shift t	/pe: 2-1, 3-1,	3-2, 4-2, 4-3,	5-1, 5-3, 5-4,	6-3, 6-4, 6-5,	7-1, 7-,5 7-6,	8-2, 8-4, 8-6,	8-7
	Curve	750.0	750.0	750.0	750.0	kPa								

Table 8

Axis	R_e_US_12	R_e_US_23	R_e_US_34	R_e_US_45	R_e_US_56	SR_e_US_67	R_e_US_78	R_e_US_13	R_e_US_24	R_e_US_35	SR_e_US_46	R_e_US_57	R_e_US_68	up shift type: 1-2, 2-3, 3-4, 4-5, 5-6, 6-7, 7-8, 1-3, 2-4, 3-5, 4-6, 5-7, 6-8
Curve	750.0	750.0	750.0	750.0	750.0	750.0	750.0	750.0	750.0	750.0	750.0	750.0	750.0	kPa

Table 9

NOT USED NOT USED

Table 10

Axis	e_C1_Clutch	e_C2_Clutch	e_C3_Clutch	e_C4_Clutch	e_C5_Clutch	clutch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R
Curve	1	1	1	1	1	BOOLEAN

Table 11

Axis	e_C1_Clutch	e_C2_Clutch	e_C3_Clutch	e_C4_Clutch	e_C5_Clutch	clutch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R
Curve	180.0	180.0	180.0	180.0	180.0	N*m

Table 12

									
Axis	e_C1_Cluto	he_C2	_Clutch	e_C3_Clutch	e_C4_Clutch	e_C5_Clutch	clutch1	CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R	
Curve	60	0	60.0	60.0	60.0	60.0	N*m		

Table 13

Axis	e_C1_Clutch	e_C2_Clutch	e_C3_Clutch	e_C4_Clutch	e_C5_Clutch	clutch1	CB1278R	clutch 2 CB12345R,	clutch3 C13567,	clutch4 C23468, clutch5 C	45678R
Curve	10.0	10.0	10.0	10.0	10.0	N*m					

Axis	e_C1_Clutch	e_C2_Clutch	e_C3_Clutch	e_C4_Clutch	e_C5_Clutch	clutch1 CE	B1278R,	clutch 2 CB12345R,	clutch3 C13567,	clutch4 C23468, c	utch5 C45678R
Curve	-30.0	-30.0	-30.0	-30.0	-30.0	N*m					

Table 15

Axis	e_C1_Clutch	e_C2_Clutch	e_C3_Clutch	e_C4_Clutch	e_C5_Clutch	clutch1 CB1278R	, clutch 2 CB12345R,	clutch3 C13567,	clutch4 C23468,	clutch5 C45678R
Curve	100.0	100.0	100.0	100.0	100.0	N*m				

Table 16

Axis	e_C1_Clutch	e_C2_Clutch	e_C3_Clutch	e_C4_Clutch	e_C5_Clutch	clutch1	CB1278R, clutch 2 CB12345R	clutch3 C13567,	clutch4 C23468, clutch5 C456	78R
Curve	60.0	60.0	60.0	60.0	60.0	N*m				

Table 17

Axis	e_C1_Clutch	e_C2_Clutch	e_C3_Clutch	e_C4_Clutch	e_C5_Clutch	clutch1 CB1278R	, clutch 2 CB12345R,	clutch3 C13567,	clutch4 C23468, clut	ch5 C45678R
Curve	10.0	10.0	10.0	10.0	10.0	N*m				

Table 18

Axis	e_C1_Clutch	e_C2_Clutch	e_C3_Clutch	e_C4_Clutch	e_C5_Clutch clut	tch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R
Curve	-30.0	-30.0	-30.0	-30.0	-30.0 N*r	n

Table 19

NOT USED NOT USED

Table 20

NOT USED NOT USED

Table 21

Axis	-40.00	0.00	40.00	٥С
Curve	5.00	5.00	5.00	Sec

Table 22

NOT USED

Table 23

NOT USED NOT USED

Table 24

Axis	-7.00	10.00	40.00	°C
Curve	1.50	1.25	1.00	Sec

Table 25

Axis	-7.00	10.00	40.00	°C
Curve	-2000.00	-2000.00	-2000.00	RPM/Sec

Table 26

Axis	-40.00	-30.00	-20.00	0.00	20.00 °C
Curve	1800.00	1500.00	1200.00	600.00	60.00 Sed

Axis	0.00	20.00	60.00	100.00	120.00	Κŗ
Curve	-8.00	-8.00	-8.00	-8.00	-8.00	٥С

Table 28

Axis	-40.00	-20.00	0.00	30.00	110.00	C
Curve	5.00	3.00	2.00	1.75	1.00	Sec

Table 29

Axis	e_C1_Clutch	e_C2_Clutch	e_C3_Clutch	-C4_Clutch	e_C5_Clutch	clutch1 C	B1278R,	clutch 2 CB12345R	, clutch3 C13567,	clutch4 C23468, clut	ch5 C45678R
Curve	0.9000	0.9000	0.9000	0.9000	0.9000	seconds					

Table 30

Axis	e_C1_Clutch	e_C2_Clutch	e_C3_Clutch	e_C4_Clutch	C5_Clutch clut	ch1 CB1278R	, clutch 2 CB12345R,	clutch3 C13567,	clutch4 C23468, clutch	n5 C45678R
Curve	0.9000	0.9000	0.9000	0.9000	0.9000 sec	onds				

Table 31

Axis	e_C1_Clutch	e_C2_Clutch	e_C3_Clutch	e_C4_Clutch	e_C5_Clutch	clutch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R
Curve	0.9000	0.9000	0.9000	0.9000	0.9000	seconds

Table 32

Axis	e_C1_Clutch	e_C2_Clutch	e_C3_Clutch	e_C4_Clutch	e_C5_Clutch	clutch1 CB1278R	, clutch 2 CB12345R,	clutch3 C13567,	clutch4 C23468, clutch5 C	C45678R
Curve	4	4	4	4	4	counts				

Table 33

Axis	e_C1_Clutc	e_C2_Clutch	e_C3_Clutch	e_C4_Clutch	e_C5_Clutch	clutch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R	3
Curve		1 4	4	4	4	counts	

Table 34

NOT USED NOT USED

Table 35

Axis	e_C1_Clutch	e_C2_Clutch	e_C3_Clutch	e_C4_Clutch	e_C5_Clutch	clutch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R
Curve	0.5000	0.5000	0.5000	0.5000	0.5000	seconds

Table 36

Axis	e_C1_Clutch	e_C2_Clutch	e_C3_Clutch	e_C4_Clutch	e_C5_Clutch	clutch1 CB1278R, clutch 2 CB12345R, clutch3 C13567, clutch4 C23468, clutch5 C45678R
Curve	0.5000	0.5000	0.5000	0.5000	0.5000	seconds

Table 37

Axis	e_C1_Clutch	e_C2_Clutch	e_C3_Clutch	e_C4_Clutch	e_C5_Clutch	clutch1 CB12	78R, clutch 2 CB12345	R, clutch3 C13567	, clutch4 C23468, clutch5 C45678R
Curve	300.0	300.0	300.0	300.0	300.0	kPa			

Table 38

Axis	-40.00	-20.00	0.00	30.00	110.00 °C
Curve	0.9500	0.4500	0.3000	0.3000	0.3000 seconds

Table 39

Axis	-40.00	-20.00	0.00	30.00	110.00	°C
Curve	0.9500	0.4500	0.3000	0.2000	0.2000	seconds

Table 40

Axis	-40.00	-20.00	0.00	30.00	110.00	°C
Curve	0.9500	0.4500	0.3000	0.2000	0.2000	seconds

						17 OB	DG03	TCM Co	m
Axis Curve		-20.00 0.6000	0.00 0.5500	30.00 0.5500	110.00 °C				
<u>Table 42</u> Axis Curve		-20.00 0.4500	0.00	30.00 0.2000	110.00 °C				
Table 43 NOT NOT									
Table 44 NOT NOT									
Table 45 Axis Curve	R_e_CC_USR	e CC CDR	e_CC_PDR_		shift, closed OOLEAN	throttle down	shift, power	down shift, garag	e sh
<u>Table 46</u> Axis Curve		1 0	2		ADchannel, 2 OOLEAN	AD channels	, 3 AD chann	els, 4 AD channe	els
<u>Table 47</u> Axis Curve		estVoltage2 Tes 25.0000	stVoltage3 Te 75.0000	estVoltage4 95.0000 vol		AD channels	, 3 AD chann	els, 4 AD channe	els
<u>Table 48</u> Axis Curve		_12.5msSeq_e_ 0.2000	_25msSeq e_ 0.2000	LORES_C 6.2 409.5938 see		, 12.5 msec l	oop, 25 msec	loop, low res eng	jine
<u>Table 49</u> Axis Curve	_6p25msSeq}_	_12.5msSeq_e_ 8	_25msSeq e_ 4	LORES_C 6.2		, 12.5 msec l	oop, 25 msec	loop, low res eng	gine
<u>Table 50</u> Axis Curve	AR_i_MontrAM	R_i_MontrB IR_		eed key test en OOLEAN	able, seed s	equence test	enable, seed	timeout test enab	ole
<u>Table 51</u> Axis Curve		1 sp 0.0000 vo		speed sensor	2				
<u>Table 52</u> Axis Curve			eed sensor1, unts	speed sensor	2				
<u>Table 53</u> Axis Curve			eed sensor1, conds	speed sensor	2				
<u>Table 54</u> Axis Curve			eed sensor1, OOLEAN	speed sensor	2				

speed sensor1, speed sensor2

speed sensor1, speed sensor2

Table 55

Table 57 Axis 0 1 speed sensor1, speed sensor2 Curve 0.0500 409.5938 seconds	
Table 58 Axis 0 1 speed sensor circuit low, speed sensor circuit high Curve 1 0 BOOLEAN	
Table 59 Axis -40.00 -20.00 0.00 30.00 110.00 °C Curve 1.2000 0.9000 0.8500 0.7500 0.7500 seconds	
Table 60 Axis -40.00 -20.00 0.00 30.00 110.00 °C Curve 1.2500 0.7500 0.6000 0.6000 seconds	
Table 61 Axis	
Table 62 Axis	
Table 63 Axis -40.00 -20.00 0.00 30.00 110.00 °C Curve 1.2000 0.7000 0.5500 0.4500 seconds	
Table 64	
	_BusA 1DF_BusA frame Device dRxDevice enable or invalid
	BusA 589 BusA frame
Curve Busa_ABS Busa_BCM Busa_BCM alidRxDevice Busa_ABS Busa_ECM alidRxDevice Busa_ECM Busa_EC	
Table CE	
Table 65 Axis 0BE_BusA GACY_BusAb_0C1_BusAb_0C5_BusAb_0C9_BusAb_0F1_BusAb_0F1_BusAb_12A_BusAb_185_BusAb_185_BusAb_186_BusAb_186_BusAb_191_BusAb_191_BusAb_1A1_BusAb_1A3_BusAb_1A5_BusAb_1A4_BusAbACY_BusAbABABUsAbABABUsAbABABUSAbABABABUSAbABABABUSAbABABABUSAbABABABABUSAbABABABABUSAbABABABABABABABABABABABABABABABABABABA	BusA 1DF BusA frame
	12.000 12.000 seconds
Avich 150 BugAh 151 BugAh 150 BugAh 150 BugAh 150 BugAh 207 BugAh 201 BugAh 201 BugAh 350 BugAh 350 BugAh 350 BugAh 461 BugA 467 BugA 467 BugA 465 BugA 461 BugA 465	Rus A 580 Rus A frame

Supporting Documents - 3D Tables

3D Table 1

.	CeTSKR_Cnt_MaxCPUs	X-Axis Calibration		CeTSKR_6	e_CPU			CeTSKR_e	_CPU2	CPU
	CePISR_e_NumOfSeqTasks	Y-Axis Calibration	CePISR_e_6p25msSeq	CePISR_e_12p5msSeq	CePISR_e_25msSeq	CePISR_e_LORES_C	CePISR_e_6p25msSeq	CePISR_e_12p5msSeq	CePISR_e_25msSeq	CePISR_e_LORES_C loop test type
	KaPISD_b_ProgSeqWatchEnbl	Table Calibration	1	1	1	0	0	0	0	0 BOOLEAN

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions			Time Required		N IIIu
		i -	Fail Case 1	Tap Up Switch Stuck in the Up								t			Spe
Up Tap Down Switch (TUTD)	P1765	Upshift Switch Circuit #2		Position in Range 1 Enabled	=	1	Boolean								No
				Tap Up Switch Stuck in the Up		1	Dealess								1
				Position in Range 2 Enabled	=	I	Boolean								1
				Tap Up Switch Stuck in the Up		1	Dooloon								1
				Position in Range 3 Enabled	=	ı	Boolean								1
				Tap Up Switch Stuck in the Up		1	Dooloon								1
				Position in Range 4 Enabled	=	ı	Boolean								ĺ
				Tap Up Switch Stuck in the Up		1	Boolean								ĺ
				Position in Range 5 Enabled	=	'	DUUIEdII								Ì
				Tap Up Switch Stuck in the Up	_	1	Boolean								Ì
				Position in Range 6 Enabled	=	'	DUUIEdII								ĺ
				Tap Up Switch Stuck in the Up	_	0	Boolean								Ì
				Position in Neutral Enabled	-	U	Боонеан								ĺ
				Tap Up Switch Stuck in the Up	_	0	Boolean								ĺ
				Position in Park Enabled	-	U	Боонеан								ĺ
				Tap Up Switch Stuck in the Up	_	0	Boolean								ĺ
				Position in Reverse Enabled	-	U	boolean								l
				Tap Up Switch ON	=	TRUE	Boolean					>=	1 Fail	Time (Sec)	ĺ
															1
			Fail Case 2	Tap Up Switch Stuck in the Up	_	1	Boolean								l
				Position in Range 1 Enabled	_	,	Doolean								l
				Tap Up Switch Stuck in the Up	_	1	Boolean								1
				Position in Range 2 Enabled	_	'	Doolcan								ĺ
				Tap Up Switch Stuck in the Up	_	1	Boolean								1
				Position in Range 3 Enabled	_	'	Doolcan								l
				Tap Up Switch Stuck in the Up	_	1	Boolean								1
				Position in Range 4 Enabled	_	'	Doolcan								1
				Tap Up Switch Stuck in the Up	_	1	Boolean								l
				Position in Range 5 Enabled	_	'	Doolcan								1
				Tap Up Switch Stuck in the Up	_	1	Boolean								1
				Position in Range 6 Enabled	_	'	Doolcan								l
				Tap Up Switch Stuck in the Up	_	0	Boolean								1
				Position in Neutral Enabled		Ü	Doolcan								1
				Tap Up Switch Stuck in the Up	_	0	Boolean								1
				Position in Park Enabled		Ü	Booloan								1
				Tap Up Switch Stuck in the Up	=	0	Boolean								1
				Position in Reverse Enabled											l
				Tap Up Switch ON	=	TRUE	Boolean								l
				NOTE: Both Failcase1 and								>= 1	120 Fail	Time (Sec)	l
				Failcase 2 Must Be Met				Time Cines Leet Dance		Г	abla Tima				ł
								Time Since Last Range	>=	1 En	able Time (Sec)				1
								Change		9	Volts				l
								Ignition Voltage Lo Ignition Voltage Hi	>= <=	9 31.999023	Volts				1
								Engine Speed Lo	<= >=	250	RPM				1
								Engine Speed Lo	>= <=	7500	RPM				1
								Engine Speed is within the	<=						1
	1							allowable limits for	>=	5	Sec				1
								anowable intil(\$10)							1
										Test Failed					1
								P1765 Status is	≠	This Key					1
								F 1700 Status is	+	On or Fault					1
										Active					1
	1														1
	1	1													

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum.
	1					Disable	MIL not Illuminated for	TCM: P1767, P1761, P182E, P1915			
						Conditions:	DTC's:	ECM: None			
			Fall Cone 1						1		<u> </u>
Tap Up Tap Down Switch (TUTD)	P1766	Downshift Switch Circuit #2	Fail Case 1 Tap Down Switch Stuck in the	=	1	Boolean					Special No MIL
			Down Position in Range 1 Enabled								
			Tap Down Switch Stuck in the	=	1	Boolean					
			Down Position in Range 2 Enabled								
			Tap Down Switch Stuck in the	=	1	Boolean					
			Down Position in Range 3 Enabled								
			Tap Down Switch Stuck in the	=	1	Boolean					
			Down Position in Range 4 Enabled								
			Tap Down Switch Stuck in the	=	1	Boolean					
			Down Position in Range 5 Enabled								
			Tap Down Switch Stuck in the	=	1	Boolean					
			Down Position in Range 6 Enabled			Boologii					
			Tap Down Switch Stuck in the Down Position in Range Neutral	=	0	Boolean					
			Enabled		-						
			Tap Down Switch Stuck in the Down Position in Range Park	_	0	Boolean					
			Enabled		Ü	Boologii					
			Tap Down Switch Stuck in the Down Position in Range Reverse	=	0	Boolean					
			Enabled								
			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		4	Darlan					
			Down Position in Range 3 Enabled	=	1	Boolean					
			Tap Down Switch Stuck in the		1	Daglaan					
			Down Position in Range 4 Enabled	=	1	Boolean					
			Tap Down Switch Stuck in the		4	Darlan					
			Down Position in Range 5 Enabled	=	1	Boolean					
			Tap Down Switch Stuck in the		1	Daglaan					
			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	_	0	Poologe					
			Down Position in Park Enabled	=	0	Boolean					
			Tap Down Switch Stuck in the Down Position in Reverse Enabled	=	0	Boolean					
					TD:						
	I	1	Tap Down Switch ON	=	TRUE	Boolean		I			1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions			Tii Reqi		Mil Illum.
- cycloni		2000.151.011	NOTE: Both Failcase1 and							>=	120	sec	
			Failcase 2 Must Be Met			Time Since Last Range					120	360	4
						Change		1	Sec				
						Ignition Voltage Lo	>=	9	Volts				
						Ignition Voltage Hi		18	Volts				
						Engine Speed Lo Engine Speed Hi	>= <=	250 7500	RPM RPM				
						Engine Speed is within the		5	Sec				
						allowable limits for	>=	3	Sec				
								Test Failed					
						P1766 Status is	≠	This Key On or Fault					
								Active					
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P1767	P1761, P182E	, P1915				
					Conditions.	D1C 3.	ECM: None						
			TUTD Classif Daniel Invalid										Consist
Tap Up Tap Down Switch (TUTD)	P1767	Up and Down Shift Switch Circuit #2	TUTD Circuit Reads Invalid Voltage	= TRUE	Boolean					>=	60	Fail Time (Se	Special No MIL
						Ignition Voltage Lo	>=	9	Volts				
						Ignition Voltage Hi	<=	31.999023	Volts				
						Engine Speed Lo Engine Speed Hi	>= <=	250 7500	RPM RPM				
						Engine Speed is within the	>=	5	Sec				
						allowable limits for)=	5	360				
								Test Failed					
						P1767 Status is	≠	This Key					
								On or Fault Active					
					Disable Conditions:	MIL not Illuminated for DTC's:							
					Conditions.	D1C 3.	ECM: None						
Tap Up Tap Down Switch (TUTD)	P1876	Tap Up and Down Enable Switch Circuit	Current range	Park or = Reverse or	Range State								Special No MIL
., ., ., ., ., ., ,		Circuit	_	Neutral									
			TUTD Enable Switch is Active	= TRUE	Boolean						3	Fail Time (Se	2)
										>= >=	3 5	Fail Counts	
						Ignition Voltage Lo	>=	9	Volts				
						Ignition Voltage Hi Vehicle Speed Lo	<= <=	31.999023 511.99219	Volts KPH				
						Engine Speed Lo	>=	250	RPM				
						Engine Speed Hi	<=	7500	RPM				
						Engine Speed is within the allowable limits for	>=	5	Sec				
						anowable iiinits tor		T					
								Test Failed This Key					
						P1876 Status is	≠	On or Fault					
	1							Active					
	1												

Component/	Fault	Monitor Strategy Description	Malfunction	Threshold	Secondary	Enable	Time	Mil
System	Code		Criteria	Value	Malfunction	Conditions	Required	Illum.
				Disable Conditions:	DTC's:	TCM: P0815, P0816, P0826, P1761, P1825, P1877, P1915, U0100 ECM: None		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
Transmission Control Module (TCM)	C124F	The lateral accleration sensor signal failed at a low voltge	hardware configuration	CeLATR_e_V	transient delay timer	>=	30	Sec	>=	75	Sec	Special No MIL
			Lateral accleration sensor raw signal	<= -3.849999905 g's					out of	120	Sec	
			hardware configuration	CeLATR_e_V = oltageDirectPr op								
			Lateral accleration magnitude									
					Lateral acceleration low voltage diagnostic enable calibration	=	1					
					Battery Voltage Battery Voltage	<= >=	31.999023 9	Volts Volts				
					Battery voltage is within the allowable limits for	>=	0.1	Sec				
					Ignition Voltage Ignition Voltage	<= >=	31.999023 9	Volts Volts				
					Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean				
					Ignition voltage and SFL conditions met for	>=	0.1	Sec				
					e MIL not Illuminated for DTC's:	TCM: U0073						
				Conditions	S:	ECM: None						
Transmission Control Module (TCM)	C1250	The lateral accleration sensor signal failed at a high voltge	hardware configuration	CeLATR_e_V = oltageDirectPr	transient delay timer	>=	30	Sec	>=	75	Sec	Special No MIL
			Lateral accleration sensor raw signal	op >= 3.849999905 g's					out of	120	Sec	
			hardware configuration	CeLATR_e_V = oltageDirectPr								
			Lateral accleration magnitude	op <= 3.849999905 g's								
					Lateral acceleration high voltage diagnostic enable calibration	=	1					
					Battery Voltage Battery Voltage	<= >=	31.999023 9	Volts Volts				
					Battery voltage is within the allowable limits for	>=	0.1	Sec				
					Ignition Voltage	<=	31.999023	Volts				
					Ignition Voltage Service Fast Learn (SFL) Mode	>=	9 FALSE	Volts Boolean				
					VBS Failsafe Ignition voltage and SFL conditions met for	>=	0.1	Sec				
				Disabl Conditions	e MIL not Illuminated for DTC's: s:	TCM: U0073 ECM: None						
						LOWI. NOTIC						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	d	Secondary Malfunction		Enable Conditions			Tim Requi		Mil Illum.
Transmission Control Module (TCM)	C1251	The lateral accleration signal is stuck at a high magnitude in range	absolute value (lateral accleration)			absolute value (lateral accleration) for stablity	>=	0.53	g's	>=	75	Sec	Special No MIL
			absolute value (lateral accleration)	<= 3.849999905 g's		absolute value (lateral accleration) for stablity	<=	3.8499999	g's				
						stability time	>=	30	Sec				
						Diagnostic shifting override command	=	FALSE	Boolean				
						Attained Gear State	=	1st through 8th					
						Attained Gear Slip	<=	100 Clutch to	RPM				
						Transmission Type	=	Clutch Transmissi on					
						High Side Drivers enabled	=	TRUE	Boolean				
						Vehicle Speed Lateral acceleration stuck in	>=	15	kph				
						range diagnostic enable calibration	=	1					
						Battery Voltage	<=	31.999023	Volts				
						Battery Voltage	>=	9	Volts				
						Battery voltage is within the allowable limits for	>=	0.1	Sec				
						Ignition Voltage	<=	31.999023	Volts				
						Ignition Voltage	>=	9	Volts				
						Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean				
						Ignition voltage and SFL conditions met for	>=	0.1	Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:		8F, P07C0, P077					
							ECM: None						
Transmission Control Module (TCM)	C1252	The longitudinal accleration sensor signal failed at a low voltge	hardware configuration	CeLATR_e_V = oltageDirectPr		transient delay timer	>=	30	Sec	>=	75	Sec	Special No MIL
(*,		g	longitudinal accleration sensor raw	op						out			
			signal	<= -3.849999905 g's						of	120	Sec	
			hardware configuration	CeLATR_e_V = oltageDirectPr									
			nardware corniguration	= onagebriecter op									
			longitudinal accleration sensor raw signal	>= -3.849999905 g's									
			J			longitudinal acceleration low		1					
						voltage diagnostic enable calibration	=	1					
						Battery Voltage	<=	31.999023	Volts				
						Battery Voltage Battery voltage is within the	>=	9	Volts				
						allowable limits for	>=	0.1	Sec				
						Ignition Voltage	<=	31.999023	Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction		Enable Conditions			Time Requir		Mil Illum.
- System		2000.jan	5.1.5.1.2			Ignition Voltage Service Fast Learn (SFL) Mode VBS Failsafe Ignition voltage and SFL conditions met for	>= = >=	9 FALSE 0.1	Volts Boolean Sec				
				C	Disable Conditions:	MIL not Illuminated for DTC's:	TCM: U0073 ECM: None						
Transmission Control Module (TCM)	C1253	The longitudinal accleration sensor signal failed at a high voltge	hardware configuration	CeLATR_e_V = oltageDirectPr		transient delay timer	>=	30	Sec	>=	75	Sec	Special No MIL
(, 5.17)		og a and a angle tongs	longitudinal accleration sensor raw signal hardware configuration longitudinal accleration sensor raw	op >= 3.849999905 g's CeLATR_e_V = oltageDirectPr op <= 3.849999905 g's						out of	120	Sec	
			signal		Disable Conditions:	longitudinal acceleration high voltage diagnostic enable calibration Battery Voltage Battery Voltage Battery voltage is within the allowable limits for Ignition Voltage Ignition Voltage Service Fast Learn (SFL) Mode VBS Failsafe Ignition voltage and SFL conditions met for	= \(<= \) >= \(<= \) >= \(<= \) >= \(<= \) >= \(TCM: U0073 \)	1 31.999023 9 0.1 31.999023 9 FALSE 0.1	Volts Volts Sec Volts Volts Boolean Sec				
Transmission Control Module (TCM)	C1254	The longitudinal accleration signal is stuck at a high magnitude in range	absolute value (longitudinal accleration) absolute value (longitudinal accleration)	>= 0.529999971 g's <= 3.849999905 g's		absolute value (longitudinal accleration) for stablity absolute value (longitudinal accleration) for stablity stability time	>= <= >=	0.53 3.8499999 30	g's g's Sec	>= out of	75 120	Sec Sec	Special No MIL
						Diagnostic shifting override command	=	FALSE	Boolean				
						Attained Gear State Attained Gear Slip	= <=	1st through 8th 100 Clutch to	RPM				
						Transmission Type High Side Drivers enabled	=	Clutch Transmissi on TRUE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thres Val		Secondary Malfunction		Enable Conditions			Tii Requ		Mil Illum.
- Cystein	Jour	Beschphon	Silveria			transmssion output speed acceleration Vehicle Speed	>= >=	0.53	meter/second /second kph				
						longitudinal acceleration stuck in range diagnostic enable calibration	=	1	·				
						Battery Voltage Battery Voltage Battery voltage is within the	<= >=	31.999023 9	Volts Volts				
						allowable limits for Ignition Voltage	>= <=	0.1 31.999023	Sec Volts				
						Ignition Voltage Service Fast Learn (SFL) Mode VBS Failsafe	>=	9 FALSE	Volts Boolean				
						Ignition voltage and SFL conditions met for	>=	0.1	Sec				
					Disable Conditions:		TCM: P0716, P0723, P07BI P077D, P2150	F, P07C0, P07					
							ECM: None						
Manual Mode Switch	P0827	Manual Mode Switch Circuit Low Voltage	Manual Mode Switch State	= Invalid 1	enumeration					>= out	5 7.5	Fail Time (Sec) Sample Time	Special No MIL
						manual mode switch diagnostic monitor enable calibration	=	1		of		(Sec)	
						Diagnostic enable complete flag Diagnostic re-enable complete	=	TRUE	Boolean				
						flag Service Fast Learn (SFL) Mode	=	TRUE FALSE	Boolean Boolean				
						VBS Failsafe Ignition Voltage Max (disabled above this value)	= <=	31.999023	Volts				
						Ignition Voltage Min (enabled above this value)	>=	9	Volts				
						Ignition voltage delay timer	>=	0.1 Fault	Enable Time (Sec)				
						P0828 & P085F Status is	≠	Active					
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Manual Mode Switch	P0828	Manual Mode Switch Circuit High Voltage	Manual Mode Switch State	= Tap Down	enumeration								Special No MIL
			or Manual Mode Switch State	= Invalid 3	enumeration								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold	Secondary Malfunction		Enable Conditions		Time Required			Mil Illum.
- System	Code	Description	or Manual Mode Switch State		enumeration			Conditions		>= out of	5 7.5	Fail Time (Sec) Sample Time (Sec)	
						manual mode switch diagnostic monitor enable calibration	=	1		- 01		(000)	=
						Diagnostic enable complete flag	=	TRUE	Boolean				
						Diagnostic re-enable complete flag	=	TRUE	Boolean				
						Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean				
						Ignition Voltage Max (disabled above this value)	<=	31.999023	Volts				
						Ignition Voltage Min (enabled above this value)	>=	9	Volts				
						Ignition voltage delay timer	>=	0.1	Enable Time (Sec)				
						P0827 & P085F Status is	≠	Fault Active	(800)				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None						
							ECM: None						
Manual Mode Switch	P085F	Manual Mode Switch Circuit Performance	Manual Mode Switch State	= Invalid 2	enumeration					>= out	5 7.5	Fail Time (Sec) Sample Time	Special No MIL
						manual mode switch diagnostic monitor enable calibration	=	1		of		(Sec)	_
						Diagnostic enable complete flag	=	TRUE	Boolean				
						Diagnostic re-enable complete flag	=	TRUE	Boolean				
						Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean				
						Ignition Voltage Max (disabled above this value)	<=	31.999023	Volts				
						Ignition Voltage Min (enabled above this value)	>=	9	Volts				
						Ignition voltage delay timer	>=	0.1	Enable Time (Sec)				
						P0827 & P0828 Status is	≠	Fault Active	, ,				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None						
					Conditions:		ECM: None						

Component/	Fault	Monitor Strategy	Malfunction	Thresh	old	Secondary		Enable			Tir	me	Mil
System	Code	Description	Criteria	Valu		Malfunction		Conditions				uired	Illum.
Tap Up Tap Down Switch (TUTD)	P1761	Tap Up and Down switch signal circuit (rolling count)	Polling count value received from		Boolean					>=	3	Fail Counter (100 msec continuous)	Special No MIL
										>	10	Fail Timer (Sec)	
						Tap up/down message health (message receive occur)	=	TRUE	Boolean				
						Tap up/downswitch signal circuit (rolling count) diagnostic monitor enable calibration	=	1	Boolean				
						Ignition Voltage Ignition Voltage	<= >=	31.999023 9	Volts Volts				
						Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean				
						Ignition voltage and SFL conditions met for	>=	0.1	Sec				
						Service mode \$04 active and end of trip pocessing active	=	FALSE	Boolean				
					Disable Conditions:	MIL not Illuminated for DTC's:							

Component/ System	stem Code Description Criteria Value		Threshold Value	Secondary Malfunction		Enable Conditions				Time Required		
Transmission Control Module (TCM)	C124F	The lateral accleration sensor signal failed at a low voltge	hardware configuration	CeLATR_e_V	transient delay timer	>=	30	Sec	>=	75	Sec	Special No MIL
			Lateral accleration sensor raw signal	<= -3.849999905 g's					out of	120	Sec	
			hardware configuration	CeLATR_e_V = oltageDirectPr op								
			Lateral accleration magnitude									
					Lateral acceleration low voltage diagnostic enable calibration	=	1					
					Battery Voltage Battery Voltage	<= >=	31.999023 9	Volts Volts				
					Battery voltage is within the allowable limits for	>=	0.1	Sec				
					Ignition Voltage Ignition Voltage	<= >=	31.999023 9	Volts Volts				
					Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean				
					Ignition voltage and SFL conditions met for	>=	0.1	Sec				
					e MIL not Illuminated for DTC's:	TCM: U0073						
				Conditions	5:	ECM: None						
Transmission Control Module (TCM)	C1250	The lateral accleration sensor signal failed at a high voltge	hardware configuration	CeLATR_e_V = oltageDirectPr	transient delay timer	>=	30	Sec	>=	75	Sec	Special No MIL
			Lateral accleration sensor raw signal	op >= 3.849999905 g's					out of	120	Sec	
			hardware configuration	CeLATR_e_V = oltageDirectPr								
			Lateral accleration magnitude	op <= 3.849999905 g's								
					Lateral acceleration high voltage diagnostic enable calibration	=	1					
					Battery Voltage Battery Voltage	<= >=	31.999023 9	Volts Volts				
					Battery voltage is within the allowable limits for	>=	0.1	Sec				
					Ignition Voltage	<=	31.999023 9	Volts Volts				
					Ignition Voltage Service Fast Learn (SFL) Mode	>=	FALSE	Boolean				
					VBS Failsafe Ignition voltage and SFL conditions met for	>=	0.1	Sec				
				D:L1	e MIL not Illuminated for DTC's:							
				Disabl Conditions		ECM: None						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshol Value	d	Secondary Malfunction		Enable Conditions			Tim Requi		Mil Illum.
Transmission Control Module (TCM)	C1251	The lateral accleration signal is stuck at a high magnitude in range	absolute value (lateral accleration)			absolute value (lateral accleration) for stablity	>=	0.53	g's	>=	75	Sec	Special No MIL
			absolute value (lateral accleration)	<= 3.849999905 g's		absolute value (lateral accleration) for stablity	<=	3.8499999	g's				
						stability time	>=	30	Sec				
						Diagnostic shifting override command	=	FALSE	Boolean				
					Attained Gear State	=	1st through 8th						
				Attained Gear Slip	<=	100 Clutch to	RPM						
				Transmission Type	=	Clutch Transmissi on							
					High Side Drivers enabled	=	TRUE	Boolean					
						Vehicle Speed	>=	15	kph				
						Lateral acceleration stuck in range diagnostic enable	=	1					
						calibration Battery Voltage	<=	31.999023	Volts				
						Battery Voltage	>=	9	Volts				
						Battery voltage is within the allowable limits for	>=	0.1	Sec				
						Ignition Voltage	<=	31.999023	Volts				
						Ignition Voltage	>=	9	Volts				
						Service Fast Learn (SFL) Mode VBS Failsafe	=	FALSE	Boolean				
						Ignition voltage and SFL conditions met for	>=	0.1	Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:		8F, P07C0, P077					
							ECM: None						
Transmission Control Module (TCM)	C1252	The longitudinal accleration sensor signal failed at a low voltge	hardware configuration	-		transient delay timer	>=	30	Sec	>=	75	Sec	Special No MIL
			longitudinal accleration sensor raw	0p						out	120	Coo	
			signal	<= -3.849999905 g's						of	120	Sec	
			hardware configuration	CeLATR_e_V = oltageDirectPr									
				ор									
			longitudinal accleration sensor raw signal	>= -3.849999905 g's									
			J			longitudinal acceleration low		4					
						voltage diagnostic enable calibration	=	1					
						Battery Voltage	<=	31.999023	Volts				
						Battery Voltage Battery voltage is within the	>=	9	Volts				
						allowable limits for	>=	0.1	Sec				
[Ignition Voltage	<=	31.999023	Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction		Enable Conditions		Time Required			Mil Illum.
Gystein	Code	Description	Citeria	value		Ignition Voltage Service Fast Learn (SFL) Mode VBS Failsafe Ignition voltage and SFL conditions met for	>= = >=	9 FALSE 0.1	Volts Boolean Sec		rtoquii		
				C	Disable Conditions:	MIL not Illuminated for DTC's:	TCM: U0073 ECM: None						
Transmission Control Module (TCM)	C1253	The longitudinal accleration sensor signal failed at a high voltge	hardware configuration			transient delay timer	>=	30	Sec	>=	75	Sec	Special No MIL
			longitudinal accleration sensor raw signal hardware configuration longitudinal accleration sensor raw	op >= 3.849999905 g's CeLATR_e_V = oltageDirectPr op <= 3.849999905 g's						out of	120	Sec	
			signal	<u> </u>		longitudinal acceleration high voltage diagnostic enable calibration Battery Voltage Battery Voltage Battery voltage is within the allowable limits for Ignition Voltage Jontion Voltage Service Fast Learn (SFL) Mode VBS Failsafe Ignition voltage and SFL conditions met for	=	1 31.999023 9 0.1 31.999023 9 FALSE 0.1	Volts Volts Sec Volts Volts Boolean Sec				
				C	Disable Conditions:	MIL not Illuminated for DTC's:	TCM: U0073 ECM: None						
Transmission Control Module (TCM)	C1254	The longitudinal accleration signal is stuck at a high magnitude in range	absolute value (longitudinal accleration) absolute value (longitudinal accleration)	>= 0.529999971 g's <= 3.849999905 g's		absolute value (longitudinal accleration) for stablity absolute value (longitudinal accleration) for stablity stability time	>= <= >=	0.53 3.8499999 30	g's g's Sec	>= out of	75 120	Sec Sec	Special No MIL
						Diagnostic shifting override command	=	FALSE 1st through	Boolean				
						Attained Gear State Attained Gear Slip	= <=	8th 100 Clutch to	RPM				
						Transmission Type	=	Clutch Clutch Transmissi on					
						High Side Drivers enabled	=	TRUE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions			ime Juired	Mil Illum.
							transmssion output speed acceleration Vehicle Speed longitudinal acceleration stuck in range diagnostic enable calibration Battery Voltage Battery Voltage Battery voltage is within the allowable limits for Ignition Voltage Ignition Voltage Service Fast Learn (SFL) Mode VBS Failsafe Ignition voltage and SFL	>= >= = <= >= >= <= >= >=	Conditions	meter/second /second kph Volts Volts Sec Volts Volts Volts Boolean Sec			
						Disable Conditions:		TCM: P0716,	P0717, P0721 F, P07C0, P07	P0722,			
T. II. T. D. O. II.			5 11 0 1	T. 11.0 11.10 11.11									
Tap Up Tap Down Switch (TUTD)	P1765	Upshift Switch Circuit #2	Fail Case 1	Tap Up Switch Stuck in the Up Position in Range 1 Enabled	= 1	Boolean							Special No MIL
				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	= 1	Boolean							
				Position in Range 5 Enabled Tap Up Switch Stuck in the Up	= 1	Boolean							
				Position in Range 6 Enabled Tap Up Switch Stuck in the Up									
				Position in Neutral Enabled Tap Up Switch Stuck in the Up	= 0	Boolean							
				Position in Park Enabled	= 0	Boolean							
				Tap Up Switch Stuck in the Up Position in Reverse Enabled	= 0	Boolean							
				Tap Up Switch ON	= TRUE	Boolean					>= 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	= 1	Boolean							
				Position in Range 2 Enabled Tap Up Switch Stuck in the Up	= 1	Boolean							
				Position in Range 3 Enabled Tap Up Switch Stuck in the Up	= 1	Boolean							
				Position in Range 4 Enabled Tap Up Switch Stuck in the Up	·								1
				Position in Range 5 Enabled Tap Up Switch Stuck in the Up	= 1	Boolean							1
				Position in Range 6 Enabled	= 1	Boolean							

Component/ System	Fault Code		Malfunction Criteria		eshold 'alue	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			Tap Up Switch Stuck in the Up Position in Neutral Enabled	= 0	Boolean			·	
			Tap Up Switch Stuck in the Up Position in Park Enabled	= 0	Boolean				
			Tap Up Switch Stuck in the Up Position in Reverse Enabled	= 0	Boolean				
			Tap Up Switch ON NOTE: Both Failcase1 and Failcase	= TRUE	Boolean				
			2 Must Be Met				F	>= 120 Fail Time (Se	;)
						Time Since Last Range Change	>= 1 Enable Time (Sec)		
						Ignition Voltage Lo Ignition Voltage Hi	>= 9 Volts <= 31.999023 Volts		
						Engine Speed Lo Engine Speed Hi	>= 250 RPM <= 7500 RPM		
						Engine Speed is within the allowable limits for	>= 5 Sec		
						P1765 Status is	Test Failed ⊤his Key On or Fault		
							Active		
					Disable Conditions:		TCM: P1767, P1761, P182E, P1915		
							ECM: None		\perp
Tap Up Tap Down Switch (TUTD)	P1766	Downshift Switch Circuit #2	Fail Case 1 Tap Down Switch Stuck in the Down Position in Range 1 Enabled	= 1	Boolean				Special No MIL
			Tap Down Switch Stuck in the Down Position in Range 2 Enabled	= 1	Boolean				
			Tap Down Switch Stuck in the Down Position in Range 3 Enabled	= 1	Boolean				
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	= 1	Boolean				
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	= 1	Boolean				
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	= 1	Boolean				
			Tap Down Switch Stuck in the Down Position in Range Neutral Enabled	= 0	Boolean				
			Enabled	= 0	Boolean				
			Tap Down Switch Stuck in the Down Position in Range Reverse Enabled	= 0	Boolean				
			Tap Down Switch ON	= TRUE	Boolean			>= 1 sec	

17 OBDG03 TCM (8 Speed CTS-V Unique Gated Shifter) Summary Tables

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		nable nditions			Tir Requ		Mil Illum.
2,500			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					>=	120	sec	
						Time Since Last Range Change	>=	1	Sec				
						Ignition Voltage Lo Ignition Voltage Hi	>= <=	9 18	Volts Volts				
						Engine Speed Lo Engine Speed Hi	>= <=	250 7500	RPM RPM				
						Engine Speed is within the allowable limits for	>=	5	Sec				
						P1766 Status is	≠ T Or	st Failed his Key or Fault Active					
					Disable Conditions:		TCM: P1767, P176 ECM: None	1, P182E,	P1915				
Tap Up Tap Down Switch (TUTD)	P1767	Up and Down Shift Switch Circuit #2	TUTD Circuit Reads Invalid Voltage	= TRUE	Boolean					>=	60	Fail Time (Sec)	Special No MIL
. ,						Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the	>=	9 .999023 250 7500	Volts Volts RPM RPM				
						allowable limits for	>=	5	Sec				

17 OBDG03 TCM (8 Speed CTS-V Unique Gated Shifter) Summary Tables

Component/	Fault	Monitor Strategy	Malfunction		eshold	Secondary Malfunction		Enable		1		ime	Mil
System	Code	Description	Criteria	V	alue	Malfunction		Conditions			Req	uired	Illum.
						P1767 Status is	≠	Test Failed This Key On or Fault Active					
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P1761 ECM: None						
Tap Up Tap Down Switch	D407/	Tap Up and Down Enable Switch		Park or									Special
(TUTD)	P1876	Circuit	Current range	 Reverse or Neutral 	Range State								No MIL
			TUTD Enable Switch is Active		Boolean								
			TOTO ETIABLE SWILLITS ACTIVE	= IRUE	Doolean					>=	3	Fail Time (Sec)	
										>=	5	Fail Counts	
						Ignition Voltage Lo	>=	9	Volts	1		T dii Codrits	
						Ignition Voltage Hi		31.999023	Volts				
						Vehicle Speed Lo	<=	511.99219	KPH				
						Engine Speed Lo	>=	250	RPM				
						Engine Speed Hi	<=	7500	RPM				
						Engine Speed is within the		5	Sec				
						allowable limits for	>=	5	Sec				
						P1876 Status is	≠	Test Failed This Key On or Fault Active					
					Disable Conditions:			, P0816, P0826, F 7, P1915, U0100					

Component/	Fault	Monitor Strategy	Malfunction Criteria	Threshold Value		Secondary Malfunction		Enable Conditions			Tir Requ	ne	Mil Illum.
System Transmission Control Module (TCM)	Code C124F	Description The lateral accleration sensor signal failed at a low voltge	hardware configuration	CeLATR_e_V = oltageDirectPr		transient delay timer	>=	30	Sec	>=	75	Sec	Special No MIL
(1.5.1.)		namou at a 16.11 tongo	Lateral accleration sensor raw signal	op <= -3.849999905 g's						out of	120	Sec	
			hardware configuration										
			Lateral accleration magnitude	op >= -3.849999905 g's									
						Lateral acceleration low voltage diagnostic enable calibration	=	1					
						Battery Voltage Battery Voltage Battery voltage is within the	<= >=	31.999023 9	Volts Volts				
						allowable limits for	>=	0.1	Sec				
						Ignition Voltage Ignition Voltage	<= >=	31.999023 9	Volts Volts				
						Service Fast Learn (SFL) Mode	=	FALSE	Boolean				
						VBS Failsafe Ignition voltage and SFL conditions met for	>=	0.1	Sec				
					Disable	MIL not Illuminated for DTC's:	TCM: U0073						
					Conditions:		ECM: None						
Transmission Control Module (TCM)	C1250	The lateral accleration sensor signal failed at a high voltge	hardware configuration			transient delay timer	>=	30	Sec	>=	75	Sec	Special No MIL
			Lateral accleration sensor raw signal	op >= 3.849999905 g's						out of	120	Sec	
			hardware configuration	CeLATR_e_V = oltageDirectPr op									
			Lateral accleration magnitude	<= 3.849999905 g's		Lateral acceleration high							
						voltage diagnostic enable calibration	=	1					
						Battery Voltage Battery Voltage	<= >=	31.999023 9	Volts Volts				
						Battery voltage is within the allowable limits for	>=	0.1	Sec				
						Ignition Voltage	<=	31.999023	Volts				
						Ignition Voltage Service Fast Learn (SFL) Mode	>=	9	Volts				
						VBS Failsafe Ignition voltage and SFL	=	FALSE	Boolean				
						conditions met for	>=	0.1	Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: U0073						
							ECM: None						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	t	Secondary Malfunction		Enable Conditions			Time Require		Mil Illum.
Transmission Control Module (TCM)	C1251	The lateral accleration signal is stuck at a high magnitude in range	absolute value (lateral accleration)	>= 0.529999971 g's		absolute value (lateral accleration) for stablity	>=	0.53	g's	>=	75	Sec	Special No MIL
			absolute value (lateral accleration)	<= 3.849999905 a's		absolute value (lateral	<=	3.8499999	g's				
			,	J		accleration) for stablity stability time	>=	30	Sec				
						Diagnostic shifting override		FALSE	Boolean				
						command	=	FALSE	Boolean				
						Attained Gear State	=	1st through					
								8th					
						Attained Gear Slip	<=	100 Clutch to	RPM				
								Clutch to Clutch					
						Transmission Type	=	Transmissi					
								on					
						High Side Drivers enabled Vehicle Speed	= >=	TRUE 15	Boolean kph				
						Lateral acceleration stuck in	/-	13	крп				
						range diagnostic enable	=	1					
						calibration		04 000000	37.11				
						Battery Voltage Battery Voltage	<= >=	31.999023 9	Volts Volts				
						Battery voltage is within the		0.1	Sec				
					allowable limits for	>=							
					Ignition Voltage	<= >=	31.999023 9	Volts Volts					
						Ignition Voltage Service Fast Learn (SFL) Mode							
						VBS Failsafe	=	FALSE	Boolean				
						Ignition voltage and SFL conditions met for	>=	0.1	Sec				
						MIL not Illuminated for DTC's:							
					Conditions		P0723, P07E P077D, P215	F, P07C0, P077	B, P077C,				
							F0//D, F213	C, 00073					
							ECM: None						
Fransmission Control Module		The longitudinal accleration sensor		CeLATR_e_V									Special
(TCM)	C1252	signal failed at a low voltge	hardware configuration	= oltageDirectPr		transient delay timer	>=	30	Sec	>=	75	Sec	No MIL
			longitudinal accleration sensor raw	op						out			
			signal	<= -3.849999905 g's						of	120	Sec	
				CeLATR_e_V									
			hardware configuration	 oltageDirectPr op 									
			longitudinal accleration sensor raw	•									
			signal	>= -3.849999905 g's									
						longitudinal acceleration low voltage diagnostic enable	=	1					
						calibration	=	ı					
						Battery Voltage	<=	31.999023	Volts				
						Battery Voltage	>=	9	Volts				
						Battery voltage is within the allowable limits for	>=	0.1	Sec				
						Ignition Voltage	<=	31.999023	Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction		Enable Conditions			Time Requir		Mil Illum.
5,2						Ignition Voltage Service Fast Learn (SFL) Mode VBS Failsafe Ignition voltage and SFL conditions met for	>= = >=	9 FALSE 0.1	Volts Boolean Sec		•		
				Ca	Disable onditions:	MIL not Illuminated for DTC's:	TCM: U0073 ECM: None						
Transmission Control Module (TCM)	C1253	The longitudinal accleration sensor signal failed at a high voltge	hardware configuration	CeLATR_e_V = oltageDirectPr		transient delay timer	>=	30	Sec	>=	75	Sec	Special No MIL
			longitudinal accleration sensor raw signal hardware configuration longitudinal accleration sensor raw	op >= 3.849999905 g's CeLATR_e_V = oltageDirectPr op <= 3.84999905 g's						out of	120	Sec	
			signal	C		longitudinal acceleration high voltage diagnostic enable calibration Battery Voltage Battery Voltage Battery voltage is within the allowable limits for Ignition Voltage Ignition Voltage Service Fast Learn (SFL) Mode VBS Failsafe Ignition voltage and SFL conditions met for MIL not Illuminated for DTC's:		1 31.999023 9 0.1 31.999023 9 FALSE 0.1	Volts Volts Sec Volts Volts Boolean Sec				
Transmission Control Module (TCM)	C1254	The longitudinal accleration signal is stuck at a high magnitude in range	absolute value (longitudinal accleration) absolute value (longitudinal accleration)	>= 0.529999971 g's <= 3.849999905 g's		absolute value (longitudinal accleration) for stablity absolute value (longitudinal accleration) for stablity	>= <=	0.53	g's g's	>= out of	75 120	Sec Sec	Special No MIL
						stability time Diagnostic shifting override command	>=	30 FALSE	Sec Boolean				
						Attained Gear State Attained Gear Slip Transmission Type	= <=	1st through 8th 100 Clutch to Clutch	RPM				
						High Side Drivers enabled	=	Transmissi on TRUE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				ime Juired	Mil Illum.
System	Code	Description	Criteria	Value	transmssion output speed acceleration Vehicle Speed longitudinal acceleration stuck in range diagnostic enable calibration Battery Voltage Battery Voltage Battery voltage is within the allowable limits for Ignition Voltage Ignition Voltage Service Fast Learn (SFL) Mode VBS Failsafe Ignition voltage and SFL	>=	0.53 15 1 31.999023 9 0.1 31.999023 9 FALSE	meter/second /second kph Volts Volts Sec Volts Volts Boolean Sec		Rec	uired	Illum.
Tap Up Tap Down Switch (TUTD)	P1761	Tap Up and Down switch signal circuit (rolling count)	Rolling count value received from BCM and expected TCM calculated value not	Disable Conditions: = TRUE Boolean	conditions met for MIL not Illuminated for DTC's:	TCM: P0716	, P0717, P0721 BF, P07C0, P07	, P0722,	>=	3	Fail Counter (100 msec continuous)	Special No MIL
				Disable	Tap up/down message health (message receive occur) Tap up/downswitch signal circuit (rolling count) diagnostic monitor enable calibration Ignition Voltage Ignition Voltage Service Fast Learn (SFL) Mode VBS Failsafe Ignition voltage and SFL conditions met for Service mode \$04 active and end of trip pocessing active	<= >= = >= = =	TRUE 1 31.999023 9 FALSE 0.1 FALSE	Boolean Volts Volts Boolean Sec Boolean	>	10	Fail Timer (Sec)	
Transmission Cooling Fan	P184F	Transmission Cooling Fan Performance	If drop in TCM trans oil temp after 300 second monitoring period	Conditions: Refer to Table 27 in 00					>=	2	Fail Counts (300 sec sample period)	Two Trips

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Time	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions	Required	Illum.
			delta transmission fluid temperature fail =					
			transmission fluid temperature start of test -					
			current value transmission fluid temperature					
			transmission fluid townscrature start of test is					
			transmission fluid temperature start of test is					
			latched to the current value of transmission fluid					
			temperature when transmission cooling fan run					
			time is not zero (0.0)					
					Outisde Air Signal Valid	= TRUE Boolean		
					Fan Status Valid			
					Battery Voltage			
					Battery Voltage			
					Battery voltage is within the			
					allowable limits for	0.1		
						RangeShift		
					Range Shift State	≠ RangeShift Enumeration		
						Completed		
						PangaShift		
					Range Shift State Previous	= RangeShift Completed Enumeration		
						Completed		
					Absolute TCC Slip	>= 80 RPM		
					Attained Gear	>= First - Sixth Enumeration		
					Attairieu Gear	>= THSC- SIXUL EHUITIELIUUT		
					Transmission Input Speed	<= 3000 RPM		
					Outside Air	>= -8192 °C		
					Outside Air	<= 58 °C		
					Outside Air Mask Calibration	= FALSE Boolean		
					Transmission Temp	<= 255 °C		
					Transmission Temp			
					Powertrain Fan Status	= FanIsOn Enumeration		
					Fan Command Percent	>= 18.5 %		
				Disable	MIL not Illuminated for DTC's:	TCM: P0711, P0712, P0713, P0716,		
				Conditions:		P0717, P07BF, P07C0, P2808, P2809,		
						P2812, P2814, P2815		

17 OBDG03 TCM (8 Speed Full Sized Truck Unique 5 Position Shifter) Summary Tables

ion sensor ge Iongitu	hardware configuration udinal accleration sensor raw signal hardware configuration udinal accleration sensor raw signal	Value CeLATR_e_V = oltageDirectPr		Iongitudinal acceleration low voltage diagnostic enable calibration Battery Voltage Battery voltage is within the allowable limits for Ignition Voltage	>= = <= >= >=	1 31.999023 9 0.1	Sec Volts Volts	>= out of	75 120	Sec Sec	Illum. Special No MIL
longitu	signal hardware configuration udinal accleration sensor raw	<= -3.849999905 g's CeLATR_e_V = oltageDirectPr op		voltage diagnostic enable calibration Battery Voltage Battery Voltage Battery voltage is within the allowable limits for	<= >=	31.999023 9	Volts		120	Sec	_
longitu	hardware configuration udinal accleration sensor raw	= oltageDirectPr op		voltage diagnostic enable calibration Battery Voltage Battery Voltage Battery voltage is within the allowable limits for	<= >=	31.999023 9	Volts				_
longitu		•		voltage diagnostic enable calibration Battery Voltage Battery Voltage Battery voltage is within the allowable limits for	<= >=	31.999023 9	Volts				_
	Ü			voltage diagnostic enable calibration Battery Voltage Battery Voltage Battery voltage is within the allowable limits for	<= >=	31.999023 9	Volts				
				Battery Voltage Battery Voltage Battery voltage is within the allowable limits for	>=	9	Volts				
				allowable limits for	>=	0.1					
						0.1	Sec				
					<=	31.999023	Volts				
			(Ignition Voltage Service Fast Learn (SFL) Mode	>=	9	Volts				
			ľ	VBS Failsafe	=	FALSE	Boolean				
•				Ignition voltage and SFL conditions met for	>=	0.1	Sec				
				MIL not Illuminated for DTC's:	TCM: U0073						
		Cor	onditions:	I	ECM: None						
ion sensor Itge	hardware configuration	*		transient delay timer	>=	30	Sec	>=	75	Sec	Special No MIL
longitu	udinal accleration sensor raw signal	op >= 3.849999905 g's						out of	120	Sec	
	hardware configuration	CeLATR_e_V = oltageDirectPr op									
longitu	udinal accleration sensor raw signal	<= 3.849999905 g's									
				voltage diagnostic enable	=	1					
				Battery Voltage	<=	31.999023	Volts				
				Battery Voltage	>=	9	Volts				
				Battery voltage is within the allowable limits for	>=	0.1	Sec				
				Ignition Voltage	<=	31.999023	Volts				
[ľ	VBS Failsafe	=	FALSE	Boolean				
				Ignition voltage and SFL conditions met for	>=	0.1	Sec				
		signal	signal = 5.649999903 y S	Signal	longitudinal acceleration high voltage diagnostic enable calibration Battery Voltage Battery Voltage Battery voltage is within the allowable limits for lgnition Voltage lgnition Voltage Service Fast Learn (SFL) Mode VBS Failsafe lgnition voltage and SFL	Iongitudinal acceleration high voltage diagnostic enable calibration Battery Voltage Battery Voltage Battery voltage is within the allowable limits for Ignition Voltage Service Fast Learn (SFL) Mode VBS Failsafe Ignition voltage and SFL	Iongitudinal acceleration high voltage diagnostic enable calibration Battery Voltage Battery Voltage Battery Voltage Battery voltage is within the allowable limits for Ignition Voltage Ignition Voltage Service Fast Learn (SFL) Mode VBS Failsafe Ignition voltage and SFL	longitudinal acceleration high voltage diagnostic enable calibration Battery Voltage Battery Voltage Battery Voltage is within the allowable limits for Ignition Voltage Ignition Voltage Service Fast Learn (SFL) Mode VBS Failsafe Ignition voltage and SFL	Iongitudinal acceleration high voltage diagnostic enable calibration Battery Voltage Battery Voltage Battery Voltage Battery voltage is within the allowable limits for Ignition Voltage Ignition Voltage Service Fast Learn (SFL) Mode VBS Failsafe Ignition voltage and SFL	Iongitudinal acceleration high voltage diagnostic enable calibration Battery Voltage Battery Voltage Battery Voltage Battery voltage is within the allowable limits for Ignition Voltage Ignition Voltage Service Fast Learn (SFL) Mode VBS Fallsafe Ignition voltage and SFL	Iongitudinal acceleration high voltage diagnostic enable calibration Battery Voltage Battery Voltage Battery Voltage Battery voltage is within the allowable limits for Ignition Voltage <= 31.999023 Volts >= 9 Volts Battery Voltage >= 9 Volts 0.1 Sec 31.999023 Volts 31.99023 Volts 31.999023 Volts 31.99

17 OBDG03 TCM (8 Speed Full Sized Truck Unique 5 Position Shifter) Summary Tables

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
System	Code	Description	Gilleria		le MIL not Illuminated for DTC's	TCM: U0073 ECM: None	Conditions			ived	unod	muni.
Transmission Control Module (TCM)	C1254	The longitudinal accleration signal is stuck at a high magnitude in range	absolute value (longitudinal accleration) absolute value (longitudinal accleration)	>= 0.529999971 g's <= 3.849999905 g's	absolute value (longitudina accleration) for stablity absolute value (longitudina accleration) for stablity	>=	0.53	g's g's	>= out of	75 120	Sec Sec	Special No MIL
					stability time Diagnostic shifting override command	>=	30 FALSE	Sec Boolean				=
					Attained Gear State	=	1st through 8th					
					Attained Gear Slip Transmission Type		100 Clutch to Clutch Transmissi	RPM				
					High Side Drivers enablec transmssion output speec acceleratior	>=	on TRUE 0.53	Boolean meter/second /second				
			Vehicle Speed longitudinal acceleration stuck in range diagnostic enable calibratior	=	15 1	kph						
			Battery Voltage Battery Voltage Battery voltage is within the	>=	31.999023 9 0.1	Volts Volts Sec						
					allowable limits for Ignition Voltage Ignition Voltage	<= >=	31.999023 9	Volts Volts				
					Service Fast Learn (SFL) Mode VBS Failsafe Ignition voltage and SFL conditions met for	=	FALSE 0.1	Boolean Sec				
				Disab Condition	le MIL not Illuminated for DTC's	TCM: P0716,	F, P07C0, P07	, P0722, 7B, P077C,				
Total la Tota Device Cuitale		Total la cord Design suitable signal signs it	Rolling count value received from			ECM: None					Fail Counter	Special
Tap Up Tap Down Switch (TUTD)	P1761	Tap Up and Down switch signal circuit (rolling count)	BCM and expected TCM calculated value not						>=	3 10	(100 msec continuous) Fail Timer (Sec)	No MIL
					Tap up/down message health (message receive occur)	=	TRUE	Boolean	,	10	i all tiller (Sec)	_
					Tap up/downswitch signa circuit (rolling count) diagnostio monitor enable calibratior	=	1	Boolean				
	l				Ignition Voltage	<=	31.999023	Volts	l			

17 OBDG03 TCM (8 Speed Full Sized Truck Unique 5 Position Shifter) Summary Tables

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary		Enable		Time	Mil
System	Code	Description	Criteria	Value	Malfunction		Conditions		Required	Illum.
					Ignition Voltage	>=	9	Volts		
					Service Fast Learn (SFL) Mode		FALSE	Boolean		
					VBS Failsafe			Booloan		
					Ignition voltage and SFL		0.1	Sec		
					conditions met for					
					Service mode \$04 active and end of trip pocessing active		FALSE	Boolean		
					end of trip pocessing active					
				Disable	MIL not Illuminated for DTC's:					
				Conditions:						

Component /	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
System Lateral Acceleration Sensor Signal	Code C124F	Lateral Acceleration Sensor Circuit	Lateral Acceleration Sensor Signal Value	<= -3.85 [G]	Ignition Voltage	> 9000 [mV] for 3 sec continuously	180 sec	No MIL
		Low			Ignition Voltage	> 9000 [mV] for 10 [msec]		"Special
					Battery Voltage	continuously		C"
					Battery Voltage The TCM has completed the read operation of its	> 10.2 [V] <= 32.0 [V]		
					non-volatile memory	~- 32.0 [V]		
						(all 4 criteria for 2 [sec] continuously)		
					Diagnostic Service Request to Disable Normal	= NOT PRESENT		
					Communication U0121 (Lost Communication with Anti-Lock Brake	= NOT FRESENT		
					System (ABS) Control Module)	= NOT DETECTED		
					P0826 (Up and Down Shift Switch Circuit)	= NOT DETECTED		
					C1251 (Lateral Acceleration Sensor Performance)	= NOT DETECTED		
					P175F (Acceleration Sensor Signal message Counter Incorrect)	= NOT DETECTED		
Lateral Acceleration Sensor Signal	C1250	Lateral Acceleration Sensor Circuit	Lateral Acceleration Sensor Signal Value	>= 3.85 [G]	Ignition Voltage	> 9000 [mV] for 3 sec continuously	180 sec	No MIL
		High			Ignition Voltage	> 9000 [mV] for 10 [msec]		"Special C"
					Battery Voltage Battery Voltage	continuously > 10.2 [V]		C
					The TCM has completed the read operation of its	<= 32.0 [V]		
					non-volatile memory	(all 4 criteria for 2 [sec] continuously)		
						, , , , , , , , , , , , , , , , , , , ,		
					Diagnostic Service Request to Disable Normal Communication	= NOT PRESENT		
					U0121 (Lost Communication with Anti-Lock Brake	= NOT DETECTED		
					System (ABS) Control Module) P0826 (Up and Down Shift Switch Circuit)	= NOT DETECTED		
					C1251 (Lateral Acceleration Sensor Performance)	= NOT DETECTED		
					P175F (Acceleration Sensor Signal message			
					Counter Incorrect)	= NOT DETECTED		
Lateral Acceleration Sensor Signal	C1251	Lateral Acceleration Sensor	Lateral Acceleration Sensor Signal Value	= unchanged	Ignition Voltage	> 9000 [mV] for 3 sec continuously	240 msec	No MIL
		Performance			Ignition Voltage Battery Voltage	> 9000 [mV] for 10 [msec] continuously		"Special C"
					Battery Voltage	> 10.2 [V]		
					The TCM has completed the read operation of its	<= 32.0 [V]		
					non-volatile memory	(all 4 criteria for 2 [sec] continuously)		
						(
					Diagnostic Service Request to Disable Normal Communication	= NOT PRESENT		
					U0121 (Lost Communication with Anti-Lock Brake System (ABS) Control Module)	= NOT DETECTED		
					C124F (Lateral Acceleration Sensor Circuit Low)	= NOT DETECTED		
					C1250 (Lateral Acceleration Sensor Circuit High)	= NOT DETECTED		
					P175F (Acceleration Sensor Signal message Counter Incorrect)	= NOT DETECTED		
					P077D (Output Speed Sensor Circuit Low)	= NOT DETECTED		
					P077C (Output Speed Sensor Circuit High)	= NOT DETECTED		
					P0722 (Output Speed Sensor No Pulse)	= NOT DETECTED		
					Vehicle Speed Absolute Value of Lateral Acceleration Sensor	>= 15 [kph]		
					Signal Value CAN signal	0.53 [G] < "Value" < 3.85 [G]		
System Voltage	P0563	System Voltage High	Battery Voltage	> 18 [V]	Ignition Voltage	> 9000 [mV]	10 sec	1

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description					Required	Illum.
					The Input Speed signal is available from the Input Speed Sensor Input Speed P07C0 (Input/Turbine Speed Sensor "A" Circuit High)	= TRUE > 400 [rpm] for [> 2 sec]		
					POTBF (Input/Turbine Speed Sensor "A" Circuit Low) P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal) OR	= NOT DETECTED = NOT DETECTED = NOT DETECTED	_	
					Ignition Voltage Engine speed Engine speed signal validity U0073 (CAN Bus-OFF)	> 9000 [mV] > 400 [rpm] for [> 2 sec] = VALID = NOT DETECTED		
					U0100 (Lost Communication with ECM/PCM "A")	= NOT DETECTED		
Internal Control Module Memory	P0601	Internal Control Module Memory Checksum Error	Read each memory location in the Flash ROM and calculate the checksum. Compare the calculated checksum to the checksum originally stored in Flash ROM.	Checksums do not match	Ignition Voltage (Diagnostic test is only executed during TCM initialization, immediately after the TCM is powered up)	> 9000 [mV]	100 msec	1
Internal Control Module Memory Keep Alive Memory (KAM)	P0603	Internal Control Module Keep Alive Memory (KAM) Error	Compare calculated checksum with stored checksum.	Checksums do not match	Ignition Voltage (Diagnostic test is only executed during TCM initialization, immediately after the TCM is powered up)	> 9000 [mV]	100 msec	1
Internal Control Module Random Access Memory (RAM)	P0604	Internal Control Module Random Access Memory (RAM) Error	Compare memory location with expected value that was written to it (0x55555555 or 0xAAAAAAAAA)	If any 8-bit memory location reads a different number than was written to it, the TCM recognizes this as a RAM malfunction.	Ignition Voltage (Diagnostic test is only executed during TCM initialization, immediately after the TCM is powered up)	> 9000 [mV]	100 msec	1
Transmission Control Module (TCM)	P0606		Main Processor Failure This TCM is an ISO 26262 (System Functional Safety) compliant module. In order to confirm that the TCM control system functioning properly, the TCM is equipped with a secondary CPU which validates the basic operation / calculations of the primary CPU (and ultimately, the control		(none)	(none)	10 msec	1

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description	system software). There are several Safety Integrity Functions which are capable of detecting microprocessor or TCM hardware related malfunctions, which would require the activation of safe state reactions.				Required	Illum.
			The TCM performs checks on the processor performance every 10 msec. If any of the following checks fail a single time, then this					
			malfunction is confirmed. CPU Core Check malfunction confirmed ROM Check malfunction confirmed RAM Check malfunction confirmed	= TRUE = TRUE = TRUE = TRUE				
Transmission Control Module (TCM)	P0606	Control Module Processor	Program Flow Check malfunction confirmed Communication Failure with Sub Processor The Main and Sub Processor both check for correct communication with eachother every 10 msec. If either processor detects a communication error a single time, this malfunction is confirmed.	= IRUE	(none)	(none)	10 msec	1
			Communication Error between Main and Sub Processors is detected	= TRUE				
Transmission Control Module (TCM)	P0606	Control Module Processor	Solenoid Cut Malfunction (Main OR Sub Processor Solenoid Cut Line) During a TCM power-down, both the Primary and Secondary CPU's perform a test on their ability to cut (override) the command current to the linear shift solenoids. The basic test performed by each CPU is as follows: • After commanding an all solenoid current cut, the feedback current from linear solenoids SL1 to SL5 (all drive clutch linear solenoids) is less than a calibrated threshold for a calibrated time period. (Note that this calibrated threshold is less than the solenoid standby current)		TCM is powering down (Ignition Voltage transitions from High to Low)	= TRUE	100 msec	1
			If the above test does NOT pass, a malfunction is assumed and a flag is stored in the TCM non-volatile memory. Upon the next TCM power-up, the OBD system will report the malfunction and illuminate the MIL.					
			Main Processor Solenoid Cut Request Feedback Current for any of the solenoids (SL1 - SL5) OR Sub Processor Solenoid Cut Request Feedback Current for any of the solenoids (SL1 - SL5)	= ACTIVE > 20 [mA] = ACTIVE > 20 [mA]				

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmission Range Sensor "A" Circuit	P0705	Transmission Range Switch Circuit	Transmission Range Sensor P,R,N, and D Circuits Vehicle Speed P077D (Output Speed Sensor Circuit Low) P077C (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor No Pulse)	> (Battery Voltage - 2 [V]) >= 30 [kph] = NOT DETECTED = NOT DETECTED = NOT DETECTED	Ignition Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) The TCM has completed the read operation of its Emergency Mode ("4)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED = NOT ACTIVE	30 sec	1
Transmission Range Sensor "A" Circuit	P0706	Transmission Range Switch Performance	2 or more Transmission Range Sensor P,R,N, or D Circuits	< 2 [V]	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	5 sec	1
Transmission Fluid Temperature Sensor "A" Circuit	P0711	Sensor "A" Circuit Range/Performance	Difference between Initial ATF Temperature Value and the Initial Engine Coolant Temperature Value (*) (*) After the Ignition Switch is turned ON and the TCM is initialized, the difference between the ATF Temperature and Engine Coolant Temperature is stored in memory. Once the enable criteria have been met, that value is compared to a calibrated threshold. If the value exceeds the calibrated threshold, the TCM will determine that the ATF temperature is not rational and that a malfunction has occurred.	> Difference_Temp_Map (*13)	Ignition Voltage Battery Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) The TCM has completed the read operation of its non-volatile memory ATF Temperature at Power-up ATF Temperature Vehicle Speed Change in Engine Coolant temperature Propulsion System Off Time Propulsion System Off Time Validity Engine Coolant Temperature Signal Status U0073 (CAN Bus-OFF) U0100 (Lost Communication with ECM/PCM "A") P077D (Output Speed Sensor Circuit Low) P077C (Output Speed Sensor No Pulse) P0713 (Transmission Fluid Temperature Sensor "A" Circuit High) P0712 (Transmission Fluid Temperature Sensor "A" Circuit Low) Emergency Mode ("4) Solenoid Cut Condition ("Note 3) Time since Solenoid Cut ("Note 3) control has been INACTIVE	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED -55 [deg C] < ATF Temp < 200 [deg C] > 20 [deg C] > 24 [km/h], for [400 sec cumulatively]] > +5 [deg C] > 8 [hours] = VALID = Signal OK for 400 [sec] = NOT DETECTED = NOT ACTIVE = NOT ACTIVE > 8 [sec]	10 msec	2
Transmission Fluid Temperature Sensor "A" Circuit	P0711	Transmission Fluid Temperature Sensor "A" Circuit Range/Performance	ATF Temperature (*) (*) < Detection1 > The first diagnostic is designed to check the ATF	<= 20 [deg C]	Ignition Voltage Battery Voltage Battery Voltage Engine Speed	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V]	10 min	2

-	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			temperature value at start-up and confirm that it gradually increases over a period of time, once the vehicle has been driven at a speed above a calibrated threshold. This is done by checking if the ATF temperature has remained below a calibrated threshold value for a calibrated period of time. This diagnostic routine will only be able to detect a malfunction if the actual ATF temperature at TCM power-up is less than the aforementioned threshold value.		Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) ATF Temperature P0713 (Transmission Fluid Temperature Sensor "A" Circuit High) P0712 (Transmission Fluid Temperature Sensor "A" Circuit Low) Range Selector Position Switch P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance) Vehicle speed Emergency Mode ("4) Solenoid Cut Condition ("Note 3) Time since Solenoid Cut ("Note 3) control has been INACTIVE	> 400 [RPM] = VALID = NOT DETECTED -55 [deg C] < ATF Temp < 200 [deg C] = NOT DETECTED = NOT DETECTED = NOT DETECTED Not in P, R or N Range = NOT DETECTED = NOT DETECTED = NOT DETECTED >= 40 [km/h] (One time during the drive cycle) = NOT ACTIVE = NOT ACTIVE > 8 [sec]		
			OR ATF Temperature T/C Heat Load (*) <detection2> The second diagnostic checks for a stuck ATF value by analyzing the estimated torque converter (T/C) Heat Load (*) over time. The T/C heat load calculation is used by other existing transmission controls, and therefore provides an excellent metric by which the rationality of the ATF temperature value can be determined during warm-up. For this diagnostic test, the T/C Heat Load, which is calculated each task cycle by the TCM, is continually summed. Over time, this sum will become a large value, and during that time the ATF temperature must be increasing. A malfunction is determined if the value of the ATF temperature has remained below a calibrated threshold temperature and the value of the T/C Heat Load Sum becomes greater than a calibrated threshold (based on the ATF temperature value when the test started). If the ATF temperature value becomes less than the value stored when the summing of the T/C heat load started, or exceeds the calibrated threshold, the heat load calculation sum will be (*) T/C Heat Load = (TCCF x Torque Capacity x (Engine Speed - Input Speed x Tr)) [kW]</detection2>	<= 20deg.C >= otcal_map (*3)	Ignition Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) The TCM has completed the read operation of its ATF Temperature P0713 (Transmission Fluid Temperature Sensor "A" Circuit High) P0712 (Transmission Fluid Temperature Sensor "A" Circuit Low) Emergency Mode ("4) Input Speed CAN signal validity Output Speed CAN signal validity	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED -55 [deg C] < ATF Temp < 200 [deg C] = NOT DETECTED = NOT DETECTED = NOT DETECTED = NOT ACTIVE = VALID = VALID	193 sec minimum (Depending on the vehicle operating conditions and driving pattern, this algorithm may take longer than 10 min to detect a malfunction. In that case, the algorithm above will catch the malfunction first.)	

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
,			Tr: Torque Ratio (Note): The Heat Load is only calculated if the Output Speed is greater than a calibrated					
Transmission Fluid Temperature Sensor "A" Circuit	P0712	Transmission Fluid Temperature Sensor "A" Circuit Low	Transmission Fluid Temperature Sensor Value	> 200 [degC]	Ignition Voltage Battery Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	60 sec	1
Transmission Fluid Temperature Sensor "A" Circuit	P0713	Transmission Fluid Temperature Sensor "A" Circuit High	Transmission Fluid Temperature Sensor Value	< -55 [degC]	Ignition Voltage Battery Voltage Battery Voltage Battery Voltage Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM *A*) U0073 (CAN Bus-OFF) Drive Time (*) (*) Drive Time is defined as follows: Range Selector Position Switch P0705 (Range Selector Switch B+ Short / Open) P0706 (Range Selector Switch GND Short)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED > 1 [minute] (cumulative) = D Range = NOT DETECTED = NOT DETECTED = NOT DETECTED	12 sec	1
Input/Turbine Speed Sensor "A" Circuit	P0717	Input/Turbine Speed Sensor "A" Circuit No Signal	Number of pulses received from the Output Speed Sensor while no pulses are received from the Input Speed Sensor. The time to complete the test is a function of output shaft speed.	>= 6500 pulses	Ignition Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) The TCM has completed the read operation of its non-volatile memory Emergency Mode ("4) Range Selector Position Switch P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance) Garage Shift Control has been INACTIVE for this amount of time continuously Shift Control has been INACTIVE for this amount of time continuously C1 OFF Control has been INACTIVE for this amount of time continuously C2 OFF Control has been INACTIVE for this amount of time continuously C2 OFF Control has been INACTIVE for this amount of time continuously C2 OFF Control has been INACTIVE for this amount of time continuously Current Gear P077D (Output Speed Sensor Circuit Low) P077C (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor No Pulse) Output Speed P0974 (Shift Solenoid "A" Control Circuit High) P0973 (Shift Solenoid "A" Control Circuit Low)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED (all 8 criteria for 2 [sec] continuously) = NOT ACTIVE = D Range = NOT DETECTED T_GarageFin (*1) T_ShiftFin (*1) T_C3ctrlFin (*1) T_C3ctrlFin (*1) >= 2nd Gear = NOT DETECTED	At Max Output Speed: 2.4 [sec] At Min Output Speed: 54.2 [sec]	1

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor "A" Circuit High) P07BF (Input/Turbine Speed Sensor "A" Circuit Low) P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal) Solenoid Cut Condition ("Note 3) Time since Solenoid Cut ("Note 3) control has been INACTIVE	ALL = NOT DETECTED = NOT DETECTED = NOT DETECTED = NOT DETECTED = NOT ACTIVE >= 8 sec	· confirme	
Output Speed Sensor Circuit	P0722	Output Speed Sensor Circuit No Signal	Number of pulses received from the Input Speed Sensor while no pulses are received from the Output Speed Sensor. The time to complete the test is a function of input shaft speed.	>= 13000 pulses	Ignition Voltage Battery Voltage Battery Voltage Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM *A*) U0073 (CAN Bus-OFF) The TCM has completed the read operation of its non-volatile memory Emergency Mode (*4) Range Selector Position Switch P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance) Garage Shift Control has been INACTIVE for this amount of time continuously Shift Control has been INACTIVE for this amount of time continuously C1 OFF Control has been INACTIVE for this amount of time continuously C2 OFF Control has been INACTIVE for this amount of time continuously P07C0 (Input/Turbine Speed Sensor "A" Circuit High) P07BF (Input/Turbine Speed Sensor "A" Circuit Low) P0717 (Input/Turbine Speed Sensor "A" Circuit Low) Signal) P0974 (Shift Solenoid "A" Control Circuit High) P0973 (Shift Solenoid "A" Control Circuit Low) Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761) Output Speed calculated by Input Speed sensor P077D (Output Speed Sensor Circuit Low) P077C (Output Speed Sensor Circuit High) Solenoid Cut Condition ("Note 3) Time since Solenoid Cut ("Note 3) control has been INACTIVE	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED = NOT ACTIVE = D Range = NOT DETECTED = NOT DETECTED = NOT DETECTED T_GarageFin (*1) T_C1ctrlFin (*1) T_C3ctrlFin (*1) T_C3ctrlFin (*1) = NOT DETECTED = NOT ACTIVE >= 8 [sec]	At Max Input Speed: 8.9 [sec] At Idle Input Speed: 108.3 [sec]	1

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System Gear Ratio (6th Gear)	Code P0729	Description Gear 6 Incorrect Ratio	Difference between actual Gear Ratio and 6th	> 20 [%]			Required 12 sec (cumulatively)	Illum.
Geal Ratio (otti Geal)	FU/27	Geal o incorrect Kallo	Gear Ratio	> 20 [/0]	Current Gear	= 6TH GEAR	12 Sec (cumulatively)	'
					Output Speed	>= 500 [rpm]		
					Ignition Voltage	> 9000 [mV] for 10 [msec]		
					Battery Voltage	> 10.2 [V]		
					Battery Voltage	<= 32.0 [V]		
					Engine Speed	> 400 [RPM]		
					Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A")	= VALID = NOT DETECTED		
					U0073 (CAN Bus-OFF)	= NOT DETECTED		
					Emergency Mode (*4)	= NOT ACTIVE		
					Neutral Avoidance Control	= NOT ACTIVE		
					Solenoid Cut Condition (*Note 3)	= NOT ACTIVE		
					Time since Solenoid Cut (*Note 3) control has	> 8 [sec]		
					been INACTIVE			
						ALL Malfunctions = NOT DETECTED		
					P0974 (Shift Solenoid "A" Control Circuit High)			
					P0973 (Shift Solenoid "A" Control Circuit Low) Status of all of the Gear Ratio malfunctions:			
					(P0967, P0971, P2721, P2730, P2739, P0963,			
					P2763, P0966, P0970, P2720, P2729, P2738,			
					P0962, P2764, P0778, P0798, P2716, P2725,			
					P2734, P0748, P2761)			
1					P07C0 (Input/Turbine Speed Sensor "A" Circuit			
					High)			
					P07BF (Input/Turbine Speed Sensor "A" Circuit			
					Low)			
					P0717 (Input/Turbine Speed Sensor "A" Circuit No			
					Signal) P077D (Output Speed Sensor Circuit Low)			
					P077D (Output Speed Sensor Circuit Low) P077C (Output Speed Sensor Circuit High)			
					P0722 (Output Speed Sensor No Pulse)			
					P0592 (System Voltage Low Supply 2) (*Note 1)			
					P0563 (System Voltage High)			
					P2535 (Ignition Switch Run/Start Position Circuit			
					High)			
					Range Selector Position Switch	= D Range		
					P0705 (Transmission Range Switch Circuit)	= NOT DETECTED		
					P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance)	= NOT DETECTED		
					Garage Shift Control has been INACTIVE for this			
					amount of time continuously	T_GarageFin (*1)		
					Shift Control has been INACTIVE for this amount	_ 3 、,		
					of time continuously	T_ShiftFin (*1)		
					The Input Speed signal is available from the Input	= TRUE		
					Speed Sensor	52		
					The Output Speed signal is available from the	= TRUE		
					Output Speed Sensor ATF Temperature	>= -20 [deg C]		
					Quick Stop Detection Flag (*Note 4)	= FALSE		
					Safe Gear Control has been INACTIVE for this			
					amount of time continuously	tmr_inh_GE (*1)		
					The TCM is not commanding a neutral condition	= TRUE		
					as a reaction to Safe Gear Control.	I= INUL		
					AND the following !!!!	ava NOT actiofied		
1	I		I	I	AND the following conditions	are NOT Satisfied		I

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
_,	3000				Difference between actual Gear Ratio and 7th Gear Ratio	< 4 [%] for 1 [sec] continuously		
Gear Ratio (6th Gear Stuck)	P0729	Gear 6 Incorrect Ratio	Difference between actual Gear Ratio and 7th Gear Ratio	< 4 %			5 sec	1 Illum.
					Shift Control has been INACTIVE for this amount of time continuously The Input Speed signal is available from the Input Speed Sensor The Output Speed signal is available from the Output Speed Sensor ATF Temperature Ouick Stop Detection Flag (*Note 4) Safe Gear Control has been INACTIVE for this amount of time continuously	T_ShiftFin (*1) = TRUE = TRUE >= -20 [deg C] = FALSE tmr_inh_GE (*1)		

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
					The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= TRUE	e men e e e	
Gear Ratio (1st Gear Stuck)	P0731	Gear 1 Incorrect Ratio	Difference between actual Gear Ratio and 2nd Gear Ratio	< 4 [%]	Current Gear	= 1ST GEAR	2.25 sec	1
			OR	1	Output Speed	>= 60 [rpm]		
			Difference between actual Gear Ratio and 3rd Gear Ratio	< 4 [%]	Input Speed	<= 6000 [rpm]		
			OR		Engine Torque	{if ATF Temp >= 0 [degC]} >= 80 [Nm] {if ATF Temp < 0 [degC]}		
			Difference between actual Gear Ratio and 4th Gear Ratio OR Difference between actual Gear Ratio and 5th Gear Ratio	< 4 [%]	Ignition Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity	>= 150 [Nm] > 9000 [mV] for 10 [msec] > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID		
			Gedi Naud		U0100 (Lost Communication with ECM/PCM *A*) U0073 (CAN Bus-OFF) The TCM has completed the read operation of its non-volatile memory	= NOT DETECTED = NOT DETECTED (all 8 criteria for 2 [sec] continuously)		
					Emergency Mode (*4) Neutral Avoidance Control Solenoid Cut Condition (*Note 3) Time since Solenoid Cut (*Note 3) control has been INACTIVE	= NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > 8 [sec]		
					P0974 (Shift Solenoid "A" Control Circuit High) P0973 (Shift Solenoid "A" Control Circuit Low) Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor "A" Circuit High) P07BF (Input/Turbine Speed Sensor "A" Circuit Low) P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal) P077D (Output Speed Sensor Circuit Low) P077C (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor No Pulse) P0592 (System Voltage Low Supply 2) ("Note 1) P0563 (System Voltage High) P2535 (Ignition Switch Run/Start Position Circuit High) Range Selector Position Switch	ALL Malfunctions = NOT DETECTED = D Range		
					P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance) Garage Shift Control has been INACTIVE for this amount of time continuously Shift Control has been INACTIVE for this amount of time continuously	= NOT DETECTED = NOT DETECTED T_GarageFin (*1) T_ShiftFin (*1)		

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		·			The Input Speed signal is available from the Input Speed Sensor The Output Speed signal is available from the Output Speed Sensor ATF Temperature Ouick Stop Detection Flag (*Note 4) Safe Gear Control has been INACTIVE for this amount of time continuously The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= TRUE = TRUE >= -20 [deg C] = FALSE tmr_inh_GE (*1) = TRUE	·	
Gear Ratio (2nd Gear)	P0732	Gear 2 Incorrect Ratio	Difference between actual Gear Ratio and 2nd Gear Ratio	> 20 [%]	Current Gear Output Speed Ignition Voltage Battery Voltage Battery Voltage Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) Emergency Mode ("4) Neutral Avoidance Control Solenoid Cut Condition ("Note 3) Time since Solenoid Cut ("Note 3) control has been INACTIVE P0974 (Shift Solenoid "A" Control Circuit High) P0973 (Shift Solenoid "A" Control Circuit Low) Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor "A" Circuit High) P07BF (Input/Turbine Speed Sensor "A" Circuit Low) P0717 (Input/Turbine Speed Sensor "A" Circuit Low) P077D (Output Speed Sensor Circuit Low) P077D (Output Speed Sensor No Pulse) P0592 (System Voltage Low Supply 2) ("Note 1) P0563 (System Voltage Low Supply 2) ("Note 1) P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance) Garage Shift Control has been INACTIVE for this amount of time continuously Shift Control has been INACTIVE for this amount of time continuously	= 2ND GEAR = 500 [pm] > 9000 [mV] for 10 [msec] > 10.2 [V] < 400 [RPM] = VALID = NOT DETECTED = NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > 8 [sec] ALL Malfunctions = NOT DETECTED = D Range = NOT DETECTED = NOT DETECTED T_GarageFin (*1) T_ShiftFin (*1)	12 sec (cumulatively)	1

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		•			The Input Speed signal is available from the Input Speed Sensor The Output Speed signal is available from the Output Speed Sensor ATF Temperature Quick Stop Detection Flag (*Note 4) Safe Gear Control has been INACTIVE for this amount of time continuously The TCM is not commanding a neutral condition as a reaction to Safe Gear Control. AND the following conditions Difference between actual Gear Ratio and 3rd Gear Ratio	< 4 [%]	•	
					Difference between actual Gear Ratio and 4th Gear Ratio Difference between actual Gear Ratio and 7th Gear Ratio Difference between actual Gear Ratio and 8th Gear Ratio	for 1 [sec] continuously < 4 [%] for 1 [sec] continuously < 4 [%] for 1 [sec] continuously < 4 [%] for 1 [sec] continuously		
Gear Ratio (2nd Gear Stuck)	P0732	Gear 2 Incorrect Ratio	Difference between actual Gear Ratio and 3rd Gear Ratio OR Difference between actual Gear Ratio and 4th Gear Ratio OR Difference between actual Gear Ratio and 8th Gear Ratio	< 4 % < 4 % < 4 %	Current Gear Output Speed Input Torque Ignition Voltage Battery Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) The TCM has completed the read operation of its Emergency Mode ("4) Neutral Avoidance Control Solenoid Cut Condition ("Note 3) Time since Solenoid Cut ("Note 3) control has been INACTIVE P0974 (Shift Solenoid "A" Control Circuit High) P0973 (Shift Solenoid "A" Control Circuit Low) Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor "A" Circuit High) P07BF (Input/Turbine Speed Sensor "A" Circuit Low) P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal) P077D (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor No Pulse)	= 2ND GEAR >= 60 [rpm] >= 50 [Nm] OR <= -50 [Nm] (occur at least 1 time during detection) > 9000 [mV] for 10 [msec] > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED = NOT ACTIVE = NOT ACTIVE > 8 [sec] ALL Malfunctions = NOT DETECTED	5 sec	1

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL
eyeen.	3330	2000.p.io.			PU592 (System Voltage Low Supply 2) (*Note 1) P0563 (System Voltage High) P2535 (Ignition Switch Run/Start Position Circuit High) Range Selector Position Switch	= D Range		
					P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance)	= NOT DETECTED = NOT DETECTED		
					Garage Shift Control has been INACTIVE for this amount of time continuously	T_GarageFin (*1)		
					Shift Control has been INACTIVE for this amount of time continuously	T_ShiftFin (*1)		
					The Input Speed signal is available from the Input			
					Speed Sensor	= TRUE		
					The Output Speed signal is available from the Output Speed Sensor	= TRUE		
					ATF Temperature	>= -20 [deg C]		
					Quick Stop Detection Flag (*Note 4) Safe Gear Control has been INACTIVE for this	= FALSE		
					amount of time continuously	tmr_inh_GE (*1)		
					The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= TRUE		
ear Ratio (3rd Gear)	P0733	Gear 3 Incorrect Ratio	Difference between actual Gear Ratio and 3rd Gear Ratio	> 20 [%]	Current Gear	= 3RD GEAR	12 sec (cumulatively)	1
					Output Speed Ignition Voltage Battery Voltage Battery Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) Emergency Mode ("4) Neutral Avoidance Control Solenoid Cut Condition ("Note 3) Time since Solenoid Cut ("Note 3) control has been INACTIVE P0974 (Shift Solenoid "A" Control Circuit High) P0973 (Shift Solenoid "A" Control Circuit Low) Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor "A" Circuit High) P07BF (Input/Turbine Speed Sensor "A" Circuit Low) P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal) P077D (Output Speed Sensor Circuit Low) P077C (Output Speed Sensor No Pulse) P0592 (System Voltage Low Supply 2) ("Note 1)	>= 500 [rpm] > 9000 [mV] for 10 [msec] > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED = NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > 8 [sec] ALL Malfunctions = NOT DETECTED		

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
System	Code	Description			P2535 (Ignition Switch Run/Start Position Circuit High) Range Selector Position Switch	= D Range	Kequirea	illum.
					P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance) Garage Shift Control has been INACTIVE for this	= NOT DETECTED = NOT DETECTED		
					amount of time continuously Shift Control has been INACTIVE for this amount	T_GarageFin (*1)		
					of time continuously The Input Speed signal is available from the Input	T_ShiftFin (*1) = TRUE		
					Speed Sensor The Output Speed signal is available from the	= TRUE		
					Output Speed Sensor ATF Temperature Quick Stop Detection Flag (*Note 4)	>= -20 [deg C] = FALSE		
					Safe Gear Control has been INACTIVE for this amount of time continuously	tmr_inh_GE (*1)		
					The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= TRUE		
					AND the following conditions Difference between actual Gear Ratio and 7th	are NOT satisfied		
					Gear Ratio	for 1 [sec] continuously		
Gear Ratio (3rd Gear Stuck)	P0733	Gear 3 Incorrect Ratio	Difference between actual Gear Ratio and 7th Gear Ratio	< 4 [%]	Current Gear	= 3RD GEAR	5 sec	1
			Geal Rallo		Output Speed	>= 60 [rpm]		
					Input Torque	>= 50 [Nm] OR <= -50 [Nm] (occur at least 1 time during		
					Ignition Voltage	> 9000 [mV] for 10 [msec]		
					Battery Voltage Battery Voltage	> 10.2 [V] <= 32.0 [V]		
					Engine Speed	> 400 [RPM]		
					Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A")	= VALID = NOT DETECTED		
					U0073 (CAN Bus-OFF)	= NOT DETECTED		
					Emergency Mode (*4)	= NOT ACTIVE		
					Neutral Avoidance Control Solenoid Cut Condition (*Note 3)	= NOT ACTIVE = NOT ACTIVE		
					Time since Solenoid Cut (*Note 3) control has	> 8 [sec]		
					been INACTIVE	ALL Malfunctions = NOT DETECTED		
					P0974 (Shift Solenoid "A" Control Circuit High) P0973 (Shift Solenoid "A" Control Circuit Low) Status of all of the Gear Ratio malfunctions:			
					(P0967, P0971, P2721, P2730, P2739, P0963,			
					P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725,			
					P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor "A" Circuit			
					High) P07BF (Input/Turbine Speed Sensor "A" Circuit Low)			
					P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal)			
					P077D (Output Speed Sensor Circuit Low)			

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P07/C (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor No Pulse) P0592 (System Voltage Low Supply 2) (*Note 1) P0563 (System Voltage High) P2535 (Ignition Switch Run/Start Position Circuit			
					Range Selector Position Switch	= D Range		
					P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance) Garage Shift Control has been INACTIVE for this	= NOT DETECTED = NOT DETECTED		
					amount of time continuously Shift Control has been INACTIVE for this amount	T_GarageFin (*1)		
					of time continuously The Input Speed signal is available from the Input	T_ShiftFin (*1)		
					Speed Sensor The Output Speed signal is available from the	= TRUE		
					Output Speed Sensor ATF Temperature	= TRUE >= -20 [deg C]		
					Ouick Stop Detection Flag (*Note 4) Safe Gear Control has been INACTIVE for this	= FALSE		
					amount of time continuously The TCM is not commanding a neutral condition	tmr_inh_GE (*1) = TRUE		
					as a reaction to Safe Gear Control.	- Mot		
Gear Ratio (4th Gear)	P0734	Gear 4 Incorrect Ratio	Difference between actual Gear Ratio and 4th Gear Ratio	> 20 [%]	Current Gear	= 4TH GEAR	12 sec (cumulatively)	1
					Output Speed Ignition Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM *A*) U0073 (CAN Bus-OFF) Emergency Mode (*4) Neutral Avoidance Control Solenoid Cut Condition (*Note 3) Time since Solenoid Cut (*Note 3) control has been INACTIVE P0974 (Shift Solenoid "A" Control Circuit High) P0973 (Shift Solenoid "A" Control Circuit Low) Status of all of the Gear Ratio malfunctions: (P0967, P0971, P271, P2730, P2739, P0963,	>= 500 [rpm] > 9000 [mV] for 10 [msec] > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED = NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > NOT ACTIVE > 8 [sec] ALL Malfunctions = NOT DETECTED		
					(P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor "A" Circuit High) P07BF (Input/Turbine Speed Sensor "A" Circuit Low) P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal) P07DD (Output Speed Sensor Circuit Low) P077C (Output Speed Sensor No Pulse)			

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P0592 (System Voltage Low Supply 2) ("Note 1) P0563 (System Voltage High) P2535 (Ignition Switch Run/Start Position Circuit High) Range Selector Position Switch	= D Range	·	
					P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance)	= NOT DETECTED = NOT DETECTED		
					Garage Shift Control has been INACTIVE for this amount of time continuously Shift Control has been INACTIVE for this amount	T_GarageFin (*1)		
					of time continuously	T_ShiftFin (*1)		
					The Input Speed signal is available from the Input Speed Sensor	= TRUE		
					The Output Speed signal is available from the Output Speed Sensor	= TRUE		
					ATF Temperature Quick Stop Detection Flag (*Note 4) Safe Gear Control has been INACTIVE for this	>= -20 [deg C] = FALSE		
					amount of time continuously	tmr_inh_GE (*1)		
					The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= TRUE		
					AND the following conditions Difference between actual Gear Ratio and 3rd Gear Ratio Difference between actual Gear Ratio and 6th Gear Ratio Difference between actual Gear Ratio and 7th Gear Ratio	are NOT satisfied < 4 [%] for 1 [sec] continuously < 4 [%] for 1 [sec] continuously < 4 [%] for 1 [sec] continuously		
Gear Ratio (4th Gear Stuck)	P0734	Gear 4 Incorrect Ratio	Difference between actual Gear Ratio and 3rd Gear Ratio	< 4 %	Current Gear	= 4TH GEAR	5 sec	1
			OD		Output Speed	>= 60 [rpm]		
			OR Difference between actual Gear Ratio and 6th Gear Ratio	< 4 %	Input Torque	>= 50 [Nm] OR <= -50 [Nm] (occur at least 1 time during detection)		
					Ignition Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) Emergency Mode ("4) Neutral Avoidance Control Solenoid Cut Condition ("Note 3) Time since Solenoid Cut ("Note 3) control has been INACTIVE P0974 (Shift Solenoid "A" Control Circuit High) P0973 (Shift Solenoid "A" Control Circuit Low) Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725,	> 9000 [mV] for 10 [msec] > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED = NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > NOT ACTIVE > 8 [sec] ALL Malfunctions = NOT DETECTED		

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description			P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor "A" Circuit High) P07BF (Input/Turbine Speed Sensor "A" Circuit Low) P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal) P077D (Output Speed Sensor Circuit Low) P0717 (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor No Putse) P0592 (System Voltage Low Supply 2) (*Note 1) P0563 (System Voltage High) P2535 (Ignition Switch Run/Start Position Circuit High) **Range Selector Position Switch** P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance) Garage Shift Control has been INACTIVE for this amount of time continuously Shift Control has been INACTIVE for this amount of time continuously The Input Speed signal is available from the Output Speed Sensor ATF Temperature Quick Stop Detection Flag ("Note 4) Safe Gear Control has been INACTIVE for this amount of time continuously The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= D Range = NOT DETECTED = NOT DETECTED T_GarageFin (*1) T_ShiftFin (*1) = TRUE = TRUE = TRUE >= -20 [deg C] = FALSE tmr_inh_GE (*1) = TRUE	Required	Illum.
Gear Ratio (5th Gear)	P0735	Gear 5 Incorrect Ratio	Difference between actual Gear Ratio and 5th Gear Ratio	> 20 [%]	Current Gear Output Speed Ignition Voltage Battery Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) Emergency Mode ("4) Neutral Avoidance Control Solenoid Cut Condition ("Note 3) Time since Solenoid Cut ("Note 3) control has been INACTIVE P0974 (Shift Solenoid "A" Control Circuit High) P0973 (Shift Solenoid "A" Control Circuit Low) Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor "A" Circuit	= 5TH GEAR >= 500 [rpm] > 9000 [mV] for 10 [msec] > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED = NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > 8 [sec] ALL Malfunctions = NOT DETECTED	12 sec (cumulatively)	1

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					Hilgh) P07BF (Input/Turbine Speed Sensor "A" Circuit Low) P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal) P077D (Output Speed Sensor Circuit Low) P077C (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor No Pulse) P0592 (System Voltage Low Supply 2) ("Note 1) P0563 (System Voltage High) P2535 (Ignition Switch Run/Start Position Circuit High) Range Selector Position Switch P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance) Garage Shift Control has been INACTIVE for this amount of time continuously Shift Control has been INACTIVE for this amount of time continuously The Input Speed signal is available from the Output Speed Sensor ATF Temperature Quick Stop Detection Flag ("Note 4) Safe Gear Control has been INACTIVE for this amount of time continuously The TCM is not commanding a neutral condition as a reaction to Safe Gear Control. AND the following conditions Difference between actual Gear Ratio and 6th Gear Ratio Difference between actual Gear Ratio and 7th Gear Ratio Difference between actual Gear Ratio and 8th Gear Ratio	= D Range = NOT DETECTED = NOT DETECTED T_GarageFin (*1) T_ShiftFin (*1) = TRUE = TRUE >= -20 [deg C] = FALSE tmr_inh_GE (*1) = TRUE		
Gear Ratio (5th Gear Stuck)	P0735	Gear 5 Incorrect Ratio	Difference between actual Gear Ratio and 6th Gear Ratio OR Difference between actual Gear Ratio and 7th Gear Ratio OR Difference between actual Gear Ratio and 8th Gear Ratio	< 4 % < 4 % < 4 %	Current Gear Output Speed Input Torque Ignition Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) The TCM has completed the read operation of its Emergency Mode ("4) Neutral Avoidance Control Solenoid Cut Condition ("Note 3) Time since Solenoid Cut ("Note 3) control has	= 5TH GEAR >= 60 [rpm] >= 50 [Nm] OR <= -50 [Nm] (occur at least 1 time during detection) > 9000 [mV] for 10 [msec] > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED = NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > 8 [sec]	5 sec	1

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
System	Code	Description			been INACTIVE P0974 (Shift Solenoid "A" Control Circuit High) P0973 (Shift Solenoid "A" Control Circuit Low) Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor "A" Circuit High) P07BF (Input/Turbine Speed Sensor "A" Circuit Low) P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal) P077D (Output Speed Sensor Circuit Low) P077C (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor No Pulse) P0592 (System Voltage Low Supply 2) ("Note 1) P0563 (System Voltage High) P2535 (Ignition Switch Run/Start Position Circuit High) P0706 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance) Garage Shift Control has been INACTIVE for this amount of time continuously The Input Speed signal is available from the Output Speed Sensor The Output Speed signal is available from the Output Speed Sensor TTF Temperature Quick Stop Detection Flag ("Note 4) Safe Gear Control has been INACTIVE for this amount of time continuously The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	ALL Malfunctions = NOT DETECTED = D Range = NOT DETECTED = NOT DETECTED T_GarageFin (*1) T_ShiftFin (*1) = TRUE = TRUE = TRUE >= -20 [deg C] = FALSE tmr_inh_GE (*1) = TRUE	Required	inum.
Torque Converter Clutch Circuit	P0741	Torque Converter Clutch Circuit Performance/Stuck Off	Difference between Engine Speed and Input Speed: AND The time since SLU pressure has gone above a calibratable value: is greater than a calibratable time:	> 100 [rpm] >= 6290 [gf/cm^2] T_SLUFull (*6)	Ignition Voltage Battery Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) The TCM has completed the read operation of its non-volatile memory Emergency Mode ("4) Neutral Avoidance Control Solenoid Cut Condition ("Note 3) Time since Solenoid Cut ("Note 3) control has been INACTIVE P0974 (Shift Solenoid "A" Control Circuit High)	> 9000 [mV] for 10 [msec] > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED = NOT DETECTED (all 8 criteria for 2 [sec] continuously) = NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > 8 [sec] ALL Malfunctions = NOT DETECTED	12 sec (cumulatively)	2

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description			P0973 (Shift Solenoid "A" Control Circuit Low) Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor "A" Circuit High) P07BF (Input/Turbine Speed Sensor "A" Circuit Low) P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal) P077D (Output Speed Sensor Circuit Low) P077C (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor No Pulse) P0592 (System Voltage Low Supply 2) ("Note 1) P0563 (System Voltage High) P2535 (Ignition Switch Run/Start Position Circuit High) Social "A Control has been INACTIVE for this amount of time continuously Shift Control has been INACTIVE for this amount of time continuously Range Selector Position Switch Time since shifting to D Engine Torque Engine Speed ATF Temperature SLU Pressure: - Pressure Value: - Time since meeting value criteria: SL Solenoid Command The Input Speed signal is available from the Input Speed Sensor The Output Speed signal is available from the Output Speed Sensor P2770 (SL Solenoid B+ Short / Open) P2769 (SL Solenoid GND Short) P2761 (SLU Solenoid GND Short) P2763 (SLU Solenoid GND Short) P2764 (SLU Solenoid GND Short) P2765 (SLU Feedback stuck) P0713 (Transmission Fluid Temperature Sensor "A" Circuit High) P0712 (Transmission Fluid Temperature Sensor	T_GarageFin (*1) T_ShiftFin (*1) = D Range = 8 [sec] >= 0 [Nm] < 4000 [rpm] >= 20 [degC] PLUP_CLOSE_FAIL (*5) T_SLUFull (*6) = ON = TRUE = TRUE = NOT DETECTED	Required	Illum.
Pressure Control Solenoid "A" Control Circuit (SLT Solenoid)	P0748		sum_ie (*) (*) The first algorithm checks the cumulative sum of the difference of the linear solenoid feedback current and commanded current. This sum,	> 60000 [mA]	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory Battery Voltage Linear Solenoid Feedback current Solenoid Cut Condition (*Note 3)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) > 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE	1 to 3 sec cumulatively	1

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		·	named "sum_ie", will be updated on every clock cycle of the microprocessor (10 msec). If the value of the sum becomes greater than a calibrated threshold, a malfunction will be confirmed. ie: Difference of "commanded current" and "feedback current"		P0962 (Pressure Control Solenoid "A" Control Circuit Low) P0963 (Pressure Control Solenoid "A" Control Circuit High) Emergency Mode (*4)	= NOT DETECTED = NOT DETECTED = NOT ACTIVE	·	
			ie added to "sum_ie" every 10 msec sum_ie is cleared if at least one of the following conditions are satisfied 1) Enable conditions are not satisfied 2) -50mA =< ie =< 50mA" 3) Sign of ie is changed					
			OR ie (*)	> 50 [mA]	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	2 sec	1
			(*) The second algorithm checks the absolute value of the difference of the linear solenoid feedback current and commanded current over time. If the absolute value of the difference of the linear solenoid feedback current and commanded current exceeds a calibrated threshold for a calibrated period of time continuously, a malfunction will be detected.		Battery Voltage Linear Solenoid Feedback current Solenoid Cut Condition ("Note 3) P0962 (Pressure Control Solenoid "A" Control Circuit Low) P0963 (Pressure Control Solenoid "A" Control Circuit High) Emergency Mode ("4)	> 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE = NOT DETECTED = NOT DETECTED = NOT ACTIVE		
			le : Absolute value of le le: Difference between "commanded current" and "feedback current"		Emergency mode (1)	- 1017101172		
Gear Ratio (7th Gear)	P076F	Gear 7 Incorrect Ratio	Difference between actual Gear Ratio and 7th Gear Ratio	> 20 [%]	Current Gear Output Speed Ignition Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) Emergency Mode ("4) Neutral Avoidance Control Solenoid Cut Condition ("Note 3) Time since Solenoid Cut ("Note 3) control has been INACTIVE P0974 (Shift Solenoid "A" Control Circuit High) P0973 (Shift Solenoid "A" Control Circuit Low) Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725,	= 7TH GEAR >= 500 [rpm] > 9000 [mV] for 10 [msec] > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED = NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > 8 [sec] ALL Malfunctions = NOT DETECTED	12 sec (cumulatively)	1

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor "A" Circuit High) P07BF (Input/Turbine Speed Sensor "A" Circuit Low) P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal) P0717 (Output Speed Sensor Circuit Low) P077C (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor No Pulse) P0592 (System Voltage Low Supply 2) ("Note 1) P0563 (System Voltage High) P2535 (Ignition Switch Run/Start Position Circuit High) Range Selector Position Switch P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance) Garage Shift Control has been INACTIVE for this amount of time continuously Shift Control has been INACTIVE for this amount of time continuously The Input Speed signal is available from the Input Speed Sensor The Output Speed signal is available from the Output Speed Sensor ATF Temperature Ouick Stop Detection Flag ("Note 4) Safe Gear Control has been INACTIVE for this amount of time continuously The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= D Range = NOT DETECTED = NOT DETECTED T_GarageFin (*1) T_ShiftFin (*1) = TRUE = TRUE >= -20 [deg C] = FALSE tmr_inh_GE (*1) = TRUE		
Noutral condition at D Dange (C1	D077/	Decree Control Colone id IIDII Charle	Noutral Condition Decision (C1 connet conner)					1
Neutral condition at D Range (C1 no engagement)	P0//6	OFF	Neutral Condition Decision (C1 cannot engage) Engine Speed – Input Speed Input Speed	< 150 [rpm] > Output Speed x I_gear(*7) + 400 [rpm]	Ignition Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) The TCM has completed the read operation of its Emergency Mode ("4) Neutral Avoidance Control Solenoid Cut Condition ("Note 3) Time since Solenoid Cut ("Note 3) control has been INACTIVE P0974 (Shift Solenoid "A" Control Circuit High) P0973 (Shift Solenoid "A" Control Circuit Low) Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor "A" Circuit High)	> 9000 [mV] for 10 [msec] > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED = NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > 8 [sec] ALL Malfunctions = NOT DETECTED	{ gearRpm(*8) >= 0 AND gearRpm <= 1500 } 3.3 sec { gearRpm(*8) >= 1501 AND gearRpm <= 3000 } { gearRpm(*8) >= 3001 } 0.8 sec	1

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
	5000	Socialities			P07BF (Input/Turbine Speed Sensor "A" Circuit		quirou	inuit.
1					Low)			
					P0717 (Input/Turbine Speed Sensor "A" Circuit No			
					Signal) P077D (Output Speed Sensor Circuit Low)			
					P077C (Output Speed Sensor Circuit Low)			
					P0722 (Output Speed Sensor No Pulse)			
					P0592 (System Voltage Low Supply 2) (*Note 1)			
					P0563 (System Voltage High)			
					P2535 (Ignition Switch Run/Start Position Circuit			
					High)			
					ATF temperature	>= 0 [degC]		
					Garage Shift Control (N to D) has been INACTIVE for this amount of time continuously	T_GarageFin (*1)		
					Shift Control has been INACTIVE for this amount	I _GarageFill (1)		
					of time continuously	T_ShiftFin (*1)		
					or time continuously	= D Range for 1000 [msec]		
					Range Selector Position Switch	continuously		
					Current gear	1st OR 2nd OR 3rd OR 4th OR 5th		
					Output Speed	<= 500 [rpm]		
					Current lock up status	= OFF = LUP NO CONTROL		
					Lockup type The Input Speed signal is available from the Input	= LUP NO CONTROL		
					Speed Sensor	= TRUE		
					P0713 (Transmission Fluid Temperature Sensor	= NOT DETECTED		
					"A" Circuit High)			
					P0712 (Transmission Fluid Temperature Sensor "A" Circuit Low)	= NOT DETECTED		
					Quick Stop Detection Flag (*Note 4)	= FALSE		
					Prohibit Neutral Judgment flag (*)	= FALSE		
					The following Criteria is met, Prohibit Neutral Jud	Igment flag = TRUE		
					Clear counter_NfailD			
					Criteria: 1 and 2 and 3 and 4 and 5 and 6, for 3	00 [msec] continuously		
					1. current Gear: 4th			
					RANGE_D(defined signal)			
					3. Slip Speed > 500 [rpm]			
					4. Output Speed = 0 [rpm] 5. Not shifting			
					6. Current gear != GEAR_1STEB			
					Release condition			
					The following Criteria is met, Prohibit Neutral Juc	Igment flag = FALSE		
					Criteria: 1 or 2 or 3			
			Confirm C1 as Failed Element (Check C2 and C3	to soo if C1 has malfunctioned)	1 DANICE D DANICE D or DANICE N			_
			When the following conditions are ALL satisfied, t	the criteria are considered to be met:				\dashv
			Increment counter_NfailD					
			Input Speed	< 200 [rpm]	1			
			Engine Speed	> 600 [rpm]				
			Neutral condition detection in progress	Yes				
Pressure Control Solenoid "B"	P0777		This fault is confirmed after a calibratable number		Ignition Voltage	> 9000 [mV] for 10 [msec]	4 sec	1
		ON	of counts of the "SL1 Stuck ON"(*) failure		Battery Voltage	> 10.2 [V]		
			counter:		Battery Voltage	<= 32.0 [V]		
	1	I	Number of counts:	= 4	Engine Speed	> 400 [RPM]		

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
Component / System	Fault Code	Monitor Strategy / Description	(*) If the following conditions are met for a calibrated time period continuously, the algorithm will increment the "SL1 Stuck ON" failure Timer: Current Gear Difference between Actual Gear Ratio and Expected Gear Ratio: ATF Pressure Switch Command Flag_SLC1drain (*) Flag_SLC1drain (*) is determined to be ON	Threshold Value = 1000 [msec] = 6th or 7th or 8th < 4 [%] = ON = ON	Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) The TCM has completed the read operation of its non-volatile memory Emergency Mode ("4) Neutral Avoidance Control Solenoid Cut Condition ("Note 3) Time since Solenoid Cut ("Note 3) control has been INACTIVE P0974 (Shift Solenoid "A" Control Circuit High)	Enable Conditions = VALID = NOT DETECTED = NOT DETECTED (all 8 criteria for 2 [sec] continuously) = NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > 8 [sec] ALL Malfunctions = NOT DETECTED	Time Required	MIL Illum.
			when the following condition is true: SLC1 Pressure For the following time continuously:	<= 300 [gf/cm^2] = Time_PSLdrain (*12) [msec]	P0973 (Shift Solenoid "A" Control Circuit Low) Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor "A" Circuit High) P07BF (Input/Turbine Speed Sensor "A" Circuit Low) P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal) P077D (Output Speed Sensor Circuit Low) P077C (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor No Pulse) P0592 (System Voltage Low Supply 2) ("Note 1) P0563 (System Voltage High) P2535 (Ignition Switch Run/Start Position Circuit High) P0601 (Internal Control Module Memory Checksum Error)			
					Safe Gear Control has been INACTIVE for this amount of time continuously Range Selector Position Switch Time since changing Range Selector Position to D	tmr_inh_GE (*1) = D Range = 8000 [msec]		
					ATF temperature P0713 (Transmission Fluid Temperature Sensor "A" Circuit High) P0712 (Transmission Fluid Temperature Sensor	>= -10 [degC] = NOT DETECTED = NOT DETECTED		
					"A" Circuit Low) P0842 (Transmission Fluid Pressure Sensor/Switch "A" Circuit Low)	= NOT DETECTED		
					P0843 (Transmission Fluid Pressure Sensor/Switch "A" Circuit High Garage Shift Control has been INACTIVE for this	= NOT DETECTED		
					amount of time continuously Shift Control has been INACTIVE for this amount of time continuously	T_GarageFin (*1)		
					The Input Speed signal is available from the Input Speed Sensor	T_ShiftFin (*1) = TRUE		
					The Output Speed signal is available from the Output Speed Sensor	= TRUE		
					Quick Stop Detection Flag (*Note 4)	= FALSE		

Component /	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
System	Code	Description			Safe Gear Control has been INACTIVE for this amount of time continuously Engine Torque Output Speed The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	tmr_inh_GE (*1) >= 80 [Nm] >= 60 [rpm] = TRUE	кецинец	mulli.
Pressure Control Solenoid "B" Control Circuit (SL1 Solenoid)	P0778	Pressure Control Solenoid "B" Electrical	sum_ie (*)	> 60000 [mA]	Ignition Voltage Battery Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	1 to 3 sec (cumulatively)	1
			(*) The first algorithm checks the cumulative sum of the difference of the linear solenoid feedback current and commanded current. This sum, named "sum_ie", will be updated on every clock cycle of the microprocessor (10 msec). If the value of the sum becomes greater than a calibrated threshold, a malfunction will be confirmed. ie: Difference of "commanded current" and "feedback current" ie added to "sum_ie" every 10 msec sum_ie is cleared if at least one of the following conditions are satisfied 1) Enable conditions are not satisfied 2) -50mA = c ie = < 50mA" 3) Sign of ie is changed		Battery Voltage Linear Solenoid Feedback current Solenoid Cut Condition (*Note 3) P0966 (Pressure Control Solenoid "B" Control Circuit Low) P0967 (Pressure Control Solenoid "B" Control Circuit High) Emergency Mode (*4)	> 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE = NOT DETECTED = NOT DETECTED = NOT ACTIVE		
			OR					
			ie (*)	> 50 [mA]	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	2 sec	1
			(*) The second algorithm checks the absolute value of the difference of the linear solenoid feedback current and commanded current over time. If the absolute value of the difference of the linear solenoid feedback current and commanded current exceeds a calibrated threshold for a calibrated period of time continuously, a malfunction will be detected.		Battery Voltage Linear Solenoid Feedback current Solenoid Cut Condition (*Note 3) P0966 (Pressure Control Solenoid "B" Control Circuit Low) P0967 (Pressure Control Solenoid "B" Control Circuit High) Emergency Mode (*4)	> 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE = NOT DETECTED = NOT DETECTED = NOT ACTIVE		
			ie : Absolute value of ie ie: Difference between "commanded current" and "feedback current"					

		T	T CBBCCC TOM KWB			T		
Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Output Speed Sensor Circuit	P077C	Output Speed Sensor Circuit High	Output Speed Sensor Circuit Voltage	< 0.206 [V]	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	1 sec	1
Output Speed Sensor Circuit	P077D	Output Speed Sensor Circuit Low	Output Speed Sensor Circuit Voltage	> 2.727 [V]	Ignition Voltage Battery Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	1 sec	1
Pressure Control Solenoid "C" Control Circuit (SL2 Solenoid)	P0798	Pressure Control Solenoid "C" Electrical	(*) The first algorithm checks the cumulative sum of the difference of the linear solenoid feedback current and commanded current. This sum, named "sum_ie", will be updated on every clock cycle of the microprocessor (10 msec). If the value of the sum becomes greater than a calibrated threshold, a malfunction will be confirmed. ie: Difference of "commanded current" and "feedback current" ie added to "sum_ie" every 10 msec sum_ie is cleared if at least one of the following conditions are satisfied 1) Enable conditions are not satisfied 2) -50mA = c ie = c 50mA" 3) Sign of ie is changed	> 60000 [mA]	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory Battery Voltage Linear Solenoid Feedback current Solenoid Cut Condition ("Note 3) P0970 (Pressure Control Solenoid "C" Control Circuit Low) P0971 (Pressure Control Solenoid "C" Control Circuit High) Emergency Mode (*4)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) > 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE = NOT DETECTED = NOT DETECTED = NOT ACTIVE	1 to 3 sec cumulatively	1
			OR					
			ie (*)	> 50 [mA]	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	2 Sec	1
			(*) The second algorithm checks the absolute value of the difference of the linear solenoid feedback current and commanded current over time. If the absolute value of the difference of the linear solenoid feedback current and commanded current exceeds a calibrated threshold for a calibrated period of time continuously, a malfunction will be detected. ie : Absolute value of ie		Battery Voltage Linear Solenoid Feedback current Solenoid Cut Condition (*Note 3) P0970 (Pressure Control Solenoid "C" Control Circuit Low) P0971 (Pressure Control Solenoid "C" Control Circuit High) Emergency Mode (*4)	> 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE = NOT DETECTED = NOT DETECTED = NOT ACTIVE		

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			ie: Difference between "commanded current" and "feedback current"					
Input/Turbine Speed Sensor "A" Circuit	P07BF	Input/Turbine Speed Sensor "A" Circuit Low	Input Speed Sensor Circuit Voltage	< 0.206 V	Ignition Voltage Battery Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	1 sec	1
Input/Turbine Speed Sensor "A" Circuit	P07C0	Input/Turbine Speed Sensor "A" Circuit High	Input Speed Sensor Circuit Voltage	> 2.727 V	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	1 sec	1
Gear Ratio (8th Gear)	P07D9	Gear 8 Incorrect Ratio	Difference between actual Gear Ratio and 8th Gear Ratio	> 20 [%]	Current Gear Output Speed Ignition Voltage Battery Voltage Battery Voltage Battery Voltage Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) Emergency Mode ("4) Neutral Avoidance Control Solenoid Cut Condition ("Note 3) Time since Solenoid Cut ("Note 3) Time since Solenoid Cut ("Note 3) control has been INACTIVE P0974 (Shift Solenoid "A" Control Circuit Low) Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor "A" Circuit High) P07BF (Input/Turbine Speed Sensor "A" Circuit Low) P0717 (Output Speed Sensor Circuit Low) P077D (Output Speed Sensor Circuit Low) P077C (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor Circuit High) P0723 (System Voltage Low Supply 2) ("Note 1) P0563 (System Voltage High) P2535 (Ignition Switch Run/Start Position Circuit High) P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Circuit)	= D Range = NOT DETECTED	12 sec (cumulatively)	1

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
System	Code	Description			Difference between actual Gear Ratio and 7th	T_GarageFin (*1) T_ShiftFin (*1) = TRUE = TRUE >= -20 [deg C] = FALSE tmr_inh_GE (*1) = TRUE are NOT satisfied < 4 [%] for 1 [sec] continuously < 4 [%] for 1 [sec] continuously	nequired	munt.
Gear Ratio (8th Gear Stuck)	P07D9	Gear 8 Incorrect Ratio	Difference between actual Gear Ratio and 7th Gear Ratio OR Difference between actual Gear Ratio and 6th Gear Ratio	< 4 %	Current Gear Output Speed Input Torque Ignition Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) Emergency Mode ("4) Neutral Avoidance Control Solenoid Cut Condition ("Note 3) Time since Solenoid Cut ("Note 3) control has been INACTIVE P0974 (Shift Solenoid "A" Control Circuit High) P0973 (Shift Solenoid "A" Control Circuit Low) Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor "A" Circuit High) P07BF (Input/Turbine Speed Sensor "A" Circuit Low) P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal) P077D (Output Speed Sensor Circuit High) P077C (Output Speed Sensor No Pulse)	= 8TH GEAR >= 60 [rpm] >= 50 [Nm] OR <= -50 [Nm] (occur at least 1 time during detection) > 9000 [mV] for 10 [msec] > 10.2 [V] < 400 [RPM] = VALID = NOT DETECTED = NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > 8 [sec] ALL Malfunctions = NOT DETECTED	5 sec	1

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P0592 (System Voltage Low Supply 2) (*Note 1) P0563 (System Voltage High) P2535 (Ignition Switch Run/Start Position Circuit High)			
					Range Selector Position Switch	= D Range		
					P0705 (Transmission Range Switch Circuit)	= NOT DETECTED = NOT DETECTED		
					P0706 (Transmission Range Switch Performance) Garage Shift Control has been INACTIVE for this amount of time continuously	T_GarageFin (*1)		
					Shift Control has been INACTIVE for this amount of time continuously	T_ShiftFin (*1)		
					The Input Speed signal is available from the Input Speed Sensor	= TRUE		
					The Output Speed signal is available from the Output Speed Sensor	= TRUE		
					ATF Temperature Quick Stop Detection Flag (*Note 4)	>= -20 [deg C] = FALSE		
					Safe Gear Control has been INACTIVE for this	tmr_inh_GE (*1)		
					amount of time continuously The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= TRUE		
					as a reaction to Sale Geal Control.			
ap Up Switch	P0815	Upshift Switch Circuit	"Platform Transmission Tap Up/Down Switch State" CAN Signal	= \$1 (Increment Switch Active)	Ignition Voltage	> 9000 [mV] for 3 sec continuously	34 sec Total	No MIL "Specia
					Ignition Voltage Battery Voltage	> 9000 [mV] for 10 [msec] continuously	(4 sec for P, R, N-Range)	C"
					Battery Voltage The TCM has completed the read operation of its	> 10.2 [V] <= 32.0 [V]	(30 sec for D-Range)	
					non-volatile memory	(all 4 criteria for 2 [sec] continuously)		
					Diagnostic Service Request to Disable Normal Communication	= NOT PRESENT		
					U0140 (Lost Communication with Body Control Module)	= NOT DETECTED		
					P0826 (Up and Down Shift Switch Circuit)	= NOT DETECTED		
					P1761 (Up and Down Shift Switch Signal Circuit)	= NOT DETECTED		
					P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance)	= NOT DETECTED = NOT DETECTED		
ap Down Switch	P0816	Downshift Switch Circuit	"Platform Transmission Tap Up/Down Switch State" CAN Signal	= \$2 (Decrement Switch Active)	Ignition Voltage	> 9000 [mV] for 3 sec continuously	34 sec Total	No MIL "Special
					Ignition Voltage	> 9000 [mV] for 10 [msec]	(4 sec for P, R, N-Range)	
					Battery Voltage Battery Voltage The TCM has completed the read operation of its	continuously > 10.2 [V] <= 32.0 [V]	(30 sec for D-Range)	
					non-volatile memory	(all 4 criteria for 2 [sec] continuously)		
					Diagnostic Service Request to Disable Normal Communication	= NOT PRESENT		
					U0140 (Lost Communication with Body Control Module)	= NOT DETECTED		
					P0826 (Up and Down Shift Switch Circuit)	= NOT DETECTED		

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P1761 (Up and Down Shift Switch Signal Circuit)	= NOT DETECTED		
					P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance)	= NOT DETECTED = NOT DETECTED		
Tap Up/Down Switch	P0826	Up and Down Shift Switch Circuit	"Platform Transmission Tap Up/Down Switch State" CAN Signal	= \$3 (Illegal Up/Down Switch State Active)	Ignition Voltage	> 9000 [mV] for 3 sec continuously	4 sec	No MIL "Special
			Sac Shirt Signal	reate	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)		C"
					Diagnostic Service Request to Disable Normal Communication U0140 (Lost Communication with Body Control	= NOT PRESENT		
					Module) P1761 (Up and Down Shift Switch Signal Circuit)	= NOT DETECTED = NOT DETECTED		
					P0705 (Transmission Range Switch Circuit) P0706 (Transmission Range Switch Performance)	= NOT DETECTED = NOT DETECTED		
Manual Mode Switch	P0827	Up and Down Shift Switch Circuit Low Voltage	Manual Mode Switch Signal Level (*) (*) The Manual Mode Switch signal level is determined as a percentage of Ignition Voltage (= Manual Mode Switch Voltage / Ignition Voltage [%])	< 5.0 [%]	Ignition Voltage Battery Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM *A*) U0073 (CAN Bus-OFF) Ignition Voltage P2534 (Ignition Voltage Low Supply) P2535 (Ignition Switch Run/Start Position Circuit High)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED 9 [V] <= IG <= 32 [V] = NOT DETECTED = NOT DETECTED = NOT DETECTED	30 sec	No MIL "Special C"
Manual Mode Switch	P0828	Up and Down Shift Switch Circuit High Voltage	Manual Mode Switch Signal Level (*) (*) The Manual Mode Switch signal level is determined as a percentage of Ignition Voltage (= Manual Mode Switch Voltage / Ignition Voltage [%])	> 25.5 [%]	Ignition Voltage Battery Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM *A*) U0073 (CAN Bus-OFF) Ignition Voltage P2534 (Ignition Voltage Low Supply) P2535 (Ignition Switch Run/Start Position Circuit High)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED 9 [V] <= IG <= 32 [V] = NOT DETECTED = NOT DETECTED = NOT DETECTED	30 sec	No MIL "Special C"
Transmission Fluid Pressure Sensor/Switch "A" Circuit	P0842	Transmission Fluid Pressure Sensor/Switch "A" Circuit Low	Transmission Fluid Pressure Sensor Status	= ON	The following parameters must be met for a calibrated period of time. Ignition Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM *A*) U0073 (CAN Bus-OFF) Emergency Mode (*4)	Time_SwONfailw (*2) > 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT ACTIVE	1 sec	2

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
System	5546	2 SSG (pion)			Neutral Avoidance Control Solenoid Cut Condition (*Note 3) Time since Solenoid Cut (*Note 3) control has been INACTIVE	= NOT ACTIVE = NOT ACTIVE > 8 [sec]	подинов	
					P0974 (Shift Solenoid "A" Control Circuit High) P0973 (Shift Solenoid "A" Control Circuit Low) Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor "A" Circuit High) P07BF (Input/Turbine Speed Sensor "A" Circuit Low) P0717 (Input/Turbine Speed Sensor "A" Circuit Low) P077D (Output Speed Sensor Circuit Low) P077D (Output Speed Sensor No Pulse) P0592 (System Voltage Low Supply 2) ("Note 1) P0563 (System Voltage High) P2535 (Ignition Switch Run/Start Position Circuit High) P0601 (Internal Control Module Memory	ALL Malfunctions = NOT DETECTED		
					Checksum Error) Garage Shift Control has been INACTIVE for this amount of time continuously Shift Control has been INACTIVE for this amount	T_GarageFin (*1)		
					of time continuously ATF Temperature P0713 (Transmission Fluid Temperature Sensor "A" Circuit High)	T_ShiftFin (*1) >= 20 [deg C] = NOT DETECTED		
					P0712 (Transmission Fluid Temperature Sensor "A" Circuit Low)	= NOT DETECTED = P or R or N Range		
					Range Selector Position Switch Time Since Shifting to P,R, or N	Time_SwDNFin (*2)		
					The Input Speed signal is available from the Input Speed Sensor The Output Speed signal is available from the	= TRUE		
					Output Speed Sensor	= TRUE		
					Quick Stop Detection Flag (*Note 4) Safe Gear Control has been INACTIVE for this amount of time continuously	= FALSE tmr_inh_GE (*1)		
					Gear Ratio Failure Status (P0731, P0732, P0733, P0734, P0735, P0729, P076F, P07D9)	ALL = NOT DETECTED		
					The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= TRUE		
Transmission Fluid Pressure Sensor/Switch "A" Circuit	P0843	Transmission Fluid Pressure Sensor/Switch "A" Circuit High	Current Gear	= 1st, 2nd, 3rd, 4th, or 5th	The following parameters must be met for a calibrated period of time continuously.	Time_SwOFFfailw (*2)	2 sec	2
			Difference between actual Gear Ratio and Expected Gear Ratio	< 4 %	Ignition Voltage Battery Voltage	> 9000 [mV] for 10 [msec] continuously		
			ATF Pressure Command ATF Pressure Switch Status	>= 1600 [kPa] = OFF	Battery Voltage Engine Speed	> 10.2 [V] <= 32.0 [V]		
			Engine Speed	> 500 [rpm]	Engine Speed Signal Validity	> 400 [RPM]		

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Time since Engine Speed exceeded threshold above Output Speed Engine Torque without Acceleration	> 1000 [msec] >= 60 [rpm] >= 80 [Nm]	U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) The TCM has completed the read operation of its non-volatile memory	= VALID = NOT DETECTED = NOT DETECTED	,	
			Input Speed	<= 6000 [rpm]	Emergency Mode (*4) Neutral Avoidance Control Solenoid Cut Condition (*Note 3) Time since Solenoid Cut (*Note 3) control has	= NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > 8 [sec]		
					been INACTIVE P0974 (Shift Solenoid "A" Control Circuit High) P0973 (Shift Solenoid "A" Control Circuit Low) Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761)	ALL Malfunctions = NOT DETECTED		
					P07C0 (Input/Turbine Speed Sensor "A" Circuit High) P07BF (Input/Turbine Speed Sensor "A" Circuit Low) P0717 (Input/Turbine Speed Sensor "A" Circuit No Signal)			
					P077D (Output Speed Sensor Circuit Low) P077C (Output Speed Sensor Circuit High) P0722 (Output Speed Sensor No Pulse) P0592 (System Voltage Low Supply 2) (*Note 1) P0563 (System Voltage High) P2535 (Ignition Switch Run/Start Position Circuit			
					High) Range Selector Position Switch Garage Shift Control has been INACTIVE for this amount of time continuously	= D Range T_GaraqeFin (*1)		
					Shift Control has been INACTIVE for this amount of time continuously ATF Temperature	T_ShiftFin (*1) >= OT_Sw_det (*14)		
					P0713 (Transmission Fluid Temperature Sensor "A" Circuit High) P0712 (Transmission Fluid Temperature Sensor	= NOT DETECTED = NOT DETECTED		
					"A" Circuit Low) The Input Speed signal is available from the Input Speed Sensor The Output Speed signal is available from the	= TRUE		
					Output Speed Sensor	= TRUE = FALSE		
					Quick Stop Detection Flag (*Note 4) Safe Gear Control has been INACTIVE for this amount of time continuously Gear Ratio Failure Status	tmr_inh_GE (*1)		
					(P0731, P0732, P0733, P0734, P0735, P0729, P076F, P07D9)	ALL = NOT DETECTED		
					The TCM is not commanding a neutral condition as a reaction to Safe Gear Control.	= TRUE		
Manual Mode Switch	P085F	Up and Down Shift Switch Circuit Stuck in Range	Manual Mode Switch Signal Level (*) (*) The Manual Mode Switch signal level is	10.4 [%] < Manual Switch < 14.8 [%]		> 9000 [mV] for 10 [msec] continuously > 10.2 [V]	30 sec	No MIL "Special C"
			determined as a percentage of Ignition Voltage (= Manual Mode Switch Voltage / Ignition Voltage		Engine Speed Engine Speed Signal Validity	<= 32.0 [V] > 400 [RPM]		

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			[%])		U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) Ignition Voltage P2534 (Ignition Voltage Low Supply) P2535 (Ignition Switch Run/Start Position Circuit High)	= VALID = NOT DETECTED 9 [V] <= IG <= 32 [V] = NOT DETECTED = NOT DETECTED		
Manual Mode Switch	P085F	Up and Down Shift Switch Circuit Stuck in Range	Manual Mode Switch Signal Level (*) (*) The Manual Mode Switch signal level is determined as a percentage of Ignition Voltage (= Manual Mode Switch Voltage / Ignition Voltage [%]) The time period is based on the Gear Selector Position: - for 4 sec continuously in P,R, or N range AND - for 30 sec continuously in D range	14.8 [%] <= Manual Switch < 25.5 [%]	Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED 9 [V] <= IG <= 32 [V] = NOT DETECTED	34 sec (cumulative between P/R/N and D range tests)	No MIL "Special C"
Pressure Control Solenoid "A" Control Circuit (SLT Solenoid)	P0962	Pressure Control Solenoid "A" Control Circuit Low	Linear Solenoid Feedback Current	< 20mA	Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) = NOT ACTIVE	500 msec	1
					P0963 (Pressure Control Solenoid "A" Control Circuit High)	= NOT DETECTED for [1 sec]		
Pressure Control Solenoid "A" Control Circuit (SLT Solenoid)	P0963	Pressure Control Solenoid "A" Control Circuit High	Linear Solenoid Feedback Current	>= 1358mA	Ignition Voltage Battery Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	500 msec	1
					P0962 (Pressure Control Solenoid "A" Control Circuit Low)	= NOT DETECTED for [1 sec]		
Pressure Control Solenoid "B" Control Circuit (SL1 Solenoid)	P0966	Pressure Control Solenoid "B" Control Circuit Low	Linear Solenoid Feedback Current	< 20mA	Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	500 msec	1
					Solenoid Cut Condition ("Note 3) P0967 (Pressure Control Solenoid "B" Control Circuit High)	= NOT ACTIVE = NOT DETECTED for [1 sec]		

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control Solenoid "B" Control Circuit (SL1 Solenoid)	P0967	Pressure Control Solenoid "B" Control Circuit High	Linear Solenoid Feedback Current	>= 1358mA	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	500 msec	1
					P0966 (Pressure Control Solenoid "B" Control Circuit Low)	= NOT DETECTED for [1 sec]		
Pressure Control Solenoid "C" Control Circuit (SL2 Solenoid)	P0970	Pressure Control Solenoid "C" Control Circuit Low	Linear Solenoid Feedback Current	< 20mA	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	500 msec	1
					Solenoid Cut Condition (*Note 3) P0971 (Pressure Control Solenoid "C" Control	= NOT ACTIVE = NOT DETECTED for [1 sec]		
Pressure Control Solenoid "C" Control Circuit (SL2 Solenoid)	P0971	Pressure Control Solenoid "C" Control Circuit High	Linear Solenoid Feedback Current	>= 1358mA	Circuit High) Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V]	500 msec	1
					P0970 (Pressure Control Solenoid "C" Control Circuit Low)	(all 4 criteria for 2 [sec] continuously) = NOT DETECTED for [1 sec]		
Shift Solenoid "A" Control Circuit (SR solenoid)	P0973	Shift Solenoid "A" Control Circuit Low	Comparison of SR solenoid Commanded State to Actual State (*) The TCM software does not directly determine the Actual State of the solenoid. This is done by the solenoid driver hardware. The software just reads the state as ON or OFF. The solenoid driver determines the state is ON at Battery	Actual State is "OFF" when Commanded State is "ON"	Ignition Voltage Battery Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory SR Solenoid Command	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) = ON	500 msec	1
Shift Solenoid "A" Control Circuit (SR solenoid)	P0974	Shift Solenoid "A" Control Circuit High	Voltage - 1 [V] Comparison of SR solenoid Commanded State to Actual State (*) The TCM software does not directly determine the Actual State of the solenoid. This is done by the solenoid driver hardware. The software just reads the state as ON or OFF. The solenoid driver determines the state is ON at Battery Voltage - 1 [V]	Actual State is "ON" when Commanded State is "OFF"	Time elapsed since last solenoid state change Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory SR Solenoid Command Time elapsed since last solenoid state change	> 10 msec > 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) = OFF > 10 msec	500 msec	1
Transmission Control Module (TCM)	P16F3	Control Module Redundant Memory Performance	Downshift commanded (*) (*) The solenoid patterns for the currently engaged gear, target gear, and minimum allowed gear (which is dependent on the vehicle speed) are compared, and the downshift to be commanded would cause unintended vehicle deceleration.	< Minimum Safe Gear (*)	P0606 (Control Module Processor) - Solenoid Cut Malfunction Solenoid Cut Request	= NOT DETECTED = INACTIVE	150 msec	1

Component /	Fault Code	• • • • • • • • • • • • • • • • • • • •	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL
System	Code	Description					kequirea	ıııum.
Un-usual shifting with Max Pressure Pressure Control Solenoid "B" Control Circuit (SL1 Solenoid) Pressure Control Solenoid "C" Control Circuit (SL2 Solenoid) Pressure Control Solenoid "D" Control Circuit (SL3 Solenoid) Pressure Control Solenoid "E" Control Circuit (SL4 Solenoid) Pressure Control Solenoid "F" Control Circuit (SL5 Solenoid)	P170A P170B P170C P170D	Pressure Control Solenoid Valve "2" Max Pressure Not Achieved Pressure Control Solenoid Valve "3" Max Pressure Not Achieved Pressure Control Solenoid Valve "4" Max Pressure Not Achieved Pressure Control Solenoid Valve "5" Max Pressure Not Achieved Pressure Control Solenoid Valve "6" Max Pressure Not Achieved Pressure Control Solenoid Valve "6" Max Pressure Not Achieved	Each component (C1, C2, C3, C4, and B1) diagnosed has its own unique error counter, which will diagnose the failed component if the malfunction is detected. These counters are shared between all of the algorithms. If any one of those counters becomes equal to a calibrated total value, the malfunction will be confirmed and a DTC will be stored. There are (7) unique algorithms which run simultaneously in order to attempt to detect a MAX pressure malfunction. These algorithms are fairly complex; therefore they have been described in detail in section 5. count_fail_SLC1MAX_usft (*) count_fail_SLC3MAX_usft (*) count_fail_SLC4MAX_usft (*) count_fail_SLC4MAX_usft (*) count_fail_SLB1MAX_usft (*) count_fail_SLB1MAX_usft (*) count_fail_SLB1MAX_usft (*)	>= 5 >= 5 >= 5 >= 5	Ignition Voltage Battery Voltage Battery Voltage Engine Speed Engine Speed Signal Validity U0100 (Lost Communication with ECM/PCM "A") U0073 (CAN Bus-OFF) The TCM has completed the read operation of its non-volatile memory Emergency Mode ("4) Neutral Avoidance Control Solenoid Cut Condition ("Note 3) Time since Solenoid Cut ("Note 3) control has been INACTIVE P0974 (Shift Solenoid "A" Control Circuit High) P0973 (Shift Solenoid "A" Control Circuit Low) Status of all of the Gear Ratio malfunctions: (P0967, P0971, P2721, P2730, P2739, P0963, P2763, P0966, P0970, P2720, P2729, P2738, P0962, P2764, P0778, P0798, P2716, P2725, P2734, P0748, P2761) P07C0 (Input/Turbine Speed Sensor "A" Circuit High) P07BF (Input/Turbine Speed Sensor "A" Circuit Low) P0717 (Output Speed Sensor Circuit Low) P077D (Output Speed Sensor No Pulse) P0592 (System Voltage Low Supply 2) ("Note 1) P0563 (System Voltage High) P2535 (Ignition Switch Run/Start Position Circuit High) Garage Shift Control has been INACTIVE for this amount of time continuously Range Selector Position Switch Wheel Spin Detected Output Speed Sensor The Output Speed signal is available from the	> 9000 [mV] for 10 [msec] > 10.2 [V] < 32.0 [V] > 400 [RPM] = VALID = NOT DETECTED = NOT DETECTED (all 8 criteria for 2 [sec] continuously) = NOT ACTIVE = NOT ACTIVE = NOT ACTIVE > NOT ACTIVE > 8 [sec] ALL Malfunctions = NOT DETECTED	(Shift time dependent) 300 msec to 2 sec, 5 times cumulatively.	MIL Illum.
					Output Speed Sensor Safe Gear Control has been INACTIVE for this amount of time continuously	tmr_inh_GE (*1)		
					,,, ,			
			Unusual Shifting Test A-1: Up-shift with Tie-up	· · · · · · · · · · · · · · · · · · ·				
			If a pressure control malfunction exists during an u	· · · · · · · · · · · · · · · · · · ·				
			detect when the transmission takes an excessively					
			release the element commanded to disengage. Su	uch a malfunction is possible to				

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MI IIIu
			Speed change from current gear to target gear) w	hile the engagement pressure is				1
			When the following conditions are ALL satisfied, the	nen the criteria is considered to be				
			met. Based on the Upshift that was occurring, the	associated counter is incremented				
			for up-shifts (2-8, 3-7, 4-6, 5-6, 5-7, 5-8)	count_fail_SLC1MAX_usft				
			for up-shifts (3-4, 3-5, 7-8)	count_fail_SLC3MAX_usft				
			for up-shifts (4-5, 6-7, 6-8)	count_fail_SLC4MAX_usft				
			for up-shifts (2-3, 2-4, 2-5)	count_fail_SLB1MAX_usft				
			During any of the following Up-Shifts	(2-8, 3-7, 4-6, 5-6, 5-7, 5-8, 3-4, 3-5, 7-8, 4-5, 6-7, 6-8, 2-3, 2-4, 2-5)				
			Shift Control for Torque Phase B has begun	= TRUE				
			Time since beginning of Torque Phase B	>= TimeTrp_B (*10)				
			Applied Element Command Pressure	> 2.5 [kg/cm^2]				
			Shifting does not begin despite of shifting	= TRUE				
			commanded. (No change in inRpm eventhough	- 1102				
			the shift command is made)					
			Max of engine flare ratio	<= 50 [rpm]				
			The gear ratio before shift control began is	= TRUE				
			normal (*A)	- INUL				
			OR					
			The gear ratio at the beginning of the shift is					
			normal (*B)					
				FO [N]				
			Input Torque	>= 50 [Nm] OR				
				<= -50 [Nm]				
			(*A) This condition is met if the following is true:					
			Difference between actual Gear Ratio and expected Gear Ratio	< 4 [%]				
			(*B) This condition is met if the following is true:					
			Difference between actual Gear Ratio and	< 8 [%]				
			expected Gear Ratio					
			Unusual Shifting Test A-2: Down-shift with Tie					
			If a pressure control malfunction exists during a de					
			release an element which is supposed to disengar					
			detect when the transmission takes an excessivel					
			Speed change from current gear to target gear) w					
			When the following conditions are ALL satisfied, the					
			met. Based on the Down-shift that was occurring,					
			for down-shifts (5-2, 5-3, 5-4, 6-4,7-3, 8-2)	count_fail_SLC2MAX_usft				
			for down-shifts (3-2, 7-5, 7-6)	count_fail_SLC3MAX_usft				
			for down-shifts (4-2, 4-3, 6-5)	count_fail_SLC4MAX_usft				
			for down-shifts (8-5, 8-6, 8-7)	count_fail_SLB1MAX_usft				
			During any of the following Down-Shifts	(3-2, 4-2, 4-3, 5-2, 5-3, 5-4, 6-4, 6-5, 7-3, 7-5, 7-6, 8-2, 8-5, 8-6, 8-7)				
			After "Start of initial release pressure control phase"	= TRUE				
			Release Pressure Control Phase Duration	>= Time_failA_down1 (*10)				
				AND				
				>= Time_failA_down2 (*10)				
			Applied Element Command Pressure	> 3.0 [kg/cm^2]				
				when Input Torque with No				
	1 1		i	Acceleration < 100 [Nm]		1	1	1

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MI IIIu
			Shifting does not begin despite of shifting	= TRUE				
			commanded. (No change in inRpm eventhough					
			the shift command is made)					
			Min of engine flare ratio	>= -50 [rpm]				
			The gear ratio before shift control began is	= TRUE				
			normal (*A)					
			OR					
			The gear ratio at the beginning of the shift is					
			normal (*B)					
			Input Torque	>= 50 [Nm]				
				OR				
				<= -50 [Nm]				
			(*A) This condition is met if the following is true:					
			Difference between actual Gear Ratio and	< 4%				
			expected Gear Ratio					
			(*B) This condition is met if the following is true:					
			DW	0.50/1				
			Difference between actual Gear Ratio and	< 8 [%]				
			expected Gear Ratio					
			Harris Chigina Tana D.4 Harris Garis Famili	Flore (01, 04, or D1 not released)				
			Unusual Shifting Test B-1: Up-shift with Engin			T		
			The TL80SN 8-Speed transmission is equipped w					
			effects of falsely engaged brakes or clutches. How					
			element is falsely engaged, the torque transfer fro brakes will be disrupted.	in the expected clutches and/or				
			When ALL of the conditions of a state are satisfied	the function then moves to the next				
			state. Based on the Up-shift that was occurring, the					
			for up-shifts (6-7, 6-8)	count_fail_SLC1MAX_usft				
			for up-shifts (7-8)	count_fail_SLC4MAX_usft				
			for up-shifts (3-4, 3-5, 4-5)	count_fail_SLB1MAX_usft				
			101 dp 515 (0 17 0 57 1 57	bount_run_ocs numbr_uon				
			State 1 (Start Detection due to Deviation from Ex	pected Transmission Input Speed)				
			If ALL conditions are met:	, , , , , , , , , , , , , , , , , , , ,				
			During any of the following single clutch to clutch	(6-7, 6-8, 7-8, 3-4, 3-5, 4-5)				
			Up-shifts					
			Input Speed - (Output Speed x Gear Ratio of	>= flare_fail_up (*11)				
			current gear before shifting)	,				
			NOT in multiplex shifting	= TRUE				
			State 2 (Determine the Fault Type or check for In	nut Spood Dovistion Correction				
				put Speed Deviation Correction)				
			Criteria 2-1: if ALL conditions are met:					
			Input Speed - (Output Speed x Gear Ratio of	<= flare_fail_up (*11) - 200 [rpm]				
			current gear before shifting)					
			TCM currently commanding a Clutch-to-Clutch	= FALSE				
			Up-shift					
			Criteria 2-2: if ALL conditions are met:	T				
			The TCM is commanding a (3-4, 3-5, or 4-5 up-	= TRUE				
			shift)	T. 001 (110) (
			"Time Since State 1" timer	> Time324 (*10) [sec]				
			Input Speed Acceleration	> 5000 [rpm/sec]				
				for 0.03 [sec]				
			Time since the start of the apply pressure control	< 1.0 [sec]				
			Criteria 2-3: if ALL conditions are met:			1		

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL
			The TCM is commanding a (6-7 or 6-8 up-shift)	= TRUE				
			"Time Since State 1" timer	> Time324 (*10) [sec]				
			Input Speed Acceleration	> 5000 [rpm/sec]				
				for 0.03 [sec]				
			Time since the start of the apply pressure control	< 1.0 [sec]				
			Criteria 2-4: if ALL conditions are met:					
			The TCM is commanding a (7-8 up-shift)	= TRUE				
			"Time Since State 1" timer	> Time324 (*X) [sec]				
			Input Speed Acceleration	> 5000 [rpm/sec]				
			Time since the start of the apply pressure control	for 0.03 [sec] < 1.0 [sec]				
			Criteria 2-5: if condition (A) AND (condition (B) OI					
			(A) "Time Since State 1" timer	> TimeFailB (*10) [sec]				
			(B) "Release Element Pressure at Flare Start"	> 2.0 [kg/cm^2]				
			(C) Applied Element Commanded Pressure	> 2.0 [kg/cm^2]				
			State 3 (Conclude Malfunction Detection and Res	ume Normal Operations)				
			if ALL conditions are met:	TimeFailD (*10) [c1				
			"Exit Unusual Shifting Test B-1" timer	> TimeFailB (*10) [sec]				
			Unusual Shifting Test B-2: Down-shift with Eng			1		
			The TL80SN 8-Speed transmission is equipped wi					
			effects of falsely engaged brakes or clutches. How					
			element is falsely engaged, the torque transfer from brakes will be disrupted. A symptom of such a ma					
			brakes will be disrupted. A symptom of such a ma	illuriction is a large input Speed				
			State 1 (Start Detection due to Deviation from Exp	pected Transmission Input Speed)				
			Criteria 1-1: if ALL conditions are met:					
			During the following Down-shift	(4-3)				
			Time since the start of the apply pressure control	< 1.0 [sec]				
			NOT in multiplex shifting	= TRUE				
			Input Speed - (Output Speed x Gear Ratio of	>= 500 [rpm]				
			gear expected after the shift)	>= 500 [ipin]				
			Input Speed Acceleration	> 5000 [rpm/sec]				
			inpat opod recoloration	for 0.03 [sec]				
			The gear ratio before shift control began is	= TRUE				
			normal (*A)					
			OR					
			The gear ratio at the beginning of the shift is					
			normal (*B)					
			(*A) This condition is met if the following is true:					
			Difference between actual Gear Ratio and	< 4%				
			expected Gear Ratio					
			(*B) This condition is met if the following is true:					
			Difference between actual Gear Ratio and	< 8 [%]				
			expected Gear Ratio	' '				
			Criteria 1-2: if ALL conditions are met:	'				
			During the following Down-shift	(5-4, 5-3)				
			Time since the start of the apply pressure control					

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	N III
		-	Input Speed - (Output Speed x Gear Ratio of	>= 500 [rpm]				
			gear expected after the shift)					
			Input Speed Acceleration	> 5000 [rpm/sec]				
				for 0.03 [sec]				
			The gear ratio at the beginning of the shift	= TRUE				
			indicates 8th gear					
			State 2 (Increment the malfunction counter or wai	it for the shift to complete)				
			Criteria 2-1: if ALL conditions are met:					
			"Time Since State 1" timer	> Time324 (*10) [sec]				
			Criteria 2-2: if condition (A) AND (condition (B) O					
			(A) During the following Down-shift	(4-3)				
			(B) The shift has completed	= TRUE				
			(C) Input Speed - (Output Speed x Gear Ratio of	< 500 [rpm]				
			gear expected after the shift)					
			Criteria 2-3: if condition (A) AND (condition (B) O					
			(A) During the following Down-shift	(5-4, 5-3)				
			(B) The shift has completed	= TRUE				
			(C) Input Speed - (Output Speed x Gear Ratio of	< 500 [rpm]				
			gear expected after the shift)					
			State 3 (Conclude Malfunction Detection and Res	sume Normal Operations)				
			if ALL conditions are met:	T: 400D (\$40) []				
			"Exit Unusual Shifting Test B-2" timer	> Time423B (*10) [sec]		l	4	
			Unusual Shifting Test B-3: Down-shift with En			T	_	
			The TL80SN 8-Speed transmission is equipped w					
			effects of falsely engaged brakes or clutches. How					
			element is falsely engaged, the torque transfer fro					
			brakes will be disrupted. A symptom of such a ma	alfunction is a large input Speed				
			State 1 (Start Detection due to Deviation from Ex	pected Transmission Input Speed)				
			Criteria 1-1: if ALL conditions are met:					
			During the following Down-shift	(8-7, 8-6, 7-6)				
			Time since the start of the apply pressure control	< 1.0 [sec]				
			NOT in multiplex shifting	= TRUE				
			Input Speed - (Output Speed x Gear Ratio of	>= 300 [rpm]				
			gear expected after the shift)	. 550 [ipin]				
			Input Speed Acceleration	> 5000 [rpm/sec]				
				for 0.03 [sec]				
			The gear ratio before shift control began is	= TRUE				
			normal (*A)					
			OR					
			The gear ratio at the beginning of the shift is normal (*B)					
			(*A) This condition is met if the following is true:					
			Difference between actual Gear Ratio and	< 4 [%]				
			expected Gear Ratio	\$ 1 [70]				
			(*B) This condition is met if the following is true:					
			2, This condition is meet the following is true.					
			Difference between actual Gear Ratio and expected Gear Ratio	< 8 [%]				
			State 2 (Increment the malfunction counter or wai	it for the shift to complete)				
			Criteria 2-1: if ALL conditions are met:					
							1	1

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	III
Оуэлен	Code	Description	Criteria 2-2: if condition (A) AND (condition (B) OF	R (C)) are met:			Nequired	+"
			(A) During the following Down-shift	(8-7, 8-6, 7-6)				
			(B) The shift has completed	= TRUE				
			(C) Input Speed - (Output Speed x Gear Ratio of					
				< 500 [iþili]				
			gear expected after the shift)					
			State 3 (Conclude Malfunction Detection and Resu	ume Normal Operations)				
			if ALL conditions are met:					
			"Exit Unusual Shifting Test B-3" timer	> Time857b (*X) [sec]				
			Unusual Shifting Test B-4: Down-shift with Eng	ine Flare (C3 not released)			1	
			The TL80SN 8-Speed transmission is equipped wi				1	
			effects of falsely engaged brakes or clutches. How					
			element is falsely engaged, the torque transfer from					
			brakes will be disrupted. A symptom of such a ma					
			brakes will be disrupted. A symptom of such a ma	illuliction is a large iliput Speed				
			State 1 (Start Detection due to Deviation from Exp	ected Transmission Input Speed)				
			Criteria 1-1: if ALL conditions are met:	/				
				(E 4)				
				(5-4)				
			Time since the start of the apply pressure control	< 1.0 [SeC]				
			NOT in moultinion abigin	TDUE				
			NOT in multiplex shifting	= TRUE				
			Input Speed - (Output Speed x Gear Ratio of	>= 300 [rpm]				
			gear expected after the shift)					
			Input Speed Acceleration	> 5000 [rpm/sec]				
			' '	for 0.03 [sec]				
			The gear ratio at the beginning of the shift is 7th	= TRUE				
			gear	- INGE				
			State 2 (Increment the malfunction counter or wait	for the shift to complete)				
			Criteria 2-1: if ALL conditions are met:					
				> Time54a (*10) [sec]				
			Criteria 2-2: if condition (A) AND (condition (B) OF					
			During the following Down-shift	(5-4)				
			(B) The shift has completed	= TRUE				
			(C) Input Speed - (Output Speed x Gear Ratio of	< 300 [rpm]				
			gear expected after the shift)					
			State 3 (Conclude Malfunction Detection and Resu	ume Normal Operations)				
			if ALL conditions are met:					
			"Exit Unusual Shifting Test B-4" timer	> Time54b (*X) [sec]			_	
			Unusual Shifting Test E: Gear Ratio Malfunction					
			Note: To confirm if a shift ratio is fulfilled, the follow	wing criteria is used:				
			If all of the following conditions are met:					
			During the following shifts	(1-2, 1-3, 1-4, 1-5)				
			5th gear ratio fulfilled at the beginning of the shift	= TRUE				
			for 1.0 sec	- INOL				
				FO [NIm]				
			Input Torque	<= -50 [Nm]				
				OR				
				>= 50 [Nm]				
			Applied Element Command Pressure	> 2.5 [kg/cm^2]				
			If all of the following conditions are met:					
			During the following shifts	(2-8)				
			8th gear ratio fulfilled at the beginning of the shift	= TRUE				
				= IKUE				
			for 1.0 sec					
			Input Torque	<= -50 [Nm]				
				OR				
				>= 50 [Nm]			1	
			1	p. ****g		i i	1	

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description	During the following shifts	(3-7)			Required	Illum.
			7th gear ratio fulfilled at the beginning of the shift	(3-7) = TRUE				
			for 1.0 sec	- INGE				
			Input Torque	<= -50 [Nm]				
			inpat rorquo	OR .				
				>= 50 [Nm]				
			If all of the following conditions are met:	•				
			During the following shifts	(4-6)				
			6th gear ratio fulfilled at the beginning of the shift	= TRUE				
			for 1.0 sec					
			Input Torque	<= -50 [Nm]				
				OR FO (Num)				
			If all af the fall and a sendition and a	>= 50 [Nm]				
			If all of the following conditions are met:	(1 2 1 2 1 4 1 5 2 2 2 4 2 5 4 5				
			During the following shifts	(1-2, 1-3, 1-4, 1-5, 2-3, 2-4, 2-5, 4-5, 4-3, 4-2, 4-1, 2-1, 2-1EB, 1EB-1, 1-				
				1EB)				
			3rd gear ratio fulfilled at the beginning of the shift					
			for 1.0 sec					
			Input Torque	<= -50 [Nm]				
			Proceedings.	OR				
				>= 50 [Nm]				
			Applied Element Command Pressure	> 2.5 [kg/cm^2]				
			(this condition only applies to the following shifts					
			(1-2, 1-3, 1-4, 1-5)					
			If all of the following conditions are met:	T-				
			During the following shifts	(5-6, 5-7, 5-8, 6-5, 6-7, 6-8, 8-7, 8-6,				
			7th accounts 6 della distribution beating to a fifth a shift	8-5, 8-2)				
			7th gear ratio fulfilled at the beginning of the shift for 1.0 sec	= TRUE				
			Input Torque	<= -50 [Nm]				
			Input rorque	OR				
				>= 50 [Nm]				
			If all of the following conditions are met:	55 []				
			During the following shifts	(1-2, 1-3, 1-4, 1-5, 2-3, 2-4, 2-5, 2-1,				
				2-1EB, 1EB-1, 1-1EB)				
			4th gear ratio fulfilled at the beginning of the shift	= TRUE				
			for 1.0 sec					
			Input Torque	<= -50 [Nm]				
				OR SO (N.)				
			Applied Flowert Comment Description	>= 50 [Nm]				
			Applied Element Command Pressure	> 2.5 [kg/cm^2]				
			(this condition only applies to the following shifts (1-2, 1-3, 1-4, 1-5)					
			If all of the following conditions are met:	1				
			During the following shifts	(5-6, 5-7, 5-8, 8-7, 8-6, 8-5)				
			6th gear ratio fulfilled at the beginning of the shift	= TRUE				
			for 1.0 sec					
			Input Torque	<= -50 [Nm]				
				OR				
				>= 50 [Nm]				
			If all of the following conditions are met:					
			During the following shifts	(1-2, 1-3, 1-4, 1-5, 1EB-1, 1-1EB)				
			2nd gear ratio fulfilled at the beginning of the shift	= TRUE				
			for 1.0 sec					

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description	Manufiction Criteria	Tilleshold value	Secondary Farameters	Enable Conditions	Required	Illum.
Cystem	Jour	Description	Input Torque	<= -50 [Nm]			Required	indin.
			Impar rorque	OR (Nill)				
				>= 50 [Nm]				
			Applied Element Command Pressure	> 2.5 [kg/cm^2]				
			(this condition only applies to the following shifts	zio [igrom 2]				
			(1-2, 1-3, 1-4, 1-5)					
			If all of the following conditions are met:		1			
			During the following shifts	(5-6, 5-7, 5-8)	1			
			8th gear ratio fulfilled at the beginning of the shift	= TRUE				
			for 1.0 sec					
			Input Torque	<= -50 [Nm]				
			' '	OR				
				>= 50 [Nm]				
Lateral Acceleration Sensor Signal	P175F	Acceleration Sensor Signal message	The "Longitude/Latitude Acceleration Sensor	= 5 counts	Ignition Voltage	> 9000 [mV] for 3 sec continuously	250 msec	No MIL
(Rolling Count)		Counter Incorrect	Value Alive Rolling Count" CAN signal is not		Ignition Voltage	> 9000 [mV] for 10 [msec]		"Special
			updated for a calibratable number of counts		Battery Voltage	continuously		C"
			consecutively.		Battery Voltage	> 10.2 [V]		
					The TCM has completed the read operation of its	<= 32.0 [V]		
					non-volatile memory			
						(all 4 criteria for 2 [sec] continuously)		
					Diagnostic Service Request to Disable Normal	= NOT PRESENT		
					Communication	= NOT PRESENT		
					U0140 (Lost Communication with Body Control	= NOT DETECTED		
					Module)	= NOT DETECTED		
Tap Up/Down Switch	P1761	Up and Down Shift Switch Signal	The "Platform Transmission Tap Up/Down Switch	= 5 counts	Ignition Voltage	> 9000 [mV] for 3 sec continuously	150 msec	No MIL
(Rolling Count)		Circuit	Status Alive Rolling Count" CAN signal is not		Ignition Voltage	> 9000 [mV] for 10 [msec]		"Special
			updated for a calibratable number of counts		Battery Voltage	continuously		C"
			consecutively.		Battery Voltage	> 10.2 [V]		
					The TCM has completed the read operation of its	<= 32.0 [V]		
					non-volatile memory			
						(all 4 criteria for 2 [sec] continuously)		
					Diagnostic Service Request to Disable Normal	= NOT PRESENT		
					Communication			
					U0140 (Lost Communication with Body Control	= NOT DETECTED		
1 11 0 11 1 0 10 10	DOE 24		1 9 1/1	0.5143	Module)		22	- 1
Ignition Switch Run/Start Position	P2534	Ignition Switch Run/Start Position	Ignition Voltage	< 9 [V]	Battery Voltage	>= 9 [V]	20 sec	1
Circuit		Circuit Low			The TCM is not operating out of a service mode			
					The TCM has completed the read operation of its			
					non-volatile memory			
					CAN Based Engine Controller Run Crank Terminal Status	= Active		
					CAN Based Engine Running Signal	= TRUE		
					U0073 (CAN Bus-OFF)	= NOT DETECTED		
					U0100 (Lost Communication with ECM/PCM "A")	= NOT DETECTED		
					BUS OFF State from CAN controller	= Not Received		
					Receiving ECM CAN frame	= TRUE		
Ignition Switch Run/Start Position	Daeae	Ignition Switch Run/Start Position	Ignition Voltage	> 9 [V]	Battery Voltage	>= 9 [V]	3 sec	1
Circuit	FZ333	Circuit High	Ingrittori voltage	/ 7 [V]	The TCM is not operating out of a service mode	/- 7 [V]	2 SEC	'
Oncult		One Gut Flight			The TCM has completed the read operation of its			
					non-volatile memory			
					CAN Based Engine Controller Run Crank Terminal			
					Status	= Inactive		
					CAN Based Engine Running Signal	= FALSE		
1	l	I	I	I	CAN based Engine Running Signal	- I ALSL		ı

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					U0073 (CAN Bus-OFF)	= NOT DETECTED		
					U0100 (Lost Communication with ECM/PCM "A")	= NOT DETECTED		
					BUS OFF State from CAN controller	= Not Received		
					Receiving ECM CAN frame	= TRUE		
Pressure Control Solenoid "D" Control Circuit (SL3 Solenoid)	P2716	Pressure Control Solenoid "D" Electrical	(*) The first algorithm checks the cumulative sum of the difference of the linear solenoid feedback current and commanded current. This sum, named "sum_je", will be updated on every clock cycle of the microprocessor (10 msec). If the value of the sum becomes greater than a calibrated threshold, a malfunction will be confirmed. ie: Difference of "commanded current" and "feedback current" ie added to "sum_je" every 10 msec sum_je is cleared if at least one of the following conditions are satisfied 1) Enable conditions are not satisfied 2) -50mA = c ie = c 50mA" 3) Sign of ie is changed	> 60000 [mA]	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory Battery Voltage Linear Solenoid Feedback current Solenoid Cut Condition ("Note 3) P2720 (Pressure Control Solenoid "D" Control Circuit Low) P2721 (Pressure Control Solenoid "D" Control Circuit High) Emergency Mode (*4)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) > 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE = NOT DETECTED = NOT DETECTED = NOT ACTIVE	1 to 3 sec cumulatively	1
			OR					l
			ie (*)	> 50 [mA]	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	2 sec	1
			(*) The second algorithm checks the absolute value of the difference of the linear solenoid feedback current and commanded current over time. If the absolute value of the difference of the linear solenoid feedback current and commanded current exceeds a calibrated threshold for a calibrated period of time continuously, a malfunction will be detected.		Battery Voltage Linear Solenoid Feedback current Solenoid Cut Condition ("Note 3) P2720 (Pressure Control Solenoid "D" Control Circuit Low) P2721 (Pressure Control Solenoid "D" Control Circuit High) Emergency Mode ("4)	> 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE = NOT DETECTED = NOT DETECTED = NOT ACTIVE		
			ie : Absolute value of ie ie: Difference between "commanded current" and "feedback current"					

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control Solenoid "D" Control Circuit (SL3 Solenoid)	P2720	Pressure Control Solenoid "D" Control Circuit Low	Linear Solenoid Feedback Current	< 20mA	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	500 msec	1
					Solenoid Cut Condition ("Note 3) P2721 (Pressure Control Solenoid "D" Control	= NOT ACTIVE = NOT DETECTED for [1 sec]		
Pressure Control Solenoid "D" Control Circuit (SL3 Solenoid)	P2721	Pressure Control Solenoid "D" Control Circuit High	Linear Solenoid Feedback Current	>= 1358mA	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	500 msec	1
					P2720 (Pressure Control Solenoid "D" Control Circuit Low)	= NOT DETECTED for [1 sec]		
Pressure Control Solenoid "E" Control Circuit (SL4 Solenoid)	P2725	Pressure Control Solenoid "E" Electrical	(*) The first algorithm checks the cumulative sum of the difference of the linear solenoid feedback current and commanded current. This sum, named "sum_ie", will be updated on every clock cycle of the microprocessor (10 msec). If the value of the sum becomes greater than a calibrated threshold, a malfunction will be confirmed. ie: Difference of "commanded current" and "feedback current" ie added to "sum_ie" every 10 msec sum_ie is cleared if at least one of the following conditions are satisfied 1) Enable conditions are not satisfied 2) -50mA =< ie =< 50mA" 3) Sign of ie is changed	> 60000 [mA]	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory Battery Voltage Linear Solenoid Feedback current Solenoid Cut Condition ("Note 3) P2729 (Pressure Control Solenoid "E" Control Circuit Low) P2730 (Pressure Control Solenoid "E" Control Circuit High) Emergency Mode (*4)	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously) > 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE = NOT DETECTED = NOT DETECTED = NOT ACTIVE	1 to 3 sec cumulatively	1
			OR ie (*)	> 50 [mA]	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	2 sec	1
			(*) The second algorithm checks the absolute value of the difference of the linear solenoid feedback current and commanded current over time. If the absolute value of the difference of the linear solenoid feedback current and		Battery Voltage Linear Solenoid Feedback current Solenoid Cut Condition ("Note 3) P2729 (Pressure Control Solenoid "E" Control Circuit Low)	> 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE = NOT DETECTED		

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description			•		Required	Illum.
			commanded current exceeds a calibrated threshold for a calibrated period of time continuously, a malfunction will be detected.		P2730 (Pressure Control Solenoid "E" Control Circuit High) Emergency Mode (*4)	= NOT DETECTED = NOT ACTIVE		
			ie : Absolute value of ie ie: Difference between "commanded current" and "feedback current"					
Pressure Control Solenoid "E" Control Circuit (SL4 Solenoid)	P2729	Pressure Control Solenoid "E" Control Circuit Low	Linear Solenoid Feedback Current	< 20mA	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	500 msec	1
					Solenoid Cut Condition ("Note 3) P2730 (Pressure Control Solenoid "E" Control Circuit High)	= NOT ACTIVE = NOT DETECTED for [1 sec]		
Pressure Control Solenoid "E" Control Circuit (SL4 Solenoid)	P2730	Pressure Control Solenoid "E" Control Circuit High	Linear Solenoid Feedback Current	>= 1358mA	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	500 msec	1
					P2729 (Pressure Control Solenoid "E" Control Circuit Low)	= NOT DETECTED for [1 sec]		
Pressure Control Solenoid "F" Control Circuit (SL5 Solenoid)	P2734	Pressure Control Solenoid "F" Electrical	sum_ie (*)	> 60000 [mA]	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	1 to 3 sec cumulatively	1
			(*) The first algorithm checks the cumulative sum of the difference of the linear solenoid feedback current and commanded current. This sum, named "sum_ie", will be updated on every clock cycle of the microprocessor (10 msec). If the value of the sum becomes greater than a calibrated threshold, a malfunction will be confirmed.		Battery Voltage Linear Solenoid Feedback current Solenoid Cut Condition ("Note 3) P2738 (Pressure Control Solenoid "F" Control Circuit Low) P2739 (Pressure Control Solenoid "F" Control Circuit High) Emergency Mode ("4)	> 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE = NOT DETECTED = NOT DETECTED = NOT ACTIVE		
			ie: Difference of "commanded current" and "feedback current" ie added to "sum_ie" every 10 msec sum_ie is cleared if at least one of the following conditions are satisfied 1) Enable conditions are not satisfied 2) -50mA = < ie = < 50mA" 3) Sign of ie is changed OR					

Component /	Fault	Monitor Strategy /	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time	MIL
System	Code	Description	1: 10	F0 [A]		00001 101 101 1	Required	Illum.
			ie (*)	> 50 [mA]	Ignition Voltage Battery Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	2 sec	1
			(*) The second algorithm checks the absolute value of the difference of the linear solenoid feedback current and commanded current over time. If the absolute value of the difference of the linear solenoid feedback current and commanded current exceeds a calibrated threshold for a calibrated period of time continuously, a malfunction will be detected. ie : Absolute value of ie		Battery Voltage Linear Solenoid Feedback current Solenoid Cut Condition (*Note 3) P2738 (Pressure Control Solenoid "F" Control Circuit Low) P2739 (Pressure Control Solenoid "F" Control Circuit High) Emergency Mode (*4)	> 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE = NOT DETECTED = NOT DETECTED = NOT ACTIVE		
			ie: Difference between "commanded current" and					
Pressure Control Solenoid "F" Control Circuit (SL5 Solenoid)	P2738	Pressure Control Solenoid "F" Control Circuit Low	"feedback current" Linear Solenoid Feedback Current	< 20mA	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	500 msec	1
					Solenoid Cut Condition (*Note 3) P2739 (Pressure Control Solenoid "F" Control Circuit High)	= NOT ACTIVE = NOT DETECTED for [1 sec]		
Pressure Control Solenoid "F" Control Circuit (SL5 Solenoid)	P2739	Pressure Control Solenoid "F" Control Circuit High	Linear Solenoid Feedback Current	>= 1358mA	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	500 msec	1
					P2738 (Pressure Control Solenoid "F" Control Circuit Low)	= NOT DETECTED for [1 sec]		
Torque Converter Clutch Pressure Control Solenoid Control Circuit (SLU Solenoid)	P2761	Torque Converter Clutch Pressure Control Solenoid Control Circuit/Open	sum_ie (*)	> 60000 [mA]	Battery Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	1 to 3 sec cumulatively	1
			(*) The first algorithm checks the cumulative sum of the difference of the linear solenoid feedback current and commanded current. This sum, named "sum_ie", will be updated on every clock cycle of the microprocessor (10 msec). If the value of the sum becomes greater than a calibrated threshold, a malfunction will be confirmed. ie: Difference of "commanded current" and		Battery Voltage Linear Solenoid Feedback current Solenoid Cut Condition (*Note 3) P2764 (Torque Converter Clutch Pressure Control Solenoid Control Circuit Low) P2763 (Torque Converter Clutch Pressure Control Solenoid Control Circuit High) Emergency Mode (*4)	> 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE = NOT DETECTED = NOT DETECTED = NOT ACTIVE		
			"feedback current" lie added to "sum_ie" every 10 msec					

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			sum_ie is cleared if at least one of the following conditions are saltisfied 1) Enable conditions are not satisfied 2) -50mA =< ie =< 50mA 3) Sign of ie is changed					
			OR ie (*)	> 50 [mA]	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	2 sec	1
			(*) The second algorithm checks the absolute value of the difference of the linear solenoid feedback current and commanded current over time. If the absolute value of the difference of the linear solenoid feedback current and commanded current exceeds a calibrated threshold for a calibrated period of time continuously, a malfunction will be detected. ie : Absolute value of ie : Difference between "commanded current" and		Battery Voltage Linear Solenoid Feedback current Solenoid Cut Condition (*Note 3) P2764 (Torque Converter Clutch Pressure Control Solenoid Control Circuit Low) P2763 (Torque Converter Clutch Pressure Control Solenoid Control Circuit High) Emergency Mode (*4)	> 11 [V] for [> 500 msec] < 1358 [mA] = NOT ACTIVE = NOT DETECTED = NOT DETECTED = NOT ACTIVE		
Torque Converter Clutch Pressure Control Solenoid Control Circuit (SLU Solenoid)	P2763	Torque Converter Clutch Pressure Control Solenoid Control Circuit High	"feedback current" Linear Solenoid Feedback Current	>= 1358mA	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	500 msec	1
					P2764 (Torque Converter Clutch Pressure Control Solenoid Control Circuit Low)	= NOT DETECTED for [1 sec]		
Torque Converter Clutch Pressure Control Solenoid Control Circuit (SLU Solenoid)	P2764	Torque Converter Clutch Pressure Control Solenoid Control Circuit Low	Linear Solenoid Feedback Current	< 20mA	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	500 msec	1
					Solenoid Cut Condition ('Note 3) P2763 (Torque Converter Clutch Pressure Control Solenoid Control Circuit High)	= NOT ACTIVE = NOT DETECTED for [1 sec]		
Torque Converter Clutch (TCC) Enable Solenoid (SL solenoid)	P2769	Torque Converter Clutch Circuit Low	Comparison of SL solenoid Commanded State to Actual State (*) The TCM software does not directly determine the Actual State of the solenoid. This is done by the solenoid driver hardware. The software just reads the state as ON or OFF. The solenoid	Commanded State is "ON"	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	500 msec	2
			driver determines the state is ON at Battery Voltage - 1 [V]		SL Solenoid Command Time elapsed since last solenoid state change	= ON > 10 msec		

Component / System	Fault Code	Monitor Strategy / Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Torque Converter Clutch (TCC) Enable Solenoid (SL solenoid)	P2770	Torque Converter Clutch Circuit High	Comparison of SL solenoid Commanded State to Actual State (*) The TCM software does not directly determine the Actual State of the solenoid. This is done by the solenoid driver hardware. The software just reads the state as ON or OFF. The solenoid	Actual State is "ON" when Commanded State is "OFF"	Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	500 msec	2
			driver determines the state is ON at Battery Voltage - 1 [V]		SL Solenoid Command	= OFF > 10 msec		
CAN Bus-Off	U0073	CAN Bus-OFF	Bus Off malfunction is received from the CAN controller	11 times continuously	Time elapsed since last solenoid state change Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory	> 9000 [mV] for 10 [msec] continuously > 10.2 [V] <= 32.0 [V] (all 4 criteria for 2 [sec] continuously)	10 sec	1
Engine Control Module (ECM)	U0100	Lost Communication with ECM/PCM *A*	CAN frame: "PTEI_Engine_Torque_Status"	= NOT RECEIVED	Ignition Voltage Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory U0073 (CAN Bus-OFF) Diagnostic Service Request to Disable Normal Communication	> 9000 [mV] for 5 sec continuously > 9000 [mV] > 10.2 [V] <= 32.0 [V] (all 4 criteria for 5 [sec] continuously) = NOT DETECTED = NOT PRESENT	4 sec	1
Anti-Lock Brake System (ABS) Module	U0121	Lost Communication with Anti-Lock Brake System (ABS) Control Module	CAN frame: "PPEI_Chassis_General_Status_1"	= NOT RECEIVED	Ignition Voltage Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory U0073 (CAN Bus-OFF) Diagnostic Service Request to Disable Normal	> 9000 [mV] for 5 sec continuously > 9000 [mV] > 10.2 [V] <= 32.0 [V] (all 4 criteria for 5 [sec] continuously) = NOT DETECTED = NOT PRESENT	4 sec	No MIL "Special C"
Body Control Module (BCM)	U0140	Lost Communication with Body Control Module	CAN frame: "PPEI_Platform_Trans_Requests"	= NOT RECEIVED	Communication Ignition Voltage Ignition Voltage Battery Voltage Battery Voltage The TCM has completed the read operation of its non-volatile memory U0073 (CAN Bus-OFF) Diagnostic Service Request to Disable Normal Communication	> 9000 [mV] for 5 sec continuously > 9000 [mV] > 10.2 [V] <= 32.0 [V] (all 4 criteria for 5 [sec] continuously) = NOT DETECTED = NOT PRESENT	4 sec	No MIL "Special C"

Tables

				ATF Ter	nperature]
			< -20 degC	>= -20 degC	>= -10 degC	>= 20 degC	1
			< -20 degC	> -10 degC	> -10 degC < 20 degC		
(*1)	T_GarageFin	Delay Time after Garage Shift Control	50000	8000	2000	1000	[msec]
	T_ShiftFin	Delay Time after Shifting Control	50000	2000	1000	500	[msec]
	T_C1ctrlFin	Delay Time after C1 OFF control	8000	8000	2000	1000	[msec]
	T_C3ctrlFin	Delay Time after C3 OFF control	8000	8000	2000	1000	[msec]
	tmr_inh_GE	Delay Time after Gear Hold function has been activated	50000	2000	1000	500	[msec]

			ATF Tem	nperature	l
			< 40 degC	>= 40 degC]
(*2)	Time_SwOFFfailw	All Window conditions must be met for the following time, continuously	4000	2000	[msec]
	Time_SwONfailw	All Window conditions must be met for the following time, continuously	4000	2000	[msec]
	Time_SwDNFin	Delay Time after shifting to P, R, or N position	7000	3000	[msec]

(*3) otcal_map Calibrated threshold for the calculated heat load sum. Value is determined through linear interpolation of the initial ATF Temperature at Power On..

*4) Emergency Mode

Indicates that a serious malfunction has occurred and the transmission has stopped operating normally. In order to allow continued driving, the transmission will default to a safe operational state which is designed to prevent damage to the powertrain and vehicle occupants. As this condition will affect emissions, the MIL will always be illuminated when emergency mode is active. Also referred to as a failure induced "Limp home" or "Limp in" mode by some manufacturers.

The following tables lists all malfunctions in which an Emergency Mode is entered upon their detection.

DTC	Monitor Description	Emergency Mode
P0563	System Voltage High	3
P0601	Internal Control Module Memory Checksum Error	3
P0602	Control Module Programming Error	3
P0604	Internal Control Module Random Access Memory (RAM) Error	3
P0717	Input/Turbine Speed Sensor "A" Circuit No Signal	3
P0722	Output Speed Sensor Circuit No Signal	2
P0729	Gear 6 Incorrect Ratio	2
P0731	Gear 1 Incorrect Ratio	2
P0732	Gear 2 Incorrect Ratio	2
P0733	Gear 3 Incorrect Ratio	2
P0734	Gear 4 Incorrect Ratio	2
P0735	Gear 5 Incorrect Ratio	2
P0748	Pressure Control Solenoid "A" Electrical	1
P076F	Gear 7 Incorrect Ratio	2
P0776	Pressure Control Solenoid "B" Stuck OFF	2
P0777	Pressure Control Solenoid "B" Stuck ON	2
P0778	Pressure Control Solenoid "B" Electrical	1
P077C	Output Speed Sensor Circuit High	3
P077D	Output Speed Sensor Circuit Low	3
P0798	Pressure Control Solenoid "C" Electrical	1
P07BF	Input/Turbine Speed Sensor "A" Circuit High	3

P07C0	Input/Turbine Speed Sensor "A" Circuit Low	3
P07D9	Gear 8 Incorrect Ratio	2
P0962	Pressure Control Solenoid "A" Control Circuit Low	1
P0963	Pressure Control Solenoid "A" Control Circuit High	1
P0966	Pressure Control Solenoid "B" Control Circuit Low	1
P0967	Pressure Control Solenoid "B" Control Circuit High	1
P0970	Pressure Control Solenoid "C" Control Circuit Low	1
P0971	Pressure Control Solenoid "C" Control Circuit High	1
P0973	Shift Solenoid "A" Control Circuit Low	3
P0974	Shift Solenoid "A" Control Circuit High	3
P170A	Unusual Shifting - SL1 MAX Pressure Failure	2
P170B	Unusual Shifting - SL2 MAX Pressure Failure	2
P170C	Unusual Shifting - SL3 MAX Pressure Failure	2
P170D	Unusual Shifting - SL4 MAX Pressure Failure	2
P170E	Unusual Shifting - SL5 MAX Pressure Failure	2
P2534	Ignition Switch Run/Start Position Circuit Low	3
P2716	Pressure Control Solenoid "D" Electrical	1
P2720	Pressure Control Solenoid "D" Control Circuit Low	1
P2721	Pressure Control Solenoid "D" Control Circuit High	1
P2725	Pressure Control Solenoid "E" Electrical	1
P2729	Pressure Control Solenoid "E" Control Circuit Low	1
P2730	Pressure Control Solenoid "E" Control Circuit High	1
P2734	Pressure Control Solenoid "F" Electrical	1
P2738	Pressure Control Solenoid "F" Control Circuit Low	1
P2739	Pressure Control Solenoid "F" Control Circuit High	1
P2761	Torque Converter Clutch Pressure Control Solenoid Control Circuit/Open	3
P2763	Torque Converter Clutch Pressure Control Solenoid Control Circuit High	3
P2764	Torque Converter Clutch Pressure Control Solenoid Control Circuit Low	3
U0073	CAN Bus-OFF	3
U0100	Lost Communication with ECM/PCM "A"	3

(*) Emergency Mode	Final Gear State
1	3rd or 6th Gear (one might not be possible due to failed component)
2	4th Gear
3	3rd Gear

*5	PLUP_CLOSE_FAIL	= Minimum of the	e following values:		[gf/cm^2]
		1	6290		
			= Maximum of the follow	owing values:	
		2	1	P_RelayV_Keep (*)	
			2	0.8 * 0.576 * P_secLC + 688	

(*) P_RelayV_Keep	LF3	LFX
	900	750

			ATF Tem	nperature	
			< 20 degC	>= 20 degC	
*6	T_SLUFull	Time since SLU Pressure met PLUP_CLOSE_FAIL (*5) criteria	10	3	[sec]

*8 gearRpm = Input Speed - Output Speed x I_gear (*9)

*9 TimeTrp_B This timer is calculated based on input torque

						OilTemp [degC]			Ì	
				~-20	-19 ~ -1	0 ~ 19	20-64	65 ~	1	
10			< -10	5000	3000	2000	1000	800	1	
-			-10 ~ 40	5000	3000	3000	1900	1000	1	
	Time_failA_up1 [msec]	Input Torque [Nm]	40 ~ 100	5000	3000	1000	800	600	1	
			100 ~ 250	5000	3000	1000	500	300	1	
			> 250	5000	3000	1000	500	300	1	
			< -10	5000	1400	1200	1000	800	1	
			-10 ~ 40	5000	1600	1400	1200	1100	1	
	Time_failA_down1 [msec]	Input Torque [Nm]	40 ~ 100	5000	1600	1400	1200	1100	1	
			100 ~ 250	5000	1600	1400	1200	1100	1	
			> 250	5000	1600	1400	1200	1000	1	
			NO_S0 (*)	5000	1600	1400	1200	1000	1	
			NO_S1	5000	1600	1400	1200	1000	1	
	Time_failA_down2 [msec]	Output Speed [rpm]	NO_S2	5000	1600	1400	1200	1000	1	
			NO_S3	5000	1400	1200	1000	800	1	
			NO_S4	5000	1400	1200	1000	800	1	
			NO_S0 (*)	3000	2800	2500	2200	2000	1	
			NO_S1	3000	2800	2500	2200	2000	1	
	Time_failA_down2 C [msec]	Output Speed [rpm]	NO S2	3000	2800	2500	2200	2000	1	
			NO_S3	3000	2800	2500	2200	2000	1	
			NO_S4	3000	2800	2500	2200	2000	1	
	Time54a [msec]	msec	-	5000	500	200	100	100	1	
	Time857a [msec]	msec	-	5000	500	200	100	100	1	
	Time423a [msec]	msec	-	5000	500	200	100	100	1	
	Time324 [msec]	msec	-	5000	500	200	100	100	1	
	Time fail B [msec]	msec	-	5000	2000	500	500	500	1	
	Time324b [msec]	msec	-	2000	2000	1000	1000	1000	1	
	Time423b [msec]	msec	-	2000	2000	1000	1000	1000	1	
	Time857b [msec]	msec	-	2000	2000	1000	1000	1000	1	
	Time54b [msec]	msec	-	2000	2000	1000	1000	1000	1	
	(*)	During Upshifts [rpm] NO_S0 1200	NO_S1 2400	NO_S2 3600	NO_S3 4800	NO_S4 6000]			
		During Downshifts [rp					_			
		NO_S0	NO_S1	NO_S2	NO_S3	NO_S4				
		750	1500	2500	3750	5250	J			
		During the following U	Jp-shifts]	
	flare_fail_up [rpm]	6-7	6-8	3-4	3-5	4-5	7-8	All others	remarks	
		300	300	500	500	500	300	500	for LFX	
		500	500	1000	1000	1000	500	1000	for LF3	
:	Time_PSLdrain [msec]	LF3 1500	LFX 500]						
3	Difference_Temp_Map	Engine Off Time	1 0	1	2	3	4	5	6	7+

Temp Difference 43 43 43 43 43 43 43 4
--

*14	OT_Sw_det [degC]	LF3	LFX
		-10	40

Notes

Note 1 CARB has given approval for the diagnostic algorithm P0592 (System Voltage Low Supply 2) (*Note 1) to be detected and confirmed by the vehicle electrical charging system. The TCM treats this as a Type C diagnostic and stores a service DTC when this malfunction is confirmed. Additionally, the TCM has an algorithm to detect when the System Voltage is critically low (< 9 [V]), and is no longer capable of functioning normally. Below this critically low voltage threshold, it is necessary to disable some diagnostics based on this algorithm, due to the effect a low voltage condition has on the ability of the TCM to control the transmission. Therefore, the TCM relies on the vehicle charging system to illuminate the MIL and alert the driver to this low voltage condition.

Note 2 These malfunctions relate to invalid CAN signals, which are transmitted by the ECM. The components from which these signals are derived are diagnosed by the ECM, which will store an emissions related DTC code, and illuminate the MIL, as necessary when a malfunction related

Note 3 Solenoid Cut Condition

When an ISO26262 Functional Safety related malfunction occurs, the TCM performs a Solenoid Cut, which cuts all current to the solenoids as a safe state reaction, putting the transmission into a default state (3rd or 7th gear, depending on vehicle speed).

Note 4 Quick Stop Detection Flag

This flag is intended to prevent misdetection of any malfunctions which could be caused by air in the ATF pick-up due to high gravitational forces. This flag will be set to TRUE if the conditions necessary for Quick Stop Detection are met. It is sufficient to say this flag will only become TRUE if the driver is braking heavily and the vehicle is rapidly decelerating. At all other times the value of this flag will be FALSE.

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold /alue	Secondary Malfunction		able ditions	R	Time Required	Mil Illum.
Transmission Control Module (TCM)	P0601	Transmission Electro-Hydraulic Control Module Read Only Memory	Incorrect program/calibrations checksum	= TRUE	Boolean				>= 5	Fail Counts	One Trip
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0601 ECM: None				
Transmission Control Module (TCM)	P0603	Transmission Electro-Hydraulic Control Module Long-Term Memory Reset	Non-volatile memory (static or dynamic) checksum failure at Powerup	= TRUE	Boolean				Runs Contino		One Trip
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0603 ECM: None				
Transmission Control Module (TCM)	P0604	Transmission Electro-Hydraulic Control Module Random Access Memory	RAM Read/Write Failure (Single Word)	= TRUE	Boolean				>= 5	Fail Counts	One Trip
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0604 ECM: None		= 16	Sample Counts	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				Run: Contino		One Trip
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P062F ECM: None				
High Side Driver 1	P0658	Actuator Supply Voltage Circuit Low	The HWIO reports a low voltage (open or ground short) error flag	= TRUE	Boolean				>= 4 out of 6	Fail Counts Sample Counts	One Trip
						P0658 Status is not	= Th On	t Failed is Key or Fault ctive			
						High Side Driver 1 Or	=	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 Tab 19 in supporting	°C						Two Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
			If TCM substrate temp to power up temp Δ	Refer to Table 20 in °C supporting documents						- 7		
			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						Out of	3750	Sample Counts (100ms loop)	
			temp. Non-continuous (intermittent) fail conditions will delay resetting fail counter until						>=	700	Pass Counts (100ms loop)	
			counter until						Out of	875	Sample Counts (100ms loop)	
					Engine Torque Signal Valid Accelerator Position Signal	=	TRUE TRUE	Boolean Boolean				
					Valid Ignition Voltage Lo Ignition Voltage Hi	>= <=	8.5996094 31.990234	Volts Volts				
					Engine Speed Lo Engine Speed Hi Engine Speed is within the	>= <=	400 7500	RPM RPM				
					allowable limits for Brake torque active Below describes the brake	>=	5 FALSE	Sec				1
					torque entry criteria Engine Torque	>=	90	N*m				
					Throttle Transmission Input Speed Vehicle Speed	>= <= <=	30.000305 200 8	Pct RPM Kph				
					Transmission Range Transmission Range PTO	≠ ≠ =	Park Neutral Not Active					
					Set Brake Torque Active TRUE if above conditions are met for:	>=	7	sec				
					Below describes the brake torque exit criteria Brake torque entry criteria	=	Not Met					
					Clutch hydraulic pressure	≠	Clutch Hydraulic Air Purge					
					Clutch used to exit brake torque active	=	Event CeTFTD_e _C3_RatlE					
					The above clutch pressure is greater than this value for one	>=	nbl 600	kpa				
					loop Set Brake Torque Active FALSE if above conditions are met for:	>=	20	Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
_,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	- 300		2.200		P0667 Status is	Test Failed	4000	
				Disable Conditions:		TCM: P0658, P0668, P0669, P06AD, P06AE, P0716, P0712, P0713, P0717, P0722, P0723, P0962, P0963, P0966, P0967, P0970, P0971, P215C, P2720, P2721, P2729, P2730		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Transmission Control Module (TCM)	P0668	TCM internal temperature (substrate) thermistor failed at a low voltge	Type of Sensor Used If TCM Substrate Temperature Sensor = Direct Proportional and Temp If TCM Substrate Temperature Sensor = Indirect Proportional and Temp	= CeTFTI_e_Vol tageDirectProp <= -249 °C >= -249 °C				Two Trips
			Either condition above will satisfy the fail conditions				>= 60 Fail Timer (Sec	()
			410 (411 661 441 441		Ignition Voltage Lo Ignition Voltage H Engine Speed Lo Engine Speed H Engine Speed is within the allowable limits for	Test Failed This Koy		
				Disable Conditions:		Active		
Transmission Control Module (TCM)	P0669	TCM internal temperature (substrate) thermistor failed at a high voltage	Type of Sensor Used If TCM Substrate Temperature Sensor = Direct Proportional and Temp If TCM Substrate Temperature Sensor = Indirect Proportional and Temp	= CeTFTI_e_Vol tageDirectProp >= 249 °C <= 249 °C				Two Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction		Enable Conditions			Tir Requ		Mil Illum
			Either condition above will satisfy							>=	60	Fail Timer (Sec)	
			the fail conditions			Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= <= >= <= >=	8.5996094 31.990234 400 7500 5	Volts Volts RPM RPM Sec				
						P0669 Status is		Test Failed This Key On or Fault Active					
						For Hybrids, below conditions must also be met Estimated Motor Power Loss Estimated Motor Power Loss greater than limit for time Lost Communication with Hybrid Processor Control Module	>= >= =	0 0 FALSE	kW Sec				
					Diaghla	Estimated Motor Power Loss Fault		FALSE	D0702				
					Disable Conditions:		ECM: None	, P0/17, P0/22	, P0/23				
Transmission Control Module (TCM)	P06AC	TCM Power-up Temp Sensor Circuit Range/Performance	If TCM power-up temp to substrate temp Δ	Refer to Table 20 in °C supporting documents									Two Tri
			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 Note: table reference temp = to the median temp of trans oil temp,							>= Out	3000	Fail Counts (100ms loop) Sample Counts	-
			substrate temp and power up temp. Non-continuous (intermittent) fail conditions will delay resetting fail							of >=	3750 700	(100ms loop) Pass Counts	-
			counter until							Out of	875	(100ms loop) Sample Counts (100ms loop)	
						Engine Torque Signal Valid Accelerator Position Signal Valid Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi	= = >= <= >= <=	TRUE TRUE 8.5996094 31.990234 400 7500	Boolean Boolean Volts Volts RPM RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thr V	eshold alue	Secondary Malfunction		Enable Conditions			Tin Requ		Mil Illum
						Engine Speed is within the	>=	5	Sec				
						allowable limits for			300				
						Brake torque active	=	FALSE					
						Below describes the brake							
						torque entry criteria		00	N18				
						Engine Torque		90	N*m				
						Throttle	>=	30.000305	Pct RPM				
						Transmission Input Speed Vehicle Speed	<=	200 8					
						Transmission Range	<= ≠	o Park	Kph				
						Transmission Range	<i>+</i> ≠	Neutral					
						PTO		Not Active					
						Set Brake Torque Active	_	NOT ACTIVE					
						TRUE if above conditions are	>=	7	sec				
						met for:	/-	,	300				
						Below describes the brake							-
						torque exit criteria							
						Brake torque entry criteria	=	Not Met					
						Brake torque entry enteria	_	Clutch					
								Hydraulic					
						Clutch hydraulic pressure	≠	Air Purge					
								Event					
								CeTFTD_e					
						Clutch used to exit brake	=	_C3_RatlE					
						torque active	_	nbl					
						The above clutch pressure is		1161					
						greater than this value for one	>=	600	kpa				
						loop		000	кра				
						Set Brake Torque Active							
						FALSE if above conditions are	>=	20	Sec				
						met for:		20	500				
						1110(1011							
								Test Failed					
						P06AC Status is	≠	This Key					
						1 00/10 01444010	,	On or Fault					
								Active					
					Disable	MIL not Illuminated for	TCM: P0658	P0668 P0669	P06AD				
					Conditions:			16, P0712, P071					
								23, P0962, P096					
								70, P0971, P2150					
							P2721, P272		-,,				
								,					
							ECM: P010	1, P0102, P0103	. P0106.				
								08, P0171, P017					
								01, P0202, P020					
								06, P0207, P0208					
								02, P0303, P0304					
								07, P0308, P040					
				<u> </u>									L
ransmission Control Module (TCM)	P06AD	TCM power-up thermistor circuit	Power Up Temp	<= -59	°C					>=	60	Fail Time (Sec)	Two Tri
anomiosi oomioi woddic (1 OW)	1 30/10	voltage low	1 ower op remp	-57		1 10 17 5		0.500/00:	17.11		00	Tun Tille (JCC)	1
						Ignition Voltage Lo	>=	8.5996094	Volts				
						Ignition Voltage Hi	<=	31.990234	Volts				
						Engine Speed Lo	>=	400	RPM				
						Engine Speed Hi	<=	7500	RPM				
	1 1			ı		Engine Speed is within the	ı	_		1			1
						allowable limits for	>=	5	Sec				1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					P06AD Status is	Test Failed This Key On or Fault Active		
					For Hybrids, below conditions must also be met Estimated Motor Power Loss Estimated Motor Power Loss greater than limit for time Lost Communication with Hybrid Processor Contro Module	td		
				Disab Condition		r TCM: P0716, P0717, P0722, P0723		
Transmission Control Module (TCM)	P06AE	TCM power-up thermistor circuit voltage high	Power Up Temp	>= 164 °C	Ignition Voltage Lo Ignition Voltage H Engine Speed Lo Engine Speed is within the allowable limits for	D >= 400 RPM	>= 60 Fail Time (Sec	Two Trips
				Disab Condition		r TCM: None : ECM: None		
Transmission Fluid Temperature Sensor (TFT)	P0711	Trans Fluid Temp Sensor Circuit Range/Performance	If transmission oil temp to substrate temp Δ If transmission oil temp to power up temp Δ	supporting documents Refer to Table				Two Trips
			Both conditions above required to increment fail counter Note: table reference temp = to the median temp of trans oil temp, substrate temp and power up temp.				>= 3000 Fail Counts (100ms loop) Out 3750 Sample Count (100ms loop)	S

Component/ Fault Monitor Strategy System Code Description		Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Time Conditions Required				IIIu			
			Non-continuous (intermittent) fail conditions will delay resetting fail						>=	700	Pass Counts	
			counter until							700	(100ms loop)	
									Out	875	Sample Counts	;
									of	8/5	(100ms loop)	
					Faring Transco Class I Vallet		TDUE	Deeleen	-			-
					Engine Torque Signal Valid Accelerator Position Signal	=	TRUE	Boolean				
					Valid	=	TRUE	Boolean				
					Ignition Voltage Lo	>=	8.5996094	Volts				
					Ignition Voltage Hi	<=	31.990234	Volts				
					Engine Speed Lo	>=	400	RPM				
					Engine Speed Hi	<=	7500	RPM				
					Engine Speed is within the	>=	5	Sec				
					allowable limits for Brake torque active	=	FALSE					
					Below describes the brake	=	FALSE					1
					torque entry criteria							
					Engine Torque	>=	90	N*m				
					Throttle	>=	30.000305	Pct				
					Transmission Input Speed	<=	200	RPM				
					Vehicle Speed	<=	8	Kph				1
					Transmission Range	≠	Park					
					Transmission Range	≠	Neutral					1
					PTO Set Brake Torque Active	=	Not Active					
					TRUE if above conditions are	>=	7	sec				
					met for:	-	,	300				
					Below describes the brake							1
					torque exit criteria							
					Brake torque entry criteria	=	Not Met					1
							Clutch					
					Clutch hydraulic pressure	≠	Hydraulic					1
							Air Purge Event					
							CeTFTD_e					
					Clutch used to exit brake	=	_C3_RatlE					
					torque active		nbl					1
					The above clutch pressure is							1
					greater than this value for one	>=	600	kpa				1
					loop							1
					Set Brake Torque Active							1
					FALSE if above conditions are	>=	20	Sec				1
					met for:							1
							Test Failed					1
					P0711 Status is	≠	This Key					1
					1 07 11 Status is	7	On or Fault					1
							Active					1
									1			
									1			1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Cystoni		Secretaria	J. 100 rds		sable MIL not Illuminated for	or TCM: P0658, P0669, P0669, P06AD, s: P06AE, P0716, P0712, P0713, P0717, P0722, P0723, P0962, P0963, P0966, P0967, P0970, P0971, P215C, P2720, P2721, P2729, P2730 ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Transmission Fluid Temperature Sensor (TFT)	P0712	Transmission fluid temperature thermistor failed at a low voltage	Type of Sensor Used If Transmission Fluid Temperature Sensor = Direct Proportional and Temp If Transmission Fluid Temperature Sensor = Indirect Proportional and	= CeTFTI_e_Vol tageDirectProp <= -74 °C >= -74 °C				Two Trips
			Temp Either condition above will satisfy the fail conditions		Ignition Voltage I	0.500/004 Volto	>= 60 Fail Time (Sec	:)
					Ignition Voltage I Ignition Voltage I Engine Speed I Engine Speed is within the allowable limits for	Hi <= 31.990234 Volts o >= 400 RPM Hi <= 7500 RPM e or >= 5 Sec Test Failed		
					P0712 Status	Active		
					For Hybrids, below condition must also be m Estimated Motor Power Los Estimated Motor Power Los greater than limit for tim Lost Communication wi Hybrid Processor Contr Modu Estimated Motor Power Los Fau	et s >= 0 kW s >= 0 Sec e		
				Di Condi		or TCM: P0716, P0717, P0722, P0723 s: ECM: None		
Transmission Fluid Temperature Sensor (TFT)	P0713	Transmission fluid temperature thermistor failed at a high voltage	Type of Sensor Used If Transmission Fluid Temperature Sensor = Direct Proportional and Temp	тадер⊪естнор >= 174 °С				Two Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions			Mil Illum.		
Cystem	Oouc	Description	If Transmission Fluid Temperature		uiuo			001141110110		1	Requ		
			Sensor = Indirect Proportional and	<= 174	°C								
			Temp										
			Either condition above will satisfy								/0	F-11 Time (C)	
			the fail conditions							>=	60	Fail Time (Sec)	
						Ignition Voltage Lo	>=	8.5996094	Volts				1
						Ignition Voltage Hi	<=	31.990234	Volts				
						Engine Speed Lo	>=	400	RPM				
						Engine Speed Hi	<=	7500	RPM				
						Engine Speed is within the		_	Coo				
						allowable limits for	>=	5	Sec				
								Tool Follad					
								Test Failed					
						P0713 Status is	≠	This Key					
								On or Fault					
								Active					
					Disable	MIL not Illuminated for	TCM: P0713	, P0716, P0717,	P0722,				
					Conditions:	DTC's:							
							ECM: None						
	1	Pressure Control (PC) Solenoid A	The 100/10 are sale as level'd							1			Two Tri
iable Bleed Solenoid (VBS)	P0961	Control Circuit Rationality Test	The HWIO reports an invalid	= TRUE	Boolean					>=	4.4	Fail Time (Sec)	
		(Line Pressure VBS)	voltage (out of range) error flag										
										out	_	Sample Time	
										of	5	(Sec)	
						Ignition Voltage	>=	8.5996094	Volts				1
						Ignition Voltage	<=	31.990234	Volts				
						Engine Speed	>=	400	RPM				
						Engine Speed	<=	7500	RPM				
						Engine Speed is within the		-	C				
						allowable limits for	>=	5	Sec				
					Disable	MIL not Illuminated for	TCM: None						
					Conditions:	DTC's:							
							ECM: None						
		Pressure Control (PC) Solenoid A	The LIMIO reports a law voltage										One Tr
riable Bleed Solenoid (VBS)	P0962	Control Circuit Low Voltage	The HWIO reports a low voltage	= TRUE	Boolean					>=	1.5	Fail Time (Sec)	
		(Line Pressure VBS)	(ground short) error flag										
										out	1.875	Sample Time	
										of	1.073	(Sec)	
						Ignition Voltage	>=	8.5996094	Volts				
						Ignition Voltage	<=	31.990234	Volts				
						Engine Speed	>=	400	RPM				
						Engine Speed	<=	7500	RPM				
						Engine Speed is within the	> -	5	Sec				
						allowable limits for	>=	э	36r	1			1
										1			1
					Disable	MIL not Illuminated for	TCM: None			1			1
					Conditions:	DTC's:							
							ECM: None						
		Pressure Control (PC) Solenoid A											Two Trip
			The HM/IO reports a high voltage										
riable Bleed Solenoid (VBS)		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)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions			Ti Req	me uired	Mil Illum.
2,20	-									out	5	Sample Time	
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	<= >= <=	8.5996094 31.990234 400 7500 5	Volts Volts RPM RPM Sec	of		(Sec)	
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						
Variable Bleed Solenoid (VBS)	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
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <=	8.5996094 31.990234 400 7500 5	Volts Volts RPM RPM Sec	out of	0.375	Sample Time (Sec)	
					Disable Conditions:	P0966 Status is not MIL not Illuminated for DTC's:		This Key On or Fault Active					
		Descours Control (DC) Colonsid D					ECM: None						On a Trin
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
						Ignition Voltage Ignition Voltage Ignition Voltage Engine Speed Engine Speed is within the allowable limits for	<= >=	8.5996094 31.990234 400 7500 5 Test Failed This Key On or Fault Active	Volts Volts RPM RPM Sec	out of	0.375	Sample Time (Sec)	
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
Variable Bleed Solenoid (VBS)		Pressure Control (PC) Solenoid C Control Circuit Low Voltage (C456/CBR1 VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE	Boolean			2011410113		>=	0.3	Fail Time (Sec)	One Trip
		(C ISS, CSIV. VSS)								out of	0.375	Sample Time (Sec)	
						P0970 Status is not	=	Test Failed This Key On or Fault Active					
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed	>= <= >= <=	8.5996094 31.990234 400 7500	Volts Volts RPM RPM				
						Engine Speed is within the allowable limits for	>=	5	Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None						
Variable Bleed Solenoid (VBS)	P0971	Pressure Control (PC) Solenoid C Control Circuit High Voltage	The HWIO reports a high voltage	= TRUE	Boolean					>=	0.3	Fail Time (Sec)	One Trip
, , , , , , , , , , , , , , , , , , , ,	(C456/CBR1 VBS)	(open or power short) error flag							out of	0.375	Sample Time		
					P0971 Status is not	=	Test Failed This Key On or Fault Active		OI		(Sec)		
					Ignition Voltage Ignition Voltage Engine Speed Engine Speed	>= <= >= <=	8.5996094 31.990234 400 7500	Volts Volts RPM RPM					
						Engine Speed is within the allowable limits for	>=	5	Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: 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	1.2	Fail Time (Sec)	One Trip
								Took Follow		of	1.5	(Sec)	_
					P0973 Status is not	=	Test Failed This Key On or Fault Active						
					Ignition Voltage Ignition Voltage Engine Speed Engine Speed	>= <= >= <=	8.5996094 31.990234 400 7500	Volts Volts RPM RPM					
						Engine Speed is within the allowable limits for	>=	5	Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
Shift Solinoid	P0974	Shift Salanaid & Cantral Circuit High	The HWIO reports a high voltage (open or power short) error flag	= TRU	Disable Conditions:	MIL not Illuminated for DTC's:				>= out	1.2	Fail Time (Sec) Sample Time	Two Trips
						P0974 Status is no	t =	Test Failed This Key On or Fault Active		of		(Sec)	-
						Ignition Voltage	>=	8.5996094	Volts				
						Ignition Voltage	? <=	31.990234	Volts				
						Engine Speed Engine Speed Engine Speed is within the allowable limits for	<=	400 7500 5	RPM RPM Sec				
					Disable Conditions:	MIL not Illuminated for DTC's:	r 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	= TRU	E Boolean					>= out of	1.2 1.5	Sec Sec	One Trip
						P0977 Status is no	t =	Test Failed This Key On or Fault Active		U			
						Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	<= <= d >= d <=	8.5996094 31.990234 400 7500 5	Volts Volts RPM RPM				
					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 Neuti									One Trip

Component/	Fault	Monitor Strategy	Malfunction			shold	Secondary Malfunction		Enable			Ti		Mil
System	Code	Description	Criteria		Va	lue	Malfunction		Conditions			Req	uired	Illum.
			The following events must occur Sequentially Initial Engine speed	<=	50	RPM					>=	0.25	Enable Time	
			Then Engine Speed Between Following										(Sec)	:
			Cals Engine Speed Lo Hist	>=	50	RPM								
			Engine Speed Hi Hist	<=	480	RPM					>=	0.06875	Enable Time (Sec)	
			Then Final Engine Speed Final Transmission Input Speed	>=	525 100	RPM RPM					>=	1.25	Fail Time (Sec)	
			, was reasonable in part epoce				DTC has Ran this Key Cycle? Ignition Voltage Lo Ignition Voltage Hi Ignition Voltage Hyst High (enables above this value) Ignition Voltage Hyst Low (disabled below this value)	>=	FALSE 6 31.999023 5	Boolean V V V				
							Transmission Output Speed		90	rpm				
							P1915 Status is	5 ≠	Test Failed This Key On or Fault Active					
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0722, : ECM: None	P0723					
	1	Ignition Switch Run/Start Position	TCM Run crank active (based on								-			One Trip
Transmission Control Module (TCM)	P2534	Circuit Low	voltage thresholds below) Ignition Voltage High Hyst (run	=	FALSE	Boolean						200	Fail Counts	
			crank goes true when above this value)		5	Volts					>=	280	(25ms loop)	
			Ignition Voltage Low Hyst (run crank goes false when below this value)		2	Volts					Out of	280	Sample Counts (25ms loop)	
			,				ECM run/crank active status available	=	TRUE	Boolean				
							ECM run/crank active status	=	TRUE	Boolean				
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None						
						Conditions.	5103.	ECM: None						
Transmission Control Module (TCM)	P2535	Ignition Switch Run/Start Position Circuit High	TCM Run crank active (based on voltage thresholds below)	=	TRUE	Boolean								One Trip
			Ignition Voltage High Hyst (run crank goes true when above this value)		5	Volts					>=	280	Fail Counts (25ms loop)	
			Ignition Voltage Low Hyst (run crank goes false when below this value)		2	Volts					Out of	280	Sample Counts (25ms loop)	
			,				ECM run/crank active status available	=	TRUE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions			ime uired	Mil Illum.
Cystem	Out	Везоприон		Ontona	Talao	ECM run/crank active status	=	FALSE	Boolean	1100	unou	
					Disable	MIL not Illuminated for	TCM: None					
					Conditions:	DTC's:						
							ECM: None					
Variable Bleed Solenoid (VBS)	P2714	Pressure Control (PC) Solenoid D	Fail Case 1	Case: Steady State 2nd Gear						†		One Trip
Valiable bleed Soleliold (VbS)	P2/14	Stuck Off [CB26]		Case. Steady State 2110 Geal						DI C .		
				0 "	100 5511					Please Se Table 5 Fo	e r Neutral Timer	
				Gear slip	>= 400 RPM					>= Neutral Tin		
				Intrusive test:						Cal		
				commanded 3rd gear								
					Table Based							
				If attained Gear = 3rd for Time	Time Please >= see Table 2 in (a)							
				If Above Conditions have been	Documents							
				met								
				Increment 2nd gear fail count						>= 3	2nd Gear Fail	
				· ·							Count or	
				and CB26 Fail Count						>= 14	CB26 Fail	
			Fail Case 2	Case: Steady State 6th Gear							Count	1
										Please Se		
				Gear slip	>= 400 RPM					>= Table 5 Fo		
										Cal	(000)	
				Intrusive test: commanded 5th gear								
				If attained Gear = 5th For Time	Time Please Enable Time							
				If attained Gear = 5th For Time	>= see Table 2 in (Sec)							
					Documents							
				If Above Conditions have been							5th Gear Fail	
				met, Increment 5th gear fail counter						>= 3	Count	
											or	
				and CB26 Fail Count						>= 14	CB26 Fail Count	
						PRNDL State defaulted	=	FALSE	Boolean		Jount	1
						inhibit RVT		FALSE	Boolean			
						IMS fault pending indication TPS validity flag	= =	FALSE TRUE	Boolean Boolean			
						Hydraulic System Pressurized	=	TRUE	Boolean			
						Minimum output speed for RVT	>=	0	RPM			
						A OR B						
						(A) Output speed enable	>=	36	RPM			
						(B) Accelerator Pedal enable Common Enable Criteria	>=	0.5004883	Pct			
						Ignition Voltage Lo	>=	8.5996094	Volts			
						Ignition Voltage Hi Engine Speed Lo	<=	31.990234	Volts RPM			
	ı	I	I		I	Engine speed Lo	>=	400	KPIVI	I		I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
·					Engine Speed H Engine Speed is within the allowable limits for Throttle Position Signal valid HSD Enabled Transmission Fluid Temperature Input Speed Sensor faul Output Speed Sensor faul Default Gear Option is no	>= 5 Sec = TRUE Boolean = TRUE Boolean >= -6.65625 °C t = FALSE Boolean t = TRUE		
				Disabl Conditions		F TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
ariable Bleed Solenoid (VBS) P2720 Control C	Pressure Control (PC) Solenoid D Control Circuit Low (CB26 VBS)	The HWIO reports a low voltage (ground short) error flag	= TRUE Boolean	D2770 Clabra in another	Test Failed This Key	>= 0.3 Fail Time (Sec) out 0.375 Sample Time (Sec)	One Trip	
					P2770 Status is no Ignition Voltage Ignition Voltage Engine Speec Engine Speed is within the allowable limits for	On or Fault Active = 8.5996094 Volts = 31.990234 Volts = 400 RPM = 7500 RPM		
				Disabl Conditions				
Variable Bleed Solenoid (VBS)	P2721	Pressure Control (PC) Solenoid D Control Circuit High (CB26 VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE Boolean			>= 0.3 Fail Time (Sec) out 0.375 Sample Time (Sec)	
					P2721 Status is no	Test Failed This Key On or Fault Active		
					Ignition Voltage Ignition Voltage Engine Speed	e <= 31.990234 Volts		

Compo	onent/	Fault	Monitor Strategy		Malfunction	Th	reshold	Secondary Malfunction		Enable		Tim		Mil Illum.
Syst	tem	Code	Description	+	Criteria		Value	Engine Speed	d <=	7500	RPM	Requi	red	mum.
								Engine Speed is within the	2					
								allowable limits for		5	Sec			
								anovable in the re-						
							Disable							
							Conditions	: DTC's						
									ECM: None					
			Pressure Control (PC) Solenoid E	F-11 O 1										One Trip
Variable Bleed Solen	noid (VBS)	P2723	Stuck Off	Fail Case 1	Case: Steady State 1st Gear									One mp
			Stuck On									Please See		
					O II-	400	DDM					Table 5 For	Neutral Timer	
					Gear slip	>= 400	RPM					>= Neutral Time	(Sec)	
												Cal		
					Intrusive test:									
					commanded 2nd gear									
						Please refe								
					If attained Gear ≠ 2nd for Time	>= Table 3 i Supportir	Shift Time (Sec)							
						Documen	e Is							
					If Above Conditions have been		-						4.0 5.1	
					met, Increment 1st gear fail							>= 3	1st Gear Fail	
					counter								Count	
													or	
					and C1234 fail counter							>= 14	C1234 Clutch	
				Fail Case 2	Case: Steady State 2nd Gear								Fail Count	
				rall Case 2	Case: Steady State 2110 Geal							Please See		
												Table 5 For	Neutral Timer	
					Gear slip	>= 400	RPM					>= Neutral Time	(Sec)	
												Cal	. ,	
					Intrusive test:									
					commanded 3rd gear									
						Please refe	r to							
					If attained Gear ≠ 3rd for Time	>= I able 3 I	Shift Time (Sec)							
						Documen	y te							
					If Above Conditions have been	Documen	13							
					met, Increment 2nd gear fail							>= 3	2nd Gear Fail	
					counter								Count	
													or	
					and C1234 fail counter							>= 14	C1234 Clutch	
				F-11.0: 0									Fail Count	-
				Fail Case 3	Case: Steady State 3rd Gear							Diagon Con		
												Please See Table 5 For	Neutral Timer	
					Gear slip	>= 400	RPM					>= Neutral Time	(Sec)	
												Cal	(000)	
					Intrusive test:									
					commanded 4th gear									
						Please refe								
					If attained Gear ≠ 4th for time	Table 3 i								
				1		Supportin	y							1
					If About Conditions have be	Documen	IS							
					If Above Conditions have been met, Increment 3rd gear fail							>= 3	3rd Gear Fail	
					met, increment ard gear fail counter							>= 3	Count	
					Counter								or	
•			1	•				•	•			•	٥.	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Tir Requ		Mil Illum.
		•	and C1234 fail counter				>= 14	C1234 Clutch Fail Count	
			Fail Case 4 Case: Steady State 4th Gear						•
			Gear slip	>= 400 RPM			>= Please See Table 5 For Neutral Time	Neutral Timer	
			Intrusive test: commanded 5th gear	Please refer to			Cal		
			If attained Gear = 5th For Time	Table 3 in					
			If Above Conditions have been met, Increment 4th gear fail counter	Documents			>= 3	4th Gear Fail Count	
			and C1234 fail counter				>= 14	or C1234 Clutch Fail Count	
					PRNDL State defaulted inhibit RVT IMS fault pending indication TPS validity flag	= FALSE Boolean = FALSE Boolean = FALSE Boolean = TRUE Boolean			
					Hydraulic System Pressurized Minimum output speed for RVT	= TRUE Boolean >= 0 RPM			
					A OR B (A) Output speed enable (B) Accelerator Pedal enable	>= 36 RPM >= 0.5004883 Pct			
					Common Enable Criteria Ignition Voltage Lo Ignition Voltage Hi	>= 8.5996094 Volts <= 31.990234 Volts			
					Engine Speed Lo Engine Speed Hi Engine Speed is within the	>= 400 RPM <= 7500 RPM >= 5 Sec			
					allowable limits for Throttle Position Signal valid HSD Enabled Transmission Fluid	= TRUE Boolean			
					Temperature Input Speed Sensor fault Output Speed Sensor fault				
					Default Gear Option is not present	- TRUE			
				Disable		TCM: P0716, P0717, P0722, P0723,			
				Conditions	DTC's:				
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0309, P0301, P0301			
						P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Т	hreshold Value	Secondary Malfunction	Enable Conditions			Time Required	Mil 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	= TRUE	Boolean					·	One Tri
			Pressure Command Status Primary Offgoing Clutch Pressure Command Status	pressuriz Clutch exh comman	aust						
			Range Shift Status	Initial Ch	tch						
			Attained Gear Slip If the above conditions are true increment appropriate Fail 1 Timers Below:	<= 40	RPM						
			fail timer 1 (2-6 shifting with throttle) fail timer 1	>= 0.5 >= 0.5	sec sec						
			(2-6 shifting without throttle) fail timer 1 (3-5 shifting with throttle)	>= 0.5	sec						
			fail timer 1 (3-5 shifting without throttle) fail timer 1	>= 0.5	sec						
			(4-5 shifting with throttle) fall timer 1 (4-5 shifting without throttle)	>= 0.5 >= 0.5	sec						
			fail timer 1 (4-6 shifting with throttle) fail timer 1	>= 0.5	sec						
			(4-6 shifting without throttle) If Attained Gear Slip is Less than	>= 0.5	sec				Total Fa = (Fail 1 2) See I Timers I	l + Fail Enable for Fail	
			Above Cal Increment Fail Timers						Refer Suppo Table Fail Til	ence orting 15 for	
			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 Ge	
			3rd gear fail counter						>= 3	Fail Counter From 3rd Gea	
			4th gear fail counter						>= 3	Fail Counter From 4th Gea	
			total fail counter			TUT Enable temperature	>= -6.65625	°C	>= 5	Total Fail Counter	
						Input Speed Sensor fault Output Speed Sensor fault	>= -6.65625 = FALSE = FALSE	Boolean Boolean			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illun
System	Code	Description	Onteria	value	Command / Attained Gear		Roquiree	
					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			
					nos Enasion			
				Disable	MIL not Illuminated for	r TCM: P0716, P0717, P0722, P0723,		
				Conditions:		: P182E		
						ECM: P0101, P0102, P0103, P0106,		
						P0107, P0108, P0171, P0172, P0174,		
						P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300,		
						P0301, P0302, P0303, P0304, P0305,		
						P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E	Fail Case 1 Case: 5th Gear					One T
7allable bleed Solellold (VbS)	P2724	Stuck On (Steady State)	Case. Sili Geal	Table Based				
				value Bleace				
			Max Delta Output Speed	Refer to Table pm/sec				
			Hysteresis					
				supporting documents				
				Table Based				
				value Please				
			Min Delta Output Speed	Refer to Table				
			Hysteresis	>= 23 in rpm/sec				
				supporting				
				documents				
				Table Based				
				Time Please				
			If the Above is True for Time	Refer to Table >= 17 in Sec				
				supporting				
				documents				
			Intrusive test:					
			(C35R clutch exhausted)					
			Gear Ratio	<= 1.484985352				
			Gear Ratio If the above parameters are true	>= 1.343017578				
			ii tile above parameters are tide				>= 1.1 F	ail Timer (Sec)
								Fail Count in
							>= 3	5th Gear
								OR Total Fail
							>= 3	Counts
			Fail Case 2 Case: 6th Gear					

Component/ System		Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				ime uired	Mil Illum	
			Max Delta Output Speed Hysteresis	Table Based value Please Refer to Table		-						
			Min Delta Output Speed Hysteresis	23 in supporting documents								
			If the Above is True for Time	I / In								
			Intrusive test: (CB26 clutch exhausted) Gear Ratio Gear Ratio									
			If the above parameters are true						>=	1.1	Fail Timer (Sec)	
									>=	3	Fail Count in 6th Gear	
									>=	3	OR Total Fail Counts	
					PRNDL State defaulted inhibit RVT IMS fault pending indication	= = =	FALSE FALSE FALSE	Boolean Boolean Boolean				
					output speed TPS validity flag HSD Enabled Hydraulic_System_Pressurize	>= = =	0 TRUE TRUE	RPM Boolean Boolean				
					d A OR B	=	TRUE	Boolean				
					(A) Output speed enable (B) Accelerator Pedal enable Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo	>= <=	36 0.5004883 8.5996094 31.990234 400	Nm Nm Volts Volts RPM				
					Engine Speed Ed Engine Speed Hi Engine Speed is within the	>= <= >=	7500 5	RPM Sec				
					allowable limits for if Attained Gear=1st FW Accelerator Pedal enable		5.0003052	Pct				
					if Attained Gear=1st FW Engine Torque Enable	>=	20	Nm				
					if Attained Gear=1st FW Engine Torque Enable Transmission Fluid		8191.875	Nm				
					Temperature Input Speed Sensor fault	>=	-6.65625 FALSE	°C Boolean				
					Output Speed Sensor fault Default Gear Option is not present	=	FALSE TRUE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	Citteria	Disabl Conditions	e MIL not Illuminated fo	r TCM: P0716, P0717, P0722, P0723, : P182E	Kedulleu	
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2729	Pressure Control (PC) Solenoid E Control Circuit Low (C1234 VBS)	The HWIO reports a low voltage (ground short) error flag				>= 0.3 Fail Time (Sec) out 0.375 Sample Time (Sec)	One Trip
					P2729 Status is no	Test Failed This Key = On or Fault Active	UI (SEL)	-
					Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits fo	<pre></pre>		
				Disabl Conditions				
Variable Bleed Solenoid (VBS)	P2730	Pressure Control (PC) Solenoid E Control Circuit High (C1234 VBS)	The HWIO reports a high voltage (open or power short) error flag	= TRUE Boolean			>= 0.3 Fail Time (Sec) out 0.375 Sample Time	One Trip
					P2730 Status is no	Test Failed t = This Key On or Fault Active	of 0.373 (Sec)	_
					Ignition Voltage Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits fo	<pre></pre>		
				Disabl Conditions				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	1	hreshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
/ariable Bleed Solenoid (VBS)	P2763	Torque Converter Clutch Pressure High	The HWIO reports a low pressure/high voltage (open or power short) error flag	= TRUI	Boolean					>= out	4.4	Fail Time (Sec)	Two Tri
										of	5	(Sec)	
						P2763 Status is not	=	Test Failed This Key On or Fault Active					
						Ignition Voltage	>=	8.5996094	Volt				
						Ignition Voltage Engine Speed	<= >=	31.990234 400	Volt RPM				
						Engine Speed	<=	7500	RPM				
						Engine Speed is within the allowable limits for	>=	5	Sec				
						High Side Driver Enabled	=	TRUE	Boolean				
					Disable	MIL not Illuminated for	TCM: P0658	. P0659					
					Conditions:	DTC's:		, 1 000 /					
							ECM: None						
	Torque Converter Clutch Pressure Control Solenoid Control Circuit Low	The HWIO reports a high pressure/low voltage (ground short) error flag	= TRUI	Boolean					>=	4.4	Fail Time (Sec)	One Tr	
										out of	5	Sample Time (Sec)	
						P2764 Status is not	=	Test Failed This Key On or Fault Active				, ,	
						Ignition Voltage Ignition Voltage Engine Speed	>= <= >=	8.5996094 31.990234 400	Volt Volt RPM				
						Engine Speed	<=	7500	RPM				
						Engine Speed is within the allowable limits for	>=	5	Sec				
						High Side Driver Enabled	=	TRUE	Boolean				
					Disable Conditions:			, P0659					
							ECM: None						
Communication	U0073	Controller Area Network Bus Communication Error	CAN Hardware Circuitry Detects a Low Voltage Error	= TRUI						>= Out	62	Fail counts (≈ 10 seconds) Sample Counts	
			Delay timer	>= 0.112	5 sec	Caphilimatic		2		of	70	(≈ 11 seconds)	
						Stabilization delay Ignition Voltage Ignition Voltage Power Mode	>= >= <= =	3 8.5996094 31.990234 Run	sec Volt Volt				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	DTC's:			
Communication	U0100	Lost Communications with ECM (Engine Control Module)	CAN messages from ECM are not received by the TCM	= TRUE Boolean Disable Conditions:	DTC's:	>= 8.5996094 Volt <= 31.990234 Volt = Run	>= 12 sec	One Trip

17 OBDG03 TCM Common 6 Speed T43 Supporting Tables

Supporting Documents

Table 1

Axis	0.00	64.00	128.00	192.00	256.00	320.00	384.00	448.00	512.00	N*m
Curve	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	RPM

Table 2

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

Table 3

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

Table 4

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

Table 5

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

Table 6

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

Table 7

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

Table 8

17 OBDG03 TCM Common 6 Speed T43 Supporting Tables

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

Table 9

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

Table 10

Axis	-40.00	-20.00	0.00	30.00	110.00	٥С
Curve	3.10	1.90	1.10	0.80	0.60	Sec

Table 11

Axis	-40.00	-20.00	0.00	30.00	110.00	οС
Curve	1.80	1.20	0.60	0.40	0.30	Sec

Table 12

Axis	-40.00	-20.00	0.00	30.00	110.00	٥С
Curve	2.20	1.40	0.90	0.70	0.40	Sec

Table 13

Axis	-40.00	-20.00	0.00	30.00	110.00	٥С
Curve	2.60	1.00	0.50	0.30	0.20	Sec

Table 14

Axis	-40.00	-20.00	0.00	30.00	110.00 °C	
Curve	3.00	0.90	0.50	0.30	0.20 Se	C

Table 15

Axis	-40.00	-30.00	-20.00	-10.00	0.00	10.00	20.00	30.00	40.00	٥С
Curve	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Sec

17 OBDG03 TCM Common 6 Speed T43 Supporting Tables

Table 16

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

Table 17

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

Table 18

Axis	-40.10	-40.00	-20.00	0.00	30.00	60.00	100.00	149.00	149.10	٥С
Curve	256.00	50.00	45.00	40.00	34.00	25.00	20.00	20.00	256.00	٥С

Table 19

Axis	-40.10	-40.00	-20.00	0.00	30.00	60.00	100.00	149.00	149.10	٥С
Curve	256.00	50.00	45.00	40.00	34.00	25.00	20.00	20.00	256.00	٥С

Table 20

Axis	-40.10	-40.00	-20.00	0.00	30.00	60.00	100.00	149.00	149.10	С
Curve	256.00	10.00	8.00	8.00	8.00	8.00	8.00	8.00	256.00 0	С

Table 21

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

Table 22

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

Table 23

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

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thr	eshold alue		Secondary Malfunction		Enable Conditions			Tim Requi		Mil Illum.
Transmission Control Module (TCM) Acceleration Sensor	1	The lateral accleration signal is stuck at a low magnitude out of range because of a low circuit	Lateral accleration magnitude	>=	-3.85	g's				Conditions		>=	105	seconds	Special No MIL
			Lateral accleration magnitude is within the range above for	>=	120	Sec						out of	120	sample	_
								Lateral accleration magnitude Lateral accleration magnitude is within the range above for	>= >=	-3.85 105	g's Sec				
								Sensor Type	=	Voltage Directional Proportion ate					
								Transmission Type	=	Clutch to Clutch Transmissi on					
								Lateral acceleration sensor circuit low diagnostic enable Battery Voltage Battery Voltage	= <= >=	TRUE 31.99902 9	Boolean Volts Volts				
								Battery voltage is within the allowable limits for Ignition Voltage Ignition Voltage		0.1 31.99902 9	Sec Volts Volts				
								Service Fast Learn (SFL) Mode Ignition voltage and SFL conditions met for	= >=	FALSE	Boolean Sec				
						Co	Disable inditions:	MIL not Illuminated for	TCM: If calii (U0073, U0		te the MIL				
									ECM: None						
Transmission Control Module (TCM) Acceleration Sensor	C1250	The lateral accleration signal is stuck at a high magnitude out of range because of a high circuit	Lateral accleration magnitude	>=	3.85	g's						>=	105	seconds	Special No MIL
			Lateral accleration magnitude is within the range above for	>=	120	Sec						out of	120	sample	
								Lateral accleration magnitude Lateral accleration magnitude is within the range above for	>= >=	3.85 105 Voltage	g's Sec				
								Sensor Type	=	Directional Proportion ate Clutch to					
								Transmission Type Lateral acceleration sensor	=	Clutch Transmissi on					
								circuit high diagnostic enable	=	TRUE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			reshold /alue		Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
							Disable Conditions:	Battery Voltage Battery Voltage Battery voltage is within the allowable limits for Ignition Voltage Ignition Voltage Service Fast Learn (SFL) Mode Ignition voltage and SFL conditions met for	<pre> <=</pre>	31.99902 9 0.1 31.99902 9 FALSE 0.1	Volts Volts Sec Volts Volts Boolean Sec		
Transmission Control Module (TCM)	C1251	The lateral accleration signal is stuck at a high magnitude in range	Lateral accleration magnitude Lateral accleration magnitude is within the range above for	<= >= >=	3.85 0.53 120	g's g's Sec			Edwi. None				Special No MIL
			within the tange doore to					Lateral accleration magnitude Lateral accleration magnitude Lateral accleration magnitude is within the range above for Diagnostic shifting override command	<= >= >= =	3.85 0.53 90 FALSE	g's g's Sec Boolean		
								Attained Gear State Attained Gear Slip Transmission Type	= <=	1st through 6th 100 Clutch to Clutch	RPM		
								High Side Driver 1 On Vehicle Speed Lateral acceleration stuck in range diagnostic enable Battery Voltage Battery Voltage Battery voltage is within the allowable limits for	= >= = <= >= >=	Transmissi on TRUE 15 TRUE 31.999023 9 0.1	Boolean kph Boolean Volts Volts Sec		
								Ignition Voltage Ignition Voltage Service Fast Learn (SFL) Mode Ignition voltage and SFL conditions met for	<= >= = >=	31.999023 9 FALSE 0.1	Volts Volts Boolean Sec		

Component/	Fault Code	Monitor Strategy	Malfunction Criteria		Threshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
System	Code	Description	Criteria		Disable Conditions:	MIL not Illuminated for	(P0716, P07	rated to illumina 17, P0721, P07 20, P077B, P07	22, P0723,		кед	uirea	mum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1 Substrate Temperature	>= 146.3	296875 °C					>=	5	Fail Time (Sec)	One Trip
			Fail Case 2 Substrate Temperature Ignition Voltage Note: either fail case can set the		50 °C 18 Volts					>=	2	Fail Time (Sec)	-
			DTC			Ignition Voltage Lo Ignition Voltage H Substrate Temp Lo Substrate Temp H Substrate Temp Betweer Temp Range for Time	>= i <= >=	8.5996094 31.990234 0 170 0.25 Test Failed This Key On or Fault Active	Volts Volts °C °C Sec				-
					Disable Conditions:								
Transmission Input Speed Sensor (TISS)	P0716	Input Speed Sensor Performance	Transmission Input Speed Sensor Drops	>= 1	350 RPM					>=	0.8	Fail Time (Sec)	One Trip
						Engine Torque is Engine Torque is Engine Speec Engine Speec Engine Speed is within the allowable limits for Vehicle Speed is Throttle Position is	>= <= >= >= >=	0 8191.875 400 7500 5 10	N*m N*m RPM RPM Sec Kph Pct				
						Transmission Input Speed is The previous requirement has been satisfied for		0	RPM Sec				
						The change (loop to loop) ir transmission input speed is The previous requirement has	S	8191.875 0	RPM/Loop Sec				
						been satisfied for Throttle Position Signal Valic Engine Torque Signal Valic Ignition Voltage Ignition Voltage	= = = >=	TRUE TRUE 8.5996094 31.990234	Boolean Boolean Volts Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	Cineria	value	P0716 Status is no	Test Failed This Koy	кецинец	num.
				Disabl Conditions		TCM: P0717, P0752, P0973, P0974 ECM: P0101, P0102, P0103, P0121, P0122, P0123		
Transmission Input Speed Sensor (TISS)	P0717	Input Speed Sensor Circuit Low Voltage	Fail Case 1 Transmission Input Speed is	s < 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		Controller uses a single power supply for the speed sensors			
			input opecution		Engine Torque is Engine Torque is Vehicle Speec Engine Torque Signal Valic Ignition Voltage Ignition Voltage Engine Speec Engine Speec Engine Speed is within the allowable limits for	<pre><= 8191.875 N°m >= 16 Kph = TRUE Boolean >= 8.5996094 Volts <= 31.990234 Volts >= 400 RPM <= 7500 RPM >= 5 Sec Test Failed This Koy</pre>		
				Disabl Conditions				
Transmission Output Speed Sensor (TOSS)	P0722	Output Speed Sensor Circuit Low Voltage	Transmission Output Speed Sensor Raw Speed				>= 3.75 Fail Time (Sec	One Trip
					P0722 Status is no	Test Failed This Key On or Fault Active		
					Transmission Input Speed Check	= TRUE Boolean		
					Engine Torque Check Throttle Positior Transmission Fluic Temperature	>= 8.0001831 Pct		
					Disable this DTC if the PTO is active	= 1 Boolean		
					Engine Torque Signal Valio Throttle Position Signal Valio Ignition Voltage is Ignition Voltage is	= TRUE Boolean >= 8.5996094 Volts <= 31.990234 Volts		
I		l		1	Engine Speed is	>= 400 RPM		I

Component/	Fault	Monitor Strategy	Malfunction			eshold	Secondary	<u> </u>	Enable				me	Mil
System	Code	Description	Criteria	_	Va	alue	Malfunction		Conditions	RPM	-	Req	uired	Illum.
							Engine Speed is Engine Speed is within the	<=	7500					
							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					
							Range Shift Status	≠	shift	ENUM				
							OR		completed					
									Park or					
							Transmission Range is		Neutral					
							Engine Torque is Engine Torque is	>= <=	8191.75 8191.75	N*m N*m				
							Engine Torque Condition 2 Engine Torque is	>=	35	N*m				
							Engine Torque is		8191.75	N*m				
							The Transmission Input Speed							
							(TIS) Check is TRUE, if either							
							of the two following conditions are TRUE							
							TIS Check Condition 1							
							Transmission Input Speed is	>=	1000	RPM				
							Transmission Input Speed is	<=	8191	RPM				
							TIS Check Condition 2							
							Engine Speed without the	>=	3200	RPM				
							brake applied is Engine Speed with the brake							
							applied is	>=	3200	RPM				
							Engine Speed is Controller uses a single power	<=	8191	RPM				
							supply for the speed sensors	=	1	Boolean				
							Powertrain Brake Pedal is Valid	=	TRUE	Boolean				
							· and							
						Disable Conditions:		TCM: P071	5, P0717, P0723	3				
						Conditions:	DIC S.	ECM: P010	1, P0102, P0103	3, P0121,				
	1							P0122, P01						
Transmission Output Speed Sensor (TOSS)	P0723	Output Speed Sensor Circuit Intermittent	Transmission Output Speed Sensor Raw Speed	>=	105	RPM					>=	0.2	Enable Time (Sec)	One Trip
			Output Speed Delta	<=	8191	RPM					>=	0	Enable Time	
						** ***						-	(Sec) Output Speed	
			Output Speed Drop	>	650	RPM					>=	1.5	Drop Recovery	
			AND										Fail Time (Sec)	
1	1	I	I	ı			I	ı			1			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illun
			Transmission Range is	= Driven range (R,D)					
				(K,D)				-	
					Range_Disable	= FALSE S	ee Below		
					OR				
					Neutral_Range_Enable	= TRUE S	ee Below		
					And	TDUE	na Dalam		
					Neutral_Speed_Enable are TRUE concurrently	= TRUE S	ee Below		
					Transmission_Range_Enable	= TRUE S	ee Below		
					Transmission_Input_Speed_E		ee Below		
					nable No Change in Transfer Case				
					Range (High <-> Low) for	>= 5	Seconds		
					3 (3 ,	Test Failed			
					P0723 Status is not	_ This Key			
					1 0/23 Status is not	On or Fault Active			
						Active			
					Disable this DTC if the PTO is active	= 1	Boolean		
					Ignition Voltage is	>= 8.5996094	Volts		
					Ignition Voltage is	<= 31.990234	Volts		
					Engine Speed is Engine Speed is	>= 400 <= 7500	RPM RPM		
					Engine Speed is within the	>= 5	Sec		
					allowable limits for Enable_Flags Defined Below		300		_
					Eliable_Flags Delilled Below				
					Transmission_Input_Speed_E				
					nable is TRUE when either TIS Condition 1 or TIS Condition 2				
					is TRUE:				
					TIC Condition 1 is TDUE asked				
					TIS Condition 1 is TRUE when both of the following conditions	>= 0 En	able Time		
					are satsified for	,	(Sec)		
					Input Speed Delta	<= 4095 >= 500	RPM RPM		
					Raw Input Speed	>= 500	RPIVI		
					TIS Condition 2 is TRUE when				
					ALL of the next two conditions are satisfied				
					Input Speed	= 0	RPM		
					A Single Power Supply is used	= TRUE	Boolean		
					for all speed sensors				
					Neutral_Range_Enable is				
					TRUE when any of the next 3				
					conditions are TRUE Transmission Range is	= Neutral	ENUM		
					Transmission Range is	= Neutral Reverse/N	LIVOIVI		
					Transmission Range is		ENUM		
			l l		1	Transitonal	I		I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
Cyotom	3000	2000ption	oriu	- 6140			Neutral/Dri			
					Transmission Range is	=	Ve Transitions	ENUM		
							Transitiona 			
					And when a drop occurs					
					Loop to Loop Drop of	>	650	RPM		
					Transmission Output Speed is					
					Range_Disable is TRUE when					
					any of the next three					
					conditions are TRUE Transmission Range is	=	Park	ENUM		
					Transmission Range is	_	Park/Rever	LIVOIVI		
					Transmission Range is	=	se	ENUM		
							Transitonal			
					Input Clutch is not	=	ON (Fully Applied)	ENUM		
							FF : **/			
					Neutral_Speed_Enable is TRUE when All of the next					
					three conditions are satsified	>	1.5	Seconds		
					for					
					Transmission Output Speed	>	130	RPM		
					The loop to loop change of the	<	20	RPM		
					Transmission Output Speed is		20			
					The loop to loop change of the					
					Transmission Output Speed is	>	-10	RPM		
					Transmission_Range_Enable					
					is TRUE when one of the next six conditions is TRUE					
					Transmission Range is	=	Neutral	ENUM		
							Reverse/N			
					Transmission Range is	=	eutral Transitiona	ENUM		
							Neutral/Dri			
					Transmission Range is	=	ve Transitiona	ENUM		
							rransiliona 			
							Table			
							Based Time			
					Time since a driven range		Please	Coo		
					(R,D) has been selected	>=	Refer to	Sec		
							Table 21 in			
							supporting documents			
					Transmission Output Speed	>=	500	RPM		
					Sensor Raw Speed Output Speed when a fault					
					was detected	>=	500	RPM		
	1 1			ı	Ī	1			ı	ı

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				ime quired	Mil Illum.
- Cystem	Code	Securitaria	onen.	Disable Conditions:	MIL not Illuminated for		3, P0974, P0976 1, P0102, P0103					
Torque Converter Clutch (TCC)	P0741	TCC System Stuck OFF	TCC Pressure	>= 750 Kpa		0122,101			>=	2	Enable Time (Sec)	Two Trips
			Either Condition (A) or (B) Must be Met	Refer to Table								
			(A) TCC Slip Error @ TCC On Mode	>= 1 in RPM Supporting Documents					>=	5	Fail Time (Sec)	
			(B) TCC Slip @ Lock On Mode If Above Conditions Have been						>=	5	Fail Time (Sec)	
			Met, and Fail Timer Expired, Increment Fail Counter						>=	2	TCC Stuck Off Fail Counter	
					TCC Mode		On or Lock					
					Ignition Voltage Lo	>=	8.5996094	Volts				
					Ignition Voltage H		31.990234	Volts RPM				
					Engine Speed Engine Speed		400 7500	RPM RPM				
					Engine Speed is within the							
					allowable limits for		5	Sec				
					Engine Torque Lo		50	N*m				
					Engine Torque H		8191.875	N*m				
					Throttle Position Lo	>=	8.0001831	Pct				
					Throttle Position H	<=	99.998474	Pct				
					2nd Gear Ratio Lo	>=	2.6710205	Ratio				
					2nd Gear Ratio High 3rd Gear Ratio Lo		3.072998 1.7130127	Ratio Ratio				
					3rd Gear Ratio High		1.9709473	Ratio				
					4th Gear Ratio Lo	>=	1.3150635	Ratio				
ı					4th Gear Ratio High	<=	1.5129395	Ratio				
ı					5th Gear Ratio Lo	>=	0.9300537	Ratio				
					5th Gear Ratio H		1.0699463	Ratio				
					6th Gear Ratio Lo	>=	0.6900635	Ratio				
					6th Gear Ratio High Transmission Fluid		0.7939453	Ratio				
					Temperature Lo	>=	-6.664063	°C				
					Transmission Fluid		400	20				
					Temperature H		130	°C				
					PTO Not Active	=	TRUE	Boolean				
					Engine Torque Signal Valid	=	TRUE	Boolean				
					Throttle Position Signal Valid		TRUE	Boolean				
					Dynamic Mode	=	FALSE	Boolean				
					1		Test Failed					
					P0741 Status is	≠	This Key					
					1 37 11 3 3 4 4 5	Í ,	On or Fault					
					1		Active					
1					1							
1		1										

Component/	Fault Code	Monitor Strategy Description	Malfunction Criteria		Th	reshold /alue		Secondary Malfunction		Enable Conditions	·			ime quired	Mil Illum
System	Code	Description	Criteria	\vdash		v alue	Disable	MIL not Illuminated for	TCM: P071		P0723		Kec	_l uneu	illum
						С	onditions:		P0742, P27		,10723,				
									ECM: P010	01, P0102, P010	3, P0106,				
										08, P0171, P017					
										01, P0202, P020					
										06, P0207, P020					
										02, P0303, P030					
									P0306, P03	07, P0308, P040	11, P042E				
orque Converter Clutch (TCC)	D0742	TCC System Stuck ON	TCC Slip Speed	1 >-	-50	RPM									One T
rque converter clutch (TCC)	P0/42	TCC System Stuck ON	TCC Slip Speed TCC Slip Speed		-50 13	RPM									One i
			Too Silp Speed	-	13	IXI IVI						>=	2	Fail Time (Sec)	
			If Above Conditions Have been	1									2	Tall Tille (Sec)	
			Met, and Fail Timer Expired,									>=	6	Fail Counter	
			Increment Fail Counter										_		
								TCC Mode	=	Off					
								Enable test if Cmnd Gear =			Dooloon				
				1				1stFW and value true	=	1	Boolean				1
				1				Enable test if Cmnd Gear =	=	0	Boolean				1
				I				2nd and value true							1
				1				Engine Speed Hi		6000	RPM				1
								Engine Speed Lo	>=	500	RPM				
								Vehicle Speed HI	<=	511	KPH				
								Vehicle Speed Lo	>=	1	KPH				
								Engine Torque Hi	<=	8191.875	Nm				
								Engine Torque Lo	>= ≠	80	Nm				
								Current Range Current Range		Neutral Reverse	Range Range				
								Transmission Sump	<i>+</i>	Keverse					
								Temperature	<=	130	°C				
								Transmission Sump							
								Temperature	>=	18	°C				
								Throttle Position Hyst High	>=	5.0003052	Pct				
								AND							
								Max Vehicle Speed to Meet		0	KDII				
								Throttle Enable	<=	8	KPH				
								Once Hyst High has been met,							
								the enable will remain while	>=	2.0004272	Pct				
								Throttle Position							
								Disable for Throttle Position	>=	75	Pct				
								Disable if PTO active and	=	1	Boolean				
								value true		1	Daalaan				
								Disable if in D1 and value true Disable if in D2 and value true	=	1 1	Boolean Boolean				
								Disable if in D3 and value true	=	1	Boolean				
								Disable if in D4 and value true		1	Boolean				
								Disable if in D5 and value true		1	Boolean				
								Disable if in MUMD and value		•					
								true	=	1	Boolean				
				1				Disable if in TUTD and value		4	Deal				1
				I				true	=	1	Boolean				
				I				4 Wheel Drive Low Active	=	FALSE	Boolean				1
				1				Disable if Air Purge active and	=	0	Boolean				1
				1				value false	=						1
				I				RVT Diagnostic Active	=	FALSE	Boolean				
				1				Ignition Voltage	>=	8.5996094	V				1
				I				Ignition Voltage	<=	31.990234	V				
		1		1				Vehicle Speed	<=	511	KPH				1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				ime Juired	Mil Illum.
					Engine Speed	>=	400	RPM				
					Engine Speed Engine Speed is within the		7500	RPM				
					allowable limits for		5	Sec				
					Engine Torque Signal Valid	=	TRUE	Boolean				
					Throttle Position Signal Valid	=	TRUE	Boolean				
							Test Failed					
					P0742 Status is	<i>≠</i>	This Key On or Fault					
							Active					
				Disa				, P0723,				
				Conditio	s: DTC's	P0741, P276	53, P2764					
						ECM: DO10	1, P0102, P010	2 D0104				
							1, P0102, P010. 08, P0171, P017					
							01, P0202, P020					
							06, P0207, P020					
							02, P0303, P030 07, P0308, P040					
						1 0300, 1 030	77, 1 0300, 1 040	71, 1 042L				
ode 2 Multiplex Valve	P0751	Shift Solenoid Valve A Stuck Off	Commaned Gear Slip	>= 400 RPM								Two Tri
			Commanded Gear	= 1st Lock rpm								
			Gear Ratio	<= 1.484985352					>=	0.3	Fail Tmr	
			Gear Ratio	>= 1.343017578					=	5	Fail Counts	
			If the above parameters are true								Neutral Timer	
									<i>≠</i>	0	(Sec)	
									>=	0.3	Fail Timer (Sec))
									>=	8	Counts	
					Ignition Voltage Lo	>=	8.5996094	Volts				
					Ignition Voltage H Engine Speed Lo	<= >=	31.990234 400	Volts RPM				
					Engine Speed H	<=	7500	RPM				
					Engine Speed is within the	>=	5	Sec				
					allowable limits for		Ü	000				
					Transmission Fluid Temperature	>=	-6.65625	°C				
					'		Range					
					Range Shift State	=	Shift	ENUM				
							Completed					
					TPS OF	>=	0.5004883	%				
						>=	36	RPM				
					Output Speed Throttle Position Signal Valid	_	TRUE	Boolean				
					from ECN	_	IKUE	DUURAII				
					Engine Torque Signal Valid from ECM, High side driver is	=	TRUE	Boolean				
					enabled		INUE	DUURAII				
					High-Side Driver is Enabled		TRUE	Boolean				
					Input Speed Sensor faul		FALSE	Boolean				
		l			Output Speed Sensor faul	=	FALSE	Boolean	1			1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
- Cystem	Codo			- 3100	Default Gear Option is not present	- TRUE		
				Disable Conditions		TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Mode 2 Multiplex Valve	P0752	Shift Solenoid Valve A Stuck On	Gear Box Slip Commanded Gear Commanded Gear has Achieved 1st Locked OR 1st Free-Wheel OR 2nd with Mode 2 Sol. Commanded On If the above parameters are true Command 4th Gear once Output Shaft Speed If Gear Ratio And Gear Ratio	t = 3rd Gear = TRUE Boolean t <= 800 RPM	Ignition Voltage Lo Ignition Voltage He Ignition Voltage He Engine Speed Le Engine Speed He Engine Speed He Ingine Speed Speed Speed Speed Speed Sensor fault Ingut Speed Sensor fault Ingine Speed Sp	<pre></pre>	Please Refer to Table 16 in Neutral Timer Supporting (Sec) Documents >= 1.5 Fail Timer (Sec) >= 5 Counts	One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
2,2				Disable Conditions:	MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723, P182E	- 1	
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Mode 2 Multiplex Valve	P0756	Shift Solenoid Valve B Stuck Off	Fail Case 1 Commanded Gea	r = 1st Locked			Diagon Defer	One Tri
			Gear Box Sli	>= 400 RPM			>= Please Refer to Table 5 in Neutral Timer Supporting (Sec) Documents	
			Intrusive Shift to 2n Commanded Gear Previou Gear Rati Gear Rati	s = 1st Locked Gear <= 3.015991211 >= 2.728027344				
			If the above parameters are true				>= 1 sec	
					Ignition Voltage Lo Ignition Voltage H	>= 8.5996094 Volts i <= 31.990234 Volts	>= 3 counts	_
					Engine Speed Lo Engine Speed H Engine Speed is within the	>= 400 RPM i <= 7500 RPM		
					allowable limits for	r >= 5 Sec		
					Output Speed OR TPS	R		
					Range Shift State	Range		
					Transmission Fluid Temperature			
					High-Side Driver is Enabled Throttle Position Signal Valid	t = TRUE Boolean		
					from ECM	1 = TRUE Boolean		
					Input Speed Sensor fauli Output Speed Sensor fauli Default Gear Option is not	t = FALSE Boolean		
					preseni	t I		
				Disable Conditions:		TCM: P0716, P0717, P0722, P0723, : P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0206, P0204, P0206, P0206		
						P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		

Component/ System	Fault Code	Monitor Strategy Description	Ma	alfunction Criteria		Thres Val	shold	Secondary Malfunction		Enable Conditions			Tim Requ		Mil Illum.
Variable Bleed Solenoid (VBS)	P0776	Pressure Control (PC) Solenoid B Stuck Off [C35R]	Eail Caso 1	Case: Steady State 3rd Gear									1		One Trip
		Stuck Oil [C35K]		Commanded Gear Gearbox Slip		3rd 400	Gear RPM					to		Neutral Timer	
			Com	nmand 4th Gear once Output Shaft Speed If Gear Ratio And Gear Ratio	>=	1.343261719	RPM						Supporting Documents	(Sec)	
				e above condiations are true, crement 3rd gear fail counter								>= >=	3	Fail Timer (Sec) 3rd Gear Fail Counts or	
				and C35R Fail counter								>=	14	3-5R Clutch Fail Counts	
			Fail Case 2 C	Case: Steady State 5th Gear Commanded Gear	=	5th	Gear								
				Gearbox Slip	>=	400	Rpm					>= t	Please Refer o Table 5 in Supporting Documents		
			Intrusiv	ve Test: Command 6th Gear		Please refer to	ı								
			If a	attained Gear=6th gear Time	>=	Table 3 in supporting documents	Shift Time (Sec)								
				e above condiations are true, crement 5th gear fail counter								>=	3	5th Gear Fail Counts or	
				and C35R Fail counter				DDNDI Chake defeathed		FALCE	Daalaaa	>=	14	3-5R Clutch Fail Counts	
								PRNDL State defaulted inhibit RVT IMS fault pending indication	= = =	FALSE FALSE FALSE	Boolean Boolean Boolean				
								TPS validity flag Hydraulic System Pressurized Minimum output speed for	= =	TRUE TRUE	Boolean Boolean RPM				
								RVT A OR B (A) Output speed enable	>=	36 36	RPM				
								(B) Accelerator Pedal enable Common Enable Criteria	>=	0.5004883	Pct				
								Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo	>= <= >=	8.5996094 31.990234 400	Volts Volts RPM				
								Engine Speed Hi Engine Speed is within the allowable limits for	<= >=	7500 5	RPM Sec				
								Throttle Position Signal valid HSD Enabled	= =	TRUE TRUE	Boolean Boolean				
								Transmission Fluid Temperature Input Speed Sensor fault	>= =	-6.65625 FALSE	°C Boolean				

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum.
System	Code	Description		Citteria	value	Output Speed Sensor fault Default Gear Option is not	= FALSE Boolean		required	- III GIIII
						present				
					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			
		Pressure Control (PC) Solinoid B	Fail Case 1							One Trip
/ariable Bleed Solenoid (VBS)	P0777	Stuck On [C35R] (Steady State)	rall Case I	Case: Steady State 1st						One m
				Attained Gear slip	>= 400 RPM Table Based					
					Time Please Refer to Table Enable Time					
				If the Above is True for Time	>= 4 in (Sec)					
					supporting documents					
				Intrusive test: (CBR1 clutch exhausted)						
				Gear Ratio Gear Ratio						
				If the above parameters are true						
								>= 1.1	·	:)
								>= 2	Fail Count in 1st Gear	
									or Total Fail	
			Fail Case 2	Case: Steady State 2nd gear				>= 3	Counts	
			rall Case 2	Case. Steady State 211d gear	Table Based					
				Max Delta Output Speed	value Please Refer to Table >= rpm/sec					
				Hysteresis						
					documents Table Based					
					value Diesee					
				Min Delta Output Speed Hysteresis						
					supporting documents					
					Table Based Time Please					
				If the Above is True for Time	Refer to Table Sec					
					17 in supporting					
				Intrusive test:	documents					
				(CB26 clutch exhausted)	<= 1.933959961					
I				Gear Ratio						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			ime uired	Mil Illum
-		·	If the above parameters are true							
							>=	1.1	Fail Timer (Sec))
								2	Fail Count in	
							>=	3	2nd Gear	
									or Total Fail	
							>=	3	Counts	
			Fail Case 3 Case: Steady State 4th gear							
				Table Based value Please						
			Max Delta Output Speed	Refer to Table rpm/sec						
			Hysteresis							
				supporting documents						
				Table Based						
				value Please						
			Min Delta Output Speed Hysteresis							
			пуѕіегезіѕ	supporting						
				documents						
				Table Based						
				Time Please Refer to Table >= 17 in Sec						
			If the Above is True for Time	>= 17 in Sec						
				supporting						
			Intrusive test:	documents						
			(C1234 clutch exhausted)							
			Gear Ratio							
			Gear Ratio	>= 0.949951172						
			If the above parameters are true							
							>=	1.1	Fail Timer (Sec))
							>=	3	Fail Count in	
									4th Gear or	
							>=	3	Total Fail	
			Fail Cook A Cook Steady State (the goor					J	Counts	-
			Fail Case 4 Case: Steady State 6th gear	Table Based						
				value Pleace						
			Max Delta Output Speed	Refer to Table 22 in rpm/sec						
			Hysteresis	22 in supporting						
				documents						
				Table Based						
			Min Dolto Outrat Croad	value Please						1
			Min Delta Output Speed Hysteresis	Refer to Table rpm/sec						
			Trystoresis	supporting						
				documents						
				Table Based Time Please						1
				Pofor to Table						
			If the Above is True for Time	>= 17 in Sec						
				supporting						
	1 1		1	documents	1 1		I			1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thres Val		Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
•		, , ,	Intrusive test:				1						
			(CB26 clutch exhausted)										
			Gear Ratio	<= 1.050048828						>=	1.1	Fail Timer (Sec)	
			Gear Ratio	>= 0.949951172						>=	3	counts	
			If the above parameters are true										
										>=	1.1	Fail Timer (Sec)	
												Fail Count in	
										>=	3	6th Gear	
												or	
										>=	3	Total Fail	
						PRNDL State defaulted	=	FALSE	Boolean			Counts	-
						inhibit RVT		FALSE	Boolean				
						IMS fault pending indication		FALSE	Boolean				
						output speed	>=	0	RPM				
						TPS validity flag HSD Enabled	=	TRUE TRUE	Boolean				
						Hydraulic_System_Pressurize			Boolean				
						d	=	TRUE	Boolean				
						A OR B							
						(A) Output speed enable	>=	36	Nm				
						(B) Accelerator Pedal enable Ignition Voltage Lo	>= >=	0.5004883 8.5996094	Nm Volts				
						Ignition Voltage Hi	<=	31.990234	Volts				
						Engine Speed Lo	>=	400	RPM				
						Engine Speed Hi	<=	7500	RPM				
						Engine Speed is within the allowable limits for		5	Sec				
						if Attained Gear=1st FW							
						Accelerator Pedal enable	>=	5.0003052	Pct				
						if Attained Gear=1st FW		20	Nm				
						Engine Torque Enable		20	14111				
						if Attained Gear=1st FW Engine Torque Enable		8191.875	Nm				
						Transmission Fluid		/ / 5/ 25	00				
						Temperature	>=	-6.65625	°C				
						Input Speed Sensor fault		FALSE	Boolean				
						Output Speed Sensor fault	=	FALSE	Boolean				
					Disable			6, P0717, P0722	2, P0723,				
					Conditions:	DTC's:	P182E						
							ECM: P0101	1, P0102, P0103	3. P0106.				
								08, P0171, P01					
								01, P0202, P02					
								06, P0207, P02					
								02, P0303, P03 07, P0308, P04					
							. 5555, 1 550	,. 5550,1 04	,. 0126				
			Primary Offgoing Clutch is										One Trip
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solenoid B	exhausted (See Table 12 in		Boolean								
		StuckOn [C35R] (Dymanic)	Supporting Documents for Exhaust Delay Timers)										
			Exhaust Delay Timers) Primary Oncoming Clutch	Maximum									
I			Pressure Command Status	= pressurized		1	I			I			I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	П
			Primary Offgoing Clutch Pressure Command Status		n exhaust nmand				
			Range Shift Status		l Clutch				
			Attained Gear Slip	CC	ontrol 40 RPM				
			If the above conditions are true run appropriate Fail 1 Timers Below:						
			(3-1 shifting with Closed Throttle)	>= (0.5 Fail Time (Sec)				
			fail timer 1 (3-2 shifting with Throttle)	>= (0.5 Fail Time (Sec)				
			fail timer 1 (3-2 shifting with Closed Throttle)	>= (0.5 Fail Time (Sec)				
			fail timer 1 (3-4 shifting with Throttle)	>= (0.5 Fail Time (Sec)				
			fail timer 1 (3-4shifting with Closed Throttle)	>= (0.5 Fail Time (Sec)				
			fail timer 1	>= (0.5 Fail Time (Sec)				
			fail timer 1	>= (0.5 Fail Time (Sec)				
			fail timer 1	>= (0.5 Fail Time (Sec)				
			fail timer 1	>= (0.5 Fail Time (Sec)				
			fail timer 1	>= (0.5 Fail Time (Sec)				
			fail timer 1	>= (0.5 Fail Time (Sec)				
			fail timer 1	>= (0.5 Fail Time (Sec)				
			(5-6 shifting with Throttle) fail timer 1	>= (0.5 Fail Time (Sec)				
			(5-6 shifting with Closed Throttle) If Attained Gear Slip is Less than Above Cal Increment Fail Timers					Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail >= Timer 1, and Reference Supporting Table 15 for	sec
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail					Fail Timer 2	
			counter 3rd gear fail counter					>= 3	3rd gear fail counts
			5th gear fail counter					>= 5	5th gear fail counts OR
			Total fail counter			TUTE	, .==	>= 5 to	otal fail counts
						TUT Enable temperature Input Speed Sensor fault	>= -6.65625 °C = FALSE Boolea	n	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
3,333					Output Speed Sensor fault Command / Attained Gear High Side Driver ON output speed limit for TUT input speed limit for TUT PRNDL state defaultec IMS Fault Pending Service Fast Learn Mode HSD Enablec Default Gear Option is not	= FALSE Boolean ≠ 1st Boolean = TRUE Boolean >= 100 RPM >= 200 RPM = FALSE Boolean = FALSE Boolean = FALSE Boolean = TRUE Boolean = TRUE Boolean	·	
				Disable Conditions:		TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0796	Pressure Control (PC) Solenoid C Stuck Off [C456] (Steady State)	Eail Case 1 Case: Steady State 4th Gear Slip Intrusive test commanded 5th gear If attained Gear ≠5th for time if the above conditions have been mean terms of the same of	>= 400 RPM Please refer to Table 3 in Supporting Documents Shift Time (Sec)			Please See Table 5 For Neutral Timer Neutral Time (Sec) Cal 4th Gear Fail Count OR C456 Fail Counts	One Trip
			Fail Case 2 Case: Steady State 5th Gear slip Intrusive test commanded 6th gear If attained Gear ≠ 6th for time if the above conditions have been me Increment 5th Gear Fail Counter	>= 400 RPM Please Refer to Table 3 in Supporting Documents Shift Time (Sec)			Please See Table 5 For Neutral Timer Neutral Time (Sec) Cal Second Count Count OR	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Tim Requi	e red	Mil Illum.
		•	and C456 Fail Counters				>=	14	C456 Fail Counts	
			Fail Case 3 Case: Steady State 6th Gear						Counts	
			Gear slip	>= 400 RPM				Please See Table 5 For Neutral Time	Neutral Timer (Sec)	
			Intrusive test: commanded 5th gear	Disease softents				Cal		
			If attained Gear ≠ 5th for time	Please refer to Table 3 in Supporting Documents Shift Time (Sec)						
			if the above conditions have been met	Bodulienis					(H. C F1)	
			Increment 6th Gear Fail Counter and C456 Fail Counter				>=	3	6th Gear Fail Count OR	
			and C456 Fail Counter				>=	14	C456 Fail Counts	
					PRNDL State defaulted inhibit RVT	= FALSE Boolean = FALSE Boolean				
					IMS fault pending indication	= FALSE Boolean				
					TPS validity flag Hydraulic System Pressurized	= TRUE Boolean = TRUE Boolean				
					Minimum output speed for					
					RVT A OR B	>= 36 RPM				
					(A) Output speed enable	>= 36 RPM				
					(B) Accelerator Pedal enable Common Enable Criteria	>= 0.5004883 Pct				
					Ignition Voltage Lo	>= 8.5996094 Volts				
					Ignition Voltage Hi Engine Speed Lo	<= 31.990234 Volts >= 400 RPM				
					Engine Speed Hi	<= 7500 RPM				
					Engine Speed is within the allowable limits for	>= 5 Sec				
					Throttle Position Signal valid	= TRUE Boolean				
					HSD Enabled	= TRUE Boolean				
					Transmission Fluid Temperature	>= -6.65625 °C				
					Input Speed Sensor fault	= FALSE Boolean				
					OutputSpeed Sensor fault Default Gear Option is not	= FALSE Boolean				
					present	= TRUE				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E				
						ECM: P0101, P0102, P0103, P0106,	1			
						P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204,	1			
						P0205, P0206, P0207, P0208, P0300,	1			
						P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E	1			
						1 0300, F0307, F0300, F0401, F042E				

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Require	d	Mil Illum
ariable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Steady State)	Fail Case 1	Case: Steady State 1st							One T
		Stuck On [C430] (Steady State)		Attained Gear slip	>= 400 RPM						
					Table Based						
					Time Please Refer to Table Enable Time						
				If the Above is True for Time	>= 4 in (Sec)						
					supporting documents						
				Intrusive test:	documents						
				(CBR1 clutch exhausted)	1 404005252						
				Gear Ratio Gear Ratio	<= 1.484985352 >= 1.343017578						
				If the above parameters are true							
								>=	1.1 F	ail Timer (Sec)	
								>=	2	Fail Count in	
									_	1st Gear or	
								>=	3	Total Fail	
			Fail Case 2	Case Steady State 2nd					J	Counts	
			rall Case 2	Case Steady State 2110	Table Based						
					value Please						
				Max Delta Output Speed Hysteresis	>= Refer to Table >= 22 in rpm/sec						l
				,	supporting						l
					documents Table Based						
					value Dioces						
				Min Delta Output Speed	Refer to Table rpm/sec						
				Hysteresis	23 in supporting						
					documents						
					Table Based Time Please						
				If the Above is True for Time	Refer to Table Sec						
				ii tile / bove is ii de loi Time	17 in supporting						
					documents						
				Intrusive test:							
				(CB26 clutch exhausted) Gear Ratio	<= 1.484985352						
				Gear Ratio							
				If the above parameters are true							l
								>=	1.1 F	ail Timer (Sec)	
								>=	3	Fail Count in 2nd Gear	
										or	
								>=	3	Fotal fail counts	
			Fail Case 3	Case Steady State 3rd							
					Table Based						
				Max Delta Output Speed	value Please Refer to Table						
				Hysteresis	>= Refer to Table >= 22 in rpm/sec						
					supporting						ĺ

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illun
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	Table Based value Please Refer to Table 23 in supporting documents Table Based Time Please Refer to Table 17 in supporting documents <= 1.484985352	PRNDL State defaulted inhibit RVT IMS fault pending indication output speed TPS validity flag HSD Enabled Hydraulic_System_Pressurize d A ORB (A) Output speed enable (B) Accelerator Pedal enable Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed Hi Engine Speed Hi Engine Speed Hi Engine Speed Iii III II	Enable Conditions	>= 1.1 Fail Timer (Sec >= 3 Fail Count in OR >= 3 Total Fail Counts	
					Engine Speed is within the			
					if Attained Gear=1st FW Engine Torque Enable	>= 20 Nm		
					if Attained Gear=1st FW Engine Torque Enable Transmission Fluid	<= 8191.875 Nm		
					Temperature Input Speed Sensor fault Output Speed Sensor fault	>= -6.65625 °C = FALSE Boolean = FALSE Boolean		
					Default Gear Option is not present	= TRUE		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Val		Secondary Malfunction	Enable Conditions	Time Required	l	Mil Illum.
- / - / - / - / - / - / - / - / - / - /						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			
		(20)	Primary Offgoing Clutch is								One Trip
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Dynamic)	exhausted (See Table 11 in Supporting Documents for	=	TRUE	Boolean					
			Exhaust Delay Timers)								
			Primary Oncoming Clutch	=	Maximum						
			Pressure Command Status		oressurized						
			Primary Offgoing Clutch Pressure Command Status		utch exhaus command	t					
					nitial Clutch						
			Range Shift Status	7	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)	>=	0.5	Fail Time (Sec)					
			fail timer 1	>=	0.5	Fail Time (Sec)					
			(4-1 shifting without throttle) fail timer 1								
			(4-2 shifting with throttle)	>=	0.5	Fail Time (Sec)					
			fail timer 1 (4-2 shifting without throttle)	>=	0.5	Fail Time (Sec)					
			fail timer 1	\	0.5	Fail Time (Sec)					
			(4-3 shifting with throttle) fail timer 1	_	0.5	Tail Tillie (Sec)					
			(4-3 shifting without throttle)	>=	0.5	Fail Time (Sec)					
			fail timer 1	>=	0.5	Fail Time (Sec)					
			(5-3 shifting with throttle) fail timer 1								
			(5-3 shifting without throttle)	>=	0.5	Fail Time (Sec)					
			fail timer 1 (6-2 shifting with throttle)	>=	0.5	Fail Time (Sec)					
			(o-2 shirting with throttle) fail timer 1		0.5	Fail Time (Cae)					
			(6-2 shifting without throttle)	>=	0.5	Fail Time (Sec)					
									Total Fail Time		
									= (Fail 1 + Fail 2) See Enable		
			If Attained Gear Slip is Less than						Timers for Fail		
			Above Cal Increment Fail Timers						>= Timer 1, and	sec	
									Reference Supporting		
									Table 15 for		
									Fail Timer 2		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction	Enable Conditions			me uired	Mil Illum.
- Journ	0000	2000 Ipiloti	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	OR Fail Counter From 5th Gear	
			6th gear fail counter					>=	3	OR Fail Counter From 6th Gear	
			Total fail counter					>=	5	OR Total Fail Counter	
					Disable Conditions:		≠ 1st Boolean = TRUE Boolean >= 100 RPM >= 200 RPM = FALSE Boolean = FALSE Boolean = FALSE Boolean				
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 Tap Up Switch Stuck in the Up	= 0	Boolean Boolean						Special No MIL
			Position in Range 2 Enabled Tap Up Switch Stuck in the Up Position in Range 3 Enabled	= 0	Boolean						
			Tap Up Switch Stuck in the Up Position in Range 4 Enabled	= 0	Boolean						
			Tap Up Switch Stuck in the Up Position in Range 5 Enabled	= 0	Boolean						
			Tap Up Switch Stuck in the Up Position in Range 6 Enabled	= 0	Boolean						
			Tap Up Switch Stuck in the Up Position in Neutral Enabled	= 1	Boolean						
			Tap Up Switch Stuck in the Up Position in Park Enabled	= 1	Boolean						
			Tap Up Switch Stuck in the Up Position in Reverse Enabled Tap Up Switch ON	= 0 - TDUE	Boolean Boolean				1	Fail Time (See)	
			Tap Up Switch ON	= TRUE	Booleau			>=	1	Fail Time (Sec)	1

System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction	Enable Condition	s		Tin Requ		Mil Illum.
	Joue	Безоприон	Fail Case 2 Tap Up Switch Stuck in the Up	=	1	Boolean		Sonation	-		requ		
ı			Position in Range 1 Enabled Tap Up Switch Stuck in the Up										
			Position in Range 2 Enabled	=	1	Boolean							
			Tap Up Switch Stuck in the Up		1	Daalaan							
			Position in Range 3 Enabled	=	1	Boolean							
			Tap Up Switch Stuck in the Up	=	1	Boolean							
			Position in Range 4 Enabled										
			Tap Up Switch Stuck in the Up Position in Range 5 Enabled	=	1	Boolean							
			Tap Up Switch Stuck in the Up										
			Position in Range 6 Enabled	=	1	Boolean							
			Tap Up Switch Stuck in the Up	=	0	Boolean							
			Position in Neutral Enabled		Ü	Boologii							
			Tap Up Switch Stuck in the Up Position in Park Enabled	=	0	Boolean							
			Tap Up Switch Stuck in the Up										
			Position in Reverse Enabled	=	0	Boolean							
			Tap Up Switch ON	=	TRUE	Boolean							
			NOTE: Both Failcase1 and							>=	600	Fail Time (Sec)	
			Failcase 2 Must Be Met										-
ı													
1													
							Time Since Last Range		Enable Time				
							Change Ignition Voltage Lo	9	(Sec) 4 Volts				
							Ignition Voltage Lo						
							Engine Speed Lo	>= 400	RPM				
							Engine Speed Hi		RPM				
							Engine Speed is within the		Sec				
							allowable limits for	1	500				
								Test Fail					
							P0815 Status is	This Ke	1				
							1 0010 014140 10	Un or Fa	ılt				
								Active					
						Disable	MIL not Illuminated for	r TCM: P0816, P0826, P1	DE D1074				
						Conditions:		: P1877, P1915, P1761	ZE, P10/0,				
İ						conditions.	2103.						
								ECM: None					
T II T D C (********************************	Dente		Fail Case 1 Tap Down Switch Stuck in the		-	Dealess							Special
Tap Up Tap Down Switch (TUTD)	P0816	Downshift Switch Circuit	Down Position in Range 1 Enabled	=	0	Boolean							No MIL
			Tap Down Switch Stuck in the	=	0	Boolean							
	1		Down Position in Range 2 Enabled	l				1		1			1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum
•		·	Tap Down Switch Stuck in the Down Position in Range 3 Enabled	= 0	Boolean				
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	= 0	Boolean				
			Tap Down Switch Stuck in the Down Position in Range 5 Enabled	= 0	Boolean				
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	= 0	Boolean				
			Tap Down Switch Stuck in the Down Position in Range Neutral Enabled	= 1	Boolean				
			Tap Down Switch Stuck in the Down Position in Range Park Enabled	= 1	Boolean				
			Tap Down Switch Stuck in the Down Position in Range Reverse Enabled	= 0	Boolean				
			Tap Down Switch ON	= TRU	E 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	= TRU	E Boolean			>= 600	sec

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
System	Code	Description		Criteria		V	aiue	Manufiction		Conditions			Keq	uirea	mum.
								Time Since Last Range			Enable Time				
								Change	>=	ı	(Sec)				
								Ignition Voltage Lo	>=	8.5996094	Volts				
								Ignition Voltage Hi	<=	31.990234	Volts				
								Engine Cocod Le		400	DDM				
								Engine Speed Lo Engine Speed Hi	>= <=	400 7500	RPM RPM				
								Engine Speed is within the		5	Sec				
								allowable limits for		Ü	300				
										Test Failed					
								P0816 Status is	≠	This Key On or Fault					
										Active					
							Disable	MIL was Illianda at all fam	TOM D0015	D000/ D100F	D107/				
							Disable Conditions:	MIL not Illuminated for DTC's:	P1877, P191		., P1870,				
				TUTD Circuit Reads Invalid					ECM: None						Special
Tap Up Tap Down Switch (TUTD)	P0826	Up and Down Shift Switch Circuit		Voltage	=	TRUE	Boolean					>=	60	Fail Time (Sec)	No MIL
								Ignition Voltage Lo Ignition Voltage Hi	>=	8.5996094 31.990234	Volts Volts				
								Engine Speed Lo	<= >=	400	RPM				
								Engine Speed Hi	<=	7500	RPM				
								Engine Speed is within the allowable limits for		5	Sec				
								anowable mints for		Test Failed					
								P0826 Status is	. ≠	This Key					
								P0020 Status IS	† <i>†</i>	On or Fault					
										Active					
							Disable	MIL not Illuminated for	TCM: P1761						
							Conditions:	DTC's:	ECM: None						
									ECM: None						
Acceleration Sensor Signal Message	D17FF	\$1EC Dolling Count and Charles	Fail Case 1	CheckSum value received from		TDUE	Daalaaa						54	0	Special
Counter Incorrect	P1/5F	\$1FC Rolling Count and CheckSum		EBCM does not match expected value	=	TRUE	Boolean					>=	54	Sec	No MIL
			Fail Case 2	Rolling count value received from EBCM does not match expected	=	TRUE	Boolean					>=	9	Fail Counter (sliding window	
				value			200.00.1					-	3	of 10 counts)	
								Lateral/Longitudinal							
								accleration serial data message State Of Health	=	TRUE	Boolean	>	54	Fail Timer (Sec)	
				P175F will report test fail when				<u> </u>							
				either fail case 1 or fail case 2 are				Engine Speed Lo	>=	400	RPM				
l	1	I	I	met	l				I			I			I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thresh Value		Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
System	Code	Description	Citteria	Value		Engine Speed Hi	<=	7500	RPM		rteq	ulleu	aiii
						Engine Speed is within the		5	Sec				
						allowable limits for							
						Ignition Voltage	>=	9 31.99023	Volts Volts				
					Disable	Ignition Voltage MIL not Illuminated for	<= TCM: None	31.99023	VOIIS				
					Conditions:	DTC's:							
							ECM: None						
	+		Rolling count value received from										Special
Tap Up Tap Down Switch (TUTD)	P1761	Tap Up and Down switch signal	BCM does not match expected	= TRUE E	Boolean					>=	3	Fail Counter	No MIL
		circuit (rolling count)	value										
										>	10	Sample Timer	
						Tap Up Tap Down Message						(Sec)	1
						Health	=	TRUE	Boolean				
						Engine Speed Lo	>=	400	RPM				
						Engine Speed Hi	<=	7500	RPM				
						Engine Speed is within the	>=	5	Sec				
						allowable limits for		0	500				
					Disable	MIL not Illuminated for	TCM: None						
					Conditions:	DTC's:	T CIVI. TVOTIC						
							ECM: None						
			Fail Case 1	Transition 1	_								One Trip
nternal Mode Switch (IMS)	P182E	Internal Mode Switch - Invalid Range	Current range		Range								
				1110)									
			Previous range	≠ CeTRGR_e_P RNDL_Drive6	Range								
				, CeTRGR e P ,									
			Previous range	≠ CeTRGR_e_P RNDL_Drive4	Range								
			Range Shift State	Range Shift	ENUM								
			<u> </u>	Completed									
			Absolute Attained Gear Slip Attained Gear	<= 50 r <= Sixth	rpm								
			Attained Gear Attained Gear	>= Sixtii									
			Throttle Position Available	= TRUE									
			Throttle Position	>= 8.000183105 p	oct								
			Output Speed		rpm								
			Engine Torque		Nm								
			Engine Torque	<= 8191.75 N	Nm								
			If the above conditions are met then Increment Fail Timer							>=	1	Fail Seconds	
			If Fail Timer has Expired then										
			Increment Fail Counter							>=	5	Fail Counts	
			Fail Case 2 Output Speed	<= 70 r	rpm								1
			The following PRNDL sequence										
			events occur in this exact order:	Debra 7 /h									
			PRNDL state	= Drive 6 (bit state 0110)	Range								
			PRNDL state = Drive 6 for		Sec								
			TRIVE State - DIVE OTO	Transition 8									
			PRNDL state		Range								
				0111)	2								
			PRNDL state	Drive 6 (bit	Range								
			I MADE State	state 0110)	go								1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thre: Va	shold lue	Secondary Malfunction		Enable Conditions			Tir Requ	ne ıired	Mil Illum
-,			PRNDL state Above sequencing occurs in Neutral Idle Mode If all conditions above are met		Transition 1	Range Sec								
			Increment delay Timer If the below two conditions are met Increment Fail Timer delay timer		1	Coo					>=	3	Fail Seconds	
			Input Speed If Fail Timer has Expired then	>=	1 400	Sec Sec					>=	2	Fail Counts	
			Increment Fail Counter Fail Case 3 Current range		Transition 13 (bit state 0010)	Range	Previous range	≠	CeTRGR_ e_PRNDL _Drive4					-
			Engine Torque	>=	-8192	Nm	Previous range	≠	CeTRGR_ e_PRNDL _Drive1					
			Engine Torque If the above conditions are met	<=	8191.75	Nm	IMS is 7 position configuration If the "IMS 7 Position config" = 1 then the "previous range"	=	0	Boolean		0.225	Casanda	
			then, Increment Fail Timer				criteria above must also be satsified when the "current range" = "Transition 13"				>=	0.225	Seconds	
			If Fail Timer has Expired then Increment Fail Counter								>=	15	Fail Counts	
			Fail Case 4 Current range	=	Transition 8 (bit state 0111)	Range	Disable Fail Case 4 if last positive range was Drive 6 and current range is transition 8							
			Inhibit bit (see definition)	=	FALSE		Set inhibit bit true if PRNDL = 1100 (rev) or 0100 (Rev-Neu transition 11) Set inhibit bit false if PRNDL = 1001 (park)							
			Steady State Engine Torque Steady State Engine Torque If the above conditions are met then Increment Fail Timer	>= <=	100 8191.75	Nm Nm	.cov (gaily				>=	0.225	Seconds	
			If the above Condtions have been met, Increment Fail Counter								>=	15	Fail Counts	
			Fail Case 5 Throttle Position Available The following PRNDL sequence events occur in this exact order:			Boolean								
			PRNDL State		Reverse (bit state 1100) Transition 11									
			PRNDL State PRNDL State		(bit state 0100) Neutral (bit									
			PRNDL State PRNDL State		state 0101) Transition 11 (bit state	Range Range								
			Above sequencing occurs in Then delay timer increments	<=	0100) 1	Sec								
			Delay timer	>=	5	sec								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum
		•	Range Shift State Absolute Attained Gear Slip	= Range Shift Complete				
			Attained Gear	<= Sixth				
			Attained Gear Throttle Position Output Speed If the above conditions are met Increment Fail Timer	>= 8.000183105 pct			>= 20 Seconds	
			Fail Case 6 Current range	Illegal (bit = state 0000 or 1000 or 0001)	A Open Circuit Definition (flag set false if the following conditions are met):			
			and		Current Range	Transition ≠ 11 (bit state 0100)		
			A Open Circuit (See Definition)	= FALSE Boolean	or Last positive state	≠ Neutral (bit state 0101)		
					or Previous transition state	Transition ≠ 8 (bit state		
			If the above Condtions are met		Fail case 5 delay timer	0111) = 0 sec	/ OF Casanda	
			then, Increment Fail timer Fail Case 7 Current PRNDL State	= PRNDL circuit Range			>= 6.25 Seconds	
			and Previous PRNDL state Input Speed	= PRNDL circuit Range ABCP = 1111 Range >= 150 RPM				
			Reverse Trans Ratio Reverse Trans Ratio If the above Condtions are met then, Increment Fail timer	<= 2.678344727 ratio >= 3.081542969 ratio			>= 6.25 Seconds	
			P182E will report test fail when any of the above 7 fail cases are met					
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the	>= 8.5996094 Volts <= 31.990234 Volts >= 400 RPM <= 7500 RPM		
					allowable limits for Engine Torque Signal Valid	>= 5 Sec = TRUE Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Val	shold lue	Secondary Malfunction	Enable Conditions	Time Required		Mil Illum.
Cydom					7 41	Disable Conditions:	MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723, P07C0, P07BF, P077C, P077D ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204,	quito		
								P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E			
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 13 in Supporting Documents for Exhaust Delay Timers) Primary Oncoming Clutch Pressure Command Slatus	=	TRUE Maximum pressurized	Boolean					One Trip
			Primary Offgoing Clutch Pressure Command Status		Clutch exhaus command	t					
			Range Shift Status Attained Gear Slip	7	Initial Clutch Control 40	RPM					
			If above coditons are true, increment appropriate Fail 1 Timers Below: fail timer 1			Fail Time (Sec)					
			(2-1 shifting with throttle) fail timer 1 (2-1 shifting without throttle)	>=	0.5	Fail Time (Sec)					
			fail timer 1 (2-3 shifting with throttle) fail timer 1	>=	0.5	Fail Time (Sec)					
			(2-3 shifting without throttle) fail timer 1	>=	0.5	Fail Time (Sec) Fail Time (Sec)					
			(2-4 shifting with throttle) fail timer 1 (2-4 shifting without throttle)	>=	0.5	Fail Time (Sec)					
			fail timer 1 (6-4 shifting with throttle) fail timer 1	>=	0.5	Fail Time (Sec) Fail Time (Sec)					
			(6-4 shifting without throttle) fail timer 1 (6-5 shifting with throttle)	>=	0.5	Fail Time (Sec)					
			fail timer 1 (6-5 shifting without throttle)	>=	0.5	Fail Time (Sec)					
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers						Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail >= Timer 1, and Reference Supporting Table 15 for Fail Timer 2	sec	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter 2nd gear fail counter 6th gear fail counter				>= 3 Fail Counter From 2nd Ges OR >= 3 Fail Counter From 6th Ges OR >= 5 Total Fail Counter	ar
				Disable Conditions:		= FALSE Boolean ≠ 1st Boolean = TRUE Boolean >= 100 RPM >= 200 RPM = FALSE Boolean = FALSE Boolean = FALSE Boolean	Counter	
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Steady State)	Fail Case 1 Case: Steady State 1st Attained Gear slip If the Above is True for Time Intrusive test: (CBR1 clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true Fail Case 2 Case: Steady State 3rd Gear	Table Based Time Please Refer to Table Fnable Time			>= 1.1 Fail Timer (Se >= 5 Fail Count in >= 5 1st Gear or Total Fail >= 5 Counts	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mi Illur
,			Max Delta Output Speed Hysteresis	Table Based value Please Refer to Table 22 in rpm/sec				
			Min Delta Output Speed Hysteresis	supporting documents Table Based value Please Pefer 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: (C35R clutch exhausted) Gear Ratio Gear Ratio	documents <= 3.015991211 >= 2.728027344				
			If the above parameters are true				14 5 11 7 70	
							>= 1.1 Fail Timer (Se	
							>= 3 Fail Count in 3rd Gear or	ו
							>= 5 Total Fail Counts	
			Eail Case 3 Case: Steady State 4rd Gear 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 Refer to Table >= Refer to Table Sec				
			If the Above is True for Time Intrusive test:	>= 17 in Sec supporting documents				
				<= 0.779052734 >= 0.704956055				
							>= 1.1 Fail Timer (Se	ec)
							>= 3 Fail Count in 4th Gear or	n

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				ime Juired	Mi Illur
-,									>=	5	Total Fail	1
			Fail Case 4 Case: Steady State 5th Gear								Counts	-
			Case. Steady State Still Geal	Table Based								
				value Diegos								
			Max Delta Output Speed									
			Hysteresis									
				supporting documents								
				Table Based								
				value Please								
			Min Delta Output Speed									
			Hysteresis	23 in supporting								
				documents								
				Table Based								
				Time Please								1
			If the Above is True for Time	Refer to Table Sec								
				17 in supporting								1
				documents								1
			Intrusive test:									1
			(C35R clutch exhausted)									
			Gear Ratio Gear Ratio									
			If the above parameters are true									
			· ·						>=	1.1	Fail Timer (Sec))
											Fail Count in	1
									>=	3	5th Gear	
											or	
									>=	5	Total Fail	
					PRNDL State defaulted	=	FALSE	Boolean			Counts	1
					inhibit RVT	=	FALSE	Boolean				
					IMS fault pending indication	=	FALSE	Boolean				
					output speed	>=	0	RPM				
					TPS validity flag HSD Enabled	=	TRUE TRUE	Boolean Boolean				
					Hydraulic_System_Pressurize							
					d	=	TRUE	Boolean				
					A OR B		2/	N				
					(A) Output speed enable(B) Accelerator Pedal enable	>= >=	36 0.5004883	Nm Nm				
					Ignition Voltage Lo	>=	8.5996094	Volts				1
					Ignition Voltage Hi	<=	31.990234	Volts				1
					Engine Speed Lo	>=	400	RPM				1
					Engine Speed Hi Engine Speed is within the	<=	7500	RPM				1
					allowable limits for	>=	5	Sec				1
					if Attained Gear=1st FW	>=	5.0003052	Pct				
					Accelerator Pedal enable	/-	5.0003032	1 61				
					if Attained Gear=1st FW Engine Torque Enable	>=	20	Nm				1
					if Attained Gear=1st FW		0401 001					1
					Engine Torque Enable	<=	8191.875	Nm				1
					Transmission Fluid	>=	-6.65625	°C				1
	1		l	1	Temperature		2.20020	-	1			1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Val		Secondary Malfunction	Enable Conditions	Time Required	1	Mil Illum.
5,000	3000	2000.pas.	5				Output Speed Sensor faul Default Gear Option is no presen	t = FALSE Boolean t = TRUE			
						Disa Conditio		r TCM: P0716, P0717, P0722, P0723, : P182E			
								ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E			
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 10 in Supporting Documents for Exhaust Delay Timers) Primary Oncoming Clutch Pressure Command Status		TRUE Maximum pressurized	Boolean					One Trip
			Primary Offgoing Clutch Pressure Command Status	CI	utch exhaust command						
			Range Shift Status	_≠ I	nitial Clutch Control						
			Attained Gear Slip If the above conditions are true increment appropriate Fail 1 Timers Below:	<=	40	RPM					
			fail timer 1 (2-6 shifting with throttle)	>=	0.5	sec					
			fail timer 1 (2-6 shifting without throttle) fail timer 1	>=	0.5	sec					
			(3-5 shifting with throttle) fail timer 1	>=	0.5	sec sec					
			(3-5 shifting without throttle) fail timer 1 (4-5 shifting with throttle)	>=		sec					
			fail timer 1 (4-5 shifting without throttle)	>=	0.5	sec					
			fail timer 1 (4-6 shifting with throttle)	>=	0.5	sec					
			fail timer 1 (4-6 shifting without throttle)	>=	0.5	sec			T.		
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers						Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail >= Timer 1, and Reference Supporting Table 15 for Fail Timer 2	sec	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
J, s.	0000	2555, p. 10.	If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter	7.5			,	
			2nd gear fail counter				>= 3 Fail Counter From 2nd Ge	
			3rd gear fail counter				>= 3 Fail Counter From 3rd Gea	
			4th gear fail counter				>= 3 Fail Counter From 4th Gea	
			total fail counter		TUTE	4/5/05	>= 5 Total Fail Counter	
				Disable Conditions:		= FALSE Boolean ≠ 1st Boolean = TRUE Boolean >= 100 RPM >= 200 RPM = FALSE Boolean = FALSE Boolean = FALSE Boolean = TRUE Boolean TRUE Boolean TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106,		
						P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Steady State)	Fail Case 1 Case: 5th Gear Max Delta Output Speed Hysteresis	Table Based value Please Refer to Table 22 in supporting documents				One Trip
			Min Delta Output Speed Hysteresis	Table Based value Please Refer to Table 23 in supporting documents Table Based Time Please				
			If the Above is True for Time	>= Refer to Table Sec 17 in Supporting documents				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Time Requir	e red	Mil Illum.
			Intrusive test: (C35R clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true					>= >=	1.1	Fail Timer (Sec) Fail Count in 5th Gear OR Total Fail	
			Fail Case 2 Case: 6th Gear							Counts	
			Max Delta Output Speed Hysteresis	Table Based value Please Refer to Table 22 in supporting documents							
			Min Delta Output Speed Hysteresis	>= 23 in Tprn/sec supporting documents Table Based							
			If the Above is True for Time	Time Please Refer to Table 17 in Supporting documents							
			(CB26 clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	>= 1.343017578							
								>=	1.1	Fail Timer (Sec)	
								>=	3	Fail Count in 6th Gear OR Total Fail	
					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 (B) Accelerator Pedal enable	= FALSE = FALSE = FALSE >= 0 = TRUE = TRUE = TRUE >= 36 >= 0.5004883	Boolean Boolean Boolean RPM Boolean Boolean Boolean	>=	3	Counts	
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi	>= 8.5996094 <= 31.990234 >= 400 <= 7500	Volts Volts RPM RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
					Engine Speed is within the allowable limits for		5	Sec		
					if Attained Gear=1st FW Accelerator Pedal enable	\	5.0003052	Pct		
					if Attained Gear=1st FW Engine Torque Enable	>=	20	Nm		
					if Attained Gear=1st FW Engine Torque Enable	/-	8191.875	Nm		
					Transmission Fluid Temperature	\ <u></u>	-6.65625	°C		
					Input Speed Sensor fault		FALSE	Boolean		
					Output Speed Sensor fault		FALSE	Boolean		
					Default Gear Option is not present	=	TRUE			
				Disable	·		6 P0717 P0722	P0723		
				Conditions:	DTC's:		0,10717,10722	.,10723,		
						P0107, P01 P0175, P02 P0205, P02 P0301, P03	1, P0102, P0103 08, P0171, P017 01, P0202, P020 06, P0207, P020 02, P0303, P030 07, P0308, P040	72, P0174, 03, P0204, 08, P0300, 04, P0305,		

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions				ime uired	Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic	Fail Case 1	Substrate Temperature	>=	146.296875				Conditions		>=	5	Fail Time (Sec	One Tri
			Fail Case 2	Substrate Temperature Ignition Voltage	>= >=	50 18	°C Volts					>=	2	Fail Time (Sec)
				Note: either fail case can set the DTC											
								Ignition Voltage Lo Ignition Voltage Hi Substrate Temp Lo Substrate Temp Hi Substrate Temp Between Temp Range for Time	>= <= >= <= >=	8.5996094 31.990234 0 170 0.25	Volts Volts °C °C Sec				
								P0634 Status is	≠	Test Failed This Key On or Fault Active					
							Disable Conditions:		TCM: None ECM: None						
Mode Switch	P071A	Transmission Mode Switch A Circuit		Tow Haul Mode Switch state	=	TRUE	Boolean					>=	600	Fail Time (Sec) Specia No MII
								Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= <= >= <= >=	8.5996094 31.990234 400 7500 5	Volts Volts RPM RPM Sec				
							Disable Conditions:		TCM: P1762 ECM: None						
Fransmission Input Speed Sensor (TISS)	P0716	Input Speed Sensor Performance		Transmission Input Speed Sensor Drops	>=	1350	RPM					>=	0.8	Fail Time (Sec	One Tri
								Engine Torque is Engine Torque is Engine Speed Engine Speed Engine Speed is within the	>= <= >= <=	0 8191.875 400 7500	N*m N*m RPM RPM				
								allowable limits for Vehicle Speed is Throttle Position is	>= >= >=	5 10 0	Sec Kph Pct				
								Transmission Input Speed is The previous requirement has been satisfied for	>= >=	0	RPM Sec				
								The change (loop to loop) in transmission input speed is	<	8191.875	RPM/Loop				

Component/	Fault	Monitor Strategy		Malfunction			eshold		Secondary Malfunction		Enable			Tii		Mil Illum.
System	Code	Description Transmission Electro-Hydraulic	Fail Case 1	Criteria	\vdash	V	alue		wairunction		Conditions			Requ	ıırea	One Tri
Transmission Control Module (TCM)	P0634	Control Module Internal Temperature	raii Case I	Substrate Temperature	>=	146.296875	5 ℃						>=	5	Fail Time (Sec)	
		Too High							The previous requirement has							
									been satisfied for	>=	0	Sec				
									Throttle Position Signal Valid	=	TRUE	Boolean				
									Engine Torque Signal Valid	=	TRUE	Boolean				
									Ignition Voltage	>=	8.5996094	Volts				
									Ignition Voltage	<=	31.990234	Volts				
											Test Failed					
									D071/ Ct-tu- l		This Key					
									P0716 Status is not	=	On or Fault					
											Active					
								Disable	MIL not Illuminated for	TCM: P0717	, P0752, P0973	, P0974				
							Со	nditions:	DTC's:	FOM D0101	D0100 D0100	D0101				
											, P0102, P0103	, P0121,				
										P0122, P012	23					
Transmission Input Speed Sensor (TISS)	D0717	Input Speed Sensor Circuit Low	Fail Case 1	Transmission Input Speed is	<	33	RPM						>=	4.5	Fail Time (Sec)	One Tr
Transmission input speed sensor (1133)	P0/1/	Voltage		Hansinission input speed is	<	33	KPIVI						>=	4.3	raii Tille (Sec)	
			F # 0 0	WII DOZGO DZO GLI												-
			Fail Case 2	When P0722 DTC Status equal to Test Failed and Transmission		1000	RPM		Controller uses a single power		1	Dooloon				
				Input Speed is	<	1000	KPIVI		supply for the speed sensors	=		Boolean				
				input Speed is	1				Engine Torque is	>=	50	N*m				1
									Engine Torque is	<=	8191.875	N*m				
									Vehicle Speed	>=	16	Kph				
									Engine Torque Signal Valid	=	TRUE	Boolean				
									Ignition Voltage	>=	8.5996094	Volts				
									Ignition Voltage	<=	31.990234	Volts				
									Engine Speed		400	RPM				
									Engine Speed Engine Speed is within the	<=	7500	RPM				
									allowable limits for	>=	5	Sec				
									anovable invite for							
											Test Failed					
									P0717 Status is not	=	This Key On or Fault					
											Active					
								Disable	MIL not Illuminated for	TCM: P0722	, P0723					
							Co	nditions:	DTC's:							
										ECM: P0101	, P0102, P0103					
Transmission Output Speed Sensor	-	Output Speed Sensor Circuit Low		Transmission Output Speed	\vdash											One Tr
(TOSS)	P0722	Voltage		Sensor Raw Speed	<=	35	RPM						>=	3.75	Fail Time (Sec)	One II
		Ĭ		.,							Test Failed					1
											This Key					1
									P0722 Status is not	=	On or Fault					1
											Active					1
									Transmission Input Speed							1
									Check	=	TRUE	Boolean				
	I	1			ı				Engine Torque Check		TDUE	Boolean				1
									Engine rorque check	=	TRUE	Duulean				

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary		Enable			Time	Mil
System	Code	Description	Criteria	Value	Malfunction		Conditions		R	lequired	Illun
Fransmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature	Fail Case 1 Substrate Temperature	>= 146.296875 °C					>= 5	Fail Time (Sec	One T
		Too High			Transmission Fluid						
					Temperature	>=	-40	°C			
					Disable this DTC if the PTO is	=	1	Boolean			
					active						
					Engine Torque Signal Valid Throttle Position Signal Valid	=	TRUE TRUE	Boolean Boolean			
					Ignition Voltage is	>=	8.5996094	Volts			
					Ignition Voltage is	<=	31.990234	Volts			
					Engine Speed is	>=	400	RPM			
					Engine Speed is Engine Speed is within the	<=	7500	RPM			
					allowable limits for	>=	5	Sec			
					1						
					Enable_Flags Defined Below						
					The Engine Torque Check is						
					TRUE, if either of the two						
					following conditions are TRUE						
					Engine Torque Condition 1						
					Donne Chiff Chalus		Range	ENLIM			
					Range Shift Status	≠	shift completed	ENUM			
					OR		completed				
					Transmission Range is	=	Park or				
					_		Neutral				
					Engine Torque is Engine Torque is	>= <=	8191.75 8191.75	N*m N*m			
					Engine rorque is	<=	0171.73	IN III			
					Engine Torque Condition 2						
					Engine Torque is	>=	35	N*m			
					Engine Torque is	<=	8191.75	N*m			
					The Transmission Input Speed						
					(TIS) Check is TRUE, if either						
					of the two following conditions are TRUE						
					ale INOL						
					TIS Check Condition 1						
					Transmission Input Speed is	>=	1000	RPM			
					Transmission Input Speed is	<=	8191	RPM			
					TIS Check Condition 2						
					Engine Speed without the	>=	3200	RPM			1
					brake applied is	/-	3200	IXI IVI			
					Engine Speed with the brake applied is	>=	3200	RPM			
					Engine Speed is	<=	8191	RPM			
					Controller uses a single power	=	1	Boolean			
					supply for the speed sensors	_		Doolcan			
					Powertrain Brake Pedal is Valid	=	TRUE	Boolean			
					Valid						1
	1	I	l l	I	1						

Component/	Fault	Monitor Strategy	Malfunction		Thres			Secondary		Enable				ime	Mil
System	Code	Description	Criteria	\vdash	Val	ue		Malfunction		Conditions			Red	juired	Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1 Substrate Temperature	>=	146.296875	°C						>=	5	Fail Time (Sec)	One Tri
		Too riigii					Disable	MIL not Illuminated for	TCM: P071	6, P0717, P072	3				
						(Conditions:	DTC's:							
)1, P0102, P010	3, P0121,				
									P0122, P0	123					
Transmission Output Speed Sensor	P0723	Output Speed Sensor Circuit	Transmission Output Speed	>=	105	RPM						>=	0.2	Enable Time	One Tri
(TOSS)	F0/23	Intermittent	Sensor Raw Speed	>=	103	KFIVI						>=	0.2	(Sec)	
			Output Speed Delta	<=	8191	RPM						>=	0	Enable Time (Sec)	
														Output Speed	
			Output Speed Drop	>	650	RPM						>=	1.5	Drop Recovery	
														Fail Time (Sec)	
			AND	1	Drivon rango										
			Transmission Range is	=	Driven range (R,D)										
				T	,										1
								Range_Disable	=	FALSE	See Below				
								OR							
								Neutral_Range_Enable	=	TRUE	See Below				
								And							
								Neutral_Speed_Enable	=	TRUE	See Below				
								are TRUE concurrently							
				┢				Transmission_Range_Enable	=	TRUE	See Below				
								Transmission_Input_Speed_E	=	TRUE	See Below				
								nable	_	INOL	JCC DCIOW				
								No Change in Transfer Case Range (High <-> Low) for	>=	5	Seconds				
								Range (riight <-> Low) for							
										Test Failed This Key	1				
								P0723 Status is not	=	On or Faul	t				
										Active					
								Disable this DTC if the PTO is							
								active	=	1	Boolean				
								Ignition Voltage is		8.5996094					
								Ignition Voltage is Engine Speed is	<= >=	31.990234 400	Volts RPM				
								Engine Speed is	<=	7500	RPM				
								Engine Speed is within the	>=	5	Sec				
								allowable limits for		J	360				
								Enable_Flags Defined Below							
				t				Transmission_Input_Speed_E							1
								nable is TRUE when either TIS							
								Condition 1 or TIS Condition 2							
								is TRUE:							
								TIS Condition 1 is TRUE when			Facility T				
								both of the following conditions	>=	0	Enable Time (Sec)				
								are satsified for							
								Input Speed Delta	<=	4095	RPM				
i	1	I		1				Raw Input Speed	>=	500	RPM	l .			1

Component/	Fault	Monitor Strategy	Malfunction	Threshold Value	Secondary Malfunction		Enable		Time	M Illu
System	Code	Description Transmission Electro-Hydraulic	Criteria Fail Case 1	value	wairunction		Conditions		Required	One
ransmission Control Module (TCM)	D0634	Control Module Internal Temperature	Substrate Temperature	>= 146 206875 °C					>= 5 Fail Time (Sec)	
ansinission control wodule (1 civi)	1 0034	Too High	Substrate remperature	7- 140.270073 C					J Tail Time (Sec)	Ί
		100 High			TIS Condition 2 is TRUE when					
					ALL of the next two conditions					
					are satisfied					
					Input Speed	=	0	RPM		
					A Single Power Supply is used	_	U	IXI IVI		
					for all speed sensors	=	TRUE	Boolean		
					ioi ali specu serisors					
					Neutral_Range_Enable is					1
					TRUE when any of the next 3					
					conditions are TRUE					
					Transmission Range is	=	Neutral	ENUM		
					Transmission Range is		Reverse/N	LIVOIVI		
					Transmission Range is	=	eutral	ENUM		
					Transmission range is		Transitonal	LIVOIVI		
							Neutral/Dri			
							ve			
					Transmission Range is	=	Transitiona	ENUM		
							I			
					And when a drop occurs					
					Loop to Loop Drop of					
					Transmission Output Speed is	>	650	RPM		
					Range_Disable is TRUE when					1
					any of the next three					
					conditions are TRUE					
					Transmission Range is	=	Park	ENUM		
							Park/Rever			
					Transmission Range is	=	se	ENUM		
							Transitonal			
							ON (Fully			
					Input Clutch is not	=	Applied)	ENUM		
					Neutral_Speed_Enable is					1
					TRUE when All of the next					
					three conditions are satsified	>	1.5	Seconds		
					for					
					Transmission Output Speed	>	130	RPM		
					The loop to loop change of the	<	20	RPM		
					Transmission Output Speed is					
					The loop to loop change of the					1
						>	-10	RPM		
					Transmission Output Speed is					
					Transmission_Range_Enable		-			
					is TRUE when one of the next					1
					six conditions is TRUE					
					Transmission Range is	=	Neutral	ENUM		
							Reverse/N			1
					Transmission Bango is		eutral	ENHIM		1
					Transmission Range is	=	Transitiona	ENUM		1
							1			1
							Neutral/Dri			
					T		ve	ENUM		
					Transmission Range is	=	Transitiona	ENUM		

Component/	Fault	Monitor Strategy	Malfunction Criteria		Thresh Valu			Secondary Malfunction		Enable Conditions			Ti Req		Mil Illum.
System Fransmission Control Module (TCM)	Code P0634	Description Transmission Electro-Hydraulic Control Module Internal Temperature	Fail Case 1 Substrate Temperature	>=				Manunction		Conditions		>=	5 5	Fail Time (Sec)	One Trip
		Too High						Time since a driven range (R,D) has been selected Transmission Output Speed	>=	Table Based Time Please Refer to Table 21 in supporting documents	Sec			, ,	
								Sensor Raw Speed Output Speed when a fault was detected	>=	500 500	RPM RPM				
						D Condi	isable itions:	MIL not Illuminated for DTC's:		01, P0102, P0103					
Forque Converter Clutch (TCC)	P0741	TCC System Stuck OFF	TCC Pressure Either Condition (A) or (B) Must be Met			Кра						>=	2	Enable Time (Sec)	Two Trip
			(A) TCC Slip Error @ TCC On Mode	>=	Documents	RPM						>=	5	Fail Time (Sec)	
			(B) TCC Slip @ Lock On Mode If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter	>=	130	RPM						>= >=	5 2	Fail Time (Sec) TCC Stuck Off Fail Counter	
								TCC Mode Ignition Voltage Lo Ignition Voltage Hi Engine Speed Engine Speed is within the allowable limits for Engine Torque Lo Engine Torque Hi Throttle Position Hi 2nd Gear Ratio Ho 2nd Gear Ratio High 3rd Gear Ratio Lo 3rd Gear Ratio Lo 4th Gear Ratio Lo 4th Gear Ratio Lo 5th Gear Ratio Lo 6th Gear Ratio Lo 6th Gear Ratio Lo	>= <= >= <= >= <= >=	On or Lock 8.5996094 31.990234 400 7500 5 50 8191.875 8.0001831 99.998474 2.6710205 3.072998 1.7130127 1.9709473 1.3150635 1.5129395 0.9300537 1.0699463 0.6900635 0.6900635 0.7939453	Volts Volts RPM RPM Sec N*m Pct Pct Ratio				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
Fransmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature	Fail Case 1 Substrate Temperature							>=	5	Fail Time (Sec)	One Tr
		Too High				Transmission Fluid							
						Temperature Lo	>=	-6.664063	°C				
						Transmission Fluid	<=	130	°C				
						Temperature Hi PTO Not Active							
						Engine Torque Signal Valid	=	TRUE TRUE	Boolean Boolean				
						Throttle Position Signal Valid	=	TRUE	Boolean				
						Dynamic Mode	=	FALSE	Boolean				
								Test Failed					
						P0741 Status is	≠	This Key					
								On or Fault Active					
								7101170					
					Disable	MIL not Illuminated for			, P0723,				
					Conditions:	DTC's:	P0742, P27	63, P2764					
							FCM: P010)1, P0102, P010	3 P0106				
								08, P0171, P017					
								01, P0202, P020					
								06, P0207, P020 02, P0303, P030					
								07, P0308, P040					
0 1 1 (700)	D0740	T000 1 01 10N	T00.0%	50	5514								
que Converter Clutch (TCC)	P0/42	TCC System Stuck ON	TCC Slip Speed TCC Slip Speed		RPM RPM								One
			1 00 onp opecu	- 13	N. W.					>=	2	Fail Time (Sec)	
			If Above Conditions Have been										
			Met, and Fail Timer Expired, Increment Fail Counter							>=	6	Fail Counter	
			morement i un counter			TCC Mode	=	Off					1
						Enable test if Cmnd Gear =	=	1	Boolean				
						1stFW and value true Enable test if Cmnd Gear =			Booloan				
						2nd and value true	=	0	Boolean				
						Engine Speed Hi	<=	6000	RPM				
						Engine Speed Lo	>=	500	RPM				
						Vehicle Speed HI Vehicle Speed Lo	<= >=	511 1	KPH KPH				
						Engine Torque Hi	<=	8191.875	Nm				
						Engine Torque Lo	>=	80	Nm				
						Current Range	≠ ≠	Neutral	Range				
						Current Range Transmission Sump	7	Reverse	Range				
						Temperature	<=	130	°C				
						Transmission Sump	>=	18	°C				
						Temperature Throttle Position Hyst High		5.0003052	Pct				
						AND	>=	5.0003032	FUL				
						Max Vehicle Speed to Meet	<=	8	KPH				
						Throttle Enable	<=	O	Ni-∐				
						Once Hyst High has been met, the enable will remain while	>=	2.0004272	Pct				
						Throttle Position	>=	2.0004212	i Ul				
	1	1				Disable for Throttle Position	>=	75	Pct	I			1

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary		Enable			Tin		Mil
System	Code	Description	Criteria	Value	Malfunction		Conditions			Requ	iired	Illum.
		Transmission Electro-Hydraulic	Fail Case 1							_	= = = (0)	One Trip
Transmission Control Module (TCM)	P0634	Control Module Internal Temperature	Substrate Temperature	>= 146.2968/5 °C					>=	5	Fail Time (Sec)	
		Too High			Disable if DTO setting and							
					Disable if PTO active and	_	1	Boolean				
					value true		1	Dooloop				
					Disable if in D1 and value true		1 1	Boolean				
					Disable if in D2 and value true			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 Disable if in MUMD and value		1	Boolean				
						=	1	Boolean				
					Disable if in TUTD and value							
					Disable if in TUTD and value	=	1	Boolean				
					true		FALCE	Dooloon				
					4 Wheel Drive Low Active		FALSE	Boolean				
					Disable if Air Purge active and		0	Boolean				
					value false		E41.0E	Б				
					RVT Diagnostic Active	=	FALSE	Boolean				
					Ignition Voltage		8.5996094	V				
					Ignition Voltage		31.990234	V				
					Vehicle Speed		511	KPH				
					Engine Speed	>=	400	RPM				
					Engine Speed		7500	RPM				
					Engine Speed is within the		5	Sec				
					allowable limits for	ſ						
					Engine Torque Signal Valid		TRUE	Boolean				
					Throttle Position Signal Valid	=	TRUE	Boolean				
							Test Failed					
							This Key					
					P0742 Status is	≠	On or Fault					
							Active					
							Active					
				Disabl				, P0723,				
				Conditions	S: DTC's:	P0741, P276	3, P2764					
						ECM: P010	1, P0102, P0103	3, P0106,				
						P0107, P010	08, P0171, P017	2, P0174,				
						P0175, P020	01, P0202, P020	3, P0204,				
						P0205, P020	06, P0207, P020	08, P0300,				
						P0301, P030	02, P0303, P030)4, P0305,				
						P0306, P030	07, P0308, P040	1, P042E				
Node 2 Multiplex Valve	P0751	Shift Solenoid Valve A Stuck Off	Commaned Gear Slip	>= 400 RPM								Two Trip
loue 2 Multiplex valve	10/31	Shint Soletiola valve A Stack Off	i i									
	1		Commanded Gear	= 1st Lock rpm								
	1		Gear Ratio	<= 1.484985352					>=	0.3	Fail Tmr	
			Gear Ratio	>= 1.343017578					=	5	Fail Counts	
			If the above parameters are true									
	1								<i>≠</i>	0	Neutral Timer	
									7	U	(Sec)	
	1								\	0.3	Fail Timer (Sec)	
	1								>=	0.5	raii riillei (Sec)	
	1					<u> </u>			>=	8	Counts	1
					Ignition Voltage Lo	>=	8.5996094	Volts				
	1				Ignition Voltage H	<=	31.990234	Volts				
	1				Engine Speed Lo	>=	400	RPM	1			I
					Engine Speed H			RPM				

Component/	Fault	Monitor Strategy	Malfunction	Thres		Secondary Malfunction		Enable			Time	Mil Illum.
System	Code	Description Transmission Floatro Hydraulia	Criteria	Val	ue	iviairunction	-	Conditions		R	equired	
Fransmission Control Module (TCM)	D0624	Transmission Electro-Hydraulic Control Module Internal Temperature	Fail Case 1 Substrate Temperature	- 146 20607E	°C					>= 5	Fail Time (Sec	One Tri
ransmission control Module (TCM)	P0034		Substrate remperature	>= 140.290875	*C					>= 5	Fall Time (Sec	'
		Too High				Engine Speed is within the						
						allowable limits for		5	Sec			
						Transmission Fluid						
						Temperature		-6.65625	°C			
						remperature						
								Range				
						Range Shift State	=	Shift	ENUM			
								Completed				
						TPS	>=	0.5004883	%			
						OR		0.3004003	70			
						Output Speed	>=	36	RPM			
						Throttle Position Signal Valid	/-	30	IXI IVI			
						from ECM	=	TRUE	Boolean			
						Engine Torque Signal Valid						
						from ECM, High side driver is		TRUE	Boolean	1		1
						enabled		INOL	Doolcari			
						High-Side Driver is Enabled		TRUE	Boolean	1		1
						Input Speed Sensor fault		FALSE	Boolean			
						Output Speed Sensor fault		FALSE	Boolean			
						Default Gear Option is not			Doolean			
						present	=	TRUE				
						present	1					
					Disable	MIL not Illuminated for	TCM: P071	6 P0717 P0722	P0723			
					Conditions:			0,10111,10122	., 1 0720,			
					0011411101101		1022					
							FCM: P010	1, P0102, P0103	P0106			
								08, P0171, P017				
								201, P0202, P020				
								206, P0207, P020				
								302, P0303, P030				
								807, P0308, P040				
								,,.	,			
ode 2 Multiplex Valve	P0752	Shift Solenoid Valve A Stuck On	Gear Box Slip	>= 400	RPM							One Tr
			Commanded Gear	= 3rd	Gear							
			Commanded Gear has Achieved									
			1st Locked OR 1st Free-Wheel	TOUE	B 1							
			OR 2nd with Mode 2 Sol.	= TRUE	Boolean							
			Commanded On									
			If the above parameters are true									
										Please R	Refer	
										to Table	16 in Neutral Timer	
										>= Support		
						1				Docume		1
			Command 4th Gear once Output	222	DDM							1
			Command 4th Gear once Output Shaft Speed	<= 800	KPM	1				1		1
			If Gear Ratio	>= 4.259765625								1
				<= 4.708251953						1		1
											Fall Times (C	,
										>= 1.5	Fail Timer (Sec	:)
										>= 5	Counts	1
						Ignition Voltage Lo	>=	8.5996094	Volts			1
						Ignition Voltage Hi						

Component/	Fault	Monitor Strategy		Malfunction	Threshold	Secondary		Enable			Time		Mil
System	Code	Description	L	Criteria	Value	Malfunction		Conditions			Requir	ed	Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1	Substrate Temperature	>= 146.296875 °C					>=	5	Fail Time (Sec)	One Trip
		Too nigii				Engine Speed L Engine Speed F Engine Speed is within th	= <=	400 7500	RPM RPM				
						allowable limits fo	r >=	5	Sec				
						High-Side Driver is Enable Throttle Position Signal Vali	_ b	TRUE TRUE	Boolean Boolean				
						from ECN Output Spee	Λ	36	RPM				
						OI TP:	2	0.5004883	%				
						Range Shift Stat	9 =	Range Shift	ENUM				
						Transmission Flui		Completed -6.65625	°C				
						Temperatur Input Speed Sensor fau	9	FALSE	Boolean				
						Output Speed Sensor fau Default Gear Option is no	t =	FALSE	Boolean				
						preser	=	TRUE					
					Disa Conditio		r TCM: P0716 : P182E	5, P0717, P0722	, P0723,				
							P0107, P010 P0175, P020 P0205, P020 P0301, P030	1, P0102, P0103 08, P0171, P017 01, P0202, P020 06, P0207, P020	72, P0174, 03, P0204, 08, P0300, 04, P0305,				
							P0306, P030	07, P0308, P040)1, P042E				
Mode 2 Multiplex Valve	P0/56	Shift Solenoid Valve B Stuck Off	Fail Case 1	Commanded Gear Gear Box Slip						_ to	ease Refer Table 5 in Supporting	Neutral Timer (Sec)	One Tri
				Intrusive Shift to 2nd Commanded Gear Previous Gear Ratio Gear Ratio	= 1st Locked Gear <= 3.015991211						Documents	(300)	
				If the above parameters are true						>= >=	1	sec counts	
						Ignition Voltage L Ignition Voltage H Engine Speed L Engine Speed H	i <= >=	8.5996094 31.990234 400 7500	Volts Volts RPM RPM	<i>7-</i>	<u> </u>	Counts	
						Engine Speed is within th allowable limits for	r >=	5	Sec				
						Output Spee OI	₹	36	RPM				
					l	TP:	>=	0.5004883	%				

Component/	Fault	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System Transmission Control Module (TCM)	P0634	Description Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1	e >= 146.296875 °C	Manunction	Conditions	>= 5 Fail Time (Sec)	One Trip
		ŭ			Range Shift State Transmission Fluit Temperature High-Side Driver is Enabled Throttle Position Signal Valid from ECN Input Speed Sensor faul Output Speed Sensor faul Default Gear Option is no presen	Completed Second Sec		
				Disable Conditions:		TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0776	Pressure Control (PC) Solenoid B Stuck Off [C35R]	Fail Case 1 Case: Steady State 3rd Gea	г				One Tri
			Commanded Gea Gearbox Slip				Please Refer to Table 16 in Neutral Timer >= Supporting (Sec) Documents	
			Command 4th Gear once Outpu Shaft Speed If Gear Ratio And Gear Ratio	d <= 800 KFIVI				
			It the above condiations are true Increment 3rd gear fail counte	r			>= 3 Fail Timer (Sec) >= 3	
			and C35R Fail counte Fail Case 2 Case: Steady State 5th Gea				>= 14 Counts	
			Commanded Gea	r = 5th Gear			Please Refer to Table 5 in Neutral Timer Supporting (Sec) Documents	
			Intrusive Test: Command 6th Gea	г				

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria		Thresh Valu		Secondary Malfunction		Enable Conditions				ime quired	Mil Illum.
System	Code	Transmission Electro-Hydraulic	Fail Case 1	Unteria		valu		mananonon		Conditions		 	Net	_{quil} eu	One Tri
Transmission Control Module (TCM)	P0634	Control Module Internal Temperature		Substrate Temperature	>=	146.296875	°C					>=	5	Fail Time (Se	
		Too High			١.,	Please refer to									
				K		Table 2 in	01 i/i T: (0)								
				If attained Gear=6th gear Time	>=	supporting	Shift Time (Sec)								
				t the above condiations are true,		documents								5th Gear Fa	
			'	Increment 5th gear fail counter								>=	3	Counts	"
				J										or	
				and C35R Fail counter								>=	14	3-5R Clutch F Counts	ail
								PRNDL State defaulted	=	FALSE	Boolean			Counts	-
								inhibit RVT	=	FALSE	Boolean				
								IMS fault pending indication	=	FALSE	Boolean				
								TPS validity flag Hydraulic System Pressurized	=	TRUE TRUE	Boolean Boolean				
								Minimum output speed for							
								RVT	>=	36	RPM				
								A OR B		2/	DDM				
								(A) Output speed enable (B) Accelerator Pedal enable	>= >=	36 0.5004883	RPM Pct				
								Common Enable Criteria	-	0.0001000					
								Ignition Voltage Lo	>=	8.5996094	Volts				
								Ignition Voltage Hi	<= >=	31.990234	Volts RPM				
								Engine Speed Lo Engine Speed Hi	>= <=	400 7500	RPM				
								Engine Speed is within the	>=	5	Sec				
								allowable limits for							
								Throttle Position Signal valid HSD Enabled	=	TRUE TRUE	Boolean Boolean				
								Transmission Fluid							
								Temperature	>=	-6.65625	°C				
								Input Speed Sensor fault	=	FALSE	Boolean				
								Output Speed Sensor fault Default Gear Option is not	=	FALSE	Boolean				
								present	=	TRUE					
							Disable	MIL not Illuminated for	TCM: P0716	P0717 P072	P0723				
							Conditions:	DTC's:		, , , , , , , , , , , , , , , , , , , ,	., . 0, 20,				
										, P0102, P0103 8, P0171, P01					
										06, P0171, P01 01, P0202, P02					
										06, P0207, P02					
										02, P0303, P030					
									P0306, P030)7, P0308, P04	JT, P042E				
ariable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solinoid B	Fail Case 1	Case: Steady State 1st											One Tri
anable bleed Solenold (VDS)	FUIII	Stuck On [C35R] (Steady State)				100	DD14								
				Attained Gear slip	>=	400 Table Based	RPM								
						Time Please									
				If the Above is True for Time		Refer to Table									
				ii tile Above is True for Time	>=		(Sec)								
		I	I			supporting			l			1			- 1

Component/	Fault	Monitor Strategy		Malfunction	Threshold	Secondary	Enable			me	Mi
System	Code	Description	F-11.0: 4	Criteria	Value	Malfunction	Conditions		Req	uired	Illur
ransmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature	Fail Case 1	Substrate Temperature	>= 146.296875 °C			>=	5	Fail Time (Sec)	One 7
		Too High		Intrusive test:							
				(CBR1 clutch exhausted)							
				Gear Ratio	<= 1.933959961						
				Gear Ratio	>= 1.75						
				If the above parameters are true							
								>=	1.1	Fail Timer (Sec))
								>=	2	Fail Count in 1st Gear	
										or	
								>=	3	Total Fail	
			Fail Case 2	Case: Steady State 2nd gear					J	Counts	┨
				, ,	Table Based						
					value Please						
				Max Delta Output Speed							
				Hysteresis							
					supporting documents						
					Table Based						
					value Please						
				Min Delta Output Speed							
				Hysteresis							
					supporting						
					documents Table Based						
					Time Please						
				If the Above in True for Time	Pofor to Table						
				If the Above is True for Time	17 111						
					supporting						
				Intrucivo toet	documents						
				Intrusive test: (CB26 clutch exhausted)							
				Gear Ratio							
				Gear Ratio							
				If the above parameters are true							
								>=	1.1	Fail Timer (Sec))
								>=	3	Fail Count in	
										2nd Gear or	
										Total Fail	
								>=	3	Counts	
			Fail Case 3	Case: Steady State 4th gear	Table Based						
					value Dieses						
				Max Delta Output Speed	Refer to Table						
				Hysteresis							
					supporting						
					documents Table Recod						
					Table Based value Please						
				Min Delta Output Speed							
				Hysteresis	>= 23 in rpm/sec						
				,	supporting						
					documents						1

Component/	Fault	Monitor Strategy	Malfunction	Threshold Value	Secondary Malfunction	Enable Conditions			ime	Mi Illui
System	Code	Description Transmission Electro-Hydraulic	Criteria Fail Case 1	value	INAHUNCTION	Conditions	-	Ked	juired	One
ansmission Control Module (TCM)	P0634	Control Module Internal Temperature		e >= 146.296875 °C			>=	5	Fail Time (Sec)	
()		Too High						-	(200)	
		, and the second		Table Based						
				Time Please						
			If the Above is True for Tim	Refer to Table Sec						
			1 110 / 2010 15 / 140 16/ / / / /	17 111						
				supporting documents						
			Intrusive tes							
			(C1234 clutch exhausted							
			Gear Rati							
			Gear Rati	>= 0.949951172						
			If the above parameters are tru	е						
							>=	1.1	Fail Timer (Sec)	j
							>=	3	Fail Count in 4th Gear	
									or	
								2	Total Fail	
							>=	3	Counts	
			Fail Case 4 Case: Steady State 6th gea							
				Table Based						
			Max Delta Output Spee	value Please						
			Max Delta Output Spee Hysteresi							
			Trysteresi	supporting						
				documents						
				Table Based						
				value Please						
			Min Delta Output Spee							
			Hysteresi							
				supporting documents						
				Table Based						
				Time Please						
			If the Above is True for Time	Pofor to Table						
			If the Above is True for Tim	e >= 17 in Sec						
				supporting						
			Interestina Ann	documents						
			Intrusive tes (CB26 clutch exhausted							
			Gear Rati	0 <= 1.050048828			>=	1.1	Fail Timer (Sec)	1
			Gear Rati				>=	3	counts	
			If the above parameters are tru	е						
							>=	1.1	Fail Timer (Sec)	
									Fail Count in	
							>=	3	6th Gear	
									or	
								3	Total Fail	
							>=	3	Counts	
					PRNDL State defaulted	= FALSE Boolean				
					inhibit RVT	= FALSE Boolean				
					IMS fault pending indication	= FALSE Boolear >= 0 RPM				
					output speed TPS validity flag	>= 0 RPM = TRUE Boolear				1
	1	1	1	1	HSD Enabled	= TRUE Boolear				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thre: Va	shold lue	Secondary Malfunction		Enable Conditions			Time Required	i	Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1 Substrate Temperature							>=		ail Time (Sec)	One Trip
						Hydraulic_System_Pressurize d A OR B	=	TRUE	Boolean				
						(A) Output speed enable (B) Accelerator Pedal enable	>= >=	36 0.5004883	Nm Nm				
						Ignition Voltage Lo	>=	8.5996094	Volts				
						Ignition Voltage Hi	<=	31.990234	Volts				
						Engine Speed Lo	>= <=	400 7500	RPM RPM				
						Engine Speed Hi Engine Speed is within the	.l	7500					
						allowable limits for		5	Sec				
						if Attained Gear=1st FW	>=	5.0003052	Pct				
						Accelerator Pedal enable if Attained Gear=1st FW							
						Engine Torque Enable		20	Nm				
						if Attained Gear=1st FW		8191.875	Nm				
						Engine Torque Enable Transmission Fluid		01711070					
						Temperature		-6.65625	°C				
						Input Speed Sensor fault	=	FALSE	Boolean				
						Output Speed Sensor fault	=	FALSE	Boolean				
					Disable	MIL not Illuminated for	TCM: P071	5 P0717 P0722	P0723				
					Conditions:		P182E	5,1 0,1,1 0,22	., , , , , , , , , , , , , , , , , , ,				
								1, P0102, P0103					
								08, P0171, P017 01, P0202, P020					
							P0205, P02	06, P0207, P020	08, P0300,				
								02, P0303, P030 07, P0308, P040					
							1 0300, 1 03	07,1 0300,1 040	71,1 042L				
		Pressure Control (PC) Solenoid B	Primary Offgoing Clutch is exhausted (See Table 12 in										One Trip
Variable Bleed Solenoid (VBS)	P0777	StuckOn [C35R] (Dymanic)	Supporting Documents for	= TRUE	Boolean								
			Exhaust Delay Timers)										
			Primary Oncoming Clutch Pressure Command Status	Maximum pressurized									
			Primary Offgoing Clutch Pressure	Clutch exhaus									
			Command Status	= command	ıl								
			Dance Chill Clatus	_ Initial Clutch									
			Range Shift Status	≠ Control									
			Attained Gear Slip	<= 40	RPM								
			If the above conditions are true run										
			appropriate Fail 1 Timers Below:										
			fail timer 1	>= 0.5	Fail Time (Sec)								
			(3-1 shifting with Closed Throttle)	V- 0.5									
			fail timer 1 (3-2 shifting with Throttle)	>= 0.5	Fail Time (Sec)								
			fail timer 1	>= 0.5	Fail Time (Sec)								
	I	1	(3-2 shifting with Closed Throttle)	0.0	(500)	l	I			l			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions			Time Requir		Mi Illur
ansmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature	Fail Case 1 Substrate Temperature	>= 1	146.296875						>=	5	Fail Time (Sec)	One '
		Too High	fail timer 1 (3-4 shifting with Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (3-4shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (3-5 shifting with Throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (3-5 shifting with Closed Throttle) fail timer 1	>=	0.5	Fail Time (Sec)								
			(5-3 shifting with Throttle) fail timer 1	>=	0.5	Fail Time (Sec)								
			(5-3 shifting with Closed Throttle) fail timer 1	>=	0.5	Fail Time (Sec)								
			(5-4 shifting with Throttle) fail timer 1	>=	0.5	Fail Time (Sec)								
			(5-4 shifting with Closed Throttle) fail timer 1	>=	0.5	Fail Time (Sec)								
			(5-6 shifting with Throttle) fail timer 1	>=	0.5	Fail Time (Sec)								
			(5-6 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)					Total	al Fail Time		
											= (F	ai Fail Time Fail 1 + Fail See Enable		
			If Attained Gear Slip is Less than								Tim	ers for Fail ner 1, and	sec	
			Above Cal Increment Fail Timers								R	eference upporting	300	
											Ta	able 15 for ail Timer 2		
			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	
			5th gear fail counter								>=	5	counts	
			Total fail counter				TUT Enable temperature	>=	-6.65625	°C	>=	5	total fail counts	
							Input Speed Sensor fault Output Speed Sensor fault	= =	FALSE FALSE	Boolean Boolean				
							Command / Attained Gear High Side Driver ON	≠ =	1st TRUE	Boolean Boolean				
							output speed limit for TUT input speed limit for TUT	>= >=	100 200	RPM RPM				
							PRNDL state defaulted IMS Fault Pending	=	FALSE FALSE	Boolean Boolean				
							Service Fast Learn Mode	=	FALSE	Boolean				
							HSD Enabled Default Gear Option is not	=	TRUE	Boolean				
							present	=	TRUE					Ī

Component/	Fault	Monitor Strategy		Malfunction		Thres		Secondary	Enable	Tim		Mil
System	Code	Description		Criteria		Valu	ue	Malfunction	Conditions	Requi	red	Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1	Substrate Temperature	>= 1	146.296875	°C			>= 5	Fail Time (Sec)	One Trip
							Disable Conditions:		TCM: P0716, P0717, P0722, P0723, P182E			
									ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E			
Variable Bleed Solenoid (VBS)	P0796	Pressure Control (PC) Solenoid C Stuck Off [C456] (Steady State)	Fail Case 1	Case: Steady State 4th Gear								One Trip
		Sluck Oil [C456] (Steady State)		Gear slip	>=	400	RPM			>= Please See Table 5 For Neutral Time Cal		
				Intrusive test: commanded 5th gear		ease refer to						
				If attained Gear ≠5th for time	>=	Table 3 in Supporting Documents	Shift Time (Sec)					
				if the above conditions have been met								
				Increment 4th Gear Fail Counter						>= 3	4th Gear Fail Count OR	
				and C456 Fail Counters						>= 14	C456 Fail Counts	
			Fail Case 2	Case: Steady State 5th Gear						Please See		
				Gear slip	>=	400	RPM			>= Table 5 For Neutral Time Cal		
				Intrusive test: commanded 6th gear	Р	lease Refer						
				If attained Gear ≠ 6th for time	>= to	o Table 3 in Supporting Documents	Shift Time (Sec)					
				if the above conditions have been met							5th Gear Fail	
				Increment 5th Gear Fail Counter						>= 3	Count OR	
				and C456 Fail Counters						>= 14	C456 Fail Counts	
			Fail Case 3	Case: Steady State 6th Gear Gear slip	>=	400	RPM			Please See Table 5 For Neutral Time Cal		
				Intrusive test: commanded 5th gear						Cal		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thresho Value		Secondary Malfunction		Enable Conditions				ime quired	Mil Illum
-		Transmission Electro-Hydraulic	Fail Case 1			mananoton		Conditions				-	One Ti
ransmission Control Module (TCM)	P0634	Control Module Internal Temperature Too High	Substrate Temperature	>= 140.290875 °C	U					>=	5	Fail Time (Sec)	
		Troo ringir		Please refer to									
			If attained Gear ≠ 5th for time	>= Table 3 in S	Shift Time (Sec)								
				Supporting Documents									
			if the above conditions have been	Documents									
			met										
			Increment 6th Gear Fail Counter							>=	3	6th Gear Fail	
			and C456 Fail Counter									Count OR	
			and C456 Fail Counter								14	C456 Fail	
			and C450 Fall Counter			DDNDI OLI I CILI		ENIOE		>=	14	Counts	4
						PRNDL State defaulted inhibit RVT	=	FALSE FALSE	Boolean Boolean				
						IMS fault pending indication	=	FALSE	Boolean				
						TPS validity flag	=	TRUE	Boolean				
						Hydraulic System Pressurized	=	TRUE	Boolean				
						Minimum output speed for RVT	>=	36	RPM				
						A OR B							
						(A) Output speed enable	>=	36	RPM				
						(B) Accelerator Pedal enable	>=	0.5004883	Pct				
						Common Enable Criteria Ignition Voltage Lo	>=	8.5996094	Volts				
						Ignition Voltage Hi	<=	31.990234	Volts				
						Engine Speed Lo	>=	400	RPM				
						Engine Speed Hi	<=	7500	RPM				
						Engine Speed is within the allowable limits for	>=	5	Sec				
						Throttle Position Signal valid	=	TRUE	Boolean				
						HSD Enabled	=	TRUE	Boolean				
						Transmission Fluid Temperature	>=	-6.65625	°C				
						Input Speed Sensor fault	=	FALSE	Boolean				
						OutputSpeed Sensor fault		FALSE	Boolean				
						Default Gear Option is not	=	TRUE					
						present							
					Disable	MIL not Illuminated for		, P0717, P0722	, P0723,				
					Conditions:	DTC's:	P182E						
								, P0102, P0103					
								08, P0171, P017 01, P0202, P020					
								06, P0207, P020					
							P0301, P030	02, P0303, P030	14, P0305,				
							P0306, P030	07, P0308, P040	11, P042E				
iable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C	Fail Case 1 Case: Steady State 1st										One
iabic bicca soichola (VDS)	1 0/7/	Stuck On [C456] (Steady State)	Case. Sieauy State Ist				ı			I			1

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable			ime	Mi
System	Code	Description Transmission Electro-Hydraulic	Criteria Fall Case 1	Value	Malfunction	Conditions	+	Red	quired	One 1
ransmission Control Module (TCM)	P0634	Control Module Internal Temperature		e >= 146.296875 °C			>=	5	Fail Time (Sec)	one
,		Too High							,	
				Table Based						
				Time Please Refer to Table Enable Time						
			If the Above is True for Tim	e >= Kerel to Table Ellable Tillle 4 in (Sec)						
				supporting						
				documents						
			Intrusive tes (CBR1 clutch exhausted							
			Gear Rati							
			Gear Rati	0 >= 1.343017578						
			If the above parameters are tru	е						
							>=	1.1	Fail Timer (Sec)	
								2	Fail Count in	
							>=	2	1st Gear	
									Or Total Fail	
							>=	3	Total Fail Counts	
			Fail Case 2 Case Steady State 2n						Journs	1
				Table Based						
			Max Delta Output Spee	value Please						
			Hysteresi							
			J	supporting						
				documents						
				Table Based value Please						
			Min Delta Output Spee							
			Hysteresi	s >= 23 in rpm/sec						
				supporting						
				documents Table Based						
				Time Please						
			If the Above is True for Tim	e >= Refer to Table Sec						
				17 in supporting						
				documents						
			Intrusive tes	t:						
			(CB26 clutch exhausted							
			Gear Rati Gear Rati							
			If the above parameters are tru							
			<u> </u>				>=	1.1	Fail Timer (Sec)	
									Fail Count in	
							>=	3	2nd Gear	
									or	
							>=	3	Total fail counts	
			Fail Case 3 Case Steady State 3r	d		+				ł
			- Case Sieddy State Si	Table Based						
				value Diegos						
			Max Delta Output Spee	d Refer to Table rpm/sec						
			Hysteresi	s >= 22 in rpm/sec supporting						
	1			documents						I

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable				ime	Mi
System	Code	Description	Criteria	Value	Malfunction	Conditions			Req	uired	Illun
ransmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature	Fail Case 1 Substrate Temperature	>= 146.296875 °C				>=	5	Fail Time (Sec)	One 1
		Too High									
				Table Based							
			Min Dalla Outrat Coast	value Please							
			Min Delta Output Speed Hysteresis	Refer to Table rpm/sec							
			nysteresis	supporting							
				documents							
				Table Based							
				Time Please							
			If the Above is True for Time	Refer to Table							
				17 111							
				supporting documents							
			Intrusive test:	documents							
			(C35R clutch exhausted)								
			Gear Ratio								
			Gear Ratio	>= 1.343017578							1
			If the above parameters are true								
								>=	1.1	Fail Timer (Sec))
										Fail Count in	
								>=	3	3rd Gear	
									OR		
								>=	3	Total Fail	
					PRNDL State defaulted	= FALSE	Boolean			Counts	-
					inhibit RVT		Boolean				
					IMS fault pending indication		Boolean				
					output speed	>= 0	RPM				
					TPS validity flag	= TRUE	Boolean				
					HSD Enabled	= TRUE	Boolean				
					Hydraulic_System_Pressurize	= TRUE	Boolean				
					a A OR B						
					(A) Output speed enable	>= 36	Nm				
					(B) Accelerator Pedal enable	>= 0.5004883	Nm				
					Ignition Voltage Lo	>= 8.5996094	Volts				
					Ignition Voltage Hi	<= 31.990234	Volts				
					Engine Speed Lo	>= 400	RPM				
					Engine Speed Hi Engine Speed is within the	<= 7500	RPM				
					allowable limits for	>= 5	Sec				
					if Attained Gear=1st FW	E 00000E2	D./				
					Accelerator Pedal enable	>= 5.0003052	Pct				
					if Attained Gear=1st FW	>= 20	Nm				
					Engine Torque Enable	· - 20					
					if Attained Gear=1st FW	<= 8191.875	Nm				
					Engine Torque Enable Transmission Fluid						1
					Temperature	>= -6.65625	°C				1
					Input Speed Sensor fault	= FALSE	Boolean				1
					Output Speed Sensor fault		Boolean				1
					Default Gear Option is not	= TRUE					
					present	- INOL					1
	1	i	I	I	1						1

Component/	Fault	Monitor Strategy	Malfunction		Thres		Secondary Malfunction	Enable		Tin		Mil
System	Code	Description Transmission Electro-Hydraulic	Criteria Fail Case 1		Val	ue	Waitunction	Conditions	-	Requ	irea	Illum. One Tri
Fransmission Control Module (TCM)	P0634	Control Module Internal Temperature	Substrate Temperature	>=	146.296875	°C			>=	5	Fail Time (Sec)	
		Too High				Disable	MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723,				
						Conditions:	DTC's:					
								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									One Tri
Variable Dland Colonaid (VDC)	P0797	Pressure Control (PC) Solenoid C	exhausted (See Table 11 in		TDUE	Daalaan						One m
Variable Bleed Solenoid (VBS)	P0/9/	Stuck On [C456] (Dynamic)	Supporting Documents for	=	TRUE	Boolean						
			Exhaust Delay Timers) Primary Oncoming Clutch		Maximum							
			Pressure Command Status	=	pressurized							
			Primary Offgoing Clutch Pressure	,	Clutch exhaust							
			Command Status	=	command							
			Range Shift Status	≠	Initial Clutch							
			Attained Gear Slip		Control 40	RPM						
			·									
			If the above conditions are true increment appropriate Fail 1									
			Timers Below:									
			fail timer 1	>=	0.5	Fail Time (Sec)						
			(4-1 shifting with throttle) fail timer 1									
			(4-1 shifting without throttle)	>=	0.5	Fail Time (Sec)						
			fail timer 1	>=	0.5	Fail Time (Sec)						
			(4-2 shifting with throttle) fail timer 1		0.5	- " T' (O)						
			(4-2 shifting without throttle)	>=	0.5	Fail Time (Sec)						
			fail timer 1 (4-3 shifting with throttle)	>=	0.5	Fail Time (Sec)						
			fail timer 1	>=	0.5	Fail Time (Sec)						
			(4-3 shifting without throttle) fail timer 1									
			(5-3 shifting with throttle)	>=	0.5	Fail Time (Sec)						
			fail timer 1	>=	0.5	Fail Time (Sec)						
			(5-3 shifting without throttle) fail timer 1		0.5	Fall Time (Carl						
			(6-2 shifting with throttle)	>=	0.5	Fail Time (Sec)						
			fail timer 1 (6-2 shifting without throttle)	>=	0.5	Fail Time (Sec)						

Component/	Fault	Monitor Strategy	Malfunction Criteria		nreshold Value	Secondary Malfunction	Enable Conditions			me uired	Mil Illum.
System	Code	Description Transmission Electro-Hydraulic	Fail Case 1		value	INAHUHCUOH	Conditions	\vdash	Keq	uneu	One Trip
Transmission Control Module (TCM)	P0634	Control Module Internal Temperature	Substrate Temperature	>= 146.2968	75 °C			>=	5	Fail Time (Sec)	One mp
,		Too High									
								Т,	otal Fail Tir	ma	
									(Fail 1 + F		
) See Enab		
			If Attained Coor Clin is Loss than						imers for F		
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers						Γimer 1, an		
			Above carmerenent air rimers						Reference		
									Supporting Table 15 fo		
									Fail Timer 2		
										_	
			If fail timer is greater than								
			threshold increment corresponding gear fail counter and total fail								
			counter								
										Fail Counter	
			4th gear fail counter					>=	3	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 counter					>=	5	Total Fail	
			Total fall counter							Counter	
						TUT Enable temperature					
						Input Speed Sensor fauli Output Speed Sensor fauli					
						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					
						TIOD ENGBIOC	11.02 300.00.1				
					Disable		TCM: P0716, P0717, P0722, P0723,				
					Conditions:	DIC'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,				
	1						P0306, P0307, P0308, P0401, P042E				
	+		Fail Case 1 Tap Up Switch Stuck in the Up					+			Specia
ap Up Tap Down Switch (TUTD)	P0815	Upshift Switch Circuit	Position in Range 1 Enabled	= 0	Boolean						No MIL
	1		Tap Up Switch Stuck in the Up	= 0	Boolean						
	1		Position in Range 2 Enabled	<u> </u>	DUUIEdII						
			Tap Up Switch Stuck in the Up	= 0	Boolean						
	1	1	Position in Range 3 Enabled	I	500.0011		1	1			1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		reshold /alue	Secondary Malfunction	Enable Conditions			Time Requir		M IIIu
System	Code	Transmission Electro-Hydraulic	Fail Case 1	<u> </u>			Conditions	•		Requir		One
Fransmission Control Module (TCM)	P0634	Control Module Internal Temperature		>= 146.29687	5 °C				>=	5	Fail Time (Sec)	
		Too High	1									1
			Tap Up Switch Stuck in the Up	= 0	Boolean							ĺ
			Position in Range 4 Enabled Tap Up Switch Stuck in the Up									ĺ
			Position in Range 5 Enabled	= 0	Boolean							ĺ
			Tap Up Switch Stuck in the Up									ĺ
			Position in Range 6 Enabled	= 0	Boolean							ĺ
			Tap Up Switch Stuck in the Up	= 1	Boolean							ĺ
			Position in Neutral Enabled	= 1	boolean							ĺ
			Tap Up Switch Stuck in the Up	= 1	Boolean							ĺ
			Position in Park Enabled Tap Up Switch Stuck in the Up									ĺ
			Position in Reverse Enabled	= 0	Boolean							ĺ
			Tap Up Switch ON	= TRUE	Boolean				>=	1	Fail Time (Sec)	ĺ
			1									ĺ
			Fail Case 2 Tap Up Switch Stuck in the Up	= 1	Boolean							ĺ
			Position in Range 1 Enabled	- 1	Doolean							l
			Tap Up Switch Stuck in the Up	= 1	Boolean							1
			Position in Range 2 Enabled Tap Up Switch Stuck in the Up									1
			Position in Range 3 Enabled	= 1	Boolean							l
			Tap Up Switch Stuck in the Up									1
			Position in Range 4 Enabled	= 1	Boolean							l
			Tap Up Switch Stuck in the Up	= 1	Boolean							l
			Position in Range 5 Enabled	'	Doolcan							1
			Tap Up Switch Stuck in the Up	= 1	Boolean							1
			Position in Range 6 Enabled Tap Up Switch Stuck in the Up									1
			Position in Neutral Enabled	= 0	Boolean							1
			Tap Up Switch Stuck in the Up									1
			Position in Park Enabled	= 0	Boolean							1
			Tap Up Switch Stuck in the Up	= 0	Boolean							1
			Position in Reverse Enabled	_								1
			Tap Up Switch ON	= TRUE	Boolean							1
			NOTE: Both Failcase1 and Failcase 2 Must Be Met						>=	600	Fail Time (Sec)	l
			Talicase 2 Must be Met									1
												1
												1
												1
												l
												ĺ
												1
												1
												1
						Time Since Last Range	>= 1	Enable Time				1
						Change		(Sec)				ĺ
						Ignition Voltage Lo	>= 8.5996094					ĺ
						Ignition Voltage Hi Engine Speed Lo	<= 31.990234 >= 400	Volts RPM				l
						Engine Speed Lo	<= 7500	RPM				l
						Engine Speed is within the						1
	1	l	1			allowable limits for	>= 5	Sec	I			1

Component/	Fault	Monitor Strategy	Malfunction Criteria		Threshold Value		Secondary Malfunction	Enable Conditions	1	Time Required	Mil Illum.
System	Code	Description Transmission Electro-Hydraulic	Fail Case 1	\vdash	value		wanufiction	Conditions	+	Required	One Trip
Transmission Control Module (TCM)	P0634	Control Module Internal Temperature Too High	Substrate Temperature	>= 1	146.296875 °C				>=	5 Fail Time (Sec	c) One m
								Test Failed			
							P0815 Status is	This Key →			
							PUOTO SIAIUSIS	On or Fault			
								Active			
						Disable		TCM: P0816, P0826, P182E, P1876,			
					С	onditions:	DTC's:	P1877, P1915, P1761			
								ECM: None			
			Fail Case 1 Tap Down Switch Stuck in the								Special
Tap Up Tap Down Switch (TUTD)	P0816	Downshift Switch Circuit	Down Position in Range 1 Enabled	=	0 Boolea	n					No MIL
			Tap Down Switch Stuck in the								
			Down Position in Range 2 Enabled	=	0 Boolea	n					
			Ü								
			Tap Down Switch Stuck in the	=	0 Boolea	n					
			Down Position in Range 3 Enabled								
			Tap Down Switch Stuck in the		0 Boolea	_					
			Down Position in Range 4 Enabled	=	0 500162	"					
			Tap Down Switch Stuck in the								
			Down Position in Range 5 Enabled	=	0 Boolea	n					
			T D 0 11 10 11 11								
			Tap Down Switch Stuck in the Down Position in Range 6 Enabled	=	0 Boolea	n					
			Tap Down Switch Stuck in the								
			Down Position in Range Neutral	=	1 Boolea	n					
			Enabled								
			Tap Down Switch Stuck in the Down Position in Range Park		1 Boolea	_					
			Enabled	=	I BOUIEZ	"					
			Tap Down Switch Stuck in the								
			Down Position in Range Reverse Enabled	=	0 Boolea	n					
			Tap Down Switch ON	=	TRUE Boolea	n			>=	1 sec	
			Fail Case 2 Tap Down Switch Stuck in the	=	1 Boolea	n					
			Down Position in Range 1 Enabled		i Boolee	.					
			Tap Down Switch Stuck in the		4 5 1						
			Down Position in Range 2 Enabled		1 Boolea	n					
			Tap Down Switch Stuck in the						1		
			Down Position in Range 3 Enabled	=	1 Boolea	n					
			Tap Down Switch Stuck in the Down Position in Range 4 Enabled	=	1 Boolea	n					
			Down 1 osition in Nange 4 Enabled	1					1		
			Tap Down Switch Stuck in the		1 Boolea	n I					
	1		Down Position in Range 5 Enabled		. 200100						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thre: Va	shold lue	Secondary Malfunction		Enable Conditions			Ti Req	me uired	Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1 Substrate Temperature	>= 146	5.296875				Conditions		>=	5	Fail Time (S	One Trip
		Too rigii	Tap Down Switch Stuck in the Down Position in Range 6 Enabled	=	1	Boolean								
			Tap Down Switch Stuck in the Down Position in Neutral Enabled	=	0	Boolean								
			Tap Down Switch Stuck in the Down Position in Park Enabled	=	0	Boolean								
			Tap Down Switch Stuck in the Down Position in Reverse Enabled	=	0	Boolean								
			Tap Down Switch ON NOTE: Both Failcase1 and Failcase 2 Must Be Met	= '	TRUE	Boolean					>=	600	sec	
							Time Since Last Range Change	>=	I	Enable Time (Sec)				
							Ignition Voltage Lo	>=	8.5996094	Volts				
							Ignition Voltage Hi	<=	31.990234	Volts				
							Engine Speed Lo	>=	400	RPM				
							Engine Speed Hi Engine Speed is within the allowable limits for	<= >=	7500 5	RPM Sec				
							P0816 Status is	≠	Test Failed This Key					
							1 0010 31414313		On or Fault Active					
						Disable Conditions:		TCM: P081 P1877, P19		E, P1876,				
						Conditions.	DIC S.	ECM: None						
Tap Up Tap Down Switch (TUTD)	P0826	Up and Down Shift Switch Circuit	TUTD Circuit Reads Invalid Voltage	=	TRUE	Boolean					>=	60	Fail Time (S	sc) Special No MIL
							Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo	>= <= >=	8.5996094 31.990234 400	Volts Volts RPM				
							Engine Speed Hi		7500	RPM				

Component/	Fault	Monitor Strategy		Malfunction	Thre		Secondary Malfunction		Enable				me	Mil Illum.
System	Code	Description Transmission Electro-Hydraulic	Fail Case 1	Criteria	Va	ue	waitunction		Conditions		-	Req	uired	One Trip
Transmission Control Module (TCM)	D0634	Control Module Internal Temperature	Fall Case I	Substrate Temperature	\= 1/4 204975	°C					>=	5	Fail Time (Sec)	
Tansinission Control Module (TCM)	1 0034	Too High		Substrate Temperature	7- 140.270073	C						J	Tall Tille (Sec)	
		100 High					Engine Speed is within the							
							allowable limits for		5	Sec				
									T . F					
									Test Failed					
							P0826 Status is	≠	This Key On or Fault					
									Active					
									Active					
						B: 11								
						Disable								
						Conditions:	DTC's:	ECM: None						
								ECIVI. NOTIE						
				Rolling count value received from										Special
Tap Up Tap Down Switch (TUTD)	P1761	Tap Up and Down switch signal		BCM does not match expected	= TRUE	Boolean	1				>=	3	Fail Counter	No MIL
		circuit (rolling count)		value										
												10	Sample Timer	
											>	10	(Sec)]
							Tap Up Tap Down Message	=	TRUE	Boolean				
							Health	1						
							Engine Speed Lo		400	RPM				
							Engine Speed H		7500	RPM				
							Engine Speed is within the allowable limits for		5	Sec				
							allowable limits for							
						Disable	MIL not Illuminated for	TCM: None						
						Conditions:								
								ECM: None						
			Fail Case 1		Transition 1									One Trip
Internal Mode Switch (IMS)	P182E	Internal Mode Switch - Invalid Range		Current range		Range								
					1110)									
				Previous range	≠ CeTRGR_e_F RNDL_Drive6	Range								
					CeTRGR e F	1								
				Previous range	≠ CeTRGR_e_F ≠ RNDL_Drive4	Range								
					Dango Shift									
				Range Shift State	= Completed	ENUM								
				Absolute Attained Gear Slip		rpm								
				Attained Gear										
				Attained Gear										
				Throttle Position Available										
	1				>= 8.000183105		1							
	1			Output Speed Engine Torque	>= 200 >= 50	rpm Nm	1							
	1			Engine Torque Engine Torque			1							
	1			If the above conditions are met		14(1)	1							
				then Increment Fail Timer							>=	1	Fail Seconds	
	1			If Fail Timer has Expired then	1		1					-	Fall O	
	1			Increment Fail Counter	1		1				>=	5	Fail Counts	
	1		Fail Case 2	Output Speed	<= 70	rpm								1
	1			The following PRNDL sequence	1		1							
				events occur in this exact order:										
	1	1	I	PRNDL state	= Drive 6 (bit state 0110)	Dongo	1	1			1			1
				L KINDE SIGIE	= -4 044	Range								1

System	Code	Monitor Strategy Description		Malfunction Criteria	L		shold lue		Secondary Malfunction		Enable Conditions			Requ	me uired	III
anomiccian Control Modulo (TCM)	D0434	Transmission Electro-Hydraulic	Fail Case 1	Cubatrata Tamasastura		144 204075	90						>=	-	Fail Time (Cas)	One
ansmission Control Module (TCM)	P0634	Control Module Internal Temperature Too High		Substrate Temperature	>=	140.290875	*C						>=	5	Fail Time (Sec)	
		100 High		PRNDL state = Drive 6 for	>=	1	Sec									
						Transition 8										
				PRNDL state	=	(bit state	Range									
						0111)										
				PRNDL state	=	Drive 6 (bit	Range									
						state 0110) Transition 1	Ü									
				PRNDL state		(bit state	Range									
				T TOTAL STATE		1110)	rtango									
				Above sequencing occurs in		1	Sec									
				Neutral Idle Mode		Inactive										
				If all conditions above are met												
				Increment delay Timer												
				If the below two conditions are met Increment Fail Timer									>=	3	Fail Seconds	
				delay timer		1	Sec									1
				Input Speed		400	Sec									
				If Fail Timer has Expired then	1									2	Fail Counts	
				Increment Fail Counter									>=	2	raii Couriis	
			Fail Case 3			Transition 13					CeTRGR_					
				Current range	=		Range		Previous range	≠	e_PRNDL					ı
						0010)					_Drive4 CeTRGR_					
				Engine Torque	>=	-8192	Nm		Previous range	≠	e_PRNDL					ı
				Engine rorque	1	-0172	IVIII		r revious range	-	_Drive1					
				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				>=	0.225	Seconds	
									satsified when the "current range" = "Transition 13"							
				If Fail Timer has Expired then	J				range = transmorris							
				Increment Fail Counter									>=	15	Fail Counts	
			Fail Case 4			Transition 0			Disable Fail Case 4 if last							1
				Current range		Transition 8 (bit state		I,	positive range was Drive 6 and							
				Current range	1	0111)	Range	ľ	current range is transition 8							
						····,			-							1
									Set inhibit bit true if PRNDL = 1100 (rev) or 0100 (Rev-Neu							1
				Inhibit bit (see definition)	=	FALSE			transition 11)							
				minut bit (See demittori)		TALSE			Set inhibit bit false if PRNDL =							
									1001 (park)							1
				Steady State Engine Torque		100	Nm									1
				Steady State Engine Torque	<=	8191.75	Nm									
				If the above conditions are met then Increment Fail Timer									>=	0.225	Seconds	
				If the above Condtions have been									>=	15	Fail Counts	
				met, Increment Fail Counter	1											
			Fail Case 5	Throttle Position Available		TRUE	Boolean	İ								1
				The following PRNDL sequence												1
				events occur in this exact order:	1	Reverse (bit										

Component/	Fault	Monitor Strategy		Malfunction	Threshold	Secondary		Enable				me	Mil
System	Code	Description Transmission Electro-Hydraulic	Fail Case 1	Criteria	Value	Malfunction		Conditions		├	Req	uired	Illum. One Tri
Transmission Control Module (TCM)	P0634		Fall Case I	Substrate Temperature	e >= 146.296875 °C					>=	5	Fail Time (Sec)	One Iri
				PRNDL State	Transition 11 e = (bit state Range 0100)								
				PRNDL State	e = Neutral (bit state 0101) Range								
				PRNDL State	Transition 11 e = (bit state Range 0100)								
				Above sequencing occurs in Then delay timer increments	n <= 1 Sec								
				Delay timer Range Shift State	Dango Shift								
				Absolute Attained Gear Slip									
				Attained Gear	r <= Sixth								
				Attained Gear Throttle Position									
				Output Speed If the above conditions are met Increment Fail Timer	d >= 200 rpm					>=	20	Seconds	
			Fail Case 6	increment rail rimer	Illegal (bit	A Open Circuit Definition (flag							
				Current range		set false if the following conditions are met):							
				and	i l	Current Range	<i>≠</i>	Transition 11 (bit state 0100)					
				A Open Circuit (See Definition)) = FALSE Boolean	or		Neutral (bit					
						Last positive state	≠	state 0101)					
						Previous transition state	≠	Transition 8 (bit state					
				If the above Condtions are met		Fail case 5 delay timer	=	0111) 0	sec	>=	6.25	Seconds	
			Fail Case 7	then, Increment Fail timer Current PRNDL State	DDMDL 1 11						0.23	Seconds	
				and Previous PRNDL state	DPNDL circuit								
				Input Speed Reverse Trans Ratio	d >= 150 RPM c <= 2.678344727 ratio								
				Reverse Trans Ratio If the above Condtions are met then, Increment Fail timer	t					>=	6.25	Seconds	
				tnen, increment Fall timer									

Teamwater Count Modula (**COU)	Component/	Fault	Monitor Strategy	Malfunction Critoria		Thresh		Secondary Malfunction		Enable Conditions			Time	4	Mil Illum.
Part	System	Code	Description Transmission Flectro-Hydraulic	Criteria Fail Case 1		vaiu	ie	Wallunction		Conditions			Require	u	
PIEZ a literate last fair and any of the above 7 follows any of the above 7 follows and any o	Transmission Control Module (TCM)	P0634	Control Module Internal Temperature		>=	146.296875	°C					>=	5 F	Fail Time (Sec)	0110 111p
Indicate Bread Scherold (VSS) P2715 Secret Cross (PC) Selected D Privacy Cross (PC) Se			100 mgm	any of the above 7 fail cases are											
Condition Cond								Ignition Voltage Le		0.5004004	Volto				
Engris Speed 1 Seption Speed 1 Seption Speed 1 Seption Speed 1 Seption Speed 1 Seption Speed 1 Seption Speed 1 Seption Speed 1 Seption Speed 1 Seption Speed 2 Seption Speed 3 Seption Speed 2 Seption Spe															
Disable Conditions Disable Conditions Disable								Engine Speed Lo		400					
Authorities Bleed Schmid (PES) P2715 Persure Control (PC) Schedad D South Princip Community Pr									<=						
Disable Conditions								allowable limits for	>=	5	Sec				
Conditions								Engine Torque Signal Valid	=	TRUE	Boolean				
Ec.M. P0101, P0102, P0113, P0106, P0107, P0108, P0117, P0112, P0112, P0103, P0106, P															
Potential Pressure Control (PC) Soliential D Primary Offigoring Clade is enhanced (See Table 15 in Support Control Pressure Control (PC) Soliential D Primary Offigoring Clade is enhanced (See Table 15 in Support Control Pressure Control (PC) Soliential D Primary Offigoring Clade is enhanced (See Table 15 in Support Control Pressure Control (PC) Soliential D Primary Offigoring Clade is enhanced (See Table 15 in Support Control Pressure Control (PC) Soliential D Primary Offigoring Clade is enhanced (See Table 15 in Support Control Pressure Control (See Table 15 in Support Control Pressure Control (PC) Soliential D Primary Offigoring Clade is enhanced (See Table 15 in Support Control Pressure Control (See Table 15 in Support Control Pressure Control Control Pressure Control (See Table 15 in Support Control Pressure Control							Conditions:	DIC S:	P0/C0, P0/	BF, P077C, P07	לווט				
Participation Participatio															
Primary Offiging Clutch is exhausted (See Table 13 in Suck On (CB22e) (Dynamic) Primary Offiging Clutch is exhausted (See Table 13 in Suck On (CB22e) (Dynamic) Primary Offiging Clutch Pressure Command Status Primary Offiging Clutch Pressu															
Primary Offging Clutch is exhausted (See Table 13 in Supporting Documents for Exhaust Debty Timers) Primary Offging Clutch Pressure Primary Offging Clutch Is subject to the subject of the pressure of the pr									P0205, P020	06, P0207, P020	08, P0300,				
Variable Bleed Solenoid (VBS) P2715 Pressure Confrol (PC) Solenoid D Stuck On (CB26) (Dynamic) Primary Offsping Cutch is chaused (See Table 13 in Exporting Documents for Exhaused Delay Times') Primary Offsping Clutch Pressure Command Status Primary Offsping Clutch Pressure Command Status Range Shift Status Attained Gear Stip If above coditions are rue, Increment appropriate Fall I Timers below: (2.1 shifting with throttle) (2.3 shifting with brottle) (2.3 shifting with brottle) (2.4 shifting with brottle) (2.4 shifting with brottle) (2.4 shifting with brottle) (3.5 shifting with brottle) (4.5 shifting with brottle) (5.5 Fall Time (Sec)															
Variable Bleed Solenoid (VBS) P2715 Pressure Control (PC) Solenoid D Suck On [CB26] (Oynamic) Primary Ofloging Clutch Pressure Command Slatus Press									1 0300, 1 030	77,1 0000,1 0 10	71,1 012				
Supporting Documents for Enhanced Status Primary Officing Clutch Pressure Command Status Primary Officing Clutch Pressure Command Status Primary Officing Clutch Pressure Command Status Range Shift Status Attained Gear Stip Cantrol Ratins Ra			Droccure Central (DC) Calonaid D												One Trip
Primary Offiging Cutch Pressure Command Status Primary Offiging Cutch Pressure Command Status Range Shift Status Range Shift Status Attained Gear Stip If above colltons are true, increment appropriate Fall Timers Below, fall timer 1 (2-1 shifting with throttie) If all timer 1 (2-3 shifting with throttie) If all timer 1 (2-3 shifting with throttie) If all timer 1 (2-3 shifting with throttie) If all timer 1 (2-4 shif	Variable Bleed Solenoid (VBS)	P2715				TRUE	Boolean								
Primary Offgoing Clutch Pressure Command Status Range Shift Status Attained Gear Slip If above coditions are true, increment appropriate Fall Times Below: (2-1 shifting with throttle) fall timer 1 (2-3 shifting with throttle) (2-3 shifting with throttle) (2-3 shifting with throttle) (2-4 shifting with throttle) (2-4 shifting without throttle) (3-4 shifting without throttle) (4-4 shifting without throttle) (6-4 shifting with throttle)				Exhaust Delay Timers)											
Clutch exhaust command Status Range Shiff Status Attained Gear Silp If above coditions are true. Increment appropriate Fail 1 Timers Below: fail timer 1 (2-1 shiffing with throttle) fail timer 1 (2-3 shifing with throttle) fail timer 1 (2-4 shiffing with throttle) fail timer 1 (2															
Command Status Range Shift Status Altained Gear Slip If above coditions are true, increment appropriate Fail 1 Timers Below:						•									
Attained Gear Slip If above codions are true, increment appropriate Fail I Timers Below: If all timer 1 (2-1 shifting with throttle) Fail timer 1 (2-3 shifting without throttle) Fail timer 1 (2-3 shifting without throttle) Fail timer 1 (2-4 shifting with throttle) Fail timer 1 (2-4 shifting with throttle) Fail timer 1 (2-4 shifting with throttle) Fail timer 1 (2-4 shifting with throttle) Fail timer 1 (2-4 shifting with throttle) Fail timer 1 (2-4 shifting with throttle) Fail timer 1 (2-4 shifting with throttle) Fail timer 1 (2-4 shifting with throttle) Fail timer 1 (2-4 shifting with throttle) Fail timer 1 (2-4 shifting with throttle) Fail timer 1 (2-4 shifting with throttle) Fail timer 1 (3-4 shifting with throttle) Fail timer 1 (3					=										
Attained Gear Slip If above coditons are true, increment appropriate Fail 1 Timers Below: fail timer 1 (2-1 shifting with throttle) fail timer 1 (2-3 shifting with throttle) fail timer 1 (2-4 shifting with throttle) fail timer 1 (2-4 shifting with throttle) fail timer 1 (2-4 shifting with throttle) fail timer 1 (2-4 shifting with throttle) fail timer 1 (2-4 shifting with throttle) fail timer 1 (2-4 shifting with throttle) fail timer 1 (2-4 shifting with throttle) fail timer 1 (2-4 shifting with throttle) fail timer 1 (3-5 Fail Time (Sec) fail Time (Sec) fail Time (Sec) fail Time (Sec) fail Time (Sec) fail Time (Sec) fail Time (Sec) fail Time (Sec) fail Time (Sec) fail Time (Sec) fail Time (Sec) fail Time (Sec) fail Time (Sec) fail Time (Sec) fail Time (Sec)				Range Shift Status	≠										
increment appropriate Fail 1 Timers Below: fail timer 1 (2-1 shifting with throttle) fail timer 1 (2-3 shifting with throttle) fail timer 1 (2-3 shifting with throttle) fail timer 1 (2-4 shifting with throttle) fail timer 1 (2-4 shifting with throttle) fail timer 1 (2-4 shifting without throttle) fail timer 1 (2-4 shifting without throttle) fail timer 1 (2-4 shifting without throttle) fail timer 1 (2-4 shifting without throttle) fail timer 1 (2-4 shifting without throttle) fail timer 1 (3-4 shifting without throttle) fail timer 1 (3-5 Fail Time (Sec) Fail Time (Sec) Fail Time (Sec) Fail Time (Sec) Fail Time (Sec) Fail Time (Sec) Fail Time (Sec) Fail Time (Sec)				Attained Gear Slip	<=		RPM								
Timers Below: fall timer 1 (2-1 shifting with throttle) fall timer 1 (2-3 shifting with throttle) fall timer 1 (2-3 shifting with throttle) fall timer 1 (2-4 shifting with throttle) fall timer 1 (2-4 shifting with throttle) fall timer 1 (2-4 shifting with throttle) fall timer 1 (2-4 shifting with throttle) fall timer 1 (2-4 shifting with throttle) fall timer 1 (3-4 shifting with throttle) fall timer 1 (3-5 Fail Time (Sec) Fail Time (Sec) Fail Time (Sec) Fail Time (Sec) Fail Time (Sec) Fail Time (Sec) Fail Time (Sec) Fail Time (Sec) Fail Time (Sec) Fail Time (Sec) Fail Time (Sec)				If above coditons are true,											
C2-1 shifting with throttle) Fail timer 1 C2-3 shifting with throttle) Fail timer 1 C2-3 shifting with throttle) Fail timer 1 C2-4 shifting with throttle) Fail timer 1 C2-4 shifting with throttle) Fail timer 1 C2-4 shifting with throttle) Fail timer 1 C2-4 shifting with throttle) Fail timer 1 C2-4 shifting with throttle) Fail timer 1 C2-4 shifting with throttle) Fail timer 1 C2-4 shifting with throttle) Fail timer 1 C2-4 shifting with throttle) C2-															
(2-1 shifting with throttle) fail timer 1 (2-3 shifting with throttle) fail timer 1 (2-3 shifting with throttle) fail timer 1 (2-4 shifting with throttle) fail timer 1 (2-4 shifting with throttle) fail timer 1 (2-4 shifting with throttle) fail timer 1 (2-4 shifting with throttle) fail timer 1 (2-4 shifting with throttle) fail timer 1 (2-5 shifting with throttle) fail timer 1 (2-6 shifting with throttle) fail timer 1 (2-7 shifting with throttle) fail timer 1 (2-8 shifting with throttle) fail timer 1 (2-9 shifting with throttle) fail timer 1 (2-9 shifting with throttle) fail timer 1 (2-9 shifting with throttle) fail timer 1 (2-1 shifting with throttle) fail timer 1 (2-1 shifting with throttle) fail timer 1 (2-2 shifting with throttle) fail timer 1 (2-3 shifting with throttle) fail timer 1 (2-4 shifting with throttle) fail timer 1 (2-5 shifting with throttle) fail timer 1 (2-6 shifting with throttle) fail timer 1 (2-7 shifting with throttle) fail timer 1 (2-8 shifting with throttle) fail timer 1 (2-9 shifting with throttle) fail timer 1 (2-9 shifting with throttle) fail timer 1 (2-1 shifting with throttle) fail timer 1 (2-1 shifting with throttle) fail timer 1 (2-1 shifting with throttle) fail timer 1 (2-2 shifting with throttle) fail timer 1 (2-3 shifting with throttle) fail timer 1 (2-4 shifting with throttle) fail timer 1 (2-4 shifting with throttle) fail timer 1 (2-5 shifting with throttle) fail timer 1 (2-6 shifting with throttle) fail timer 1 (2-7 shifting with throttle) fail timer 1 (2-8 shifting with throttle) fail timer 1 (2-9 shifting with throttle) fail timer 1 (2-9 shifting with throttle) fail timer 1 (2-9 shifting with throttle) fail timer 1 (2-9 shifting with throttle) fail timer 1 (2-1 shifting with throttle) fail timer 1 (2-1 shifting with throttle) fail timer 1 (2-1 shifting with throttle) fail timer 1 (2-1 shifting with throttle) fail timer 1 (2-1 shifting with throttle) fail timer 1 (2-1 shifting with throttle) fail timer 1 (2-1 shifting with throttle) fail timer 1 (2-2 shifting with throttle) f															
(2-1 shifting without throttle) fail timer 1 (2-3 shifting with throttle) fail timer 1 (2-4 shifting with throttle) fail timer 1 (2-4 shifting with throttle) fail timer 1 (2-4 shifting without throttle) fail timer 1 (6-4 shifting with throttle) fail timer 1 (6-4 shifting with throttle) fail timer 1 (6-4 shifting with throttle) fail timer 1 (6-4 shifting with throttle) fail timer 1 fail timer				(2-1 shifting with throttle)	>=	0.5	Fail Time (Sec)								
(2-3 shifting with throttle) fail timer 1 (2-3 shifting without throttle) fail timer 1 (2-4 shifting with throttle) fail timer 1 (2-4 shifting without throttle) fail timer 1 (6-4 shifting with throttle) fail timer 1 (6-4 shifting with throttle) fail timer 1 (6-5 Fail Time (Sec)				(2-1 shifting without throttle)	>=	0.5	Fail Time (Sec)								
(2-3 shifting without throttle) fail timer 1 (2-4 shifting with throttle) fail timer 1 (2-4 shifting without throttle) fail timer 1 (6-4 shifting with throttle) fail timer 1 fail timer (Sec)					>=	0.5	Fail Time (Sec)								
(2-4 shifting with throttle) fail timer 1 (2-4 shifting without throttle) fail timer 1 (6-4 shifting with throttle) fail timer 1 (6-5 Fail Time (Sec) Fail Time (Sec) Fail Time (Sec) Fail Time (Sec)					>=	0.5	Fail Time (Sec)								
(2-4 shifting without throttle) fail timer 1 (6-4 shifting with throttle) fail timer 1 and 5 = Fail Time (Sec)					>=	0.5	Fail Time (Sec)								
fail timer 1 (6-4 shifting with throttle) fail timer 1 0.5 Fail Time (Sec)				fail timer 1	>=	0.5	Fail Time (Sec)								
fail timer 1				fail timer 1		0.5	Fail Time (Sec)								
						0.5	Fail Time (Sec)								

Component/	Fault	Monitor Strategy	Malfunction		reshold	Secondary	Enable			Tim		Mil
System	Code	Description	Criteria		Value	Malfunction	Condition	s		Requi	red	Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature	Fail Case 1 Substrate Temperature	>= 146.2968	75 °C				>=	5	Fail Time (Sec)	One Trip
Transmission Control Module (TCM)	P0034	Too High	Substrate reinperature	>= 140.2900	75 °C				>=	3	rall fille (Sec)	
		Too riigii	fail timer 1	0.5	F-11 Thurs (C)							
			(6-5 shifting with throttle)	>= 0.5	Fail Time (Sec)							
			fail timer 1	>= 0.5	Fail Time (Sec)							
			(6-5 shifting without throttle)									
									_			
										tal Fail Time Fail 1 + Fail		
										See Enable		
			If Attained Gear Slip is Less than							mers for Fail		
			Above Cal Increment Fail Timers							imer 1, and	sec	
										Reference Supporting		
										able 15 for		
									F	ail Timer 2		
			If fail timer is greater than									
			threshold increment corresponding									
			gear fail counter and total fail counter									
											Fail Counter	
			2nd gear fail counter						>=	3	From 2nd Gear	
											OR	
			6th gear fail counter						>=	3	Fail Counter From 6th Gear	
											OR	
			total fail counter						>=	5	Total Fail	
			total fall counter			THE Cookle to see the	((5(0)	5 °C			Counter	
						TUT Enable temperature Input Speed Sensor fault	>= -6.6562! = FALSE	Boolean				
						Output Speed Sensor fault	= FALSE	Boolean				
						Command / Attained Gear	≠ 1st	Boolean				
						High Side Driver ON output speed limit for TUT	= TRUE >= 100	Boolean RPM				
						input speed limit for TUT	>= 200	RPM				
						PRNDL state defaulted	= FALSE	Boolean				
						IMS Fault Pending	= FALSE	Boolean				
						Service Fast Learn Mode HSD Enabled		Boolean Boolean				
						es Enablea	INGE	200.0011				
					B	MII	TOM D074/ D0747 500	100 D0700				
					Disable Conditions:		TCM: P0716, P0717, P07 P182E	22, P0/23,				
					Conditions.	D10 3.	522					
							ECM: P0101, P0102, P01					
							P0107, P0108, P0171, P					
							P0175, P0201, P0202, P0205, P0206, P0207, P0					
							P0301, P0302, P0303, P					
							P0306, P0307, P0308, P	0401, P042E				
	-	Pressure Control (PC) Solenoid D	Fail Case 1						1			One Trip
Variable Bleed Solenoid (VBS)	P2715	Stuck On [CB26] (Steady State)	Case: Steady State 1st									one mp
1	I	l	Attained Gear slip	>= 400	RPM	l	I					

Component/	Fault	Monitor Strategy	Malfunction		Threshold	Secondary	Enable			ime	Mi
System	Code	Description Transmission Floetro Hydraulis	Criteria Fail Case 1		Value	Malfunction	Conditions	_	Red	quired	One -
ransmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature		emperature	>= 146.296875 °C			>=	5	Fail Time (Sec)	one
,		Too High								,	
					Table Based						
					Time Please						
			If the Above is Tr	ue for Time	>= Refer to Table Enable Time 4 in (Sec)						
					supporting						
					documents						
				rusive test:							
			(CBR1 clutch		<= 3.015991211						
					>= 2.728027344						
			If the above paramete	ers are true							
								>=	1.1	Fail Timer (Sec)	
										Fail Count in	
								>=	5	1st Gear	
										or	
								>=	5	Total Fail	
			Fail Case 2 Case: Steady Sta	te 3rd Gear		+		-		Counts	1
			ran oado E	to ora ocal	Table Based						
					value Pleace						
			Max Delta Ou		Refer to Table >= 22 in rpm/sec						
				Hysteresis	22 in supporting						
					documents						
					Table Based						
			A# D # O		value Please						
			Min Delta Ou	Hysteresis	Refer to Table rpm/sec 23 in						
				Trystorosis	supporting						
					documents						
					Table Based						
					Time Please Refer to Table Sec						
			If the Above is Tr	ue for Time	>= 17 in Sec						
					supporting						
					documents						
			ini (C35R clutch	rusive test:							
					<= 3.015991211						
				Gear Ratio	>= 2.728027344						
			If the above parameter	ers are true							
								>=	1.1	Fail Timer (Sec)	
									_	Fail Count in	
								>=	3	3rd Gear	1
										or T-4-1 F-11	1
								>=	5	Total Fail Counts	
			Fail Case 3 Case: Steady Sta	te 4rd Gear						Counts	1
					Table Based						1
					value Please						
			Max Delta Ou	tput Speed Hysteresis	Refer to Table >= 22 in rpm/sec						1
				riystelesis	supporting						1
	1				documents						1

Component/	Fault	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			ime Juired	III
System	Code	Description Transmission Electro-Hydraulic	Fail Case 1	value	Walluliction	Conditions		Keq	lunea	On
nsmission Control Module (TCM)	D0624		<u>Laii Case I</u>	rature >= 146.296875 °C	1			Б	Fail Time (Sec)	
unazion control Module (TCM)		Control Module Internal Temperature	Substrate Tempel	ature >= 140.2700/5 °C	1		>=	5	raii i lille (Sec)	7
		Too High			1					
				Table Based	1					
				value Please	1					
			Min Delta Output S		1					
			Hysto		1					
				supporting	1					
				documents	1					
				Table Based	1					
				Time Please	1					
			If the Above is True for	Time >= Refer to Table Sec	1					
			ii tile Above is True ioi	17 111	1					
				supporting	1					
				documents	1					
			Intrusive	test:	1					
			(C1234 clutch exhau	isted)	1					
			Gear	Ratio <= 0.779052734	1					
			Gear	Ratio >= 0.704956055	1					
			If the above parameters ar		1					
					1			1 1	Fail Timer (Sec	٥)
					1		>=	1.1	rali Hiller (Sec	-/
					1		× -	3	Fail Count in	
					1		>=	3	4th Gear	
					1				or	
					1		>=	5	Total Fail	
							/-	J	Counts	╛
			Fail Case 4 Case: Steady State 5th							
				Table Based	1					
				value Please	1					
			Max Delta Output S		1					
			Hyste		1					
				supporting	1					
				documents	1					
				Table Based	1					
				value Please	1					
			Min Delta Output S	speed >= Refer to Table rpm/sec	1					
			Hysto	eresis >= 23 in 1pm/sec	1					
				supporting	1					
				documents	1					
				Table Based	1					
				Time Please						
			If the Above is True for	Time >= Refer to Table Sec	1					
			ii tile Above is Tide ioi	17 111	1					
				supporting	1					
				documents	1					
			Intrusive		1					
			(C35R clutch exhau		1					
			Gear		1					
				Ratio >= 0.704956055	1					
			If the above parameters are	e true						
							>=	1.1	Fail Timer (Sec	2)
							\	3	Fail Count in	
							>=	3	5th Gear	
									or	
					1			5	Total Fail	1
	1	I .		1	1		>=	J	Counts	- 1

Component/	Fault	Monitor Strategy	Malfunction	Thresh		Secondary		Enable			Time		Mil
System	Code	Description	Criteria	Value	е	Malfunction		Conditions			Required		Illum.
		Transmission Electro-Hydraulic	Fail Case 1		_								One Tri
ransmission Control Module (TCM)	P0634	Control Module Internal Temperature	Substrate Temperature	>= 146.296875 °	C.					>=	5 Fai	I Time (Sec)	
		Too High											
						inhibit RVT	=	FALSE	Boolean				
						IMS fault pending indication	=	FALSE	Boolean				
						output speed	>=	0	RPM				
						TPS validity flag	=	TRUE	Boolean				
						HSD Enabled	=	TRUE	Boolean				
						Hydraulic_System_Pressurize	=	TRUE	Boolean				
						0							
						A OR B		0.4					
						(A) Output speed enable	>=	36	Nm				
						(B) Accelerator Pedal enable	>=	0.5004883	Nm				
						Ignition Voltage Lo	>=	8.5996094	Volts				
						Ignition Voltage Hi	<=	31.990234	Volts				
						Engine Speed Lo	>=	400	RPM				
						Engine Speed Hi	<=	7500	RPM				
						Engine Speed is within the	>=	5	Sec				
						allowable limits for							
						if Attained Gear=1st FW	>=	5.0003052	Pct				
						Accelerator Pedal enable							
						if Attained Gear=1st FW	>=	20	Nm				
						Engine Torque Enable							
						if Attained Gear=1st FW	<=	8191.875	Nm				
						Engine Torque Enable							
						Transmission Fluid	>=	-6.65625	°C				
						Temperature							
						Input Speed Sensor fault	=	FALSE	Boolean				
						Output Speed Sensor fault	=	FALSE	Boolean				
						Default Gear Option is not	=	TRUE					
						present							
					B: 11		TO14 DO74	, 50747 5070	D0700				
					Disable	MIL not Illuminated for		6, P0/17, P0/2	2, P0723,				
					Conditions:	DTC's:	P182E						
							E014 D040	4 50400 5040	D040/				
								1, P0102, P0103					
								08, P0171, P01					
								01, P0202, P02					
								06, P0207, P02					
								02, P0303, P03					
							PU3U6, PU3	07, P0308, P04	u I, PU4ZE				
	+		D-l							1			On - =
		Dragging Control (DC) Color-14 F	Primary Offgoing Clutch is										One T
'ariable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E	exhausted (See Table 10 in	= TRUE E	Boolean								
		Stuck On (Dynamic)	Supporting Documents for										
			Exhaust Delay Timers)	Marrian									
			Primary Oncoming Clutch	= Maximum									
			Pressure Command Status	pressurized									
			Primary Offgoing Clutch Pressure	Clutch exhaust									
			Command Status	= command									
			Range Shift Status	≠ Initial Clutch									
			_	Control									
		1	Attained Gear Slip	<= 40 F	RPM								l

Component/	Fault	Monitor Strategy	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions			Tim Requi		M Illu
System	Code	Description Transmission Electro-Hydraulic	Criteria Fall Case 1	\vdash	v	aiue	Manunction		Conditions		-	Requi	ieu	One
ransmission Control Module (TCM)	P0634		Substrate Temperature	>=	146.29687	5 °C					>=	5	Fail Time (Sec)	
, ,		Too High	· ·										. ,	
			If the above conditions are true											
			increment appropriate Fail 1											
			Timers Below: fail timer 1											
			(2-6 shifting with throttle)	>=	0.5	sec								
			fail timer 1		0.5	600								
			(2-6 shifting without throttle)	>=	0.5	sec								
			fail timer 1	>=	0.5	sec								
			(3-5 shifting with throttle) fail timer 1											
			(3-5 shifting without throttle)	>=	0.5	sec								
			fail timer 1	>=	0.5	sec								
			(4-5 shifting with throttle)	_	0.5	300								
			fail timer 1 (4-5 shifting without throttle)	>=	0.5	sec								
			fail timer 1											
			(4-6 shifting with throttle)	>=	0.5	sec								
			fail timer 1	>=	0.5	sec								
			(4-6 shifting without throttle)	-	0.0	300								
												al Fail Time		
												Fail 1 + Fail		
												See Enable ners for Fail		
			If Attained Gear Slip is Less than									mer 1, and	sec	
			Above Cal Increment Fail Timers									Reference	333	
												Supporting		
												able 15 for		
											Fa	ail Timer 2		
			If fail timer is greater than											
			threshold increment corresponding											
			gear fail counter and total fail counter											
												0	Fail Counter	
			2nd gear fail counter								>=	3	From 2nd Gear	1
													- "	
			3rd gear fail counter	l							>=	3	Fail Counter From 3rd Gear	
													FIUIII 310 Geal	
			4th gear fail counter									3	Fail Counter	
			4th gear fail counter								>=	3	From 4th Gear	
													Total Fail	
			total fail counter	1							>=	5	Counter	1
				t			TUT Enable temperature	>=	-6.65625	°C			Gounto	1
							Input Speed Sensor fault	=	FALSE	Boolean				1
							Output Speed Sensor fault	=	FALSE	Boolean				
							Command / Attained Gear	≠	1st TRUE	Boolean Boolean				
							High Side Driver ON output speed limit for TUT	= >=	100 100	RPM				
							input speed limit for TUT	>=	200	RPM				
							PRNDL state defaulted	=	FALSE	Boolean				
							IMS Fault Pending	=	FALSE	Boolean				1
							Service Fast Learn Mode	=	FALSE	Boolean				1
	1	ĺ	l .	l .			HSD Enabled	=	TRUE	Boolean	l .			1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum.
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1	nperature :	>= 146.296875 °C	mandiouri	Conditions	>=	5 Fail Time (Sec	One Tri
					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, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E			
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Steady State)	Fail Case 1 Case:	5th Gear	Tabla Dagad					One Tri
			Max Delta Outp F	out Speed lysteresis	Table Based value Please Refer to Table 22 in supporting documents					
			Min Delta Outp F	out Speed lysteresis	Table Based value Please Refer to Table 23 in supporting documents Table Based					
			If the Above is True		Table Based Time Please Refer to Table 17 in supporting documents					
			(C35R clutch e: G	ear Ratio ear Ratio	<= 1.484985352 >= 1.343017578					
								>= >=	1.1 Fail Timer (Sec 3 Fail Count in 5th Gear	1
								>=	OR Total Fail Counts	
			Max Delta Outp	6th Gear out Speed lysteresis	Table Based value Please Refer to Table 22 in rpm/sec supporting					

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary		Enable				me	Mil
System	Code	Description	Criteria	Value	Malfunction	С	onditions			Req	uired	Illum
Transmission Control Module (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1 Substrate Temperature	>= 146.296875 °C					>=	5	Fail Time (Sec)	One Ti
		100 nigii		Table Based								
				value Pleace								
			Min Delta Output Speed	>= Refer to Table rpm/sec								
			Hysteresis	23 in supporting								
				documents								
				Table Based								
				Time Please								
			If the Above is True for Time	>= Refer to Table Sec								
				supporting								
			Internal or to st	documents								
			Intrusive test: (CB26 clutch exhausted)									
			Gear Ratio	<= 1.484985352								
			Gear Ratio	>= 1.343017578								
			If the above parameters are true						>=	1.1	Fail Timer (Sec)	
											Fail Count in	
									>=	3	6th Gear OR	
									>=	3	Total Fail	
					PRNDL State defaulted	=	FALSE	Boolean			Counts	
					inhibit RVT	=	FALSE	Boolean				
					IMS fault pending indication	=	FALSE	Boolean				
					output speed TPS validity flag	>= =	0 TRUE	RPM Boolean				
					HSD Enabled	=	TRUE	Boolean				
					Hydraulic_System_Pressurize	=	TRUE	Boolean				
					A OR B							
					(A) Output speed enable	>=	36	Nm				
					(B) Accelerator Pedal enable Ignition Voltage Lo		0.5004883 8.5996094	Nm Volts				
					Ignition Voltage Hi		31.990234	Volts				
					Engine Speed Lo	>=	400	RPM				
					Engine Speed Hi Engine Speed is within the	<=	7500	RPM				
					allowable limits for	>=	5	Sec				
					if Attained Gear=1st FW	>= {	5.0003052	Pct				
					Accelerator Pedal enable if Attained Gear=1st FW	•						
					Engine Torque Enable	>=	20	Nm				
					if Attained Gear=1st FW Engine Torque Enable	<=	8191.875	Nm				
					Transmission Fluid Temperature	>=	-6.65625	°C				
					Input Speed Sensor fault	=	FALSE	Boolean				
					Output Speed Sensor fault Default Gear Option is not	=	FALSE	Boolean				
					present	=	TRUE					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
Transmission Control Module (TCM)	P0634		Fail Case 1	>= 146.296875 °C Disable Conditions:	DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106,	>= 5 Fail Time (Sec)	One Trip
						P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			shold		Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
Transmission Control Module (TCM)	C1251	The lateral accleration signal is stuck	Lateral accleration magnitude	<=	3.85	g's		a.ra.ro.ro.r		Conditions			rteq	uncu	Special
(,		at a high magnitude in range	Lateral accleration magnitude	>=	0.53	g's									No MIL
			Lateral accleration magnitude is	>=	120	Sec									
			within the range above for	>=	120	Sec									
								Lateral accleration magnitude	<=	3.85	g's				
								Lateral accleration magnitude	>=	0.53	g's				
								Lateral accleration magnitude	>=	90	Sec				
								is within the range above for Diagnostic shifting override							
								command	=	FALSE	Boolean				
								Attaliand Come Chate		1st through					
								Attained Gear State	=	6th					
								Attained Gear Slip	<=	100	RPM				
										Clutch to					
								Transmission Type	=	Clutch Transmissi					
										on					
								High Side Driver 1 On	=	TRUE	Boolean				
								Vehicle Speed Lateral acceleration stuck in	>=	15	kph				
								range diagnostic enable	=	TRUE	Boolean				
								Battery Voltage	<=	31.999023	Volts				
								Battery Voltage Battery voltage is within the	>=	9	Volts				
								allowable limits for	>=	0.1	Sec				
								Ignition Voltage	<=	31.999023	Volts				
								Ignition Voltage Service Fast Learn (SFL)	>=	9	Volts				
								Mode	=	FALSE	Boolean				
								Ignition voltage and SFL	>=	0.1	Sec				
								conditions met for							
							Disable	MIL not Illuminated for							
						(Conditions:	DIC's:		'17, P0721, P07 C0, P077B, P07					
									P215C, U00		70,10776,				
									5014 N						
									ECM: None						
		Transmission Electro-Hydraulic	Fail Case 1												One Trip
Transmission Control Module (TCM)	P0634	Control Module Internal Temperature	Substrate Temperature	>=	146.296875	°C						>=	5	Fail Time (Sec)	
		Too High													
			Fail Case 2 Substrate Temperature	>=	50	°C						>=	2	Fail Time (Sec)	1
			Ignition Voltage	>=	18	Volts								. ,	
			Note: either fail case can set the DTC												
			<u> </u>					Ignition Voltage Lo	>=	8.5996094	Volts				1
								Ignition Voltage Hi	<=	31.990234	Volts				
								Substrate Temp Lo Substrate Temp Hi	>= <=	0 170	°C				
								Substrate Temp Between							
								Temp Range for Time		0.25	Sec				

Component/	Fault	Monitor Strategy	Malfunction	Ι	Thres	shold	Secondary	 	Enable		I	Tir	me	Mil
System	Code	Description	Criteria	-	Val	lue	Malfunction		Conditions		_	Requ	uired	Illum.
							P0634 Status is	≠	Test Failed This Key On or Fault Active					
						Disable Conditions:	DTC's:	TCM: None ECM: None						
Transmission Input Speed Sensor (TISS)	P0716	Input Speed Sensor Performance	Transmission Input Speed Sensor Drops		1350	RPM					>=	0.8	Fail Time (Sec)	One Trip
							Engine Torque is Engine Torque is Engine Speed Engine Speed Engine Speed is within the allowable limits for Vehicle Speed is Throttle Position is	<= >= <= >= >=	0 8191.875 400 7500 5 10	N*m N*m RPM RPM Sec Kph Pct				
							Transmission Input Speed is The previous requirement has been satisfied for	\	0	RPM Sec				
							The change (loop to loop) in transmission input speed is The previous requirement has been satisfied for Throttle Position Signal Valid Engine Torque Signal Valid Ignition Voltage	>= = = = >=	0 TRUE TRUE 8.5996094 31.990234 Test Failed	RPM/Loop Sec Boolean Boolean Volts Volts				
						Disable Conditions:		TCM: P0717	, P0102, P0103					
Transmission Input Speed Sensor (TISS)	P0717	Input Speed Sensor Circuit Low Voltage	Fall Case 1 Transmission Input Speed is		33	RPM					>=	4.5	Fail Time (Sec)	One Trip
			Fall Case 2 When P0722 DTC Status equal to Test Failed and Transmission Input Speed is	<	1000	RPM	Controller uses a single power supply for the speed sensors	=	1	Boolean				
							Engine Torque is Engine Torque is Vehicle Speed Engine Torque Signal Valid Ignition Voltage	<= >= =	50 8191.875 16 TRUE 8.5996094	N*m N*m Kph Boolean Volts				

Component	I Fault		Malfunction	o i i a i i		-	a. <u>,</u>				Tim		Mil
Component/ System	Fault Code	Monitor Strategy Description	Mairunction Criteria		Threshold Value	Secondary Malfunction		Enable Conditions			Tim Requi		Mil Illum.
						Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	>= <=	31.990234 400 7500 5	Volts RPM RPM Sec		•		
						P0717 Status is not	=	Test Failed This Key On or Fault Active					
					Disable Conditions:	MIL not Illuminated for DTC's:		2, P0723 1, P0102, P0103					
Transmission Output Speed Sensor (TOSS)	P0722	Output Speed Sensor Circuit Low Voltage	Transmission Output Speed Sensor Raw Speed	<= .	35 RPM					>=	3.75	Fail Time (Sec)	One Trip
(1000)		Voluge	School Null Speed			P0722 Status is not	=	Test Failed This Key On or Fault Active					
						Transmission Input Speed Check Engine Torque Check Throttle Position Transmission Fluid Temperature Disable this DTC if the PTO is active	= = >= >=	TRUE TRUE 8.0001831 -40	Boolean Pct °C Boolean				
						Engine Torque Signal Valid Throttle Position Signal Valid Ignition Voltage is Ignition Voltage is Engine Speed is Engine Speed is within the allowable limits for	= = >= <= >= <=	TRUE TRUE 8.5996094 31.990234 400 7500 5	Boolean Boolean Volts Volts RPM RPM Sec				
						Enable_Flags Defined Below							
						The Engine Torque Check is TRUE, if either of the two following conditions are TRUE							
						Engine Torque Condition 1 Range Shift Status	≠	Range shift completed	ENUM				
						Transmission Range is Engine Torque is Engine Torque is	= >=	Park or Neutral 8191.75 8191.75	N*m N*m				
						Engine Torque Condition 2 Engine Torque is Engine Torque is	>=	35 8191.75	N*m N*m				

F	Component/	Fault	Monitor Strategy	Malfunction		Thre			Secondary		Enable			Tir	me	Mil
\vdash	System	Code	Description	Criteria		Va	lue		Malfunction		Conditions			Requ	uired	Illum.
									The Transmission Input Speed (TIS) Check is TRUE, if either of the two following conditions are TRUE							
									TIS Check Condition 1 Transmission Input Speed is Transmission Input Speed is	>= <=	1000 8191	RPM RPM				
									TIS Check Condition 2 Engine Speed without the brake applied is Engine Speed with the brake	>=	3200	RPM				
									applied is	>=	3200	RPM				
									Engine Speed is	<=	8191	RPM				
									Controller uses a single power supply for the speed sensors Powertrain Brake Pedal is	=	1 TRUE	Boolean Boolean				
							Со	Disable nditions:	Valid MIL not Illuminated for DTC's:	TCM: P0716, F ECM: P0101, I P0122, P0123	P0717, P0723					
т.	anomicalan Outsut Casad Casaa		Output Chand Canage Circuit	Transmission Output Speed											Enoble Time	One Trin
	ansmission Output Speed Sensor OSS)	P0723	Output Speed Sensor Circuit Intermittent	Sensor Raw Speed	>=	105	RPM						>=	0.2	Enable Time (Sec) Enable Time	One Trip
				Output Speed Delta	<=	8191	RPM						>=	0	(Sec) Output Speed	
				Output Speed Drop	>	650	RPM						>=	1.5	Drop Recovery Fail Time (Sec)	
				AND Transmission Range is	=	Driven range (R,D)										
									Range_Disable OR	=	FALSE	See Below				
									Neutral_Range_Enable And	=	TRUE	See Below				
									Neutral_Speed_Enable are TRUE concurrently	=	TRUE	See Below				
									Transmission_Range_Enable	=	TRUE	See Below				
									Transmission_Input_Speed_E nable	=	TRUE	See Below				
									No Change in Transfer Case Range (High <-> Low) for	>=	5	Seconds				
									P0723 Status is not	=	Test Failed This Key On or Fault					
									Disable this DTC if the PTO is active	=	Active 1	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum
	3000	2000.1941011	ona	- 3100	Ignition Voltage is	>=	8.5996094	Volts	401100	
					Ignition Voltage is	<=	31.990234	Volts		
					Engine Speed is	>=	400	RPM		
					Engine Speed is Engine Speed is within the	<=	7500	RPM		
					allowable limits for	>=	5	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			Enable Time		
					both of the following conditions	>=	0	(Sec)		
					are satsified for		1005			
					Input Speed Delta	<=	4095	RPM RPM		
					Raw Input Speed	>=	500	RPIVI		
					TIS Condition 2 is TRUE when					
					ALL of the next two conditions					
					are satisfied					
					Input Speed	=	0	RPM		
					A Single Power Supply is used	=	TRUE	Boolean		
					for all speed sensors					
					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			
					Transmission Range is	=	ve Transitiona	ENUM		
					And when a drop occurs					
					Loop to Loop Drop of		650	RPM		
					Transmission Output Speed is	>	000	KPIVI		
					Range_Disable is TRUE when					-
					any of the next three					
					conditions are TRUE					
					Transmission Range is	=	Park	ENUM		
							Park/Rever			
					Transmission Range is	=	se	ENUM		
							Transitonal			
					Input Clutch is not	=	ON (Fully	ENUM		
							Applied)	-		
					Neutral_Speed_Enable is					_
					TRUE when All of the next	>	1.5	Seconds		
					three conditions are satsified	/	1.0	Secolus		
					for Transmission Output Speed		130	RPM		
						>	130	KLINI		
					The loop to loop change of the Transmission Output Speed is	<	20	RPM		
					rransmission Output Speed IS					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	<u> </u>	Enable Conditions			Tim Requ		Mil Illum.
System	Code	Description	Unteria	value	The loop to loop change of the Transmission Output Speed is	>	-10	RPM		Кечи	neu	main.
					Transmission_Range_Enable is TRUE when one of the next six conditions is TRUE Transmission Range is	=	Neutral Reverse/N eutral	ENUM				
					Transmission Range is	=	Transitiona	ENUM				
					Transmission Range is	=	Neutral/Dri ve Transitiona I	ENUM				
					Time since a driven range (R,D) has been selected		Table Based Time Please Refer to Table 21 in supporting documents	Sec				
					Transmission Output Speed Sensor Raw Speed	>=	500	RPM				
					Output Speed when a fault was detected		500	RPM				
				Disable Conditions			, P0102, P0103					
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 If Above Conditions Have been						>=	5	Fail Time (Sec)	
			Met, and Fail Timer Expired, Increment Fail Counter						>=	2	TCC Stuck Off Fail Counter	
					TCC Mode Ignition Voltage Lo Ignition Voltage Hi Engine Speed Engine Speed is within the allowable limits for Engine Torque Lo	>= <= <= <= >= <= >=	On or Lock 8.5996094 31.990234 400 7500 5	Volts Volts RPM RPM Sec N*m				

System	Component/	Fault	Monitor Strategy	Malfunction		Thre	shold	Secondary Malfunction	<u> </u>	Enable				me	Mil Illum.
The complete of the complete	System	Code	Description	Criteria		Va	lue				N*m	1	Req	uirea	illum.
Treath Politics 101															
### Continue for the co															
### Description of the Committee Cauchy (TOC) #### PRINCE #### Description of the Committee Cauchy (TOC) ##### Description of the Committee Cauchy (TOC) ###################################															
Strict Control Control Strict Contro															
## A Committee Clubb (TCC) ##															
## Conserver Cutor (TCC) ##227 TOC System Strike Off March Conserver Cutor (TCC) ##227 TOC System Strike Off March Conserver Cutor (TCC) ##228 TOC System Strike Off March Conserver Cutor (TCC) ##228 TOC System Strike Off March Conserver Cutor (TCC) ##229 TOC System Strike Off TOC System Strike Off TOC System Strike Off TOC System Strike Off TOC System Strike Off TOC System Strike Off TOC System Strike Off TOC System Strike Off TOC System Strike Off TOC System Strike Off TOC System Strike Off TOC System Strike Off TOC System Strike Off TOC System Strike Off TOC System Strike Off TOC															
## After Converter Cultifu (TCC) POYAL Scare State A															
Sin Gian Polis Sin															
Strict Care Ratio 1-1 Stri								5th Gear Ratio Lo							
## Contract Ratio to Am Gener Ratio to Am Gener Ratio to Am Gener Ratio to Am Gener Ratio to Am Gener Ratio to Am Gener Ratio to Contract Ratio to Am General Ratio to Contract Ratio Rati															
## April 1 April 1 April 2 April 2 April 2 April 3 April 2 April 3 April 3 April 4 Apr															
Transmission Plate															
Temporative to Temporative to Temporative to Temporative to 10 °C Temporative to 1									,						
Transmission Fluid Transmi									>=	-6.664063	°C				
Temperature #1 Temp															
PTO Not Active TRUE Bookean TRUE Bookean TRUE Bookean TRUE Bookean TRUE Bookean TRUE Bookean True									<=	130	°C				
Englis Transport Page Figure Figu									_	TRUE	Roolean				
Throughe Position (Signal Viside TRUE Boolean PALSE Boolean Toest failed This Key On or Fault Active															
Dynamic Mode								Throttle Position Signal Valid							
P0741 Status is P0741 Stat															
POM1 Status is POM2 Status in POM2								Dynamic wode	=	FALSE	Doolean				
Disable Conditions										Test Failed					
Active								DOZA1 Chakua la		This Key					
Disable Conditions								PU/41 Status is	7						
Conditions: DTCs: P0742, P2743, P2744 ECM. P010, P0102, P0103, P0106, P0107,										Active					
Conditions: DTCs: P0742, P2743, P2744 ECM. P010, P0102, P0103, P0106, P0107,															
Conditions: DTCs: P0742, P2743, P2744 ECM. P010, P0102, P0103, P0106, P0107,															
Conditions: DTCs: P0742, P2743, P2744 ECM. P010, P0102, P0103, P0106, P0107,							Disable	MIL or at Illiand to at a d form	TOM DOT4/	D0747 D0700	D0700				
ECM- P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0204, P0205, P0206, P0207, P0208, P0200, P0207, P0208, P0207, P0											, P0/23,				
P0107, P0108, P0171, P0172, P0174, P0175, P0203, P0204, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0304, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0304, P0305, P0306, P0307, P0308, P0401, P042E							Conditions:	DIC'S:	P0/42, P2/6	53, P2/64					
P0107, P0108, P0171, P0172, P0174, P0175, P0203, P0204, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0304, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0304, P0305, P0306, P0307, P0308, P0401, P042E									FOLL DOLO	4 DO400 D040	0 00101				
P075, P0201, P0202, P0203, P0204, P0205, P0206, P0205, P0206, P															
P0205, P0205, P0207, P0208, P0300, P0301, P0302, P0303, P0303, P0304, P0305, P0301, P0302, P0303, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E Torque Converter Clutch (TCC) P0742 TCC System Stuck ON TCC Slip Speed >= -50 RPM TCC Slip Speed <= 13 RPM TCC Slip Speed <= 13 RPM TCC Slip Speed <= 13 RPM = 2 Fail Time (Sec) >= 6 Fall Counter TCC Mode Enable test if Cmmd Gear = 1 FirW and value true Enable test if Cmmd Gear = 2nd and value true Enable test if Cmmd Gear = 2nd and value true Englie Speed to >= 500 RPM TCS Mode = 0 Off Enable test if Cmmd Gear = 1 Boolean 2nd and value true Englie Speed to >= 500 RPM Vehicle Speed to >= 6 Nm Engine Torque to >= 0 Nm Current Range Current Range Current Range Current Range Transmission Sump Tansmission Sump Tansm															
P0201, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E Torque Converter Clutch (TCC) P0742 TCC System Stuck ON TCC Slip Speed >= -50 RPM TCC Slip Speed <= 13 RPM If Above Conditions Have been Met, and Fall Timer Expired, Increment Fall Counter															
P0306, P0307, P0308, P0401, P042E P0306, P0401, P042E P0306, P0308, P0401, P042E P0306, P															
Torque Converter Clutch (TCC) P0742 TCC System Stuck ON TCC Slip Speed															
TCC Slip Speed If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter TCC Mode Enable test if Cmnd Gear = 1stPW and value true Enable test if Cmnd Gear = 2nd and value true Engine Speed HI Engine Speed HI Vehicle Speed LO Vehicle Speed LO Vehicle Speed LO Engine Torque HI Engine Torque LO Current Range Current Range Transmission Sump TCC Mode Enable test if Cmnd Gear = 1									P0306, P030	07, P0308, P040)1, P042E				
TCC Slip Speed If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter TCC Mode Enable test if Cmnd Gear = 1stPW and value true Enable test if Cmnd Gear = 2nd and value true Engine Speed HI Engine Speed HI Vehicle Speed LO Vehicle Speed LO Vehicle Speed LO Engine Torque HI Engine Torque LO Current Range Current Range Transmission Sump TCC Mode Enable test if Cmnd Gear = 1	T	D0740	7000 1 01 101	700000			DDIA								0 7
Second State Seco	Torque Converter Clutch (TCC)	P0742	TCC System Stuck ON												One Trip
If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter				TCC Slip Speed	<=	13	RPIVI							F 11 T1 (0)	
Met, and Fail Timer Expired, Increment Fail Counter				15.41 0 151 1								>=	2	Fail Time (Sec)	
Increment Fail Counter													,	F 11.0	
TCC Mode Enable test if Cmnd Gear = 1stFW and value true Enable test if Cmnd Gear = 2nd and value true Enable test if Cmnd Gear = 2nd and value true Engine Speed Hi												>=	6	Fail Counter	
Enable test if Cmnd Gear = 1stFW and value true Enable test if Cmnd Gear = 2nd and value true Engine Speed Hi Vehicle Speed Hi Vehicle Speed Lo Engine Torque Hi Engine Torque Hi Engine Torque Lo Current Range Current Range Transmission Sump Enable test if Cmnd Gear = 1 Boolean Boolean 1 Boolea				Increment Fail Counter						0.00					
1stFW and value true Enable test if Cmnd Gear = 2nd and value true Engine Speed Hi Engine Speed Lo Vehicle Speed HI Vehicle Speed HI Vehicle Speed HI Engine Torque Hi Engine T									=	Off					
Ist wand value true Enable test if Cmnd Gear = 2nd and value true Engine Speed Hi									=	1	Boolean				
2nd and value true Engine Speed Hi Engine Speed Lo Vehicle Speed Hi Vehicle Speed Hi Vehicle Speed Lo Engine Torque Hi Engine Torque Lo Current Range Current Range Transmission Sump Engine Torque Transmission Sump Transmission Sump Engine Torque Transmission Sump Engine Torque Transmission Sump Transmission Sump Transmission Sump										•					
Engine Speed Hi Engine Speed Lo >= 500 RPM Vehicle Speed HI <= 511 KPH Vehicle Speed Lo >= 1 KPH Vehicle Speed Lo >= 1 KPH Engine Torque Hi <= 8191.875 Nm Engine Torque Lo >= 80 Nm Current Range ≠ Neutral Range Current Range ≠ Reverse Range Transmission Sump									=	0	Boolean				
Engine Speed Lo >= 500 RPM Vehicle Speed HI <= 511 KPH Vehicle Speed Lo >= 1 KPH Vehicle Speed Lo >= 1 KPH Engine Torque HI <= 8191.875 Nm Engine Torque Lo >= 80 Nm Current Range ≠ Neutral Range Current Range ≠ Reverse Range Transmission Sump															
Vehicle Speed HI <=								Engine Speed Hi							
Vehicle Speed Lo															
Engine Torque HI <= 8191.875 Nm Engine Torque Lo >= 80 Nm Current Range ≠ Neutral Range Current Range ≠ Reverse Range Transmission Sump															
Engine Torque Lo >= 80 Nm Current Range ≠ Neutral Range Current Range ≠ Reverse Range Transmission Sump								Vehicle Speed Lo							
Current Range Current Range Current Range Fransmission Sump 130 °C															
Current Range ≠ Reverse Range Transmission Sump															
Transmission Sump															
									≠	Reverse	Range				
Temperature \(\sigma \)									<=	130	°C				
	[I	l					Temperature	_	150	O	I			

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary		Enable			Tim		Mil
System	Code	Description	Criteria	Value	Malfunction Transmission Sump		Conditions			Requi	red	Illum.
					Temperature	>=	18	°C				
					Throttle Position Hyst High	>=	5.0003052	Pct				
					AND							
					Max Vehicle Speed to Meet	<=	8	KPH				
					Throttle Enable	1						
					Once Hyst High has been met, the enable will remain while	>=	2.0004272	Pct				
					Throttle Position		2.0004272	T Ct				
					Disable for Throttle Position	>=	75	Pct				
					Disable if PTO active and	=	1	Boolean				
					value true							
					Disable if in D1 and value true		1 1	Boolean				
					Disable if in D2 and value true Disable if in D3 and value true		1	Boolean 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				
					true	1	1	Doolcaii				
					Disable if in TUTD and value		1	Boolean				
					true 4 Wheel Drive Low Active		FALSE	Boolean				
					Disable if Air Purge active and							
					value false		0	Boolean				
					RVT Diagnostic Active		FALSE	Boolean				
					Ignition Voltage		8.5996094	V				
					Ignition Voltage	<=	31.990234	V				
					Vehicle Speed Engine Speed	<= >=	511 400	KPH RPM				
					Engine Speed	<=	7500	RPM				
					Engine Speed is within the							
					allowable limits for		5	Sec				
					Engine Torque Signal Valid		TRUE	Boolean				
					Throttle Position Signal Valid	=	TRUE	Boolean				
							Test Failed					
					P0742 Status is	≠	This Key					
					1 07 12 014140 15	,	On or Fault					
							Active					
				Disable Bisable	MANUAL AND AND AND AND AND AND AND AND AND AND	TOM D071/	D0717 D0700	D0700				
				Disabl Conditions		P0741, P276	, PUTT, PUTZZ, 32 D276/I	P0723,				
				Conditions		FU/41, FZ/0	JJ, FZ/04					
						ECM: P0101	1, P0102, P0103	, P0106,				
						P0107, P010	08, P0171, P017	2, P0174,				
							01, P0202, P020					
							06, P0207, P020					
)2, P0303, P030)7, P0308, P040					
						0300,1030	,,,1 0300,1 040	1, 1 UTZL				
Mode 2 Multiplex Valve	D07F1	Shift Solenoid Valve A Stuck Off	Commaned Gear Slip	>= 400 RPM								Two Trips
ivioue z iviuitipiex valve	PU/51	SHIIL SUICHUIU VAIVE A SLUCK UII	· ·									
			Commanded Gear						I .	0.2	Fe9.T	
				<= 1.484985352 >= 1.343017578					>=	0.3 5	Fail Tmr Fail Counts	
			If the above parameters are true	/- 1.343U1/3/0					=	J	i aii OulitS	
			22222							0	Neutral Timer	
i			1			I			≠	0	(Sec)	1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold	Secondary Malfunction	Ī	Enable Conditions			Tin Requ	ne	Mil Illum.
System	Code	Description	Criteria	Va	ue	Manunction		Conditions		<u> </u>			mum.
										>=	0.3	Fail Timer (Sec)	
						Ignition Voltage Lo	>=	8.5996094	Volts	>=	8	Counts	
						Ignition Voltage Ed		31.990234	Volts				
						Engine Speed Lo	>=	400	RPM				
						Engine Speed Hi		7500	RPM				
						Engine Speed is within the allowable limits for		5	Sec				
						Transmission Fluid	il	/ / 5 / 05	00				
						Temperature	>=	-6.65625	°C				
								Range					
						Range Shift State	=	Shift	ENUM				
								Completed					
						TPS	>=	0.5004883	%				
						OR Output Speed	>=	36	RPM				
						Throttle Position Signal Valid	ı						
						from ECM	=	TRUE	Boolean				
						Engine Torque Signal Valid		TOUE	D 1				
						from ECM, High side driver is enabled		TRUE	Boolean				
						High-Side Driver is Enabled		TRUE	Boolean				
						Input Speed Sensor fault	=	FALSE	Boolean				
						Output Speed Sensor fault	=	FALSE	Boolean				
						Default Gear Option is not present		TRUE					
						present							
					Disable	MIL not Illuminated for	TCM: P0716	6, P0717, P0722	, P0723,				
					Conditions:	DIC's:	P182E						
							ECM: P0101	1, P0102, P0103	, P0106,				
								08, P0171, P017					
								01, P0202, P020 06, P0207, P020					
								02, P0303, P030					
								07, P0308, P040					
Mode 2 Multiplex Valve	P0752	Shift Solenoid Valve A Stuck On	Gear Box Slip	>= 400	RPM								One Trip
mode 2 manipion varie	1 0,02	oran constitue varion class on	Coal Box onp	100									0110 111p
			Commanded Gear	= 3rd	Gear								
			Commanded Gear has Achieved 1st Locked OR 1st Free-Wheel										
			OR 2nd with Mode 2 Sol.	= TRUE	Boolean								
			Commanded On										
			If the above parameters are true										
											ease Refer Table 16 ir		
											Supporting		
											ocuments	\·==/	
			Command 4th Gear once Output	<= 800	RPM								
			Shaft Speed If Gear Ratio										
				<= 4.259765625 <= 4.708251953									
	1	1	I , and Soul Hallo	30201700		ı	•			•			ı

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction	Enable	Time	Mil Illum.
System	Code	Description	Criteria	Value	Waitunction	Conditions	Required	IIIum.
							>= 1.5 Fail Timer (Sec)	
					Ignition Voltage La	0.500/004 Valta	>= 5 Counts	
					Ignition Voltage Lo Ignition Voltage Hi	>= 8.5996094 Volts <= 31.990234 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi			
					Engine Speed is within the allowable limits for			
					High-Side Driver is Enabled	= TRUE Boolean		
					Throttle Position Signal Valid			
					from ECM Output Speed			
					OR OR	2		
					TPS	>= 0.5004883 %		
						Range		
					Range Shift State			
						Completed		
					Transmission Fluid Temperature			
					Input Speed Sensor fault			
					Output Speed Sensor fault	= FALSE Boolean		
					Default Gear Option is not			
					present			
				Disable		TCM: P0716, P0717, P0722, P0723,		
				Conditions:	DIC'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		
Mode 2 Multiplex Valve	P0756	Shift Solenoid Valve B Stuck Off	Fail Case 1 Commanded Gea	r = 1st Locked				One Trip
							Please Refer	
			Gear Box Sli	>= 400 RPM			>= to Table 5 in Neutral Timer Supporting (Sec)	
							Documents (Sec)	
			Intrusive Shift to 2nd					
			Commanded Gear Previous					
			Gear Ratio Gear Ratio					
			If the above parameters are true					
							>= 1 sec	
				-	Ignition Voltage Lo	>= 8.5996094 Volts	>= 3 counts	
					Ignition Voltage Hi	<= 31.990234 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi Engine Speed is within the			
					allowable limits for			
					Output Speed	>= 36 RPM		
					OR TPS			
I	I	ı	I	I	I IPS	>= 0.5004883 %	1 1	ı .

	Component/	Fault	Monitor Strategy	Malfunction	Thresi	hold	Secondary		Enable			Time		Mil
-	System	Code	Description	Criteria	Valu	ue	Malfunction		Conditions			Requir	ed	Illum.
							Range Shift State	=	Range Shift Completed	ENUM				
							Transmission Fluid Temperature	>=	-6.65625	°C				
							High-Side Driver is Enabled	=	TRUE	Boolean				
							Throttle Position Signal Valid from ECM	=	TRUE	Boolean				
							Input Speed Sensor fault	=	FALSE	Boolean				
							Output Speed Sensor fault Default Gear Option is not		FALSE	Boolean				
							present		TRUE					
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P182E	P0717, P0722	?, P0723,				
								ECM: P0101, P0107, P0108 P0175, P0201 P0205, P0206 P0301, P0302	3, P0171, P013 , P0202, P020 , P0207, P020 2, P0303, P030	72, P0174, 03, P0204, 08, P0300, 04, P0305,				
								P0306, P0307	, P0308, P040	01, P042E				
Variab	e Bleed Solenoid (VBS)	P0776	Pressure Control (PC) Solenoid B Stuck Off [C35R]	Fail Case 1 Case: Steady State 3rd Gea										One Trip
			0.001.1	Commanded Gea Gearbox Sli		Gear RPM								
											>= to Tab Supp	e Refer le 16 in oorting ments	Neutral Timer (Sec)	
				Command 4th Gear once Outpu Shaft Speer If Gear Ratin	>= 1.343261719	RPM								
				And Gear Ratio	<= 1.484741211							3	Fail Timer (Sec)	
				It the above condiations are true									3rd Gear Fail	
				Increment 3rd gear fail counte							>=	3	Counts	
				and C35R Fail counte							>= 1	14	3-5R Clutch Fail Counts	
				Fail Case 2 Case: Steady State 5th Gea Commanded Gea	= 5th	Gear							Counts	
				Commanded Gea	= 5011	Geal								
				Gearbox Sli	>= 400	Rpm					>= to Tab Supp	e Refer ble 5 in porting ments	Neutral Timer (Sec)	
				Intrusive Test: Command 6th Gea										
				If attained Gear=6th gear Time	Please refer to Table 3 in supporting documents	Shift Time (Sec)								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			ime quired	Mil Illum.
- Jouin	3000	2 conputer	It the above condiations are true,	- 1100		22	>=	3	5th Gear Fail	
			Increment 5th gear fail counter					J	Counts	
									or 3-5R Clutch Fail	
			and C35R Fail counter				>=	14	Counts	
					PRNDL State defaulted	= FALSE Boolean				
					inhibit RVT	= FALSE Boolean				
					IMS fault pending indication	= FALSE Boolean				
					TPS validity flag Hydraulic System Pressurized	= TRUE Boolean = TRUE Boolean				
					Minimum output speed for					
					RVT	>= 30 RPIVI				
					A OR B					
					(A) Output speed enable					
					(B) Accelerator Pedal enable Common Enable Criteria					
					Ignition Voltage Lo					
					Ignition Voltage H	i <= 31.990234 Volts				
					Engine Speed Lo	>= 400 RPM				
					Engine Speed H					
					Engine Speed is within the allowable limits for					
					Throttle Position Signal valid					
					HSD Enabled	f = TRUE Boolean				
					Transmission Fluid					
					Temperature					
					Input Speed Sensor fault Output Speed Sensor fault					
					Default Gear Option is not					
					present					
				Disable	MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723,				
				Conditions		P182E				
				Contanions		1 1022				
						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
,		Stuck On [C35R] (Steady State)	Attained Gear slip	>= 400 RPM						
			Attairieu Gear Siip	Table Based						
				Time Please						
			If the Above is True for Time	Refer to Table Enable Time						
			ii the Above is True for Time	4 In (Sec)						
				supporting documents						
			Intrusive test:	documents						
			(CBR1 clutch exhausted)							
			Gear Ratio	<= 1.933959961						
			Gear Ratio	>= 1.75						
			If the above parameters are true							
	1						>=	1.1	Fail Timer (Sec)	
1	1	•	•	•	•	1	•			

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Ti Req	ime uired	Mil Illum.
•								>=	2	Fail Count in 1st Gear	
										or	
								>=	3	Total Fail Counts	
			Fail Case 2	Case: Steady State 2nd gear						Counts	
					Table Based value Please						
				Max Delta Output Speed	Refer to Table rpm/sec						
				Hysteresis	22 in supporting						
					documents						
					Table Based value Please						
				Min Delta Output Speed	Refer to Table rpm/sec						
				Hysteresis	23 in supporting						
					documents						
					Table Based Time Please						
				If the Above is True for Time	Refer to Table Sec						
				ii tile Above is True for Time	17 in supporting						
					documents						
				Intrusive test: (CB26 clutch exhausted)							
				Gear Ratio	<= 1.933959961						
				Gear Ratio If the above parameters are true	>= 1.75						
				ii tile above parameters are tide				>=	1.1	Fail Timer (Sec)	
										Fail Count in	
								>=	3	2nd Gear	
										or Total Fail	
								>=	3	Counts	
			Fail Case 3	Case: Steady State 4th gear	Table Based						
					value Please						
				Max Delta Output Speed Hysteresis							
				11,500,550	supporting						
					documents Table Based						
					value Dleace						
				Min Delta Output Speed Hysteresis	>= Refer to Table 23 in rpm/sec						
				11930010313	supporting						
					documents Table Based						
					Timo Dioaco						
				If the Above is True for Time	Refer to Table >= 17 in Sec						
					supporting						
				Intrusive test:	documents						
				(C1234 clutch exhausted)							
				Gear Ratio	<= 1.050048828 >= 0.949951172						
	I	ı	ı	Gear Ratio	>= U.747701172	I	I	1			ı

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		nable nditions				me uired	Mil Illum.
	3000		If the above parameters are true	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,						54		
									>=	1.1	Fail Timer (Sec)	
										3	Fail Count in	
									>=	3	4th Gear	
											or Total Fail	
									>=	3	Counts	
			Fail Case 4 Case: Steady State 6th gear	T.11 B								
				Table Based value Please								
			Max Delta Output Speed	Refer to Table								
			Hysteresis	22 in supporting								
ı				documents								
				Table Based								
			Min Delta Output Speed	value Please Refer to Table								
			Hysteresis	23 in 1pm/sec								
				supporting								
				documents Table Based								
				Timo Diones								
			If the Above is True for Time	Refer to Table >= 17 in Sec								
				supporting								
			lateration to a	documents								
			Intrusive test: (CB26 clutch exhausted)									
			Gear Ratio	<= 1.050048828					>=	1.1	Fail Timer (Sec)	
			Gear Ratio	>= 0.949951172					>=	3	counts	
			If the above parameters are true	0.747731172						J	counts	
									>=	1.1	Fail Timer (Sec)	
											Fail Count in	
									>=	3	6th Gear	
											or Total Fail	
									>=	3	Counts	
					PRNDL State defaulted		ALSE	Boolean				
					inhibit RVT IMS fault pending indication		ALSE	Boolean Boolean				
					output speed	>=	0	RPM				
					TPS validity flag HSD Enabled		TRUE TRUE	Boolean Boolean				
					Hydraulic_System_Pressurize							
					d	=	TRUE	Boolean				
					A OR B (A) Output speed enable	>=	36	Nm				
					(B) Accelerator Pedal enable	>= 0.5	5004883	Nm				
					Ignition Voltage Lo		000224	Volts				
					Ignition Voltage Hi Engine Speed Lo	<= 31 >=	.990234 400	Volts RPM				
					Engine Speed Hi		7500	RPM				
					Engine Speed is within the allowable limits for	>=	5	Sec				
					if Attained Gear=1st FW		0000050	Det				
					Accelerator Pedal enable	>= 5.0	0003052	Pct				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Val		Secondary Malfunction		Enable Conditions	<u> </u>	Time Required	Mil Illum.
Gystom		Scottpatori			•	Disable Conditions:	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 MIL not Illuminated for DTC's:	P182E ECM: P010 P0107, P01 P0175, P02 P0205, P02 P0301, P03	20 8191.875 -6.65625 FALSE FALSE	Nm		
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solenoid B StuckOn [C35R] (Dymanic)	Primary Offgoing Clutch is exhausted (See Table 12 in Supporting Documents for Exhaust Delay Timers) Primary Oncoming Clutch Pressure Command Status	=	TRUE Maximum pressurized	Boolean						One Trip
			Primary Offgoing Clutch Pressure Command Status	= (Clutch exhausi command							
			Range Shift Status	7	Initial Clutch Control							
			Attained Gear Slip If the above conditions are true run appropriate Fail 1 Timers Below:	<=	40	RPM						
			fail timer 1 (3-1 shifting with Closed Throttle) fail timer 1	>=		Fail Time (Sec)						
			(3-2 shifting with Throttle) fail timer 1	>=	0.5	Fail Time (Sec) Fail Time (Sec)						
			(3-2 shifting with Closed Throttle) fail timer 1 (3-4 shifting with Throttle)	>=	0.5	Fail Time (Sec)						
			(3-4 shifting with Closed Throttle) (3-4shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)						
			fail timer 1 (3-5 shifting with Throttle)	>=	0.5	Fail Time (Sec)						
			fail timer 1 (3-5 shifting with Closed Throttle) fail timer 1	>=	0.5	Fail Time (Sec)						
			(5-3 shifting with Throttle) fail timer 1	>=	0.5	Fail Time (Sec) Fail Time (Sec)						
			(5-3 shifting with Closed Throttle) fail timer 1	>=	0.5	Fail Time (Sec)						
			(5-4 shifting with Throttle) fail timer 1 (5-4 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thr V	eshold 'alue	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			fail timer 1 (5-6 shifting with Throttle) fail timer 1 (5-6 shifting with Closed Throttle)		0.5	Fail Time (Sec) Fail Time (Sec)			Total Fail Time = (Fail 1 + Fail	
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers						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	-					3rd gear fai	
			3rd gear fail counter 5th gear fail counter						>= 3 counts OR >= 5 5th gear fai counts	
			Total fail counter						OR >= 5 total fail coun	ts
							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	= FALSE Boolean = FALSE Boolean = TRUE Boolean >= TRUE Boolean >= 100 RPM >= 200 RPM = FALSE Boolean = FALSE Boolean = FALSE Boolean = TRUE Boolean TRUE Boolean		
						Disable Conditions:	DTC's:	TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106,		
								P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0796	Pressure Control (PC) Solenoid C Stuck Off [C456] (Steady State)	Fail Case 1 Case: Steady State 4th Gear						Please See Table 5 For Neutral Time	One Trip
			Gear slip Intrusive test:		400	RPM			>= Neutral Time (Sec) Cal	
			commanded 5th gear							

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Time	Mil
System	Code	Description	Criteria	Value Please refer to	Malfunction	Conditions	Required	Illum.
			If attained Gear ≠5th for time	Table 3 in				
			if the above conditions have been met	Booding				
			Increment 4th Gear Fail Counter				>= 3 4th Gear Fail Count OR	
			and C456 Fail Counters				>= 14 C456 Fail Counts	
			Fail Case 2 Case: Steady State 5th Gear				Diagon Con	
			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				
			if the above conditions have been	Documents				
			met				5th Gear Fail	
			Increment 5th Gear Fail Counter				>= 3 Count OR	
			and C456 Fail Counters				>= 14 C456 Fail Counts	
			Fail Case 3 Case: Steady State 6th Gear					1
			Gear slip	>= 400 RPM			Please See Table 5 For Neutral Timer Neutral Time (Sec) Cal	
			Intrusive test: commanded 5th gear	Please refer to				
			If attained Gear ≠5th for time	>= Table 3 in Supporting Shift Time (Sec)				
			if the above conditions have been	Documents				
			met Increment 6th Gear Fail Counter and C456 Fail Counter				>= 3 6th Gear Fail Count	
			and C456 Fail Counter				OR C456 Fail Counts	
					PRNDL State defaulted inhibit RVT	= FALSE Boolea = FALSE Boolea	ın	
					IMS fault pending indication	= FALSE Boolea	ın	1
					TPS validity flag Hydraulic System Pressurized	= TRUE Boolea = TRUE Boolea		1
					Minimum output speed for	>= 36 RPM		
					RVT A OR B	>- 30 KHW		1
					(A) Output speed enable	>= 36 RPM		
					(B) Accelerator Pedal enable Common Enable Criteria	>= 0.5004883 Pct		
					Ignition Voltage Lo	>= 8.5996094 Volts		

	nponent/	Fault Code	Monitor Strategy	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Require		Mil Illum.
S	ystem	Code	Description	Griteria	value	Ignition Voltage Hi		Kequir	eu	ilium.
						Engine Speed Lo	>= 400 RPM			
						Engine Speed Hi	i <= 7500 RPM			
						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	t = TRUE			
					Disable	MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723,			
					Conditions:		P182E			
							ECM. D0101 D0102 D0102 D0107			
							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 Blood Co	lameid (VDC)	D0707	Pressure Control (PC) Solenoid C	Fail Case 1 Case: Steady State 1st						One Trip
Variable Bleed So	ienoia (VBS)	P0797	Stuck On [C456] (Steady State)							
				Attained Gear slip						
					Table Based Time Please					
				If the Above is True for Times	Pofor to Table Enable Time					
				If the Above is True for Time	4 In (Sec)					
					supporting					
				Intrusive test:	documents					
				(CBR1 clutch exhausted)						
				Gear Ratio	<= 1.484985352					
				Gear Ratio	>= 1.343017578					
				If the above parameters are true						
								>= 1.1	Fail Timer (Sec)	
								>= 2	Fail Count in	
								/- 2	1st Gear	
									or Total Fail	
								>= 3	Counts	
				Fail Case 2 Case Steady State 2nd						
					Table Based					
				Max Delta Output Speed	value Please					
				Max Della Output Speed Hysteresis	Refer to Table >= 22 in rpm/sec					
				1.1,5.0.65.5	supporting					
1					documents		1			

ion Conditions	Required
	I
	>= 1.1 Fail Timer (Sec)
	>= 3 Fail Count in 2nd Gear or
	>= 3 Total fail counts
	>= 1.1 Fail Timer (Sec)
	>= 3 Fail Count in 3rd Gear
ato defaulted - EALSE Paglace	>= 3 Total Fail Counts
inhibit RVT = FALSE Boolean ng indication = FALSE Boolean	n
n	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					TPS validity flag HSD Enabled Hydraulic_System_Pressurize	= TRUE Boolean = TRUE Boolean		
					d A OR B (A) Output speed enable	>= 36 Nm		
					(B) Accelerator Pedal enable Ignition Voltage Lo Ignition Voltage Hi	>= 8.5996094 Volts <= 31.990234 Volts		
					Engine Speed Lo Engine Speed Hi Engine Speed is within the	<= 7500 RPM		
					allowable limits for if Attained Gear=1st FW Accelerator Pedal enable	5 0002052 Det		
					if Attained Gear=1st FW Engine Torque Enable if Attained Gear=1st FW	>= 20 NITI		
					Engine Torque Enable Transmission Fluid Temperature	>= -6.65625 °C		
					Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	= FALSE Boolean		
				Disable Conditions:		TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 11 in Supporting Documents for Exhaust Delay Timers) Primary Oncoming Clutch	= TRUE Boolean		1 0000,1 0007,1 0000,1 0 107,1 0 12		One Trip
			Pressure Command Status Primary Offgoing Clutch Pressure Command Status	= pressurized Clutch exhaust command				
			Range Shift Status Attained Gear Slip	≠ Initial Clutch Control				
			If the above conditions are true increment appropriate Fail 1	C= 4U KPIVI				
			Timers Below: fail timer 1 (4-1 shifting with throttle) fail timer 1	>= 0.5 Fail Time (Sec)				
			(4-1 shifting without throttle)	>= 0.5 Fail Time (Sec)				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thi	reshold /alue	Secondary Malfunction		Enable Conditions			Tim Requ		Mil Illum
	0000	2001.191101.	fail timer 1 (4-2 shifting with throttle)	>=	0.5	Fail Time (Sec)	** ** *						* **	
			(4-2 Snirting with throttle) fail timer 1		0.5									
			(4-2 shifting without throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (4-3 shifting with throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (4-3 shifting without throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1	>=	0.5	Fail Time (Sec)								
			(5-3 shifting with throttle) fail timer 1	/-										
			(5-3 shifting without throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (6-2 shifting with throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1	>=	0.5	Fail Time (Sec)								
			(6-2 shifting without throttle)			,					_			
												tal Fail Time (Fail 1 + Fai		
											2)	See Enable	9	
			If Attained Gear Slip is Less than									mers for Fai imer 1, and		
			Above Cal Increment Fail Timers									Reference		
											T	Supporting able 15 for		
											F	ail Timer 2		
			If fail timer is greater than threshold increment corresponding											
			gear fail counter and total fail											
			counter										Fail Counter	
			4th gear fail counter								>=	3	From 4th Gear	
													OR Fail Counter	
			5th gear fail counter								>=	3	From 5th Gear	
													OR Fail Counter	
			6th gear fail counter								>=	3	From 6th Gear	
			Total fail assumbs									_	OR Total Fail	
			Total fail counter				TUT Enable temperature	>=	-6.65625	°C	>=	5	Counter	-
							Input Speed Sensor fault	=	FALSE	Boolean				
							Output Speed Sensor fault Command / Attained Gear	= ≠	FALSE 1st	Boolean Boolean				
							High Side Driver ON	=	TRUE	Boolean				
							output speed limit for TUT input speed limit for TUT	>= >=	100 200	RPM RPM				
							PRNDL state defaulted	=	FALSE	Boolean				
							IMS Fault Pending Service Fast Learn Mode	= =	FALSE FALSE	Boolean Boolean				
							HSD Enabled	=	TRUE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria		hreshold Value	Secondary Malfunction	Enable Conditions		Time Required		Mi Illur
eyate	0000	25551-paten		0.1.0.1.0		Disable Conditions:	MIL not Illuminated for	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				
								0300,1 0307,1 0300,1 0401,1 0422				
ap Up Tap Down Switch (TUTD)	P0815	Upshift Switch Circuit	Fail Case 1	Tap Up Switch Stuck in the Up Position in Range 1 Enabled	= 0	Boolean						Spec No N
				Tap Up Switch Stuck in the Up	= 0	Boolean						
				Position in Range 2 Enabled Tap Up Switch Stuck in the Up								
				Position in Range 3 Enabled	= 0	Boolean						
				Tap Up Switch Stuck in the Up Position in Range 4 Enabled	= 0	Boolean						
				Tap Up Switch Stuck in the Up	= 0	Boolean						
				Position in Range 5 Enabled Tap Up Switch Stuck in the Up								
				Position in Range 6 Enabled	= 0	Boolean						
				Tap Up Switch Stuck in the Up Position in Neutral Enabled	= 1	Boolean						
				Tap Up Switch Stuck in the Up Position in Park Enabled	= 1	Boolean						
				Tap Up Switch Stuck in the Up	= 0	Deeleen						
				Position in Reverse Enabled		Boolean				1 Fa	all Times (Coo)	
				Tap Up Switch ON	= TRUE	Boolean			>=	I F	ail 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	= 1	Boolean						
				Position in Range 2 Enabled 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	= 1	Boolean						
				Position in Range 5 Enabled Tap Up Switch Stuck in the Up								
				Position in Range 6 Enabled	= 1	Boolean						
				Tap Up Switch Stuck in the Up Position in Neutral Enabled	= 0	Boolean						
				Tap Up Switch Stuck in the Up	= 0	Boolean						
				Position in Park Enabled Tap Up Switch Stuck in the Up	= 0	Deeleen						
				Position in Reverse Enabled	= U = TRUE	Boolean Boolean						
				Tap Up Switch ON NOTE: Both Failcase1 and	= IKUE	вооіеап			>=	600 Fa	ail Time (Sec)	
				Failcase 2 Must Be Met					/=	UUU F	an rille (Sec)	-

Component/	Fault	Monitor Strategy		Malfunction	$\overline{}$	Thre	eshold	Secondary		Enable			Time		Mil
System	Code	Description		Criteria	\vdash	V	alue	Malfunction		Conditions		-	Require	d	Illum.
								Time Since Last Range	>=	1	Enable Time				
								Change Ignition Voltage Lo	>=	8.5996094	(Sec) Volts				
								Ignition Voltage Hi	<=	31.990234					
								Engine Speed Lo	>=	400	RPM				
								Engine Speed Hi	<=	7500	RPM				
								Engine Speed is within the allowable limits for	>=	5	Sec				
								unovable infits for		Total Falled					
										Test Failed This Key					
								P0815 Status is	≠	On or Fault					
										Active					
					1										
					l l										
							Disable	MIL not Illuminated for			E, P1876,				
							Conditions:	DIC's:	P1877, P19	15, P1/61					
									ECM: None						
			Fail Case 1	Tap Down Switch Stuck in the											Special
Tap Up Tap Down Switch (TUTD)	P0816	Downshift Switch Circuit		Down Position in Range 1 Enabled	=	0	Boolean								No MIL
				-											
				Tap Down Switch Stuck in the	=	0	Boolean								
				Down Position in Range 2 Enabled		-									
				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								
				DOWN POSITION IN Range 4 Enabled											
				Tap Down Switch Stuck in the		0	Boolean								
				Down Position in Range 5 Enabled	=	U	Doolean								
				Ton Down Cuitob Ctuals in the											
				Tap Down Switch Stuck in the Down Position in Range 6 Enabled	=	0	Boolean								
				Tap Down Switch Stuck in the Down Position in Range Neutral	_	1	Boolean								
				Enabled		·	Doolean								
				Tap Down Switch Stuck in the											
				Down Position in Range Park	=	1	Boolean								
				Enabled Tap Down Switch Stuck in the											
				Down Position in Range Reverse	=	0	Boolean								
				Enabled	l l										
				Tap Down Switch ON	=	TRUE	Boolean					>=	1	sec	
			Fail Case 2		<u> </u>							-			1
			all CdSE Z	Tap Down Switch Stuck in the	=	1	Boolean								
				Down Position in Range 1 Enabled	l l										
				Tap Down Switch Stuck in the	1										
				Down Position in Range 2 Enabled	=	1	Boolean								
ı	I	I	ı		1				ı			I			ı

Component/	Fault	Monitor Strategy	Malfunction Criteria		Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	Tap Down Switch Stuck in the Down Position in Range 3 Enabled	= -		manuffction	Conditions	requirea	mum.
			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 Tap Down Switch Stuck in the		Boolean Boolean				
			Down Position in Park Enabled Tap Down Switch Stuck in the Down Position in Reverse Enabled		D Boolean				
			Tap Down Switch ON NOTE: Both Failcase1 and	= TR	UE Boolean			>= 600 sec	
			Failcase 2 Must Be Met						
						Time Since Last Range	_ Enable Time		
						Change Ignition Voltage Lo	>= (Sec)		
						Ignition Voltage Hi	<= 31.990234 Volts		
						Engine Speed Lo Engine Speed Hi Engine Speed is within the	>= 400 RPM <= 7500 RPM >= 5 Sec		
						allowable limits for	Test Failed		
						P0816 Status is	≠ On or Fault Active		
					Disable Conditions		TCM: P0815, P0826, P182E, P1876, P1877, P1915, P1761		
					Conditions		ECM: None		

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria		reshold Value	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
Tap Up Tap Down Switch (TUTD)	P0826			TUTD Circuit Reads Invalid Voltage	= TRUE	Boolean					>=	60	Fail Time (Sec)	Specia No MIL
				voltage			Ignition Voltage Lo) >=	8.5996094	Volts				INO IVIIL
							Ignition Voltage H		31.990234	Volts				
							Engine Speed Lo	>=	400	RPM				
							Engine Speed H		7500	RPM				
							Engine Speed is within the		5	Sec				
							allowable limits for	r	Ü	000				
									Test Failed					
							P0826 Status is	s ≠	This Key					
							1 0020 3tatus is		On or Fault					
									Active					
						Disable	MIL not Illuminated for	TCM: P1761						
						Conditions	DTC's	:						
								ECM: None						
		Tap Up and Down switch signal		Rolling count value received from							<u> </u>			Specia
Tap Up Tap Down Switch (TUTD)	P1761	circuit (rolling count)		BCM does not match expected	= TRUE	Boolean					>=	3	Fail Counter	No MIL
				value									Sample Timer	
											>	10	(Sec)	
							Tap Up Tap Down Message Health		TRUE	Boolean				
							Engine Speed Lo		400	RPM				
							Engine Speed H		7500	RPM				
							Engine Speed is within the	2	5					
							allowable limits for		5	Sec				
						Disable								
						Conditions	DTC's							
								ECM: None						
			Fail Case 1		Transition			1						One Tri
Internal Mode Switch (IMS)	P182E	Internal Mode Switch - Invalid Range		Current range		Range								
					1110)	N D								
				Previous range	≠ CeTRGR_ ≠ RNDL_Dri	Range								
				Previous range	≠ CeTRGR_	P Range								
					Dango Sh	ift								
				Range Shift State	= Complete	d ENUM								
				Absolute Attained Gear Slip		rpm								
				Attained Gear	<= Sixth									
				Attained Gear										
				Throttle Position Available Throttle Position		05 pct								
	1			Output Speed		rpm								
				Engine Torque		Nm								
				Engine Torque										
1				If the above conditions are met								1	Fail Seconds	
	1	Ī	1	then Increment Fail Timer			1	1			>=	1	raii Seconds	1
				If Fail Timer has Expired then Increment Fail Counter							>=	5	Fail Counts	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			shold lue	Secondary Malfunction		Enable Conditions			Tim Requ		III
-,	1		The following PRNDL sequence			-								T
			events occur in this exact order:											
			PRNDL state	_	Drive 6 (bit	Range								
					state 0110)	-								
			PRNDL state = Drive 6 for	>=	1	Sec								
			DDND1 -t-t-		Transition 8									
			PRNDL state	=	(bit state 0111)	Range								
					Drive 6 (bit									
			PRNDL state	=	state 0110)	Range								
					Transition 1									
			PRNDL state	=	(bit state	Range								
					1110)	3								
			Above sequencing occurs in	<=	1	Sec								
			Neutral Idle Mode	=	Inactive									
			If all conditions above are met											
			Increment delay Timer											
			If the below two conditions are met								>=	3	Fail Seconds	
			Increment Fail Timer	L	1	Soc								
			delay timer Input Speed		400	Sec Sec								1
			If Fail Timer has Expired then	_	400	JEL								1
			Increment Fail Counter								>=	2	Fail Counts	
			Fail Case 3		Transition 13				CeTRGR_					1
			Current range	=	(bit state	Range	Previous range	<i>≠</i>	e_PRNDL					
					0010)	Ü			_Drive4					
									CeTRGR_					
			Engine Torque	>=	-8192	Nm	Previous range	≠	e_PRNDL					
									_Drive1					
			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" criteria above must also be					0.225	Cocondo	
			then, Increment Fail Timer				satsified when the "current				>=	0.223	Seconds	
							range" = "Transition 13"							
			If Fail Timer has Expired then				runge – Trunsition 15							
			Increment Fail Counter								>=	15	Fail Counts	
			Fail Case 4		Trancillan		Dicable Fall Cons 4 1511							1
			Current range	_	Transition 8 (bit state	Range	Disable Fail Case 4 if last positive range was Drive 6 and							
			Current range	=	0111)	Nange	current range is transition 8							1
					0111)		_							1
							Set inhibit bit true if PRNDL =							1
			Inhihit hit /oc - J-E-W		FALCE		1100 (rev) or 0100 (Rev-Neu							
			Inhibit bit (see definition)	=	FALSE		transition 11) Set inhibit bit false if PRNDL =							1
							Set innibit bit faise if PRINDL = 1001 (park)							
			Steady State Engine Torque	>=	100	Nm	Too r (park)							
			Steady State Engine Torque		8191.75									1
			If the above conditions are met								l .	0.335	Cocondo	
			then Increment Fail Timer								>=	0.225	Seconds	1
			If the above Condtions have been											
			met, Increment Fail Counter								>=	15	Fail Counts	1
			•											1
			Fail Case 5 Throttle Position Available	=	TRUE	Boolean								
			The following PRNDL sequence											
			events occur in this exact order:		Reverse (bit									
			PRNDL State		Reverse (DII	Range					1			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description		Transition 11	Manufiction	Conditions	Kequirea	mun.
			PRNDL State	= (bit state Range 0100)				
			PRNDL State	Neutral (bit Range				
			T KNDE State	state 0101) Transition 11				
			PRNDL State					
				0100)				
			Above sequencing occurs in Then delay timer increments	<= 1 Sec				
			Delay timer					
			Range Shift State	= Range Shift Complete				
			Absolute Attained Gear Slip					
			Attained Gear	<= Sixth				
			Attained Gear	>= First				
			Throttle Position	>= 8.000183105 pct				
			Output Speed If the above conditions are met	>= 200 rpm				
			Increment Fail Timer				>= 20 Seconds	
			Fail Case 6	Illegal (bit	A Open Circuit Definition (flag			
			Current range	= state 0000 or 1000 or 0001)	set false if the following conditions are met):			
						Transition		
			and		Current Range	≠ 11 (bit		
						state 0100)		
			A Open Circuit (See Definition)	= FALSE Boolean	or			
					Last positive state	Neutral (bit state 0101)		
						State 0101)		
					or	Transition		
					Previous transition state	≠ 8 (bit state		
					Fail case 5 delay timer	0111) = 0 se	oc.	
			If the above Condtions are met		Tun sass s asiay iimor	0 00	>= 6.25 Seconds	
			then, Increment Fail timer Fail Case 7	PRNDL circuit			7 0.20 3000Hd3	
			Current PRNDL State	= PRNDL circuit ABCP = 1101 Range				
			and	DDNDL circuit				
			Previous PRNDL state	= PRNDL circuit ABCP =1111 Range				
			Input Speed	>= 150 RPM				
			Reverse Trans Ratio Reverse Trans Ratio	<= 2.678344727 ratio >= 3.081542969 ratio				
			If the above Condtions are met				>= 6.25 Seconds	
			then, Increment Fail timer				- 0.20 Occords	
			D102F will sonow took f-!!					
			P182E will report test fail when any of the above 7 fail cases are					
			met					
	1	l	l					I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction		Enable conditions		Time Required	Mil Illum.
System	Code	Description	Criteria		Disable onditions:	Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for Engine Torque Signal Valid	>= <= >= <= >= =	8.5996094 31.990234 400 7500 5 TRUE 0717, P0722 P077C, P01 0102, P010 P00171, P017 P0022, P020 P0202, P020 P0203, P020 P0303, P030	77D 3, P0106, 72, P0174, 03, P0204, 08, P0300, 04, P0305,	Kequirea	mum.
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 13 in Supporting Documents for Exhaust Delay Timers) Primary Oncoming Clutch Pressure Command Status	= TRUE Boolea = Maximum pressurized	ın						One Trip
			Primary Offgoing Clutch Pressure Command Status	= Clutch exhaust command							
			Range Shift Status Attained Gear Slip	≠ Initial Clutch Control <= 40 RPM							
			If above coditons are true, increment appropriate Fail 1 Timers Below:	. 10 IAIWI							
			fail timer 1 (2-1 shifting with throttle) fail timer 1		ne (Sec)						
			(2-1 shifting without throttle) fail timer 1		me (Sec)						
			(2-3 shifting with throttle) fail timer 1		ne (Sec) ne (Sec)						
			(2-3 shifting without throttle) fail timer 1 (2-4 shifting with throttle)		ne (Sec)						
			(2-4 shifting with throttle) fail timer 1 (2-4 shifting without throttle)	>= 0.5 Fail Ti	ne (Sec)						
			fail timer 1 (6-4 shifting with throttle)	>= 0.5 Fail Ti	me (Sec)						
			fail timer 1 (6-4 shifting without throttle)	>= 0.5 Fail Ti	ne (Sec)						
			fail timer 1 (6-5 shifting with throttle) fail timer 1		me (Sec)						
			(6-5 shifting without throttle)	>= 0.5 Fail Ti	ne (Sec)						

Component/	Fault	Monitor Strategy	Malfunction Criteria	Threshold	Secondary Malfunction	Enable	Time	Mil Illum.
System	Code	Description	Criteria If Attained Gear Slip is Less than Above Cal Increment Fail Timers	Value	мапинскоп	Conditions	Required Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail >= Timer 1, and sec Reference Supporting Table 15 for Fail Timer 2	mum.
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter 2nd gear fail counter 6th gear fail counter				>= 3 Fail Counter From 2nd Gea OR >= 3 Fail Counter Form 6th Gea	
			total fail counter				OR Total Fail Counter	
				Disable Conditions:		= FALSE Boolean ≠ 1st Boolean = TRUE Boolean >= 100 RPM >= 200 RPM = FALSE Boolean = FALSE Boolean = FALSE Boolean	Such	
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Steady State)	Fail Case 1 Case: Steady State 1st Attained Gear slip	>= 400 RPM Table Based Time Please				One Trip
			If the Above is True for Time	Refer to Table Enable Time				
			Intrusive test: (CBR1 clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	>= 2.728027344				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Ti Req	ime uired	Mil Illum.
		•					>=	1.1	Fail Timer (Sec)	
							>=	5	Fail Count in	
							-	J	1st Gear or	
							>=	5	Total Fail	
			Fail Case 2 Case: Steady State 3rd Gear						Counts	-
				Table Based						
			Max Delta Output Speed							
			Hysteresis	22 in supporting						
				documents						
				Table Based value Please						
			Min Delta Output Speed	Refer to Table						
			Hysteresis	>= 23 in rpm/sec supporting						
				documents Table Based						
				Time Please						
			If the Above is True for Time	Refer to Table >= 17 in Sec						
				supporting						
			Intrusive test:	documents						
			(C35R clutch exhausted) Gear Ratio	<= 3.015991211						
				>= 2.728027344						
			If the above parameters are true							
							>=	1.1	Fail Timer (Sec)	
							>=	3	Fail Count in 3rd Gear	
									or Total Fail	
							>=	5	Counts	
			<u>Fail Case 3</u> Case: Steady State 4rd Gear	Table Based						
			Man Dalla Ordenia O	value Dioses						
			Max Delta Output Speed Hysteresis							
				supporting documents						
				Table Based						
			Min Delta Output Speed	value Please >= Refer to Table rpm/sec						
			Hysteresis							
				supporting documents						
				Table Based Time Please						
			If the Above is True for Time	Refer to Table						
			ii iiie Above is True ioi Tillie	17 in supporting						
				documents						
1			Intrusive test: (C1234 clutch exhausted)							

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				ime uired	Mil Illum.
- Cystelli	Jue	Description	Gear Ratio Gear Ratio	<= 0.779052734 >= 0.704956055						1130		
			If the above parameters are true									
1									>=	1.1	Fail Timer (Sec))
									>=	3	Fail Count in 4th Gear	
									>=	5	or Total Fail Counts	
1			Fail Case 4 Case: Steady State 5th Gear								Counts	1
i				Table Based								
			Max Delta Output Speed Hysteresis									
			11,950.033	supporting								
				documents Table Based								
				value Dioses								
			Min Delta Output Speed Hysteresis									
			nysieresis	supporting								
				documents								
				Table Based Time Please								
			If the Above is True for Time	Refer to Table Sec								
			ii the Above is True for Time	17 in supporting								
				documents								
			Intrusive test:									
			(C35R clutch exhausted) Gear Ratio									
			Gear Ratio	>= 0.704956055								
			If the above parameters are true									
									>=	1.1	Fail Timer (Sec))
									>=	3	Fail Count in 5th Gear	
											or Total Fail	
									>=	5	Counts	
1					PRNDL State defaulted inhibit RVT	= =	FALSE FALSE	Boolean Boolean				
					IMS fault pending indication	=	FALSE	Boolean				
					output speed	>=	0	RPM				
					TPS validity flag HSD Enabled	=	TRUE TRUE	Boolean Boolean				
					Hydraulic_System_Pressurize	=	TRUE	Boolean				
					d A OR B	_	INOL	Doolcail				
1					(A) Output speed enable	>=	36	Nm				
1					(B) Accelerator Pedal enable	>=	0.5004883	Nm				
1					Ignition Voltage Lo Ignition Voltage Hi	>= <=	8.5996094 31.990234	Volts Volts				
1					Engine Speed Lo	>=	400	RPM				
					Engine Speed Hi Engine Speed is within the	<=	7500	RPM				
						>=	5	Sec				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Val	hold	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
System	Code	Безсприон	Gineria		Yan		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 Default Gear Option is not present	>=	5.0003052 20 8191.875 -6.65625 FALSE FALSE TRUE	Pct Nm Nm °C Boolean Boolean	noquired	
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0710 P182E	6, P0717, P0722	2, P0723,		
								P0107, P01 P0175, P02 P0205, P02 P0301, P03	1, P0102, P0103 08, P0171, P01 01, P0202, P020 06, P0207, P020 02, P0303, P030 07, P0308, P040	72, P0174, 03, P0204, 08, P0300, 04, P0305,		
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 10 in Supporting Documents for Exhaust Delay Timers) Primary Oncoming Clutch Pressure Command Status	=	TRUE Maximum ressurized	Boolean						One Trip
			Primary Offgoing Clutch Pressure Command Status	= C	itch exhaust command itial Clutch							
			Range Shift Status Attained Gear Slip If the above conditions are true increment appropriate Fail 1		Control 40	RPM						
			Timers Below: fail timer 1 (2-6 shifting with throttle) fail timer 1	>=		sec						
			(2-6 shifting without throttle) fail timer 1 (3-5 shifting with throttle)	>= >=	0.5	sec						
			fail timer 1 (3-5 shifting without throttle) fail timer 1	>=	0.5	sec						
			(4-5 shifting with throttle) fail timer 1 (4-5 shifting without throttle)	>=	0.5	sec						
			fail timer 1 (4-6 shifting with throttle) fail timer 1	>=	0.5	sec						
			(4-6 shifting without throttle)	>=	0.5	sec						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers				Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail >= Timer 1, and 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 Count	
			3rd gear fail counter				>= 3 From 2nd G >= 3 Fail Count From 3rd G	er
			4th gear fail counter				>= 3 Fail Count From 4th G	
			total fail counter				>= 5 Total Fai 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	= FALSE Boolean ≠ 1st Boolean = TRUE Boolean >= 100 RPM >= 200 RPM = FALSE Boolean = FALSE Boolean = FALSE Boolean		
				Disabl Conditions		TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300,		
						P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Steady State)	Fail Case 1 Case: 5th Gear	Table Based				One Trip
			Max Delta Output Speed Hysteresis	value Please Refer to Table rpm/sec 22 in supporting documents				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	[Time Required	M Illu
			Min Delta Output Speed Hysteresis	23 in supporting					
			If the Above is True for Time	documents Table Based Time Please Refer to Table 17 in Supporting					
			Intrusive test: (C35R clutch exhausted) Gear Ratio Gear Ratio	<= 1.484985352					
			If the above parameters are true				>	Fail Co	
							>	= 3 5th 0 C Tota	Gear DR Il Fail
			<u>Fail Case 2</u> Case: 6th Gear	Table Based				Col	unts
			Max Delta Output Speed Hysteresis	value Please Refer to Table					
			Min Delta Output Speed Hysteresis	value Please Refer to Table					
			If the Above is True for Time	Time Please Refer to Table 17 in supporting					
			Intrusive test: (CB26 clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	<= 1.484985352					
			ii tile above parameters are tide				>	= 1.1 Fail Tim	er (Sec)
							>	= 3 6th	ount in Gear DR
					PRNDL State defaulted	= FALSE	Pooloan	Tota	l Fail unts
					inhibit RVT IMS fault pending indication output speed	= FALSE	Boolean Boolean Boolean RPM		

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary		Enable		Time	Mil
System	Code	Description	Criteria	Value	Malfunction		Conditions		Required	Illum.
					TPS validity flag		TRUE	Boolean		
					HSD Enabled		TRUE	Boolean		
					Hydraulic_System_Pressurize	=	TRUE	Boolean		
					d		INOL	Doolcan		
					A OR B					
					(A) Output speed enable	>=	36	Nm		
					(B) Accelerator Pedal enable	>=	0.5004883	Nm		
					Ignition Voltage Lo		8.5996094	Volts		
					Ignition Voltage Hi	<=	31.990234	Volts		
					Engine Speed Lo	>=	400	RPM		
					Engine Speed Hi	<=	7500	RPM		
					Engine Speed is within the		5	Sec		
					allowable limits for	>=	3	Sec		
					if Attained Gear=1st FW	>=	5.0003052	Pct		
					Accelerator Pedal enable	>=	3.0003032	FUL		
					if Attained Gear=1st FW	\	20	Nm		
					Engine Torque Enable		20	INIII		
					if Attained Gear=1st FW		8191.875	Nm		
					Engine Torque Enable	<=	0191.073	INIII		
					Transmission Fluid		-6.65625	°C		
					Temperature	>=	-0.03023			
					Input Speed Sensor fault	=	FALSE	Boolean		
					Output Speed Sensor fault	=	FALSE	Boolean		
					Default Gear Option is not	=	TRUE			
					present	_	INUL			
				Disable	MIL not Illuminated for		5, P0717, P0722	, P0723,		
				Conditions:	DTC's:	P182E				
						ECM: P010	1, P0102, P0103	, P0106,		
						P0107, P01	08, P0171, P017	72, P0174,		
						P0175, P02	01, P0202, P020	03, P0204,		
						P0205, P02	06, P0207, P020	08, P0300,		
						P0301, P03	02, P0303, P030	04, P0305,		
						P0306, P03	07, P0308, P040)1, P042E		

Component/	Fault	Monitor Strategy	Malfunction			shold		Secondary		Enable		Т		me	Mil
System	Code	Description The lateral accleration signal is stuck	Criteria			lue		Malfunction		Conditions		-	Req	uired	Illum. Special
Transmission Control Module (TCM)	C1251	at a high magnitude in range	Lateral accleration magnitude		3.85	g's									No MIL
			Lateral accleration magnitude	>=	0.53	g's									
			Lateral accleration magnitude is within the range above for	>=	120	Sec									
			within the range above for									+-			
								Lateral accleration magnitude	<=	3.85	g's				
								Lateral accleration magnitude	>=	0.53	g's				
								Lateral accleration magnitude	>=	90	Sec				
								is within the range above for							
								Diagnostic shifting override command	=	FALSE	Boolean				
								communa		4 -4 41					
								Attained Gear State	=	1st through 6th					
								Attained Gear Slip	<=	100	RPM				
										Clutch to Clutch					
								Transmission Type	=	Transmissi					
										on					
								High Side Driver 1 On	=	TRUE	Boolean				
								Vehicle Speed	>=	15	kph				
								Lateral acceleration stuck in	=	TRUE	Boolean				
								range diagnostic enable Battery Voltage	<=	31.999023	Volts				
								Battery Voltage	>=	9	Volts				
								Battery voltage is within the			Sec				
								allowable limits for	>=	0.1					
								Ignition Voltage	<=	31.999023	Volts				
								Ignition Voltage	>=	9	Volts				
								Service Fast Learn (SFL) Mode	=	FALSE	Boolean				
								Ignition voltage and SFL		0.4					
								conditions met for	>=	0.1	Sec				
							Dissili	MIL or at III. or be at all face	TOM If a all h	and and the filler control					
							Disable aditions:	MIL not Illuminated for		rated to iliumina 17, P0721, P07					
						001	iditions.	D10 3.		C0, P077B, P07					
									P215C, U00		,,				
									ECM: None						
	-	Transmission Electro-Hydraulic	Fail Case 1	-								+			One Trip
Transmission Control Module (TCM)	P0634		Substrate Temperature	>=	146.296875	°C						>=	5	Fail Time (Sec)	One mp
,		Too High				-							-		
			Fail Case 2 Substrate Temperature		50	°C						>=	2	Fail Time (Sec)	
			Ignition Voltage Note: either fail case can set the	>=	18	Volts						+			
			Note: either fall case can set the DTC												
			Die	1				Ignition Voltage Lo	>=	8.5996094	Volts	1			
								Ignition Voltage Hi	<=	31.990234	Volts				
								Substrate Temp Lo	>=	0	°C				
								Substrate Temp Hi	<=	170	°C				
								Substrate Temp Between Temp Range for Time	>=	0.25	Sec				
I	I	I	I	I			l	remp Range for Time				1			

Component/	Fault	Monitor Strategy	Malfunction			shold	Secondary Malfunction		Enable			Tir		Mil Illum.
System	Code	Description	Criteria		Va	iue	Mairunction P0634 Status is	<i>≠</i>	Test Failed This Key On or Fault Active			Requ	urea	illum.
						Disable Conditions:		TCM: None ECM: None						
Transmission Input Speed Sensor (TISS)	P0716	Input Speed Sensor Performance	Transmission Input Speed Sensor Drops		1350	RPM					>=	0.8	Fail Time (Sec)	One Trip
							Engine Torque is Engine Torque is Engine Speed Engine Speed Engine Speed is within the allowable limits for Vehicle Speed is	>=	0 8191.875 400 7500 5	N*m N*m RPM RPM Sec				
							Throttle Position is Transmission Input Speed is The previous requirement has been satisfied for	>=	0 0	Pct RPM Sec				
							The change (loop to loop) in transmission input speed is The previous requirement has been satisfied for Throttle Position Signal Valid Engine Torque Signal Valid Ignition Voltage Ignition Voltage	>= = = = >=	8191.875 0 TRUE TRUE 8.5996094 31.990234	RPM/Loop Sec Boolean Boolean Volts Volts				
							P0716 Status is not	=	Test Failed This Key On or Fault Active					
						Disable Conditions:	MIL not Illuminated for DTC's:		, P0102, P0103					
Transmission Input Speed Sensor (TISS)	P0717	Input Speed Sensor Circuit Low Voltage	Fail Case 1 Transmission Input Speed is	i <	33	RPM					>=	4.5	Fail Time (Sec)	One Trip
			Fail Case 2 When P0722 DTC Status equal to Test Failed and Transmission Input Speed is) <	1000	RPM	Controller uses a single power supply for the speed sensors	=	1	Boolean				
							Engine Torque is Engine Torque is Vehicle Speed Engine Torque Signal Valid Ignition Voltage	>= =	50 8191.875 16 TRUE 8.5996094	N*m N*m Kph Boolean Volts				

			DG03 TCW Offique SRA	-					1	_	
Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Er Con	nable nditions		R	Time equired	Mil Illum.
Сузієні	Joue	Description	Orneria		Ignition Voltage		.990234	Volts	100		
					Engine Speed	>=	400	RPM			
					Engine Speed	<=	7500	RPM			
					Engine Speed is within the		5	Sec			
					allowable limits for	>=	5	366			
						Tes	st Failed				
						т.	his Key				
					P0717 Status is not		or Fault				
							Active				
				Disable	MIL not Illuminated for	TCM: DOZ22 DOZ2	12				
				Conditions:	DTC's:	1 CIVI. FU722, FU72	.3				
				Conditions.	D10 3.	ECM: P0101, P010	2 P0103				
						2011. 1 0101,1 010	2,10100				
Transmission Output Speed Sensor	D0700	Output Speed Sensor Circuit Low	Transmission Output Speed	25 DDM					2.75	F-11 Thurs (C-1)	One Tri
(TOSS)	P0722	Voltage	Sensor Raw Speed	<= 35 RPM					>= 3.75	Fail Time (Sec)
						Too	st Failed			.	1
						TH	his Key				1
					P0722 Status is not		or Fault				
							Active				
							101110				
					Transmission Input Speed		TRUE	Boolean			
					Check						
					Engine Torque Check	=	TRUE	Boolean			
					Throttle Position		0001831	Pct			
					Transmission Fluid		-40	°C			
					Temperature Disable this DTC if the PTO is						
					active		1	Boolean			
					Engine Torque Signal Valid		TRUE	Boolean			
					Throttle Position Signal Valid	= 1	TRUE	Boolean			
					Ignition Voltage is		5996094	Volts			
					Ignition Voltage is		.990234	Volts			
					Engine Speed is		400	RPM			
					Engine Speed is	<=	7500	RPM			
					Engine Speed is within the	>=	5	Sec			
					allowable limits for	/=	5	366			
											4
					Enable_Flags Defined Below	1					1
					The Facine Towns Ob. 11	I					1
					The Engine Torque Check is						
					TRUE, if either of the two						
					following conditions are TRUE						
					Engine Torque Condition 1	1					1
					Engine rorque contation i		Range				
					Range Shift Status	. ≠	shift	ENUM			1
					g otalao		mpleted				
					OR						1
						D	Park or				1
					Transmission Range is		leutral				1
					Engine Torque is	>= 8	191.75	N*m			1
					Engine Torque is	<= 8	191.75	N*m			1
l l			1	i l		1					1
					Engine Torque Condition 2						
					Engine Torque Condition 2 Engine Torque is Engine Torque is	>=	35 191.75	N*m N*m			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thre Va	shold lue		Secondary Malfunction		Enable Conditions			Tii Reqi		Mil Illum.
3,555	9345	5500, p. 101					(he Transmission Input Speed TIS) Check is TRUE, if either of the two following conditions are TRUE							-
								TIS Check Condition 1 Transmission Input Speed is Transmission Input Speed is	>= <=	1000 8191	RPM RPM				
								TIS Check Condition 2 Engine Speed without the brake applied is Engine Speed with the brake applied is Engine Speed is	>= >= <=	3200 3200 8191	RPM RPM RPM				
								Controller uses a single power supply for the speed sensors Powertrain Brake Pedal is Valid	=	1 TRUE	Boolean Boolean				
						Disal Condition		MIL not Illuminated for DTC's:		, P0102, P010					
Transmission Output Speed Sensor (TOSS)	P0723	Output Speed Sensor Circuit Intermittent	Transmission Output Speed Sensor Raw Speed Output Speed Delta	>= <=	105 8191	RPM RPM						>= >=	0.2	Enable Time (Sec) Enable Time (Sec)	One Trip
			Output Speed Drop	>	650	RPM						>=	1.5	Output Speed Drop Recovery Fail Time (Sec)	
			Transmission Range is	=	Driven range (R,D)										
								Range_Disable OR	=	FALSE	See Below				
								Neutral_Range_Enable And Neutral_Speed_Enable	=	TRUE TRUE	See Below See Below				
							1	are TRUE concurrently Transmission_Range_Enable	=	TRUE	See Below				-
								ransmission_Input_Speed_E nable No Change in Transfer Case Range (High <-> Low) for	= >=	TRUE 5	See Below Seconds				
								P0723 Status is not		Test Failed This Key On or Fault Active					
							D	Disable this DTC if the PTO is active	=	1	Boolean				

Component/	Fault	Monitor Strategy	Malfunction	Threshold Value	Secondary Malfunction		Enable		Time	Mil
System	Code	Description	Criteria	Value			Conditions	Volts	Required	Illum
					Ignition Voltage is Ignition Voltage is	>=	8.5996094			
					Ignition voltage is	<=	31.990234 400	Volts RPM		
					Engine Speed is	>=				
					Engine Speed is	<=	7500	RPM		
					Engine Speed is within the	>=	5	Sec		
					allowable limits for					_
					Enable_Flags Defined Below					
					Transmission_Input_Speed_E					_
					nable is TRUE when either TIS					
					Condition 1 or TIS Condition 2					
					is TRUE:					
					TIO 0 4 ! TRUE !					
					TIS Condition 1 is TRUE when			Enable Time		
					both of the following conditions	>=	0	(Sec)		
					are satsified for					
					Input Speed Delta	<=	4095	RPM		
					Raw Input Speed	>=	500	RPM		
					TIS Condition 2 is TRUE when					
					ALL of the next two conditions					
					are satisfied					
					Input Speed	=	0	RPM		
					A Single Power Supply is used		TDUE	Deeless		
					for all speed sensors	=	TRUE	Boolean		
					Neutral_Range_Enable is					
					TRUE when any of the next 3					
					conditions are TRUE					
					Transmission Range is	=	Neutral	ENUM		
					Transmission range is		Reverse/N	2		
					Transmission Range is	=	eutral	ENUM		
					Transmission range is		Transitonal	LIVOIVI		
							Neutral/Dri			
							ve			
					Transmission Range is	=	Transitiona	ENUM		
					And when a drop occurs		ı.			
					Loop to Loop Drop of					
					Transmission Output Speed is	>	650	RPM		
					Range_Disable is TRUE when					-
					any of the next three					
					conditions are TRUE		Dorle	CALLINA		
					Transmission Range is	=	Park Park/Payor	ENUM		
					Transmission Derry !-		Park/Rever	ENHINA		
					Transmission Range is	=	se	ENUM		
							Transitonal			
					Input Clutch is not	=	ON (Fully	ENUM		
							Applied)			
										_
					Neutral_Speed_Enable is					
					TRUE when All of the next	>	1.5	Seconds		
					three conditions are satsified					
					for					
					Transmission Output Speed	>	130	RPM		
					The loop to loop change of the					
					Transmission Output Speed is	<	20	RPM		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			ime quired	Mil Illum.
		2000 passi	0.1.0.1.1		The loop to loop change of the Transmission Output Speed is) 10 DI	М		,	
					Transmission_Range_Enable is TRUE when one of the next six conditions is TRUE Transmission Range is Transmission Range is	l s = Neutral EN Reverse/N				
					Transmission Range is	l Neutral/Dri ve EN Transitiona EN	Ј М			
					Time since a driven range (R,D) has been selected	Table Based Time Please S Refer to Table 21 in supporting documents	С			
					Transmission Output Speed Sensor Raw Speed Output Speed when a fault was detected	1 >= 500 Ki				
				Disable Conditions	DTC's:	TCM: P0973, P0974, P0976, P097 : ECM: P0101, P0102, P0103, P012 P0122, P0123				
Torque Converter Clutch (TCC)	P0741	TCC System Stuck OFF	TCC Pressure Either Condition (A) or (B) Must be Met	>= 750 Kpa Refer to Table			>=	2	Enable Time (Sec)	Two Trips
			(A) TCC Slip Error @ TCC On Mode	>= 1 in RPM Supporting Documents			>=		Fail Time (Sec)	
			(B) TCC Slip @ Lock On Mode If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter	>= 130 RPM			>=		Fail Time (Sec) TCC Stuck Off Fail Counter	
			THE STATE OF THE S		TCC Mode Ignition Voltage Lo Ignition Voltage Hi Engine Speed Engine Speed is within the allowable limits for Engine Torque Lo	>= 8.5996094 Vo i <= 31.990234 Vo ii >= 400 RI ii <= 7500 RI >= 5 S	ts M M			

System Code Shauripitha Chitaria Value Malmentone Codellions Engalard Malmentone Codellions Codellio	Component/	Fault	Monitor Strategy	Malfunction	Thres	hold	Secondary	I	Enable			Ti	me	Mil
### PATE PATE							Malfunction							Illum.
Provide Protection Provide Protection Provide Pr								<=						
### According to 100 System States (M) ### According to 1								>=						
### Converse Cutch (ECC) ### 7CC System Stack CN							Throttle Position Hi	<=	99.998474	Pct				
### 25 Centre File 10							2nd Gear Ratio Lo	>=	2.6710205	Ratio				
30 Control Ratio 10 1797-173 2015 10 10 1797-173 2015 11 11 12 12 12 12 12							2nd Gear Ratio High	<=	3.072998	Ratio				
## Converted by ## 1.13 1.3							3rd Gear Ratio Lo	>=	1.7130127	Ratio				
## Occasion Figure						3rd Gear Ratio High	<=	1.9709473	Ratio					
Shi Gay Failed Shi							4th Gear Ratio Lo	>=	1.3150635	Ratio				
Shi Gay Failed Shi							4th Gear Ratio High	<=	1.5129395	Ratio				
Sen Care Ratio 10									0.9300537	Ratio				
## Accordance Clarical Control ### Accordance Clarical Control #### Accordance Clarical Control #### Accordance Clarical Control ##### Accordance Clarical Control ##### Accordance Clarical Control ###################################								<=						
### deficiency facility Part							>=							
Transmission Fluid														
Transmistor 15 15 15 15 15 15 15 15														
Transmission Fluid Transmi								>=	-6.664063	°C				
Temperature H 130														
## FPTO MA Active ## TRUE Boolean Fragire Transport Signal Valid ## TRUE Boolean Fragire Transport Signal Valid ## TRUE Boolean Fragire Transport Signal Valid ## TRUE Boolean Fragire Transport Mode ## TRUE Boolean Fragire Transport Mode ## TRUE Boolean Fragire Transport Mode ## TRUE Boolean Fragire Transport Mode ## TRUE Boolean Fragire Transport Mode ## TRUE Boolean Fragire Transport Mode ## TRUE Boolean Fragire Transport Mode ## TRUE Boolean Fragire Transport Mode ## TRUE Boolean Fragire Transport Mode ## TRUE Boolean Fragire Transport Mode ## TRUE Boolean Fragire Transport Mode ## TRUE Boolean Fragire Transport Mode ## TRUE Boolean Fragire Transport Mode ## Transport								<=	130	°C				
Engine Torque Signal Valid = TRUE Boolean TRUE Boolean TRUE Boolean TRUE Boolean Trues TRUE Boolean Trues TRUE Boolean Trues TRUE Boolean TRUE									TDUE	Dooloon				
Throttle Position Signal Valid														
Dynamic Mode														
Disable Disa														
P0741 Status is This Key P0741 Status is This Key P074 Status is This Key P074 Status is P0742 Status is P0741 Status is P0742 Status is							Dynamic Mode	=	FALSE	Boolean				
P0741 Status is This Key P0741 Status is This Key P074 Status is This Key P074 Status is P0742 Status is P0741 Status is P0742 Status is									Test Failed					
Disable Conditions														
Disable Conditions: Mil. not illuminated for TCM: P0716, P0717, P0722, P0723, P0746							P0741 Status is	≠						
Disable Conditions														
Conditions DTC's P0742, P2763, P2764 E.M. P0101, P0102, P0103, P0106, P0107, P									Active					
Conditions DTC's P0742, P2763, P2764 E.M. P0101, P0102, P0103, P0106, P0107, P														
Conditions DTC's P0742, P2763, P2764 E.M. P0101, P0102, P0103, P0106, P0107, P														
Conditions DTC's P0742, P2763, P2764 E.M. P0101, P0102, P0103, P0106, P0107, P						Disable	MIL not Illuminated for	TCM: P0716	P0717 P0722	P0723				
Converter Clutch (TCC)										., 1 0720,				
P0107, P0108, P0207, P0208, P0207, P0208, P0200, P0209, P0200, P0209,						0011411101101	2.00.	07 12, 1 270	50,1 2701					
P0107, P0108, P0207, P0208, P0207, P0208, P0200, P0209, P0200, P0209,								ECM: DOIO	1 DO102 DO10	2 D0104				
P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0307, P0308, P0301, P0305, P0306, P0307, P0308, P0401, P042E P0742 TCC System Stuck ON														
P0742 TCC System Stuck ON TCC Slip Speed >= -50 RPM TCC Slip Speed <= 13 RPM TCC Slip Speed <= 13 RPM TCC Slip Speed <= 13 RPM TCC Slip Speed <= 13 RPM TCC Slip Speed <= 13 RPM TCC Slip Speed <= 13 RPM TCC Mode = Off Enable test if Cmd Gear = 1 Boolean 1st W and value true Engine Speed to >= 500 RPM Engine Speed to >= 500 RPM Vehicle Speed to >= 500 RPM Vehicle Speed to >= 500 RPM Vehicle Speed to >= 1 KPH Vehicle Speed to														
P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E														
P0306, P0307, P0308, P0401, P042E P0306, P0307, P0308, P0401, P042E P0306, P0307, P0308, P0401, P042E P0306, P0307, P0308, P0401, P042E P0306, P0307, P0308, P0401, P042E P0306, P0307, P0308, P0401, P042E P0306, P0307, P0308, P0401, P042E P0306, P0307, P0308, P0401, P042E P0306, P0307, P0308, P0401, P042E P0306, P0307, P0308, P0401, P042E P0807, P0401, P042E P0807, P0308, P0401, P042E P0807, P0														
TCC Sijs Speed Septem Stuck ON TCC Sijs Speed Septem Stuck ON TCC Sijs Speed Septem Stuck ON														
TCC Slip Speed If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter TCC Mode Enable test if Cmnd Gear = 1stFW and value true Enable test if Cmnd Gear = 2nd and value true Engine Speed HI Vehicle Speed LI Vehicle Speed HI Vehicle Speed HI Vehicle Speed HI Current Range Current Range Transmission Sump TCC Mode Enable test if Cmnd Gear = 0 Boolean Engle Speed HI Vehicle Speed LI Vehicle Speed LI								P0306, P030)7, P0308, P040	01, P042E				
TCC Slip Speed If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter TCC Mode Enable test if Cmnd Gear = 1stFW and value true Enable test if Cmnd Gear = 2nd and value true Engine Speed HI Vehicle Speed LI Vehicle Speed HI Vehicle Speed HI Vehicle Speed HI Current Range Current Range Transmission Sump TCC Mode Enable test if Cmnd Gear = 0 Boolean Engle Speed HI Vehicle Speed LI Vehicle Speed LI														
If Above Conditions Have been	orque Converter Clutch (TCC)	P0742	TCC System Stuck ON											One Trip
TCC Mode				TCC Slip Speed	<= 13	RPM								
Met, and Fail Timer Expired, Increment Fail Counter											>=	2	Fail Time (Sec)	
Increment Fail Counter				If Above Conditions Have been										
TCC Mode Enable lest if Cmnd Gear = 1stFW and value true Enable test if Cmnd Gear = 2nd and value true Engine Speed Hi Engine Speed Lo >= 500 RPM Vehicle Speed Lo >= 500 RPM Vehicle Speed Lo >= 500 RPM Vehicle Speed Lo >= 1 KPH Vehicle Speed Lo >= 1 KPH Engine Torque Hi Engine Torque Hi Engine Torque Lo Current Range Current Range Transmission Sump Tansmission Sump				Met, and Fail Timer Expired,							>=	6	Fail Counter	
Enable test if Cmnd Gear = 1stFW and value true				Increment Fail Counter										
1stFW and value true Enable test if Cmnd Gear = 2nd and value true Engine Speed Hi Engine Speed Lo Vehicle Speed HI Vehicle Speed Lo Engine Torque Hi Engine T							TCC Mode	=	Off					1
1stFW and value true Enable test if Cmnd Gear = 2nd and value true Engine Speed Hi Engine Speed Lo Vehicle Speed HI Vehicle Speed Lo Engine Torque Hi Engine T							Enable test if Cmnd Gear =		4	Dealers				
Enable test if Cmnd Gear = 2nd and value true								=	1	Roolean				
2nd and value true Engine Speed Hi Engine Speed Lo Vehicle Speed Lo Vehicle Speed HI Vehicle Speed HI Vehicle Speed HI Vehicle Speed HI Vehicle Speed Lo Engine Torque Hi Engine Torque Lo Current Range Current Range Transmission Sump Transmission Sump Engine Torque Transmission Sump Transmission Sump Engine Torque Lo Current Range Freverse Range Transmission Sump Tra								1	_					
Engine Speed Hi Engine Speed Lo Engine Speed Lo Vehicle Speed HI Vehicle Speed HI Vehicle Speed Lo Engine Torque Hi Engine Torque Lo Current Range Current Range Transmission Sump Engine Torque Tansmission Sump Engine Tansmission RPM Engine Tansmissio								=	0	Boolean				
Engine Speed Lo Vehicle Speed HI Vehicle Speed HI Vehicle Speed Lo Engine Torque Hi Engine Torque Lo Current Range Current Range Transmission Sump Engine Speed Lo S= 500 RPM KPH KPH Vehicle Speed Lo S= 1 KPH ENGINE Torque Hi S= 8191.875 Nm Engine Torque Lo Nm Vehicle Speed Lo Current Range F Reverse Range Transmission Sump Engine Speed Lo Current Range F Reverse Range Transmission Sump Engine Speed Lo S= 500 RPM Vehicle Speed Lo S= 511 KPH Vehicle Speed Lo S= 1 KPH Vehicle Speed Lo S= 1 KPH Vehicle Speed Lo S= 1 KPH Vehicle Speed Lo S= 10 KPH Vehicle Speed Lo S= 1 KPH Vehicle Spe								<=	6000	RPM				
Vehicle Speed HI <=														
Vehicle Speed Lo >= 1 KPH Engine Torque Hi <= 8191.875 Nm Engine Torque Lo >= 80 Nm Current Range ≠ Neutral Range Current Range ≠ Reverse Range Transmission Sump														
Engine Torque Hi <= 8191.875 Nm Engine Torque Lo >= 80 Nm Current Range ≠ Neutral Range Current Range ≠ Reverse Range Transmission Sump														
Engine Torque Lo >= 80 Nm Current Range ≠ Neutral Range Current Range ≠ Reverse Range Transmission Sump														
Current Range ≠ Neutral Range Current Range ≠ Reverse Range Transmission Sump														
Current Range ≠ Reverse Range Transmission Sump														
Transmission Sump														
								≠	Reverse	Range				
								<=	130	°C				
Temperature <= 130 C					i		Tamanaratura			_				

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable			Tim		Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions		-	Requi	ired	Illum.
					Transmission Sump Temperature	>= 18	°C				
					Throttle Position Hyst High	>= 5.0003052	Pct				
					AND						
					Max Vehicle Speed to Meet	<= 8	KPH				
					Throttle Enable	<= 8	KFII				
					Once Hyst High has been met,						
					the enable will remain while		Pct				
					Throttle Position Disable for Throttle Position		Pct				
					Disable of PTO active and						
					value true		Boolean				
					Disable if in D1 and value true		Boolean				
					Disable if in D2 and value true	= 1	Boolean				
					Disable if in D3 and value true		Boolean				
					Disable if in D4 and value true		Boolean				
					Disable if in D5 and value true		Boolean				
					Disable if in MUMD and value	=	Boolean				1
					true Disable if in TUTD and value						1
					true	= 1	Boolean				1
					4 Wheel Drive Low Active	= FALSE	Boolean				
					Disable if Air Purge active and						
					value false	= 0	Boolean				
					RVT Diagnostic Active		Boolean				
					Ignition Voltage	>= 8.5996094	V				
					Ignition Voltage	<= 31.990234	V				
					Vehicle Speed	<= 511	KPH RPM				
					Engine Speed Engine Speed		RPM				
					Engine Speed is within the						
					allowable limits for	>= 5	Sec				
					Engine Torque Signal Valid		Boolean				
					Throttle Position Signal Valid	= TRUE	Boolean				
						Test Failed					
						This Koy					
					P0742 Status is	≠ On or Fault					
						Active					
				Disable	MIL not Illuminated for	TCM: P0716, P0717, P0722, I	P0723,				
				Conditions:	DTC's:	P0741, P2763, P2764					
						ECM: P0101, P0102, P0103,					
						P0107, P0108, P0171, P0172					
						P0175, P0201, P0202, P0203					
						P0205, P0206, P0207, P0208 P0301, P0302, P0303, P0304					
						P0306, P0307, P0308, P0401					1
											1
Mode 2 Multiplex Valve	P0751	Shift Solenoid Valve A Stuck Off	Commaned Gear Slip	>= 400 RPM							Two Trip
2 manipion valvo	1 0,31	Z Goldhold Valve / Oldok Oll									1
			Commanded Gear	= 1st Lock rpm					0.2	Eail Tmr	
			Gear Ratio Gear Ratio	<= 1.484985352 >= 1.343017578				>=	0.3 5	Fail Tmr Fail Counts	
			If the above parameters are true	/- 1.070017070	1			-	J	i dii Courits	1
			25010 parameters and true					.,	0	Neutral Timer	- [
		i .	1	i e e e e e e e e e e e e e e e e e e e	î .	1		≠	0	(Sec)	1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Threshold Value	Secondary Malfunction		Enable Conditions			Tim Requ		Mil Illum.
System	Code	Description	Criteria		value	Manufiction		Conditions		<u> </u>			mun.
										>=	0.3	Fail Timer (Sec)	
						1 10 14 15		0.500/004	17.11	>=	8	Counts	
						Ignition Voltage Lo Ignition Voltage H) >= i <=	8.5996094 31.990234	Volts Volts				
						Engine Speed Lo	>=	400	RPM				
						Engine Speed H		7500	RPM				
						Engine Speed is within the		5	Sec				
						allowable limits for	r	J	360				
						Transmission Fluid		-6.65625	°C				
						Temperature							
								Range					
						Range Shift State	=	Shift	ENUM				
								Completed					
						TPS	>=	0.5004883	%				
						OR Output Speed	d >=	36	RPM				
						Throttle Position Signal Valid							
						from ECM		TRUE	Boolean				
						Engine Torque Signal Valid							
						from ECM, High side driver is		TRUE	Boolean				
						enabled		TDUE	Daalaaa				
						High-Side Driver is Enabled Input Speed Sensor fault		TRUE FALSE	Boolean Boolean				
						Output Speed Sensor faul		FALSE	Boolean				
						Default Gear Option is not							
						presen	t =	TRUE					
					Disab	MIL not Illuminated for	TOM: D071	/ D0717 D0700	D0700				
					Condition		: P182E	0, P0/1/, P0/22	2, P0723,				
					Contaition	5.	1022						
								1, P0102, P0103					
								08, P0171, P017					
								01, P0202, P020 06, P0207, P020					
								06, P0207, P020 02, P0303, P030					
								07, P0308, P040					
Mode 2 Multiplex Valve	P0752	Shift Solenoid Valve A Stuck On	Gear Box Slip	>= 400	RPM								One Trip
			Commanded Coor	= 3rd	Coor								
			Commanded Gear Commanded Gear has Achieved	= 510	Gear								
			1st Locked OR 1st Free-Wheel										
			OR 2nd with Mode 2 Sol.	= TRU	Boolean								
			Commanded On										
			If the above parameters are true								Б. (
											ease Refer	Neutral Timer	
											Supporting		
											ocuments	(300)	
			Command 4th Gear once Output	<= 800	RPM								
			Shaft Speed										
				>= 4.25976									
	I	I	And Gear Ratio	<= 4./0825	1953	1	I			I			l

Component/	Fault	Monitor Strategy		Malfunction	Threshold		Secondary	1	Enable			Tim		Mil
System	Code	Description		Criteria	Value		Malfunction		Conditions			Requi		Illum.
											>=	1.5	Fail Timer (Sec)	
											>=	5	Counts	
							Ignition Voltage Lo Ignition Voltage Hi	>= <=	8.5996094 31.990234	Volts Volts				
							Engine Speed Lo	<= >=	400	RPM				
							Engine Speed Hi	<=	7500	RPM				
							Engine Speed is within the	>=	5	Sec				
							allowable limits for							
							High-Side Driver is Enabled Throttle Position Signal Valid	=	TRUE	Boolean				
							from ECM	=	TRUE	Boolean				
							Output Speed	>=	36	RPM				
							OR TPS		0.5004002	%				
							IPS	>=	0.5004883	%				
							D Chia Ci-t-		Range	ENUM				
							Range Shift State	=	Shift Completed	ENUM				
							Townsteel 51.11		Completed					
							Transmission Fluid Temperature	>=	-6.65625	°C				
							Input Speed Sensor fault	=	FALSE	Boolean				
							Output Speed Sensor fault	=	FALSE	Boolean				
							Default Gear Option is not	=	TRUE					
							present							
						Disable	MIL not Illuminated for		5, P0717, P0722	, P0723,				
						Conditions:	DTC's:	P182E						
								FCM: P0101	I, P0102, P0103	. P0106.				
									08, P0171, P017					
									01, P0202, P020					
									06, P0207, P020					
									02, P0303, P030 07, P0308, P040					
								. 0000, 1 000	5771 000071 010	.,,, 0,,,,				
Mode 2 Multiplex Valve	P0756	Shift Solenoid Valve B Stuck Off	Fail Case 1	Commanded Gear	= 1st Locked									One Trip
												ease Refer	Norted Theory	
				Gear Box Slip	>= 400 RPN							Table 5 in Supporting	Neutral Timer (Sec)	
												ocuments	(300)	
				Intrusive Shift to 2nd										
				Commanded Gear Previous	= 1st Locked Gea									
				Gear Ratio Gear Ratio	<= 3.015991211 >= 2.728027344									
				If the above parameters are true	/- Z.120UZ1344									
											>=	1	sec	
											>=	3	counts	
							Ignition Voltage Lo Ignition Voltage Hi	>= <=	8.5996094 31.990234	Volts Volts				
							Engine Speed Lo	<= >=	400	RPM				
							Engine Speed Hi	<=	7500	RPM				
							Engine Speed is within the	>=	5	Sec				
							allowable limits for	1						
							Output Canad	-	27	DDM				
							Output Speed OR	>=	36	RPM				

Component/	Fault	Monitor Strategy	Malfunction	Threshold		Secondary	Enable		Time	e	Mil
System	Code	Description	Criteria	Value		Malfunction	Condition	S	Requi	red	Illum.
						Range Shift State	Range = Shift Complete	ENUM d			
						Transmission Fluid Temperature	6 65621				
						High-Side Driver is Enabled		Boolean			
						Throttle Position Signal Valid from ECM		Boolean			
						Input Speed Sensor fault		Boolean			
						Output Speed Sensor fault Default Gear Option is not		Boolean			
						present					
					Disable Conditions:		TCM: P0716, P0717, P07 P182E	22, P0723,			
							ECM: P0101, P0102, P01 P0107, P0108, P0171, P0175, P0201, P0202, P0205, P0206, P0207,	172, P0174, 203, P0204,			
							P0301, P0302, P0303, P0 P0306, P0307, P0308, P0	304, P0305,			
Variable Bleed Solenoid (VBS)	P0776	Pressure Control (PC) Solenoid B	Fail Case 1 Case: Steady State 3rd Gear								One Trip
Valiable bleed Soletiold (VBS)	10770	Stuck Off [C35R]	Case: Steady State Srd Gear	= 3rd Ge	ar						
			Gearbox Slip						>= Supporting	Neutral Timer (Sec)	
			Command 4th Gear once Output						Documents		
			Shaft Speed If Gear Ratio	<= 800 RP >= 1.343261719	М						
			And Gear Ratio	<= 1.484741211							
									>= 3	Fail Timer (Sec)	
			It the above condiations are true, Increment 3rd gear fail counter						>= 3	3rd Gear Fail Counts or	
			and C35R Fail counter						>= 14	3-5R Clutch Fail	
			Fail Case 2 Case: Steady State 5th Gear							Counts	
			Commanded Gear	= 5th Ge	ar						
			Gearbox Slip	>= 400 Rpr	m				>= Please Refer to Table 5 in Supporting Documents	Neutral Timer (Sec)	
			Intrusive Test: Command 6th Gear								
			If attained Gear=6th gear Time	>= Please refer to Table 3 in supporting documents	ft Time (Sec)						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	L		me uired	Mil Illum.
• • • • • • • • • • • • • • • • • • • •		,	It the above condiations are true,				>=	3	5th Gear Fail	
			Increment 5th gear fail counter					3	Counts	
									Or 2 FD Chitab Fai	
			and C35R Fail counter				>=	14	3-5R Clutch Fai Counts	"[
					PRNDL State defaulted	= FALSE Boolean	1		Counts	1
					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	>= 0.5004883 Pct				
					Common Enable Criteria	ı				
					Ignition Voltage Lo	>= 8.5996094 Volts				
					Ignition Voltage Hi	i <= 31.990234 Volts				
					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					
				Disabl	MII not Illuminated for	TCM: P0716, P0717, P0722, P0723,				
				Conditions		P182E				
						ECM: P0101, P0102, P0103, P0106,				
						P0107, P0108, P0171, P0172, P0174,				
						P0175, P0201, P0202, P0203, P0204,				
						P0205, P0206, P0207, P0208, P0300,				
						P0301, P0302, P0303, P0304, P0305,				
						P0306, P0307, P0308, P0401, P042E				
	50777	Pressure Control (PC) Solinoid B	Fail Case 1 Case: Steady State 1st				1			One Tr
ariable Bleed Solenoid (VBS)	P0777	Stuck On [C35R] (Steady State)	Case: Steady State 1st							
			Attained Gear slip							
				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	<= 1.933959961			1			
			Gear Ratio				1			
			If the above parameters are true	****			1			
								1 1	Eail Timor (Can)	,
	1		1	l	1	1	>=	1.1	Fail Timer (Sec)	J

Component/	Fault Code	Monitor Strategy		Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Ti	ime Juired	Mil Illum.
System	Code	Description	 	Criteria	value	IVIAITUITETION	Conditions	+-		Fail Count in	mum.
								>=	2	1st Gear	
										or	
								>=	3	Total Fail Counts	
			Fail Case 2	Case: Steady State 2nd gear						Courits	1
			i dii odoo L	outer order order zina gour	Table Based						
					value Please						
				Max Delta Output Speed Hysteresis	>= Refer to Table rpm/sec 22 in						
				nysteresis	supporting						
					documents						
					Table Based						
				Min Delta Output Speed	value Please						
				Hysteresis	>= Refer to Table rpm/sec						
				Trystoresis	supporting						
					documents			1			
					Table Based			1			
					Time Please Refer to Table >= Sec						
				If the Above is True for Time	>= 17 in Sec						
					supporting			1			
				January Control	documents						
				Intrusive test: (CB26 clutch exhausted)							
				Gear Ratio	<= 1.933959961						
				Gear Ratio	>= 1.75						
				If the above parameters are true							
								>=	1.1	Fail Timer (Sec))
									2	Fail Count in	
								>=	3	2nd Gear	
										or Total Fail	
								>=	3	Total Fail Counts	
			Fail Case 3	Case: Steady State 4th gear				1		Journs	1
				- 0	Table Based						
				May Dolto Output Canad	value Please			1			
				Max Delta Output Speed Hysteresis	Refer to Table >= 22 in rpm/sec			1			
				11/3/0103/3	supporting			1			
					documents			1			
					Table Based						
				Min Delta Output Speed	value Please Refer to Table			1			
				Hysteresis	>= Refer to Table rpm/sec 23 in						
				,	supporting						
					documents Table Recod						
					Table Based Time Please			1			
				If the Above is True for Time	Pofor to Table			1			
				If the Above is True for Time	17 111			1			
					supporting			1			
				Intrusive test:	documents			1			
				(C1234 clutch exhausted)				1			
				Gear Ratio	<= 1.050048828			1			
I .	1	i	1	Coar Patio	>= 0.949951172	I		1			1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			Гime quired	Mil Illum
System	Code	Description	If the above parameters are true	value	mananotion	CONTUNIONS		r.e	quileu	inuili
			·				>=	1.1	Fail Timer (Sec))
									Fail Count in	1
							>=	3	4th Gear	
									Or Total Fail	
							>=	3	Total Fail Counts	
			Fail Case 4 Case: Steady State 6th gear							1
				Table Based value Please						
			Max Delta Output Speed	Refer to Table						
			Hysteresis							
				supporting documents						
				Table Based						
			Min Delta Output Speed	value Please Refer to Table						
			Hysteresis	>= Refer to Table rpm/sec						
			-	supporting						
				documents Table Based						
				Timo Dioaco						
			If the Above is True for Time	Refer to Table >= 17 in Sec						
				supporting						
			lateral or to de	documents						
			Intrusive test: (CB26 clutch exhausted)							
				<= 1.050048828			>=	1.1	Fail Timer (Sec))
			Gear Ratio				>=	3	counts	1
			If the above parameters are true	0.717701172				3	counts	
							>=	1.1	Fail Timer (Sec))
								3	Fail Count in	
							>=	3	6th Gear	
									or Total Fail	
							>=	3	Counts	1
					PRNDL State defaulted inhibit RVT	= FALSE Boolean = FALSE Boolean				
					IMS fault pending indication	= FALSE Boolean				
					output speed	>= 0 RPM = TRUE Boolean				
					TPS validity flag HSD Enabled	= TRUE Booleai = TRUE Booleai				
					Hydraulic_System_Pressurize	= TRUE Boolean	1			
					d A OR B					
					(A) Output speed enable	>= 36 Nm				
					(B) Accelerator Pedal enable Ignition Voltage Lo	>= 0.5004883 Nm >= 8.5996094 Volts				
					Ignition Voltage Hi	<= 31.990234 Volts				
					Engine Speed Lo	>= 400 RPM				
					Engine Speed Hi Engine Speed is within the	<= 7500 RPM				
					allowable limits for	>= 5 Sec				
	1				if Attained Gear=1st FW Accelerator Pedal enable	>= 5.0003052 Pct				1

Component/	Fault	Monitor Strategy	Malfunction			shold	Secondary	Enable	Time	Mil
System	Code	Description	Criteria	H	Va	lue	Malfunction if Attained Coor 1st FW	Conditions	Required	Illum.
							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	>= 20 Nm <= 8191.875 Nm >= -6.65625 °C = FALSE Boolea = FALSE Boolea		
						Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E		
								ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174 P0175, P0201, P0202, P0203, P0204 P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305 P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solenoid B StuckOn [C35R] (Dymanic)	Primary Offgoing Clutch is exhausted (See Table 12 in Supporting Documents for Exhaust Delay Timers) Primary Oncoming Clutch Pressure Command Status	_	TRUE Maximum pressurized	Boolean				One Trip
			Primary Offgoing Clutch Pressure Command Status		Clutch exhaus command	t				
			Range Shift Status		Initial Clutch Control					
			Attained Gear Slip If the above conditions are true run appropriate Fail 1 Timers Below:		40	RPM				
			fail timer 1 (3-1 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)				
			fail timer 1 (3-2 shifting with Throttle) fail timer 1	>=	0.5	Fail Time (Sec)				
			(3-2 shifting with Closed Throttle) fail timer 1	>=	0.5	Fail Time (Sec)				
			(3-4 shifting with Throttle) fail timer 1	>=	0.5	Fail Time (Sec) Fail Time (Sec)				
			(3-4shifting with Closed Throttle) fail timer 1 (3-5 shifting with Throttle)	>=	0.5	Fail Time (Sec)				
			(3-5 shifting with Closed Throttle) (3-5 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)				
			fail timer 1 (5-3 shifting with Throttle)	>=	0.5	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) fail timer 1	>=	0.5	Fail Time (Sec)				
			(5-4 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction	Enable Conditions		Tir Requ		Mil Illum.
			fail timer 1 (5-6 shifting with Throttle) fail timer 1 (5-6 shifting with Closed Throttle)		0.5	Fail Time (Sec) Fail Time (Sec)				Total Fail Tin	ne	
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers							2) See Enabl Timers for Fa >= Timer 1, and Reference Supporting Table 15 for Fail Timer 2	e iil i sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter								3rd gear fail	
			3rd gear fail counter 5th gear fail counter							>= 3	counts OR 5th gear fail counts	
			Total fail counter							>= 5	OR 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	= FALSE = FALSE # 1st = TRUE >= 100 >= 200 = FALSE = FALSE = FALSE = TRUE	°C Boolean Boolean Boolean RPM RPM Boolean Boolean Boolean			
						Disable Conditions:	DTC's:	TCM: P0716, P0717, P072 P182E ECM: P0101, P0102, P010 P0107, P0108, P0171, P01 P0175, P0201, P0202, P02 P0205, P0206, P0207, P02 P0301, P0302, P0303, P03 P0306, P0307, P0308, P04	3, P0106, 72, P0174, 03, P0204, 08, P0300, 04, P0305,			
Variable Bleed Solenoid (VBS)	P0796	Pressure Control (PC) Solenoid C	Fail Case 1 Case: Steady State 4th Gear									One Trip
Social Social (400)	1 3770	Stuck Off [C456] (Steady State)	Gear slip	>=	400	RPM				Please See Table 5 For >= Neutral Time Cal	Neutral Timer	
			Intrusive test: commanded 5th gear									

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
_,,	3533		If attained Gear ≠5th for time	Please refer to			.,	
			if the above conditions have been met	Documents				
			Increment 4th Gear Fail Counter				>= 3 4th Gear Fail Count OR	
			and C456 Fail Counters				>= 14 C456 Fail Counts	
			<u>Fail Case 2</u> Case: Steady State 5th Gear				Please See Table 5 For Neutral Timer	
			Gear slip	>= 400 RPM			>= Neutral Time (Sec) Cal	
			Intrusive test: commanded 6th gear	Please Refer				
			If attained Gear ≠ 6th for time	>= to Table 3 in Shift Time (Sec)				
			if the above conditions have been met	Documents				
			Increment 5th Gear Fail Counter				>= 3 5th Gear Fail Count	
			and C456 Fail Counters				OR C456 Fail >= 14 Counts	
			Fail Case 3 Case: Steady State 6th Gear				Please See	
			Gear slip	>= 400 RPM			>= Table 5 For Neutral Timer Neutral Time (Sec) Cal	
			Intrusive test: commanded 5th gear				Gu.	
			If attained Gear ≠5th for time	Please refer to Table 3 in Supporting Shift Time (Sec)				
			if the above conditions have been	Documents				
			met Increment 6th Gear Fail Counter and C456 Fail Counter				>= 3 6th Gear Fail Count	
			and C456 Fail Counter				OR C456 Fail Counts	
					PRNDL State defaulted inhibit RVT	= FALSE Boolean = FALSE Boolean		
					IMS fault pending indication TPS validity flag Hydraulic System Pressurized	= FALSE Boolean = TRUE Boolean = TRUE Boolean		
					Minimum output speed for RVT	>= 36 RPM		
					A OR B (A) Output speed enable (B) Accelerator Pedal enable	>= 36 RPM >= 0.5004883 Pct		
					Common Enable Criteria Ignition Voltage Lo	>= 8.5996094 Volts		

	omponent/ System	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Tin		
		Code	Description	Criteria	Value	Malfunction	Conditions	Requ		Mil Illum.
						Ignition Voltage Hi	<= 31.990234 Volts			
						Engine Speed Lo	>= 400 RPM			
						Engine Speed Hi	<= 7500 RPM			
						Engine Speed is within the allowable limits for	>= 5 Sec			
						Throttle Position Signal valid	= TRUE Boolean			
						HSD Enabled				
						Transmission Fluid				
						Temperature	>= -6.65625 °C			
						Input Speed Sensor fault				
						OutputSpeed Sensor fault	= FALSE Boolean			
						Default Gear Option is not	= TRUE			
						present				
					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			
										<u></u>
Variable Bleed S	Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C	Fail Case 1 Case: Steady State 1st						One Trip
variable bleed s	Soletiola (VDS)	10///	Stuck On [C456] (Steady State)	<u> </u>	100 001					
1				Attained Gear slip				1		
					Table Based Time Please					
					Pofor to Table Enable Time					
				If the Above is True for Time	>= 4 in (Sec)					
					supporting					
					documents					
				Intrusive test:						
				(CBR1 clutch exhausted)						
				Gear Ratio	<= 1.484985352					
				Gear Ratio If the above parameters are true	>= 1.343017578					
				ii tile above parameters are tide						
								>= 1.1	Fail Timer (Sec)	
									Fail Count in	
								>= 2	1st Gear	
1								1	or	
								>= 3	Total Fail	
				Fail Case 2 Case Steady State 2nd					Counts	ł
1				Fail Case 2 Case Steady State 2nd	Table Based			1		
1					value Bloace			1		
1				Max Delta Output Speed	Refer to Table pm/sec 22 in			1		
1				Hysteresis	>= 22 in rpm/sec			1		
				.,,	supporting					
1					documents					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time equired	M IIIu
		•	Min Delta Output Speed Hysteresis	Table Based value Please Refer to Table 23 in rpm/sec					
			If the Above is True for Time	supporting documents Table Based Time Please Pefer to Table 17 in supporting					
			Intrusive test: (CB26 clutch exhausted)	documents					
			Gear Ratio	<= 1.484985352 >= 1.343017578					
							>= 1.1	Fail Timer (Sec) Fail Count in	
							>= 3	2nd Gear or Total fail counts	
			Fail Case 3 Case Steady State 3rd	Table Based			- 3	i otal Itali CourilS	
			Max Delta Output Speed Hysteresis	value Please Refer to Table					
			Min Delta Output Speed Hysteresis	value Please Refer to Table 23 in supporting documents Table Based					
			If the Above is True for Time	17 in supporting					
			Gear Ratio	<= 1.484985352 >= 1.343017578					
			If the above parameters are true				>= 1.1	Fail Timer (Sec)	
							>= 3 OR	Fail Count in 3rd Gear Total Fail	
					PRNDL State defaulted inhibit RVT		>= 3 olean olean	Counts	
					IMS fault pending indication output speed	= FALSE Boo	olean PM		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
System	Code	Description	Criteria	value	TPS validity flag	= TRUE Boolean	Kequireu	mun.
					HSD Enabled	= TRUE Boolean		
					Hydraulic_System_Pressurize	= TRUE Boolean		
					d	- TROE Boolean		
					A OR B	2/ New		
					(A) Output speed enable (B) Accelerator Pedal enable	>= 36 Nm >= 0.5004883 Nm		
					Ignition Voltage Lo	>= 0.5004665 NIII >= 8.5996094 Volts		
					Ignition Voltage Hi	<= 31.990234 Volts		
					Engine Speed Lo	>= 400 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the	>= 5 Sec		
					allowable limits for			
					if Attained Gear=1st FW			
					Accelerator Pedal enable			
					if Attained Gear=1st FW			
					Engine Torque Enable if Attained Gear=1st FW			
					Engine Torque Enable			
					Transmission Fluid			
					Temperature	>= -6.65625 °C		
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault	= FALSE Boolean		
					Default Gear Option is not	= TRUE		
					present			
				Disable		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		
			Delegan Official of Chitabile					On a Tala
		Pressure Control (PC) Solenoid C	Primary Offgoing Clutch is exhausted (See Table 11 in					One Trip
Variable Bleed Solenoid (VBS)	P0797	Stuck On [C456] (Dynamic)	Supporting Documents for	= TRUE Boolean				
		Stack Off [C430] (Dynamic)	Exhaust Delay Timers)					
			Primary Oncoming Clutch	Maximum				
			Pressure Command Status	= pressurized				
			Primary Offgoing Clutch Pressure	Clutch exhaust				
			Command Status	command				
			Command Status					
			Range Shift Status	≠ Initial Clutch				
			Attained Gear Slip	Control <= 40 RPM				
			Attained Gear Slip	<= 40 KPIVI				
			If the above conditions are true					
			increment appropriate Fail 1					
			Timers Below:					
			fail timer 1	>= 0.5 Fail Time (Sec)				
			(4-1 shifting with throttle)	z= 0.5 raii fiifie (Sec)				
			fail timer 1	>= 0.5 Fail Time (Sec)				
I	I	1	(4-1 shifting without throttle)		I	I		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		۱ni	reshold /alue	Secondary Malfunction		Enable Conditions			Tin Requ		IIIu
.,			fail timer 1 (4-2 shifting with throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1	>=	0.5	Fail Time (Sec)								
			(4-2 shifting without throttle) fail timer 1	>=										
			(4-3 shifting with throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (4-3 shifting without throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1	>=	0.5	Fail Time (Sec)								
			(5-3 shifting with throttle) fail timer 1	-										
			(5-3 shifting without throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (6-2 shifting with throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1	>=	0.5	Fail Time (Sec)								
			(6-2 shifting without throttle)								_			
												otal Fail Tim (Fail 1 + Fa		
											2)	See Enable	е	1
			If Attained Gear Slip is Less than									mers for Fa imer 1, and		
			Above Cal Increment Fail Timers									Reference		
												Supporting able 15 for		
											F	ail Timer 2		
			If fail timer is greater than threshold increment corresponding											
			gear fail counter and total fail											
			counter										Fail Counter	
			4th gear fail counter								>=	3	From 4th Gear	
													OR Fail Counter	
			5th gear fail counter								>=	3	From 5th Gear	
													OR Fail Counter	
			6th gear fail counter								>=	3	From 6th Gear	
													OR Total Fail	
			Total fail counter								>=	5	Counter	
							TUT Enable temperature Input Speed Sensor fault	>=	-6.65625 FALSE	°C Boolean				
							Output Speed Sensor fault	=	FALSE	Boolean				
							Command / Attained Gear High Side Driver ON	≠ =	1st TRUE	Boolean Boolean				
							output speed limit for TUT	>=	100	RPM				
							input speed limit for TUT PRNDL state defaulted	>= =	200 FALSE	RPM Boolean				1
							IMS Fault Pending	=	FALSE	Boolean				
							Service Fast Learn Mode HSD Enabled	=	FALSE TRUE	Boolean Boolean				
							HOD EHADIEU	=	INUL	DUUICAII				1

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria		eshold alue	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum
o you com	0000	2000.ipiio.i		- Thomas		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			
								0300,1 0307,1 0300,1 0 101,1 0 122			
Tap Up Tap Down Switch (TUTD)	P0815	Upshift Switch Circuit	Fail Case 1	Tap Up Switch Stuck in the Up	= 1	Boolean					Speci
The state of the s				Position in Range 1 Enabled Tap Up Switch Stuck in the Up							No M
				Position in Range 2 Enabled	= 1	Boolean					
				Tap Up Switch Stuck in the Up	= 1	Boolean					
				Position in Range 3 Enabled	= 1	Boolean					
				Tap Up Switch Stuck in the Up	= 1	Boolean					
				Position in Range 4 Enabled Tap Up Switch Stuck in the Up							
				Position in Range 5 Enabled	= 1	Boolean					
				Tap Up Switch Stuck in the Up	= 1	Boolean					
				Position in Range 6 Enabled	- '	Doolcan					
				Tap Up Switch Stuck in the Up Position in Neutral Enabled	= 1	Boolean					
				Tap Up Switch Stuck in the Up	1	Dealess					
				Position in Park Enabled	= 1	Boolean					
				Tap Up Switch Stuck in the Up	= 1	Boolean					
				Position in Reverse Enabled Tap Up Switch ON	= TRUE	Boolean			>=	1 Fail Time (Se	oc)
				rap op Switch Oiv	- INOL	Doolean			/-	i i dii ilile (Si	50)
			Fail Case 2	Tap Up Switch Stuck in the Up	= 1	Boolean					
				Position in Range 1 Enabled	- ,	Boolcan					
				Tap Up Switch Stuck in the Up Position in Range 2 Enabled	= 1	Boolean					
				Tap Up Switch Stuck in the Up	1	Dealess					
				Position in Range 3 Enabled	= 1	Boolean					
				Tap Up Switch Stuck in the Up	= 1	Boolean					
				Position in Range 4 Enabled Tap Up Switch Stuck in the Up							
				Position in Range 5 Enabled	= 1	Boolean					
				Tap Up Switch Stuck in the Up	= 1	Boolean					
				Position in Range 6 Enabled	- 1	Doolean					
				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					
	1			Tap Up Switch Stuck in the Up	= 1	Boolean					
				Position in Reverse Enabled Tap Up Switch ON	= TRUE	Boolean					
				NOTE: Both Failcase1 and	- INUÉ	Boolcail				/00 E !! #! /0	
				Failcase 2 Must Be Met					>=	600 Fail Time (Se	ec)
	1	1	I					l	I		- 1

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria	1		eshold alue	Secondary Malfunction		Enable Conditions			Time Require		Mil Illum.
System	Code	Description		Criteria	$\overline{}$	V	aiue	Manufiction		Conditions			Require	ru .	mun.
					i										
					ı			Time Since Last Range	>=	1	Enable Time				1
					i			Change			(Sec)				
					i			Ignition Voltage Lo Ignition Voltage Hi	>= <=	8.5996094 31.990234					
					i			Engine Speed Lo	>=	400	RPM				
					i			Engine Speed Hi	<=	7500	RPM				
					i			Engine Speed is within the allowable limits for	>=	5	Sec				
					i			unowable infints for		Test Failed					
					i					This Key					
					i			P0815 Status is	<i>≠</i>	On or Faul					
					i					Active					
					ı										
							Disable	MIL not Illuminated for	TCM: D081	5 D0026 D102	F D1976				
					i		Conditions:		P1877, P19		L, I 1070,				
					i										
	+		Fail Case 1						ECM: None						Special
Tap Up Tap Down Switch (TUTD)	P0816	Downshift Switch Circuit	I all Case I	Tap Down Switch Stuck in the	=	1	Boolean								No MIL
				Down Position in Range 1 Enabled	i										
				Tap Down Switch Stuck in the	_	1	Boolean								
				Down Position in Range 2 Enabled	_	'	Doolean								
				Tap Down Switch Stuck in the	i										
				Down Position in Range 3 Enabled	=	1	Boolean								
				Ton Down Cuitab Ctual in the	i										
				Tap Down Switch Stuck in the Down Position in Range 4 Enabled	=	1	Boolean								
				Ü	i										
				Tap Down Switch Stuck in the	=	1	Boolean								
				Down Position in Range 5 Enabled	i										
				Tap Down Switch Stuck in the		1	Boolean								
				Down Position in Range 6 Enabled	i -	į	Boolean								
				Tap Down Switch Stuck in the	i										
				Down Position in Range Neutral Enabled	=	1	Boolean								
				Tap Down Switch Stuck in the	i										
				Down Position in Range Park	=	1	Boolean								
				Enabled	i										
				Tap Down Switch Stuck in the Down Position in Range Reverse	=	1	Boolean								
				Enabled	i										
				Tap Down Switch ON	=	TRUE	Boolean					>=	1	sec	
			Fail Case 2	T D C 21 C 21 C 21											1
				Tap Down Switch Stuck in the Down Position in Range 1 Enabled	=	1	Boolean								
				Down i Osition in Nange i Eliablea	i										
				Tap Down Switch Stuck in the	=	1	Boolean								
				Down Position in Range 2 Enabled	i	•									

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Th	reshold /alue	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
.,			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 Tap Down Switch Stuck in the	= 1	Boolean				
			Down Position in Park Enabled	= 1	Boolean				
			Tap Down Switch Stuck in the Down Position in Reverse Enabled	= 1	Boolean				
			Tap Down Switch ON NOTE: Both Failcase1 and Failcase 2 Must Be Met	= TRUE	Boolean			>= 600 sec	
						Time Since Last Range	>= 1 Enable T		
						Change Ignition Voltage Lo Ignition Voltage Hi	(Sec) >= 8.5996094 Volts <= 31.990234 Volts		
						Engine Speed Lo Engine Speed Hi	>= 400 RPM <= 7500 RPM		
						Engine Speed is within the allowable limits for			
						P0816 Status is	Test Failed This Key ≠ On or Fault Active		
					Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0815, P0826, P182E, P1876, P1877, P1915, P1761		
							ECM: None		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Th	reshold /alue	Secondary Malfunction		Enable Conditions			Ti Req	ime Juired	Mil Illum.
Tap Up Tap Down Switch (TUTD)	P0826	Up and Down Shift Switch Circuit	TUTD Circuit Reads Invalid	= TRUE						>=	60	Fail Time (Sec)	Special
			Vollage			Ignition Voltage Lo Ignition Voltage H Engine Speed Lo Engine Speed H Engine Speed is within the allowable limits fo	>= <= >>=	8.5996094 31.990234 400 7500 5 Test Failed This Key					No MIL
					Disable Conditions:			On or Fault Active					
							ECM: None						
Tap Up Tap Down Switch (TUTD)	P1761	Tap Up and Down switch signal circuit (rolling count)	Rolling count value received from BCM does not match expected value	= TRUE	Boolean					>=	3	Fail Counter	Special No MIL
										>	10	Sample Timer (Sec)	
						Tap Up Tap Down Message Health	=	TRUE	Boolean			(===)	
						Engine Speed Lo		400	RPM				
						Engine Speed H Engine Speed is within the allowable limits fo		7500 5	RPM Sec				
					Disable Conditions:								
	-		Fail Case 1	Transition	1					-			One Tri
Internal Mode Switch (IMS)	P182E	Internal Mode Switch - Invalid Range		= (bit state 1110)	Range								
			Previous range	KINDL_DIIV	EP Range								
			Previous range	≠ CeTRGR_e RNDL_Driv	EP e5 Range								
			Range Shift State	Range Sh Complete	ift d ENUM								
			Absolute Attained Gear Slip Attained Gear Attained Gear	<= Sixth	rpm								
			Throttle Position Available										
			Throttle Position Output Speed Engine Torque Engine Torque If the above conditions are met then Increment Fail Timer	>= 200 >= 50 <= 8191.75	rpm Nm					>=	1	Fail Seconds	

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria		Thre: Va		Secondary Malfunction		Enable Conditions				me uired	IIIu
		•		If Fail Timer has Expired then								>=	5	Fail Counts	
			F-11 O 2	Increment Fail Counter		70									
			Fail Case 2	Output Speed	<=	70	rpm								
				The following PRNDL sequence											
				events occur in this exact order:		D : (// !!									
				PRNDL state	=	Drive 6 (bit state 0110)	Range								
				PRNDL state = Drive 6 for	>=	1	Sec								
						Transition 8									
				PRNDL state	=	(bit state	Range								
						0111)									
				PRNDL state	_	Drive 6 (bit	Range								
				I KNDE state	_	state 0110)	Range								
						Transition 1									
				PRNDL state	=	(bit state	Range								
						1110)									
				Above sequencing occurs in	<=	1	Sec								
				Neutral Idle Mode	=	Inactive									
				If all conditions above are met											
				Increment delay Timer											
				If the below two conditions are met								>=	3	Fail Seconds	
				Increment Fail Timer			0								
				delay timer	>=	1	Sec								
				Input Speed	>=	400	Sec								
				If Fail Timer has Expired then								>=	2	Fail Counts	
			F-11 O 2	Increment Fail Counter		T				O-TDCD					-
			Fail Case 3	Current renge		Transition 13		Dravious rango	≠	CeTRGR_					
				Current range	=	(bit state 0010)	Range	Previous range	+	e_PRNDL _Drive5					
						0010)				CeTRGR_					
				Engine Torque	\-	-8192	Nm	Previous range	≠	e_PRNDL					
				Engine Torque	/-	-0172	IVIII	T Tevious range	7	_Drive5					
				Engine Torque	/-	8191.75	Nm	IMS is 7 position configuration	=	0	Boolean				
				Engine rorque	_	0171.73	IVIII	If the "IMS 7 Position config" =		0	Doolcan				
								1 then the "previous range"							
				If the above conditions are met				criteria above must also be				>=	0.225	Seconds	
				then, Increment Fail Timer				satsified when the "current							
								range" = "Transition 13"							
				If Fail Timer has Expired then				J						= "	
				Increment Fail Counter								>=	15	Fail Counts	
			Fail Case 4			Trancillan		Dicable Fall Cone Alfilest							1
				Current	_	Transition 8	Dango	Disable Fail Case 4 if last							
				Current range	=	(bit state	Range	positive range was Drive 6 and							
						0111)		current range is transition 8							
								Set inhibit bit true if PRNDL =							
								1100 (rev) or 0100 (Rev-Neu							
				Inhibit bit (see definition)	=	FALSE		transition 11)							
								Set inhibit bit false if PRNDL =							
								1001 (park)							1
				Steady State Engine Torque	>=	30	Nm								
				Steady State Engine Torque	<=	8191.75	Nm								
				If the above conditions are met								>=	0.225	Seconds	1
				then Increment Fail Timer								1	5.225	0.000100	
				If the above Condtions have been									4-	E 11.0	
				met, Increment Fail Counter								>=	15	Fail Counts	1
			F-11 O 5			TDUE	Deeleen					ļ			4
			Fail Case 5	Throttle Position Available	=	TRUE	Boolean	1 1				1			
				The following PRNDL sequence								1			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	M
oyotom	0000	Description	PRNDL State	Reverse (bit Dangs				
				state 1100) Range Transition 11				
			PRNDL State	= (bit state Range				
				0100)				
			PRNDL State	= Neutral (bit Range				
				state 0101) Kange Transition 11				
			PRNDL State	= (bit state Range				
				0100)				
			Above sequencing occurs in	<= 1 Sec				
			Then delay timer increments Delay timer	. E				
				Dango Shift				
			Range Shift State	= Complete				
			Absolute Attained Gear Slip	<= 50 rpm				
			Attained Gear					
			Attained Gear Throttle Position					
			Output Speed					
			If the above conditions are met				20	
			Increment Fail Timer				>= 20 Seconds	
			Fail Case 6	Illegal (bit	A Open Circuit Definition (flag			
			Current range	= state 0000 or 1000 or 0001)	set false if the following conditions are met):			
				1000 01 0001)	conditions are mety.			
			and		Current Range	Transition ≠ 11 (bit		
			and		Current Kange	state 0100)		
			A Onen Circuit (Cae Definition)	FALCE Declar		state e ree,		
			A Open Circuit (See Definition)	= FALSE Boolean	or			
					Last positive state	F Neutral (bit		
					·	state 0101)		
					or			
					Previous transition state	Transition ≠ 8 (bit state		
					Previous transition state	≠ 8 (bit state 0111)		
					Fail case 5 delay timer	= 0 sec		
			If the above Condtions are met				>= 6.25 Seconds	
			then, Increment Fail timer	DDND : "			>= 0.25 Sccolius	
			Fail Case 7 Current PRNDL State	= PRNDL circuit ABCP = 1101 Range				
			and					
			Previous PRNDL state	DDNDL circuit				
			Input Speed					
			Reverse Trans Ratio Reverse Trans Ratio	<= 2.678344727 Tatio >= 3.081542969 ratio				
			If the above Condtions are met	0.00101270714.10			/ OF Cocondo	
			then, Increment Fail timer				>= 6.25 Seconds	
			P182E will report test fail when					1
			any of the above 7 fail cases are					
			met					
					Ignition Voltage 1	0 E00/004 V/cli-		
	1 1			i .	Ignition Voltage Lo Ignition Voltage Hi	>= 8.5996094 Volts	I .	- 1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
					Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for Engine Torque Signal Valid	>= 5 Sec		
				Disable Conditions:		TCM: P0716, P0717, P0722, P0723, P07C0, P07BF, P077C, P077D ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305,		
						P0306, P0307, P0308, P0401, P042E		
Tap Up Tap Down Switch (TUTD)	P1876	Tap Up and Down Enable Switch Circuit	Current range TUTD Enable Switch is Active	Park or = Reverse or Range State Neutral = TRUE Boolean				Special No MIL
				Disable Conditions:		>= 400 RPM <= 7500 RPM >= 5 Sec	>= 3 Fail Time (Sec) >= 5 Fail Counts	
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 13 in Supporting Documents for Exhaust Delay Timers) Primary Oncoming Clutch Pressure Command Status	= TRUE Boolean = Maximum pressurized		Edm. Hollo		One Trip
			Primary Offgoing Clutch Pressure Command Status Range Shift Status Attained Gear Slip If above coditons are true, increment appropriate Fall 1 Timers Below:	COLLIO				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thi	reshold /alue	Secondary Malfunction		Enable Conditions			Tin Requ		Mi Illur
		<u> </u>	fail timer 1 (2-1 shifting with throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1	>=	0.5	Fail Time (Sec)								
			(2-1 shifting without throttle) fail timer 1											
			(2-3 shifting with throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (2-3 shifting without throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (2-4 shifting with throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1	>=	0.5	Fail Time (Sec)								
			(2-4 shifting without throttle) fail timer 1											
			(6-4 shifting with throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (6-4 shifting without throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1 (6-5 shifting with throttle)	>=	0.5	Fail Time (Sec)								
			fail timer 1	>=	0.5	Fail Time (Sec)								
			(6-5 shifting without throttle)		0	(000)								
											То	tal Fail Tim	e	
												(Fail 1 + Fa See Enable		
			If Attained Gear Slip is Less than								Tir	mers for Fa	il	
			Above Cal Increment Fail Timers									imer 1, and Reference	sec	
												Supporting		
												able 15 for ail Timer 2		
			If fail timer is greater than											
			threshold increment corresponding gear fail counter and total fail											
			counter											
			2nd gear fail counter								>=	3	Fail Counter From 2nd Gear	r
													OR Fail Counter	
			6th gear fail counter								>=	3	From 6th Gear	
													OR Total Fail	
			total fail counter								>=	5	Counter	
							TUT Enable temperature Input Speed Sensor fault	>= =	-6.65625 FALSE	°C Boolean				
							Output Speed Sensor fault Command / Attained Gear	=	FALSE	Boolean Boolean				
							High Side Driver ON	≠ =	1st TRUE	Boolean				
							output speed limit for TUT input speed limit for TUT	>= >=	100 200	RPM RPM				
							PRNDL state defaulted	>=	FALSE	Boolean				
							IMS Fault Pending	=	FALSE	Boolean				
							Service Fast Learn Mode HSD Enabled	=	FALSE TRUE	Boolean Boolean				
							113D Eliablea	_	INOL	Doolcari				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time quired	Mil Illum.
System	Code	Description	Crieria	Disable Conditions:	MIL not Illuminated for	CONDITIONS TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0301, P0302, P0303, P0304, P0305,	Re	quirea	illum.
						P0306, P0307, P0308, P0401, P042E			
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Steady State)	Fall Case 1 Case: Steady State 1s Attained Gear slip If the Above is True for Time Intrusive test (CBR1 clutch exhausted Gear Ration Gear Ration If the above parameters are true	D >= 400 RPM Table Based Time Please Refer to Table Enable Time 4 in (Sec) supporting documents C <= 3.015991211 D >= 2.728027344					One Tri
							>= 1.1 >= 5	Fail Timer (Sec) Fail Count in 1st Gear or Total Fail Counts	
			Fail Case 2 Case: Steady State 3rd Gea Max Delta Output Spee Hysteresi Min Delta Output Spee Hysteresi If the Above is True for Time (C35R clutch exhausted Gear Rati Gear Rati	Table Based value Please Refer to Table rpm/sec 22 in supporting documents Table Based value Please d >= Refer to Table rpm/sec 23 in rpm/sec 23 in supporting documents Table Based Time Please Perfer to Table Time Please Table Based Time Please Please Table Based Time Please Table Based Time Please Table Based Time Please To Table Sec To Table Sec To Table Sec To Table Sec To Table Sec To Table Sec To Table Sec To Table Sec To Table Sec To Table Sec To Table Sec To Table Sec To Table Sec To Table Sec To Table Sec					
			If the above parameters are tru				>= 1.1	Fail Timer (Sec) Fail Count in 3rd Gear	,

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Tii	me uired	Mil Illum
Gystein	Code	резоприон	Oriteria	Falue		COMMINIONS		ivedi	or	
							>=	5	Total Fail	
			Fail Case 2 Case Steady State And Coor						Counts	-
			Fail Case 3 Case: Steady State 4rd Gear	Table Based						
				value Please						
			Max Delta Output Speed							
			Hysteresis	22 In .						
				supporting documents						
				Table Based						
				value Please						
			Min Delta Output Speed							
			Hysteresis	23 in supporting						
				documents						
				Table Based						
				Time Please						
			If the Above is True for Time	Refer to Table >= 17 in Sec						
				supporting						
				documents						
			Intrusive test:							
			(C1234 clutch exhausted)	. 0.770052724						
			Gear Ratio Gear Ratio							
			If the above parameters are true	0.701700000						
							>=	1.1	Fail Timer (Sec)
									Fail Count in	Ί
							>=	3	4th Gear	
									or	
							>=	5	Total Fail	
			Fail Case 4 Case: Steady State 5th Gear						Counts	-
			Case. Steady State Still Geal	Table Based						
				value Diegeo						
			Max Delta Output Speed							
			Hysteresis							
				supporting documents						
				Table Based						
				value Please						
			Min Delta Output Speed Hysteresis	Refer to Table >= 23 in rpm/sec						
			пуѕіегезіѕ	supporting						
				documents						
				Table Based						
				Time Please						
			If the Above is True for Time	Refer to Table Sec						
				supporting						
				documents						
			Intrusive test:							
			(C35R clutch exhausted) Gear Ratio	<= 0.779052734						
			Gear Ratio							
			If the above parameters are true							1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			ime Juired	Mil Illum.
- Oyston	OGUE	Bescription	Ontena	Talas		Contamono	>=	1.1	Fail Timer (Sec)	
								1.1	Fail Count in	Ί
							>=	3	5th Gear	
									or	
							>=	5	Total Fail	
					DONOLOU LA CALLA	51105	/-	J	Counts	-
					PRNDL State defaulted inhibit RVT	= FALSE Boolean = FALSE Boolean				
					IMS fault pending indication					
					output speed					
					TPS validity flag	= TRUE Boolean				
					HSD Enabled					
					Hydraulic_System_Pressurize	= TRUE Boolean				
					A OR B					
					(A) Output speed enable					
					(B) Accelerator Pedal enable	e >= 0.5004883 Nm				
					Ignition Voltage Lo					
					Ignition Voltage Hi	<= 31.990234 Volts				
					Engine Speed Lo Engine Speed Hi) >= 400 RPM i <= 7500 RPM				
					Engine Speed is within the					
					allowable limits for					
					if Attained Gear=1st FW					
					Accelerator Pedal enable					
					if Attained Gear=1st FW Engine Torque Enable					
					if Attained Gear=1st FW	,				
					Engine Torque Enable					
					Transmission Fluid	6 65635 90				
					Temperature					
					Input Speed Sensor fault Output Speed Sensor fault	= FALSE Boolean = FALSE Boolean				
					Default Gear Option is not	rl				
					present					
				Disabl	MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723,				
				Conditions		P182E				
						ECM: P0101, P0102, P0103, P0106,				
						P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204,				
						P0205, P0206, P0207, P0208, P0300,				
						P0301, P0302, P0303, P0304, P0305,				
						P0306, P0307, P0308, P0401, P042E				
			D1 0% 1 61111							0 7
		Pressure Control (PC) Solenoid E	Primary Offgoing Clutch is exhausted (See Table 10 in							One Trip
Variable Bleed Solenoid (VBS)	P2724	Stuck On (Dynamic)	Supporting Documents for	= TRUE Boolean						
		(= j	Exhaust Delay Timers)							
			Primary Oncoming Clutch	Maximum						
			Pressure Command Status	pressurized						
			Primary Offgoing Clutch Pressure	_ Clutch exhaust						
			Command Status	command						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		V	eshold 'alue	Secondary Malfunction		Enable Conditions			Tin Requ		Mil Illum
			Range Shift Status	≠	Initial Clutc	h								
			Attained Gear Slip		Control 40	RPM								
			If the above conditions are true		40	IXI IVI								
			increment appropriate Fail 1											
			Timers Below:											
			fail timer 1	>=	0.5	sec								
			(2-6 shifting with throttle)	_	0.5	300								
			fail timer 1	>=	0.5	sec								
			(2-6 shifting without throttle) fail timer 1											
			(3-5 shifting with throttle)	>=	0.5	sec								
			fail timer 1		0.5	600								
			(3-5 shifting without throttle)	>=	0.5	sec								
			fail timer 1	>=	0.5	sec								
			(4-5 shifting with throttle) fail timer 1											
			(4-5 shifting without throttle)	>=	0.5	sec								
			fail timer 1											
			(4-6 shifting with throttle)	>=	0.5	sec								
			fail timer 1	>=	0.5	sec								
			(4-6 shifting without throttle)	/-	0.5	366								
											Tot	tal Fail Tim	e	
												Fail 1 + Fa		
												See Enable		
			If Attained Gear Slip is Less than									ners for Fa		
			Above Cal Increment Fail Timers									mer 1, and	sec	
												Reference		
												Supporting able 15 for		
												ail Timer 2		
			If fail times is an atom them											
			If fail timer is greater than threshold increment corresponding											
			gear fail counter and total fail											
			counter											
			2nd gear fail counter								\ <u>-</u>	3	Fail Counter	
			zna gear fail counter								>=	3	From 2nd Gear	
													= " 0 .	
			3rd gear fail counter								>=	3	Fail Counter	
													From 3rd Gear	
													Fail Counter	
			4th gear fail counter								>=	3	From 4th Gear	
			total fail counter	l							>=	5	Total Fail	
				 			TUT Enable temperature	>=	-6.65625	°C	 		Counter	-
							Input Speed Sensor fault	>=	FALSE	Boolean				1
							Output Speed Sensor fault	=	FALSE	Boolean				1
							Command / Attained Gear	≠	1st	Boolean				
							High Side Driver ON	=	TRUE	Boolean				
							output speed limit for TUT	>=	100	RPM				1
							input speed limit for TUT	>=	200 EALSE	RPM				1
							PRNDL state defaulted IMS Fault Pending	=	FALSE FALSE	Boolean Boolean				
	1 1						Service Fast Learn Mode	=	FALSE	Boolean				1
							HSD Enabled	=	TRUE	Boolean				1
	1 1			I							1			1

Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable		Time		Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions	<u> </u>	Required	I.	Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182F				
				containoris.	510 5.	ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E				
		Pressure Control (PC) Solenoid E	Fail Case 1						Or	ne Tri
ariable Bleed Solenoid (VBS)	P2724	Stuck On (Steady State)	Case: 5th Gear							
			Max Delta Output Speed Hysteresis							
			Min Delta Output Speed Hysteresis	value Please Refer to Table 23 in rpm/sec supporting documents Table Based						
			If the Above is True for Time	Time Please Refer to Table Sec 17 in Supporting documents						
			Intrusive test: (C35R clutch exhausted) Gear Ratio Gear Ratio	<= 1.484985352						
			If the above parameters are true							
							>=	1.1 Fail	Timer (Sec)	
							>=		I Count in oth Gear OR	
							>=		otal 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						
			Min Delta Output Speed Hysteresis	Table Based value Please Refer to Table 23 in rpm/sec supporting documents						

Component/	Fault	Monitor Strategy	Malfunction Critoria	Threshold Value	Secondary Malfunction		Enable Conditions				ime	Mi Illur
System	Code	Description	Criteria	Table Based	Wallunction		Conditions			Keq	uired	mur
				Time Please								
				Pofor to Table								
			If the Above is True for Time	>= 17 in Sec								
				supporting								
				documents								
			Intrusive test:									
			(CB26 clutch exhausted)									
			Gear Ratio	<= 1.484985352								
			Gear Ratio	>= 1.343017578								
			If the above parameters are true									
									>=	1.1	Fail Timer (Sec)	
											Fail Count in	
									>=	3	6th Gear	I
											OR	
									>=	3	Total Fail	
									>=	3	Counts	1
					PRNDL State defaulted	=	FALSE	Boolean				1
					inhibit RVT	=	FALSE	Boolean				
					IMS fault pending indication	=	FALSE 0	Boolean RPM				
					output speed TPS validity flag	>= =	TRUE	Boolean				
					HSD Enabled	=	TRUE	Boolean				
					Hydraulic_System_Pressurize							
					d	=	TRUE	Boolean				
					A OR B							
					(A) Output speed enable	>=	36	Nm				
					(B) Accelerator Pedal enable	>=	0.5004883	Nm				
					Ignition Voltage Lo	>=	8.5996094	Volts				
					Ignition Voltage Hi	<=	31.990234	Volts				
					Engine Speed Lo	>=	400	RPM				
					Engine Speed Hi	<=	7500	RPM				1
					Engine Speed is within the allowable limits for	>=	5	Sec				1
					if Attained Gear=1st FW							1
					Accelerator Pedal enable	>=	5.0003052	Pct				1
					if Attained Gear=1st FW		20	Nima				l
					Engine Torque Enable	>=	20	Nm				1
					if Attained Gear=1st FW	<=	8191.875	Nm				1
					Engine Torque Enable	\	0171.073	IVIII				1
					Transmission Fluid	>=	-6.65625	°C				1
					Temperature							1
					Input Speed Sensor fault	=	FALSE	Boolean				1
					Output Speed Sensor fault Default Gear Option is not	=	FALSE	Boolean				1
					present	=	TRUE					1
					present							I
												I

			<u> </u>	<u> </u>				
Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary	Enable	Time	Mil
System	Code	Description	Criteria	Value	Malfunction	Conditions	Required	Illum.
				Disable	MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723,		
				Conditions:				
				Contantionion	2.00.	1 1022		
						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,		
								ļ ,
						P0306, P0307, P0308, P0401, P042E		'

Component/	Fault	Monitor Strategy		Malfunction		Thi	reshold	Secondary Malfunction		Enable				ime	Mil
System	Code	Description Transmission Electro-Hydraulic	Fail Case 1	Criteria	\vdash		/alue	iviairunction	 	Conditions		 	Red	quired	Illum. One Trip
Transmission Control Module (TCM)	P0634		I dii Case I	Substrate Temperature	>=	142.1016	°C					>=	5	Fail Time (Sec)	
,		Too High		· · · · · · · · · · · · · · · · · · ·										,	
			Fail Case 2	Substrate Temperature	>=	50	°C					>=	2	Fail Time (Sec)	-
			T dil Odde Z	Ignition Voltage	>=	18	Volts						-	Tun Time (See)	
				Note: either fail case can set the											1
				DTC											
								Ignition Voltage Lo	>=	8.59961	Volts				
								Ignition Voltage Hi	<=	31.99902	Volts				
								Substrate Temp Lo		0	°C				
								Substrate Temp Hi	>= <=	170	°C				
								Substrate Temp Between							
								Temp Range for Time	>=	0.25	Sec				
										Test Failed					
								P0634 Status is	≠	This Key					
								1 0004 Status is		On or Fault					
										Active					
							Disabl	e MIL not Illuminated for	TCM: None						
							Conditions	DTC's:							
									ECM: None						
Transmission Input Speed Songer (TISS) D0714	Innut Coood Concar Dorfarmanca		Transmission Input Speed Sensor	>=	900	RPM					<u> </u>	0.8	Fail Time (See)	One Trip
Transmission Input Speed Sensor (TISS	PU/16	Input Speed Sensor Performance		Drops	>=	900	KPIVI					>=	0.8	Fail Time (Sec)	
								Engine Torque is	>=	0	N*m				1
								Engine Torque is	<=	8191.88	N*m				
								Engine Speed	>=	400	RPM				
								Engine Speed		7500	RPM				
								Engine Speed is within the allowable limits for		5	Sec				
								Vehicle Speed is	>=	10	Kph				
								Throttle Position is	>=	0	Pct				
								Transmission Input Speed is	>=	0	RPM				
								The previous requirement has		0	Sec				
								been satisfied for	>=	U	SEL				
								The change (loop to loop) in		0101.00	DDM/Loss				
								transmission input speed is	`	8191.88	RPM/Loop				
								The previous requirement has been satisfied for		0	Sec				
								Throttle Position Signal Valid		TRUE	Boolean				
					l			Engine Torque Signal Valid	=	TRUE	Boolean				
								Ignition Voltage	>=	8.59961	Volts				
	I		I		l			Ignition Voltage	<=	31.99902	Volts				l

Component/	Fault	Monitor Strategy Description	Malfunction	TI	nreshold Value	Secondary Malfunction	Enable Conditions				me	Mil Illum.
System	Code	Description	Criteria		value	P0716 Status is no	Test Failed			Keq	uired	mum.
					Disable Conditions:		TCM: P0717, P0752, P0973, ECM: P0101, P0102, P0103, P0122, P0123					
Transmission Input Speed Sensor (TISS)	P0717	Input Speed Sensor Circuit Low Voltage	Fail Case 1 Transmission Input Speed is	< 33	RPM				>=	4.5	Fail Time (Sec)	One Trip
			Fail Case 2 When P0722 DTC Status equal to Test Failed and Transmission Input Speed is	< 653.13	RPM	Controller uses a single power supply for the speed sensors	= '	Boolean				
						Engine Torque is Engine Torque is Vehicle Speec Engine Torque Signal Valic Ignition Voltage Ignition Voltage Engine Speec Engine Speec Engine Speed is within the allowable limits for	<pre><= 8191.88 >= 10 = TRUE >= 8.59961 <= 31.99902 >= 400 <= 7500 >= 5 Test Failed This You</pre>	N°m N°m Kph Boolean Volts Volts RPM RPM Sec				
Transmission Output Speed Sensor		Output Speed Sensor Circuit Low	Transmission Output Speed		Disable Conditions							One Trip
(TOSS)	P0722	Voltage	Sensor Raw Speed	<= 35	RPM	P0722 Status is no	Test Failed This Key On or Fault Active		>=	4.5	Fail Time (Sec)	- One mp
						Transmission Input Speec Check Engine Torque Check Throttle Positior Transmission Fluic Temperature Disable this DTC if the PTO is active Engine Torque Signal Valic Throttle Position Signal Valic Ignition Voltage is Engine Speed is	= TRUE = TRUE >= 8.0002 >= -40 = 1 = TRUE = TRUE >= 8.59961 <= 31.99902	Boolean Boolean Pct °C Boolean Boolean Boolean Volts Volts RPM				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thre: Va	shold lue	Secondary Malfunction		Enable Conditions			Tii Req		Mil Illum.
							Engine Speed is	<=	7500	RPM		,		
							Engine Speed is within the allowable limits for		5	Sec				
							Enable Flags Defined Polew							
							Enable_Flags Defined Below							
							The Engine Torque Check is TRUE, if either of the two							
							following conditions are TRUE							
							Engine Torque Condition 1							
									Range					
							Range Shift Status	<i>≠</i>	shift completed	ENUM				
							OR							
							Transmission Range is	=	Park or Neutral					
							Engine Torque is		8191.75	N*m				
							Engine Torque is	<=	8191.75	N*m				
							Engine Torque Condition 2							
							Engine Torque is Engine Torque is	>= <=	50 8191.75	N*m N*m				
								`-	0171.70					
							The Transmission Input Speed (TIS) Check is TRUE, if either							
							of the two following conditions							
							are TRUE							
							TIS Check Condition 1							
							Transmission Input Speed is Transmission Input Speed is	>= <=	653.13 5350	RPM RPM				
									0000	TCI WI				
							TIS Check Condition 2 Engine Speed without the							
							brake applied is	>=	3200	RPM				
							Engine Speed with the brake applied is	>=	3200	RPM				
							Engine Speed is	<=	8191.88	RPM				
							Controller uses a single power supply for the speed sensors	=	1	Boolean				
							Powertrain Brake Pedal is	=	TRUE	Boolean				
							Valid							
						Disable	MIL not Illuminated for	TCM: P0716	5. P0717. P0723	3				
						Conditions:	DTC's:							
								ECM: P010 ¹ P0122, P01	1, P0102, P0103 23	s, P0121,				
T	1										ļ		- 1	0
Transmission Output Speed Sensor (TOSS)	P0723	Output Speed Sensor Circuit Intermittent	Transmission Output Speed Sensor Raw Speed	>=	105	RPM					>=	0	Enable Time (Sec)	One Trip
			Output Speed Delta	<=	8192	RPM					>=	0	Enable Time	
													(Sec) Output Speed	
			Output Speed Drop	>	650	RPM					>=	1.5	Drop Recovery	
			AND										Fail Time (Sec)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	En	able ditions	Time Required	Mil Illum.
9,000	5536	2001.191.011	Transmission Range is	_ Driven range					
			Transmission Range is	= (R,D)					
					Range_Disable	= F	ALSE See Below		
					OR	- 1	ALSE See Below		
					Neutral_Range_Enable	= T	RUE See Below		
					And Neutral_Speed_Enable	= T	RUE See Below		
					are TRUE concurrently				
					Transmission Dance Fachle	-	DUE Con Bolow		
					Transmission_Range_Enable Transmission_Input_Speed_E		RUE See Below		
					nable	= T	RUE See Below		
					No Change in Transfer Case	>=	5 Seconds		
					Range (High <-> Low) for				
							t Failed		
					P0723 Status is not		is Key or Fault		
							ctive		
					Disable this DTC if the PTO is		4 5 1		
					active	=	1 Boolean		
					Ignition Voltage is Ignition Voltage is		59961 Volts 99902 Volts		
					Engine Speed is		400 RPM		
					Engine Speed is		'500 RPM		
					Engine Speed is within the	>=	5 Sec		
					allowable limits for Enable_Flags Defined Below				
					Transmission_Input_Speed_E				
					nable is TRUE when either TIS Condition 1 or TIS Condition 2				
					is TRUE:				
					TIC Condition 1 is TDUE when				
					TIS Condition 1 is TRUE when both of the following conditions	>=	0 Enable Time		
					are satsified for	•	(Sec)		
					Input Speed Delta		95.88 RPM		
					Raw Input Speed	>=	500 RPM		
					TIS Condition 2 is TRUE when				
					ALL of the next two conditions				
					are satisfied Input Speed	=	0 RPM		
					A Single Power Supply is used				
					for all speed sensors	= T	RUE Boolean		
					Neutral_Range_Enable is				
					TRUE when any of the next 3				
					conditions are TRUE				
					Transmission Range is		eutral ENUM rerse/N		
					Transmission Range is		verse/in utral ENUM		
					, and a second of the second o		nsitonal		

System	Code	Description	Criteria	Value	Malfunction Transmission Range is	=	Conditions Neutral/Dri ve	ENUM	Required	Illum
					Transmission Range is	=	ve	ENUM		- 1
					Hallstillssion Range is	=				1
					1		Transitiona	EINUIVI		
				1			1			
					And when a drop occurs					
					Loop to Loop Drop of Transmission Output Speed is	>	650	RPM		
					Speed is					
					Range_Disable is TRUE when					
					any of the next three					
					conditions are TRUE					
					Transmission Range is	=	Park	ENUM		
					Terrended on December		Park/Rever	ENUINA		
					Transmission Range is	=	se Transitonal	ENUM		
							ON (Fully			
					Input Clutch is not	=	Applied)	ENUM		
							11:7			
					Neutral_Speed_Enable is					
					TRUE when All of the next	>	1.5	Seconds		
					three conditions are satsified					
					for		120	DDM		
					Transmission Output Speed	>	130	RPM		
					The loop to loop change of the	<	20	RPM		
					Transmission Output Speed is	•	20			
					The lean to lean change of the					
					The loop to loop change of the Transmission Output Speed is	>	-10	RPM		
					Transmission Output Specu is					
					Tourseles Description					_
					Transmission_Range_Enable is TRUE when one of the next					
					six conditions is TRUE					
					Transmission Range is	=	Neutral	ENUM		
					, i		Reverse/N			
					Transmission Range is	=	eutral	ENUM		
					Transmission Nange is		Transitiona	LIVOIVI		
							Neutral/Dri			
					Transmission Range is	=	ve Transitiona	ENUM		
							Table			
							Based			
					1		Time			
					Time since a driven range	>=	Please Pefer to	Sec		
					(R,D) has been selected		Refer to Table 21 in			- 1
							supporting			
							documents			
					Transmission Output Speed	>=	500	RPM		
					Sensor Raw Speed	>=	300	L/L,IAI		
					Output Speed when a fault	>=	500	RPM		
					was detected	-				\dashv

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				ime quired	Mil Illum.
- System	Code	Description	Criteria	Value		TCM: P097		. P0977		Nec	_f uneu	mum.
				Conditions			0,1 0,7 1,1 0,70	, , , , , , , , , , , , , , , , , , , ,				
						ECM: P010	01, P0102, P0103	, P0121,				
						P0122, P01	123					
											Enable Time	Two Trips
Torque Converter Clutch (TCC)	P0741	TCC System Stuck OFF	TCC Pressure	>= 750 Kpa					>=	2	(Sec)	I wo mps
			Either Condition (A) or (B) Must be								(000)	
			Met									
				Refer to Table								
			(A) TCC Slip Error @ TCC On	>= 1 in RPM					>=	5	Fail Time (Sec)	
			Mode	Supporting						-	(2)	
			(P) TCC Slip @ Lock On Mode	Documents >= 130 RPM					\ <u>-</u>	5	Eail Time (Sec)	
			(B) TCC Slip @ Lock On Mode If Above Conditions Have been	>= 130 RPM					>=	Э	Fail Time (Sec)	
			Met, and Fail Timer Expired,						>=	2	TCC Stuck Off	
			Increment Fail Counter						1	-	Fail Counter	
					TCC Mode	=	On or Lock					1
							8.59961	Volts				
					Ignition Voltage Lo Ignition Voltage H		31.99902	Volts				
					Engine Speed		400	RPM				
					Engine Speed		7500	RPM				
					Engine Speed is within the	,						
					allowable limits fo	>=	5	Sec				
					Engine Torque Lo	>=	50	N*m				
					Engine Torque H		8191.88	N*m				
					Throttle Position Lo	>=	8.0002	Pct				
					Throttle Position H 2nd Gear Ratio Lo		99.9985 2.19482	Pct Ratio				
					2nd Gear Ratio High		2.52515	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 H		0.90955	Ratio				
					6th Gear Ratio Lo 6th Gear Ratio High		0.62305 0.71692	Ratio Ratio				
					Transmission Fluid	ı						
					Temperature Lo		-6.6563	°C				
					Transmission Fluid	ı	120	00				
					Temperature H		130	°C				
					PTO Not Active		TRUE	Boolean				
					Engine Torque Signal Valid	=	TRUE	Boolean				
					Throttle Position Signal Valid		TRUE	Boolean				
					Dynamic Mode	=	FALSE	Boolean				
							Test Failed					
					P0741 Status is	≠	This Key					
							On or Fault					
							Active					
		I	1	l	1	1			I			l

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thre: Va	shold lue	Secondary Malfunction		Enable Conditions				ime Juired	Mil Illum.
						Disable Conditions:	MIL not Illuminated for	TCM: P0710 P0742, P27	6, P0717, P072				-	
						Conditions.	DIC S.	P0/42, P2/	03, P2704					
								ECM: P010	1, P0102, P010	03, P0106,				
									08, P0171, P01					
									01, P0202, P02					
									06, P0207, P02 02, P0303, P03					
									07, P0308, P04					
orque Converter Clutch (TCC)	D0742	TCC System Stuck ON	TCC Slip Speed	>=	-50	RPM								One Tri
orque converter clutch (100)	1 0742	TOC System Stuck ON	TCC Slip Speed		13	RPM								One m
											>=	1.5	Fail Time (Sec)
			If Above Conditions Have been									,	F " 0 .	
			Met, and Fail Timer Expired, Increment Fail Counter								>=	6	Fail Counter	
			I I I I I I I I I I I I I I I I I I I				TCC Mode	=	Off					1
							Enable test if Cmnd Gear =	=	1	Boolean				
							1stFW and value true Enable test if Cmnd Gear =							
							2nd and value true	=	0	Boolean				
							Engine Speed Hi	<=	6000	RPM				
							Engine Speed Lo	>=	500	RPM				
							Vehicle Speed HI	<= >=	511 1	KPH KPH				
							Vehicle Speed Lo 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		10	°C				
							Temperature	>=	18					
							Throttle Position Hyst High AND	>=	5.0003	Pct				
							Max Vehicle Speed to Meet							
							Throttle Enable	<=	8	KPH				
							Once Hyst High has been met,							
							the enable will remain while Throttle Position	>=	2.0004	Pct				
							Disable for Throttle Position	>=	75	Pct				
							Disable if PTO active and	=	1	Boolean				
							value true	_						
							Disable if in D1 and value true Disable if in D2 and value true	=	1 1	Boolean Boolean				
							Disable if in D3 and value true	=	1	Boolean				
							Disable if in D4 and value true	=	1	Boolean				
							Disable if in D5 and value true	=	1	Boolean				
							Disable if in MUMD and value true	=	1	Boolean				
							Disable if in TUTD and value			_				
							true	=	1	Boolean				
							4 Wheel Drive Low Active	=	FALSE	Boolean				
							Disable if Air Purge active and	=	0	Boolean				
							value false RVT Diagnostic Active	=	FALSE	Boolean				
							Ignition Voltage		8.59961	V				
							Ignition Voltage	<=	31.99902	V				
		1	l				Vehicle Speed	<=	511	KPH	I			1

Component/	Fault	Monitor Strategy	Malfunction		Threshold		Secondary		Enable				ime	Mil
System	Code	Description	Criteria		Value		Malfunction		Conditions			Red	quired	Illum.
							Engine Speed	>=	400	RPM RPM				
							Engine Speed Engine Speed is within the	<=	7500	KPIVI				
							allowable limits for	>=	5	Sec				
							Engine Torque Signal Valid	=	TRUE	Boolean				
							Throttle Position Signal Valid		TRUE	Boolean				
							ÿ		Test Failed					
									This Key					
							P0742 Status is	<i>≠</i>	On or Fault					
									Active					
						Disable	MIL not Illuminated for	TCM: P0716	P0717 P0722	P0723				
					С	onditions:	DTC's:	P0741, P276	63. P2764	., 1 0/20,				
									,					
								ECM: P010	1, P0102, P010	3, P0106,				
									08, P0171, P017					
									01, P0202, P020					
									06, P0207, P020					
									02, P0303, P030					
								P0306, P030	07, P0308, P040	J1, P042E				
	<u> </u>													Two Trips
Mode 2 Multiplex Valve	P0751	Shift Solenoid Valve A Stuck Off	Commaned Gear Slip	>= 400	RPM									
			Commanded Gear	= 1st Lo	ick rpm									
			Gear Ratio	<= 1.209							>=	0.2	Fail Tmr	
			Gear Ratio	>= 1.094	36						=	5	Fail Counts	
			If the above parameters are true											
											≠	0	Neutral Timer	
													(Sec)	
											>=	0.3	Fail Timer (Sec))
											>=	8	Counts	
							Ignition Voltage Lo	>=	8.59961	Volts				
							Ignition Voltage Hi	<=	31.99902	Volts				
							Engine Speed Lo	>=	400	RPM				
							Engine Speed Hi	<=	7500	RPM				
							Engine Speed is within the allowable limits for	>=	5	Sec				
							Transmission Fluid							
							Temperature	>=	-6.6563	°C				
									D					
							Range Shift State	_	Range Shift	ENUM				
							Kange Shiit State	_	Completed	LIVUIVI				
									Completed					
							TDC		0.5005	0/				
							TPS OR	>=	0.5005	%				
							Output Speed	>=	67	RPM				
							Throttle Position Signal Valid							
							from ECM	=	TRUE	Boolean				
							Engine Torque Signal Valid							
							from ECM, High side driver is	=	TRUE	Boolean				
							enabled							
							High-Side Driver is Enabled		TRUE	Boolean				
							Input Speed Sensor fault	=	FALSE	Boolean				
		I					Output Speed Sensor fault	=	FALSE	Boolean	1			1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction		Enable Conditions			Tim Requi		Mil Illum.
·						Disable Conditions		P182E ECM: P010 ¹ P0107, P01 ¹ P0175, P02 ¹ P0205, P02 ¹ P0301, P03 ¹	TRUE	3, P0106, 72, P0174, 03, P0204, 08, P0300, 04, P0305,				
Mode 2 Multiplex Valve	P0752	Shift Solenoid Valve A Stuck On	Gear Box Slip Commanded Gear Commanded Gear has Achieved 1st Locked OR 1st Free-Wheel OR 2nd with Mode 2 Sol. Commanded On If the above parameters are true Command 4th Gear once Output Shaft Speed If Gear Ratio And Gear Ratio	>= = = >= <=	400 3rd TRUE 400 3.82568 4.22839	RPM Gear Boolean	Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed Is within the allowable limits for High-Side Driver is Enabled Throttle Position Signal Valid from ECM Output Speed OR TPS Range Shift State Transmission Fluid Temperature Input Speed Sensor fault Output Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	= >= >= >= = = = = = = = = = = = = = =	8.59961 31.99902 400 7500 5 TRUE 67 0.5005 Range Shift Completed -6.6563 FALSE FALSE TRUE	Volts Volts RPM RPM Sec Boolean RPM % ENUM °C Boolean Boolean	>= to S	ease Refer Table 16 in Supporting locuments 1.5 5	Neutral Timer (Sec) Fail Timer (Sec) Counts	One Trip

Component/	Fault	Monitor Strategy	Malfunction	on [shold	Secondary		Enable			Tim		Mil
System	Code	Description	Criteria			Va		Malfunction		Conditions			Requi	red	Illum.
							Disab			16, P0717, P072	2, P0723,				
							Condition	S: DIC	's: P182E						
									ECM. DO1	01 00102 0010	2 D010/	1			
										01, P0102, P010		1			
										1108, P0171, P01					
										201, P0202, P02					
										1206, P0207, P02		1			
										1302, P0303, P03					
									PU300, PU	307, P0308, P04	U1, PU4ZE				
Mode 2 Multiplex Valve	P0754	Shift Solenoid Valve B Stuck Off	Fail Case 1	Commanded Gear	=	1st Locked		+	+			\vdash			One Trip
INIOGE 2 MUNICIPIEN VAIVE	1.0730	Shirt Soletiola valve B Stack OII	I dii Case I	Commanueu Gedi	-	131 LUCKEU							Please Refer		One m
													to Table 5 in	Neutral Timer	
				Gear Box Slip	>=	400	RPM					>=	Supporting	(Sec)	
												1	Documents	(366)	
				Intrusive Shift to 2nd									Documents		
				anded Gear Previous	=	1st Locked	Gear					1			
			Comme	Gear Ratio	<=	2.48218	Jour					1			
				Gear Ratio	>=	2.24585									
			If the above	parameters are true	. –	2.2 1000									
			ii tiic above	parameters are true								>=	1	sec	
												>=	3	counts	
								Ignition Voltage	Lo >=	8.59961	Volts			554115	1
								Ignition Voltage		31.99902	Volts	1			
								Engine Speed		400	RPM	1			
								Engine Speed		7500	RPM	1			
								Engine Speed is within t	he			1			
								allowable limits		5	Sec	1			
								Output Spe		67	RPM	1			
									OR .			1			
									PS >=	0.5005	%	1			
												1			
								D Chin O	at a	Range	EN1114				
								Range Shift Sta	ite =	Shift	ENUM	1			
										Completed					
								Transmission Flu	uid	/ / [/2	00				
								Temperatu		-6.6563	°C				
								High-Side Driver is Enabl		TRUE	Boolean	1			
								Throttle Position Signal Va	lid						
								from EC		TRUE	Boolean				
								Input Speed Sensor fa		FALSE	Boolean	1			
								Output Speed Sensor fa		FALSE	Boolean				
								Default Gear Option is r	not	TRUE					
								prese		IKUE		1			
												1			
							Disab			16, P0717, P072	2, P0723,	1			
							Condition	s: DTC	's: P182E						
												1			
										01, P0102, P010					
										108, P0171, P01		1			
										201, P0202, P02					
										206, P0207, P02		1			
										302, P0303, P03		1			
									P0306, P0	307, P0308, P04	01, P042E	1			

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria			shold	Secondary Malfunction		Enable Conditions			Tim Requi		Mil Illum.
Variable Bleed Solenoid (VBS)	P0776	Pressure Control (PC) Solenoid B	Fail Case 1	Case: Steady State 3rd Gear		Va				CONGREGATIONS			requi		One Trip
variable biced Soleriold (VBS)	10770	Stuck Off [C35R]		Case. Steady State Srd Gear	=	3rd	Gear								
				Gearbox Slip		400	RPM								
													Please Refer		
												>=	to Table 16 in Supporting	Neutral Timer (Sec)	
													Documents	(***)	
				Command 4th Gear once Output Shaft Speed	<=	400	RPM								
				If Gear Ratio		1.09436									
				And Gear Ratio	<=	1.20959									
												>=	3	Fail Timer (Sec)	
				It the above condiations are true,								>=	3	3rd Gear Fail	
				Increment 3rd gear fail counter										Counts or	
				and C35R Fail counter								>=	14	3-5R Clutch Fail	
			Fail Case 2	Case: Steady State 5th Gear										Counts	:
			Tall Case 2	Commanded Gear	=	5th	Gear								
													Please Refer		
				Coorboy Clin		400	Down						to Table 5 in		
				Gearbox Slip	>=	400	Rpm						Supporting	(Sec)	
													Documents		
				Intrusive Test: Command 6th Gear											
						Please refer to Table 3 in									
				If attained Gear=6th gear Time	>=	supporting	Shift Time (Sec)								
				It the above condiations are true,		documents								5th Gear Fail	
				Increment 5th gear fail counter								>=	3	Counts	
														Or	
				and C35R Fail counter								>=	14	3-5R Clutch Fail Counts	
								PRNDL State defaulted	=	FALSE	Boolean				1
								inhibit RVT IMS fault pending indication	=	FALSE FALSE	Boolean Boolean				
								TPS validity flag	=	TRUE	Boolean				
								Hydraulic System Pressurized Minimum output speed for	=	TRUE	Boolean				
								RVT	>=	67	RPM				
								A OR B (A) Output speed enable	>=	67	RPM				
								(B) Accelerator Pedal enable	>=	0.5005	Pct				
								Common Enable Criteria		0 500/1	Valla				
								Ignition Voltage Lo Ignition Voltage Hi	>= <=	8.59961 31.99902	Volts Volts				
								Engine Speed Lo	>=	400	RPM				
								Engine Speed Hi Engine Speed is within the	<=	7500	RPM				
								allowable limits for	>=	5	Sec				
								Throttle Position Signal valid HSD Enabled	=	TRUE TRUE	Boolean Boolean				
								Transmission Fluid		-6.6563	°C				
								Temperature	>=						
ļ	I	I	I		I			Input Speed Sensor fault	=	FALSE	Boolean	I			I

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time equired	Mil Illum.
5,55					Disable Conditions:	Output Speed Sensor fauli Default Gear Option is not present MIL not Illuminated for	= FALSE Boolean			
							ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E			
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solinoid B Stuck On [C35R] (Steady State)	Fail Case 1	Case: Steady State 1st						One Trip
		, , , , , , , , , , , , , , , , , , , ,		Attained Gear slip	>= 400 RPM Table Based					
				If the Above is True for Time	Time Please					
				Intrusive test: (CBR1 clutch exhausted)						
				Gear Ratio Gear Ratio	<= 1.60864 >= 1.45544					
				If the above parameters are true	7- 1.40044					
								>= 1.1)
								>= 2	Fail Count in 1st Gear	
								>= 3	or Total Fail	
			Fail Case 2	Case: Steady State 2nd gear				7- 3	Counts	
					Table Based value Please					
				Max Delta Output Speed Hysteresis	Refer to Table >= 22 in rpm/sec					
				Trysteresis	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 Sec 17 in supporting					
				Intrusive test: (CB26 clutch exhausted)	documents					
				Gear Ratio Gear Ratio						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions			ime Juired	Mil Illum
•		F	If the above parameters are true							
							>=	1.1	Fail Timer (Sec)	
							>=	3	Fail Count in	
							>=	3	2nd Gear	
									or Total Fail	
							>=	3	Counts	
			Fail Case 3 Case: Steady State 4th gear							
				Table Based value Please						
			Max Delta Output Speed	Refer to Table						
			Hysteresis	22 in supporting						
				documents						
				Table Based						
			Min Delta Output Speed	value Please						
			Hysteresis							
			,	supporting						
				documents Table Based						
				Timo Diosco						
			If the Above is True for Time	Refer to Table						
				17 in supporting						
				documents						
			Intrusive test:							
			(C1234 clutch exhausted) Gear Ratio							
			Gear Ratio							
			If the above parameters are true							
							>=	1.1	Fail Timer (Sec)	
							>=	3	Fail Count in	
								J	4th Gear	
									or Total Fail	
							>=	3	Counts	1
			Fail Case 4 Case: Steady State 6th gear	Table Based						
				value Bleace						
			Max Delta Output Speed	Refer to Table rpm/sec						
			Hysteresis	22 in supporting						
				documents						
				Table Based						
			Min Delta Output Speed	value Please Refer to Table						
			Hysteresis	Refer to Table rpm/sec						
				supporting						
				documents Table Based						
				Time Please						
			If the Above is True for Time	Refer to Table Sec						
				17 in supporting						
				documents						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Val		Secondary Malfunction		Enable Conditions				ime quired	Mil Illum.
-,	1		Intrusive test:											
			(CB26 clutch exhausted)											
			Gear Ratio	<=	0.89465						>=	1.1	Fail Timer (Sec)	
			Gear Ratio	>=	0.80945						>=	3	counts	
			If the above parameters are true		0.00710							Ü	odanis	
			·								>=	1.1	Fail Timer (Sec)	
											>=	3	Fail Count in 6th Gear	
													or	
											>=	3	Total Fail	
									= + + 0 =			J	Counts	
ı							PRNDL State defaulted inhibit RVT	= =	FALSE FALSE	Boolean Boolean				
							IMS fault pending indication	=	FALSE	Boolean				
							output speed	>=	0	RPM				
							TPS validity flag	=	TRUE	Boolean				
							HSD Enabled	=	TRUE	Boolean				
							Hydraulic_System_Pressurize	=	TRUE	Boolean				
							A OR B							
							(A) Output speed enable	>=	67	Nm				
							(B) Accelerator Pedal enable	>=	0.5005	Nm				
							Ignition Voltage Lo	>=	8.59961	Volts				
							Ignition Voltage Hi Engine Speed Lo	<=	31.99902 400	Volts RPM				
							Engine Speed Eo	>= <=	7500	RPM				
							Engine Speed is within the							
							allowable limits for	>=	5	Sec				
							if Attained Gear=1st FW	>=	5.0003	Pct				
							Accelerator Pedal enable if Attained Gear=1st FW							
							Engine Torque Enable	>=	5	Nm				
							if Attained Gear=1st FW		0404.00					
							Engine Torque Enable	<=	8191.88	Nm				
							Transmission Fluid	>=	-6.6563	°C				
							Temperature Input Speed Sensor fault	=						
							Output Speed Sensor fault		FALSE FALSE	Boolean Boolean				
						Disable	MIL not Illuminated for		5, P0717, P072	2, P0723,				
						Conditions:	DTC's:	P182E						
								ECM: P0101	I, P0102, P010	3, P0106,				
									08, P0171, P01					
									01, P0202, P02					
	1								06, P0207, P02 02, P0303, P03					
	1								02, F0303, F03 07, P0308, P04					
				L										
			Primary Offgoing Clutch is											One Trip
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solenoid B	exhausted (See Table 12 in	=	TRUE	Boolean								
, ,		StuckOn [C35R] (Dymanic)	Supporting Documents for Exhaust Delay Timers)											
İ			Primary Oncoming Clutch		Maximum									
1			Pressure Command Status	=	pressurized									1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			shold llue	Secondary Malfunction	Enable Condition	s	T Re	ime quired	Mi Illur
			Primary Offgoing Clutch Pressure Command Status		ch exhaus	st						
			Range Shift Status		tial Clutch							
			l	(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)	>=	0.2998	Fail Time (Sec)						
			fail timer 1 (3-4shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)						
			fail timer 1 (3-5 shifting with Throttle)	>=	0.2998	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)	>= (0.2998	Fail Time (Sec)						
			fail timer 1 (5-3 shifting with Closed Throttle)	>=	0.5	Fail Time (Sec)						
			fail timer 1	>=	0.2998	Fail Time (Sec)						
			(5-4 shifting with Throttle) fail timer 1	>=	0.5	Fail Time (Sec)						
			(5-4 shifting with Closed Throttle) fail timer 1	>=	0.2998	Fail Time (Sec)						
			(5-6 shifting with Throttle) fail timer 1	>=	0.5	Fail Time (Sec)						
			(5-6 shifting with Closed Throttle)	_	0.5	raii riine (300)				Total Fail T		
										Total Fail T = (Fail 1 + I 2) See Ena Timers for I	^E ail ble	
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers							>= Timer 1, a Referenc Supportin Table 15 f Fail Timer	nd sec e g or	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail							T dii Tillici	_	
			counter 3rd gear fail counter							>= 3	3rd gear fail	
			ora goar ran counter								counts OR	
			5th gear fail counter							>= 3	5th gear fail counts	
			Total fail counter							>= 5	OR total fail counts	s
			. o.a. ran odulito				TUT Enable temperature Input Speed Sensor fault	>= -6.6563 = FALSE	°C Boolean		ran oodine	1

Component/	Fault	Monitor Strategy		Malfunction		Threshold		Secondary Malfunction		Enable			Time		Mil Illum.
System	Code	Description		Criteria	<u> </u>	Value		Output Speed Sensor fault	=	Conditions FALSE	Boolean		Requir	ea	illum.
								Command / Attained Gear	- ≠	1st	Boolean				
								High Side Driver ON	=	TRUE	Boolean				
								output speed limit for TUT	>=	100	RPM				
								input speed limit for TUT	>=	150	RPM				
								PRNDL state defaulted	=	FALSE	Boolean				
								IMS Fault Pending	=	FALSE	Boolean				
								Service Fast Learn Mode	=	FALSE	Boolean				
								HSD Enabled	=	TRUE	Boolean				
								Default Gear Option is not	=	TRUE					
								present							
							Disable	MIL not Illuminated for	TCM: P0716	P0717 P072	2 P0723				
							Conditions:	DTC's:			2,1.0720,				
									ECM: P0101,	P0102, P010	3, P0106,				
										8, P0171, P01					
										1, P0202, P02					
										6, P0207, P02					
										2, P0303, P03 7, P0308, P04					
									FU3UU, FU3U	7, F0300, F04	01, FU4ZE				
Variable Bleed Solenoid (VBS)	P0796	Pressure Control (PC) Solenoid C	Fail Case 1	Case: Steady State 4th Gear								ĺ			One Trip
Variable Bleed Solenoid (VBS)	1 0770	Stuck Off [C456] (Steady State)		Case. Sieday State 4111 Gedi								D.	6		
													ease See	Noutral Times	
				Gear slip	>=	400 RPM							able 5 For autral Time	Neutral Timer (Sec)	
													Cal	()	
				Intrusive test:											
				commanded 5th gear	ı										
						Please refer to									
				If attained Gear ≠5th for time	>=	Table 3 in Shift	Time (Sec)								
						Supporting	(222)								
				16 de cabacca a candida a a bassa bassa bassa		Documents									
				if the above conditions have been met											
														4th Gear Fail	
				Increment 4th Gear Fail Counter								>=	3	Count	
														OR	
				and C456 Fail Counters								>=	14	C456 Fail	
			Fail Case 2	Case: Steady State 5th Gear										Counts	
			I dii Cd3C Z	case. Steady State Still Gear								PI	ease See		
				C -		400 DDM						T:	able 5 For	Neutral Timer	
				Gear slip	>=	400 RPM							utral Time	(Sec)	
													Cal		
				Intrusive test:											
				commanded 6th gear											
						Please Refer									
				If attained Gear ≠ 6th for time	>=	to Table 3 in Supporting Shift	Time (Sec)								
						Supporting Documents									
				if the above conditions have been		Pocuments									
				met	1										
														5th Gear Fail	
				Increment 5th Gear Fail Counter								>=	3	Count	
1		l			l									OR	1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Requir		Mil Illum.
,,,,,			and C456 Fail Counters				>=	14	C456 Fail	
			Fail Case 3 Case: Steady State 6th Gear						Counts	
			Gear slip	>= 400 RPM			Ta	ease See able 5 For eutral Time	Neutral Timer (Sec)	
			Intrusive test: commanded 5th gear					Cal		
			If attained Gear ≠ 5th for time	Supporting						
			if the above conditions have been met	Documents					(th Coor Foll	
			Increment 6th Gear Fail Counter and C456 Fail Counter				>=	3	6th Gear Fail Count OR	
			and C456 Fail Counter				>=	14	C456 Fail Counts	
					PRNDL State defaulted	= FALSE Boolean				
					inhibit RVT IMS fault pending indication	= FALSE Boolean = FALSE Boolean				
					TPS validity flag					
					Hydraulic System Pressurized	= TRUE Boolean				
					Minimum output speed for RVT	>= 67 RPM				
					A OR B					
					(A) Output speed enable					
					(B) Accelerator Pedal enable	>= 0.5005 Pct				
					Common Enable Criteria Ignition Voltage Lo	>= 8.59961 Volts				
					Ignition Voltage Ed	<= 31.99902 Volts				
					Engine Speed Lo	>= 400 RPM				
					Engine Speed Hi	<= 7500 RPM				
					Engine Speed is within the allowable limits for	>= 5 Sec				
					Throttle Position Signal valid	= TRUE Boolean				
					HSD Enabled	= TRUE Boolean				
					Transmission Fluid	>= -6.6563 °C				
					Temperature Input Speed Sensor fault	= FALSE Boolean				
					OutputSpeed Sensor fault					
					Default Gear Option is not	= TRUE				
					present					
				Disable		TCM: P0716, P0717, P0722, P0723,				
				Conditions	: DTC's:	PIÖZE				
						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				
							<u> </u>			

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum.
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Steady State)	Fail Case 1	Case: Steady State 1st						One Tri
		Stuck On [C456] (Steady State)		Attained Gear slip						
					Table Based					
					Time Please Refer to Table Enable Time					
				If the Above is True for Time	>= 4 in (Sec)					
					supporting					
				Intrusive test:	documents					
				(CBR1 clutch exhausted)						
				Gear Ratio Gear Ratio						
				If the above parameters are true	>= 1.09430					
				, , , , , , , , , , , , , , , , , , , ,				>=	1.1 Fail Timer (Sec)
									Fail Count in	Ί
								>=	2 1st Gear	
									or	
								>=	3 Total Fail Counts	
			Fail Case 2	Case Steady State 2nd					304.1.3	1
					Table Based value Please					
				Max Delta Output Speed	Refer to Table rpm/sec					
				Hysteresis	22 111					
					supporting documents					
					Table Based					
				Min Dolto Output Casad	value Please					
				Min Delta Output Speed Hysteresis						
				,	supporting					
					documents Table Based					
					Timo Diasco					
				If the Above is True for Time	Refer to Table					
					17 in supporting					
					documents					
				Intrusive test:						
				(CB26 clutch exhausted) Gear Ratio	<= 1.20959					
				Gear Ratio						
				If the above parameters are true						
	1							>=	1.1 Fail Timer (Sec)
	1							>=	Fail Count in	
									2nd Gear or	
								>=	3 Total fail counts	S
			Fail Case 3	Case Steady State 3rd						-
			i all case s	Case Steady State 310	Table Based					
					volue Diegos					
				Max Delta Output Speed Hysteresis	Refer to Table rpm/sec					
				Hysielesis	supporting					
		1			documents					

System Code Description Criteria Value Mathemation Conditions Respired Blam.
Tailsinssion floor >= -6.6563 °C Temperature >= -6.6563 °C

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thresh Valu		Secondary Malfunction	Enable Conditions	Time Required	Mil Illum
- Joseph	5546	2000.1510.1				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		
			Primary Offgoing Clutch is							One Tr
/ariable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C	exhausted (See Table 11 in	- TP	RUE I	Boolean				
ranable bleed Solenoid (VBS)	1 0/7/	Stuck On [C456] (Dynamic)	Supporting Documents for	- 110	VOL I	Doolean				
			Exhaust Delay Timers) Primary Oncoming Clutch	Maxi	dimum					
			Pressure Command Status	=	surized					
			Primary Offgoing Clutch Pressure	Clutch	exhaust					
			Command Status	comr	mand					
			Range Shift Status		Clutch					
			3	Cor	ntrol					
			Attained Gear Slip	<= 4	40 I	RPM				
			·							
			If the above conditions are true increment appropriate Fail 1							
			Timers Below:							
			fail timer 1	>= 0.2	2998 I	Fail Time (Sec)				
			(4-1 shifting with throttle) fail timer 1	y = 0.2		dii Time (See)				
			(4-1 shifting without throttle)	>= 0).5 I	Fail Time (Sec)				
			fail timer 1	>= 0.2	2998 I	Fail Time (Sec)				
			(4-2 shifting with throttle) fail timer 1							
			(4-2 shifting without throttle)	>= 0).5 I	Fail Time (Sec)				
			fail timer 1	>= 0.2	2998 I	Fail Time (Sec)				
			(4-3 shifting with throttle) fail timer 1							
			(4-3 shifting without throttle)	>= 0).5 I	Fail Time (Sec)				
			fail timer 1	>= 0.2	2998 I	Fail Time (Sec)				
			(5-3 shifting with throttle) fail timer 1							
			(5-3 shifting without throttle)	>= 0).5 I	Fail Time (Sec)				
			fail timer 1	>= 0.2	2998 I	Fail Time (Sec)				
			(6-2 shifting with throttle) fail timer 1							
			(6-2 shifting without throttle)	>= 0).5 I	Fail Time (Sec)				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	l	Mil Illum.
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers				Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail >= Timer 1, and Reference Supporting Table 15 for Fail Timer 2	sec	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter 4th gear fail counter				2	Fail Counter from 4th Gear	
			5th gear fail counter					OR Fail Counter rom 5th Gear OR	
			6th gear fail counter					Fail Counter rom 6th Gear	
			Total fail counter				>= 5	OR Total Fail Counter	
					TUT Enable temperature Input Speed Sensor fault Output Speed Sensor fault Command / Attained Gear High Side Driver ON output speed limit for TUT input speed limit for TUT PRNDL state defaulted IMS Fault Pending Service Fast Learn Mode HSD Enabled	= FALSE Boolean ≠ 1st Boolean = TRUE Boolean >= 100 RPM >= 150 RPM = FALSE Boolean = FALSE Boolean = FALSE Boolean			
				Disable Conditions:		TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E			
Internal Mode Switch (IMS)	P182E	Internal Mode Switch - Invalid Range	Fail Case 1 Current range	1110)					One Trip
			Previous range Previous range	Catego a P					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			shold lue	Secondary Malfunction		Enable Conditions			Tin Requ		Mi Illun
.,		· · · · · · · · · · · · · · · · · · ·	Range Shift State	=	Range Shift							- 4-		
			Absolute Attained Gear Slip	1	Completed 50	rpm								
			Absolute Attained Gear Silp		Sixth	трии								
			Attained Gear		First									
			Throttle Position Available		TRUE									
			Throttle Position		8.0002	pct								
			Output Speed		200	rpm								
			Engine Torque		50	Nm								
			Engine Torque			Nm								
			If the above conditions are me											
			then Increment Fail Time								>=	1	Fail Seconds	
			If Fail Timer has Expired then									-	F 11.0 .	
			Increment Fail Counter								>=	5	Fail Counts	
			Fail Case 2 Output Speed		70	rpm								1
			The following PRNDL sequence			•								
			events occur in this exact order:	:										
			DDNDI state		Drive 6 (bit	Donne								
			PRNDL state	1	state 0110)	Range					1			
			PRNDL state = Drive 6 for	>=	1	Sec								
					Transition 8									
			PRNDL state	=	(bit state	Range								
					0111)									
			PRNDL state		Drive 6 (bit	Range								
			T MADE State		state 0110)	runge								
					Transition 1									
			PRNDL state	=	(bit state	Range								
					1110)									
			Above sequencing occurs in	<=	1	Sec								
			Neutral Idle Mode	=	Inactive									
			If all conditions above are me											
			Increment delay Timer											
			If the below two conditions are me								>=	3	Fail Seconds	
			Increment Fail Timer			0								
			delay timer		1	Sec								
			Input Speed		400	Sec								
			If Fail Timer has Expired ther Increment Fail Counter								>=	2	Fail Counts	
			Fail Case 3	1	Transition 13	!			CeTRGR_		1			1
			Current range		(bit state	Range	Previous range	≠	e_PRNDL		1			
			Current range	1	0010)	runge	i revious range	7	_Drive5		1			
				1	5510)				CeTRGR_		1			
			Engine Torque	>=	-8192	Nm	Previous range	≠	e_PRNDL					
				1	0172		. revious range	,	_Drive5					
			Engine Torque	<=	8191.75	Nm	IMS is 7 position configuration	=	0	Boolean				
			ngino rorque	1			If the "IMS 7 Position config" =		-					
			16.16.	1			1 then the "previous range"				1			
			If the above conditions are me				criteria above must also be				>=	0.225	Seconds	
			then, Increment Fail Timer	1			satsified when the "current							
				1			range" = "Transition 13"							
			If Fail Timer has Expired then	1			Ĭ				Ι.	15	Foll Count	
			Increment Fail Counter	1							>=	15	Fail Counts	
			Fail Case 4		Transition 0		Disable Feil Cose 4 if lest							
				1.	Transition 8		Disable Fail Case 4 if last				1			
			Current range	=	(bit state	range	positive range was Drive 6 and current range is transition 8				1			
				I	0111)		current range is transition 8				1			ı

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria		Thre: Va	shold lue	Secondary Malfunction		Enable Conditions			Tin Requ		Mil Illum
,		·		Inhibit bit (see definition) Steady State Engine Torque	>=	FALSE	Nm	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 If the above conditions are met then Increment Fail Timer	<=	8191.75	Nm					>=	0.225	Seconds	
				If the above Condtions have been met, Increment Fail Counter								>=	15	Fail Counts	
			Fail Case 5	Throttle Position Available The following PRNDL sequence events occur in this exact order:		TRUE	Boolean								
				PRNDL State		Reverse (bit state 1100) Transition 11	Range								
				PRNDL State		(bit state 0100) Neutral (bit	Range								
				PRNDL State		state 0101) Transition 11 (bit state	Range Range								
				Above sequencing occurs in	<=	0100) 1	Sec								
				Then delay timer increments Delay timer Range Shift State	>=	5 Range Shift	sec								
				Absolute Attained Gear Slip Attained Gear	<=	Complete 50 Sixth	rpm								
				Attained Gear Throttle Position Output Speed	>=	First 8.0002 200	pct rpm								
			E 11 0	If the above conditions are met Increment Fail Timer								>=	20	Seconds	
			Fail Case 6	Current range		Illegal (bit state 0000 or 1000 or 0001)		A Open Circuit Definition (flag set false if the following conditions are met):							
				and				Current Range	≠	Transition 11 (bit state 0100)					
				A Open Circuit (See Definition)	=	FALSE	Boolean	or Last positive state	≠	Neutral (bit					
								or	<i>r</i> -	state 0101)					
								Previous transition state	≠	Transition 8 (bit state 0111)					
				If the above Condtions are met then, Increment Fail timer				Fail case 5 delay timer	=	0	sec	>=	6.25	Seconds	
			Fail Case 7	Current PRNDL State		PRNDL circuit ABCP = 1101	Range								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thres Valu	10	Secondary Malfunction		Enable Conditions			Time Requi		Mil Illum.
уумын	Joue	Southern	Previous PRNDL state Input Speed Reverse Trans Ratio Reverse Trans Ratio If the above Condtions are met then, Increment Fail timer	= >= <= >=	PRNDL circuit ABCP =1111 150 2.97595	Range RPM ratio ratio			- Conditions		>=	6.25	Seconds	
			P182E will report test fail when any of the above 7 fail cases are met											_
							Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for Engine Torque Signal Valid	>= <= >= <= >=	8.59961 31.99902 400 7500 5 TRUE	Volts Volts RPM RPM Sec Boolean				
						Disable Conditions:	MIL not Illuminated for DTC's:	P07C0, P07	, P0717, P072 BF, P077C, P0 1, P0102, P010	77D				
								P0107, P010 P0175, P020 P0205, P020 P0301, P030	08, P0171, P01 01, P0202, P02 06, P0207, P02 02, P0303, P03 07, P0308, P04	72, P0174, 03, P0204, 08, P0300, 04, P0305,				
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 13 in Supporting Documents for Exhaust Delay Timers) Primary Oncoming Clutch Pressure Command Status	=	TRUE Maximum pressurized	Boolean								One Trip
			Primary Offgoing Clutch Pressure Command Status	=	Clutch exhaust command									
			Range Shift Status Attained Gear Slip		Initial Clutch Control 40	RPM								
			If above coditons are true, increment appropriate Fail 1 Timers Below:											
			fail timer 1 (2-1 shifting with throttle) fail timer 1	>=		Fail Time (Sec) Fail Time (Sec)								
			(2-1 shifting without throttle) fail timer 1 (2-3 shifting with throttle)	>=		Fail Time (Sec)								
			fail timer 1 (2-3 shifting without throttle) fail timer 1	>=		Fail Time (Sec) Fail Time (Sec)								

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue	Secondary Malfunction	Enable Conditions		Time quired	Mil Illum.
.,			fail timer 1 (2-4 shifting without throttle)	>=	0.5	Fail Time (Sec)				•	
			fail timer 1 (6-4 shifting with throttle)	>=	0.2998	Fail Time (Sec)					
			fail timer 1 (6-4 shifting without throttle)	>=	0.5	Fail Time (Sec)					
			fail timer 1 (6-5 shifting with throttle)	>=	0.2998	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						Total Fail T = (Fail 1 + 2) See Ena Timers for >= Timer 1, a Reference Supportir Table 15 Fail Timer	Fail ible Fail nd sec e ig	
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter								
			2nd gear fail counter						>= 3	Fail Counter From 2nd Gear OR	
			6th gear fail counter						>= 3	Fail Counter From 6th Gear OR	
			total fail counter						>= 5	Total Fail Counter	
							TUT Enable temperature Input Speed Sensor fault Output Speed Sensor fault Command / Attained Gear High Side Driver ON output speed limit for TUT input speed limit for TUT PRNDL state defaulted IMS Fault Pending Service Fast Learn Mode HSD Enabled	>= -6.6563 °C = FALSE Boolean = FALSE Boolean ≠ 1st Boolean = TRUE Boolean >= 100 RPM >= 150 RPM = FALSE Boolean = FALSE Boolean = FALSE Boolean = TRUE 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			
'ariable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Steady State)	Fail Case 1 Case: Steady State 1st								One Tri
		Stuck on [ODZO] (Steady State)	Attained Gear slip	>=	400	RPM					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Tim Requ		Mil Illum
,			If the Above is True for Time Intrusive test: (CBR1 clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	Table Based Time Please Refer to Table Enable Time = 4 in (Sec) supporting documents <= 2.48218				- 4-		
							>=	1.1	Fail Timer (Sec)	,
							>=	5	Fail Count in 1st Gear	
							>=	5	or Total Fail Counts	
			Fail Case 2 Case: Steady State 3rd Gear						Odins	
			Max Delta Output Speed Hysteresis							
			Min Delta Output Speed Hysteresis	23 in supporting documents Table Based						
			If the Above is True for Time	Pofor to Table						
			Intrusive test: (C35R clutch exhausted) Gear Ratio Gear Ratio	<= 2.48218						
			If the above parameters are true	>= 2.24000						
							>=	1.1	Fail Timer (Sec)	
							>=	3	Fail Count in 3rd Gear	
							>=	5	or Total Fail Counts	
			Fail Case 3 Case: Steady State 4rd Gear Max Delta Output Speed	Table Based value Please Refer to Table						
			Hysteresis	>= 22 in rpm/sec supporting documents						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		F	Time Required	Mil Illum
			Min Delta Output Speed Hysteresis	23 in supporting documents						
			If the Above is True for Time	Table Based Time Please Refer to Table >= 17 in supporting documents						
			Intrusive test: (C1234 clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	<= 0.70032						
								>= 1.1	Fail Timer (Sec)
								>= 3	Fail Count in 4th Gear or	
								>= 5	Total Fail Counts	
			Fail Case 4 Case: Steady State 5th Gear Max Delta Output Speed Hysteresis	Table Based value Please Refer to Table						
			Min Delta Output Speed Hysteresis	value Please Refer to Table 23 in supporting documents Table Based Time Please						
			If the Above is True for Time	Pofor to Table						
			Intrusive test: (C35R clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	<= 0.70032						
								>= 1.1	Fail Timer (Sec	.)
								>= 3	Fail Count in 5th Gear or	
								>= 5	Total Fail Counts	
					PRNDL State defaulted inhibit RVT IMS fault pending indication output speed	= FALSE = FALSE = FALSE >= 0	Boolean Boolean Boolean RPM			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions		Time Required	Mil Illum.
узсен	Code	Description	Onteria	Taluo	TPS validity flag	=	TRUE	Boolean	oquirou	
					HSD Enabled	=	TRUE	Boolean		
					Hydraulic_System_Pressurize	=	TRUE	Boolean		
					C	_	IKOL	Doolean		
					A OR E					
					(A) Output speed enable	>=	67	Nm		
					(B) Accelerator Pedal enable		0.5005	Nm		
					Ignition Voltage Lo	>=	8.59961	Volts		
					Ignition Voltage H Engine Speed Lo	<= >=	31.99902 400	Volts RPM		
					Engine Speed H	<=	7500	RPM		
					Engine Speed is within the					
					allowable limits for		5	Sec		
					if Attained Gear=1st FW					
					Accelerator Pedal enable		5.0003	Pct		
					if Attained Gear=1st FW	1	-	Mari		
					Engine Torque Enable		5	Nm		
					if Attained Gear=1st FW		8191.88	Nm		
					Engine Torque Enable	<=	0191.00	INIII		
					Transmission Fluid		-6.6563	°C		
					Temperature					
					Input Speed Sensor fault		FALSE	Boolean		
					Output Speed Sensor fault		FALSE	Boolean		
					Default Gear Option is not		TRUE			
					presen					
				Disable	MIL not Illuminated for	TCM, D0714	4 D0717 D073	2 D0722		
				Conditions:		P182E	o, P0/1/, P0/2.	2, PU/23,		
				Conditions.	DIC S.	FIOZE				
						FCM: P0101	1, P0102, P010	3 P0106		
							08, P0171, P01			
							01, P0202, P02			
							06, P0207, P02			
							02, P0303, P03			
						P0306, P030	07, P0308, P04	01, P042E		
			Primary Offgoing Clutch is							One Trip
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E	exhausted (See Table 10 in	= TRUE Boolean						
,		Stuck On (Dynamic)	Supporting Documents for							
			Exhaust Delay Timers)	Marrian						
			Primary Oncoming Clutch Pressure Command Status	= Maximum pressurized						
				pressurized						
			Primary Offgoing Clutch Pressure	Clutch exhaust						
			Command Status	command						
				_ 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	>= 0.2998 sec						
			(2-6 shifting with throttle)	3.2770 300						
			fail timer 1	>= 0.5 sec						
1	ı	I	(2-6 shifting without throttle)	I	l	I			1	I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thr	eshold 'alue	Secondary Malfunction		Enable Conditions			Tim Requ		Mil Illum
		•	fail timer 1 (3-5 shifting with throttle)	>=	0.2998	sec						•		
			fail timer 1 (3-5 shifting without throttle)	>=	0.5	sec								
			fail timer 1 (4-5 shifting with throttle)	>=	0.2998	sec								
			fail timer 1	>=	0.5	sec								
			(4-5 shifting without throttle) fail timer 1	>=	0.2998	sec								
			(4-6 shifting with throttle) fail timer 1											
			(4-6 shifting without throttle)	>=	0.5	sec								
												tal Fail Tim (Fail 1 + Fai		
												See Enable mers for Fai		
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers								>= T	imer 1, and		
												Reference Supporting		
												able 15 for all Timer 2		
			If fail timer is greater than											
			threshold increment corresponding gear fail counter and total fail											
			counter										Fail Counter	
			2nd gear fail counter								>=	3	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	
			total fail counter				TUT Enable temperature	>=	-6.6563	°C	>=	5	Counter	
							Input Speed Sensor fault	=	FALSE	Boolean				
							Output Speed Sensor fault Command / Attained Gear	= ≠	FALSE 1st	Boolean Boolean				
							High Side Driver ON output speed limit for TUT	= >=	TRUE 100	Boolean RPM				
							input speed limit for TUT	>=	150	RPM				
							PRNDL state defaulted IMS Fault Pending	=	FALSE FALSE	Boolean Boolean				
							Service Fast Learn Mode	=	FALSE	Boolean				
							HSD Enabled	=	TRUE	Boolean				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	1	Threshold Value	Secondary Malfunction	Enable Conditions		Tin Requ		Mil Illum.
- Oysielli	Code	Description	Sitteria		Disable	MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723,		поци		
					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 E	Fail Case 1								One Trip
Variable Bleed Solenoid (VBS)	P2724	Stuck On (Steady State)	<u>I dii Case I</u>	Case: 5th Gear							One mp
					Table Based						
			Max I	Delta Output Speed	value Please Refer to Table						
			Wax	Hysteresis	>= Refer to Table rpm/sec 22 in						
					supporting						
					documents Table Based						
					value Pleace						
			Min I	Delta Output Speed	Refer to Table pm/sec 23 in						
				Hysteresis	23 in supporting						
					documents						
					Table Based						
					Time Please Refer to Table >= Sec						
			If the Abo	ve is True for Time	>= 17 in Sec						
					supporting						
				Intrusive test:	documents						
			(C35F	R clutch exhausted)							
				Gear Ratio Gear Ratio	<= 1.20959 >= 1.09436						
			If the above p	parameters are true	>= 1.09430						
								>=	1.1	Fail Timer (Sec)	
										Fail Count in	
								>=	3	5th Gear	
										OR Tabal Fall	
								>=	3	Total Fail Counts	
			Fail Case 2	Case: 6th Gear				1			
					Table Based						
			Max I	Delta Output Speed	value Please Refer to Table >= 22 in rpm/sec						
				Hysteresis	22 111						
					supporting documents						
					Table Based						
					value Please						
			Min I	Delta Output Speed Hysteresis	>= Refer to Table rpm/sec 23 in						
				riysteresis	supporting						
					documents						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				ime quired	M
System	Code	Description	Criteria	Table Based	Manufiction		Conditions			r.ec	quireu	
				Timo Dloggo								
			If the Above is True for Time	Pofor to Table								
			If the Above is True for Time	17 111								
				supporting								
				documents								
			Intrusive test: (CB26 clutch exhausted)									
			(CB26 cluich exhausteu) Gear Ratio	<= 1.20959								
			Gear Ratio	>= 1.09436								
			If the above parameters are true	1.07100								
									>=	1.1	Fail Timer (Sec)	
											Fail Count in	
									>=	3	6th Gear	
											OR Tatal Fall	
									>=	3	Total Fail Counts	
					PRNDL State defaulted	=	FALSE	Boolean			Counts	1
					inhibit RVT	=	FALSE	Boolean				
					IMS fault pending indication	=	FALSE	Boolean				
					output speed	>=	0	RPM				
					TPS validity flag	=	TRUE	Boolean				
					HSD Enabled Hydraulic_System_Pressurize	=	TRUE	Boolean				
					nyuraunc_system_Pressurize	=	TRUE	Boolean				
					A OR B							
					(A) Output speed enable	>=	67	Nm				
					(B) Accelerator Pedal enable	>=	0.5005	Nm				
					Ignition Voltage Lo	>=	8.59961	Volts				
					Ignition Voltage Hi	<=	31.99902	Volts				
					Engine Speed Lo Engine Speed Hi	>= <=	400 7500	RPM RPM				
					Engine Speed is within the							
					allowable limits for	>=	5	Sec				
					if Attained Gear=1st FW	>=	5.0003	Pct				1
					Accelerator Pedal enable	>=	3.0003	PU				
					if Attained Gear=1st FW	>=	5	Nm				
					Engine Torque Enable if Attained Gear=1st FW		-					
					Engine Torque Enable	<=	8191.88	Nm				
					Transmission Fluid							1
					Temperature	>=	-6.6563	°C				
					Input Speed Sensor fault	=	FALSE	Boolean				
					Output Speed Sensor fault	=	FALSE	Boolean				
					Default Gear Option is not	=	TRUE					
					present							
												I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E		

17 OBDG03 TCM LFX Colorado/Canyon 6 Speed T43 Supporting Tables

Table 1

Axis	0.00	64.00	128.00	192.00	256.00	320.00	384.00	448.00	512.00	N*m
Curve	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	RPM

Table 2

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

Table 3

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

Table 4

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

Table 5

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

Table 6

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

Table 7

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

Table 8

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

17 OBDG03 TCM LFX Colorado/Canyon 6 Speed T43 Supporting Tables

Table 9

Axis	-6.67	-6.66	40.00	80.00	120.00	٥С
Curve	409.00	3.30	1.30	1.20	1.10	Sec

Table 10

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

Table 11

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

Table 12

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

Table 13

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

Table 14

Axis	-40.00	-20.00	0.00	30.00	110.00 °C)
Curve	2.97	0.82	0.47	0.20	0.13 S	ec

Table 15

Axis	-40.00	-30.00	-20.00	-10.00	0.00	10.00	20.00	30.00	40.00	C,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	٥С
Curve	409.59	2.50	2.50	Sec

17 OBDG03 TCM LFX Colorado/Canyon 6 Speed T43 Supporting Tables

<u>Table 17</u>

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

Table 18

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

<u>Table 19</u>

Axis	-40.10	-40.00	-20.00	0.00	30.00	60.00	100.00	149.00	149.10	٥С
Curve	256.00	50.00	45.00	40.00	34.00	25.00	20.00	20.00	256.00	٥С

Table 20

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

<u>Table 21</u>

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

Table 22

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

Table 23

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

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			eshold alue		Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
Transmission Control Module (TCM)	C1251	The lateral accleration signal is stuck at a high magnitude in range	Lateral accleration magnitude	<=	3.85	g's									Specia No MIL
		at a nigh magnitude in range	Lateral accleration magnitude	>=	0.53	g's									INO IVIIL
			Lateral accleration magnitude is	>=	120	Sec									
			within the range above for	-	120										1
								Lateral accleration magnitude	<=	3.85	g's				
								Lateral accleration magnitude	>=	0.53	g's				
								Lateral accleration magnitude is within the range above for	>=	90	Sec				
								Diagnostic shifting override		E41.0E					
								command	=	FALSE	Boolean				
								Attained Gear State	=	1st through					
								Attained Gear State	=	6th					
								Attained Gear Slip	<=	100	RPM				
										Clutch to					
								Transmission Type	=	Clutch Transmissi					
										on					
								High Side Driver 1 On	=	TRUE	Boolean				
								Vehicle Speed Lateral acceleration stuck in	>=	15	kph				
								range diagnostic enable	=	TRUE	Boolean				
								Battery Voltage	<=	31.999023	Volts				
								Battery Voltage Battery voltage is within the	>=	9	Volts				
								allowable limits for	>=	0.1	Sec				
								Ignition Voltage	<=	31.999023	Volts				
								Ignition Voltage	>=	9	Volts				
								Service Fast Learn (SFL) Mode	=	FALSE	Boolean				
								Ignition voltage and SFL	>=	0.1	Sec				
								conditions met for	7-	0.1	300				
							Disable	MIL not Illuminated for							
						Con	ditions:	DTC's:		17, P0721, P07					
									P076F, P07 P215C, U00	C0, P077B, P07 73)	7C, P077D,				
										-,					
									ECM: None						
	1	Transmission Electro-Hydraulic	Fail Case 1												One Tri
ransmission Control Module (TCM)	P0634	Control Module Internal Temperature	Substrate Temperature	>= 1	42.101562	5 °C						>=	5	Fail Time (Sec)	
		Too High													
			Fail Case 2 Substrate Temperature	>=	50	°C						>=	2	Fail Time (Sec)	1
			Ignition Voltage	>=	18	Volts							_	(000)	
			Note: either fail case can set the												
			DTC					Ignition Voltage Lo	>=	8.5996094	Volts				1
								Ignition Voltage Hi	<=	31.999023	Volts				
								Substrate Temp Lo	>=	0	°C				
								Substrate Temp Hi Substrate Temp Between	<=	170	°C				
								Temp Range for Time	>=	0.25	Sec				I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria			Threshold Value	Secondary Malfunction		Enable Conditions			Tir Requ	me uired	Mil Illum.
System	Code	Description	Criteria			value	P0634 Status is	<i>≠</i>	Test Failed This Key On or Fault Active			Кең	aneu	indin.
						Disal Condition		TCM: None ECM: None						
Transmission Input Speed Sensor (TISS)	P0716	Input Speed Sensor Performance	Transmission In	put Speed Sensor Drops	>= 900	RPM					>=	0.8	Fail Time (Sec)	One Trip
							Engine Torque is Engine Torque is Engine Speec Engine Speec Engine Speed is within the allowable limits for Vehicle Speed is Throttle Position is	<= >= <= <= >= >=	0 8191.875 400 7500 5 10	N*m N*m RPM RPM Sec Kph				
							Transmission Input Speed is The previous requirement has been satisfied for	>=	0	RPM Sec				
							The change (loop to loop) ir transmission input speed is The previous requirement has been satisfied for Throttle Position Signal Valic Engine Torque Signal Valic Ignition Voltage	>= = = = >=	8191.875 0 TRUE TRUE 8.5996094 31.999023 Test Failed	RPM/Loop Sec Boolean Boolean Volts Volts				
						Disat Condition		TCM: P0717	I, P0102, P0103					
Transmission Input Speed Sensor (TISS)	P0717	Input Speed Sensor Circuit Low Voltage		ion Input Speed is	< 33	RPM					>=	4.5	Fail Time (Sec)	One Trip
			Fail Case 2 When P0722 DT Test Failed	C Status equal to and Transmission Input Speed is	< 653.1	25 RPM	Controller uses a single power supply for the speed sensors	=	1	Boolean				
							Engine Torque is Engine Torque is Vehicle Speec Engine Torque Signal Valic Ignition Voltage	<= >= =	100 8191.875 12 TRUE 8.5996094	N*m N*m Kph Boolean Volts				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Thre	eshold alue	Secondary Malfunction		Enable Conditions				me uired	Mil Illum.
5,555							Ignition Voltage Engine Speed Engine Speed Engine Speed is within the allowable limits for	<= >= <= >=	31.999023 400 7500 5	Volts RPM RPM Sec		•		
							P0717 Status is not	=	Test Failed This Key On or Fault Active					
						Disable Conditions:			P0723 P0102, P0103					
Mode Switch	P071D	Transmission Mode Switch B Circuit	Sport Mode Switch state	=	TRUE	Boolean					>=	600	Fail Time (Sec)	Special No MIL
							Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the	>= <= >= <= >=	8.5996094 31.999023 400 7500	Volts Volts RPM RPM Sec				
						Disable			3	360				
						Conditions:	DTC's:	ECM: None						
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 Tri
							P0722 Status is not	=	Test Failed This Key On or Fault Active					
							Transmission Input Speed Check	=	TRUE	Boolean				
							Engine Torque Check Throttle Position	=	TRUE 8.0001831	Boolean Pct				
							Transmission Fluid	>= >=	-40	°C				
							Temperature Disable this DTC if the PTO is	=	1	Boolean				
							active Engine Torque Signal Valid	=	TRUE	Boolean				
							Throttle Position Signal Valid Ignition Voltage is	= >=	TRUE 8.5996094	Boolean Volts				
							Ignition Voltage is Engine Speed is		31.999023 400	Volts RPM				
							Engine Speed is Engine Speed is	<=	7500	RPM				
							allowable limits for	>=	5	Sec				
							Enable_Flags Defined Below							-
							The Engine Torque Check is							
							TRUE, if either of the two following conditions are TRUE							

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thres Val	shold	Secondary Malfunction	<u> </u>	Enable Conditions			Tii Requ		Mil Illum.
System	Code	Description	Onteria	, va.		Engine Torque Condition 1 Range Shift Status	≠	Range shift	ENUM		requ	aneu	
						OR Transmission Range is	=	completed Park or					
						Engine Torque is Engine Torque is	>= <=	Neutral 8191.75 8191.75	N*m N*m				
						Engine Torque Condition 2 Engine Torque is Engine Torque is	>= <=	50 8191.75	N*m N*m				
						The Transmission Input Speed (TIS) Check is TRUE, if either of the two following conditions are TRUE							
						TIS Check Condition 1 Transmission Input Speed is Transmission Input Speed is	>= <=	653.125 5350	RPM RPM				
						TIS Check Condition 2 Engine Speed without the brake applied is Engine Speed with the brake	>=	3200 3200	RPM RPM				
						applied is Engine Speed is Controller uses a single power	<=	8191.875 1	RPM Boolean				
						supply for the speed sensors Powertrain Brake Pedal is Valid	=	TRUE	Boolean				
					Disable Conditions:	MIL not Illuminated for DTC's:		, P0102, P0103					
Transmission Output Speed Sensor (TOSS)	P0723	Output Speed Sensor Circuit Intermittent	Transmission Output Speed Sensor Raw Speed	>= 105	RPM					>=	0	Enable Time (Sec) Enable Time	One Trip
			Output Speed Delta		RPM					>=	0	(Sec) Output Speed	
			Output Speed Drop AND		RPM					>=	1.5	Drop Recovery Fail Time (Sec)	
			Transmission Range is	= Driven range (R,D)									
						Range_Disable OR	=	FALSE	See Below				
						Neutral_Range_Enable And	=	TRUE	See Below				
I	ı	I	I			Neutral_Speed_Enable	=	TRUE	See Below	l			I I

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		nable nditions		Time Required	Mil Illum
		·			are TRUE concurrently					
					Transmission_Range_Enable	=	TRUE S	See Below		-
					Transmission_Input_Speed_E					
					nable	=	TRUE S	See Below		
					No Change in Transfer Case	>=	5	Seconds		
					Range (High <-> Low) for					
							est Failed			
					P0723 Status is not		This Key n or Fault			
							Active			
					Disable this DTC if the PTO is					
					active	=	1	Boolean		
					Ignition Voltage is		5996094	Volts		
					Ignition Voltage is	<= 3	1.999023	Volts		
					Engine Speed is	>=	400	RPM		
					Engine Speed is Engine Speed is within the	<=	7500	RPM		
					allowable limits for	>=	5	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	>=	0 Er	nable Time (Sec)		
					are satsified for					
					Input Speed Delta Raw Input Speed	<= 4 >=	095.875 500	RPM RPM		
					Kaw Iliput Speed	>=	300	KLIM		
					TIS Condition 2 is TRUE when					
					ALL of the next two conditions					
					are satisfied		0	DDM		
					Input Speed A Single Power Supply is used	=	0	RPM		
					for all speed sensors	=	TRUE	Boolean		
										_
					Neutral_Range_Enable is					
					TRUE when any of the next 3 conditions are TRUE					
					Transmission Range is	=	Neutral	ENUM		
							everse/N			
					Transmission Range is			ENUM		
							ansitonal eutral/Dri			
					Towns 1 1 D		1/0	ENUISA		
					Transmission Range is	= 1T	ansitiona	ENUM		
					1		I			
					And when a drop occurs Loop to Loop Drop of					
					Transmission Output Speed is	>	650	RPM		
					Range_Disable is TRUE when					
					any of the next three					
					conditions are TRUE Transmission Range is	=	Park	ENUM		
	1 1				mansinission Range IS	=	I- al N	LINUIVI	I	1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thr V	eshold 'alue	Secondary Malfunction		Enable Conditions			Tim Requi		Mil Illum.
,		,				Transmission Range is	=	Park/Rever se Transitonal	ENUM		•		
						Input Clutch is not	=	ON (Fully Applied)	ENUM				
						Neutral_Speed_Enable is TRUE when All of the next three conditions are satsified	>	1.5	Seconds				
						for Transmission Output Speed		130	RPM				
						The loop to loop change of the Transmission Output Speed is		20	RPM				
						The loop to loop change of the Transmission Output Speed is	>	-10	RPM				
						Transmission_Range_Enable is TRUE when one of the next six conditions is TRUE							
						Transmission Range is	=	Neutral Reverse/N	ENUM				
						Transmission Range is	=	eutral Transitiona I	ENUM				
						Transmission Range is	=	Neutral/Dri ve Transitiona I	ENUM				
						Time since a driven range (R,D) has been selected		Table Based Time Please Refer to Table 21 in supporting documents	Sec				
						Transmission Output Speed Sensor Raw Speed Output Speed when a fault was detected	>=	500 500	RPM RPM				
					Disable Conditions:	MIL not Illuminated for DTC's:		1, P0102, P0103					
Torque Converter Clutch (TCC)	P0741	TCC System Stuck OFF	TCC Pressure Either Condition (A) or (B) Must be Met	>= 750	Кра					>=	2	Enable Time (Sec)	Two Trip

System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction		Enable Conditions				me uired	Mil Illum
- Cystem	Joue	Description		Refer to Table				20			noq		
			(A) TCC Slip Error @ TCC On Mode	>= 1 in RPM Supporting						>=	5	Fail Time (Sec)	
			(B) TCC Slip @ Lock On Mode	Documents >= 130 RPM						>=	5	Fail Time (Sec)	
			If Above Conditions Have been Met, and Fail Timer Expired,								2	TCC Stuck Off	
			Increment Fail Counter							>=	2	Fail Counter	
						TCC Mode	=	On or Lock					
						Ignition Voltage Lo	>=	8.5996094	Volts				
						Ignition Voltage Hi Engine Speed	<= >=	31.999023 400	Volts RPM				
						Engine Speed	<=	7500	RPM				
						Engine Speed is within the							
						allowable limits for	>=	5	Sec				
						Engine Torque Lo	>=	50	N*m				
						Engine Torque Hi	<=	8191.875	N*m				
						Throttle Position Lo Throttle Position Hi	>=	8.0001831	Pct				
						2nd Gear Ratio Lo	<= >=	99.998474 2.1948242	Pct Ratio				
						2nd Gear Ratio High	<=	2.5251465	Ratio				
						3rd Gear Ratio Lo	>=	1.4228516	Ratio				
						3rd Gear Ratio High	<=	1.637085	Ratio				
						4th Gear Ratio Lo	>=	1.069458	Ratio				
						4th Gear Ratio High	<=	1.2304688	Ratio				
						5th Gear Ratio Lo	>=	0.7905273	Ratio				
						5th Gear Ratio Hi 6th Gear Ratio Lo	<=	0.9095459 0.6230469	Ratio Ratio				
						6th Gear Ratio High	>= <=	0.0230469	Ratio				
						Transmission Fluid							
						Temperature Lo	>=	-6.65625	°C				
						Transmission Fluid		120	0.0				
						Temperature Hi	<=	130	°C				
						PTO Not Active	=	TRUE	Boolean				
						Engine Torque Signal Valid	=	TRUE	Boolean				
						Throttle Position Signal Valid	=	TRUE	Boolean				
						Dynamic Mode	=	FALSE	Boolean				
								Test Failed					
						P0741 Status is	≠	This Key					
						PU/41 Status is	+	On or Fault					
								Active					
				C	Disable anditions:	MIL not Illuminated for DTC's:	TCM: P0716 P0742, P276		P0723,				
									D010/				
								I, P0102, P0103 8, P0171, P017					
								1, P0202, P020					
								6, P0207, P020					
								2, P0303, P030					
							P0306, P030	7, P0308, P040	1, P042E				
rque Converter Clutch (TCC)	P0742	TCC System Stuck ON	TCC Slip Speed TCC Slip Speed	>= -50 RPM <= 13 RPM									One Tr
				<= 13 RPM									

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions			Time Required		III
	\top		If Above Conditions Have been									Г
			Met, and Fail Timer Expired,						>=	6 F	Fail Counter	
			Increment Fail Counter									
					TCC Mode	=	Off					
					Enable test if Cmnd Gear =	=	1	Boolean				
					1stFW and value true	_		Doolcan				
					Enable test if Cmnd Gear =	=	0	Boolean				
					2nd and value true	_						
					Engine Speed Hi	<=	6000	RPM				
					Engine Speed Lo	>=	500	RPM				
					Vehicle Speed HI	<=	511	KPH				
					Vehicle Speed Lo	>=	1	KPH				
					Engine Torque Hi	<=	8191.875	Nm				
					Engine Torque Lo	>=	80	Nm				
					Current Range	≠	Neutral	Range				
					Current Range	≠	Reverse	Range				
					Transmission Sump		120					
					Temperature	<=	130	°C				1
					Transmission Sump		40	00				1
					Temperature	>=	18	°C				1
					Throttle Position Hyst High	>=	5.0003052	Pct				1
					AND							1
					Max Vehicle Speed to Meet							1
					Throttle Enable	<=	8	KPH				1
					Once Hyst High has been met,							
					the enable will remain while	>=	2.0004272	Pct				
					Throttle Position	-	2.0001272	1 00				
					Disable for Throttle Position	>=	75	Pct				
					Disable if PTO active and		75	1 61				
					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				
						=						1
					Disable if in D4 and value true	=	1	Boolean				1
					Disable if in D5 and value true	=	1	Boolean				
					Disable if in MUMD and value	=	1	Boolean				
					true							
					Disable if in TUTD and value	=	1	Boolean				
					true							
					4 Wheel Drive Low Active	=	FALSE	Boolean				
					Disable if Air Purge active and	=	0	Boolean				1
					value false							1
					RVT Diagnostic Active	=	FALSE	Boolean				1
					Ignition Voltage	>=	8.5996094	V				1
					Ignition Voltage	<=	31.999023	V				1
					Vehicle Speed	<=	511	KPH				1
					Engine Speed	>=	400	RPM				1
					Engine Speed	<=	7500	RPM				1
					Engine Speed is within the	>=	5	Sec				1
					allowable limits for	>=						1
					Engine Torque Signal Valid	=	TRUE	Boolean				1
					Throttle Position Signal Valid	=	TRUE	Boolean	l			1
							Toot Callad					1
							Test Failed					1
					P0742 Status is	≠	This Key					1
							On or Fault					1
							Active					1
												1
					1				l			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				ime Juired	Mil Illum.
1				Disabl Conditions	le MIL not Illuminated for	ECM: P010 P0107, P01 P0175, P02 P0205, P02 P0301, P03	6, P0717, P0722,	, P0106, 2, P0174, 3, P0204, 8, P0300, 4, P0305,				
Mode 2 Multiplex Valve	P0751	Shift Solenoid Valve A Stuck Off	Commaned Gear Slip	>= 400 RPM								Two Tri
			Commanded Gear Gear Ratio Gear Ratio If the above parameters are true	<= 1.209594727					>= =	0.2 5	Fail Tmr Fail Counts	
			·						≠	0	Neutral Timer (Sec)	
									>=	0.3	Fail Timer (Sec)	
					Innition Voltage La		8.5996094	Volts	>=	8	Counts	-
					Ignition Voltage Lo Ignition Voltage Hi		31.999023	Volts				
					Engine Speed Lo	>=	400	RPM				
					Engine Speed H	<=	7500	RPM				
					Engine Speed is within the	>=	5	Sec				
					allowable limits for Transmission Fluid Temperature		-6.65625	°C				
					Range Shift State		Range Shift Completed	ENUM				
					TPS OR		0.5004883	%				
					Output Speed	>=	67	RPM				
					Throttle Position Signal Valid from ECM	=	TRUE	Boolean				
					Engine Torque Signal Valid from ECM, High side driver is	=	TRUE	Boolean				
					enabled High-Side Driver is Enabled		TRUE	Boolean				
					Input Speed Sensor fault		FALSE	Boolean				
					Output Speed Sensor fault	=	FALSE	Boolean				
					Default Gear Option is not present		TRUE					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		eshold alue	Secondary Malfunction		Enable Conditions			ime quired	Mil Illum.
System	Code	Description	Gilleria	V	Disable Conditions:	MIL not Illuminated for DTC's:			, P0723,	Re	_{quirou}	muill
							P0107, P010 P0175, P020 P0205, P020 P0301, P030	1, P0102, P0103 08, P0171, P017 01, P0202, P020 06, P0207, P020 02, P0303, P030 07, P0308, P040	72, P0174, 03, P0204, 08, P0300, 04, P0305,			
Mode 2 Multiplex Valve	P0752	Shift Solenoid Valve A Stuck On	Gear Box Slip	>= 400	RPM							One Trip
			Commanded Gear Commanded Gear has Achieved 1st Locked OR 1st Free-Wheel OR 2nd with Mode 2 Sol. Commanded On If the above parameters are true	= 3rd = TRUE	Gear Boolean					Please Re to Table 16 >= Supportin	in Neutral Timer	
			Command 4th Gear once Output Shaft Speed If Gear Ratio And Gear Ratio							Documen >= 1.5 >= 5	Fail Timer (Sec Counts)
						Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for High-Side Driver is Enabled Throttle Position Signal Valid from ECM Output Speed OR TPS	= = >=	8.5996094 31.999023 400 7500 5 TRUE TRUE 67 0.5004883	Volts Volts RPM RPM Sec Boolean Boolean RPM	>= 0	Couris	
						Range Shift State Transmission Fluid Temperature Input Speed Sensor fault Output Speed Sensor fault Default Gear Option is not present	>=	Range Shift Completed -6.65625 FALSE FALSE TRUE	°C Boolean Boolean			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Condition			Time Required	Mil Illum.
System	Code	Description	Onteria		Disable nditions:	MIL not Illuminated for				rtoquilou	
							ECM: P0101, P0102, P0 P0107, P0108, P0171, F P0175, P0201, P0202, F P0205, P0206, P0207, F P0301, P0302, P0303, F	20172, P0174, 20203, P0204, 20208, P0300, 20304, P0305,			
							P0306, P0307, P0308, F	0401, P042E			
Mode 2 Multiplex Valve	P0756	Shift Solenoid Valve B Stuck Off	Fail Case 1 Commanded Gea Gear Box Slip						Please to Tabl Suppo Docum	e 5 in Neutral Time orting (Sec)	One Trip
			Intrusive Shift to 2nc Commanded Gear Previous Gear Ratic Gear Ratic If the above parameters are true	= 1st Locked Gear <= 2.482177734					Docum	ients	
			ii tile above parameters are tide						>= 1 >= 3	500	
						Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for Output Speed OR	>= 67	23 Volts RPM RPM Sec RPM			
						TPS Range Shift State	Rang	e ENUM			
						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	= FALS = FALS	Boolean Boolean			
					Disable nditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0 P182E	722, P0723,			
							ECM: P0101, P0102, P0 P0107, P0108, P0171, I P0175, P0201, P0202, I P0205, P0206, P0207, I P0301, P0302, P0303, I P0306, P0307, P0308, I	20172, P0174, 20203, P0204, 20208, P0300, 20304, P0305,			

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria		Thres Val		Secondary Malfunction	-	Enable Conditions			Tim Requi		Mil Illum.
Variable Bleed Solenoid (VBS)	P0776	Pressure Control (PC) Solenoid B Stuck Off [C35R]	Fail Case 1	Case: Steady State 3rd Gear	r										One Trip
		Guan on [666N]		Commanded Gear Gearbox Slip		3rd 400	Gear RPM					>= t	Supporting	Neutral Timer (Sec)	
				Command 4th Gear once Output Shaft Speed If Gear Ratio And Gear Ratio	d <= 0 >=	400 1.094360352 1.209594727	RPM						Documents		
				It the above condiations are true, Increment 3rd gear fail counter								>= >=	3	Fail Timer (Sec) 3rd Gear Fail Counts or	
				and C35R Fail counter	r							>=	14	3-5R Clutch Fail Counts	
			Fail Case 2	Case: Steady State 5th Gear Commanded Gear		5th	Gear								
				Gearbox Slip	>=	400	Rpm					>=	Please Refer to Table 5 in Supporting Documents	Neutral Timer (Sec)	
				Intrusive Test: Command 6th Gear		Please refer to									
				If attained Gear=6th gear Time		Table 3 in supporting documents	Shift Time (Sec)								
				It the above condiations are true, Increment 5th gear fail counter		documents						>=	3	5th Gear Fail Counts or	
				and C35R Fail counter	r							>=	14	3-5R Clutch Fail Counts	
								PRNDL State defaulted inhibit RVT IMS fault pending indication TPS validity flag Hydraulic System Pressurized Minimum output speed for RVT A OR B	= = = = = >=	FALSE FALSE FALSE TRUE TRUE	Boolean Boolean Boolean Boolean Boolean				
								(A) Output speed enable (B) Accelerator Pedal enable Common Enable Criteria	>= >=	67 0.5004883	RPM Pct				
								Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the	>= <= >= <=	8.5996094 31.999023 400 7500	Volts Volts RPM RPM				
								allowable limits for Throttle Position Signal valid HSD Enabled Transmission Fluid	>= = =	5 TRUE TRUE	Sec Boolean Boolean				
								Temperature Input Speed Sensor fault	>=	-6.65625 FALSE	°C Boolean				

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Time Required	Mil Illum.
J 3.5	3330	2000.p.o		J. 101 Na	Disal Conditior	Output Speed Sensor fauli Default Gear Option is not present	= FALSE Boolean = TRUE TCM: P0716, P0717, P0722, P0723,			
					Condition	S. 5103.	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		1				One Trip
		Stuck On [C35R] (Steady State)		Attained Gear slip						
				If the Above is True for Time	Table Based Time Please Pefer to Table, Enable Time					
				Intrusive test: (CBR1 clutch exhausted)						
				Gear Ratio Gear Ratio	<= 1.608642578 >= 1.455444336					
				If the above parameters are true	>= 1.455444336					
								>=	1.1 Fail Timer (
								>=	2 Fail Count 1st Gea	
									or Total Fa	ı
			Fail Case 2	Case: Steady State 2nd gear				>=	3 Counts	_
				J	Table Based value Please					
				Max Delta Output Speed	Refer to 3D Table 1 in rpm/sec					
				Hysteresis	supporting					
					documents Table Based					
				Min Delta Output Speed	value Please Refer to 3D >= Table 3 in rpm/sec					
				Hysteresis	Table 2 in supporting documents Table Based					
				If the Above is True for Time	Time Please					
				Intrusive test: (CB26 clutch exhausted) Gear Ratio						
					>= 1.455444336					

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria	Thre: Va	shold lue	Secondary Malfunction	Enable Conditions			ime Juired	Mil Illum.
-,	3000			If the above parameters are true								
									>=	1.1	Fail Timer (Sec)	
										•	Fail Count in	
									>=	3	2nd Gear	
											Or Total Fail	
									>=	3	Total Fail Counts	
			Fail Case 3	Case: Steady State 4th gear								1
					Table Based							
				Max Delta Output Speed	value Please Refer to 3D							
				Hysteresis	>= Table 1 in	rpm/sec						
					supporting							
					documents Table Based							
					value Please							
				Min Delta Output Speed	Refer to 3D	rpm/sec						
				Hysteresis	>= Table 2 in supporting	1						
					documents							
					Table Based							
					Time Please Refer to Table							
				If the Above is True for Time	>= 17 in	Sec						
					supporting							
				Intrusive test:	documents							
				(C1234 clutch exhausted)								
				Gear Ratio	<= 0.89465332							
				Gear Ratio If the above parameters are true	>= 0.809448242							
				ii iile above parameters are true						4.4	F - 11 Ti (C)	
									>=	1.1	Fail Timer (Sec)	ľ
									>=	3	Fail Count in 4th Gear	
											or	
									>=	3	Total Fail	
			Fail Case 4	Case: Steady State 6th gear							Counts	-
			I all Cast 4	Gase. Steady State Off year	Table Based							
					value Please							
				Max Delta Output Speed Hysteresis	>= Refer to 3D Table 1 in	rpm/sec						
				Hysielesis	supporting							
					documents							
					Table Based							
				Min Delta Output Speed	value Please Refer to 3D							
				Hysteresis	Table 2 in	rpm/sec						
					supporting							
					documents Table Based							
					Time Please							
				If the Above is True for Time	>= Refer to Table	Sec						
					17 in supporting							
					documents							

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thres Val	shold ue	Secondary Malfunction		Enable Conditions				ime quired	Mil Illum.
Gysteili	Code	Description	Intrusive test:	Val		dilotori		Conditions			i ce		
			(CB26 clutch exhausted)										
			Gear Ratio	<= 0.89465332						>=	1.1	Fail Timer (Sec)	
			Gear Ratio	>= 0.809448242						>=	3	counts	
			If the above parameters are true										
										>=	1.1	Fail Timer (Sec)	
										>=	3	Fail Count in 6th Gear	
										>=	3	or Total Fail	
						PRNDL State defaulted	=	FALSE	Boolean			Counts	-
						inhibit RVT	=	FALSE	Boolean				
						IMS fault pending indication		FALSE	Boolean				
						output speed TPS validity flag		0 TRUE	RPM Boolean				
						HSD Enabled		TRUE	Boolean				
						Hydraulic_System_Pressurize		TRUE	Boolean				
						d 00 0		INOL	Doolcan				
						A OR B (A) Output speed enable		67	Nm				
						(B) Accelerator Pedal enable		0.5004883	Nm				
						Ignition Voltage Lo		8.5996094	Volts				
						Ignition Voltage Hi	<=	31.999023	Volts				
						Engine Speed Lo		400	RPM RPM				
						Engine Speed Hi Engine Speed is within the		7500					
						allowable limits for		5	Sec				
						if Attained Gear=1st FW Accelerator Pedal enable	>=	5.0003052	Pct				
						if Attained Gear=1st FW		5	Nm				
						Engine Torque Enable if Attained Gear=1st FW							
						Engine Torque Enable	<=	8191.875	Nm				
						Transmission Fluid	>=	-6.65625	°C				
						Temperature							
						Input Speed Sensor fault Output Speed Sensor fault	= =	FALSE FALSE	Boolean Boolean				
					Disable	e MIL not Illuminated for	TCM: D0714	5 D0717 D070	D0722				
					Conditions:		P182E	5,1 0717,1 072.	.,10723,				
							ECM: P010°	1, P0102, P010	3. P0106.				
								08, P0171, P01					
								01, P0202, P02					
								06, P0207, P02 02, P0303, P03					
								02, P0303, P03 07, P0308, P04					
	+		Primary Offgoing Clutch is			<u> </u>	<u> </u>						One Trip
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solenoid B	exhausted (See Table 12 in	= TRUE	Boolean								
(,		StuckOn [C35R] (Dymanic)	Supporting Documents for Exhaust Delay Timers)										
			Exhaust Delay Timers) Primary Oncoming Clutch	Maximum									
			Pressure Command Status										

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum
			Primary Offgoing Clutch Pressure Command Status Range Shift Status	Clutch exhaust = command → Initial Clutch				
			Attained Gear Slip	Control				
			If the above conditions are true run appropriate Fail 1 Timers Below: fail timer 1					
			(3-1 shifting with Closed Throttle) fail timer 1	>= 0.5 Fail Time (Sec) >= 0.299804688 Fail Time (Sec)				
			(3-2 shifting with Throttle) 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	>= 0.299804688 Fail Time (Sec) >= 0.5 Fail Time (Sec)				
			(3-4shifting with Closed Throttle) fail timer 1 (3-5 shifting with Throttle)	>= 0.299804688 Fail Time (Sec)				
			fail timer 1 (3-5 shifting with Closed Throttle) fail timer 1	>= 0.5 Fail Time (Sec)				
			(5-3 shifting with Throttle) fail timer 1 (5-3 shifting with Closed Throttle)	>= 0.299804688 Fail Time (Sec) >= 0.5 Fail Time (Sec)				
			fail timer 1 (5-4 shifting with Throttle) fail timer 1	>= 0.299804688 Fail Time (Sec)				
			(5-4 shifting with Closed Throttle) fail timer 1 (5-6 shifting with Throttle)	>= 0.5 Fail Time (Sec) >= 0.299804688 Fail Time (Sec)				
			fail timer 1 (5-6 shifting with Closed Throttle)	>= 0.5 Fail Time (Sec)				
							Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail	
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers				>= 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					
			3rd gear fail counter				>= 3 3rd gear counts OR	5
			5th gear fail counter				>= 3 5th gear to counts OR	5
			Total fail counter		TUT Enable temperature	>= -6.65625 °C	>= 5 total fail co	unts

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction	Enable Conditions		Time Requir		Mil Illum.
						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	= FALSE	Boolean Boolean RPM RPM Boolean Boolean Boolean Boolean			
					Disable Conditions:		TCM: P0716, P0717, P072 P182E	2, P0723,			
							ECM: P0101, P0102, P010 P0107, P0108, P0171, P01 P0175, P0201, P0202, P02 P0205, P0206, P0207, P02 P0301, P0302, P0303, P03 P0306, P0307, P0308, P04	72, P0174, 03, P0204, 08, P0300, 04, P0305,			
Variable Bleed Solenoid (VBS)	P0796	Pressure Control (PC) Solenoid C Stuck Off [C456] (Steady State)	Fail Case 1 Case: Steady State 4th Ge	r							One Trip
			Gear sl Intrusive tes commanded 5th ge If attained Gear ≠5th for tim	t: Please refer to Table 3 in Supporting Documents	Time (Sec)				Please See Table 5 For >= Neutral Time Cal	Neutral Timer (Sec)	
			if the above conditions have bee m Increment 4th Gear Fail Count	et					>= 3	4th Gear Fail Count OR	
			and C456 Fail Counte						>= 14	C456 Fail Counts	
			Fail Case 2 Case: Steady State 5th Ger	p >= 400 RPM	1				Please See Table 5 For Neutral Time Cal	Neutral Timer (Sec)	
			Intrusive tes commanded 6th ge If attained Gear ≠ 6th for tin if the above conditions have bee	Please Refer to Table 3 in Supporting Documents	Time (Sec)						
			ir the above conditions have bee m Increment 5th Gear Fail Count	et					>= 3	5th Gear Fail Count OR	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Requir		Mil Illum.
.,			and C456 Fail Counters				>= 14	C456 Fail	
			Fail Case 3 Case: Steady State 6th Gear					Counts	-
			Gase. Steady State of Geal				Please See		
			Gear slip	>= 400 RPM			>= Table 5 For	Neutral Timer	
			1				Neutral Time Cal	(Sec)	
			Intrusive test:				Cai		
			commanded 5th gear						
				Please refer to					
			If attained Gear ≠ 5th for time	>= Table 3 in Supporting Shift Time (Sec)					
				Documents					
			if the above conditions have been						
			met Increment 6th Gear Fail Counter					6th Gear Fail	
			and C456 Fail Counter				>= 3	Count	
								OR	
			and C456 Fail Counter				>= 14	C456 Fail	
					PRNDL State defaulted	= FALSE Boolean		Counts	-
					inhibit RVT	= FALSE Boolean			
					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 Lo	>= 8.5996094 Volts			
					Ignition Voltage Hi Engine Speed Lo	<= 31.999023 Volts >= 400 RPM			
					Engine Speed Hi	<= 7500 RPM			
					Engine Speed is within the	5 Sac			
					allowable limits for Throttle Position Signal valid				
					HSD Enabled				
					Transmission Fluid	>6.65625 °C			
					Temperature				
					Input Speed Sensor fault OutputSpeed Sensor fault				
					Default Gear Option is not				
					present				
				Disable	MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723,			
				Conditions		P182E			
						ECM: P0101, P0102, P0103, P0106,			
						P0107, P0108, P0171, P0172, P0174,			
						P0175, P0201, P0202, P0203, P0204,			
						P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305,			
						P0306, P0307, P0308, P0401, P042E			

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Ti Req	me uired	Mil Illum.
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Steady State)	Fail Case 1	Case: Steady State 1st							One Tri
		Stuck Off [C456] (Steady State)		Attained Gear slip							
					Table Based						
				1611 AL . T. 6 T.	Time Please Refer to Table Enable Time						1
				If the Above is True for Time	>= 4 in (Sec)						
					supporting documents						
				Intrusive test:							1
				(CBR1 clutch exhausted) Gear Ratio	<= 1.209594727						
				Gear Ratio	>= 1.094360352						
				If the above parameters are true							
								>=	1.1	Fail Timer (Sec)	1
								>=	2	Fail Count in	
										1st Gear or	1
								>=	3	Total Fail	1
			Fail Case 2	Case Steady State 2nd						Counts	ł
			Tall Odde 2	ouse steady state 211d	Table Based						
				Max Delta Output Speed	value Please Refer to 3D						1
				Hysteresis	>= Table 1 in rpm/sec						
					supporting						
					documents Table Based						
					value Please						1
				Min Delta Output Speed Hysteresis	>= Refer to 3D rpm/sec Table 2 in						1
				Trystorosis	supporting						1
					documents Table Based						
					Time Please						
				If the Above is True for Time	Refer to Table Sec						
					17 in supporting						
					documents						
				Intrusive test: (CB26 clutch exhausted)							1
				Gear Ratio							
				Gear Ratio If the above parameters are true	>= 1.094360352						1
				ii tile above parameters are true				\	1.1	Fail Timer (Sec)	1
								>=	1.1		1
								>=	3	Fail Count in 2nd Gear	
									2	or	1
								>=	3	Total fail counts	
			Fail Case 3	Case Steady State 3rd							1
					Table Based value Please						
				Max Delta Output Speed	Refer to 3D						
				Hysteresis	>= Table 1 in supporting						
					documents						

Table Record Table Parameter Table Paramet
allowable limits for if Attained Gear=1st FW Accelerator Pedal enable if Attained Gear=1st FW Engine Torque Enable if Attained Gear=1st FW Engine Torque Enable if Attained Gear=1st FW Engine Torque Enable if Attained Gear=1st FW Engine Torque Enable Transmission Fluid Temperature Input Speed Sensor fault = FALSE Boolean Output Speed Sensor fault = FALSE Boolean

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thres Val		Secondary Malfunction	Enable Conditions	Time Required	M Illu
Oystem	Code	Description	Ontena	Vui	Disable		TCM: P0716, P0717, P0722, P0723,	required	
					Conditions:	DTC's:			
							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						One
ariable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C	exhausted (See Table 11 in	= TRUE	Boolean				
(,	1	Stuck On [C456] (Dynamic)	Supporting Documents for						
			Exhaust Delay Timers) Primary Oncoming Clutch	Maximum					
			Pressure Command Status	= pressurized					
			Primary Offgoing Clutch Pressure	Clutch exhausi					
			Command Status	= command	l				
			Sommand Status						
			Range Shift Status	≠ Initial Clutch Control					
			Attained Gear Slip	<= 40	RPM				
			If the above conditions are true						
			increment appropriate Fail 1						
			Timers Below:						
			fail timer 1	>= 0.299804688	Fail Time (Sec)				
			(4-1 shifting with throttle)	Z= 0.277004000	Tall Tille (Sec)				
			fail timer 1 (4-1 shifting without throttle)	>= 0.5	Fail Time (Sec)				
			fail timer 1						
			(4-2 shifting with throttle)	>= 0.299804688	Fail Time (Sec)				
			fail timer 1	>= 0.5	Fail Time (Sec)				
			(4-2 shifting without throttle)	0.0	. u (666)				
			fail timer 1 (4-3 shifting with throttle)	>= 0.299804688	Fail Time (Sec)				
			fail timer 1	0.5	F-11 Thurs (C-1)				
			(4-3 shifting without throttle)	>= 0.5	Fail Time (Sec)				
			fail timer 1	>= 0.299804688	Fail Time (Sec)				
			(5-3 shifting with throttle) fail timer 1						
			(5-3 shifting without throttle)	>= 0.5	Fail Time (Sec)				
			fail timer 1	. 0.200004400	Fail Time (Sec)				
			(6-2 shifting with throttle)	>= 0.299804688	Fall Time (Sec)				
			fail timer 1	>= 0.5	Fail Time (Sec)				
			(6-2 shifting without throttle)		` ′				
								Total Fail Time	
								= (Fail 1 + Fail	
								See Enable Timers for Fail	
			If Attained Gear Slip is Less than					>= Timer 1, and	sec
			Above Cal Increment Fail Timers					Reference	
								Supporting	
								Table 15 for	
		1						Fail Timer 2	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Tin Requ		Mil Illum.
			If fail timer is greater than threshold increment corresponding gear fail counter and total fail counter 4th gear fail counter 5th gear fail counter 6th gear fail counter				>= >= >= >=	3 3 5	Fail Counter From 4th Gear OR Fail Counter From 5th Gear OR Fail Counter From 6th Gear OR Total Fail Counter	
				Disa Condition		= FALSE Boolean = FALSE Boolean ≠ 1st Boolean = TRUE Boolean >= 100 RPM >= 150 RPM d = FALSE Boolean = FALSE Boolean = FALSE Boolean			Counter	
Mode Switch	P1762	Transmission Mode Switch Signal Circuit (rolling count)	Rolling count value received from BCM does not match expected value				>=	3	Fail Counter Sample Timer	Special No MIL
				Disa	Pattern Switch Message Healtl Engine Speed Le Engine Speed Healtl Engine Speed is within the allowable limits fo	= TRUE BOORAN >= 400 RPM			(Sec)	
Internal Mode Switch (IMS)	P182E	Internal Mode Switch - Invalid Range	Fail Case 1 Current range	Condition Transition 1						One Trip

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		Va	shold lue	Secondary Malfunction		Enable Conditions			Tim Requ		IIIu
			Previous range	<i>≠</i> (CeTRGR_e_F RNDL_Drive6	Range								
			Previous range	≠ (CeTRGR_e_F RNDL_Drive3	, Range								
					RNDL_Drive3 Range Shift									
			Range Shift State	-	Completed	ENOW								
			Absolute Attained Gear Slip Attained Gear		50 Sixth	rpm								
			Attained Gear		First									
			Throttle Position Available		TRUE									
			Throttle Position Output Speed		8.000183105 200									
			Engine Torque		50	rpm Nm								
			5 .											
			Engine Torque	<=	8191.75	Nm								
			If the above conditions are met								>=	1	Fail Seconds	
			then Increment Fail Timer If Fail Timer has Expired then										r an occordo	
			In Fall Timer has expired them Increment Fail Counter								>=	5	Fail Counts	
			Fail Case 2 Output Speed		70	rpm								1
			The following PRNDL sequence events occur in this exact order:											
					Drive 6 (bit	Danas								
			PRNDL state		state 0110)									
			PRNDL state = Drive 6 for	>=	1 Transition 8	Sec								
			PRNDL state	=	(bit state	Range								
					0111)									
			PRNDL state	=	Drive 6 (bit state 0110)	Range								
					Transition 1									
			PRNDL state	=	(bit state 1110)	Range								
			Above sequencing occurs in	<=	1	Sec								
			Neutral Idle Mode		Inactive									
			If all conditions above are met Increment delay Timer											
			If the below two conditions are met											
			Increment Fail Timer								>=	3	Fail Seconds	
			delay timer		1	Sec								
			Input Speed If Fail Timer has Expired then	>=	400	Sec								
			Increment Fail Counter								>=	2	Fail Counts	
			Fail Case 3		Transition 13		Doubless	-1	CeTRGR_					
			Current range	=	(bit state 0010)	Range	Previous range	≠	e_PRNDL _Drive3					
									CeTRGR_					
			Engine Torque	>=	-8192	Nm	Previous range	≠	e_PRNDL					
			Engine Torque	<=	8191.75	Nm	IMS is 7 position configuration	=	_Drive3 0	Boolean				
							າ ເກ່ອ ການເວົ້າ ກ່ວນແບກ ເປັກກາງ = 1 then the "previous range"							1
			If the above conditions are met				criteria above must also be				>=	0.225	Seconds	
			then, Increment Fail Timer				satsified when the "current							1

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria		Thres Val	shold ue	Secondary Malfunction		Enable Conditions			Tir Requ		IIIu
•		F		If Fail Timer has Expired then								>=	15	Fail Counts	
			Fail Case 4	Increment Fail Counter											-
			I dii Case 4			Transition 8		Disable Fail Case 4 if last							
				Current range	=		Range	positive range was Drive 6 and							
						0111)		current range is transition 8							
								Set inhibit bit true if PRNDL =							
				Inhibit bit (see definition)	=	FALSE		1100 (rev) or 0100 (Rev-Neu transition 11)							
				minibit bit (see demittori)	=	FALSE		Set inhibit bit false if PRNDL =							
								1001 (park)							
				Steady State Engine Torque	>=		Nm								
				Steady State Engine Torque	<=	8191.75	Nm								
				If the above conditions are met								>=	0.225	Seconds	
				then Increment Fail Timer											
				If the above Condtions have been								>=	15	Fail Counts	
				met, Increment Fail Counter									.0	. a oounts	
			Fail Case 5	Throttle Position Available	=	TRUE	Boolean								1
				The following PRNDL sequence											
				events occur in this exact order:		Dovorco /hit									
				PRNDL State	=	Reverse (bit state 1100)	Range								
						Transition 11									
				PRNDL State	=	(bit state	Range								
						0100)									
				PRNDL State	=	Neutral (bit	Range								
						state 0101) Transition 11	5								
				PRNDL State	=		Range								
				T THIS E OLULO		0100)	rango								
				Above sequencing occurs in	<=	1	Sec								
				Then delay timer increments											
				Delay timer	>=	5 Danua Chiff	sec								
				Range Shift State	=	Range Shift Complete									
				Absolute Attained Gear Slip	<=	50	rpm								
				Attained Gear		Sixth	r								
				Attained Gear		First									
				Throttle Position											
				Output Speed If the above conditions are met	>=	200	rpm								
				Increment Fail Timer								>=	20	Seconds	
			Fail Case 6			Illegal (bit		A Open Circuit Definition (flag							1
				Current range		state 0000 or		set false if the following							
						1000 or 0001)		conditions are met):							
										Transition					
				and				Current Range	≠	11 (bit					
										state 0100)					
				A Open Circuit (See Definition)	=	FALSE	Boolean	or							1
									,	Neutral (bit					
								Last positive state	≠	state 0101)					
								or							1
								OI		Transition					
								Previous transition state	≠	8 (bit state					1
										0111)					
			1					Fail case 5 delay timer	=	0	sec	1			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Tim Requ		Mil Illum.
		, , ,	If the above Condtions are met then, Increment Fail timer				>= 6.25	Seconds	
			Current PRNDL State	ABCP = 1101					
			and						
			Previous PRNDL state Input Speed	PRNDL circuit ABCP =1111 Range >= 150 RPM					
			Reverse Trans Ratio	<= 2.975952148 ratio					
			Reverse Trans Ratio If the above Condtions are met	>= 3.423950195 ratio					
			then, Increment Fail timer				>= 6.25	Seconds	
			P182E will report test fail when						1
			any of the above 7 fail cases are met						
					Ignition Voltage Lo	>= 8.5996094 Volts			
					Ignition Voltage H	i <= 31.999023 Volts			
					Engine Speed Lo Engine Speed H) >= 400 RPM i <= 7500 RPM			
					Engine Speed is within the	5 Sec			
					allowable limits for Engine Torque Signal Valid				
				Disable Conditions:		TCM: P0716, P0717, P0722, P0723, P07C0, P07BF, P077C, P077D			
						ECM: P0101, P0102, P0103, P0106,			
						P0107, P0108, P0171, P0172, P0174,			
						P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300,			
						P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E			
			Delevery Office law Ohatak la			0000,1 0007,1 0000,1 0 101,1 0 122			On a Tala
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D	Primary Offgoing Clutch is exhausted (See Table 13 in	= TRUE Boolean					One Trip
variable bleed Solenoid (VBS)	12710	Stuck On [CB26] (Dynamic)	Supporting Documents for Exhaust Delay Timers)						
			Primary Oncoming Clutch	Maximum					
			Pressure Command Status Primary Offgoing Clutch Pressure	pressurized Clutch exhaust					
			Command Status						
			Range Shift Status	≠ Initial Clutch Control					
			Attained Gear Slip						
			If above coditons are true,						
			increment appropriate Fail 1 Timers Below:						
			fail timer 1 (2-1 shifting with throttle)	>= 0.299804688 Fail Time (Sec)					
			fail timer 1	- 0.5 Fail Time (Sec)					
1	I	l	(2-1 shifting without throttle)	5.5 1 4.1 11110 (500)	I	1	I		1 1

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	M IIIu
System	Code	Description	fail timer 1		Wallallelloll	Collultions	Required	iiiu
			(2-3 shifting with throttle)	>= 0.299804688 Fail Time (Sec)				
			fail timer 1 (2-3 shifting without throttle)	>= 0.5 Fail Time (Sec)				
			(2-3 Shifting Without throttle)	0.000004400 F.H.T. (0.)				
			(2-4 shifting with throttle)	>= 0.299804688 Fail Time (Sec)				
			fail timer 1	>= 0.5 Fail Time (Sec)				
			(2-4 shifting without throttle) fail timer 1					
			(6-4 shifting with throttle)	>= 0.299804688 Fail Time (Sec)				
			fail timer 1	>= 0.5 Fail Time (Sec)				
			(6-4 shifting without throttle) fail timer 1					
			(6-5 shifting with throttle)	>= 0.299804688 Fail Time (Sec)				
			fail timer 1	>= 0.5 Fail Time (Sec)				
			(6-5 shifting without throttle)	(4.1.)				
							Total Fail Time	
							Total Fail Time = (Fail 1 + Fail	
							2) See Enable	
			If Attained Gear Slip is Less than				Timers for Fail	
			Above Cal Increment Fail Timers				>= 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					
			gear fair counter and total fair counter					
			2nd gear fail counter				>= 3 Fail Counte	
			zna gear fair counter				From 2nd Ge	ar
							OR Fail Counte	r
			6th gear fail counter				>= 3 From 6th Ge	
							OR	
			total fail counter				>= 5 Total Fail Counter	
					TUT Enable temperature	>= -6.65625 °C	Counter	1
					Input Speed Sensor fault	= FALSE Boolean		
					Output Speed Sensor fault Command / Attained Gear	= FALSE Boolean ≠ 1st Boolean		
					High Side Driver ON	= TRUE Boolean		
					output speed limit for TUT	>= 100 RPM		
					input speed limit for TUT	>= 150 RPM		
					PRNDL state defaulted IMS Fault Pending	= FALSE Boolean = FALSE Boolean		
					Service Fast Learn Mode	= FALSE Boolean		
					HSD Enabled	= TRUE Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions	Time Required	Mil Illum.
- Cyolom	0000	Decemples.	O.N.O.N.	Disable Conditions:	MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723, P182E		
						ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305,		
						P0306, P0307, P0308, P0401, P042E		
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Steady State)	Fail Case 1 Case: Steady State 1s Attained Gear slip					One Tri
			Attained Geal sig	Table Based Time Please Refer to Table Enable Time				
			If the Above is True for Time	>= 4 in (Sec) supporting documents				
			Intrusive test (CBR1 clutch exhausted) Gear Ratic Gear Ratic	<= 2.482177734				
			If the above parameters are true				11 Foll Times	(Coo)
							>= 1.1 Fail Timer >= 5 Fail Cou	nt in
							or Total F >= 5 Coun	ail
			Fail Case 2 Case: Steady State 3rd Gear	Table Based				
			Max Delta Output Speec Hysteresis					
			Min Delta Output Speec Hysteresis	Table Based value Please Refer to 3D				
				documents Table Based Time Please				
			If the Above is True for Time	supporting documents				
			Intrusive test (C35R clutch exhausted Gear Ratic Gear Ratic If the above parameters are true	<= 2.482177734 >= 2.245849609				
							>= 1.1 Fail Timer	
							>= 3 Fail Cou	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enable Conditions		Tir Requ		Mil Illum.
узын	Joue	Боотрион	Viiteria	* withty			>=	5	or Total Fail Counts	
			Fail Case 3 Case: Steady State 4rd Gear	Table Based					Counts	
			Max Delta Output Speed Hysteresis	value Please Refer to 3D Table 1 in supporting documents						
			Min Delta Output Speed Hysteresis	Table Based value Please Refer to 3D Table 2 in supporting documents						
			If the Above is True for Time	Table Based Time Please Refer to Table >= 17 in supporting documents						
			Intrusive test: (C1234 clutch exhausted) Gear Ratio Gear Ratio If the above parameters are true	<= 0.700317383 >= 0.633666992						
							>=	1.1	Fail Timer (Sec)	
							>=	3	Fail Count in 4th Gear or	
			Fell Coast A Charle Charles File Coast				>=	5	Total Fail Counts	
			Fail Case 4 Case: Steady State 5th Gear Max Delta Output Speed	Table Based value Please Refer to 3D						
			Hysteresis	Table 1 in supporting documents Table Based						
			Min Delta Output Speed Hysteresis	value Please Refer to 3D Table 2 in supporting documents						
			If the Above is True for Time	Table Based Time Please Refer to Table 17 in Supporting						
			Intrusive test: (C35R clutch exhausted) Gear Ratio	documents <= 0.700317383						
			Gear Ratio If the above parameters are true	>= 0.633666992						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Thresho Value		Secondary Malfunction		Enable Conditions				ime quired	Mil Illum.
,										>=	1.1	Fail Timer (Sec)	
												Fail Count in	
										>=	3	5th Gear	
												or	
										>=	5	Total Fail Counts	
						PRNDL State defaulted	=	FALSE	Boolean			Courits	-
						inhibit RVT	=	FALSE	Boolean				
						IMS fault pending indication	=	FALSE	Boolean				
						output speed TPS validity flag	>= =	0 TRUE	RPM Boolean				
						HSD Enabled	=	TRUE	Boolean				
						Hydraulic_System_Pressurize	_	TRUE	Boolean				
						d	_	INOL	Doolean				
						A OR B (A) Output speed enable		67	Nm				
						(B) Accelerator Pedal enable	>= >=	0.5004883	Nm				
						Ignition Voltage Lo	>=	8.5996094	Volts				
						Ignition Voltage Hi	<=	31.999023	Volts				
						Engine Speed Lo	>=	400	RPM				
						Engine Speed Hi Engine Speed is within the	<=	7500	RPM				
						allowable limits for	>=	5	Sec				
						if Attained Gear=1st FW	>=	5.0003052	Pct				
						Accelerator Pedal enable	>=	3.0003032	PU				
						if Attained Gear=1st FW	>=	5	Nm				
						Engine Torque Enable if Attained Gear=1st FW							
						Engine Torque Enable	<=	8191.875	Nm				
						Transmission Fluid	>=	-6.65625	°C				
						Temperature							
						Input Speed Sensor fault Output Speed Sensor fault	=	FALSE FALSE	Boolean Boolean				
						Default Gear Option is not	_		Doolean				
						present	=	TRUE					
					Disable	MIL not Illuminated for	TCM: P0716	S P0717 P0722	P0723				
					Conditions:	DTC's:		,, 1 07 17, 1 0722	., 1 0720,				
								1, P0102, P0103 08, P0171, P013					
								06, P0171, P01. 01, P0202, P020					
								06, P0207, P020					
								02, P0303, P030					
							P0306, P030	07, P0308, P040	01, P042E				
			Primary Offgoing Clutch is										One Trip
Variable Blood Colonaid (VBC)	P2724	Pressure Control (PC) Solenoid E	exhausted (See Table 10 in	TOUE 2	مماممه								Sile mp
Variable Bleed Solenoid (VBS)	P2/24	Stuck On (Dynamic)	Supporting Documents for	= TRUE B	oolean								
			Exhaust Delay Timers)	Mandana									
			Primary Oncoming Clutch Pressure Command Status	Maximum pressurized									
			Primary Offgoing Clutch Pressure Command Status	 Clutch exhaust command 									
l			Command Status	Confinaliu			l			l			l

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria		shold Ilue	Secondary Malfunction		Enable Conditions			Tin Requ		II
•		•	Range Shift Status	≠ Initial Clutch									T
			Attained Gear Slip	Control	RPM								
			If the above conditions are true	<= 40	Krivi								
			increment appropriate Fail 1										
			Timers Below:										
			fail timer 1										
			(2-6 shifting with throttle)	>= 0.299804688	sec								
			fail timer 1	. 0.5									
			(2-6 shifting without throttle)	>= 0.5	sec								
			fail timer 1	>= 0.299804688	l sor								
			(3-5 shifting with throttle)	>= 0.27700 1 000	300								
			fail timer 1	>= 0.5	sec								
			(3-5 shifting without throttle)	0.0	500								
			fail timer 1	>= 0.299804688	sec								
			(4-5 shifting with throttle)										
			fail timer 1 (4-5 shifting without throttle)	>= 0.5	sec								
			(4-5 Shifting without throttle)										
			(4-6 shifting with throttle)	>= 0.299804688	sec								
			fail timer 1										1
			(4-6 shifting without throttle)	>= 0.5	sec								
			(· o o many manage another)							_			
											tal Fail Tim		
											Fail 1 + Fa		
											See Enable		
			If Attained Gear Slip is Less than								mers for Fa		
			Above Cal Increment Fail Timers								imer 1, and Reference	sec	1
											Supporting		1
											able 15 for		
											ail Timer 2		
										1	un 1111101 <u>2</u>		
			If fail timer is greater than										
			threshold increment corresponding										
			gear fail counter and total fail										
			counter									Fail Counter	1
			2nd gear fail counter							>=	3	From 2nd Gear	
												FIOIII ZIIU GEAI	
												Fail Counter	
			3rd gear fail counter							>=	3	From 3rd Gear	
													1
			All and a fall and a fall								2	Fail Counter	1
			4th gear fail counter							>=	3	From 4th Gear	
			total fail counter							>=	5	Total Fail	
			total fall Counter			1				ļ	-	Counter	4
						TUT Enable temperature	>=	-6.65625	°C				1
						Input Speed Sensor fault	=	FALSE	Boolean				1
						Output Speed Sensor fault	=	FALSE	Boolean				
						Command / Attained Gear High Side Driver ON	≠	1st TRUE	Boolean				
						output speed limit for TUT	= >=	100	Boolean RPM				
						input speed limit for TUT	>= >=	150	RPM				
						PRNDL state defaulted	=	FALSE	Boolean				1
						IMS Fault Pending	=	FALSE	Boolean				
						Service Fast Learn Mode	=	FALSE	Boolean				
						HSD Enabled	_	TRUE	Boolean				1
				I		1.05 Enabled			200.0011	1			1

Component/ System	Fault Code	Monitor Strategy Description		Malfunction Criteria		Threshold Value	Secondary Malfunction	Enable Conditions		Tir Requ	me uired	Mil Illum.
						Disab Condition		TCM: P0716, P0717, P0722, P0723, P182E ECM: P0101, P0102, P0103, P0106, P0107, P0108, P0171, P0172, P0174, P0175, P0201, P0202, P0203, P0204, P0205, P0206, P0207, P0208, P0300, P0301, P0302, P0303, P0304, P0305, P0306, P0307, P0308, P0401, P042E				
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Steady State)	Fail Case 1	Case: 5th Gear								One Trip
		State of Cataly Cataly		Max Delta Output Speed Hysteresis	Table suppoi docum Table B value P	ease 0 3D rpm/sec 1 in ting ents ased ease						
				Min Delta Output Speed Hysteresis	>= Refer to Table suppoi docum Table B Time Pl Refer to	2 in Thin/sec ting ents ased						
				If the Above is True for Time Intrusive test: (C35R clutch exhausted) Gear Ratio	suppoi docum	ting ents						
				Gear Ratio	>= 1.09436							
				If the above parameters are true					>=	1.1	Fail Timer (Sec)	
									>=	3	Fail Count in 5th Gear OR	
									>=	3	Total Fail Counts	
			Fail Case 2	Case: 6th Gear	Table B value P						Oddina	
				Max Delta Output Speed Hysteresis	>= Refer to Table suppoi docum Table B	o 3D 1 in rpm/sec ting ents ased						
				Min Delta Output Speed Hysteresis	>= value P Refer to Table suppor docum	o 3D 2 in rpm/sec ting						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction		Enable Conditions				ime uired	M Illu
0,000		200011911011		Table Based							,	T
				Time Please								1
		1	If the Above is True for Time	Refer to Table Sec								
			ii the Above is fide for fillie	17 111								
				supporting								
		1		documents								1
		1	Intrusive test:									1
		1	(CB26 clutch exhausted)	<= 1.209594727								
		1	Gear Ratio Gear Ratio	<= 1.209594727 >= 1.094360352								
		1	If the above parameters are true	/- I.U74JUUJJZ								1
		1	ii the above parameters are true								E 11 TI (0.1)	
									>=	1.1	Fail Timer (Sec))
		1							>=	3	Fail Count in	1
		1							-	5	6th Gear	1
		1									OR Tatal Fail	1
									>=	3	Total Fail Counts	
		<u> </u>			PRNDL State defaulted	=	FALSE	Boolean			Courts	1
		1			inhibit RVT	=	FALSE	Boolean				1
		1			IMS fault pending indication	=	FALSE	Boolean				1
		1			output speed	>=	0	RPM				1
					TPS validity flag	=	TRUE	Boolean				1
		1			HSD Enabled	=	TRUE	Boolean				1
		1			Hydraulic_System_Pressurize	=	TRUE	Boolean				1
		1			a A OR B							
		1			(A) Output speed enable	>=	67	Nm				1
		1			(B) Accelerator Pedal enable	>=	0.5004883	Nm				1
					Ignition Voltage Lo	>=	8.5996094	Volts				
					Ignition Voltage Hi	<=	31.999023	Volts				1
					Engine Speed Lo	>=	400	RPM				1
		1			Engine Speed Hi	<=	7500	RPM				1
					Engine Speed is within the	>=	5	Sec				1
					allowable limits for		•					1
		1			if Attained Gear=1st FW Accelerator Pedal enable	>=	5.0003052	Pct				1
		1			if Attained Gear=1st FW							1
					Engine Torque Enable	>=	5	Nm				1
		1			if Attained Gear=1st FW		0101 075	Mer				1
					Engine Torque Enable	<=	8191.875	Nm				1
					Transmission Fluid	>=	-6.65625	°C				1
					Temperature							1
					Input Speed Sensor fault	=	FALSE	Boolean				1
					Output Speed Sensor fault	=	FALSE	Boolean				1
					Default Gear Option is not	=	TRUE					
					present							

			•					
Component/	Fault	Monitor Strategy	Malfunction	Threshold	Secondary Malfunction	Enable	Time	Mil
System	Code	Description	Criteria	Value	Waitunction	Conditions	Required	Illum.
				Disable	MIL not Illuminated for	TCM: P0716, P0717, P0722, P0723,		T
				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,		
				1		P0306, P0307, P0308, P0401, P042E		'
								'

Table 1

Axis	0.00	64.00	128.00	192.00	256.00	320.00	384.00	448.00	512.00	N*m
Curve	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	50.00	RPM

Table 2

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

Table 3

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

Table 4

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

Table 5

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

Table 6

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

Table 7

Axis	-6.67	-6.66	40.00	80.00	120.00	°С
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	٥С
Curve	409.00	3.30	1.30	1.20	1.10	Sec

Table 10

Axis	-6.67	-6.66	40.00	80.00	120.00	٥С
Curve	3.03	1.86	1.00	0.75	0.58	Sec

Table 11

Axis	-6.67	-6.66	40.00	80.00	120.00	٥С
Curve	1.72	1.11	0.60	0.36	0.22	Sec

Table 12

Axis	-6.67	-6.66	40.00	80.00	120.00	٥С
Curve	2.12	1.39	0.84	0.64	0.33	Sec

Table 13

Axis	-6.67	-6.66	40.00	80.00	120.00	٥С
Curve	2.51	0.95	0.50	0.29	0.13	Sec

Table 14

Axis	-6.67	-6.66	40.00	80.00	120.00 °C	2
Curve	2.97	0.82	0.47	0.20	0.13 S	ec

Table 15

Axis	-40.00	-30.00	-20.00	-10.00	0.00	10.00	20.00	30.00	40.00	٥С
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	٥С

Cumia	409.59	2.50	2.50	000
Curve	409.59	2.50	2.50	360

<u>Table 17</u>

Axis	-6.67	-6.66	40.00	٥С
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	٥С
Curve	256.00	50.00	45.00	40.00	34.00	25.00	20.00	20.00	256.00	٥С

<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

Table 20

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

Table 21

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

17 OBDG03 TCM (6 Speed Van Unique) Summary Tables

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value		Secondary Malfunction		Enable Conditions			Tir Requ		Mil Illum.
Transmission Control Module (TCM)	C1251	The lateral accleration signal is stuck at a high magnitude in range	Lateral accleration magnitude Lateral accleration magnitude Lateral accleration magnitude is within the range above for	<= 3.849999905 g's >= 0.529999971 g's >= 75 Sec									Special No MIL
						Lateral accleration magnitude Lateral accleration magnitude is Lateral accleration magnitude is within the range above for Diagnostic shifting override	>= >=	3.8499999 0.53 60	g's g's Sec				
						command Attained Gear State	=	FALSE 1st through 6th	Boolean				
						Attained Gear Slip	<=	100 Clutch to	RPM				
						Transmission Type	=	Clutch Transmissi on					
						High Side Driver 1 On Vehicle Speed Lateral acceleration stuck in	= >= =	TRUE 15 1	Boolean kph Boolean				
						range diagnostic enable Battery Voltage Battery Voltage Battery voltage is within the	<= >=	31.999023 9	Volts Volts				
						allowable limits for Ignition Voltage Ignition Voltage	>= <= >=	0.1 31.999023 9	Sec Volts Volts				
						Service Fast Learn (SFL) Mode Ignition voltage and SFL	=	FALSE	Boolean				
						conditions met for	>=	0.1	Sec				
				С	Disable Conditions:	MIL not Illuminated for DTC's:	(P0716, P07	17, P0721, P072 C0, P077B, P073	2, P0723,				
							ECM: None						
Mode Switch	P071A	Transmission Mode Switch A Circuit	Tow Haul Mode Switch state	= TRUE Boolea	an	Ignition Voltage La		8.5996094	Volte	>=	600	Fail Time (Sec)	Special No MIL
						Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the	>= <= >= <=	31.999023 400 7500	Volts Volts RPM RPM				
						allowable limits for	>=	5	Sec				

17 OBDG03 TCM (6 Speed Van Unique) Summary Tables

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Malfunction	Enabl Conditi				ime Juired	Mil Illum.
				Disable Conditions:		TCM: P1762 ECM: None					
Mode Switch	P1762	Transmission Mode Switch Signal Circuit (rolling count)	Rolling count value received from BCM does not match expected value					>=	3	Fail Counter	Special No MIL
								>	10	Sample Timer (Sec)	
					Pattern Switch Message Health	= TRU	Boolean				
					Engine Speed Lo Engine Speed Hi Engine Speed is within the	<= 750) RPM				
					allowable limits for	>= 5	Sec				
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: None ECM: None					
						LOWI. NOTIC					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
System Voltage Performance	P0561	Detects a low performing 12V battery system. This	Run Crank voltage low and high	ABS(Battery voltage - Run Crank voltage) > 3.00	Battery voltage B+ line present = TRUE	1.00	40 failures out of 50 samples	Type A, 1 Trips
		diagnostic reports the DTC when the absolute value of the difference			Battery voltage low and high diag enable = TRUE	1.00	100 ms / sample	
		between the battery voltage and the run/ crank voltage exceeds a calibrated value.			Run Crank voltage	Voltage ≥ 5.00 volts		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Ignition Switch Run/ Start Position Circuit Low	P2534	Detects a low ignition switch run/start position curcuit. This diagnostic reports the DTC when this circut is low. Monitoring occurs when the ECM run/crank is active.	position circuit low	Run / Crank = FALSE	Ignition switch Run/Start position circuit low diag enable and Run / Crank active ECM	= 1.00 = TRUE	280 failures out of 280 samples 25 ms / sample	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Ignition Switch Run/ Start Position Circuit High	P2535	Detects a high ignition switch run/start position curcuit. This diagnostic reports the DTC when this circut is high. Monitoring occurs when the ECM run/crank is NOT active.	position circuit high	Run / Crank = TRUE	Ignition switch Run/Start position circuit low diag enable and Run / Crank active ECM	= 1.00 = FALSE	280 failures out of 280 samples 25 ms / sample	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Communicati on Bus A Off	U0073	This DTC monitors for a BUS A off condition	Bus off failures exceeds before the sample time of is reached	5 counts (equivalent to 0.06 seconds) 0.81 seconds	General Enable Criteria: U0073 Normal CAN transmission on Bus A Device Control High Voltage Virtual Network Management Ignition Voltage Criteria: Run/Crank Ignition voltage Power Mode Off Cycle Enable Criteria: KeCAND_b_OffKeyCycle DiagEnbl Ignition Accessory Line and Battery Voltage General Enable Criteria and either Ignition Voltage Criteria or Off Cycle Enable Criteria met for > 5.0000 seconds CAN hardware is bus OFF for	Not Active on Current Key Cycle Enabled Not Active Not Active > 6.41 Volts = run = 1 (1 indicates enabled) = Active > 11.00 Volts	Diagnostic runs in 12.5 ms loop	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lost Communicati on With ECM	U0100	This DTC monitors for a loss of communication with the engine control module	Message is not received from controller for Message \$0BE Message \$0C9 Message \$18E Message \$1A1 Message \$1A3 Message \$1AA	≥ 0.50 seconds ≥ 12.00 seconds ≥ 0.50 seconds ≥ 12.00 seconds ≥ 12.00 seconds ≥ 12.00 seconds	General Enable Criteria: U0073 Normal CAN transmission on Bus A Device Control High Voltage Virtual Network Management Ignition Voltage Criteria: Run/Crank Ignition	Not Active on Current Key Cycle Enabled Not Active Not Active > 6.41 Volts	Diagnostic runs in 12.5 ms loop	Type A, 1 Trips
			Message \$1BA ≥ 0.50 seconds voltage Message \$287 ≥ 0.50 seconds Power Mode = rule Message \$3D1 ≥ 12.00 seconds Off Cycle Enable Criteria: Message \$3E9 ≥ 12.00 seconds	= run				
			Message \$4C1 Message \$4C7 Message \$4D1	≥ 12.00 seconds ≥ 12.00 seconds ≥ 12.00 seconds	KeCAND_b_OffKeyCycle DiagEnbl Ignition Accessory Line and Battery Voltage	= 1 (1 indicates enabled) = Active > 11.00 Volts		
		Message \$4F1 Message \$589	≥ 12.00 seconds ≥ 12.00 seconds	General Enable Criteria and either Ignition Voltage Criteria or Off Cycle Enable Criteria met for > 5.0000 seconds Power Mode is in accessory or run or crank and High Voltage Virtual Network Management is				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					not active for	> 0.4000 seconds		
					U0100	Not Active on Current Key Cycle		
					ECM	is present on the bus		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lateral Acceleration Sensor Circuit Low	C124F	Controller specific analog circuit diagnoses the raw lateral acceleration signal for a short to ground or open fault by comparing raw signal value to fail thresholds.	raw lateral acceleration signal when sensor type is directly proportional OR raw lateral acceleration signal when sensor type is inversely proportional update raw lateral acceleration signal stability time, fail and sample time, 50 millisecond update rate	≤ -3.8500 g ≥ -3.8500 g (≤ 0.5 Ω impedance between signal and controller ground)	battery voltage run crank voltage diagnostic monitor enable sensor type is either directly proportional or inversely proportional U0073 fault active U0073 test fail this key on	≥ 11.00 volts ≥ 11.00 volts = 1 Boolean = CeLATR_e_VoltageDirec tProp = FALSE = FALSE	raw lateral acceleration signal stability time ≥ 30.0 seconds, fail time ≥ 75.0 seconds out of sample time ≥ 120.0 seconds, 50 millisecond update rate	Special Type C

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lateral Acceleration Sensor Circuit High	C1250	Controller specific analog circuit diagnoses the raw lateral acceleration signal for a short to power or open fault by comparing raw signal value to fail thresholds.	raw lateral acceleration signal when sensor type is directly proportional OR raw lateral acceleration signal when sensor type is inversely proportional update raw lateral acceleration signal stability time, fail and sample time, 50 millisecond update rate	≥ 3.8500 g ≤ 3.8500 g (≤ 0.5 Ω impedance between signal and controller power)	battery voltage run crank voltage diagnostic monitor enable sensor type is either directly proportional or inversely proportional U0073 fault active U0073 test fail this key on	≥ 11.00 volts ≥ 11.00 volts = 1 Boolean = CeLATR_e_VoltageDirec tProp = FALSE = FALSE	raw lateral acceleration signal stability time ≥ 30.0 seconds, fail time ≥ 75.0 seconds out of sample time ≥ 120.0 seconds, 50 millisecond update rate	Special Type C

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Lateral Acceleration Sensor Performance	C1251	Controller specific analog circuit diagnoses the raw lateral acceleration signal for a signal value that is stuck in a valid range by comparing raw signal value to fail thresholds.	ABS(raw lateral acceleration signal) AND ABS(raw lateral acceleration signal) update raw lateral acceleration signal fail, 50 millisecond update rate	≥ 0.5300 g ≤ 3.8500 g	battery voltage run crank voltage diagnostic monitor enable update raw lateral acceleration signal stablity time: TOSS vehicle speed automatic transmission is clutch to clutch OR dual clutch high side drive 1 enable high side drive 2 enable diagnsotic fault sequence gear active P0716 fault active P0716 fault active P0717 fault active P0717 test fail this key on P07BF fault active P07BF test fail this key on P07C0 fault active P07C0test fail this key on attained gear attained gear slip ABS(raw lateral acceleration signal) update sample time U0073 fault active U0073 test fail this key on DTCs not fault active	≥ 11.00 volts ≥ 11.00 volts = 1 Boolean ≥ 15.0 KPH = TRUE = TRUE = TRUE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = SALSE = SALSE = SALSE = SALSE = SALSE = FALSE = SALSE	raw lateral acceleration signal stability time ≥ 30.0 seconds, fail time ≥ 75.0 seconds out of sample time ≥ 120.0 seconds, 50 millisecond update rate	Special Type C

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Longitudinal Acceleration Sensor Circuit Low	C1252	Controller specific analog circuit diagnoses the raw longitudinal acceleration signal for a short to ground or open fault by comparing raw signal value to fail thresholds.	raw longitudinal acceleration signal when sensor type is directly proportional OR raw longitudinal acceleration signal when sensor type is inversely proportional update raw longitudinal acceleration signal stability time, fail and sample time, 50 millisecond update rate	≤ -3.8500 g ≥ -3.8500 g (≤ 0.5 Ω impedance between signal and controller ground)	battery voltage run crank voltage diagnostic monitor enable sensor type is either directly proportional or inversely proportional U0073 fault active U0073 test fail this key on	≥ 11.00 volts ≥ 11.00 volts = 1 Boolean = CeLATR_e_VoltageDirec tProp = FALSE = FALSE	raw longitudinal acceleration signal stability time ≥ 30.0 seconds, fail time ≥ 75.0 seconds out of sample time ≥ 120.0 seconds, 50 millisecond update rate	Special Type C

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Longitudinal Acceleration Sensor Circuit High	C1253	Controller specific analog circuit diagnoses the raw longitudinal acceleration signal for a short to power or open fault by comparing raw signal value to fail thresholds.	raw longitudinal acceleration signal when sensor type is directly proportional OR raw longitudinal acceleration signal when sensor type is inversely proportional update raw longitudinal acceleration signal stability time, fail and sample time, 50 millisecond update rate	≥ 3.8500 g ≤ 3.8500 g (≤ 0.5 Ω impedance between signal and controller power)	battery voltage run crank voltage diagnostic monitor enable sensor type is either directly proportional or inversely proportional U0073 fault active U0073 test fail this key on	≥ 11.00 volts ≥ 11.00 volts = 1 Boolean = CeLATR_e_VoltageDirec tProp = FALSE = FALSE	raw longitudinal acceleration signal stability time ≥ 30.0 seconds, fail time ≥ 75.0 seconds out of sample time ≥ 120.0 seconds, 50 millisecond update rate	Special Type C

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
Longitudinal Acceleration Sensor Performance	C1254	Controller specific analog circuit diagnoses the raw longitudinal acceleration signal rationalized against the TOSS vehicle speed acceleration. The diagnostic monitor can be designed to detect an invalid longitudinal acceleration signal based on the TOSS vehicle speed windows and TOSS vehicle speed windows and TOSS vehicle speed acceleration, 4 windows can be enabled. The delta between the TOSS vehicle speed acceleration and longitudinal acceleration signal is taken within each window to verify the delta is small, no failure indicated, or the delta is large indicating the longitudinal acceleration signal is in error.	ABS(TOSS vehicle speed acceleration - raw longitudinal acceleration signal) update raw longitudinal acceleration signal region 4 fail time, 50 millisecond update rate	≥ 0.0000 g	battery voltage run crank voltage diagnostic monitor enable region 3 specific enable update raw lateral longitudinal acceleration signal stablity time: TOSS vehicle speed TOSS vehicle speed acceleration automatic transmission is clutch to clutch OR dual clutch high side drive 1 enable high side drive 2 enable diagnsotic fault sequence gear active P0716 fault active P0716 fault active P0717 fault active P0717 fault active P0718 fault active P078F fault active P07C0 fault active P07C0 fault active P07C0 fault active P07C0 fault active P07C0 fault active P07C0 fault active P07C0 fault active P07C1 fault active P07C1 fault active P07C2 fault active P07C3 fault active P07C3 fault active P07C3 fault active P07C4 fault active P07C6 fault active P07C6 fault active P07C7 fault active P07C7 fault active P07C8 fail this key on attained gear attained gear slip ABS(raw longitudinal acceleration signal) AND ABS(raw longitudinal acceleration signal)	≥ 11.00 volts ≥ 11.00 volts = 1 Boolean = 0 Boolean ≥ 15.0 KPH ≤ 0.5300 g = TRUE = TRUE = TRUE = TRUE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = SALSE = FALSE = SALSE raw lateral longitudinal acceleration signal stability time ≥ 30.0 seconds, fail time ≥ 75.0 seconds out of sample time ≥ 120.0 seconds, 50 millisecond update rate	Special Type C	
					update region 4 sample time: brake pedal position engine torque TOSS vehicle speed acceleration TOSS vehicle speed TOSS vehicle speed	≤ 0.70 % ≤ 80.0 Nm ≤ 0.1500 g ≥ 0.0 KPH ≤ 0.0 KPH	region 4 fail time ≥ 75.0 seconds out of region 4 sample time ≥ 120.0 seconds, 50 millisecond update rate	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					ABS(raw longitudinal acceleration signal) update sample time	< 0.5300 g		
					U0073 fault active U0073 test fail this key on DTCs not fault active	= FALSE = FALSE VehicleSpeedSensor_FA VehicleSpeedSensorError		
			ABS(TOSS vehicle speed acceleration - raw longitudinal acceleration signal) update raw longitudinal acceleration signal region 3 fail time, 50 millisecond update rate	≥ 0.0000 g	battery voltage run crank voltage diagnostic monitor enable region 3 specific enable update raw lateral longitudinal acceleration signal stablity time: TOSS vehicle speed TOSS vehicle speed acceleration automatic transmission is clutch to clutch OR dual clutch high side drive 1 enable high side drive 2 enable diagnsotic fault sequence gear active P0716 fault active P0716 test fail this key on P0717 fault active P0717 test fail this key on P07BF test fail this key on P07C0 fault active P07C0test fail this key on attained gear attained gear slip	≥ 11.00 volts ≥ 11.00 volts = 1 Boolean = 0 Boolean ≥ 15.0 KPH ≤ 0.5300 g = TRUE = TRUE = TRUE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE	raw lateral longitudinal acceleration signal stability time ≥ 30.0 seconds, fail time ≥ 75.0 seconds out of sample time ≥ 120.0 seconds, 50 millisecond update rate	
					ABS(raw longitudinal acceleration signal) AND ABS(raw longitudinal	≥ 0.5300 g ≤ 3.8500 g		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					acceleration signal) update region 3 sample time: brake pedal position engine torque ABS(TOSS vehicle speed acceleration) TOSS vehicle speed ABS(raw longitudinal acceleration signal) update sample time U0073 fault active U0073 test fail this key on DTCs not fault active	≤ 0.70 % ≥ 80.0 Nm ≤ 0.1000 g ≥ 0.0 KPH < 0.5300 g = FALSE = FALSE VehicleSpeedSensor_FA VehicleSpeedSensorError	region 3 fail time ≥ 75.0 seconds out of region 3 sample time ≥ 120.0 seconds, 50 millisecond update rate	
			ABS(TOSS vehicle speed acceleration - raw longitudinal acceleration signal) update raw longitudinal acceleration signal region 2 fail time, 50 millisecond update rate	≥ 0.0000 g	battery voltage run crank voltage diagnostic monitor enable region 2 specific enable update raw lateral longitudinal acceleration signal stablity time: TOSS vehicle speed TOSS vehicle speed acceleration automatic transmission is clutch to clutch OR dual clutch high side drive 1 enable high side drive 2 enable diagnsotic fault sequence gear active P0716 fault active P0717 test fail this key on P07BF fault active	≥ 11.00 volts ≥ 11.00 volts = 1 Boolean = 0 Boolean ≥ 15.0 KPH ≤ 0.5300 g = TRUE = TRUE = TRUE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE	raw lateral longitudinal acceleration signal stability time ≥ 30.0 seconds, fail time ≥ 75.0 seconds out of sample time ≥ 120.0 seconds, 50 millisecond update rate	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P07BF test fail this key on P07C0 fault active P07C0test fail this key on attained gear attained gear slip ABS(raw longitudinal acceleration signal) AND ABS(raw longitudinal acceleration signal) update region 2 sample time: brake pedal position engine torque TOSS vehicle speed acceleration TOSS vehicle speed TOSS vehicle speed ABS(raw longitudinal acceleration signal) update sample time	= FALSE = FALSE = FALSE = 1st thru 10th ≤ 100.0 RPM ≥ 0.5300 g ≤ 3.8500 g ≤ 3.8500 g ≤ 0.70 % ≥ 80.0 Nm ≥ 0.1500 g ≥ 0.0 KPH < 0.5300 g = FALSE = FALSE VehicleSpeedSensor_FA VehicleSpeedSensorError	region 2 fail time ≥ 75.0 seconds out of region 2 sample time ≥ 120.0 seconds, 50 millisecond update rate	
			ABS(TOSS vehicle speed acceleration - raw longitudinal acceleration signal) update raw longitudinal acceleration signal region 1 fail time, 50 millisecond update rate	≥ 0.5300 g	battery voltage run crank voltage diagnostic monitor enable region 1 specific enable update raw lateral longitudinal acceleration signal stablity time: TOSS vehicle speed TOSS vehicle speed acceleration automatic transmission is clutch to clutch OR dual	≥ 11.00 volts ≥ 11.00 volts = 1 Boolean = 0 Boolean ≥ 15.0 KPH ≤ 0.5300 g = TRUE	raw lateral longitudinal acceleration signal stability time ≥ 30.0 seconds, fail time ≥ 75.0 seconds out of sample time ≥ 120.0 seconds, 50 millisecond update rate	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					clutch high side drive 1 enable high side drive 2 enable diagnsotic fault sequence gear active P0716 fault active P0716 test fail this key on P0717 fault active P0717 test fail this key on P07BF fault active P07BF test fail this key on P07C0 fault active P07C0test fail this key on attained gear attained gear slip ABS(raw longitudinal acceleration signal) AND ABS(raw longitudinal acceleration signal)	= TRUE = TRUE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = 1st thru 10th ≤ 100.0 RPM ≥ 0.5300 g		
					update region 1 sample time: brake pedal position engine torque TOSS vehicle speed acceleration TOSS vehicle speed TOSS vehicle speed ABS(raw longitudinal acceleration signal) update sample time U0073 fault active U0073 test fail this key on DTCs not fault active	≤ 0.70 % ≥ 80.0 Nm ≥ 0.1500 g ≥ 15.0 KPH ≤ 200.0 KPH < 0.5300 g = FALSE = FALSE VehicleSpeedSensor_FA VehicleSpeedSensorError	region 1 fail time ≥ 75.0 seconds out of region 1 sample time ≥ 120.0 seconds, 50 millisecond update rate	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Read Only Memory (ROM)	P0601	This DTC will be stored if the calibration check sum is incorrect or the flash memory detects an uncorrectable error via the Error Correcting Code.	The Primary Processor's calculated checksum does not match the stored checksum value. Covers all software and calibrations.	1 failure if the fault is detected during the first pass. 5.00 failures if the fault occurs after the first pass is complete.			Diagnostic runs continuously in the background.	Type A, 1 Trips
			The Primary Processor's Error Correcting Code hardware in the flash memory detects an error. Covers all software and calibrations.	254 failures detected via Error Correcting Code			Diagnostic runs continuously via the flash hardware.	
			The Primary Processor's calculated checksum does not match the stored checksum value for a selected subset of the calibrations.	2 consecutive failures detected or 5 total failures detected.			Diagnostic runs continuously. Will report a detected fault within 200 ms.	
			The Secondary Processor's calculated checksum does not match the stored checksum value. Covers all software and calibrations.	1 failure if the fault is detected during the first pass. 5 failures if the fault occurs after the first pass is complete.			Diagnostic runs continuously in the background.	
				In all cases, the failure count is cleared when controller shuts down				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
TCM Long Term Memory Reset	P0603	This DTC detects an invalid NVM which includes a Static NVM,	Static NVM region error detected during initialization				Diagnostic runs at controller power up.	Type A, 1 Trips
		Region, and Perserved NVM during shut down.	Perserved NVM region error detected during initialization				Diagnostic runs at controller power up.	
			ECC ROM fault detected in NVM Flash region ECC ROM Error Count >	3			Diagnostic runs at controller power up.	
			Perserved NVM region error detected during shut down.				Diagnostic runs at controller power down.	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
TCM RAM Failure	P0604	has detected a RAM fault. This includes Primary Processor System RAM Fault, Primary Processor Cache RAM Fault, Primary Processor TPU RAM Fault, Primary Processor Update Dual Store RAM Fault, Primary Processor Write Protected RAM Fault, and Secondary Processor RAM Fault. This diagnostic runs continuously.	Indicates that the primary processor is unable to correctly read data from or write data to system RAM. Detects data read does not match data written >=	254 counts			Will finish first memory scan within 30 seconds at all engine conditions - diagnostic runs continuously (background loop)	Type A, 1 Trips
			Indicates that the primary processor is unable to correctly read data from or write data to cached RAM. Detects data read does not match data written >=	3 counts			Will finish first memory scan within 30 seconds at all engine conditions - diagnostic runs continuously (background loop)	
			Indicates that the primary processor is unable to correctly read data from or write data to TPU RAM. Detects data read does not match data written >=	5 counts			Will finish first memory scan within 30 seconds at all engine conditions - diagnostic runs continuously (background loop)	
			Indicates that the primary processor detects a mismatch between the data and dual data is found during RAM updates. Detects a mismatch in data and dual data updates >	400.00 s			When dual store updates occur.	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Indicates that the primary processor detects an illegal write attempt to protected RAM. Number of illegal writes are >	65,534 counts			Diagnostic runs continuously (background loop)	
			Indicates that the secondary processor is unable to correctly read data from or write data to system RAM. Detects data read does not match data written >=	5 counts			Will finish first memory scan within 30 seconds at all engine conditions - diagnostic runs continuously (background loop)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Internal TCM Processor Integrity Fault	rocessor has detected an internal processor	Loss or invalid message of SPI communication from the Secondary Processor at initialization detected by the Primary Processor or loss or invalid message of SPI communication from the Secondary Processor after a valid message was received by the Primary Processor	Loss or invalid message at initialization detected or loss or invalid message after a valid message was recieved		Run/Crank voltage >= 8.00 or Run/Crank voltage >= 11.00 , else the failure will be reported for all conditions	In the primary processor, 159 / 399 counts intermittent or 39 counts continuous; 39 counts continuous @ initialization. 12.5 ms /count in the TCM main processor	Type A, 1 Trips	
		Loss or invalid message of SPI communication from the Primary Processor at initialization detected by the Secondary Processor or loss or invalid message of SPI communication from the Primary Processor after a valid message was received by the Secondary Processor	Loss or invalid message at initialization detected or loss or invalid message after a valid message was recieved			In the secondary processor, 64/161 counts intermittent or 0.1875 s continuous; 0.4875 s continuous @ initialization. 12.5 ms/count in the TCM secondary processor		
		Checks for stack over or underflow in secondary processor by looking for corruption of known pattern at stack boundaries. Checks number of stack over/ under flow since last powerup reset >=	5		KeMEMD_b_StackLimitTe stEnbl == 1 Value of KeMEMD_b_StackLimitTe stEnbl is: 1 . (If 0, this test is disabled)	variable, depends on length of time to corrupt stack		
		N b si w	MAIN processor is verified by responding to a seed sent from the secondary with a key response to secondary. Checks number of incorrect keys	2 incorrect seeds within 8 messages, 0.2000 seconds		ignition in Run or Crank	150 ms for one seed continually failing	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			received > or Secondary processor has not received a new within time limit					
			Time new seed not received exceeded			always running	0.450 seconds	
			MAIN processor receives seed in wrong order			always running	3 / 17 counts intermittent. 50 ms/count in the TCM main processor	
			2 fails in a row in the Secondary processor's ALU check			KePISD_b_ALU_TestEnbl d == 1 Value of KePISD_b_ALU_TestEnbl d is: 1. (If 0, this test is disabled)	25 ms	
			2 fails in a row in the Secondary processor's configuration register masks versus known good data			KePISD_b_ConfigRegTes tEnbId == 1 Value of KePISD_b_ConfigRegTes tEnbId is: 1. (If 0, this test is disabled)	12.5 to 25 ms	
			Secondary processor detects an error in the toggling of a hardware discrete line controlled by the MAIN processor: number of discrete changes > = or < = over time window(50ms)	7 17		KePISD_b_MainCPU_SO H_FItEnbld == 1 Value of KePISD_b_MainCPU_SO H_FItEnbld is: 1 . (If 0, this test is disabled) time from initialization >= 0.5000 seconds	50 ms	
			Software background task first pass time to complete exceeds			Run/Crank voltage > 6.41	35.000 seconds	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			2 fails in a row in the MAIN processor's ALU check			KePISD_b_ALU_TestEnbl d == 1 Value of KePISD_b_ALU_TestEnbl d is: 1. (If 0, this test is disabled)	25 ms	
			2 fails in a row in the MAIN processor's configuration register masks versus known good data			KePISD_b_ConfigRegTes tEnbId == 1 Value of KePISD_b_ConfigRegTes tEnbId is: 1. (If 0, this test is disabled)	12.5 to 25 ms	
			Checks number of stack over/under flow since last powerup reset >=	5		KeMEMD_b_StackLimitTe stEnbl == 1 Value of KeMEMD_b_StackLimitTe stEnbl is: 1. . (If 0, this test is disabled)	variable, depends on length of time to corrupt stack	
			Voltage deviation >	9.00		KePISD_b_A2D_CnvrtrTe stEnbld == 1 Value of KePISD_b_A2D_CnvrtrTe stEnbld is: 1. (If 0, this test is disabled)	5 / 10 counts or 0.150 seconds continuous; 50 ms/count in the TCM main processor	
			Checks for ECC (error correcting code) circuit test errors reported by the hardware for flash memory. Increments counter during controller initialization if ECC error occured since last controller initialization. Counter >=	3 (results in MIL), 5 (results in MIL and remedial action)		KeMEMD_b_FlashECC_ CktTestEnbl == 1 Value of KeMEMD_b_FlashECC_ CktTestEnbl is: 1. (If 0, this test is disabled)	variable, depends on length of time to access flash with corrupted memory	
			Checks for ECC (error	3 (results in MIL),		KeMEMD_b_RAM_ECC_	variable,	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			correcting code) circuit test errors reported by the hardware for RAM memory circuit. Increments counter during controller initialization if ECC error occured since last controller initialization. Counter >=	5 (results in MIL and remedial action)		CktTestEnbl == 1 Value of KeMEMD_b_RAM_ECC_ CktTestEnbl is: 1. (If 0, this test is disabled)	depends on length of time to write flash to RAMvariable, depends on length of time to write flash to RAM	
			MAIN processor DMA transfer from Flash to RAM has 1 failure			Enbld == 1 Value of	variable, depends on length of time to write flash to RAM	
			Safety critical software is not executed in proper order.	>= 1 incorrect sequence.		Table, f(Core, Loop Time). See supporting tables: P0606_Program Sequence Watch Enable f(Core, Loop Time) (If 0, this Loop Time test is disabled)	Fail Table, f(Loop Time). See supporting tables: P0606_PSW Sequence Fail f (Loop Time)	
							Sample Table, f (Loop Time)See supporting tables: P0606_PSW Sequence Sample f(Loop Time)	
							counts	
							50 ms/count in the TCM main processor	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			MAIN processor determines a seed has not changed within a specified time period within the 50ms task.	Previous seed value equals current seed value.		KePISD_b_SeedUpdKey StorFItEnbl == 1 Value of KePISD_b_SeedUpdKey StorFItEnbl is: 1. (If 0, this test is disabled)	Table, f(Loop Time). See supporting tables: P0606_Last Seed Timeout f (Loop Time)	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Internal Control	P062F	This DTC detects a NVM long term performance. There are	HWIO reports that writing to NVM (at shutdown) will not succeed				Diagnostic runs at controller power up.	Type A, 1 Trips
Module EEPROM Error		two types of diagnostics that run during controller power up. One for HWIO reports that writing to NVM (at shutdown) will not succeed, and the other HWIO reports the assembly calibration integrity check has failed.	HWIO reports the assembly calibration integrity check has failed				Diagnostic runs at controller power up.	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Actuator Supply Voltage Circuit Low	P0658	Controller specific output driver circuit diagnoses the high sided driver circuit for a short to ground failure when the output is powered on by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range during driver on state indicates short to ground failure. Controller specific output driver circuit voltage thresholds are set to meet the following controller specification for a short to ground.	≤ 0.5 Ω impedance between signal and controller ground	diagnostic monitor enable high side drive ON service mode \$04 not active service fast learn not active P0658 fault active P0658 test fail this key on	= 1 Boolean = TRUE = FALSE = FALSE	fail count ≥ 6 counts out of sample count ≥ 2,395 counts 6.25 millisecond update rate	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Range (TR) Switch Circuit Low Voltage	P0707	Diagnoses the internal range sensor circuit A and wiring for a ground short circuit fault using controller specific PWM duty cycle measurement thresholds.	when PWM sensor type and PWM voltage direct conditional internal range sensor A PWM duty cycle when PWM sensor type and PWM voltage inverse conditional internal range sensor A PWM duty cycle Increment fail and sample time, update rate 25 milliseconds Controller specific PWM duty cycle thresholds are set to meet the following controller specification for a short to ground.	≤ 9.998 % duty cycle ≥ 9.998 % duty cycle ≤ 0.5 Ω impedance between signal and controller ground	diagnostic monitor enable battery voltage when sensor type is PWM duty cycle direct or inverse conditional for fail threshold is used conditional type check calibration	= 1 Boolean ≥ 9.00 volts = CeTRGD_e_VoltDirctPro p	fail time ≥ 1.000 seconds out of sample time ≥ 1.500 seconds battery voltage time ≥ 1.000 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Range (TR) Switch Circuit High Voltage	P0708	Diagnoses the internal range sensor circuit A and wiring for a short to voltage circuit fault using controller specific PWM duty cycle measurement thresholds.	when PWM sensor type and PWM voltage direct conditional internal range sensor A PWM duty cycle when PWM sensor type and PWM voltage inverse conditional internal range sensor A PWM duty cycle Increment fail and sample time, update rate 25 milliseconds Controller specific PWM duty cycle thresholds are set to meet the following controller specification for a short to power.	≥ 91.998 % duty cycle ≤ 91.998 % duty cycle ≤ 0.5 Ω impedance between signal and controller power	diagnostic monitor enable battery voltage when sensor type is PWM duty cycle direct or inverse conditional for fail threshold is used conditional type check calibration	= 1 Boolean ≥ 9.00 volts = CeTRGD_e_VoltDirctPro p	fail time ≥ 1.000 seconds out of sample time ≥ 1.500 seconds battery voltage time ≥ 1.000 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Fluid Temperature (TFT) Sensor Performance	P0711	The diagnostic monitor will verify the time to transmission fluid temperature warm up based on the raw transmissin fluid temperature sesnor, any intermittent signal that causes multiple unrealistic delta changes (intermittent faults) based on the raw transmissin fluid temperature sesnor, and, raw transmissin	raw transmission fluid temperature and the transmission fluid temperature warm up time has elapsed	≤ 15.0 °C	diagnsotic monitor enable P0712 NOT fault active P0713 NOT fault active battery voltage	= 1 Boolean ≥ 9.00 volts	transmission fluid temperature warm up time ≥ transmission fluid temperature warm up time seconds battery voltage time ≥ 0.100 seconds	Type B, 2 Trips
		fluid temperature sesnor signal stuck in valid range.			run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
					warm up test enable TFT rationality diagnostic monitor enabled	= 1 Boolean = VeTFSR_b_TFT_RatlEnbl		
					driver accelerator pdeal position engine torque engine speed vehicle speed engine coolant temperature engine coolant temperature raw transmission fluid temperature raw transmission fluid temperature	≥ 5.0 % ≥ 50.0 Nm ≥ 500.0 RPM ≥ 10.0 KPH ≥ -40.0 °C ≤ 150.0 °C ≤ 150.0 °C < 150.0 °C		
					P2818 fault active P2818 test fail this key on DTCs not fault active	= FALSE = FALSE		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
						EngineTorqueEstInaccura te AcceleratorPedalFailure CrankSensor_FA ECT_Sensor_FA VehicleSpeedSensor_FA		
			current transmission fluid temperature string length = previous transmission fluid temperature transmission temperature string length + (raw transmission fluid temperature - previous raw transmission fluid temperature, update rate 100 milliseconds, increment sample count	≥ 80.0 °C			sample count ≥ 10 counts evaluate fail temperature threshold, 100 millisecond update rate, if transmission fluid temperature string length above fail threshold increment fail time fail time ≥ 8.0 seconds out of sample time ≥ 12.0 seconds	
					diagnsotic monitor enable P0712 NOT fault active P0713 NOT fault active	= 1 Boolean		
					battery voltage	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
					run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
					intermittent test enable propulsion system active	= 1 Boolean = TRUE		
			raw transmission fluid temperature previous	≤ 0.0000 °C			fail time ≥ 300.0	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			raw transmission fluid temperature, update rate 100 milliseconds, update fail time		diagnsotic monitor enable P0712 NOT fault active P0713 NOT fault active battery voltage	= 1 Boolean ≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
					run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
					stuck in range test enable propulsion system active raw transmission fluid temperature raw transmission fluid temperature	= 1 Boolean = TRUE ≥ -40.0 °C ≤ 150.0 °C		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Fluid Temperature Sensor Circuit Low Voltage	P0712	Controller specific analog circuit diagnoses the transmission fluid temperature sensor and wiring for a short to ground fault by comparing a voltage measurement to controller specific voltage thresholds, converted to a resistance value.	circuit resistance update fail time 1 seconds update rate	≤ 47.450 Ω	diagnostic monitor enable battery voltage run crank voltage run crank voltage in range time	= 1 Boolean ≥ 9.00 volts ≥ 9.00 volts	fail time ≥ 10.00 seconds out of sample time ≥ 12.00 seconds 1 seconds update rate battery voltage in range time ≥ 0.100 seconds run crank voltage in range time ≥ 0.100 seconds	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Fluid Temperature Sensor Circuit Low Voltage	P0713	Controller specific analog circuit diagnoses the transmission fluid temperature sensor and wiring for an open circuit or short to voltage failure by comparing a voltage measurement to controller specific voltage thresholds, converted to a resistance value.	circuit resistance update fail time 1 seconds update rate	≥ 105,445.0 Ω	diagnostic monitor enable battery voltage run crank voltage run crank voltage in range time	= 1 Boolean ≥ 9.00 volts ≥ 9.00 volts	fail time ≥ 10.00 seconds out of fail time ≥ 12.00 seconds 1 seconds update rate battery voltage in range time ≥ 0.100 seconds run crank voltage in range time ≥ 0.100 seconds	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Input Speed Sensor Performance	P0716	Detects unrealistic drop in raw transmission input speed signal RPM. Drop events are counted up to fail threshold. A drop event is defined by a sudden delta change in RPM from one value to a	delta raw transmission input speed delta raw transmission input speed = raw transmission input speed - last valid raw transmission input speed, 25 millisecond update rate	≥ 850.0 RPM	service mode \$04 active diagnostic monitor enable P0717 test fail this key on P07BF test fail this key on P07C0 test fail this key on	= FALSE = 1 Boolean = FALSE = FALSE = FALSE	fail time ≥ 1.500 seconds updated fail event count, fail event count ≥ 5 counts, 25 millisecond update rate	Type A, 1 Trips
		lower value. The raw transmission input speed must achieve a value high enough to record an unrealistic drop sample to sample. Once the drop threshold is met, fail time is accumualted indicating the raw transmission input speed has not	25		last valid raw transmission input speed OR valid raw transmission input speed (before drop event) last valid raw transmission input speed updates very 25 milliseconds when stablity time complete as long as	≥ 160.0 RPM ≥ 160.0 RPM	raw transmission input speed time ≥ 2.00 seconds	
		recovered above a threshold, allowing the fail event count to increment. Multiple fail event counts must occur, but if the signal remains low, no further deltas occur, the "Input Speed Sensor Circuit Low Voltage" DTC will set before P0716, as P0716 is designed to set based on an			(delta delta raw transmission input speed AND raw transmission input speed) raw transmission output speed accelerator pedal position engine torque engine torque transmission hydraulic	≤ 320.0 RPM > 160.0 RPM ≥ 254.0 RPM ≥ 5.0 % ≤ 8,191.9 Nm ≥ 30.0 Nm ≥ 400.0 RPM	stability time ≥ 0.100 seconds	
	set based on an intermittent raw transmission input speed signal RPM.			pressure available: engine speed	_ 400.0 Ki Wi	engine speed time ≥		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					DTCs not fault active	AcceleratorPedalFailure EngineTorqueEstInaccura te	engine speed time for transmission hydraulic pressure available see supporting tables	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Input Speed Sensor Circuit Low	P0717	Detects no activity in raw transmission input	raw transmission input speed OR	≤ 100.0 RPM	service mode \$04 active	= FALSE	fail time ≥ 4.00 seconds	Type A, 1 Trips
Voltage	to open ciruit electrical failure mode or sensor internal faults, or, controller internal	failure mode or sensor internal faults, or,	TISS/TOSS fault (single power supply to TISS and TOSS) = TRUE,	< 425.0 RPM	diagnostic monitor enable run crank voltage	= 1 Boolean ≥ 5.00 volts	run crank voltage time ≥ 25 milliseconds	
		controller internal failure modes. The raw transmission input speed signal RPM is rationalized against vehicle conditions in which the the powertrain is producing torque available at the drive wheels, but raw transmission input speed signal RPM remains low. After a sudden drop in raw transmission input speed signal RPM, a race condition can occur between P0717 and "Input Speed Sensor Performance" depending on the true nature of the failure.	update fail time 25 millisecond update rate		service fast learn active run crank voltage P0722 fault active P0723 fault active P077C fault active P077D fault active P077D fault active brake pedal position sesnor must be OBDII to use brake pedal conditional brake pedal position sesnor type brake pedal position P0716 test fail this key on P07BF test fail this key on P07C0 test fail this key on accelerator pedal position engine torque engine torque (transmission current attained gear transmission current attained gear raw transmission output speed OR	= FALSE ≥ 9.00 volts = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = CeBRKR_e_OBD < 70.0 % = FALSE = FALSE = FALSE ≥ 5.0 % ≥ 30.0 Nm ≤ 8,191.9 Nm ≤ R,191.9 Nm ≤ CeCGSR_e_CR_Sevent h ≥ CeCGSR_e_CR_First ≥ 162.0 RPM	milliseconds	
					transmission current attained gear transmission current attained gear raw transmission output speed) P0717 fault active P0717 test fail this key on	≤ CeCGSR_e_CR_Tenth ≥ CeCGSR_e_CR_Sevent h		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					TISS/TOSS fault (single power supply to TISS and TOSS) = TRUE occurs when: (P0722 fail time high gear exceeds fail threshold OR P0722 fail time low gear exceeds fail threshold) TISS/TOSS has single power supply calibration TISS/TOSS single power supply test enabled transmission hydraulic pressure available: engine speed	≥ 162.0 RPM = FALSE = TALSE = 0 Boolean = 1 Boolean ≥ 400.0 RPM EngineTorqueEstInaccura te	engine speed time ≥ engine speed time for transmission hydraulic pressure available see supporting tables	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Output Speed Sensor Performance	P0721	The diagnostic monitor determines if the direction TOSS value is coherent based on the on period time of the directional sensor and TOSS raw. When the on period time indicates a transitional state, the direction must also be transitional as measured by very slow TOSS raw RPM. When the on period time indicates a non-transitional state, forward or reverse, the direction must also be transition, not forward and not reverse.	AND TOSS raw direction when TOSS transitional period = FALSE OR TOSS raw when TOSS transitional period = TRUE update fail and sample	≠ FORWARD ≠ REVERSE ≥ 25.0 RPM	service mode \$04 active diagnostic monitor enable TOSS count sample period P0721 fault active P0721 test fail this key on TOSS transitional period detected = FALSE when: on period on period when direction unknown OR on period when direction is reverse OR on period when direction is forward TOSS transitional period detected = TRUE when: on period on period when direction unknown	= FALSE = 1 Boolean ≠ 0 counts = FALSE = FALSE ≥ 0.3994 seconds ≤ 0.3193 seconds < 0.2080 seconds > 0.1523 seconds < 0.0518 seconds > 0.0381 seconds > 0.3994 seconds > 0.3193 seconds	fail time ≥ 3.500 seconds out of sample time ≥ 5.000 seconds	Type A, 1 Trips
				senor type is directional senor type cailbration	= CeTOSR_e_Directional			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Output Speed Sensor Circuit Low Voltage	P0722	Detects no activity in raw transmission output speed signal RPM due to open ciruit electrical failure mode or sensor internal faults, or, controller internal failure modes. The raw transmission output speed signal RPM is rationalized against vehicle conditions in which the the powertrain is producing torque, but raw transmission output speed signal RPM remains low. After a sudden drop in raw transmission output speed signal RPM, a race condition can occur between P0722 and "Output Speed Sensor Circuit Intermittent" depending on the true nature of the failure.	raw transmission output speed, update fail time 6.25 millisecond update rate when: attained gear attained gear AND attained gear use high gear fail time threshold ELSE use low gear fail time threshold	≥ CeCGSR_e_CR_First ≤ CeCGSR_e_CR_Tenth > CeCGSR_e_CR_Four th	service mode \$04 active diagnostic monitor enable when neutral range occurs: (garage shift OR PRNDL OR PRNDL OR range inhibit state) AND (engine torque accelerator pedal position) when not neutral range occurs: attained gear attained gear (attained gear engine torque hysteresis high engine torque hysteresis low accelerator pedal position hysteresis high accelerator pedal position hysteresis low) when not neutral range occurs: (attained gear	= FALSE = 1 Boolean ≠ COMPLETE = PARK = NEUTRAL ≠ no inhibt active ≥ 8,192.0 Nm ≥ 100.0 % ≥ CeCGSR_e_CR_First ≤ CeCGSR_e_CR_Tenth > CeCGSR_e_CR_Fourth ≥ 50.0 Nm > 30.0 Nm ≥ 5.0 % > 3.0 % ≤ CeCGSR_e_CR_Fourth ≥ 80.0 Nm > 50.0 Nm	fail time ≥ 5.00 seconds high gear OR fail time ≥ 3.50 seconds low gear	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
					accelerator pedal position hysteresis high accelerator pedal position hysteresis low)	≥ 8.0 % > 5.0 %		
					TISS enable occurs when: (TISS speed select OR TISS/TOSS has single	= 1 Boolean = 0 Boolean		
					power supply calibration AND TISS AND TISS)	≤ 8,191.9 RPM ≥ 425.0 RPM		
					OR (TISS speed select OR TISS/TOSS has single power supply calibration	≠ 1 Boolean = 0.00 Boolean		
					AND TISS AND TISS)	≤ 8,191.9 RPM ≥ 3,500.0 RPM		
					P0716 test fail this key on P0717 test fail this key on P07BF test fail this key on P07C0 test fail this key on	= FALSE		
					PTO check: PTO enable calibration is FALSE OR	≠ 1 Boolean		
					(PTO enable calibration is TRUE AND PTO active)	= 1 Boolean = TRUE		
					run crank voltage service fast learn active	≥ 5.00 volts = FALSE	run crank voltage time ≥ 25 milliseconds	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					run crank voltage transmission fluid temperature P0723 test fail this key on P077C test fail this key on P077D test fail this key on P0722 fault active P0722 test fail this key on transmission hydraulic pressure available: engine speed	= FALSE = FALSE = FALSE	engine speed time ≥ engine speed time for transmission	
					DTCs not fault active	AcceleratorPedalFailure EngineTorqueEstInaccura te	hydraulic pressure available see supporting tables	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Output Speed Sensor Circuit Intermittent	P0723	Detects unrealistic drop in raw transmission output speed signal RPM. Drop events are counted up to fail threshold. A drop event is defined by a sudden delta change in RPM from one value to a	n raw transmission cutput speed signal RPM. Drop events are counted up to fail chreshold. A drop event s defined by a sudden delta change in RPM from one value to a ower value. The raw delta raw transmission output speed OR NOT 4WD low fail threshold, update fail time, delta raw transmission output speed = raw transmission output speed ≠ not engaged diagnostic monitor enable = 1 Boolean diagnostic monitor enable = 1 Boolean transmission engaged ≠ not engaged	fail time ≥ 1.500 seconds updated fail event count, fail event count ≥ 5 counts, 25 millisecond update rate	Type A, 1 Trips			
		lower value. The raw transmission output speed must achieve a value high enough to record an unrealistic drop sample to sample. Once the drop threshold is met, fail time is accumualted indicating the raw			transmission engaged state	≠ not engaged	transmission engaged state time ≥ P0723 transmission engaged state time threshold see supporting tables	
	tran spe reco	transmission output speed has not recovered above a			4WD low state	= 4WD low state previous loop, 25 millisecond update rate	4WD low change time ≥ 3.0 seconds	
		threshold, allowing the fail event count to increment. Multiple fail event counts must occur, but if the signal remains low, no further deltas occur, the "Output Speed Sensor Circuit Low Voltage" DTC will set before	PTO check: PTO enable calibration is FALSE OR (PTO enable calibration is	≠ 1 Boolean = 1 Boolean				
					TRUE AND PTO active)	= TRUE		
		P0723, as P0723 is designed to set based on an intermittent raw			run crank voltage	≥ 5.00 volts	run crank voltage time ≥ 25 milliseconds	
		transmission output speed signal RPM.			service fast learn active run crank voltage P077C test fail this key on P077D test fail this key on	= FALSE ≥ 9.00 volts = FALSE = FALSE		
					when PRNDL is moved to			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					NEUTRAL allow transmission engaged state time before enabling fail evaluation, or, if raw			
					raw transmission output speed is active in NEUTRAL enable fail evaluation:			
					PRNDL OR PRNDL	= CeTRGR_e_PRNDL_Neu tral		
					OR	CeTRGR_e_PRNDL_Tra nsitional1 N-D transitional		
					PRNDL OR	= CeTRGR_e_PRNDL_Tra nsitional4 R-N transitional		
					raw transmission output speed OR last valid raw transmission output speed	≥ 250.0 RPM ≥ 250.0 RPM		
					determine if raw transmission input speed is stable: (raw transmission input speed - raw transmission input speed previous, 25 millisecond update	≤ 4,095.9 RPM	raw transmission input speed stability time ≥ 2.00 seconds	
					AND raw transmission input speed) OR	≥ 160.0 RPM	2.00 00001100	
					(TISS/TOSS has single power supply calibration AND raw transmission input speed)	= 0 Boolean = 0.0 RPM	no time required	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					select delta RPM fail theshold: (4WD low state AND \$WD low valid) select P0723 4WD TOSS delta fail threshold otherwise use P0723 TOSS delta fail threshold	= TRUE = TRUE		
					last valid raw transmission output speed OR valid raw transmission output speed (before drop event) last valid raw transmission	> 89.0 RPM > 89.0 RPM	raw transmission output speed time ≥ 2.00 seconds	
					output speed updates very 25 milliseconds when stablity time complete as long as (delta delta raw transmission output speed AND raw transmission output speed)	≤ 140.0 RPM ≥ 89.0 RPM	stability time ≥ 0.100 seconds	
					transmission hydraulic pressure available: engine speed	≥ 400.0 RPM	engine speed time ≥ engine speed time for transmission hydraulic pressure available see supporting tables	
					DTCs not fault active	AcceleratorPedalFailure EngineTorqueEstInaccura te		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Torque Converter Clutch (TCC) System Performance - GF9 specific	P0741	The GF9 diagnostic monitor detects the transmission torque converter control valve failed hydraulically on. The torque converter hydraulic control circuit is multiplexed with the transmission clutch select valve hydraulic control circuit, allowing for the torque converter control valve stuck on test to execute when the clutch select valve solenoid is commanded ON. When the clutch select valve solenoid is commanded ON as the vehicle speed decreases toward zero KPH, and, if the torque converter control valve is stuck on, the torque converter slip speed rate of change will have a large slope while decreasing toward zero RPM, and the torque converter slip speed will remain low near zero RPM. The GR10 diagnostic monitor detects	while control valve test time timing down: rate of change of torque convert slip speed = (ABS) (current loop value torque convert slip speed - previous loop value torque convert slip speed) / 25 milliseconds) when clutch select valve soleniod multiplexed to TCC hydraulic AND torque convert slip speed = ABS(engine speed - transmission input shaft speed) THEN increment fail count 25 millisecond update rate	≥ P0741 torque convert derivative slip speed fail threshold see supporting tables ≤ 250.0 RPM	diagnostic monitor enable (TCC stuck off enable OR TCC stuck on enable) hydraulic pressure available: engine speed service fast learn active battery voltage run crank voltage P281B falut active P281D falut active P281E falut active P281E falut active PRNDL PRNDL PRNDL transmission fluid temperature	= 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean ≥ 400.0 RPM = FALSE ≥ 9.00 volts ≥ 9.00 volts = FALSE	fail count ≥ 4 counts 25 millisecond update rate engine speed time ≥ engine speed time for transmission hydraulic pressure available see supporting table battery voltage time ≥ 0.100 seconds run crank voltage time ≥ 0.100 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
-		<u> </u>			transmission fluid	≤ 130.00 °C	1	
					temperature	- 100.00		
					accelerator pedal position	≥ 0.00 %		
					accelerator pedal position	≤ 20.00 %		
					vehicle speed	≥ 0.0 KPH		
					vehicle speed	≤ 45.0 KPH		
					TCC command mode	= OFF		
					break latch state (clutch	≠ disabled (clutch select		
					select valve solenoid	valve transitioning)		
					control)	vaive transitioning)		
					P0722 fault pending	= FALSE		
					P0723 fault pending	= FALSE		
					P0716 fault pending	= FALSE		
					P0717 fault pending	= FALSE		
					P07BF fault pending	= FALSE		
					P07C0 fault pending	= FALSE		
					(PTO active OR	= FALSE		
					PTO disable calibration)	= 1 Boolean		
					transmission fluid	≥ -6.66 °C		
					temperature	- 0.00 0		
					transmission fluid	≤ 130.00 °C		
					temperature	1 100.00		
					engine torque	≥ 55.0 Nm		
					engine torque	≤ 800.0 Nm		
					P0741 test fail this key on	= FALSE		
					vehicle speed	≤ 45.0 KPH		
					engine speed	≥ 400.0 RPM		
ı					engine speed	≤ 5,500.0 RPM		
					accelerator pedal position			
					4WD low state	= FALSE		
					(driver shift mode active	= FALSE		
					OR	- 1 / 100		
					driver shift mode	= 0 Boolean		
					calibration)	- C Boolean		
					(misfire requests TCC off			
					OR			
					misfire TCC off	= 0 Boolean		
					calibration)	- 5 50000011		
					(clucth control solenoid	= FALSE		
					stuck on OR solenoid	1-17,606		
					stuck OFF intrusive shift			
					active)			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P0746 fault pending P0747 fault pending P0776 fault pending P0776 fault pending P0796 fault pending P0797 fault pending P0797 fault pending P2714 fault pending P2715 fault pending P2723 fault pending P2724 fault pending P2732 fault pending P2732 fault pending P2820 fault pending P2820 fault pending P2821 fault pending vehicle speed accelerator pedal position hysteresis when: break latch state (clutch select valve solenoid) previous break latch state (clutch select valve solenoid) set stuck on test time and begin time down, stuck on test time must time down from calibration value to zero (0.0) seconds	= FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = SA.O KPH ≥ 4.0 % > 1.0 % = disabled (clutch select valve not transitioning) = complete (clutch select valve transition complete) = P0741 stuck on test time see supporting tables		
					break latch state AND previous break latch state THEN initialize control valve test time, control valve test time must time down from calibration value to zero (0.0) seconds	= clutch select valve solenoid mutliplexed to TCC hydraulic = disabled (clutch select valve not transitioning) = P0741 control valve test time see supporting tables		

	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		DTCs not fault active	AcceleratorPedalFailure EngineTorqueEstInaccura te P0716, P0717, P07BF, P07C0 P0722, P0723, P077C, P077D		
				P0722, P0723, P077C, P077D	P0722, P077C, P077D

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid A Stuck Off	P0746	Each pressure control solenoid stuck off diagnostic monitor detects a clutch pressure control solenoid failed hydraulically off, while	C1 clutch slip speed, update fail time 6.25 milliscond update	≥ 200.0 RPM			fail time ≥ 3.00 seconds, update fail count, fail count ≥ 3 counts 6.25 milliscond update	Type A, 1 Trips
		the solenoid is electrically functional. In the failure mode the			use battery voltage calibration is FALSE OR	= 1 Boolean	update	
		clutch slip speed, and gear box gear slip, will be excessive, not near			(use battery voltage calibration is TRUE AND	= 1 Boolean		
		or at zero RPM. The clutch slip speed is calculated based on			battery voltage	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
	tl r	the transmission lever node design, requiring transmission input shaft			use run crank voltage calibration is FALSE OR	= 0 Boolean	Securius	
		speed, transmission output shaft speed, and, one transmission			(use run crank voltage calibration is TRUE AND	= 0 Boolean		
		intermediate shaft speed. The clutch pressure control			run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
		solenoid is tested after an automatic transmission shift occurs and has been considered shift			TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
		complete, or, steady state gear is deemed active, range shift complete. When the automatic transmission			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
		shift is complete, steady state gear is considered, the clutch pressure control solenoid is mapped to			service fast learn active service solenoid cleaning procedure active	= FALSE Boolean = FALSE Boolean		
		transmission line			hydraulic pressure			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		pressure control, which			available:			1
		normally allows the			engine speed	≥ 400.0 RPM	engine speed	
		clutch to maintain full					time ≥	
		torque holding capacity					engine speed	
		at the given engine					time for	
		crankshaft torque, to					transmission	
		maintain true gear					hydraulic	
		ratio. When the clutch					pressure	
		pressure control					available	
l .		solenoid is failed			enable C1 clutch slip		see supporting	
		hydraulically off, the			speed fail compare when:		table	
1		clutch does not			diagnostic clutch test C1	= HOLDING CLUTCH		
		maintain holding			((startle mitigation active	= FALSE		
		capacity at any engine			OR			
		crankshaft torque, and			(startle mitigation active	= TRUE		
		the clutch slip speed is			AND			
l .		uncontrollable. The			startle mitigation gear))	≠ initial startle mitigation		
		clutch pressure control			(see startle mitigation	gear		
l .		solenoid test is			active NOTE below)	- AL 05		
		suspended if the higher			unintended deceleration	= FALSE		
		level safety startle			fault pending OR			
		mitigation function is			unintended deceleration	= 0 Boolean		
		active. The safety			fault pending enable			
		startle mitigation			FASLE			
		function is triggered			(startle mitigation)	FALCE		
		when a sudden vehicle deceleration occurs			clutch steady state	= FALSE		
l .					adaptive active	> 400 0 DDM		
		due to a clutch			transmission output shaft	≥ 100.0 RPM		
I		pressure control solenoid that has failed			speed	= TRUE		
I		in the opposite sense,			C1 clutch slip speed valid, all speed sesnors are	= IRUE		
		clutch pressure control			functional for lever node			
		solenoid failed			clucth slip speed			
		hydraulically on, while			calculation			
		the solenoid is			Calculation			
		electrically functional,			accelerator pedal position	≥ 2.00 %		
		which must take priority			engine speed	≥ 1,500.0 RPM		
		over any clutch			origine speed	- 1,000.0 KI WI		
1		pressure control			diagnostic clutch test C1			
I		solenoid stuck off			set to HOLDING CLUTCH			
I		diagnostic monitor. All			when:			
		clutch pressure control			clutch solenoid test state	= NEUTRAL TEST		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		solenoid stuck on/off diagnostic monitors are emission MIL DTCs. System voltage must be normal, all clutch pressure control solenoid driver circuits must be functional, no clutch pressure control solenoid electrical or performance faults can be present, and no speed sensor electrical or performance faults can be present, or the a clutch pressure control solenoid stuck off test is disabled. This diagnostic monitor is relative to the GF9 C1 CB123456, or, GR10 C1 CB123456R, clutch			((startle mitigation active OR (startle mitigation active AND startle mitigation gear)) (see startle mitigation active NOTE below) C1 clutch pressured map clutch solenoid test state set to NEUTRAL TEST when: test trigger initialize range shift complete time, when range shift state, range shift complete time must time down to zero	= FALSE = TRUE ≠ initial startle mitigation gear = mapped to line pressure, C1 clutch pressure has transtioned from off-applying-applied = TRUE ≠ range shift completed	initialize range shift complete time = 0.500 seconds, range shift complete time	
		pressure control solenoid.			when range shift complete test trigger set to TRUE: enable forward gear AND direction request OR enable reverse gear AND direction request current loop test trigger clutch control solenoid test state range shift state NOTE: startle mitigation active is used to detect unintended deceleration due to clutch pressure control solenoid stuck on	= 1 Boolean = forward gear = 0 Boolean = reverse gear = FALSE ≠ NEUTRAL TEST = range shift completed	must time down to zero when range shift complete	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					failure modes, the clutch pressure control solenoid stuck on DTCs being P0747 P0777 P0797 P2715 P2724 P2733 P2821			
					DTCs not fault pending	P0716 P0717 P0722 P0723 P077C P077D P07BF P07C0		
					DTCs not test fail this key on	P0707 P0708 P0746 P0747 P0776 P0777 P0796 P0797 P2714 P2715 P2723 P2724 P2732 P2733 P2820 P2821		
					DTCs not fault active	AcceleratorPedalFailure CrankSensor_FA P0707 P0708 P0716 P0717 P07BF P07C0 P0722 P0723 P077C P077D P172A P172B P176B P176C P176D P17C5 P17CC P17CD P17CE P17D3 P17D6 P2805		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid A Stuck On	P0747	Each pressure control solenoid stuck on diagnostic monitor detects a clutch pressure control solenoid failed hydraulicaild on, while	shift type is power down shift, C1 clutch slip speed OR shift type is not power down shift, C1 clutch slip speed	< 50.0 RPM			shift type is power down shift, fail time ≥ 0.800 seconds, OR shift type is not	Type A, 1 Trips
	the solenoid is electrically functional. The clutch pressure control solenoid is tested during an	update fail time 6.25 milliscond update				power down shift, fail time ≥ 0.150 seconds,		
		automatic transmission shift by monitoring the off going clutch slip speed. With the clutch pressure control					update fail count, fail count ≥ 3 counts 6.25 milliscond update	
	sole allov pres	solenoid failed on, still allowing hydraulic pressure to the clutch being commanded off,			use battery voltage calibration is FALSE OR	= 1 Boolean		
		the intended off going clutch continues to maintain torque			(use battery voltage calibration is TRUE AND	= 1 Boolean		
		capacity during the transmission automatic shift. In the failure			battery voltage	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
		mode, the off going clutch slip speed will remain near zero RPM			use run crank voltage calibration is FALSE OR	= 0 Boolean		
		when the clutch pressure control solenoid is commanded			(use run crank voltage calibration is TRUE AND	= 0 Boolean		
		to an off pressure in the normal operation to release the holding clutch. The clutch slip			run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
		speed is calculated based on the transmission lever node design, requiring			TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		transmission input shaft speed, transmission output shaft speed, and, one transmission intermediate shaft			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
		speed. As part of the pressure control solenoid stuck on diagnostic monitor, the safety startle mitigation			service fast learn active service solenoid cleaning procedure active	= FALSE Boolean = FALSE Boolean		
		function executes when in steady state gear, no automatic transmission shift in progress. The safety startle mitigation function is triggered when a sudden vehicle deceleration occurs due to a clutch pressure control			hydraulic pressure available: engine speed	≥ 400.0 RPM	engine speed time ≥ engine speed time for transmission hydraulic pressure available see supporting table	
		solenoid that has failed hydraulically on, while the solenoid is electrically functional. All clutch pressure			transmission output shaft speed set solenoid stuck on test	≥ 89.0 RPM		
		control solenoid stuck on diagnostic monitors are emission MIL DTCs. System voltage			trigger to TRUE when: clutch pressure control solenoid stuck off stuck intrusive shift request	= FALSE		
		must be normal, all clutch pressure control solenoid driver circuits			startle mitigation active (see startle mitigation active NOTE below)	= FALSE		
		must be functional, no clutch pressure control solenoid electrical or performance faults can be present, and no			clutch control solenoid test state clutch control solenoid test state (see clutch control solenoid test state NOTE below)	≠ TIE UP TEST TEST STATE ≠ TIE UP TEST HOLD		
		speed sensor electrical or performance faults can be present, or the a clutch pressure control solenoid stuck			initialize active clutch controller (clutch control processing in process of sequencing clutches on	= TRUE		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		on test is disabled. This diagnostic monitor is relative to the GF9 C1 CB123456, or, GR10 C1 CB123456R, clutch pressure control			and off for auto trans shift) (shift type enable for staged steady state shift - shift in process when new shift type occurs - interrupted shift	= 0 Boolean		
		solenoid.			OR shift type enable for garage shift OR	= 0 Boolean		
					shift type enable for negative torque up shift OR	= 1 Boolean		
					shift type enable for open throttle power on up shift OR	= 1 Boolean		
					shift type enable for closed throttle down shift OR	= 1 Boolean		
					shift type enable for open throttle power down shift OR	= 1 Boolean		
					shift type enable for closed throttle lift foot up shift) OR	= 0 Boolean		
					clutch control solenoid test state clutch control solenoid test state (see clutch control solenoid test state	= TIE UP TEST TEST STATE = TIE UP TEST HOLD		
					NOTE below) transition clutch controller active clutch controller (staged steady sate shift - shift not in process, no new shift type occuring, no interrupted shift)	= TRUE ≠ staged steady state		
					set clutch control solenoid test state to TIE UP TEST			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					TEST STATE when: solenoid stuck on test trigger current loop clutch control solenoid test state OR current loop clutch control solenoid test state (see clutch control solenoid test state NOTE below) range shift state solenoid stuck on test trigger additional off going clutch occured (clutch control solenoid test state OR clutch control solenoid test state) (see clutch control solenoid test state NOTE below) diagnostic clutch test (C1 off going clutch pressure control ramp time out complete AND off going clutch pressure ramp control ramp time out enable) OR C1 off going clutch pressure	= TRUE = TEST WAITING = TIE UP TEST HOLD ≠ range shift complete = TRUE = TRUE = TIE UP TEST TEST STATE = TIE UP TEST HOLD = OFF GOING CLUTCH TEST = TRUE = 1 Boolean ≤ 350.0 kPa	for C1 off going clutch pressure time ≥ P0747 C1 clutch exhaust delay time closed throttle lift foot up shift OR	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					engine torque primary on coming clutch active primary on coming control state closed throttle lift foot up shift primary on coming clutch pressure OR open throttle power on up shift primary on coming clutch pressure	≥ 8,191.8 Nm = TRUE ≠ clutch fill phase ≥ 690.0 kPa ≥ 690.0 kPA	P0747 C1 clutch exhaust delay time open throttle power on up shift OR P0747 C1 clutch exhaust delay time garage shift OR P0747 C1 clutch exhaust delay time closed throttle down shift OR P0747 C1 clutch exhaust delay time negative torque up shift OR P0747 C1 clutch exhaust delay time open throttle power down shift see supporting tables	
					OR garage shift primary on	≥ 750.0 kPa		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL IIIum.
					coming clutch pressure OR negative torque up shift primary on coming clutch pressure OR open throttle power down	≥ 690.0 kPa ≥ 690.0 kPa		
					shift primary on coming clutch pressure OR			
					closed throttle down shift primary on coming clutch pressure	≥ 690.0 kPa		
					C1 clutch slip speed valid, all speed sesnors are functional for lever node clucth slip speed calculation	= TRUE		
					NOTE: Clutch control solenoid test state TIE UP TEST HOLD is necessary, as it is possible to have multiple off going clutches during one automatic transmission shift. Clutch control solenoid test state			
					is set to TIE UP TEST HOLD during an automatic transmission shift due to two conditions:			
					Current value of clutch control solenoid test state is TIE UP TEST TEST STATE, when one off going clutch pressure			
					control solenoid stuck on diagnostic monitor is currently executing. AND			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
System	Code	Description			That off going clutch pressure control solenoid stuck on diagnostic monitor currently executing passes, the corresponding clutch slip speed ≥ clutch slip speed fail threshold. Once clutch control solenoid test state is set to TIE UP TEST HOLD, it remains TIE UP TEST HOLD during the automatic transmission shift, until: An additional off going clutch occurs, as indicated by solenoid stuck on test trigger = TRUE, subsequently clutch control solenoid test state is reset to TIE UP TEST TEST STATE, to allow the additional corresponding off going clutch pressure control solenoid stuck on diagnostic monitor to execute. OR			Illum.
					The automatic transmission shift completes, range shift state = range shift complete. NOTE: Startle mitigation is used to detect unintended vehicle deceleration due to a clutch pressure control			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
System	Code	Description			solenoid stuck on failure mode that occurs during steady state gear, not during an automatic transmission shift. The startle mitigation active then forces the transmission clutch pressure control system to a safe gear or neutral state, based on the active and inactive clutches, when the unintended vehicle deceleration occurred. Once a safe vehicle gear state is attained, the gear and clutch pressure control system allows transitions of the clutches on and off, to sequence automatic transmission shifts, single step shifts. As each single step automatic transmission shift occurs the normal pressure control solenoid stuck on diagnostic monitors execute to verify which clutch pressure control solenoid is in the stuck on failure mode, allowing one			Illum.
					of the clutch pressure control solenoid stuck on DTCs to set P0747, P0777, P0797, P2715, P2724, P2733, P2821. DTCs not fault pending	P0716 P0717 P0722 P0723 P077C P077D P07BF P07C0		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					DTCs not test fail this key on	P0707 P0708 P0746 P0747 P0776 P0777 P0796 P0797 P2714 P2715 P2723 P2724 P2732 P2733 P2820 P2821		
					DTCs not fault active	AcceleratorPedalFailure CrankSensor_FA P0707 P0708 P0716 P0717 P07BF P07C0 P0722 P0723 P077C P077D P172A P172B P176B P176C P176D P17C5 P17CC P17CD P17CE P17D3 P17D6 P2805		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid B Stuck Off	P0776	Each pressure control solenoid stuck off diagnostic monitor detects a clutch pressure control solenoid failed hydraulically off, while	C1 clutch slip speed, update fail time 6.25 milliscond update	≥ 200.0 RPM			fail time ≥ 3.00 seconds, update fail count, fail count ≥ 3 counts 6.25 milliscond update	Type A, 1 Trips
		the solenoid is electrically functional.			use battery voltage calibration is FALSE	= 1 Boolean		
		In the failure mode the clutch slip speed, and gear box gear slip, will be excessive, not near			OR (use battery voltage calibration is TRUE AND	= 1 Boolean		
		or at zero RPM. The clutch slip speed is calculated based on			battery voltage	≥ 9.00 volts	battery voltage time ≥ 0.100	
		the transmission lever node design, requiring transmission input shaft			use run crank voltage calibration is FALSE OR	= 0 Boolean	seconds	
		speed, transmission output shaft speed, and, one transmission			(use run crank voltage calibration is TRUE AND	= 0 Boolean		
		intermediate shaft speed. The clutch pressure control			run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
		solenoid is tested after an automatic transmission shift occurs and has been considered shift			TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
		complete, or, steady state gear is deemed active, range shift complete. When the automatic transmission			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
		shift is complete, steady state gear is considered, the clutch pressure control solenoid is mapped to		service fast learn active service solenoid cleaning procedure active	= FALSE Boolean = FALSE Boolean			
		transmission line			hydraulic pressure			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
	1	pressure control, which			available:			1
		normally allows the			engine speed	≥ 400.0 RPM	engine speed	
		clutch to maintain full					time ≥	
		torque holding capacity					engine speed	
		at the given engine					time for	
		crankshaft torque, to					transmission	
		maintain true gear					hydraulic	
		ratio. When the clutch					pressure	
		pressure control					available	
		solenoid is failed			enable C2 clutch slip		see supporting	
1		hydraulically off, the			speed fail compare when:		table	
1		clutch does not			diagnostic clutch test C2	= HOLDING CLUTCH		
1		maintain holding			((startle mitigation active	= FALSE		
		capacity at any engine			OR	TDUE		
l		crankshaft torque, and			(startle mitigation active	= TRUE		
		the clutch slip speed is			AND	/ :-::::		
		uncontrollable. The			startle mitigation gear))	≠ initial startle mitigation		
		clutch pressure control solenoid test is			(see startle mitigation active NOTE below)	gear		
		suspended if the higher			,	= FALSE		
l		level safety startle			unintended deceleration fault pending OR	= PALSE		
l		mitigation function is			unintended deceleration	= 0 Boolean		
l		active. The safety			fault pending enable	= 0 boolean		
		startle mitigation			FASLE			
l		function is triggered			(startle mitigation)			
l		when a sudden vehicle			clutch steady state	= FALSE		
		deceleration occurs			adaptive active	- I ALGE		
		due to a clutch			transmission output shaft	≥ 100.0 RPM		
		pressure control			speed			
		solenoid that has failed			C2 clutch slip speed valid,	= TRUE		
		in the opposite sense,			all speed sesnors are			
		clutch pressure control			functional for lever node			
		solenoid failed			clucth slip speed			
		hydraulically on, while			calculation			
		the solenoid is						
I		electrically functional,			accelerator pedal position	≥ 2.00 %		
I		which must take priority			engine speed	≥ 1,500.0 RPM		
		over any clutch						
		pressure control			diagnostic clutch test C2			
		solenoid stuck off			set to HOLDING CLUTCH			
		diagnostic monitor. All			when:			
		clutch pressure control			clutch solenoid test state	= NEUTRAL TEST		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		solenoid stuck on/off diagnostic monitors are emission MIL DTCs. System voltage must be normal, all clutch pressure control solenoid driver circuits must be functional, no clutch pressure control solenoid electrical or performance faults can			((startle mitigation active OR (startle mitigation active AND startle mitigation gear)) (see startle mitigation active NOTE below) C2 clutch pressured map	= FALSE = TRUE ≠ initial startle mitigation gear = mapped to line pressure, C2 clutch pressure has transtioned from off-applying-applied		
		be present, and no speed sensor electrical or performance faults can be present, or the a clutch pressure control solenoid stuck off test is disabled. This diagnostic monitor is relative to the GF9 C2 CB29 or GR10 C2 CB128910R, clutch pressure control solenoid.			clutch solenoid test state set to NEUTRAL TEST when: test trigger initialize range shift complete time, when range shift state, range shift complete time must time down to zero when range shift complete	= TRUE ≠ range shift completed	initialize range shift complete time = 0.500 seconds, range shift complete time must time down to zero when	
					test trigger set to TRUE: enable forward gear AND direction request OR enable reverse gear AND direction request current loop test trigger clutch control solenoid test state	= 1 Boolean = forward gear = 0 Boolean = reverse gear = FALSE ≠ NEUTRAL TEST	range shift complete	
					NOTE: startle mitigation active is used to detect unintended deceleration due to clutch pressure control solenoid stuck on	= range shift completed		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					failure modes, the clutch pressure control solenoid stuck on DTCs being P0747 P0777 P0797 P2715 P2724 P2733 P2821			
					DTCs not fault pending	P0716 P0717 P0722 P0723 P077C P077D P07BF P07C0		
					DTCs not test fail this key on	P0707 P0708 P0746 P0747 P0776 P0777 P0796 P0797 P2714 P2715 P2723 P2724 P2732 P2733 P2820 P2821		
					DTCs not fault active	AcceleratorPedalFailure CrankSensor_FA P0707 P0708 P0716 P0717 P07BF P07C0 P0722 P0723 P077C P077D P172A P172B P176B P176C P176D P17C5 P17CC P17CD P17CE P17D3 P17D6 P2805		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid B Stuck On	P0777	Each pressure control solenoid stuck on diagnostic monitor detects a clutch pressure control solenoid failed hydraulically on, while the solenoid is	shift type is power down shift, C2 clutch slip speed OR shift type is not power down shift, C2 clutch slip speed	ift, 2 clutch slip speed 3		shift type is power down shift, fail time ≥ 0.800 seconds, OR shift type is not power down	Type A, 1 Trips	
	electrically functional. The clutch pressure control solenoid is tested during an	update fail time 6.25 milliscond update				shift, fail time ≥ 0.150 seconds,		
		automatic transmission shift by monitoring the off going clutch slip speed. With the clutch pressure control					update fail count, fail count ≥ 3 counts 6.25 milliscond update	
		solenoid failed on, still allowing hydraulic pressure to the clutch being commanded off,			use battery voltage calibration is FALSE OR	= 1 Boolean		
		the intended off going clutch continues to maintain torque			(use battery voltage calibration is TRUE AND	= 1 Boolean		
		capacity during the transmission automatic shift. In the failure			battery voltage	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
		mode, the off going clutch slip speed will remain near zero RPM			use run crank voltage calibration is FALSE OR	= 0 Boolean		
	when the clutch pressure control solenoid is commanded to an off pressure in the normal operation to release the holding clutch. The clutch slip speed is calculated based on the transmission lever node design, requiring			(use run crank voltage calibration is TRUE AND	= 0 Boolean			
		to an off pressure in the normal operation to release the holding			run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
				TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		transmission input shaft speed, transmission output shaft speed, and, one transmission intermediate shaft			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
		speed. As part of the pressure control solenoid stuck on diagnostic monitor, the			service fast learn active service solenoid cleaning procedure active	= FALSE Boolean = FALSE Boolean		
		safety startle mitigation function executes when in steady state gear, no automatic transmission shift in progress. The safety startle mitigation function is triggered when a sudden vehicle deceleration occurs due to a clutch pressure control			hydraulic pressure available: engine speed	≥ 400.0 RPM	engine speed time ≥ engine speed time for transmission hydraulic pressure available see supporting table	
		solenoid that has failed hydraulically on, while the solenoid is electrically functional. All clutch pressure control solenoid stuck			transmission output shaft speed set solenoid stuck on test trigger to TRUE when:	≥ 89.0 RPM		
		on diagnostic monitors are emission MIL DTCs. System voltage must be normal, all			clutch pressure control solenoid stuck off stuck intrusive shift request startle mitigation active	= FALSE		
		clutch pressure control solenoid driver circuits must be functional, no clutch pressure control solenoid electrical or performance faults can be present, and no			(see startle mitigation active NOTE below) clutch control solenoid test state clutch control solenoid test state (see clutch control solenoid test state	≠ TIE UP TEST TEST STATE ≠ TIE UP TEST HOLD		
		speed sensor electrical or performance faults can be present, or the a clutch pressure control solenoid stuck			NOTE below) initialize active clutch controller (clutch control processing in process of sequencing clutches on	= TRUE		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		on test is disabled. This diagnostic monitor is relative to the GF9 C2 CB29 or GR10 C2 CB128910R, clutch pressure control			and off for auto trans shift) (shift type enable for staged steady state shift - shift in process when new shift type occurs - interrupted shift	= 0 Boolean		
		solenoid.			OR shift type enable for garage shift OR	= 0 Boolean		
					shift type enable for negative torque up shift OR	= 1 Boolean		
					shift type enable for open throttle power on up shift OR	= 1 Boolean		
					shift type enable for closed throttle down shift OR	= 1 Boolean		
					shift type enable for open throttle power down shift OR	= 1 Boolean		
					shift type enable for closed throttle lift foot up shift) OR	= 0 Boolean		
					clutch control solenoid test state clutch control solenoid test state (see clutch control solenoid test state	= TIE UP TEST TEST STATE = TIE UP TEST HOLD		
					NOTE below) transition clutch controller active clutch controller (staged steady sate shift - shift not in process, no	= TRUE ≠ staged steady state		
					new shift type occuring, no interrupted shift)			
					set clutch control solenoid test state to TIE UP TEST			

TEST STATE when: solenoid stuck on test trigger current loop clutch control solenoid test state OR current loop clutch control solenoid test state (see clutch control solenoid test state NOTE below) range shift state solenoid stuck on test trigger additional off going clutch occured (clutch control solenoid test state OR clutch control solenoid test state OR clutch control solenoid test state) (see clutch control solenoid test state = TRUE = TIE UP TEST HOLD = TRUE = TRUE = TRUE = TRUE = TRUE = TRUE = TRUE = TRUE = TRUE = TRUE = TRUE = TRUE = TRUE = TRUE = TRUE	Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
NOTE below) diagnostic clutch test (C2 off going clutch pressure control ramp time out complete AND off going clutch pressure ramp control ramp time out enable) OR C2 off going clutch pressure ressure C2 off going clutch pressure ressure C3 off going clutch pressure For C2 off going clutch pressure for C2 off going clutch pressure clutch pressure for C2 off going clutch pressure for C2 off going clutch pressure for C2 off going clutch pressure for C2 off going clutch pressure for C2 off going clutch pressure for C2 off going clutch propriet ime ≥ P0777 C2 clutch pressure for C3 off going clutch pressure for C4 off going clutch pressure for C3 off going clutch pressure for C3 off going clutch pressure for C4 off going clutch pressure for C4 off going clutch pressure for C4 off going clutch pressure for C5 off going clutch pressure for C4 off going clutch pressure for C5 off going clutch pressure for C5 off going clutch pressure for C5 off going clutch pressure for C5 off going clutch pressure for C5 off going clutch pressure for C5 off going clutch pressure for C5 off going clutch pressure for C5 off going clutch pressure for C5 off going clutch pressure for C5 off going clutch pressure for C5 off going clutch pressure for C5 off going clutch pressure for C5 off going clutch pressure for C5 off going clutch pressure for C5 off going clutch p	System	Code	Description			solenoid stuck on test trigger current loop clutch control solenoid test state OR current loop clutch control solenoid test state (see clutch control solenoid test state NOTE below) range shift state solenoid stuck on test trigger additional off going clutch occured (clutch control solenoid test state OR clutch control solenoid test state NOTE below) diagnostic clutch test (C2 off going clutch pressure control ramp time out complete AND off going clutch pressure ramp control ramp time out enable) OR C2 off going clutch	= TEST WAITING = TIE UP TEST HOLD ≠ range shift complete = TRUE = TRUE = TIE UP TEST TEST STATE = TIE UP TEST HOLD = OFF GOING CLUTCH TEST = TRUE = 1 Boolean	clutch pressure time ≥ P0777 C2 clutch exhaust delay time closed throttle lift foot up shift	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					engine torque primary on coming clutch active primary on coming control state closed throttle lift foot up shift primary on coming clutch pressure OR open throttle power on up shift primary on coming clutch pressure OR open throttle power on up shift primary on coming clutch pressure OR qarage shift primary on	≥ 8,191.8 Nm = TRUE ≠ clutch fill phase ≥ 800.0 kPa ≥ 800.0 kPA	P0777 C2 clutch exhaust delay time open throttle power on up shift OR P0777 C2 clutch exhaust delay time garage shift OR P0777 C2 clutch exhaust delay time closed throttle down shift OR P0777 C2 clutch exhaust delay time negative torque up shift OR P0777 C2 clutch exhaust delay time negative torque up shift OR P0777 C2 clutch exhaust delay time open throttle power down shift see supporting tables	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					coming clutch pressure OR negative torque up shift primary on coming clutch pressure OR open throttle power down shift primary on coming clutch pressure	≥ 800.0 kPa ≥ 800.0 kPa		
					OR closed throttle down shift primary on coming clutch pressure C2 clutch slip speed valid, all speed sesnors are functional for lever node clucth slip speed calculation	≥ 800.0 kPa = TRUE		
					NOTE: Clutch control solenoid test state TIE UP TEST HOLD is necessary, as it is possible to have multiple off going clutches during one automatic transmission shift. Clutch control solenoid test state is set to TIE UP TEST HOLD during an automatic transmission			
					shift due to two conditions: Current value of clutch control solenoid test state is TIE UP TEST TEST STATE, when one off going clutch pressure control solenoid stuck on diagnostic monitor is currently executing. AND			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
System	Code	Description			That off going clutch pressure control solenoid stuck on diagnostic monitor currently executing passes, the corresponding clutch slip speed ≥ clutch slip speed fail threshold. Once clutch control solenoid test state is set to TIE UP TEST HOLD, it remains TIE UP TEST HOLD during the automatic transmission shift, until: An additional off going clutch occurs, as indicated by solenoid stuck on test trigger = TRUE, subsequently clutch control solenoid test state is reset to TIE UP TEST TEST STATE, to allow the additional corresponding off going clutch pressure control solenoid stuck on diagnostic monitor to execute. OR			Illum.
					The automatic transmission shift completes, range shift state = range shift complete. NOTE: Startle mitigation is used to detect unintended vehicle deceleration due to a clutch pressure control			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
System	Code	Description			solenoid stuck on failure mode that occurs during steady state gear, not during an automatic transmission shift. The startle mitigation active then forces the transmission clutch pressure control system to a safe gear or neutral state, based on the active and inactive clutches, when the unintended vehicle deceleration occurred. Once a safe vehicle gear state is attained, the gear and clutch pressure control system allows transitions of the clutches on and off, to sequence automatic transmission shifts, single step shifts. As each single step automatic transmission shift occurs the normal pressure control solenoid stuck on diagnostic monitors execute to verify which clutch pressure control solenoid is in the stuck on failure mode, allowing one			Illum.
					of the clutch pressure control solenoid stuck on DTCs to set P0747, P0777, P0797, P2715, P2724, P2733, P2821. DTCs not fault pending	P0716 P0717 P0722 P0723 P077C P077D P07BF P07C0		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					DTCs not test fail this key on	P0707 P0708 P0746 P0747 P0776 P0777 P0796 P0797 P2714 P2715 P2723 P2724 P2732 P2733 P2820 P2821		
					DTCs not fault active	AcceleratorPedalFailure CrankSensor_FA P0707 P0708 P0716 P0717 P07BF P07C0 P0722 P0723 P077C P077D P172A P172B P176B P176C P176D P17C5 P17CC P17CD P17CE P17D3 P17D6 P2805		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Output Speed Sensor Circuit Low	P077C	Controller specific analog circuit diagnoses the transmission output speed sensor and wiring for a short to ground fault by comparing a voltage measurement to controller specific voltage thresholds.	transmission output speed sesnor raw voltage, update fail time, 12.5 millisecond update rate	≤ 0.2500 volts (≤ 0.5 Ω impedance between signal and controller ground)	service mode \$04 active diagnostic monitor enable P077D fault active service fast learn run crank voltage battery voltage P077C fault active P077C test fail this key on	= FALSE = 1 Boolean = FALSE = FALSE ≥ 10.00 volts ≥ 10.00 volts = FALSE = FALSE	fail time ≥ 0.050 seconds, update fail count 12.5 millisecond update rate fail counts 12.5 millisecond update rate run crank and battery voltage time ≥ 5.000 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Output Speed Sensor Circuit High	P077D	Controller specific analog circuit diagnoses the transmission output speed sensor and wiring for a short to voltage fault by comparing a voltage measurement to controller specific voltage thresholds.	transmission output speed sesnor raw voltage, update fail time, 12.5 millisecond update rate	≥ 4.7500 volts (≤ 0.5 Ω impedance between signal and controller power)	service mode \$04 active diagnostic monitor enable P077C fault active service fast learn run crank voltage battery voltage P077D fault active P077D test fail this key on	= FALSE = 1 Boolean = FALSE = FALSE ≥ 10.00 volts ≥ 10.00 volts = FALSE = FALSE	fail time ≥ 0.050 seconds, update fail count 12.5 millisecond update rate fail count ≥ 16 counts 12.5 millisecond update rate run crank and battery voltage time ≥ 5.000 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid C Stuck Off	P0796	Each pressure control solenoid stuck off diagnostic monitor detects a clutch pressure control solenoid failed hydraulically off, while	C1 clutch slip speed, update fail time 6.25 milliscond update	≥ 200.0 RPM			fail time ≥ 3.00 seconds, update fail count, fail count ≥ 3 counts 6.25 milliscond update	Type A, 1 Trips
		the solenoid is electrically functional. In the failure mode the			use battery voltage calibration is FALSE OR	= 1 Boolean	upuate	
		clutch slip speed, and gear box gear slip, will be excessive, not near			(use battery voltage calibration is TRUE AND	se battery voltage = 1 Boolean		
		or at zero RPM. The clutch slip speed is calculated based on			battery voltage	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
		the transmission lever node design, requiring transmission input shaft			use run crank voltage = 0 Boolean calibration is FALSE OR	Seconds		
		speed, transmission output shaft speed, and, one transmission			(use run crank voltage calibration is TRUE AND	= 0 Boolean		
		intermediate shaft speed. The clutch pressure control			run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
		an automatic transmission shift occurs and has been considered shift	mission shift side pres dered shift dered shift side	TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean			
	complete, or, steady state gear is deemed active, range shift complete. When the automatic transmission			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean			
		shift is complete, steady state gear is considered, the clutch pressure control			service fast learn active service solenoid cleaning procedure active	= FALSE Boolean = FALSE Boolean		
	solenoid is mapped to transmission line hyd	hydraulic pressure						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
	1	pressure control, which			available:			1
		normally allows the			engine speed	≥ 400.0 RPM	engine speed	
		clutch to maintain full					time ≥	
		torque holding capacity					engine speed	
		at the given engine					time for	
		crankshaft torque, to					transmission	
		maintain true gear					hydraulic	
		ratio. When the clutch					pressure	
		pressure control					available	
l		solenoid is failed			enable C3 clutch slip		see supporting	
		hydraulically off, the			speed fail compare when:		table	
		clutch does not			diagnostic clutch test C3	= HOLDING CLUTCH		
		maintain holding			((startle mitigation active	= FALSE		
		capacity at any engine			OR	TD.15		
		crankshaft torque, and			(startle mitigation active	= TRUE		
		the clutch slip speed is			AND			
		uncontrollable. The			startle mitigation gear))	≠ initial startle mitigation		
l		clutch pressure control			(see startle mitigation	gear		
		solenoid test is			active NOTE below)	FALCE		
		suspended if the higher			unintended deceleration	= FALSE		
		level safety startle			fault pending OR	O Declara		
		mitigation function is			unintended deceleration	= 0 Boolean		
		active. The safety startle mitigation			fault pending enable FASLE			
		function is triggered			(startle mitigation)			
		when a sudden vehicle			clutch steady state	= FALSE		
		deceleration occurs			adaptive active	= FALSE		
l		due to a clutch			transmission output shaft	≥ 100.0 RPM		
l		pressure control			speed	2 100.0 KI W		
l		solenoid that has failed			C3 clutch slip speed valid,	= TRUE		
l		in the opposite sense,			all speed sesnors are	- INOL		
l		clutch pressure control			functional for lever node			
		solenoid failed			clucth slip speed			
		hydraulically on, while			calculation			
		the solenoid is			33.3414171			
		electrically functional,			accelerator pedal position	≥ 2.00 %		
		which must take priority			engine speed	≥ 1,500.0 RPM		
		over any clutch			3 3	, , , , , , , , , , , , , , , , , , , ,		
		pressure control			diagnostic clutch test C3			
		solenoid stuck off			set to HOLDING CLUTCH			
I		diagnostic monitor. All			when:			
I		clutch pressure control			clutch solenoid test state	= NEUTRAL TEST		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		solenoid stuck on/off diagnostic monitors are emission MIL DTCs. System voltage must be normal, all clutch pressure control solenoid driver circuits must be functional, no clutch pressure control solenoid electrical or performance faults can			((startle mitigation active OR (startle mitigation active AND startle mitigation gear)) (see startle mitigation active NOTE below) C3 clutch pressured map	= FALSE = TRUE ≠ initial startle mitigation gear = mapped to line pressure, C3 clutch pressure has transtioned from off-applying-applied		
		be present, and no speed sensor electrical or performance faults can be present, or the a clutch pressure control solenoid stuck off test is disabled. This diagnostic monitor is relative to the GF9 C3 CB38, or, GR10 C3 CB123456R, clutch pressure control solenoid.			clutch solenoid test state set to NEUTRAL TEST when: test trigger initialize range shift complete time, when range shift state, range shift complete time must time down to zero when range shift complete	= TRUE ≠ range shift completed	initialize range shift complete time = 0.500 seconds, range shift complete time must time down to zero when	
					test trigger set to TRUE: enable forward gear AND direction request OR enable reverse gear AND direction request current loop test trigger clutch control solenoid test state	= 1 Boolean = forward gear = 0 Boolean = reverse gear = FALSE ≠ NEUTRAL TEST	range shift complete	
					range shift state NOTE: startle mitigation active is used to detect unintended deceleration due to clutch pressure control solenoid stuck on	= range shift completed		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					failure modes, the clutch pressure control solenoid stuck on DTCs being P0747 P0777 P0797 P2715 P2724 P2733 P2821			
					DTCs not fault pending	P0716 P0717 P0722 P0723 P077C P077D P07BF P07C0		
					DTCs not test fail this key on	P0707 P0708 P0746 P0747 P0776 P0777 P0796 P0797 P2714 P2715 P2723 P2724 P2732 P2733 P2820 P2821		
					DTCs not fault active	AcceleratorPedalFailure CrankSensor_FA P0707 P0708 P0716 P0717 P07BF P07C0 P0722 P0723 P077C P077D P172A P172B P176B P176C P176D P17C5 P17CC P17CD P17CE P17D3 P17D6 P2805		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid C Stuck On	ntrol (PC) lenoid C lock On solenoid stuck on diagnostic monitor detects a clutch pressure control solenoid failed hydraulically on, when the solenoid is	diagnostic monitor detects a clutch pressure control solenoid failed hydraulically on, while	shift type is power down shift, C3 clutch slip speed OR shift type is not power down shift, C3 clutch slip speed	< 50.0 RPM			shift type is power down shift, fail time ≥ 0.800 seconds, OR shift type is not	Type A, 1 Trips
		the solenoid is electrically functional. The clutch pressure control solenoid is tested during an	update fail time 6.25 milliscond update				power down shift, fail time ≥ 0.150 seconds,	
		automatic transmission shift by monitoring the off going clutch slip speed. With the clutch pressure control					update fail count, fail count ≥ 3 counts 6.25 milliscond update	
		solenoid failed on, still allowing hydraulic pressure to the clutch being commanded off,			use battery voltage calibration is FALSE OR	= 1 Boolean		
		the intended off going clutch continues to maintain torque			(use battery voltage calibration is TRUE AND	= 1 Boolean		
		capacity during the transmission automatic shift. In the failure			battery voltage	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
		mode, the off going clutch slip speed will remain near zero RPM			use run crank voltage calibration is FALSE OR	= 0 Boolean	00001100	
		when the clutch pressure control solenoid is commanded			(use run crank voltage calibration is TRUE AND	= 0 Boolean		
	to an off prince normal operate the clutch. The speed is calbased on the transmission of the contract of the c	to an off pressure in the normal operation to release the holding clutch. The clutch slip			run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
		speed is calculated based on the transmission lever node design, requiring			TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		transmission input shaft speed, transmission output shaft speed, and, one transmission intermediate shaft			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
		speed. As part of the pressure control solenoid stuck on diagnostic monitor, the safety startle mitigation			service fast learn active service solenoid cleaning procedure active	= FALSE Boolean = FALSE Boolean		
		function executes when in steady state gear, no automatic transmission shift in progress. The safety startle mitigation function is triggered when a sudden vehicle deceleration occurs due to a clutch pressure control			hydraulic pressure available: engine speed	≥ 400.0 RPM	engine speed time ≥ engine speed time for transmission hydraulic pressure available see supporting table	
		solenoid that has failed hydraulically on, while the solenoid is electrically functional. All clutch pressure			transmission output shaft speed set solenoid stuck on test	≥ 89.0 RPM		
		control solenoid stuck on diagnostic monitors are emission MIL DTCs. System voltage			trigger to TRUE when: clutch pressure control solenoid stuck off stuck intrusive shift request	= FALSE		
		must be normal, all clutch pressure control solenoid driver circuits			startle mitigation active (see startle mitigation active NOTE below)	= FALSE		
		must be functional, no clutch pressure control solenoid electrical or performance faults can be present, and no			clutch control solenoid test state clutch control solenoid test state (see clutch control solenoid test state NOTE below)	≠ TIE UP TEST TEST STATE ≠ TIE UP TEST HOLD		
		speed sensor electrical or performance faults can be present, or the a clutch pressure control solenoid stuck			initialize active clutch controller (clutch control processing in process of sequencing clutches on	= TRUE		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		on test is disabled. This diagnostic monitor is relative to the GF9 C3 CB38, or, GR10 C3 CB123456R, clutch pressure control			and off for auto trans shift) (shift type enable for staged steady state shift - shift in process when new shift type occurs - interrupted shift	= 0 Boolean		
		solenoid.			OR shift type enable for garage shift OR	= 0 Boolean		
					shift type enable for negative torque up shift OR	= 1 Boolean		
					shift type enable for open throttle power on up shift OR	= 1 Boolean		
					shift type enable for closed throttle down shift OR	= 1 Boolean		
					shift type enable for open throttle power down shift OR	= 1 Boolean		
					shift type enable for closed throttle lift foot up shift) OR	= 0 Boolean		
					clutch control solenoid test state clutch control solenoid test state (see clutch control solenoid test state	= TIE UP TEST TEST STATE = TIE UP TEST HOLD		
					NOTE below) transition clutch controller active clutch controller (staged steady sate shift - shift not in process, no new shift type occuring,	= TRUE ≠ staged steady state		
					new shift type occurring, no interrupted shift) set clutch control solenoid			
					test state to TIE UP TEST			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					TEST STATE when: solenoid stuck on test trigger current loop clutch control solenoid test state OR current loop clutch control solenoid test state (see clutch control solenoid test state NOTE below) range shift state solenoid stuck on test trigger additional off going clutch occured (clutch control solenoid test state OR clutch control solenoid test state) (see clutch control solenoid test state NOTE below) diagnostic clutch test (C3 off going clutch pressure control ramp time out complete AND off going clutch pressure ramp control ramp time out enable) OR C3 off going clutch pressure	= TRUE = TEST WAITING = TIE UP TEST HOLD # range shift complete = TRUE = TRUE = TRUE = TIE UP TEST TEST STATE = TIE UP TEST HOLD = OFF GOING CLUTCH TEST = TRUE = 1 Boolean ≤ 350.0 kPa	for C3 off going clutch pressure time ≥ P0797 C3 clutch exhaust delay time closed throttle lift foot up shift OR	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					engine torque primary on coming clutch active primary on coming control state closed throttle lift foot up shift primary on coming clutch pressure OR open throttle power on up shift primary on coming clutch pressure OR open throttle power on up shift primary on coming clutch pressure OR qarage shift primary on	≥ 8,191.8 Nm = TRUE ≠ clutch fill phase ≥ 500.0 kPa ≥ 500.0 kPA	P0797 C3 clutch exhaust delay time open throttle power on up shift OR P0797 C3 clutch exhaust delay time garage shift OR P0797 C3 clutch exhaust delay time closed throttle down shift OR P0797 C3 clutch exhaust delay time negative torque up shift OR P0797 C3 clutch exhaust delay time open throttle power down shift see supporting tables	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					coming clutch pressure OR negative torque up shift primary on coming clutch pressure OR open throttle power down shift primary on coming clutch pressure OR closed throttle down shift primary on coming clutch pressure C3 clutch slip speed valid, all speed sesnors are functional for lever node clucth slip speed calculation	≥ 500.0 kPa ≥ 500.0 kPa ≥ 500.0 kPa = TRUE		
					NOTE: Clutch control solenoid test state TIE UP TEST HOLD is necessary, as it is possible to have multiple off going clutches during one automatic transmission shift. Clutch control solenoid test state is set to TIE UP TEST HOLD during an automatic transmission shift due to two conditions: Current value of clutch control solenoid test state is TIE UP TEST TEST STATE, when one off going clutch pressure control solenoid stuck on diagnostic monitor is currently executing.			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
System	Code	Description			That off going clutch pressure control solenoid stuck on diagnostic monitor currently executing passes, the corresponding clutch slip speed ≥ clutch slip speed fail threshold. Once clutch control solenoid test state is set to TIE UP TEST HOLD, it remains TIE UP TEST HOLD during the automatic transmission shift, until: An additional off going clutch occurs, as indicated by solenoid stuck on test trigger = TRUE, subsequently clutch control solenoid test state is reset to TIE UP TEST TEST STATE, to allow the additional corresponding off going clutch pressure control solenoid stuck on diagnostic monitor to execute. OR			Illum.
					The automatic transmission shift completes, range shift state = range shift complete. NOTE: Startle mitigation is used to detect unintended vehicle deceleration due to a clutch pressure control			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
System	Code	Description			solenoid stuck on failure mode that occurs during steady state gear, not during an automatic transmission shift. The startle mitigation active then forces the transmission clutch pressure control system to a safe gear or neutral state, based on the active and inactive clutches, when the unintended vehicle deceleration occurred. Once a safe vehicle gear state is attained, the gear and clutch pressure control system allows transitions of the clutches on and off, to sequence automatic transmission shifts, single step shifts. As each single step automatic transmission shift occurs the normal pressure control solenoid stuck on diagnostic monitors execute to verify which clutch pressure control solenoid is in the stuck on failure mode, allowing one			Illum.
					of the clutch pressure control solenoid stuck on DTCs to set P0747, P0777, P0797, P2715, P2724, P2733, P2821. DTCs not fault pending	P0716 P0717 P0722 P0723 P077C P077D P07BF P07C0		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					DTCs not test fail this key on	P0707 P0708 P0746 P0747 P0776 P0777 P0796 P0797 P2714 P2715 P2723 P2724 P2732 P2733 P2820 P2821		
					DTCs not fault active	AcceleratorPedalFailure CrankSensor_FA P0707 P0708 P0716 P0717 P07BF P07C0 P0722 P0723 P077C P077D P172A P172B P176B P176C P176D P17C5 P17CC P17CD P17CE P17D3 P17D6 P2805		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Input/Turbine Speed Sensor A Circuit Low	P07BF	Controller specific analog circuit diagnoses the transmission input/ turbine speed sensor and wiring for a short to ground fault by comparing a voltage measurement to controller specific voltage thresholds.	transmission intput/turbine speed sesnor raw voltage, update fail time, 12.5 millisecond update rate	≤ 0.2500 volts (≤ 0.5 Ω impedance between signal and controller ground)	service mode \$04 active diagnostic monitor enable P07C0 fault active service fast learn run crank voltage battery voltage P07BF fault active P07BF test fail this key on	= FALSE = 1 Boolean = FALSE = FALSE ≥ 10.00 volts ≥ 10.00 volts = FALSE = FALSE	fail time ≥ 0.050 seconds, update fail count 12.5 millisecond update rate fail count ≥ 16 counts 12.5 millisecond update rate run crank and battery voltage time ≥ 5.000 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Input/Turbine Speed Sensor A Circuit High	P07C0	Controller specific analog circuit diagnoses the transmission input/ turbine speed sensor and wiring for a short to voltage fault by comparing a voltage measurement to controller specific voltage thresholds.	transmission input/turbine speed sesnor raw voltage, update fail time, 12.5 millisecond update rate	≥ 4.7500 volts (≤ 0.5 Ω impedance between signal and controller power)	service mode \$04 active diagnostic monitor enable P07BF fault active service fast learn run crank voltage battery voltage P07C0 fault active P07C0 test fail this key on	= FALSE = 1 Boolean = FALSE = FALSE ≥ 10.00 volts ≥ 10.00 volts = FALSE = FALSE	fail time ≥ 0.050 seconds, update fail count 12.5 millisecond update rate fail count ≥ 16 counts 12.5 millisecond update rate run crank and battery voltage time ≥ 5.000 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Upshift Switch Circuit	P0815	Diagnoses the state of the upshift switch circuit, stuck in the	switch state update fail time 2 100 millisecond update	= tap up (upshift) state active	service mode \$04 active diagnostic monitor enable	= FALSE = 1 Boolean	fail time 2 ≥ 120.00 seconds	Special Type C
Circuit		state "tap up" (upshift) active.	rate		run crank voltage	≥ 5.00 volts	run crank voltage time ≥ 25	
				run crank voltage P1761 fault active P0826 fault active P0826 fault pending (P0815 fault active OR ≥ 9.00 volts = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE	milliseconds			
				P0815 fault active test fail	= FALSE			
					this key on) PRNDL range change time PRNDL in range: D1 OR D2 OR D3 OR D4 OR D5 OR D6 OR D7 OR D8 OR D9 OR D10 OR NEUTRAL OR PARK OR REVERSE	= 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 0 Boolean = 0 Boolean = 0 Boolean = 0 Boolean = 0 Boolean	≥ 1.00 seconds	
ı	upda			DTCs not fault pending	Transmission Shift Lever Position Validity			
		switch state update fail time 1	= tap up (upshift) state active	service mode \$04 active diagnostic monitor enable	= FALSE = 1 Boolean	fail time 1 ≥ 1.00 seconds		
			100 millisecond update rate		run crank voltage	≥ 5.00 volts	run crank voltage time ≥ 25	
						run crank voltage P1761 fault active P0826 fault active P0826 test fail this key on	≥ 9.00 volts = FALSE = FALSE = FALSE	time ≥ 25 milliseconds

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P0826 fault pending (P0815 fault active OR P0815 fault active test fail this key on) PRNDL range change time PRNDL in range: D1 OR D2 OR D3 OR D4 OR D5 OR D6 OR D7 OR D8 OR D9 OR D10 OR NEUTRAL OR PARK OR REVERSE DTCs not fault pending	= FALSE = FALSE = FALSE = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 0 Boolean = 0 Boolean = 0 Boolean = 0 Boolean = 0 Boolean = Transmission Shift Lever Position Validity	≥ 1.00 seconds	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			switch state update fail time 2 100 millisecond update rate	= tap down (downshift) state active	service mode \$04 active diagnostic monitor enable run crank voltage run crank voltage P1761 fault active P0826 fault active P0826 fault active P0826 fault pending (P0816 fault active OR P0816 fault active test fail this key on) PRNDL range change time PRNDL in range: D1 OR D2 OR D3 OR D4 OR	= FALSE = 1 Boolean ≥ 5.00 volts ≥ 9.00 volts = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean	fail time 2 ≥ 120.00 seconds run crank voltage time ≥ 25 milliseconds ≥ 1.00 seconds	
					D5 OR D6 OR D7 OR D8 OR D9 OR D10 OR NEUTRAL OR PARK OR REVERSE DTCs not fault pending	= 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 0 Boolean = 0 Boolean = 0 Boolean = 0 Boolean Transmission Shift Lever		
			switch state update fail time 1 100 millisecond update rate	= tap down (downshift) state active	service mode \$04 active diagnostic monitor enable run crank voltage run crank voltage P1761 fault active P0826 fault active P0826 test fail this key on	Position Validity = FALSE = 1 Boolean ≥ 5.00 volts ≥ 9.00 volts = FALSE = FALSE = FALSE	fail time 1 ≥ 1.00 seconds run crank voltage time ≥ 25 milliseconds	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P0826 fault pending (P0816 fault active OR P0816 fault active test fail this key on) PRNDL range change time PRNDL in range: D1 OR D2 OR D3 OR D4 OR D5 OR D6 OR D7 OR D8 OR D9 OR D10 OR NEUTRAL OR PARK OR REVERSE DTCs not fault pending	= FALSE = FALSE = FALSE = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 0 Boolean = 0 Boolean = 0 Boolean = 0 Boolean = 0 Boolean = Transmission Shift Lever Position Validity	≥ 1.00 seconds	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Up and Down Shift Switch Circuit	P0826	Diagnoses the state of the upshift/downshift switch circuit at an illegal voltage, voltage out of range.	switch state update fail time 100 millisecond update rate	= illegal (voltage out of range)	service mode \$04 active diagnostic monitor enable run crank voltage run crank voltage P1761 fault active (P0826 fault active OR P0826 fault active test fail this key on)	= FALSE = 1 Boolean ≥ 5.00 volts ≥ 9.00 volts = FALSE = FALSE = FALSE	fail time ≥ 60.00 seconds run crank voltage time ≥ 25 milliseconds	Special Type C

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid A Control Circuit Open	P0960	Controller specific circuit diagnoses 9 speed CB123456 or 10 speed CB123456R clutch solenoid for an open circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates an open circuit Controller specific circuit voltage thresholds are set to meet the following controller specification for an open circuit Increment fail time	≥ 200 K Ω impedance between signal and controller ground	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 8.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid A Control Circuit Low Voltage	P0962	Controller specific circuit diagnoses 9 speed CB123456 or 10 speed CB123456R clutch solenoid for a ground short circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a ground short Controller specific circuit voltage thresholds are set to meet the following controller specification for a ground short Increment fail time	≤ 0.5 Ω impedance between signal and controller ground	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 8.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid A Control Circuit High Voltage	P0963	Controller specific circuit diagnoses 9 speed CB123456 or 10 speed CB123456R clutch solenoid for a short to voltage circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a short to voltage Controller specific circuit voltage thresholds are set to meet the following controller specification for a short to voltage Increment fail time	≤ 0.5 Ω impedance between signal and controller voltage source	run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 8.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid B Control Circuit Open	P0964	Controller specific circuit diagnoses 9 speed CB29 or 10 speed CB128910R clutch solenoid for an open circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates an open circuit Controller specific circuit voltage thresholds are set to meet the following controller specification for an open circuit Increment fail time	≥ 200 K Ω impedance between signal and controller ground	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 8.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid B Control Circuit Low Voltage	P0966	Controller specific circuit diagnoses 9 speed CB123456 or 10 speed CB123456R clutch solenoid for a ground short circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a ground short Controller specific circuit voltage thresholds are set to meet the following controller specification for a ground short Increment fail time	≤ 0.5 Ω impedance between signal and controller ground	run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 8.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid B Control Circuit High Voltage	P0967	Controller specific circuit diagnoses 9 speed CB123456 or 10 speed CB123456R clutch solenoid for a short to voltage circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a short to voltage Controller specific circuit voltage thresholds are set to meet the following controller specification for a short to voltage Increment fail time	≤ 0.5 Ω impedance between signal and controller voltage source	run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 8.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid C Control Circuit Open	P0968	Controller specific circuit diagnoses 9 speed CB38 or 10 speed C23457910 clutch solenoid for an open circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates an open circuit Controller specific circuit voltage thresholds are set to meet the following controller specification for an open circuit Increment fail time	≥ 200 K Ω impedance between signal and controller ground	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 8.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid C Control Circuit Low Voltage	P0970	Controller specific circuit diagnoses 9 speed CB38 or 10 speed C23457910 clutch solenoid for a ground short circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a ground short Controller specific circuit voltage thresholds are set to meet the following controller specification for a ground short Increment fail time	≤ 0.5 Ω impedance between signal and controller ground	run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 8.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid C Control Circuit High Voltage	P0971	Controller specific circuit diagnoses 9 speed CB38 or 10 speed C23457910 clutch solenoid for a short to voltage circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a short to voltage Controller specific circuit voltage thresholds are set to meet the following controller specification for a short to voltage Increment fail time	≤ 0.5 Ω impedance between signal and controller voltage source	run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 8.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Serial Peripheral Interface Bus 2	P16E9	This DTC detects intermitent and continuous invalid SPI messages. This is based on the detection of missing or invalid receive message within the main processor before receiving a valid message.	This function detects a serial communications fault based upon the detection of missing or invalid (receive) message within the secondary processor before and after receiving a valid message.			Run/Crank voltage > 6.41	Number of invalid messages > 64.00 OR Amount of time before first message received since initialization > 0.19 counts continuous; 12.5 ms /count in the TCM secondary processor	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Control Module Serial Peripheral Interface Bus 1	This DTC detects intermitent and continuous invalid SPI messages. This is based on the detection of missing or invalid receive message within the main processor	This function detects a serial communications fault based upon the detection of missing or invalid (receive) message within the main processor before receiving a valid message.			Run/Crank voltage > 6.41	39 / 399 counts continuous; 12.5 ms /count in the TCM main processor	Type A, 1 Trips	
		before receiving a valid message.	This function detects a serial communications fault based upon the detection of missing or invalid (receive) message within the main processor after receiving a valid message.			Run/Crank voltage > 6.41	159 / 399 counts continuous; 12.5 ms /count in the TCM main processor	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Internal Control Module Redundant Memory Performance	P16F3	Transmission Control Module	Safety Monitor Enable Critera	= FALSE Boolean	Reduandant Memory Command Pressure Enable Calibraiton Not	= 1 Boolean	Single Event	Type A, 1 Trips
			Safety Monitor Enable Critera	= TRUE Boolean	Reduandant Memory Command Pressure Enable Calibraiton	= 0 Boolean	Single Event	
			AND					
			No traction event in progress	diffeerence between driven and non-driven wheel speeds: >= 50.00 pct			Single Event	
			AND Change in vehicle velocity output speed greater than threshold measure by slip speed across all nodes.	TOSS measured with			Single Event	
			AND					
		Condition timer greater than threshold	= TRUE Boolean			>= 0.00 seconds		
			AND					
			Command clutch pressure	Thresholds for clutches				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			on released clutch greater than threshold	by gear: <= P2D2 Decel Pressure - C1 <= P2D2 Decel Pressure - C2 <= P2D2 Decel Pressure - C3 <= P2D2 Decel Pressure - C4 <= P2D2 Decel Pressure - C5 <= P2D2 Decel Pressure - C5 <= P2D2 Decel Pressure - C7 *See Attached Supporting Tables:				
			*Monitor is disabled if Fault Active or codes for: Speeds Sensors 1/2/3, High Side Drivers 1/2 or service fast learn active. Brake Pedal is defaulted is FA Engine torque is defaulted is FA					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			Safety Monitor Enable Critera	= FALSE Boolean	Reduandant Memory Command Gear Enable Calibraiton Not	=1 Boolean	Single Event	_
			Safety Monitor Enable Critera	= TRUE Boolean	Reduandant Memory Command Gear Enable Calibraiton	= 0 Boolean		
			Command gear too low for present vehcle velocity and pedal position	Commanded Gear Threshold by vehicle velocity:				
				<= 1st FWD Thrshld <= 1st REV Thrshld <= 2nd FWD Thrshld <= 2nd REV Thrshld <= 3rd FWD Thrshld <= 4th FWD Thrshld <= 5th FWD Thrshld <= 6th FWD Thrshld <= 7th FWD Thrshld <= 8th FWD Thrshld <= 9th FWD Thrshld <= 9th FWD Thrshld <= 8th FWD Thrshld <= 9th FWD Thrshld <= 8th FWD Thrshld <= 8th FWD Thrshld <= 9th FWD Thrshld <= 8th FWD Th				
				<= REV Thrshld (Forward Velocity) *See Attached				
			*Monitor is diabled if: TISS FA or TOSS	Supporting Tables:				

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			directional FA, SFL or HSD 1/2 are OFF					

	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Module Speed Signal Analog to Digital Converter	P16FB	The diagnostic monitor validates the controller calculated transmission output speed sensor data parameters, calculated in multiple paths/subroutines and	ABS(raw transmission output speed, 6.25 millisecond data parameter - raw transmission output speed, 25 millisecond data parameter)	≥ 60.0 RPM	service mode \$04 active diagnsotic monitor enable raw transmission output speed, 25 millisecond data parameter	= FALSE = 1 Boolean ≥ 356.0 RPM	fail time ≥ 8.000 seconds out of sample time ≥ 10.000 seconds 25 millisecond update rate	Type A, 1 Trips
Performance		at different rates. There are multiple transmission output speed sensor data	update fail and sample time 25 millisecond update rate		raw transmission output speed, 6.25 millisecond data parameter	≥ 356.0 RPM		
		parameters, calculated at rates of 6.25 milliseconds, 12.5 milliseconds and 25 milliseconds. While the same subroutine, a generic "calculate TOSS" is called from different time loops, each call stores that current value of the calculated TOSS to a different memory location. For example, a 12.5 millisecond loop calling "calculate TOSS" stores the calculated TOSS value to a "12.5 millisecond TOSS calculated" data parameter in memory, while a 25 millisecond loop calling "calculate TOSS" stores the calculated TOSS value to a "25 millisecond loop calling "calculate TOSS" stores the calculated TOSS value to a "25 millisecond TOSS calculated" data parameter in memory. The raw transmission			run crank voltage battery voltage	≥ 10.00 volts ≥ 10.00 volts	run crank and battery voltage time ≥ 5.000 seconds	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		signal is diagnosed independently electrically and for performance of this DTC. The transmission output speed sensor data parameters that are calculated at different rates must always be within a negligible difference of each other.						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Acceleration Sensor Signal Message Counter Incorrect	P175F	The diagnostic monitor detects an alive rolling count error or checksum error in the CAN frame containing the lateral acceleration signal value and longitudinal acceleration sensor signal value.	rolling count value received from EBCM and expected TCM calculated value not equal OR checksum lateral and longitudinal acceleration CAN frame message value error 50 millisecond update rate	= TRUE	enable alive rolling count error detection: diagnostic monitor enable lateral and longitudinal acceleration CAN frame message received battery voltage run crank voltage enable checksum error detection: diagnostic monitor enable lateral and longitudinal acceleration CAN frame message received normal CAN battery voltage run crank voltage communication enabled	= 1 Boolean = TRUE ≥ 11.0 volts ≥ 11.0 volts = 1 Boolean = TRUE ≥ 11.0 volts ≥ 11.0 volts = TRUE U0073	alive rolling count errors ≥ 54 out of 9 sample counts 50 millisecond update rate checksum error time ≥ 54.00 seconds	Special Type C

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Up and Down Shift Switch Signal Circuit	P1761	The alive rolling count normally cycles 0, 1, 2, and 3 as a serial data periodic frame is processed normally. The diagnostic monitor counts the number of times an alive rolling count error occurs over a period of time. The TCM receives a serial data frame at a periodic rate, during which, the receive data is processed the comparing the current value of the alive rolling count in the frame date to the incremented value of the diagnostic alive rolling count. When the two values of the alive rolling count do not agree, an alive rolling count error has occurred. The error indicator is saved in an array buffer, and when the number of error indicators in the buffer exceed the fail time is allowed to time up.	alive rolling count error counter update fail time 100 millisecond update rate	≥ 3 counts	service mode \$04 active diagnostic monitor enable run crank voltage up and down shift serial data frame receive occurred when up and down shift serial data frame receive occurred: increment the diagnsotic alive rolling count data value, if the diagnsotic alive rolling count error to TRUE, when alive rolling count error AND previous alive rolling count arrary buffer, increment alive rolling count error counter	= FALSE = 1 Boolean ≥ 9.00 volts = TRUE ≠ frame alive rolling count data value = TRUE = FALSE	fail time ≥ 10.00 seconds run crank voltage time ≥ 0.100 seconds	Special Type C

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Planetary Gearset Ring Gear Speed Sensor Circuit Range/ Performance	P176B	The diagnostic monitor rationalizes the transmission intermediate shaft speed sensor by using the transmission output shaft output speed sensor and the known ratio between the transmission intermediate shaft speed and the transmission output shaft output speed based on the commanded gear and the transmission lever node design. The estimated transmission intermediate shaft speed is equal to the gear ratio times the transmission output shaft output speed. The absolute value of the delta between the measured transmission intermediate shaft speed and the estimated transmission intermediate shaft speed is used to determine if the measured transmission intermediate shaft speed is rational.	delta1 = ABS (transmission input speed - (transmission output speed * gear ratio commanded)) AND delta2 = ABS (transmission input speed - (transmission intermediate speed * ratio calibration)) update faiil time 25 millisecond update rate	> 20.0 RPM > P176B intermediate speed sensor fail RPM threshold see supporting tables	speed sesnor configuration calibration is single OR dual ratio calibration is function of command gear and intermediate speed sesnor when not REVERSE ratio calibration is function of command gear and intermediate speed sesnor when REVERSE ***********************************	= 1 Boolean = CeTNSR_e_NSPD_SingleSpdSnsr P176B ratio calibration = when not REVERSE see supporting tables P176B ratio calibration = when REVERSE see supporting tables ***********************************	fail time ≥ P176B intermediate speed sensor fail time threshold see supporting tables fail time threshold met increments fail count, fail count ≥ P176B intermediate speed sensor fail count threshold see supporting tables	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					speed / ratio calibration) with transmission input speed	see supporting tables ≥ P176B minimum transmission input speed to enable fail evaluation see supporting tables	P176B delay to allow transmission input, intermediate and output speeds to stablize for fail evaluation see supporting tables	
					input speed sensor ready based on commaned gear and transmission intermediate speed sensor (state output must be FALSE to enable fail evaluation) with with attained gear	= P176B holding clutch states see supporting tables = REVERSE OR = 1st thru 10th		
					**************************************	*************************************	battery voltage time ≥ 0.100	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					service fast learn active run crank voltage transmission hydraulic pressure available: engine speed	= FALSE ≥ 9.00 volts ≥ 400.0 RPM	seconds run crank voltage time ≥ 0.100 seconds engine speed time ≥ engine speed time for transmission hydraulic pressure available see supporting tables	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Planetary Gearset Ring Gear Speed Sensor Circuit Low	P176C	Controller specific analog circuit diagnoses the transmission intermediate speed sensor and wiring for a short to ground fault by comparing a voltage measurement to controller specific voltage thresholds.	transmission intermediate speed sesnor raw voltage, update fail time, 12.5 millisecond update rate	≤ 0.2500 volts (≤ 0.5 Ω impedance between signal and controller ground)	service mode \$04 active diagnostic monitor enable P176D fault active service fast learn run crank voltage battery voltage P176C fault active P176C test fail this key on	= FALSE = 1 Boolean = FALSE = FALSE ≥ 10.00 volts ≥ 10.00 volts = FALSE = FALSE	fail time ≥ 0.050 seconds, update fail count 12.5 millisecond update rate fail count ≥ 40 counts 12.5 millisecond update rate run crank and battery voltage time ≥ 5.000 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Transmissio n Planetary Gearset Ring Gear Speed Sensor Circuit High	P176D	Controller specific analog circuit diagnoses the transmission intermediate speed sensor and wiring for a short to voltage fault by comparing a voltage measurement to controller specific voltage thresholds.	transmission intermediate speed sesnor raw voltage, update fail time, 12.5 millisecond update rate	≥ 4.7500 volts (≤ 0.5 Ω impedance between signal and controller power)	service mode \$04 active diagnostic monitor enable P176C fault active service fast learn run crank voltage battery voltage P176D fault active P176D test fail this key on	= FALSE = 1 Boolean = FALSE = FALSE ≥ 10.00 volts ≥ 10.00 volts = FALSE = FALSE	fail time ≥ 0.050 seconds, update fail count 12.5 millisecond update rate fail count ≥ 40 counts 12.5 millisecond update rate run crank and battery voltage time ≥ 5.000 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Intermediate Speed Sensor 1 Direction Error	P17D3	The diagnostic monitor determines if the direction transmission intermediate speed sensor value is coherent based on the on period time of the directional sensor and raw speed sensor value. When the on period time indicates a transitional state, the direction must also be transitional as measured by very slow raw signal RPM. When the on period time indicates a non-transitional state, forward or reverse, the direction must also be transition, not forward and not reverse.	intermediate speed sesnor raw direction when transitional period = FALSE AND intermediate speed sesnor raw direction when transitional period = FALSE OR intermediate speed sesnor raw when transitional period = TRUE update fail and sample time 6.26 millisecond update rate	≠ REVERSE ≥ 25.0 RPM	service mode \$04 active diagnostic monitor enable intermediate speed sesnor count sample period P17D3 fault active OR P17D3 test fail this key on senor type cailbration (senor type is directional) transitional period detected = FALSE when: on period OR on period when direction unknown OR on period when direction is reverse OR on period on period when direction is forward transitional period detected = TRUE when: on period on period when direction is forward transitional period detected = TRUE when: on period on period when direction unknown	= FALSE = 1 Boolean ≠ 0 counts = FALSE = FALSE = CeTNSR_e_NSPD_SingleSpdSnsr ≥ 0.3994 seconds ≤ 0.3193 seconds < 0.2080 seconds > 0.1523 seconds < 0.0518 seconds > 0.0381 seconds < 0.3994 seconds > 0.3193 seconds	fail time ≥ 3.500 seconds out of sample time ≥ 5.000 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Actuator Supply Voltage B Circuit Low	P2670	Controller specific output driver circuit diagnoses the high sided driver circuit for a short to ground failure when the output is powered on by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range during driver on state indicates short to ground failure. Controller specific output driver circuit voltage thresholds are set to meet the following controller specification for a short to ground.	≤ ≤ 0.5 Ω impedance between signal and controller ground	diagnostic monitor enable high side drive 2 ON P2670 fault active P2670 test fail this key on	= 1 Boolean = TRUE = FALSE = FALSE	fail count ≥ 6 counts out of sample count ≥ 2,395 counts 6.25 millisecond update rate	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid D Stuck Off	P2714	Each pressure control solenoid stuck off diagnostic monitor detects a clutch pressure control solenoid failed hydraulically off, while	C1 clutch slip speed, update fail time 6.25 milliscond update	≥ 200.0 RPM			fail time ≥ 3.00 seconds, update fail count, fail count ≥ 3 counts 6.25 milliscond update	Type A, 1 Trips
	the solenoid is electrically functional. In the failure mode the			use battery voltage calibration is FALSE OR	= 1 Boolean	upuate		
		clutch slip speed, and gear box gear slip, will be excessive, not near			(use battery voltage calibration is TRUE AND	= 1 Boolean		
		or at zero RPM. The clutch slip speed is calculated based on			battery voltage	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
		the transmission lever node design, requiring transmission input shaft			use run crank voltage calibration is FALSE OR	= 0 Boolean	Seconds	
		speed, transmission output shaft speed, and, one transmission			(use run crank voltage calibration is TRUE AND	= 0 Boolean		
		intermediate shaft speed. The clutch pressure control			run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
		solenoid is tested after an automatic transmission shift occurs and has been considered shift complete, or, steady			TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
		state gear is deemed active, range shift complete. When the automatic transmission			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
		shift is complete, steady state gear is considered, the clutch pressure control solenoid is mapped to			service fast learn active service solenoid cleaning procedure active	= FALSE Boolean = FALSE Boolean		
		transmission line			hydraulic pressure			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		pressure control, which			available:			
		normally allows the			engine speed	≥ 400.0 RPM	engine speed	
		clutch to maintain full					time ≥	
		torque holding capacity					engine speed	
		at the given engine					time for	
		crankshaft torque, to					transmission	
		maintain true gear					hydraulic	
		ratio. When the clutch					pressure	
		pressure control					available	
		solenoid is failed			enable C4 clutch slip		see supporting	
		hydraulically off, the			speed fail compare when:		table	
		clutch does not			diagnostic clutch test C4	= HOLDING CLUTCH		
		maintain holding			((startle mitigation active	= FALSE		
		capacity at any engine			OR			
		crankshaft torque, and			(startle mitigation active	= TRUE		
		the clutch slip speed is			AND			
		uncontrollable. The			startle mitigation gear))	≠ initial startle mitigation		
		clutch pressure control			(see startle mitigation	gear		
		solenoid test is			active NOTE below)	- AL 05		
		suspended if the higher			unintended deceleration	= FALSE		
		level safety startle			fault pending OR			
		mitigation function is			unintended deceleration	= 0 Boolean		
		active. The safety			fault pending enable			
		startle mitigation			FASLE			
		function is triggered			(startle mitigation)	FALOE		
		when a sudden vehicle			clutch steady state	= FALSE		
		deceleration occurs			adaptive active	> 400 0 DDM		
		due to a clutch			transmission output shaft	≥ 100.0 RPM		
		pressure control			speed			
		solenoid that has failed in the opposite sense,			C4 clutch slip speed valid, all speed sesnors are	= TRUE		
		clutch pressure control solenoid failed			functional for lever node clucth slip speed			
		hydraulically on, while			calculation			
		the solenoid is			Calculation			
		electrically functional,			accelerator pedal position	≥ 2.00 %		
		which must take priority			engine speed	≥ 1,500.0 RPM		
		over any clutch			engine speed	= 1,000.0 KFWI		
		pressure control			diagnostic clutch test C4			
		solenoid stuck off			set to HOLDING CLUTCH			
1		diagnostic monitor. All			when:			
		clutch pressure control			clutch solenoid test state	- NELITRAL TEST		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		solenoid stuck on/off diagnostic monitors are emission MIL DTCs. System voltage must be normal, all clutch pressure control solenoid driver circuits must be functional, no clutch pressure control solenoid electrical or performance faults can be present, and no speed sensor electrical or performance faults can be present, or the a clutch pressure control solenoid stuck off test is disabled. This diagnostic monitor is relative to the GF9 C4 C4, or, GR10 C4 C123467810R, clutch pressure control solenoid.			((startle mitigation active OR (startle mitigation active AND startle mitigation gear)) (see startle mitigation active NOTE below) C4 clutch pressured map clutch solenoid test state set to NEUTRAL TEST when: test trigger initialize range shift complete time, when range shift state, range shift complete time must time down to zero when range shift complete	= FALSE = TRUE ≠ initial startle mitigation gear = mapped to line pressure, C4 clutch pressure has transtioned from off-applying-applied = TRUE ≠ range shift completed	initialize range shift complete time = 0.500 seconds, range shift complete time must time down to zero	
					test trigger set to TRUE: enable forward gear AND direction request OR enable reverse gear AND direction request current loop test trigger clutch control solenoid test state range shift state NOTE: startle mitigation active is used to detect unintended deceleration due to clutch pressure control solenoid stuck on	= 1 Boolean = forward gear = 0 Boolean = reverse gear = FALSE ≠ NEUTRAL TEST = range shift completed	when range shift complete	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					failure modes, the clutch pressure control solenoid stuck on DTCs being P0747 P0777 P0797 P2715 P2724 P2733 P2821			
					DTCs not fault pending	P0716 P0717 P0722 P0723 P077C P077D P07BF P07C0		
					DTCs not test fail this key on	P0707 P0708 P0746 P0747 P0776 P0777 P0796 P0797 P2714 P2715 P2723 P2724 P2732 P2733 P2820 P2821		
					DTCs not fault active	AcceleratorPedalFailure CrankSensor_FA P0707 P0708 P0716 P0717 P07BF P07C0 P0722 P0723 P077C P077D P172A P172B P176B P176C P176D P17C5 P17CC P17CD P17CE P17D3 P17D6 P2805		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid D Stuck On	P2715	Each pressure control solenoid stuck on diagnostic monitor detects a clutch pressure control solenoid failed hydraulically on, while	shift type is power down shift, C4 clutch slip speed OR shift type is not power down shift, C4 clutch slip speed	< 50.0 RPM			shift type is power down shift, fail time ≥ 0.800 seconds, OR shift type is not power down shift, fail time ≥ 0.150 seconds,	Type A, 1 Trips
		the solenoid is electrically functional. The clutch pressure control solenoid is tested during an	update fail time 6.25 milliscond update					
		automatic transmission shift by monitoring the off going clutch slip speed. With the clutch pressure control					update fail count, fail count ≥ 3 counts 6.25 milliscond update	
		solenoid failed on, still allowing hydraulic pressure to the clutch being commanded off,			use battery voltage calibration is FALSE OR	= 1 Boolean		
		the intended off going clutch continues to maintain torque			(use battery voltage calibration is TRUE AND	= 1 Boolean		
		capacity during the transmission automatic shift. In the failure			battery voltage	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
		mode, the off going clutch slip speed will remain near zero RPM			use run crank voltage calibration is FALSE OR	= 0 Boolean	00001100	
		when the clutch pressure control solenoid is commanded			(use run crank voltage calibration is TRUE AND	= 0 Boolean		
		to an off pressure in the normal operation to release the holding clutch. The clutch slip			run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
		speed is calculated based on the transmission lever node design, requiring			TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		

 Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
transmission input shaft speed, transmission output shaft speed, and, one transmission intermediate shaft			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
pressure control solenoid stuck on diagnostic monitor, the			service fast learn active service solenoid cleaning procedure active	= FALSE Boolean = FALSE Boolean		
function executes when in steady state gear, no automatic transmission shift in progress. The safety startle mitigation function is triggered when a sudden vehicle deceleration occurs due to a clutch			hydraulic pressure available: engine speed	≥ 400.0 RPM	engine speed time ≥ engine speed time for transmission hydraulic pressure available see supporting table	
solenoid that has failed hydraulically on, while the solenoid is electrically functional.			transmission output shaft speed	≥ 89.0 RPM		
control solenoid stuck on diagnostic monitors			trigger to TRUE when: clutch pressure control	= FALSE		
DTCs. System voltage must be normal, all clutch pressure control			intrusive shift request startle mitigation active (see startle mitigation	= FALSE		
must be functional, no clutch pressure control solenoid electrical or performance faults can			clutch control solenoid test state clutch control solenoid test state (see clutch	≠ TIE UP TEST TEST STATE ≠ TIE UP TEST HOLD		
be present, and no speed sensor electrical or performance faults can be present, or the a clutch pressure			control solenoid test state NOTE below) initialize active clutch controller (clutch control processing in process of	= TRUE		
	output shaft speed, and, one transmission intermediate shaft speed. As part of the pressure control solenoid stuck on diagnostic monitor, the safety startle mitigation function executes when in steady state gear, no automatic transmission shift in progress. The safety startle mitigation function is triggered when a sudden vehicle deceleration occurs due to a clutch pressure control solenoid that has failed hydraulically on, while the solenoid is electrically functional. All clutch pressure control solenoid stuck on diagnostic monitors are emission MIL DTCs. System voltage must be normal, all clutch pressure control solenoid driver circuits must be functional, no clutch pressure control solenoid electrical or performance faults can be present, and no speed sensor electrical or performance faults	output shaft speed, and, one transmission intermediate shaft speed. As part of the pressure control solenoid stuck on diagnostic monitor, the safety startle mitigation function executes when in steady state gear, no automatic transmission shift in progress. The safety startle mitigation function is triggered when a sudden vehicle deceleration occurs due to a clutch pressure control solenoid that has failed hydraulically on, while the solenoid is electrically functional. All clutch pressure control solenoid stuck on diagnostic monitors are emission MIL DTCs. System voltage must be normal, all clutch pressure control solenoid driver circuits must be functional, no clutch pressure control solenoid delectrical or performance faults can be present, and no speed sensor electrical or performance faults can be present, or the a clutch pressure	output shaft speed, and, one transmission intermediate shaft speed. As part of the pressure control solenoid stuck on diagnostic monitor, the safety startle mitigation function executes when in steady state gear, no automatic transmission shift in progress. The safety startle mitigation function is triggered when a sudden vehicle deceleration occurs due to a clutch pressure control solenoid that has failed hydraulically on, while the solenoid is electrically functional. All clutch pressure control solenoid stuck on diagnostic monitors are emission MIL DTCs. System voltage must be normal, all clutch pressure control solenoid driver circuits must be functional, no clutch pressure control solenoid electrical or performance faults can be present, and no speed sensor electrical or performance faults can be present, or the a clutch pressure	output shaft speed, and, one transmission intermediate shaft speed. As part of the pressure control solenoid stuck on diagnostic monitor, the safety startle mitigation function executes when in steady state gear, no automatic transmission shift in progress. The safety startle mitigation function is triggered when a sudden vehicle deceleration occurs due to a clutch pressure control solenoid is electrically functional. All clutch pressure control solenoid stuck on diagnostic monitors are emission MIL DTCs. System voltage must be normal, all clutch pressure control solenoid driver circuits must be functional, no clutch pressure control solenoid driver circuits must be functional, no clutch pressure control solenoid driver circuits and be present, and no speed sensor electrical or performance faults can be present, and no speed sensor electrical or performance faults can be present, or the	output shaft speed, and, one transmission intermediate shaft speed. As part of the pressure control solenoid stuck on diagnostic monitor, the safety startle mitigation function executes when in steady state gear, no automatic transmission shift in progress. The safety startle mitigation function is triggered when a sudden vehicle deceleration occurs due to a clutch pressure control solenoid stuck on diagnostic monitors are emission MIL DTCs. System voltage must be normal, all clutch pressure control solenoid stuck on diagnostic monitors are emission MIL DTCs. System voltage must be normal, all clutch pressure control solenoid off viccuits must be functional, no clutch pressure control solenoid driver circuits must be functional, no clutch pressure control solenoid driver circuits must be present, and no speed sensor electrical or performance faults can be present, or the a clutch pressure or performance faults can be present, or the a clutch pressure or performance faults can be present, or the a clutch pressure or performance faults can be present, or the a clutch pressure or performance faults can be present, or the a clutch pressure or performance faults can be present, or the a clutch pressure or faults can be present, or the a clutch pressure or faults can be present, or the a clutch pressure or faults can be present, or the a clutch pressure or faults can be present, or the a clutch pressure or faults can be present, or the a clutch pressure or faults can be present, or the a clutch pressure or faults can be present, or the a clutch pressure or faults can be present, or the a clutch pressure or faults can be present, or the a clutch pressure or faults can be present, or the a clutch pressure or faults can be present, or the a clutch pressure or faults can be present, or the a clutch pressure or faults can be present, or the a clutch pressure or faults can be present, or the a clutch pressure or faults can be present, or the clutch pressure or faults can be present, or the clutch pressure or faults can be	output shaft speed, and, one transmission intermediate shaft speed. As part of the pressure control solenoid suck on diagnostic monitor, the safety startle mitigation function is triaggered when a sudden vehicle deceleration occurs due to a clutch pressure control solenoid stuck on diagnostic monitor, while the solenoid stuck on diagnostic monitors of the solenoid stuck on diagnostic monitors of the solenoid stuck on test triagger to TRUE when: clutch pressure control solenoid stuck on diagnostic monitors are emission MIL DTCs. System voltage must be normal, all clutch pressure control solenoid driver circuits must be functional, all clutch pressure control solenoid driver circuits must be functional, on clutch pressure control solenoid driver circuits must be functional, no clutch pressure control solenoid distinct on the functional of the functional of the functional of the functional of the functional of the functional of the functional of the functional of the functional of the functional of the functional of the functional of the functional of the functional of test state clutch control solenoid test state the control solenoid test state of the functional of test state clutch control solenoid test state to pe present, and no speed sensor electrical or performance faults can be present, or the clutch pressure of the pressure of the control solenoid test state to processing in process of the control process of the contro

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		on test is disabled. This diagnostic monitor is relative to the GF9 C4 C4, or, GR10 C4 C123467810R, clutch pressure control			and off for auto trans shift) (shift type enable for staged steady state shift - shift in process when new shift type occurs - interrupted shift	= 0 Boolean		
		solenoid.			OR shift type enable for garage shift OR	= 0 Boolean		
					shift type enable for negative torque up shift OR	= 1 Boolean		
					shift type enable for open throttle power on up shift OR	= 1 Boolean		
					shift type enable for closed throttle down shift OR	= 1 Boolean		
					shift type enable for open throttle power down shift OR	= 1 Boolean		
					shift type enable for closed throttle lift foot up shift) OR	= 0 Boolean		
					clutch control solenoid test state clutch control solenoid test state (see clutch control solenoid test state	= TIE UP TEST TEST STATE = TIE UP TEST HOLD		
					NOTE below) transition clutch controller active clutch controller (staged steady sate shift - shift not in process, no new shift type occuring, no interrupted shift)	= TRUE ≠ staged steady state		
					set clutch control solenoid test state to TIE UP TEST			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					TEST STATE when: solenoid stuck on test trigger current loop clutch control solenoid test state OR current loop clutch control solenoid test state (see clutch control solenoid test state NOTE below) range shift state solenoid stuck on test trigger additional off going clutch occured (clutch control solenoid test state OR clutch control solenoid test state) (see clutch control solenoid test state NOTE below) diagnostic clutch test (C4 off going clutch pressure control ramp time out complete AND off going clutch pressure ramp control ramp time out enable) OR C4 off going clutch pressure	= TRUE = TEST WAITING = TIE UP TEST HOLD ≠ range shift complete = TRUE = TRUE = TRUE = TIE UP TEST TEST STATE = TIE UP TEST HOLD = OFF GOING CLUTCH TEST = TRUE = 1 Boolean ≤ 350.0 kPa	for C4 off going clutch pressure time ≥ P2715 C4 clutch exhaust delay time closed throttle lift foot up shift OR	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					engine torque primary on coming clutch active primary on coming control state closed throttle lift foot up shift primary on coming clutch pressure OR open throttle power on up shift primary on coming clutch pressure OR open throttle power on up shift primary on coming clutch pressure OR garage shift primary on	≥ 8,191.8 Nm = TRUE ≠ clutch fill phase ≥ 850.0 kPa ≥ 850.0 kPA ≥ 750.0 kPa	P2715 C4 clutch exhaust delay time open throttle power on up shift OR P2715 C4 clutch exhaust delay time garage shift OR P2715 C4 clutch exhaust delay time closed throttle down shift OR P2715 C4 clutch exhaust delay time negative torque up shift OR P2715 C4 clutch exhaust delay time open throttle power down shift see supporting tables	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					all speed sesnors are functional for lever node clucth slip speed	≥ 850.0 kPa ≥ 850.0 kPa ≥ 850.0 kPa = TRUE		
					NOTE: Clutch control solenoid test state TIE UP TEST HOLD is necessary, as it is possible to have multiple off going clutches during one automatic transmission shift. Clutch control solenoid test state is set to TIE UP TEST HOLD during an automatic transmission shift due to two conditions: Current value of clutch control solenoid test state is TIE UP TEST TEST STATE, when one off going clutch pressure control solenoid stuck on diagnostic monitor is currently executing.			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
System	Code	Description			That off going clutch pressure control solenoid stuck on diagnostic monitor currently executing passes, the corresponding clutch slip speed ≥ clutch slip speed fail threshold. Once clutch control solenoid test state is set to TIE UP TEST HOLD, it remains TIE UP TEST HOLD during the automatic transmission shift, until: An additional off going clutch occurs, as indicated by solenoid stuck on test trigger = TRUE, subsequently clutch control solenoid test state is reset to TIE UP TEST TEST STATE, to allow the additional corresponding off going clutch pressure control solenoid stuck on diagnostic monitor to execute. OR			Illum.
					The automatic transmission shift completes, range shift state = range shift complete. NOTE: Startle mitigation is used to detect unintended vehicle deceleration due to a clutch pressure control			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			+		solenoid stuck on failure			
					mode that occurs during			
					steady state gear, not			
					during an automatic			
					transmission shift. The			
					startle mitigation active			
					then forces the			
					transmission clutch			
					pressure control system			
					to a safe gear or neutral			
					state, based on the active			
					and inactive clutches,			
					when the unintended			
					vehicle deceleration			
					occurred. Once a safe			
					vehicle gear state is			
					attained, the gear and			
					clutch pressure control			
					system allows transitions			
					of the clutches on and off,			
					to sequence automatic			
					transmission shifts, single			
					step shifts. As each			
					single step automatic			
					transmission shift occurs			
					the normal pressure			
					control solenoid stuck on			
					diagnostic monitors			
					execute to verify which			
					clutch pressure control			
					solenoid is in the stuck on			
					failure mode, allowing one			
					of the clutch pressure			
					control solenoid stuck on			
					DTCs to set P0747,			
					P0777, P0797, P2715,			
					P2724, P2733, P2821.			
					1 2 2 1, 1 2 1 00, 1 202 1			
					DTCs not fault pending	P0716 P0717 P0722		
					2. 30 not laan ponding	P0723 P077C P077D		
						P07BF P07C0		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					DTCs not test fail this key on	P0707 P0708 P0746 P0747 P0776 P0777 P0796 P0797 P2714 P2715 P2723 P2724 P2732 P2733 P2820 P2821		
					DTCs not fault active	AcceleratorPedalFailure CrankSensor_FA P0707 P0708 P0716 P0717 P07BF P07C0 P0722 P0723 P077C P077D P172A P172B P176B P176C P176D P17C5 P17CC P17CD P17CE P17D3 P17D6 P2805		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid D Control Circuit Open	P2718	Controller specific circuit diagnoses 9 speed C4 or 10 speed C123467810R clutch solenoid for an open circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates an open circuit Controller specific circuit voltage thresholds are set to meet the following controller specification for an open circuit Increment fail time	≥ 200 K Ω impedance between signal and controller ground	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 8.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid D Control Circuit Low	P2720	Controller specific circuit diagnoses 9 speed C4 or 10 speed C123467810R clutch solenoid for a ground short circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a ground short Controller specific circuit voltage thresholds are set to meet the following controller specification for a ground short Increment fail time	≤ 0.5 Ω impedance between signal and controller ground	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 8.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ s 0.500 econds	1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid D Control Circuit High	P2721	Controller specific circuit diagnoses 9 speed C4 or 10 speed C123467810R clutch solenoid for a short to voltage circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a short to voltage Controller specific circuit voltage thresholds are set to meet the following controller specification for a short to voltage Increment fail time	≤ 0.5 Ω impedance between signal and controller voltage source	run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 8.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid E Stuck Off	P2723	Each pressure control solenoid stuck off diagnostic monitor detects a clutch pressure control solenoid failed hydraulically off, while	C1 clutch slip speed, update fail time 6.25 milliscond update	≥ 200.0 RPM			fail time ≥ 3.00 seconds, update fail count, fail count ≥ 3 counts 6.25 milliscond update	Type A, 1 Trips
		the solenoid is electrically functional. In the failure mode the			use battery voltage calibration is FALSE OR	= 1 Boolean	update	
		clutch slip speed, and gear box gear slip, will be excessive, not near			(use battery voltage calibration is TRUE AND	= 1 Boolean		
		or at zero RPM. The clutch slip speed is calculated based on			battery voltage	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
	the transmission lever node design, requiring transmission input shaft			use run crank voltage calibration is FALSE OR	= 0 Boolean	Securius		
		speed, transmission output shaft speed, and, one transmission			(use run crank voltage calibration is TRUE AND	= 0 Boolean		
		intermediate shaft speed. The clutch pressure control			run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
		solenoid is tested after an automatic transmission shift occurs and has been considered shift			TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
		complete, or, steady state gear is deemed active, range shift complete. When the automatic transmission			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
		shift is complete, steady state gear is considered, the clutch pressure control solenoid is mapped to			service fast learn active service solenoid cleaning procedure active	= FALSE Boolean = FALSE Boolean		
		transmission line			hydraulic pressure			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		pressure control, which			available:			
		normally allows the			engine speed	≥ 400.0 RPM	engine speed	
		clutch to maintain full					time ≥	
		torque holding capacity					engine speed	
		at the given engine					time for	
		crankshaft torque, to					transmission	
		maintain true gear					hydraulic	
		ratio. When the clutch					pressure	
		pressure control					available	
		solenoid is failed			enable C5 clutch slip		see supporting	
1		hydraulically off, the			speed fail compare when:		table	
1		clutch does not			diagnostic clutch test C5	= HOLDING CLUTCH		
		maintain holding			((startle mitigation active	= FALSE		
		capacity at any engine			OR	TD.15		
l		crankshaft torque, and			(startle mitigation active	= TRUE		
		the clutch slip speed is			AND	/ · · · · · · · · · · · · · · · · · · ·		
		uncontrollable. The			startle mitigation gear))	≠ initial startle mitigation		
		clutch pressure control			(see startle mitigation	gear		
l		solenoid test is			active NOTE below)	FALSE		
l		suspended if the higher			unintended deceleration	= FALSE		
		level safety startle			fault pending OR unintended deceleration	= 0 Boolean		
l		mitigation function is active. The safety				= 0 Boolean		
		startle mitigation			fault pending enable FASLE			
l		function is triggered			(startle mitigation)			
l		when a sudden vehicle			clutch steady state	= FALSE		
		deceleration occurs			adaptive active	= PALSE		
		due to a clutch			transmission output shaft	≥ 100.0 RPM		
		pressure control			speed	= 100.0 T(1 W)		
		solenoid that has failed			C5 clutch slip speed valid,	= TRUE		
		in the opposite sense,			all speed sesnors are	- 1102		
		clutch pressure control			functional for lever node			
		solenoid failed			clucth slip speed			
		hydraulically on, while			calculation			
1		the solenoid is			1			
I		electrically functional,			accelerator pedal position	≥ 2.00 %		
		which must take priority			engine speed	≥ 1,500.0 RPM		
I		over any clutch				ĺ ,		
		pressure control			diagnostic clutch test C5			
I		solenoid stuck off			set to HOLDING CLUTCH			
1		diagnostic monitor. All			when:			
		clutch pressure control			clutch solenoid test state	= NEUTRAL TEST		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		solenoid stuck on/off diagnostic monitors are emission MIL DTCs. System voltage must be normal, all clutch pressure control solenoid driver circuits must be functional, no clutch pressure control solenoid electrical or performance faults can			((startle mitigation active OR (startle mitigation active AND startle mitigation gear)) (see startle mitigation active NOTE below) C5 clutch pressured map	= FALSE = TRUE ≠ initial startle mitigation gear = mapped to line pressure, C5 clutch pressure has transtioned from off-applying-applied		
		be present, and no speed sensor electrical or performance faults can be present, or the a clutch pressure control solenoid stuck off test is disabled. This diagnostic monitor is relative to the GF9 C5 C57R, or, GR10 C5 C1356789, clutch pressure control solenoid.			clutch solenoid test state set to NEUTRAL TEST when: test trigger initialize range shift complete time, when range shift state, range shift complete time must time down to zero when range shift complete	= TRUE ≠ range shift completed	initialize range shift complete time = 0.500 seconds, range shift complete time must time down to zero when	
					test trigger set to TRUE: enable forward gear AND direction request OR enable reverse gear AND direction request current loop test trigger clutch control solenoid test state	= 1 Boolean = forward gear = 0 Boolean = reverse gear = FALSE ≠ NEUTRAL TEST	range shift complete	
					NOTE: startle mitigation active is used to detect unintended deceleration due to clutch pressure control solenoid stuck on	= range shift completed		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					failure modes, the clutch pressure control solenoid stuck on DTCs being P0747 P0777 P0797 P2715 P2724 P2733 P2821			
					DTCs not fault pending	P0716 P0717 P0722 P0723 P077C P077D P07BF P07C0		
					DTCs not test fail this key on	P0707 P0708 P0746 P0747 P0776 P0777 P0796 P0797 P2714 P2715 P2723 P2724 P2732 P2733 P2820 P2821		
					DTCs not fault active	AcceleratorPedalFailure CrankSensor_FA P0707 P0708 P0716 P0717 P07BF P07C0 P0722 P0723 P077C P077D P172A P172B P176B P176C P176D P17C5 P17CC P17CD P17CE P17D3 P17D6 P2805		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid E Stuck On	P2724	Each pressure control solenoid stuck on diagnostic monitor detects a clutch pressure control solenoid failed hydraulically on, while	shift type is power down shift, C5 clutch slip speed OR shift type is not power down shift, C5 clutch slip speed	< 50.0 RPM			shift type is power down shift, fail time ≥ 0.800 seconds, OR shift type is not	Type A, 1 Trips
		the solenoid is electrically functional. The clutch pressure control solenoid is tested during an	update fail time 6.25 milliscond update				power down shift, fail time ≥ 0.150 seconds,	
		automatic transmission shift by monitoring the off going clutch slip speed. With the clutch pressure control					update fail count, fail count ≥ 3 counts 6.25 milliscond update	
		solenoid failed on, still allowing hydraulic pressure to the clutch being commanded off,			use battery voltage calibration is FALSE OR	= 1 Boolean		
		the intended off going clutch continues to maintain torque			(use battery voltage calibration is TRUE AND	= 1 Boolean		
		capacity during the transmission automatic shift. In the failure			battery voltage	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
		mode, the off going clutch slip speed will remain near zero RPM			use run crank voltage calibration is FALSE OR	= 0 Boolean	30001143	
		when the clutch pressure control solenoid is commanded			(use run crank voltage calibration is TRUE AND	= 0 Boolean		
		to an off pressure in the normal operation to release the holding clutch. The clutch slip			run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
		speed is calculated based on the transmission lever node design, requiring			TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		

 Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
transmission input shaft speed, transmission output shaft speed, and, one transmission intermediate shaft			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
pressure control solenoid stuck on diagnostic monitor, the			service fast learn active service solenoid cleaning procedure active	= FALSE Boolean = FALSE Boolean		
function executes when in steady state gear, no automatic transmission shift in progress. The safety startle mitigation function is triggered when a sudden vehicle deceleration occurs due to a clutch			hydraulic pressure available: engine speed	≥ 400.0 RPM	engine speed time ≥ engine speed time for transmission hydraulic pressure available see supporting table	
solenoid that has failed hydraulically on, while the solenoid is electrically functional.			transmission output shaft speed	≥ 89.0 RPM		
control solenoid stuck on diagnostic monitors			trigger to TRUE when: clutch pressure control	= FALSE		
DTCs. System voltage must be normal, all clutch pressure control			intrusive shift request startle mitigation active (see startle mitigation	= FALSE		
must be functional, no clutch pressure control solenoid electrical or performance faults can			clutch control solenoid test state clutch control solenoid test state (see clutch	≠ TIE UP TEST TEST STATE ≠ TIE UP TEST HOLD		
be present, and no speed sensor electrical or performance faults can be present, or the a clutch pressure			control solenoid test state NOTE below) initialize active clutch controller (clutch control processing in process of	= TRUE		
	output shaft speed, and, one transmission intermediate shaft speed. As part of the pressure control solenoid stuck on diagnostic monitor, the safety startle mitigation function executes when in steady state gear, no automatic transmission shift in progress. The safety startle mitigation function is triggered when a sudden vehicle deceleration occurs due to a clutch pressure control solenoid that has failed hydraulically on, while the solenoid is electrically functional. All clutch pressure control solenoid stuck on diagnostic monitors are emission MIL DTCs. System voltage must be normal, all clutch pressure control solenoid driver circuits must be functional, no clutch pressure control solenoid electrical or performance faults can be present, and no speed sensor electrical or performance faults	output shaft speed, and, one transmission intermediate shaft speed. As part of the pressure control solenoid stuck on diagnostic monitor, the safety startle mitigation function executes when in steady state gear, no automatic transmission shift in progress. The safety startle mitigation function is triggered when a sudden vehicle deceleration occurs due to a clutch pressure control solenoid that has failed hydraulically on, while the solenoid is electrically functional. All clutch pressure control solenoid stuck on diagnostic monitors are emission MIL DTCs. System voltage must be normal, all clutch pressure control solenoid driver circuits must be functional, no clutch pressure control solenoid delectrical or performance faults can be present, and no speed sensor electrical or performance faults can be present, or the a clutch pressure	output shaft speed, and, one transmission intermediate shaft speed. As part of the pressure control solenoid stuck on diagnostic monitor, the safety startle mitigation function executes when in steady state gear, no automatic transmission shift in progress. The safety startle mitigation function is triggered when a sudden vehicle deceleration occurs due to a clutch pressure control solenoid that has failed hydraulically on, while the solenoid is electrically functional. All clutch pressure control solenoid stuck on diagnostic monitors are emission MIL DTCs. System voltage must be normal, all clutch pressure control solenoid driver circuits must be functional, no clutch pressure control solenoid electrical or performance faults can be present, and no speed sensor electrical or performance faults can be present, or the a clutch pressure	output shaft speed, and, one transmission intermediate shaft speed. As part of the pressure control solenoid stuck on diagnostic monitor, the safety startle mitigation function executes when in steady state gear, no automatic transmission shift in progress. The safety startle mitigation function is triggered when a sudden vehicle deceleration occurs due to a clutch pressure control solenoid is electrically functional. All clutch pressure control solenoid stuck on diagnostic monitors are emission MIL DTCs. System voltage must be normal, all clutch pressure control solenoid driver circuits must be functional, no clutch pressure control solenoid driver circuits must be functional, no clutch pressure control solenoid driver circuits and be present, and no speed sensor electrical or performance faults can be present, and no speed sensor electrical or performance faults can be present, or the	output shaft speed, and, one transmission intermediate shaft speed. As part of the pressure control solenoid stuck on diagnostic monitor, the safety startle mitigation function executes when in steady state gear, no automatic transmission shift in progress. The safety startle mitigation function is triggered when a sudden vehicle deceleration occurs due to a clutch pressure control solenoid stuck on diagnostic monitors are emission MIL DTCs. System voltage must be normal, all clutch pressure control solenoid stuck on diagnostic monitors are emission MIL DTCs. System voltage must be normal, all clutch pressure control solenoid off viccuits must be functional, no clutch pressure control solenoid driver circuits must be functional, no clutch pressure control solenoid driver circuits must be present, and no speed sensor electrical or performance faults can be present, or the a clutch pressure or performance faults can be present, or the a clutch pressure or performance faults can be present, or the a clutch pressure or performance faults can be present, or the a clutch pressure or performance faults can be present, or the a clutch pressure or performance faults can be present, or the a clutch pressure or faults can be present, or the a clutch pressure or faults can be present, or the a clutch pressure or faults can be present, or the a clutch pressure or faults can be present, or the a clutch pressure or faults can be present, or the a clutch pressure or faults can be present, or the a clutch pressure or faults can be present, or the a clutch pressure or faults can be present, or the a clutch pressure or faults can be present, or the a clutch pressure or faults can be present, or the a clutch pressure or faults can be present, or the a clutch pressure or faults can be present, or the a clutch pressure or faults can be present, or the a clutch pressure or faults can be present, or the a clutch pressure or faults can be present, or the clutch pressure or faults can be present, or the clutch pressure or faults can be	output shaft speed, and, one transmission intermediate shaft speed. As part of the pressure control solenoid suck on diagnostic monitor, the safety startle mitigation function is triaggered when a sudden vehicle deceleration occurs due to a clutch pressure control solenoid stuck on diagnostic monitor, while the solenoid stuck on diagnostic monitors of the solenoid stuck on diagnostic monitors of the solenoid stuck on test triagger to TRUE when: clutch pressure control solenoid stuck on diagnostic monitors are emission MIL DTCs. System voltage must be normal, all clutch pressure control solenoid driver circuits must be functional, all clutch pressure control solenoid driver circuits must be functional, on clutch pressure control solenoid driver circuits must be functional, no clutch pressure control solenoid distinct on the functional of the functional of the functional of the functional of the functional of the functional of the functional of the functional of the functional of the functional of the functional of the functional of the functional of the functional of test state clutch control solenoid test state the control solenoid test state of the functional of test state clutch control solenoid test state to pe present, and no speed sensor electrical or performance faults can be present, or the clutch pressure of the pressure of the control solenoid test state to processing in process of the control process of the contro

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		on test is disabled. This diagnostic monitor is relative to the GF9 C5 C57R, or, GR10 C5 C1356789, clutch pressure control			and off for auto trans shift) (shift type enable for staged steady state shift - shift in process when new shift type occurs - interrupted shift	= 0 Boolean		
		solenoid.			OR shift type enable for garage shift OR	= 0 Boolean		
					shift type enable for negative torque up shift OR	= 1 Boolean		
					shift type enable for open throttle power on up shift OR	= 1 Boolean		
					shift type enable for closed throttle down shift OR	= 1 Boolean		
					shift type enable for open throttle power down shift OR	= 1 Boolean		
					shift type enable for closed throttle lift foot up shift) OR	= 0 Boolean		
					clutch control solenoid test state clutch control solenoid test state (see clutch control solenoid test state	= TIE UP TEST TEST STATE = TIE UP TEST HOLD		
					NOTE below) transition clutch controller active clutch controller (staged steady sate shift - shift not in process, no new shift type occuring, no interrupted shift)	= TRUE ≠ staged steady state		
					set clutch control solenoid test state to TIE UP TEST			

System Code Description		MIL Illum.
TEST STATE when: solenoid stuck on test trigger current loop clutch control solenoid test state OR current loop clutch control solenoid test state (see clutch control solenoid test state NOTE below) range shift state solenoid stuck on test trigger additional off going clutch occured (clutch control solenoid test state OR clutch cont	for C5 off going clutch pressure time ≥ P2724 C5 clutch exhaust delay time closed throttle lift foot up shift	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					engine torque primary on coming clutch active primary on coming control state closed throttle lift foot up shift primary on coming clutch pressure OR open throttle power on up shift primary on coming clutch pressure OR open throttle power on up shift primary on coming clutch pressure OR qarage shift primary on	≥ 8,191.8 Nm = TRUE ≠ clutch fill phase ≥ 703.0 kPa ≥ 703.0 kPA	P2724 C5 clutch exhaust delay time open throttle power on up shift OR P2724 C5 clutch exhaust delay time garage shift OR P2724 C5 clutch exhaust delay time closed throttle down shift OR P2724 C5 clutch exhaust delay time negative torque up shift OR P2724 C5 clutch exhaust delay time negative torque up shift OR P2724 C5 clutch exhaust delay time open throttle power down shift see supporting tables	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					all speed sesnors are functional for lever node clucth slip speed	≥ 703.0 kPa ≥ 703.0 kPa ≥ 703.0 kPa = TRUE		
					NOTE: Clutch control solenoid test state TIE UP TEST HOLD is necessary, as it is possible to have multiple off going clutches during one automatic transmission shift. Clutch control solenoid test state is set to TIE UP TEST HOLD during an automatic transmission shift due to two conditions: Current value of clutch control solenoid test state is TIE UP TEST TEST STATE, when one off going clutch pressure control solenoid stuck on diagnostic monitor is currently executing.			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
System	Code	Description			That off going clutch pressure control solenoid stuck on diagnostic monitor currently executing passes, the corresponding clutch slip speed ≥ clutch slip speed fail threshold. Once clutch control solenoid test state is set to TIE UP TEST HOLD, it remains TIE UP TEST HOLD during the automatic transmission shift, until: An additional off going clutch occurs, as indicated by solenoid stuck on test trigger = TRUE, subsequently clutch control solenoid test state is reset to TIE UP TEST TEST STATE, to allow the additional corresponding off going clutch pressure control solenoid stuck on diagnostic monitor to execute. OR			Illum.
					The automatic transmission shift completes, range shift state = range shift complete. NOTE: Startle mitigation is used to detect unintended vehicle deceleration due to a clutch pressure control			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
System	Code	Description			solenoid stuck on failure mode that occurs during steady state gear, not during an automatic transmission shift. The startle mitigation active then forces the transmission clutch pressure control system to a safe gear or neutral state, based on the active and inactive clutches, when the unintended vehicle deceleration occurred. Once a safe vehicle gear state is attained, the gear and clutch pressure control system allows transitions of the clutches on and off, to sequence automatic transmission shifts, single step shifts. As each single step automatic transmission shift occurs the normal pressure control solenoid stuck on diagnostic monitors execute to verify which clutch pressure control solenoid is in the stuck on failure mode, allowing one			Illum.
					of the clutch pressure control solenoid stuck on DTCs to set P0747, P0777, P0797, P2715, P2724, P2733, P2821. DTCs not fault pending	P0716 P0717 P0722 P0723 P077C P077D P07BF P07C0		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					DTCs not test fail this key on	P0707 P0708 P0746 P0747 P0776 P0777 P0796 P0797 P2714 P2715 P2723 P2724 P2732 P2733 P2820 P2821		
					DTCs not fault active	AcceleratorPedalFailure CrankSensor_FA P0707 P0708 P0716 P0717 P07BF P07C0 P0722 P0723 P077C P077D P172A P172B P176B P176C P176D P17C5 P17CC P17CD P17CE P17D3 P17D6 P2805		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid E Control Circuit Open	P2727	Controller specific circuit diagnoses 9 speed C57R or 10 speed C1356789 clutch solenoid for an open circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates an open circuit Controller specific circuit voltage thresholds are set to meet the following controller specification for an open circuit Increment fail time	≥ 200 K Ω impedance between signal and controller ground	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 8.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid E Control Circuit Low	P2729	Controller specific circuit diagnoses 9 speed C57R or 10 speed C1356789 clutch solenoid for a ground short circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a ground short Controller specific circuit voltage thresholds are set to meet the following controller specification for a ground short Increment fail time	≤ 0.5 Ω impedance between signal and controller ground	run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 8.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid E Control Circuit High	P2730	Controller specific circuit diagnoses 9 speed C57R or 10 speed C1356789 clutch solenoid for a short to voltage circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a short to voltage Controller specific circuit voltage thresholds are set to meet the following controller specification for a short to voltage Increment fail time	≤ 0.5 Ω impedance between signal and controller voltage source	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 8.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid F Stuck Off	P2732	Each pressure control solenoid stuck off diagnostic monitor detects a clutch pressure control solenoid failed hydraulically off, while	C1 clutch slip speed, update fail time 6.25 milliscond update	≥ 200.0 RPM			fail time ≥ 3.00 seconds, update fail count, fail count ≥ 3 counts 6.25 milliscond update	Type A, 1 Trips
		the solenoid is electrically functional. In the failure mode the			use battery voltage calibration is FALSE	= 1 Boolean	update	
		clutch slip speed, and gear box gear slip, will be excessive, not near			OR (use battery voltage calibration is TRUE AND	= 1 Boolean	battery voltage time ≥ 0.100 seconds	
		or at zero RPM. The clutch slip speed is calculated based on			battery voltage	≥ 9.00 volts		
		the transmission lever node design, requiring transmission input shaft			use run crank voltage calibration is FALSE OR	= 0 Boolean		
		speed, transmission output shaft speed, and, one transmission			(use run crank voltage calibration is TRUE AND	= 0 Boolean		
		intermediate shaft speed. The clutch pressure control			run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
		solenoid is tested after an automatic transmission shift occurs and has been considered shift			TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean	1	
		complete, or, steady state gear is deemed active, range shift complete. When the automatic transmission			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
		shift is complete, steady state gear is considered, the clutch pressure control solenoid is mapped to			service fast learn active service solenoid cleaning procedure active	= FALSE Boolean = FALSE Boolean		
		transmission line			hydraulic pressure			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		pressure control, which			available:			
		normally allows the			engine speed	≥ 400.0 RPM	engine speed	
		clutch to maintain full					time ≥	
		torque holding capacity					engine speed	
		at the given engine					time for	
		crankshaft torque, to					transmission	
		maintain true gear					hydraulic	
		ratio. When the clutch					pressure	
		pressure control					available	
		solenoid is failed			enable C6 clutch slip		see supporting	
		hydraulically off, the			speed fail compare when:		table	
		clutch does not			diagnostic clutch test C6	= HOLDING CLUTCH		
		maintain holding			((startle mitigation active	= FALSE		
		capacity at any engine			OR			
		crankshaft torque, and			(startle mitigation active	= TRUE		
		the clutch slip speed is			AND			
		uncontrollable. The			startle mitigation gear))	≠ initial startle mitigation		
		clutch pressure control			(see startle mitigation	gear		
		solenoid test is			active NOTE below)	E41.0E		
		suspended if the higher			unintended deceleration	= FALSE		
		level safety startle			fault pending OR	0.5		
		mitigation function is			unintended deceleration	= 0 Boolean		
		active. The safety			fault pending enable			
		startle mitigation function is triggered			FASLE			
		when a sudden vehicle			(startle mitigation) clutch steady state	= FALSE		
		deceleration occurs			adaptive active	= FALSE		
		due to a clutch			transmission output shaft	≥ 100.0 RPM		
		pressure control			speed	2 100.0 KH W		
		solenoid that has failed			C6 clutch slip speed valid,	= TRUE		
		in the opposite sense,			all speed sesnors are	- INOL		
		clutch pressure control			functional for lever node			
		solenoid failed			clucth slip speed			
		hydraulically on, while			calculation			
		the solenoid is						
		electrically functional,			accelerator pedal position	≥ 2.00 %		
		which must take priority			engine speed	≥ 1,500.0 RPM		
		over any clutch						
		pressure control			diagnostic clutch test C6			
		solenoid stuck off			set to HOLDING CLUTCH			
		diagnostic monitor. All			when:			
		clutch pressure control			clutch solenoid test state	= NEUTRAL TEST		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		solenoid stuck on/off diagnostic monitors are emission MIL DTCs. System voltage must be normal, all clutch pressure control solenoid driver circuits must be functional, no clutch pressure control solenoid electrical or performance faults can be present, and no speed sensor electrical or performance faults can be present, or the a clutch pressure control solenoid stuck off test is disabled. This diagnostic monitor is relative to the GF9 C6 C6789/Selectable One Way Clutch (SOWC) CBR1, or, GR10 C6 C45678910R, clutch pressure control solenoid.			((startle mitigation active OR (startle mitigation active AND startle mitigation gear)) (see startle mitigation active NOTE below) C6 clutch pressured map clutch solenoid test state set to NEUTRAL TEST when: test trigger initialize range shift complete time, when range shift state, range shift complete time must time down to zero when range shift complete test trigger set to TRUE: enable forward gear AND direction request OR enable reverse gear AND direction request current loop test trigger clutch control solenoid test state range shift state NOTE: startle mitigation active is used to detect unintended deceleration due to clutch pressure control solenoid stuck on	= FALSE = TRUE ≠ initial startle mitigation gear = mapped to line pressure, C6 clutch pressure has transtioned from off-applying-applied = TRUE ≠ range shift completed = 1 Boolean = forward gear = 0 Boolean = reverse gear = FALSE ≠ NEUTRAL TEST = range shift completed	initialize range shift complete time = 0.500 seconds, range shift complete time must time down to zero when range shift complete	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					failure modes, the clutch pressure control solenoid stuck on DTCs being P0747 P0777 P0797 P2715 P2724 P2733 P2821			
					DTCs not fault pending	P0716 P0717 P0722 P0723 P077C P077D P07BF P07C0		
					DTCs not test fail this key on	P0707 P0708 P0746 P0747 P0776 P0777 P0796 P0797 P2714 P2715 P2723 P2724 P2732 P2733 P2820 P2821		
					DTCs not fault active	AcceleratorPedalFailure CrankSensor_FA P0707 P0708 P0716 P0717 P07BF P07C0 P0722 P0723 P077C P077D P172A P172B P176B P176C P176D P17C5 P17CC P17CD P17CE P17D3 P17D6 P2805		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid F Stuck On	P2733	Each pressure control solenoid stuck on diagnostic monitor detects a clutch pressure control solenoid failed hydraulically on, while	shift type is power down shift, C6 clutch slip speed OR shift type is not power down shift, C6 clutch slip speed	< 50.0 RPM			shift type is power down shift, fail time ≥ 0.800 seconds, OR shift type is not	Type A, 1 Trips
		the solenoid is electrically functional. The clutch pressure control solenoid is tested during an	update fail time 6.25 milliscond update				power down shift, fail time ≥ 0.150 seconds,	
		automatic transmission shift by monitoring the off going clutch slip speed. With the clutch pressure control					update fail count, fail count ≥ 3 counts 6.25 milliscond update	
		solenoid failed on, still allowing hydraulic pressure to the clutch being commanded off,			use battery voltage calibration is FALSE OR	= 1 Boolean	update	
		the intended off going clutch continues to maintain torque			(use battery voltage calibration is TRUE AND	= 1 Boolean		
		capacity during the transmission automatic shift. In the failure			battery voltage	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
		mode, the off going clutch slip speed will remain near zero RPM			use run crank voltage calibration is FALSE OR	= 0 Boolean	00001100	
		when the clutch pressure control solenoid is commanded			(use run crank voltage calibration is TRUE AND	= 0 Boolean	run crank voltage time ≥ 0.100 seconds	
		to an off pressure in the normal operation to release the holding clutch. The clutch slip			run crank voltage	≥ 9.00 volts		
		speed is calculated based on the transmission lever node design, requiring			TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		transmission input shaft speed, transmission output shaft speed, and, one transmission intermediate shaft			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
		speed. As part of the pressure control solenoid stuck on diagnostic monitor, the			service fast learn active service solenoid cleaning procedure active	= FALSE Boolean = FALSE Boolean		
		safety startle mitigation function executes when in steady state gear, no automatic transmission shift in progress. The safety startle mitigation function is triggered when a sudden vehicle deceleration occurs due to a clutch pressure control			hydraulic pressure available: engine speed	≥ 400.0 RPM	engine speed time ≥ engine speed time for transmission hydraulic pressure available see supporting table	
		solenoid that has failed hydraulically on, while the solenoid is electrically functional.			transmission output shaft speed	≥ 89.0 RPM		
		All clutch pressure control solenoid stuck on diagnostic monitors are emission MIL			set solenoid stuck on test trigger to TRUE when: clutch pressure control solenoid stuck off stuck	= FALSE		
		DTCs. System voltage must be normal, all clutch pressure control			intrusive shift request startle mitigation active (see startle mitigation	= FALSE		
		solenoid driver circuits must be functional, no clutch pressure control solenoid electrical or performance faults can be present, and no			active NOTE below) clutch control solenoid test state clutch control solenoid test state (see clutch control solenoid test state	≠ TIE UP TEST TEST STATE ≠ TIE UP TEST HOLD		
		speed sensor electrical or performance faults can be present, or the a clutch pressure control solenoid stuck			NOTE below) initialize active clutch controller (clutch control processing in process of sequencing clutches on	= TRUE		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		on test is disabled. This diagnostic monitor is relative to the GF9 C6 C6789/Selectable One Way Clutch (SOWC) CBR1, or, GR10 C6			and off for auto trans shift) (shift type enable for staged steady state shift - shift in process when new shift type occurs - interrupted shift	= 0 Boolean		
		C45678910R, clutch pressure control solenoid.			OR shift type enable for garage shift OR	= 0 Boolean		
					shift type enable for negative torque up shift OR	= 1 Boolean		
					shift type enable for open throttle power on up shift OR	= 1 Boolean		
					shift type enable for closed throttle down shift OR	= 1 Boolean		
					shift type enable for open throttle power down shift OR	= 1 Boolean		
					shift type enable for closed throttle lift foot up shift) OR	= 0 Boolean		
					clutch control solenoid test state clutch control solenoid test state (see clutch control solenoid test state	= TIE UP TEST TEST STATE = TIE UP TEST HOLD		
					NOTE below) transition clutch controller active clutch controller (staged steady sate shift - shift not in process, no new shift type occuring,	= TRUE ≠ staged steady state		
					no interrupted shift) set clutch control solenoid test state to TIE UP TEST			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					TEST STATE when: solenoid stuck on test trigger current loop clutch control solenoid test state OR current loop clutch control solenoid test state (see clutch control solenoid test state NOTE below) range shift state solenoid stuck on test trigger additional off going clutch occured (clutch control solenoid test state OR clutch control solenoid test state OR clutch control solenoid test state) (see clutch control solenoid test state NOTE below) diagnostic clutch test (C6 off going clutch pressure control ramp time out complete AND off going clutch pressure ramp control ramp time out enable) OR C6 off going clutch pressure	= TRUE = TEST WAITING = TIE UP TEST HOLD ≠ range shift complete = TRUE = TRUE = TIE UP TEST TEST STATE = TIE UP TEST HOLD = OFF GOING CLUTCH TEST = TRUE = 1 Boolean ≤ 350.0 kPa	for C6 off going clutch pressure time ≥ P2733 C6 clutch exhaust delay time closed throttle lift foot	Illum.
							up shift OR	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					engine torque primary on coming clutch active primary on coming control state closed throttle lift foot up shift primary on coming clutch pressure OR open throttle power on up shift primary on coming clutch pressure OR open throttle power on up shift primary on coming clutch pressure OR qarage shift primary on	≥ 8,191.8 Nm = TRUE ≠ clutch fill phase ≥ 655.0 kPa ≥ 655.0 kPA	P2733 C6 clutch exhaust delay time open throttle power on up shift OR P2733 C6 clutch exhaust delay time garage shift OR P2733 C6 clutch exhaust delay time closed throttle down shift OR P2733 C6 clutch exhaust delay time negative torque up shift OR P2733 C6 clutch exhaust delay time negative torque up shift OR P2733 C6 clutch exhaust delay time open throttle power down shift see supporting tables	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					coming clutch pressure OR negative torque up shift primary on coming clutch pressure OR open throttle power down shift primary on coming clutch pressure OR closed throttle down shift primary on coming clutch pressure C6 clutch slip speed valid, all speed sesnors are functional for lever node clutch slip speed	≥ 655.0 kPa ≥ 655.0 kPa ≥ 655.0 kPa = TRUE		
					NOTE: Clutch control solenoid test state TIE UP TEST HOLD is necessary, as it is possible to have multiple off going clutches during one automatic transmission shift. Clutch control solenoid test state is set to TIE UP TEST HOLD during an automatic transmission shift due to two conditions: Current value of clutch control solenoid test state is TIE UP TEST TEST STATE, when one off going clutch pressure control solenoid stuck on diagnostic monitor is currently executing.			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					That off going clutch pressure control solenoid stuck on diagnostic monitor currently executing passes, the corresponding clutch slip speed ≥ clutch slip speed fail threshold. Once clutch control solenoid test state is set to TIE UP TEST HOLD, it remains TIE UP TEST HOLD during the automatic transmission shift, until: An additional off going clutch occurs, as indicated by solenoid stuck on test trigger = TRUE, subsequently clutch control solenoid test state is reset to TIE UP TEST TEST STATE, to allow the additional corresponding off going clutch pressure control solenoid stuck on diagnostic monitor to execute. OR The automatic transmission shift completes, range shift state = range shift state = range shift complete.			
					NOTE: Startle mitigation is used to detect unintended vehicle deceleration due to a clutch pressure control			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
System	Code	Description			solenoid stuck on failure mode that occurs during steady state gear, not during an automatic transmission shift. The startle mitigation active then forces the transmission clutch pressure control system to a safe gear or neutral state, based on the active and inactive clutches, when the unintended vehicle deceleration occurred. Once a safe vehicle gear state is attained, the gear and clutch pressure control system allows transitions of the clutches on and off, to sequence automatic transmission shifts, single step shifts. As each single step automatic transmission shift occurs the normal pressure control solenoid stuck on diagnostic monitors execute to verify which clutch pressure control solenoid is in the stuck on failure mode, allowing one			Illum.
					of the clutch pressure control solenoid stuck on DTCs to set P0747, P0777, P0797, P2715, P2724, P2733, P2821. DTCs not fault pending	P0716 P0717 P0722 P0723 P077C P077D P07BF P07C0		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					DTCs not test fail this key on	P0707 P0708 P0746 P0747 P0776 P0777 P0796 P0797 P2714 P2715 P2723 P2724 P2732 P2733 P2820 P2821		
					DTCs not fault active	AcceleratorPedalFailure CrankSensor_FA P0707 P0708 P0716 P0717 P07BF P07C0 P0722 P0723 P077C P077D P172A P172B P176B P176C P176D P17C5 P17CC P17CD P17CE P17D3 P17D6 P2805		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid F Control Circuit Open	P2736	Controller specific circuit diagnoses 9 speed C6789 or 10 speed C45678910R clutch solenoid for an open circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates an open circuit Controller specific circuit voltage thresholds are set to meet the following controller specification for an open circuit Increment fail time	≥ 200 K Ω impedance between signal and controller ground	run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 8.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid F Control Circuit Low	P2738	Controller specific circuit diagnoses 9 speed C6789 or 10 speed C45678910R clutch solenoid for a ground short circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a ground short Controller specific circuit voltage thresholds are set to meet the following controller specification for a ground short Increment fail time	≤ 0.5 Ω impedance between signal and controller ground	run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 8.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid F Control Circuit High	P2739	Controller specific circuit diagnoses 9 speed C6789 or 10 speed C45678910R clutch solenoid for a short to voltage circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a short to voltage Controller specific circuit voltage thresholds are set to meet the following controller specification for a short to voltage Increment fail time	≤ 0.5 Ω impedance between signal and controller voltage source	run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 8.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid A Calibration Incorrect	P27A7	The diagnostic monitor verifies that the pressure control solenoid A (GF9 line pressure or GR10 C1 C123456R clutch) characterization data is programmed correctly into the TCM EEPROM to match the pressure control solenoid A electrical characteristics of the device currently installed in the transmission valve body assembly.	pressure control solenoid characterization data programming complete Matching is defined as pressure control solenoid characterization data corresponding to the transmission valve body assembly componentry. pressure control solenoid characterization data programming complete is set to FALSE when any of the following is present: Solenoid data is not programmed or incomplete data fault - occurs when a new or service TCM is installed. OR Solenoid class programming fault – the characterization data indicates a different type of device than the TCM calibration data OR Checksum mismatch – the checksum that was calculated from the programmed pressure control solenoid characterization data region does not match the calculated valve at the time of programming. OR Axis data fault – pressure	= FALSE	Pressure control solenoid characterization data is programmed originally at vehicle plant assembly based on transmission valve body assembly part number associated to the unit installed in vehicle. When valve body is serviced, dealership performs reprogramming of TCM with pressure control solenoid characterization data based on the associated transmission valve body part number installed.		execution of monitor occurs once per controller normal power up event during the controller initialization before normal controller time loop execution	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			control solenoid characterization data has one or more points that are less than the previous match point, axis data must be greater than or equal to previous data values.					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid B Calibration Incorrect	P27A8	The diagnostic monitor verifies that the pressure control solenoid B (GF9 TCC pressure or GR10 C2 C128910R clutch) characterization data is programmed correctly into the TCM EEPROM to match the pressure control solenoid B electrical characteristics of the device currently installed in the transmission valve body assembly.	pressure control solenoid characterization data programming complete Matching is defined as pressure control solenoid characterization data corresponding to the transmission valve body assembly componentry. pressure control solenoid characterization data programming complete is set to FALSE when any of the following is present: Solenoid data is not programmed or incomplete data fault - occurs when a new or service TCM is installed. OR Solenoid class programming fault – the characterization data indicates a different type of device than the TCM calibration data OR Checksum mismatch – the checksum that was calculated from the programmed pressure control solenoid characterization data region does not match the calculated valve at the time of programming. OR Axis data fault – pressure	= FALSE	Pressure control solenoid characterization data is programmed originally at vehicle plant assembly based on transmission valve body assembly part number associated to the unit installed in vehicle. When valve body is serviced, dealership performs reprogramming of TCM with pressure control solenoid characterization data based on the associated transmission valve body part number installed.		execution of monitor occurs once per controller normal power event during the controller initialization before normal time loop execution	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			control solenoid characterization data has one or more points that are less than the previous match point, axis data must be greater than or equal to previous data values.					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid C Calibration Incorrect	P27A9	The diagnostic monitor verifies that the pressure control solenoid C (GF9 C1 CB123456 clutch or GR10 C3 C23457910 clutch) characterization data is programmed correctly into the TCM EEPROM to match the pressure control solenoid C electrical characteristics of the device currently installed in the transmission valve body assembly.	pressure control solenoid characterization data programming complete Matching is defined as pressure control solenoid characterization data corresponding to the transmission valve body assembly componentry. pressure control solenoid characterization data programming complete is set to FALSE when any of the following is present: Solenoid data is not programmed or incomplete data fault - occurs when a new or service TCM is installed. OR Solenoid class programming fault – the characterization data indicates a different type of device than the TCM calibration data OR Checksum mismatch – the checksum that was calculated from the programmed pressure control solenoid characterization data region does not match the calculated valve at the time of programming. OR Axis data fault – pressure	= FALSE	Pressure control solenoid characterization data is programmed originally at vehicle plant assembly based on transmission valve body assembly part number associated to the unit installed in vehicle. When valve body is serviced, dealership performs reprogramming of TCM with pressure control solenoid characterization data based on the associated transmission valve body part number installed.		execution of monitor occurs once per controller normal power up event during the controller initialization before normal controller time loop execution	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			control solenoid characterization data has one or more points that are less than the previous match point, axis data must be greater than or equal to previous data values.					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid D Calibration Incorrect	P27AA	The diagnostic monitor verifies that the pressure control solenoid D (GF9 C2 CB29 clutch or GR10 C5 C1356789 clutch) characterization data is programmed correctly into the TCM EEPROM to match the pressure control solenoid D electrical characteristics of the device currently installed in the transmission valve body assembly.	pressure control solenoid characterization data programming complete Matching is defined as pressure control solenoid characterization data corresponding to the transmission valve body assembly componentry. pressure control solenoid characterization data programming complete is set to FALSE when any of the following is present: Solenoid data is not programmed or incomplete data fault - occurs when a new or service TCM is installed. OR Solenoid class programming fault – the characterization data indicates a different type of device than the TCM calibration data OR Checksum mismatch – the checksum that was calculated from the programmed pressure control solenoid characterization data region does not match the calculated valve at the time of programming. OR Axis data fault – pressure	= FALSE	Pressure control solenoid characterization data is programmed originally at vehicle plant assembly based on transmission valve body assembly part number associated to the unit installed in vehicle. When valve body is serviced, dealership performs reprogramming of TCM with pressure control solenoid characterization data based on the associated transmission valve body part number installed.		execution of monitor occurs once per controller normal power up event during the controller initialization before normal controller time loop execution	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			control solenoid characterization data has one or more points that are less than the previous match point, axis data must be greater than or equal to previous data values.					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid E Calibration Incorrect	P27AB	The diagnostic monitor verifies that the pressure control solenoid E (GF9 C3 CB38 clutch or GR10 C4 C23467810R clutch) characterization data is programmed correctly into the TCM EEPROM to match the pressure control solenoid E electrical characteristics of the device currently installed in the transmission valve body assembly.	pressure control solenoid characterization data programming complete Matching is defined as pressure control solenoid characterization data corresponding to the transmission valve body assembly componentry. pressure control solenoid characterization data programming complete is set to FALSE when any of the following is present: Solenoid data is not programmed or incomplete data fault - occurs when a new or service TCM is installed. OR Solenoid class programming fault – the characterization data indicates a different type of device than the TCM calibration data OR Checksum mismatch – the checksum that was calculated from the programmed pressure control solenoid characterization data region does not match the calculated valve at the time of programming. OR Axis data fault – pressure	= FALSE	Pressure control solenoid characterization data is programmed originally at vehicle plant assembly based on transmission valve body assembly part number associated to the unit installed in vehicle. When valve body is serviced, dealership performs reprogramming of TCM with pressure control solenoid characterization data based on the associated transmission valve body part number installed.		execution of monitor occurs once per controller normal power up event during the controller initialization before normal controller time loop execution	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			control solenoid characterization data has one or more points that are less than the previous match point, axis data must be greater than or equal to previous data values.					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid F Calibration Incorrect	P27AC	The diagnostic monitor verifies that the pressure control solenoid F (GF9 C4 C4 clutch or GR10 C6 C45678910R clutch) characterization data is programmed correctly into the TCM EEPROM to match the pressure control solenoid F electrical characteristics of the device currently installed in the transmission valve body assembly.	pressure control solenoid characterization data programming complete Matching is defined as pressure control solenoid characterization data corresponding to the transmission valve body assembly componentry. pressure control solenoid characterization data programming complete is set to FALSE when any of the following is present: Solenoid data is not programmed or incomplete data fault - occurs when a new or service TCM is installed. OR Solenoid class programming fault – the characterization data indicates a different type of device than the TCM calibration data OR Checksum mismatch – the checksum that was calculated from the programmed pressure control solenoid characterization data region does not match the calculated valve at the time of programming. OR Axis data fault – pressure	= FALSE	Pressure control solenoid characterization data is programmed originally at vehicle plant assembly based on transmission valve body assembly part number associated to the unit installed in vehicle. When valve body is serviced, dealership performs reprogramming of TCM with pressure control solenoid characterization data based on the associated transmission valve body part number installed.		execution of monitor occurs once per controller normal power up event during the controller initialization before normal controller time loop execution	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			control solenoid characterization data has one or more points that are less than the previous match point, axis data must be greater than or equal to previous data values.					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid G Calibration Incorrect	P27AD	The diagnostic monitor verifies that the pressure control solenoid G (GF9 C5 C57R clutch or GR10 line pressure) characterization data is programmed correctly into the TCM EEPROM to match the pressure control solenoid G electrical characteristics of the device currently installed in the transmission valve body assembly.	pressure control solenoid characterization data programming complete Matching is defined as pressure control solenoid characterization data corresponding to the transmission valve body assembly componentry. pressure control solenoid characterization data programming complete is set to FALSE when any of the following is present: Solenoid data is not programmed or incomplete data fault - occurs when a new or service TCM is installed. OR Solenoid class programming fault – the characterization data indicates a different type of device than the TCM calibration data OR Checksum mismatch – the checksum that was calculated from the programmed pressure control solenoid characterization data region does not match the calculated valve at the time of programming. OR Axis data fault – pressure	= FALSE	Pressure control solenoid characterization data is programmed originally at vehicle plant assembly based on transmission valve body assembly part number associated to the unit installed in vehicle. When valve body is serviced, dealership performs reprogramming of TCM with pressure control solenoid characterization data based on the associated transmission valve body part number installed.		execution of monitor occurs once per controller normal power up event during the controller initialization before normal controller time loop execution	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			control solenoid characterization data has one or more points that are less than the previous match point, axis data must be greater than or equal to previous data values.					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid H Calibration Incorrect	P27AE	The diagnostic monitor verifies that the pressure control solenoid H (GF9 C6 C6789 clutch or GR10 TCC) characterization data is programmed correctly into the TCM EEPROM to match the pressure control solenoid H electrical characteristics of the device currently installed in the transmission valve body assembly.	pressure control solenoid characterization data programming complete Matching is defined as pressure control solenoid characterization data corresponding to the transmission valve body assembly componentry. pressure control solenoid characterization data programming complete is set to FALSE when any of the following is present: Solenoid data is not programmed or incomplete data fault - occurs when a new or service TCM is installed. OR Solenoid class programming fault – the characterization data indicates a different type of device than the TCM calibration data OR Checksum mismatch – the checksum that was calculated from the programmed pressure control solenoid characterization data region does not match the calculated valve at the time of programming. OR Axis data fault – pressure	= FALSE	Pressure control solenoid characterization data is programmed originally at vehicle plant assembly based on transmission valve body assembly part number associated to the unit installed in vehicle. When valve body is serviced, dealership performs reprogramming of TCM with pressure control solenoid characterization data based on the associated transmission valve body part number installed.		execution of monitor occurs once per controller normal power up event during the controller initialization before normal controller time loop execution	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
			control solenoid characterization data has one or more points that are less than the previous match point, axis data must be greater than or equal to previous data values.					

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.	
Transmissio n Range Sensor A/B Correlation	P2805	Internal range sensor A is wired independently to the TCM while internal range sensor B is wired independently to the ECM. The monitor diagnoses the internal range sensor A PWM duty cycle by comparing the raw sensor A value against	ABS((TCM internal range sesnor A + ECM internal range sesnor B raw adjusted for high or low time) - 100 %)) Increment fail and sample time, update rate 25 milliseconds	> 4.999 % duty cycle	diagnostic monitor enable P0707 fault active P0708 fault active U0100 fault active ECM internal range sesnor B available from ECM ECM internal range sesnor B fault active	= 1 Boolean = FALSE = FALSE = FALSE = TRUE = FALSE	PWM fail time ≥ 1.000 seconds out of sample time ≥ 1.000 seconds	Type A, 1 Trips	
		the raw sensor B adjusted value, to verify signals are consistent, or determine the TCM			battery voltage	≥ 9.00 volts	battery voltage time ≥ 1.000 seconds	time ≥ 1.000	
		internal range sensor A does not correlate to the ECM internal range sensor B. The ECM transmits internal range sensor B raw PWM to the TCM over the serial data bus.			ABS(TCM internal range sesnor A current loop value - TCM internal range sesnor A previous loop value), update TCM internal range sesnor A stablity time, update rate 25 milliseconds	< 4.999 % duty cycle	TCM internal range sesnor A stability time ≥ 1.000 seconds		
					ABS(ECM internal range sesnor B current loop value - ECM internal range sesnor B previous loop value), update ECM internal range sesnor B stablity time, update rate 25 milliseconds	< 4.999 % duty cycle	ECM internal range sesnor B stability time ≥ 1.000 seconds		
					TCM internal range sesnor A stability time met OR ECM internal range sesnor B stability time met				
					ECM internal range sesnor B raw adjusted for	= ABS(ECM internal range sesnor B raw -			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					high or low time	100.000 %)		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid G Control Circuit Open	P2812	Controller specific circuit diagnoses 9 speed Line Pressure Control Circuit or 10 speed Line Pressure Control Circuit for an open circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates an open circuit Controller specific circuit voltage thresholds are set to meet the following controller specification for an open circuit Increment fail time	≥ 200 K Ω impedance between signal and controller ground	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 8.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid G Control Circuit Low	P2814	Controller specific circuit diagnoses 9 speed Line Pressure Circuit or 10 speed Line Pressure Circuit for a ground short circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a ground short Controller specific circuit voltage thresholds are set to meet the following controller specification for a ground short Increment fail time	≤ 0.5 Ω impedance between signal and controller ground	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 8.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid G Control Circuit High	P2815	Controller specific circuit diagnoses 9 speed Line Pressure Circuit or 10 speed Line Pressure Circuit for a short to voltage circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a short to voltage Controller specific circuit voltage thresholds are set to meet the following controller specification for a short to voltage Increment fail time	≤ 0.5 Ω impedance between signal and controller voltage source	run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 8.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control Solenoid H Performance /Stuck Off	Control Solenoid H Performance /Stuck Off detects the transmission torque converter control va solenoid failed hydraulically off. Th monitor executes wh the transmission tor converter is commanded to a "lo mode during which torque converter will controlled to near ze (0.0) RPM slip spee or, an "on" mode du which the torque converter will be controlled to target s speed using slip spee error. The transmiss torque converter control valve soleno is considered failed hydraulically off whe the "lock" mode slip speed is excessive, when the 'on" mode	transmission torque converter control valve solenoid failed hydraulically off. The monitor executes when the transmission torque	if use TCC slip speed error OR TCC control mode TCC slip speed error = TCC slip speed - TCC comand slip speed	= 0 Boolean = ON mode (controlled slip mode) ≥ P2817 TCC stuck off fail TCC slip speed see supporting table	diagnostic monitor enable	= 1 Boolean	fail time ≥ 2.500 seconds increment fail count fail count ≥ 3 counts 25 millisecond update rate	Type B, 2 Trips
		commanded to a "lock" mode during which the torque converter will be	else if TCC control mode torque convert slip = engine speed -	= LOCK ≥ 130.0 RPM	TCC command capacity	≥ 0.00 %	TCC command capacity time ≥ 0.00 seconds	
		(0.0) RPM slip speed, or, an "on" mode during which the torque	transmission input shaft speed		TCC command pressure	≥ 600.0 kPa	TCC command pressure time ≥ 2.00 seconds	
		controlled to target slip speed using slip speed error. The transmission torque converter control valve solenoid	then update fail time 25 millisecond update rate		(TCC control mode previous TCC control mode previous TCC control mode previous)	≠ TCC control mode current ≠ ON mode (controlled slip mode) ≠ LOCK		
					AND (TCC control mode current OR TCC control mode current)	= ON mode (controlled slip mode) = LOCK		
		excessive.			(TCC stuck off enable OR TCC stuck on enable) hydraulic pressure available:	= 1 Boolean = 1 Boolean		
					engine speed	≥ 400.0 RPM	engine speed time ≥ engine speed time for transmission hydraulic pressure available	

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
							see supportinf	
							table	
					service fast learn active	= FALSE		
					battery voltage	≥ 9.00 volts	battery voltage	
							time ≥ 0.100	
							seconds	
					run crank voltage	≥ 9.00 volts	run crank voltage	
							time ≥ 0.100 seconds	
					P281B falut active	= FALSE	0000	
					P281D falut active	= FALSE		
					P281E falut active	= FALSE		
					P0722 fault pending	= FALSE		
					P0723 fault pending	= FALSE		
					P0716 fault pending	= FALSE		
					P0717 fault pending	= FALSE		
					P07BF fault pending	= FALSE		
					P07C0 fault pending	= FALSE		
					(PTO active OR	= FALSE		
					PTO disable calibration)	= 1 Boolean		
					accelerator pedal position	≥ 8.0 %		
					accelerator pedal position	≤ 100.0 %		
					range shift state	= range shift complete		
					transmission fluid	≥ -6.66 °C		
					temperature			
					transmission fluid	≤ 130.0 °C		
					temperature			
					engine torque	≥ 50.0 Nm		
					engine torque	≤ 8,191.8 Nm		
					P2817 test fail this key on	= FALSE		
					(TCC control mode OR	= ON mode (controlled		
						slip mode)		
					TCC control mode)	= LOCK		
					break latch state (clutch	= disabled (clutch select		
					select valve solenoid)	valve not transitioning)		
					attained gear	≥		
						CeCGSR_e_CR_Second		
					attained gear slip	≤ 25.0 RPM		
					DTCs not fault active	AcceleratorPedalFailure		
					D 1 03 Hot lault active	EngineTorqueEstInaccura		
						te		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
						P0716, P0717, P07BF, P07C0 P0722, P0723, P077C, P077D		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control Solenoid H Stuck On	P2818	The diagnostic monitor detects the transmission torque converter control valve solenoid failed hydraulically on. The torque converter hydraulic control circuit is multiplexed with the transmission clutch select valve hydraulic control circuit, allowing for the torque converter control valve solenoid	while control valve test time timing down: rate of change of torque convert slip speed = (ABS (current loop value torque convert slip speed - previous loop value torque convert slip speed) / 25 milliseconds) when clutch select valve soleniod multiplexed to TCC hydraulic AND torque convert slip speed	≥ P2818 torque convert derivative slip speed fail threshold see supporting table ≤ 300.0 RPM	diagnostic monitor enable (TCC stuck off enable OR TCC stuck on enable) hydraulic pressure	= 1 Boolean = 1 Boolean = 1 Boolean	fail time ≥ 1.500 seconds increment fail count fail count ≥ 2 counts 25 millisecond update rate	Type A, 1 Trips
		stuck on test to execute when the clutch select valve solenoid is commanded ON. When the clutch select valve solenoid is commanded ON as the vehicle speed decreases toward zero KPH, and, if the torque converter control valve	= ABS(engine speed - transmission input shaft speed) AND torque convert slip speed = engine speed - transmission input shaft speed torque convert slip speed torque convert slip speed THEN	≥ -50.0 RPM ≤ 30.0 RPM	available: engine speed	≥ 400.0 RPM	engine speed time ≥ engine speed time for transmission hydraulic pressure available see supportinf table	
		solenoid is stuck on, the torque converter slip speed rate of change will have a	increment fail time 25 millisecond update rate		service fast learn active battery voltage	= FALSE ≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
		large slope while decreasing toward zero RPM, and the torque			run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
		converter slip speed will remain low near zero RPM.			P281B falut active P281D falut active P281E falut active	= FALSE = FALSE = FALSE		
					PRNDL PRNDL transmission fluid temperature transmission fluid	≠ NEUTRAL ≠ REVERSE ≥ -6.66 °C ≤ 130.00 °C		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					temperature			
					accelerator pedal position	≥ 0.00 %		
l .					accelerator pedal position	≤ 20.00 %		
l .					vehicle speed	≥ 0.0 KPH		
l .					vehicle speed	≤ 45.0 KPH		
					TCC command mode	= OFF		
					break latch state (clutch	≠ disabled (clutch select		
					select valve solenoid)	valve transitioning)		
					P0722 fault pending	= FALSE		
					P0723 fault pending	= FALSE		
					P0716 fault pending	= FALSE		
					P0717 fault pending	= FALSE		
					P07BF fault pending	= FALSE		
					P07C0 fault pending	= FALSE		
					(PTO active OR	= FALSE		
					PTO disable calibration)	= 1 Boolean		
					transmission fluid	≥ -6.66 °C		
					temperature			
					transmission fluid	≤ 130.00 °C		
					temperature			
					engine torque	≥ 55.0 Nm		
					engine torque	≤ 800.0 Nm		
					P2818 test fail this key on	= FALSE		
					vehicle speed	≤ 45.0 KPH		
					engine speed	≥ 400.0 RPM		
					engine speed	≤ 5,500.0 RPM		
					accelerator pedal position	≤ 95.0 %		
					4WD low state	= FALSE		
					(driver shift mode active	= FALSE		
					OR			
					driver shift mode	= 0 Boolean		
					calibration)			
					(misfire requests TCC off	= FALSE		
					OR			
					misfire TCC off	= 0 Boolean		
					calibration)			
					(clucth control solenoid	= FALSE		
					stuck on OR stuck OFF			
					intrusive shift active)			
					P0746 fault pending	= FALSE		
I					P0747 fault pending	= FALSE		
					P0776 fault pending	= FALSE		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					P0777 fault pending P0796 fault pending P0797 fault pending P2714 fault pending P2715 fault pending P2723 fault pending P2724 fault pending P2732 fault pending P2733 fault pending P2820 fault pending P2821 fault pending vehicle speed accelerator pedal position hysteresis when: break latch state (clutch select valve solenoid) previous break latch state (clutch select valve solenoid) set stuck on test time and begin time down, stuck on test time must time down from calibration value to zero (0.0) seconds	= FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE = FALSE <		
					break latch state (clutch select valve solenoid) AND previous break latch state	= clutch select valve solenoid mutliplexed to TCC hydraulic = disabled (clutch select		
					(clutch select valve solenoid) THEN initialize control valve test time, control valve test time must time down from calibration value to zero (0.0) seconds	valve not transitioning) = P2818 control valve test time see supporting tables		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					DTCs not fault active	AcceleratorPedalFailure EngineTorqueEstInaccura te P0716, P0717, P07BF, P07C0 P0722, P0723, P077C, P077D		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control Solenoid H Control Circuit/Open	P281B	Controller specific circuit diagnoses 9 speed TCC Control Circuit or 10 speed TCC Control Circuit for an open circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates an open circuit Controller specific circuit voltage thresholds are set to meet the following controller specification for an open circuit Increment fail time	≥ 200 K Ω impedance between signal and controller ground	run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 8.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	Type B, 2 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control Solenoid H Control Circuit Low	P281D	Controller specific circuit diagnoses 9 speed TCC Pressure Control Circuit or 10 speed TCC Control Circuit for a ground short circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a ground short Controller specific circuit voltage thresholds are set to meet the following controller specification for a ground short Increment fail time	≤ 0.5 Ω impedance between signal and controller ground	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 8.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control Solenoid H Control Circuit High	P281E	Controller specific circuit diagnoses 9 speed TCC Pressure Control Circuit or 10 speed TCC Control Circuit for a short to voltage circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a short to voltage Controller specific circuit voltage thresholds are set to meet the following controller specification for a short to voltage Increment fail time	≤ 0.5 Ω impedance between signal and controller voltage source	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 8.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	Type B, 2 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control (PC) Solenoid J Stuck Off	P2820	Each pressure control solenoid stuck off diagnostic monitor detects a clutch pressure control solenoid failed	gear ratio gear ratio OR C6 clutch slip speed, update fail time 6.25 milliscond update	≤ 1.700 ≥ 1.200 ≤ 20.0 RPM			seconds, update fail count, fail count ≥ 2 counts 6.25 milliscond	Type A, 1 Trips
		hydraulically off, while the solenoid is electrically functional. This diagnostic monitor			use battery voltage calibration is FALSE OR	= 1 Boolean	update	
		detects the clutch select valve solenoid failed hydraulically off.			(use battery voltage calibration is TRUE AND	= 1 Boolean		
		The clutch select valve is used to route hydraulic fluid to, either,			battery voltage	≥ 9.00 volts	battery voltage time ≥ 0.100 seconds	
	the selectable one way clutch hydraulic circuit	the selectable one way			use run crank voltage calibration is FALSE OR	= 0 Boolean	00001100	
		transmission 1st gear lock state, or, to the C6 - C6789 clutch			(use run crank voltage calibration is TRUE AND	= 0 Boolean		
		hydraulic circuit necessary for transmission higher			run crank voltage	≥ 9.00 volts	run crank voltage time ≥ 0.100 seconds	
		gear states. When the clutch select valve is failed hydraulically off, and transmission is in 1st			TCM output driver high side driver 1, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
		gear lock state, it is possible to measure low C6 - C6789 clutch slip speed as hydraulic			TCM output driver high side driver 2, clutch pressure control solenoid driver circuit enabled	= TRUE Boolean		
		fluid is routed to the clutch C6 - C6789, or, 6th gear transmission gear ratio, based on transmission lever			service fast learn active service solenoid cleaning procedure active	= FALSE Boolean = FALSE Boolean		
		node design, the			hydraulic pressure			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		transmission input shaft speed, the transmission output shaft speed, and one transmission intermediate shaft speed, while not commanding 6th-9th gear, as the indication of the failure mode.			available: engine speed	≥ 400.0 RPM	engine speed time ≥ engine speed time for transmission hydraulic pressure available see supporting table	
		This diagnostic monitor is relative to the GF9 clutch select valve pressure control solenoid.			diagnostic monitor enabled transmission output shaft speed transmission fluid temperature transmission fluid temperature P2820 test fail this key on (command gear OR attained gear) DTCs not fault pending	= 1 Booelan ≥ 35.0 RPM ≥ -7.00 °C ≤ 130.0 °C = FALSE = 1st lock = 1st lock P0716 P0717 P0722 P0723 P077C P077D P07BF P07C0		
					DTCs not test fail this key on	P0707 P0708 P0746 P0747 P0776 P0777 P0796 P0797 P2714 P2715 P2723 P2724 P2732 P2733 P2820 P2821		
					DTCs not fault active	AcceleratorPedalFailure CrankSensor_FA P0707 P0708 P0716 P0717 P07BF P07C0 P0722 P0723 P077C P077D P172A P172B P176B P176C P176D P17C5 P17CC P17CD		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
						P17CE P17D3 P17D6 P2805		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control Solenoid J Stuck On	P2821	Each pressure control solenoid stuck on diagnostic monitor detects a clutch pressure control solenoid failed hydraulically on, while the solenoid is electrically functional. The clutch select pressure control solenoid must be hydraulically off and the clutch select valve in the off state, to allow hydraulic fluid supply to the C3 (CB38) or C4 (C4) or C5 (C57R) clutches, such that when activated, commanded gear 3rd or 4th or 5th can be attained. With the clutch select valve pressure control solenoid failed hydraulically on, commanded gear 3rd or 4th or 5th cannot be attained. In the failure mode, the clutch slip speed, and gear box gear slip, will be excessive, not near or at zero RPM, when commanding 3rd or 4th or 5th gear, but due to the clutch select pressure control solenoid failed hydraulically on and not	Cx clutch slip speed fail compare C3 (CB38) OR C4 (C4) OR C5 (C57R) update Cx clutch slip speed fail time 6.25 milliscond update once intrusive gear is commanded and clutch select stuck on test active remains and Cx clutch fail count limit occurs, increment clutch select valve solenoid stuck on fail count and time up clutch select stuck on test gear time 6.25 milliscond update	≥ 200.0 RPM ≥ 200.0 RPM ≥ 200.0 RPM			Cx clutch slip speed fail time ≥ C3 (CB38) 3.00 seconds OR C4 (C4) 3.00 seconds OR C5 (C57R) 3.00 seconds update Cx fail count, Cx fail count ≥ C3 (CB38) 3 counts OR C4 (C4) 3 counts OR C5 (C57R) 3 counts, Cx clutch fail count limit occurs 6.25 milliscond update clutch select valve solenoid stuck on fail count ≥ 2 counts OR clutch select valve solenoid stuck on test gear time ≥ 9.00 seconds 6.25 milliscond update	Type A 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		individual clutch control			use battery voltage	= 1 Boolean		
		faults. It is thus			calibration is FALSE			
		necessary, when			OR			
		individual clutch slip			(use battery voltage	= 1 Boolean		
		occurs in 3rd or 4th or			calibration is TRUE			
		5th gear and counted			AND			
		toward the clutch			battery voltage	≥ 9.00 volts		
		pressure control						
		solenoid stuck on						
		failure, for an intrusive			use run crank voltage	= 0 Boolean		
1		gear commanded from			calibration is FALSE			
1		3rd or 4th or 5th to			OR		battery voltage	
1		verify the clutch slip in			(use run crank voltage	= 0 Boolean	time ≥ 0.100	
		the remaining gear			calibration is TRUE		seconds	
		states. The individual			AND	> 0.00		
		clutch slip that occurs			run crank voltage	≥ 9.00 volts		
		in those intrusive gears, 3rd or 4th or 5th,						
		is also counted toward						
		the clutch pressure			TCM output driver high	= TRUE Boolean		
		control solenoid stuck			side driver 1, clutch	= TRUE Boolean	run crank voltage	
		on failure. As individual			pressure control solenoid		time ≥ 0.100	
		clutch slip is			driver circuit enabled		seconds	
		accumulated in each			anver enealt enabled		30001103	
		commanded gear 3rd			TCM output driver high	= TRUE Boolean		
		or 4th or 5th, that			side driver 2, clutch	- Troc Beelean		
		failure time is the			pressure control solenoid			
		verification of the clutch			driver circuit enabled			
		pressure control						
		solenoid failed			service fast learn active	= FALSE Boolean		
		hydraulically on.			service solenoid cleaning	= FALSE Boolean		
1					procedure active			
		The clutch slip speed is						
		calculated based on			hydraulic pressure	≥ 400.0 RPM		
		the transmission lever			available:			
		node design, requiring			engine speed			
		transmission input shaft						
		speed, transmission						
		output shaft speed,					engine speed	
		and, one transmission					time ≥	
		intermediate shaft						
		speed. The clutch						

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		pressure control			allo amonatio magnitori a contito	= 1 Boolean	engine speed	
		solenoid is tested after			diagnostic monitor enable		time for	
		an automatic			transmission fluid	≥ -7.00 °C	transmission	
		transmission shift			temperature	≤ 130.0 °C	hydraulic	
		occurs and has been			transmission fluid	≤ 130.0 °C	pressure available	
		considered shift			temperature	FALCE		
		complete, or, steady state gear is deemed			P2821 test fail this key on	= FALSE	see supporting table	
					toot trigger oot to TDLIC.		lable	
		active, range shift complete. When the			test trigger set to TRUE: enable forward gear AND	= 1 Boolean		
		automatic transmission			direction request	= 1 Boolean = forward gear		
1		shift is complete,			OR	= lorward gear		
1		steady state gear is			enable reverse gear AND	= 0 Boolean		
		considered, the clutch			direction request	= reverse gear		
		pressure control			current loop test trigger	= FALSE		
l .		solenoid is mapped to			clutch control solenoid	≠ NEUTRAL TEST		
l .		transmission line			test state			
l .		pressure control, which			range shift state	= range shift completed		
		normally allows the				lg. c		
		clutch to maintain full			clutch solenoid test state			
		torque holding capacity			set to NEUTRAL TEST			
		at the given engine			when:			
		crankshaft torque, to			test trigger	= TRUE		
l .		maintain true gear			initialize range shift			
l .		ratio. When the clutch			complete time,			
l .		select pressure control			when			
		solenoid is failed			range shift state,	≠ range shift completed		
		hydraulically on, C3			range shift complete time			
l .		(CB38) or C4 (C4) or			must time down to zero			
l .		C5 (C57R) clutches			when			
I		cannot maintain			range shift complete		initialize range	
I		holding capacity at any					shift complete	
		engine crankshaft					time = 0.500	
I		torque, and the clutch					seconds,	
I		slip speed is					range shift	
I		uncontrollable.			Cx indicates any one of		complete time	
					the 4 clutches:		must time down	
I		The clutch pressure			C3 (CB38) OR		to zero	
		control solenoid test is			C4 (C4) OR		when	
		suspended if the higher			C5 (C57R)		range shift	
1		level safety startle					complete	
		mitigation function is			enable Cx clutch slip			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
		active. The safety			speed fail compare when:			
		startle mitigation			diagnostic clutch test Cx	= HOLDING CLUTCH		
		function is triggered			((startle mitigation active	= FALSE		
		when a sudden vehicle			ÖR			
		deceleration occurs			(startle mitigation active	= TRUE		
		due to a clutch			AND			
		pressure control			startle mitigation gear))	≠ initial startle mitigation		
		solenoid that has failed			(see startle mitigation	gear		
		hydraulically on, while			active NOTE below)			
		the solenoid is			unintended deceleration	= FALSE		
		electrically functional,			fault pending OR			
		which, must take			unintended deceleration	= 0 Boolean		
		priority over this clutch			fault pending enable			
		select pressure control			FASLE			
		solenoid stuck off			(startle mitigation)			
		diagnostic monitor. All			clutch steady state	= FALSE		
		clutch pressure control			adaptive active			
		solenoid stuck on/off			transmission output shaft	≥ 100.0 RPM		
		diagnostic monitors are			speed			
		emission MIL DTCs.			Cx clutch slip speed valid,			
		System voltage must			all speed sesnors are			
		be normal, all clutch			functional for lever node			
		pressure control			clucth slip speed			
		solenoid driver circuits			calculation			
		must be functional, no						
		clutch pressure control			accelerator pedal position	≥ 2.00 %		
		solenoid electrical or			engine speed	≥ 1,500.0 RPM		
		performance faults can				·		
		be present, and no			diagnostic clutch test Cx			
1		speed sensor electrical			set to HOLDING CLUTCH			
		or performance faults			when:			
		can be present, or the			clutch solenoid test state	= NEUTRAL TEST		
		a clutch pressure			((startle mitigation active	= FALSE		
		control solenoid stuck			ÖR			
		off test is disabled.			(startle mitigation active	= TRUE		
					AND			
		This diagnostic monitor			startle mitigation gear))	≠ initial startle mitigation		
		is relative to the GF9			(see startle mitigation	gear		
		clutch select valve			active NOTE below)	ľ		
		pressure control			Cx clutch pressured map	= mapped to line		
		solenoid.				pressure, Cx clutch		
						pressure has transtioned		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
						from off-applying-applied		
					clutch select stuck on test active set to TRUE when: command gear clutch control solenoid test state any Cx clutch fail count limit occurs break latch state, clutch select valve hydraulic latch fluid is applied, hydraulic latch fluid force balance acts with clutch select valve return spring, to force the clutch select valve to the off postion in normal operation, allowing	≠ REVERSE = NEUTRAL TEST = complete		
					hydraulic fluid to C3 (CB38) C4 (C4) and C5 (C57R) clutches clutch select stuck on test	= TRUE		
					active driver direction (PRNDL) change request, select intrusive gear to verify clutch select valve solenoid when HOLDING CLUTCH:	= FALSE		
					C3 (CB38) C4 (C4) C5 (C57R) enable clutch select stuck on test gear time	= CeCGSR_e_Fourth = CeCGSR_e_Fifth = CeCGSR_e_Fourth		
					NOTE: startle mitigation active is used to detect unintended deceleration due to clutch pressure control solenoid stuck on			

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
					failure modes, the clutch pressure control solenoid stuck on DTCs being P0747 P0777 P0797 P2715 P2724 P2733 P2821			
					DTCs not fault pending	P0716 P0717 P0722 P0723 P077C P077D P07BF P07C0		
					DTCs not test fail this key on	P0707 P0708 P0746 P0747 P0776 P0777 P0796 P0797 P2714 P2715 P2723 P2724 P2732 P2733 P2820 P2821		
					DTCs not fault active	AcceleratorPedalFailure CrankSensor_FA P0707 P0708 P0716 P0717 P07BF P07C0 P0722 P0723 P077C P077D P172A P172B P176B P176C P176D P17C5 P17CC P17CD P17CE P17D3 P17D6 P2805		

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control Solenoid J Control Circuit Low	P2826	Controller specific circuit diagnoses 9 speed Clutch Select Valve Control Circuit or 10 speed PISA Valve Control Circuit for a ground short circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a ground short Controller specific circuit voltage thresholds are set to meet the following controller specification for a ground short Increment fail time	≤ 0.5 Ω impedance between signal and controller ground	battery voltage run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 8.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	Type A, 1 Trips

Component/ System	Fault Code	Monitor Strategy Description	Malfunction Criteria	Threshold Value	Secondary Parameters	Enable Conditions	Time Required	MIL Illum.
Pressure Control Solenoid J Control Circuit High	P2827	Controller specific circuit diagnoses 9 speed Clutch Valve Control Circuit or 10 speed PISA Valve Control Circuit for a short to voltage circuit failure by comparing a voltage measurement to controller specific voltage thresholds.	Voltage measurement outside of controller specific acceptable range indicates a short to voltage Controller specific circuit voltage thresholds are set to meet the following controller specification for a short to voltage Increment fail time	≤ 0.5 Ω impedance between signal and controller voltage source	run crank voltage OR accessory voltage active diagnostic monitor enable calibration	≥ 8.00 volts and ≤ 32.00 volts ≥ 5.00 volts = TRUE = 1 Boolean	≥ 1.000 seconds 25 milliseconds 12.5 milliseconds fail time ≥ 0.300 seconds out of sample time ≥ 0.500 seconds	Type A, 1 Trips

Initial Supporting table - 1st FWD Thrshld

Description: Max Vehcile Velocity Allowed For 1st Gear - Forward Velocity

y/x	0	6	13	19	25	31	38	44	50	56	63	69	75	81	88	94	100
1	60	60	60	60	60	60	60	79	85	88	100	100	100	100	100	105	120

Initial Supporting table - 1st REV Thrshld

Description: Max Vehcile Velocity Allowed For 1st Gear - Reverse Velocity (if using directional speed sensor)

y/x	0	6	13	19	25	31	38	44	50	56	63	69	75	81	88	94	100
1	-12	-12	-12	-53	-59	-65	-72	-79	-85	-88	-100	-100	-100	-100	-100	-105	-120

Initial Supporting table - 2nd FWD Thrshld

Description: Max Vehcile Velocity Allowed For 2nd Gear - Forward Velocity

y/x	0	6	13	19	25	31	38	44	50	56	63	69	75	81	88	94	100
1	70	72	72	73	79	85	93	99	105	108	110	113	123	147	169	172	200

Initial Supporting table - 2nd REV Thrshld

Description: Max Vehcile Velocity Allowed For 2nd Gear - Reverse Velocity (if using directional speed sensor)

L																		
	//x	0	6	13	19	25	31	38	44	50	56	63	69	75	81	88	94	100
		-85	-86	-88	-89	-90	-98	-105	-115	-125	-135	-148	-160	-181	-201	-221	-240	-250

Initial Supporting table - 3rd FWD Thrshld

Description: Max Vehcile Velocity Allowed For 3rd Gear - Forward Velocity

y/x	0	6	13	19	25	31	38	44	50	56	63	69	75	81	88	94	100
1	105	106	107	108	110	114	120	127	145	150	160	170	180	200	240	280	300

Initial Supporting table - 4th FWD Thrshld

Description: Max Vehcile Velocity Allowed For 4th Gear - Forward Velocity

y/x	0	6	13	19	25	31	38	44	50	56	63	69	75	81	88	94	100
1	105	106	107	108	110	114	120	127	145	150	160	170	180	200	240	280	300

Initial Supporting table - 5th FWD Thrshld

Description: Max Vehcile Velocity Allowed For 5th Gear - Forward Velocity

y/x	0	6	13	19	25	31	38	44	50	56	63	69	75	81	88	94	100
1	135	136	137	138	140	142	150	157	165	193	300	300	300	300	300	300	300

Initial Supporting table - 6th FWD Thrshld

Description: Max Vehcile Velocity Allowed For 6th Gear - Forward Velocity

L																		
)	'/x	0	6	13	19	25	31	38	44	50	56	63	69	75	81	88	94	100
1		300	300	300	300	300	300	300	300	300	300	300	300	300	300		300	300

Initial Supporting table - 7th FWD Thrshld

Description: Max Vehcile Velocity Allowed For 7th Gear - Forward Velocity

Į.																		
	y/x	0	6	13	19	25	31	38	44	50	56	63	69	75	81	88	94	100
		300	300	300	300	300	300	300	300	300	300	300	300	300	300	1 <(1()	300	300

Initial Supporting table - 8th FWD Thrshld

Description: Max Vehcile Velocity Allowed For 8th Gear - Forward Velocity

y/x	0	6	13	19	25	31	38	44	50	56	63	69	75	81	88	94	100
1	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300	300

Initial Supporting table - 9th FWD Thrshld

Description: Max Vehcile Velocity Allowed For 9th Gear - Forward Velocity

Į.																		
	y/x	0	6	13	19	25	31	38	44	50	56	63	69	75	81	88	94	100
		300	300	300	300	300	300	300	300	300	300	300	300	300	300	1 <(1()	300	300

Description: time needed for engine speed to trigger "transmission hydraulic pressure available"

Value Units: seconds

y/x	-40.00	-30.00	-20.00	0.00	40.00
1	0.300	0.300	0.275	0.200	0.100

Description: time needed for engine speed to trigger "transmission hydraulic pressure available"

Value Units: seconds

	y/x	-40.00	-30.00	-20.00	0.00	40.00
١		0.300	0.300	0.275	0.200	0.100

Description: time needed for engine speed to trigger "transmission hydraulic pressure available"

Value Units: seconds

y/x	-40.00	-30.00	-20.00	0.00	40.00
1	0.300	0.300	0.275	0.200	0.100

Description: time needed for engine speed to trigger "transmission hydraulic pressure available"

Value Units: seconds

y/x	-40.00	-30.00	-20.00	0.00	40.00
1	0.300	0.300	0.275	0.200	0.100

Initial Supporting table - P0606_Last Seed Timeout f(Loop Time)

Description: The max time for the Last Seed Timeout as a function of operating loop time sequence.

Value Units: Max Time for Last Seed Timeout (ms) X Unit: Operating Loop Sequence (enum)

DOCOC	Look Cood	Time and f/		Time	Dort 1
PU6U6	Last Seed	i imeout to	LOOD	i ime) ·	- Part 1

y/x	CePISR_e_5msSeq	CePISR_e_6p25msSe	CePISR_e_10msSeq	CePISR_e_12p5msSe	CePISR_e_20msSeq	CePISR_e_25msSeq	CePISR_e_40msSeq			
		q		q						
1	200.000	200.000	200.000	200.000	200.000	200.000	200.000			

P0606_Last Seed Timeout f(Loop Time) - Part 2

y/x	CePISR_e_50msSeq	CePISR_e_80msSeq	CePISR_e_100msSeq	CePISR_e_EventA_S	CePISR_e_EventB_S	CePISR_e_EventC_S	
				eq	eq	eq	
1	200.000	200.000	200.000	8,191.875	8,191.875	8,191.875	

Initial Supporting table - P0606_Program Sequence Watch Enable f(Core, Loop Time)

Description: The enabling flags for the program sequence watch as a function of processor core and operating loop time sequence.

Value Units: PSW enable flag (boolean) X Unit: Processor Core (enum)

Y Units: Operating Loop Time Sequence (enum)

y/x	CeTSKR_e_CPU	CeTSKR_e_CPU2	CeTSKR_e_CPU3	CeTSKR_e_CPU4
CePISR_e_5msSeq	0	0	0	0
CePISR_e_6p25msSeq	1	0	0	0
CePISR_e_10msSeq	0	0	0	0
CePISR_e_12p5msSeq	1	0	0	0
CePISR_e_20msSeq	0	0	0	0
CePISR_e_25msSeq	1	0	0	0
CePISR_e_40msSeq	0	0	0	0
CePISR_e_50msSeq	0	0	0	0
CePISR_e_80msSeq	0	0	0	0
CePISR_e_100msSeq	0	0	0	0
CePISR_e_EventA_Seq	0	0	0	0
CePISR_e_EventB_Seq	0	0	0	0
CePISR_e_EventC_Seq	0	0	0	0

Initial Supporting table - P0606_PSW Sequence Fail f(Loop Time)

Description: Fail threshold for PSW per operating loop.

Value Units: Fail threshold for PSW (count) X Unit: Operating Loop (enum)

	P0606_PSW	Sequence	Fail f(Loo	p Time) - Part 1
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y/x	CePISR_e_5msSeq	CePISR_e_6p25msSe	CePISR_e_10msSeq	CePISR_e_12p5msSe	CePISR_e_20msSeq	CePISR_e_25msSeq	CePISR_e_40msSeq
		q		q			
1	3	3	3	3	3	3	3

P0606_PSW Sequence Fail f(Loop Time) - Part 2

y/x	CePISR_e_50msSeq	CePISR_e_80msSeq	CePISR_e_100msSeq	CePISR_e_EventA_S eq	CePISR_e_EventB_S eq	CePISR_e_EventC_S eq	
1	3	3	3	3	3	3	

Initial Supporting table - P0606_PSW Sequence Sample f(Loop Time)

Description: Sample threshold for PSW per operating loop.

Value Units: Sample threshold for PSW (count) X Unit: Operating Loop (enum)

	P0606 PSW	/ Sequence S	Sample f(Loc	p Time) - Part 1
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y/x	CePISR_e_5msSeq	CePISR_e_6p25msSe	CePISR_e_10msSeq	CePISR_e_12p5msSe	CePISR_e_20msSeq	CePISR_e_25msSeq	CePISR_e_40msSeq
		q		q			
1	4	4	4	4	4	4	4

P0606_PSW Sequence Sample f(Loop Time) - Part 2

		1	·			V.	T
y/x	CePISR_e_50msSeq	CePISR_e_80msSeq	CePISR_e_100msSeq	CePISR_e_EventA_S	CePISR_e_EventB_S	CePISR_e_EventC_S	
				eq	eq	eq	
1	4	4	4	4	4	4	

17 OBDG03 TCM Common 9 Speed T87A Supporting Tables Initial Supporting table - P0723 transmission engaged state time threshold

Description: time necessary after transmission engaged state indicates transmission engaged to allow P0723 enable

Value Units: seconds

y/x	-40.000	0.000	40.000
1	5.000	5.000	5.000

Initial Supporting table - P0741 control valve test time

Description: Value to initialize the torque converter clutch control valve test time to after clutch select valve solenoid is turned on, window of time in which the torque converter clutch slip speed and derivative slip speed must be evaluated for failure. Window is a time down window from the calibration value to zero (0.0) seconds.

Value Units: seconds

X Unit: transmission fluid temperature °C

y/x	-7.00	10.00	40.00
1	0.350	0.350	0.350

Initial Supporting table - P0741 stuck on test time

Description: Value to initialize the TCC Stuck On test time to after transition of clutch select valve allowing TCC hydraulic circuit connectivity. Window is a time down window from the calibration value to zero (0.0) seconds.

Value Units: seconds

y/x	-7.00	10.00	40.00
1	1.500	1.250	1.000

17 OBDG03 TCM Common 9 Speed T87A Supporting Tables Initial Supporting table - P0741 torque convert derivative slip speed fail threshold

Description: The fail threshold, rate of change of torque converter slip speed, at which the torque convert clutch is considered stuck on.

Value Units: RPM/second

y/x	-7.00	10.00	40.00
1	500.0	500.0	500.0

Initial Supporting table - P0747 C1 clutch exhaust delay time closed throttle down shift

Description: P0747 C1 clutch hydraulic circuit exhaust time in closed throttle down shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.850	0.850

Initial Supporting table - P0747 C1 clutch exhaust delay time closed throttle lift foot up shift

Description: P0747 C1 clutch hydraulic circuit exhaust time in closed throttle lift foot up shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.850	0.850

Initial Supporting table - P0747 C1 clutch exhaust delay time garage shift

Description: P0747 C1 clutch hydraulic circuit exhaust time in garage shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.850	0.850

Initial Supporting table - P0747 C1 clutch exhaust delay time negative torque up shift

Description: P0747 C1 clutch hydraulic circuit exhaust time in negative torque up shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	0.500	0.500	0.500	0.500	0.500

Initial Supporting table - P0747 C1 clutch exhaust delay time open throttle power down shift

Description: P0747 C1 clutch hydraulic circuit exhaust time in open throttle power down shift

Value Units: seconds

ı	y/x	-40.00	-20.00	0.00	30.00	110.00
	1	1.600	1.100	0.950		0.850

Initial Supporting table - P0747 C1 clutch exhaust delay time open throttle power on up shift

Description: P0747 C1 clutch hydraulic circuit exhaust time in open throttle power on up shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.269	0.269

Initial Supporting table - P0777 C2 clutch exhaust delay time closed throttle down shift

Description: P0777 C2 clutch hydraulic circuit exhaust time in closed throttle down shift

Value Units: seconds

Ì	y/x	-40.00	-20.00	0.00	30.00	110.00
	1	1.600	1.100	0.950	0.200	0.200

Initial Supporting table - P0777 C2 clutch exhaust delay time closed throttle lift foot up shift

Description: P0777 C2 clutch hydraulic circuit exhaust time in closed throttle lift foot up shift

Value Units: seconds

ı	y/x	-40.00	-20.00	0.00	30.00	110.00
	1	1.600	1.100	0.950		0.850

Initial Supporting table - P0777 C2 clutch exhaust delay time garage shift

Description: P0777 C2 clutch hydraulic circuit exhaust time in garage shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.850	0.850

Initial Supporting table - P0777 C2 clutch exhaust delay time negative torque up shift

Description: P0777 C2 clutch hydraulic circuit exhaust time in negative torque up shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	0.500	0.500	0.500	0.500	0.500

Initial Supporting table - P0777 C2 clutch exhaust delay time open throttle power down shift

Description: P0777 C2 clutch hydraulic circuit exhaust time in open throttle power down shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.212	0.212

Initial Supporting table - P0777 C2 clutch exhaust delay time open throttle power on up shift

Description: P0777 C2 clutch hydraulic circuit exhaust time in open throttle power on up shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.262	0.262

Initial Supporting table - P0797 C3 clutch exhaust delay time closed throttle down shift

Description: P0797 C3 clutch hydraulic circuit exhaust time in closed throttle down shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.200	0.200

Initial Supporting table - P0797 C3 clutch exhaust delay time closed throttle lift foot up shift

Description: P0797 C3 clutch hydraulic circuit exhaust time in closed throttle lift foot up shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.850	0.850

Initial Supporting table - P0797 C3 clutch exhaust delay time negative torque up shift

Description: P0797 C3 clutch hydraulic circuit exhaust time in negative torque up shift

Value Units: seconds

y/x	-40.00		0.00	30.00	110.00
1		0.500	0.500	0.500	0.500

Initial Supporting table - P0797 C3 clutch exhaust delay time open throttle power down shift

Description: P0797 C3 clutch hydraulic circuit exhaust time in open throttle power down shift

Value Units: seconds

Ì	y/x	-40.00	-20.00	0.00	30.00	110.00
	1	1.600	1.100	0.950	0.144	0.144

Initial Supporting table - P0797 C3 clutch exhaust delay time open throttle power on up shift

Description: P0797 C3 clutch hydraulic circuit exhaust time in open throttle power on up shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100		0.256	0.256

Initial Supporting table - P0797 C3clutch exhaust delay time garage shift

Description: P0797 C3 clutch hydraulic circuit exhaust time in garage shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.850	0.850

Initial Supporting table - P176B delay to allow transmission input, intermediate and output speeds to stablize for fail evaluation

Description: delay to allow transmission input, intermediate and output speeds to stablize for fail evaluation

Value Units: seconds

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
1	1.000	1.000

Initial Supporting table - P176B holding clutch states

Description: inditaces when the clutch states allow transmission intermediate speed sensor evaluation, when rotating components can trigger speed sesnor, holding clutches will not allow evaluation while clutches not holding will allow evaluation

Value Units: TRUE or FALSE X Unit: commanded gear

P176B holding clutch	P176B holding clutch states - Part 1						
	CeCGSR_e_CR_NullF orSched	CeCGSR_e_CR_Neut ral	CeCGSR_e_CR_Park	CeCGSR_e_CR_Reve rse	CeCGSR_e_CR_First	CeCGSR_e_CR_Second	CeCGSR_e_CR_Third
CeTSRR_e_C2C_Clc hSpdSnsr1	1	1	1	0	0	0	1
CeTSRR_e_C2C_Clc hSpdSnsr2	1	1	1	1	1	1	1
P176B holding clutch	n states - Part 2						
y/x	CeCGSR_e_CR_Fourt	CeCGSR_e_CR_Fifth	CeCGSR_e_CR_Sixth	CeCGSR_e_CR_Seve nth	CeCGSR_e_CR_Eight h	CeCGSR_e_CR_Ninth	CeCGSR_e_CR_Tent h
CeTSRR_e_C2C_Clc hSpdSnsr1	0	0	0	0	1	0	1
CeTSRR_e_C2C_Clc hSpdSnsr2	1	1	1	1	1	1	1

17 OBDG03 TCM Common 9 Speed T87A Supporting Tables Initial Supporting table - P176B intermediate speed sensor fail count threshold

Description: P176B intermediate speed sensor fail count threshold

Value Units: fail counts

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
1	4	4

17 OBDG03 TCM Common 9 Speed T87A Supporting Tables Initial Supporting table - P176B intermediate speed sensor fail RPM threshold

Description: P176B intermediate speed sensor fail RPM speed threshold

Value Units: RPM

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
1	20.0	20.0

17 OBDG03 TCM Common 9 Speed T87A Supporting Tables Initial Supporting table - P176B intermediate speed sensor fail time threshold

Description: P176B intermediate speed sensor fail time threshold

Value Units: seconds

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
1	2.000	2.000

Initial Supporting table - P176B minimum estimated transmission intermediate speed to enable fail evaluation

Description: minimum estimated transmission intermediate speed to enable fail evaluation, where estimate is based on transmission input speed / ratio calibration, where ratio calibration is either P176B ratio calibration when REVERSE or P176B ratio calibration when not REVERSE

Value Units: estimated transmission intermediate speed RPM

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
1	160.0	160.0

Initial Supporting table - P176B minimum transmission input speed to enable fail evaluation

Description: minimum transmission input speed to enable fail evaluation

Value Units: transmission input speed RPM X Unit: intermediate speed sensor select

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
1	160.0	160.0

Initial Supporting table - P176B ratio calibration when not REVERSE

Description: used to estimate transmission input speed based on transmission intermediate speed when range is not REVERSE

Value Units: ratio

X Unit: commanded gear
Y Units: intermediate speed sensor select

y/x	4		_	4	_		~ "7	CeTGRR_e_Ge ar8	_	CeTGRR_e_Ge ar10
CeTSRR_e_C2 C_ClchSpdSnsr 1		6.3694	1.0000	2.4450	1.0000	0.5227	1.0000	1.0000	1.1905	1.0000
CeTSRR_e_C2 C_ClchSpdSnsr 2		1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000	1.0000

Initial Supporting table - P176B ratio calibration when REVERSE

Description: used to estimate transmission input speed based on transmission intermediate speed when range is REVERSE

Value Units: ratio

y/x	CeTSRR_e_C2C_ClchSpdSnsr1	CeTSRR_e_C2C_ClchSpdSnsr2
1	1.0000	1.0000

Initial Supporting table - P2715 C4 clutch exhaust delay time closed throttle down shift

Description: P2715 C4 clutch hydraulic circuit exhaust time in closed throttle down shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.225	0.225

Initial Supporting table - P2715 C4 clutch exhaust delay time closed throttle lift foot up shift

Description: P2715 C4 clutch hydraulic circuit exhaust time in closed throttle lift foot up shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.850	0.850

Initial Supporting table - P2715 C4 clutch exhaust delay time garage shift

Description: P2715 C4 clutch hydraulic circuit exhaust time in garage shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.850	0.850

Initial Supporting table - P2715 C4 clutch exhaust delay time negative torque up shift

Description: P2715 C4 clutch hydraulic circuit exhaust time in negative torque up shift

Value Units: seconds

Ì	y/x	-40.00	-20.00	0.00	30.00	110.00
	1	0.500	0.500	0.500	0.500	0.500

Initial Supporting table - P2715 C4 clutch exhaust delay time open throttle power down shift

Description: P2715 C4 clutch hydraulic circuit exhaust time in open throttle power down shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.119	0.119

Initial Supporting table - P2715 C4 clutch exhaust delay time open throttle power on up shift

Description: P2715 C4 clutch hydraulic circuit exhaust time in open throttle power on up shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.300	0.300

Initial Supporting table - P2724 C5 clutch exhaust delay time closed throttle down shift

Description: P2724 C5 clutch hydraulic circuit exhaust time in closed throttle down shift

Value Units: seconds

Ì	y/x	-40.00	-20.00	0.00	30.00	110.00
	1	1.600	1.100	0.950	0.337	0.337

Initial Supporting table - P2724 C5 clutch exhaust delay time closed throttle lift foot up shift

Description: P2724 C5 clutch hydraulic circuit exhaust time in closed throttle lift foot up shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.850	0.850

Initial Supporting table - P2724 C5 clutch exhaust delay time garage shift

Description: P2724 C5 clutch hydraulic circuit exhaust time in garage shift

Value Units: seconds

y/x	-40	-20	0	30	110
1	2	1	1	1	1

Initial Supporting table - P2724 C5 clutch exhaust delay time negative torque up shift

Description: P0747 C1 clutch hydraulic circuit exhaust time in negative torque up shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	0.500	0.500	0.500	0.500	0.500

Initial Supporting table - P2724 C5 clutch exhaust delay time open throttle power down shift

Description: P2724 C5 clutch hydraulic circuit exhaust time in open throttle power down shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.163	0.163

Initial Supporting table - P2724 C5 clutch exhaust delay time open throttle power on up shift

Description: P2724 C5 clutch hydraulic circuit exhaust time in open throttle power on up shift

Value Units: seconds

Ì	y/x	-40.00	-20.00	0.00	30.00	110.00
	1	1.600	1.100	0.950	0.406	0.406

Initial Supporting table - P2733 C6 clutch exhaust delay time closed throttle down shift

Description: P2733 C6 clutch hydraulic circuit exhaust time in closed throttle down shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100		0.350	0.350

Initial Supporting table - P2733 C6 clutch exhaust delay time closed throttle lift foot up shift

Description: P2733 C6 clutch hydraulic circuit exhaust time in closed throttle lift foot up shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.850	0.850

Initial Supporting table - P2733 C6 clutch exhaust delay time garage shift

Description: P2733 C6 clutch hydraulic circuit exhaust time in garage shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.850	0.850

Initial Supporting table - P2733 C6 clutch exhaust delay time negative torque up shift

Description: P2733 C6 clutch hydraulic circuit exhaust time in negative torque up shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	0.500	0.500	0.500	0.500	0.500

Initial Supporting table - P2733 C6 clutch exhaust delay time open throttle power down shift

Description: P2733 C6 clutch hydraulic circuit exhaust time in open throttle power down shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.131	0.131

Initial Supporting table - P2733 C6 clutch exhaust delay time open throttle power on up shift

Description: P2733 C6 clutch hydraulic circuit exhaust time in open throttle power on up shift

Value Units: seconds

y/x	-40.00	-20.00	0.00	30.00	110.00
1	1.600	1.100	0.950	0.600	0.600

Initial Supporting table - P2817 TCC stuck off fail TCC slip speed

Description: TCC stuck off slip speed fail threshold when TCC is in ON mode (controlled slip mode)

Value Units: RPM

X Unit: engine torque Nm

Ì	y/x		64.00	128.00	192.00	256.00	320.00	384.00	448.00	512.00
		50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0

Initial Supporting table - P2818 control valve test time

Description: Value to initialize the torque converter clutch control valve test time to after clutch select valve solenoid is turned on, window of time in which the torque converter clutch slip speed and derivative slip speed must be evaluated for failure. Window is a time down window from the calibration value to zero (0.0) seconds.

Value Units: seconds

y/x	-7.00	10.00	40.00
1	0.350	0.350	0.350

Initial Supporting table - P2818 stuck on test time

Description: Value to initialize the TCC Stuck On test time to after transition of clutch select valve allowing TCC hydraulic circuit connectivity. Window is a time down window from the calibration value to zero (0.0) seconds.

Value Units: seconds

y/x	-7.00	10.00	40.00
1	1.500	1.250	1.000

Initial Supporting table - P2818 torque convert derivative slip speed fail threshold

Description: The fail threshold, rate of change of torque converter slip speed, at which the torque convert clutch is considered stuck on.

Value Units: RPM/second

y/x	-7.00	10.00	40.00
1	-2,000.0	-2,000.0	-2,000.0

Initial Supporting table - P2D2 Clutch Slip Sum

Description:

X Unit: Brake Pedal %

Y Units: dn rpm

y/x	0	13	25	38	50	63	75	88	100
1	-1	-6	-12	-17	-23	-28	-33	-39	-44

17 OBDG03 TCM Common 9 Speed T87A Supporting Tables Initial Supporting table - P2D2 Decel Pressure - C1

Description:							
Value Units: Kpa X Unit: Cmnd Gear Y Units: Kpa							
P2D2 Decel Pressure	e - C1 - Part 1						
y/x	CeCGSR_e_NullForS ched		CeCGSR_e_NeutralN oClutch	CeCGSR_e_NeutralC	CeCGSR_e_NeutralC 2	CeCGSR_e_NeutralC 3	CeCGSR_e_NeutralC 4
1	186	186	186	186	186	186	186
P2D2 Decel Pressure	e - C1 - Part 2						
y/x	CeCGSR_e_NeutralC 5	CeCGSR_e_NeutralC 6	CeCGSR_e_NeutralC 7	CeCGSR_e_NeutralC 1C2		CeCGSR_e_NeutralC 2C4	CeCGSR_e_NeutralC 2C5
1	186	186	186	186	186	186	186
P2D2 Decel Pressure	e - C1 - Part 3						
y/x	CeCGSR_e_NeutralC 2C6	CeCGSR_e_NeutralC 3C4	CeCGSR_e_NeutralC 3C5	CeCGSR_e_NeutralC 3C6		CeCGSR_e_NeutralC 4C6	CeCGSR_e_Park
1	186	186	186	186	186	186	186
P2D2 Decel Pressure	e - C1 - Part 4						
y/x	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW	CeCGSR_e_SecondL ckd	CeCGSR_e_SecondF W	CeCGSR_e_Third	CeCGSR_e_Fourth

186

99,999

CeCGSR_e_Eighth

186

99,999

CeCGSR_e_Ninth

186

186

CeCGSR_e_Tenth

186

186

186

CeCGSR_e_Fifth

P2D2 Decel Pressure - C1 - Part 5

y/x

99,999

99,999

CeCGSR_e_Sixth

99,999

99,999

CeCGSR_e_Seventh

TCM Common 9 Spee	d T87A Supportin	g Tables 74 of 83
Town Common 3 Spee	a rora supportin	g rables 14 or 03

17 OBDG03 TCM Common 9 Speed T87A Supporting Tables Initial Supporting table - P2D2 Decel Pressure - C2

Description:							
Value Units: K X Unit: Cmnd (Y Units: Kpa							
P2D2 Decel Pr	essure - C2 - Part 1						
y/x	CeCGSR_e_NullForS ched	CeCGSR_e_Neutral	CeCGSR_e_NeutralN oClutch	CeCGSR_e_NeutralC	CeCGSR_e_NeutralC 2	CeCGSR_e_NeutralC	CeCGSR_e_NeutralC 4
1	358	358	358	358	358	358	358
P2D2 Decel Pr	essure - C2 - Part 2						
y/x	CeCGSR_e_NeutralC 5	CeCGSR_e_NeutralC 6	CeCGSR_e_NeutralC 7	CeCGSR_e_NeutralC 1C2	CeCGSR_e_NeutralC 2C3	CeCGSR_e_NeutralC 2C4	CeCGSR_e_NeutralC 2C5
1	358	358	358	358	358	358	358
P2D2 Decel Pr	ressure - C2 - Part 3						
y/x	CeCGSR_e_NeutralC 2C6	CeCGSR_e_NeutralC 3C4	CeCGSR_e_NeutralC 3C5	CeCGSR_e_NeutralC 3C6	CeCGSR_e_NeutralC 4C5	CeCGSR_e_NeutralC 4C6	CeCGSR_e_Park
1	358	358	358	358	358	358	358
P2D2 Decel Pr	essure - C2 - Part 4						
y/x	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW	CeCGSR_e_SecondL ckd	CeCGSR_e_SecondF W	CeCGSR_e_Third	CeCGSR_e_Fourth
1	358	358	358	99,999	99,999	358	358
P2D2 Decel Pr	essure - C2 - Part 5						
y/x	CeCGSR_e_Fifth	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth	

358

358

99,999

358

99,999

358

17 OBDG03 TCM Common 9 Speed T87A Supporting Tables Initial Supporting table - P2D2 Decel Pressure - C3

Description:							
Value Units: Kpa X Unit: Cmnd Gea Y Units: Kpa	ar						
P2D2 Decel Press	sure - C3 - Part 1						
y/x	CeCGSR_e_NullForS ched	CeCGSR_e_Neutral	CeCGSR_e_NeutralN oClutch	CeCGSR_e_NeutralC	CeCGSR_e_NeutralC 2	CeCGSR_e_NeutralC 3	CeCGSR_e_NeutralC 4
1	443	443	443	443	443	443	443
P2D2 Decel Press	sure - C3 - Part 2						
y/x	CeCGSR_e_NeutralC 5	CeCGSR_e_NeutralC 6	CeCGSR_e_NeutralC 7	CeCGSR_e_NeutralC 1C2	CeCGSR_e_NeutralC 2C3	CeCGSR_e_NeutralC 2C4	CeCGSR_e_NeutralC 2C5
1	443	443	443	443	443	443	443
P2D2 Decel Press	sure - C3 - Part 3						
y/x	CeCGSR_e_NeutralC 2C6	CeCGSR_e_NeutralC 3C4	CeCGSR_e_NeutralC 3C5	CeCGSR_e_NeutralC 3C6	CeCGSR_e_NeutralC 4C5	CeCGSR_e_NeutralC 4C6	CeCGSR_e_Park
1	443	443	443	443	443	443	443
P2D2 Decel Press	sure - C3 - Part 4						
y/x	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW	CeCGSR_e_SecondL ckd	CeCGSR_e_SecondF W	CeCGSR_e_Third	CeCGSR_e_Fourth
1	443	443	443	443	443	99,999	443
P2D2 Decel Press	sure - C3 - Part 5						
y/x	CeCGSR_e_Fifth	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth	

443

443

99,999

99,999

443

443

Initial	Supporting	table - P2D2 Decel Pres	ssure - C4
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Description:							
Value Units: Kpa X Unit: Cmnd Ge Y Units: Kpa							
P2D2 Decel Pres	ssure - C4 - Part 1						
y/x	CeCGSR_e_NullForS ched	CeCGSR_e_Neutral	CeCGSR_e_NeutralN oClutch	CeCGSR_e_NeutralC	CeCGSR_e_NeutralC 2	CeCGSR_e_NeutralC	CeCGSR_e_NeutralC 4
1	373	373	373	373	373	373	373
P2D2 Decel Pres	ssure - C4 - Part 2						
y/x	CeCGSR_e_NeutralC 5	CeCGSR_e_NeutralC	CeCGSR_e_NeutralC 7	CeCGSR_e_NeutralC 1C2	CeCGSR_e_NeutralC 2C3	CeCGSR_e_NeutralC 2C4	CeCGSR_e_NeutralC 2C5
1	373	373	373	373	373	373	373
P2D2 Decel Pres	ssure - C4 - Part 3						
y/x	CeCGSR_e_NeutralC 2C6	CeCGSR_e_NeutralC 3C4	CeCGSR_e_NeutralC 3C5	CeCGSR_e_NeutralC 3C6	CeCGSR_e_NeutralC 4C5	CeCGSR_e_NeutralC 4C6	CeCGSR_e_Park
1	373	373	373	373	373	373	373
P2D2 Decel Pres	ssure - C4 - Part 4						
y/x	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW	CeCGSR_e_SecondL ckd	CeCGSR_e_SecondF W	CeCGSR_e_Third	CeCGSR_e_Fourth
1	373	373	373	373	373	373	99,999
P2D2 Decel Pres	ssure - C4 - Part 5						
y/x	CeCGSR_e_Fifth	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth	

99,999

373

373

373

373

373

Initial	Supporting	table - P2D2 Decel Pressure -	C5
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Description:							
Value Units: Kp X Unit: Cmnd G Y Units: Kpa							
P2D2 Decel Pre	essure - C5 - Part 1						
y/x	CeCGSR_e_NullForS ched	CeCGSR_e_Neutral	CeCGSR_e_NeutralN oClutch	CeCGSR_e_NeutralC	CeCGSR_e_NeutralC 2	CeCGSR_e_NeutralC 3	CeCGSR_e_NeutralC 4
1	315	315	315	315	315	315	315
P2D2 Decel Pre	essure - C5 - Part 2						
y/x	CeCGSR_e_NeutralC 5	CeCGSR_e_NeutralC 6	CeCGSR_e_NeutralC 7	CeCGSR_e_NeutralC 1C2	CeCGSR_e_NeutralC 2C3	CeCGSR_e_NeutralC 2C4	CeCGSR_e_NeutralC 2C5
1	315	315	315	315	315	315	315
P2D2 Decel Pre	essure - C5 - Part 3						
y/x	CeCGSR_e_NeutralC 2C6	CeCGSR_e_NeutralC 3C4	CeCGSR_e_NeutralC 3C5	CeCGSR_e_NeutralC 3C6	CeCGSR_e_NeutralC 4C5	CeCGSR_e_NeutralC 4C6	CeCGSR_e_Park
1	315	315	315	315	315	315	315
P2D2 Decel Pre	essure - C5 - Part 4						
y/x	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW	CeCGSR_e_SecondL ckd	CeCGSR_e_SecondF W	CeCGSR_e_Third	CeCGSR_e_Fourth
1	315	315	315	315	315	315	315
P2D2 Decel Pre	essure - C5 - Part 5						
y/x	CeCGSR_e_Fifth	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth	
1	99,999	315	315	315	99,999	315	

Description:							
Value Units: Kpa X Unit: Cmnd Ge Y Units: Kpa							
P2D2 Decel Pres	ssure - C6 - Part 1						
y/x	CeCGSR_e_NullForS ched	CeCGSR_e_Neutral	CeCGSR_e_NeutralN oClutch	CeCGSR_e_NeutralC	CeCGSR_e_NeutralC 2	CeCGSR_e_NeutralC	CeCGSR_e_NeutralC 4
1	315	315	315	315	315	315	315
P2D2 Decel Pres	ssure - C6 - Part 2						
y/x	CeCGSR_e_NeutralC 5	CeCGSR_e_NeutralC 6	CeCGSR_e_NeutralC 7	CeCGSR_e_NeutralC 1C2	CeCGSR_e_NeutralC 2C3	CeCGSR_e_NeutralC 2C4	CeCGSR_e_NeutralC 2C5
1	315	315	315	315	315	315	315
P2D2 Decel Pres	ssure - C6 - Part 3						
y/x	CeCGSR_e_NeutralC 2C6	CeCGSR_e_NeutralC 3C4	CeCGSR_e_NeutralC 3C5	CeCGSR_e_NeutralC 3C6	CeCGSR_e_NeutralC 4C5	CeCGSR_e_NeutralC 4C6	CeCGSR_e_Park
1	315	315	315	315	315	315	315
P2D2 Decel Pres	ssure - C6 - Part 4						
y/x	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW	CeCGSR_e_SecondL ckd	CeCGSR_e_SecondF W	CeCGSR_e_Third	CeCGSR_e_Fourth
1	315	315	315	315	315	315	315
P2D2 Decel Pres	ssure - C6 - Part 5						
y/x	CeCGSR_e_Fifth	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth	
1	9,999	315	315	315	9,999	315	

Initial	Supporting	table - P2D2 Decel Pressure -	- C7
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Description:												
Value Units: K X Unit: Cmnd (Y Units: Kpa												
P2D2 Decel Pr	ressure - C7 - Part 1											
y/x	CeCGSR_e_NullForS ched		CeCGSR_e_NeutralN oClutch	CeCGSR_e_NeutralC	CeCGSR_e_NeutralC 2	CeCGSR_e_NeutralC 3	CeCGSR_e_NeutralC 4					
1	0	0	0	0	0	0	0					
P2D2 Decel Pressure - C7 - Part 2												
y/x	CeCGSR_e_NeutralC 5	CeCGSR_e_NeutralC 6	CeCGSR_e_NeutralC 7	CeCGSR_e_NeutralC 1C2	CeCGSR_e_NeutralC 2C3	CeCGSR_e_NeutralC 2C4	CeCGSR_e_NeutralC 2C5					
1	0	0	0	0	0	0	0					
P2D2 Decel Pr	ressure - C7 - Part 3											
y/x	CeCGSR_e_NeutralC 2C6	CeCGSR_e_NeutralC 3C4	CeCGSR_e_NeutralC 3C5	CeCGSR_e_NeutralC 3C6	CeCGSR_e_NeutralC 4C5	CeCGSR_e_NeutralC 4C6	CeCGSR_e_Park					
1	0	0	0	0	0	0	0					
P2D2 Decel Pr	ressure - C7 - Part 4											
y/x	CeCGSR_e_Reverse	CeCGSR_e_FirstLckd	CeCGSR_e_FirstFW	CeCGSR_e_SecondL ckd	CeCGSR_e_SecondF W	CeCGSR_e_Third	CeCGSR_e_Fourth					
1	0	9,999	9,999	0	0	0	0					
P2D2 Decel Pr	ressure - C7 - Part 5											
y/x	CeCGSR_e_Fifth	CeCGSR_e_Sixth	CeCGSR_e_Seventh	CeCGSR_e_Eighth	CeCGSR_e_Ninth	CeCGSR_e_Tenth						
1	0	0	0	0	0	0						

Initial Supporting table - REV Thrshld (Forward Velocity)

Description: Max Vehcile Velocity Allowed For Reverse Gear - Forward Velocity

Value Units: KPH X Unit: % Pedal Y Units: KPH

L																		
	y/x	0	6	13	19	25	31	38	44	50	56	63	69	75	81	88	94	100
	1	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15

Initial Supporting table - REV Thrshld (Negative Velocity)

Description: Max Vehcile Velocity Allowed For Reverse Gear - Reverse Velocity (if using directional speed sensor)

Value Units: KPH X Unit: % Pedal Y Units: KPH

)	//x	0	6	13	19	25	31	38	44	50	56	63	69	75	81	88	94	100
ŕ	1	-57	-57	-57	-57	-57	-57	-72	-79	-85	-88	-100	-100	-100	-100	-100	-105	-120

Initial Supporting table - transmission fluid temperature warm up time

Description:

Value Units: transmission fluid temperature normal warn up time, seconds **X Unit:** transmission fluid temperature at controller power up, °C

y/x	-40.00	-30.00	-20.00	0.00	20.00
1	1,800.0	1,500.0	1,200.0	600.0	60.0

17 OBDG03 Fault Bundle Definitions

Bundle Name: AcceleratorPedalFailure

P2122, P2123, P2127, P2128, P2138, P0697, P06A3

Bundle Name: CrankSensor_FA

P0335, P0336

Bundle Name: ECT_Sensor_FA

P0116, P0117, P0118, P0119, P0128, P111E

Bundle Name: EngineTorqueEstInaccurate

EngineMisfireDetected_FA, FuelInjedtorCircuit_FA, FuelInjedtorCircuit_TFTKO, FuelTrimSystemB1_FA, FuelTrimSystemB2_FA, MAF_SensorTFTKO, MAP_SensorTFTKO,

EGRValvePerformance_FA, P16F3

EngineTorqueEstInaccurate - Other Definitions:

P16F3 with GetXOYR b SecurityFlt (CeXOYR e MAPR AfterThrotPresFlt, CeXOYR e MAPR EngineVacuumFlt, CeXOYR e MAPR IntkMnfdPresFlt,

CeXOYR_e_MAFR_Ahead1vs2FinalFlt)

Bundle Name: Transmission Shift Lever Position Validity

P1824, P182A, P182B, P182C, P182D, P182E, P182F, P1838, P1839, P1840, P1841, P18B5, P18B6, P18B7, P18B8, P18B9, P18BA, P18BB, P18BC, P18BD,

P18BE, P18BF, P18C0, P18C1, P18C2, P18C3, P1915

Bundle Name: VehicleSpeedSensor_FA

P0502, P0503, P0722, P0723

Bundle Name: VehicleSpeedSensorError

P0502, P0503, P0722, P0723