

## 09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
Transmission Control Modul (TCM)	P0601	Transmission Electro-Hydraulic Control Module Read Only Memory	Incorrect program/calibrations checksum	= TRUE Boolean			= 5 Fail Counts	Type A One Trip
					Ignition Voltage Lo Ignition Voltage Hi	>= 8.5996 Volts <= 18 Volts	Disable Conditions: MIL not Illuminated for DTC's: TCM: P0601 ECM: None	
Transmission Control Modul (TCM)	P0603	Transmission Electro-Hydraulic Control Module Long-Term Memory Reset	Non-volatile memory (static or dynamic) checksum failure at Powerup	= TRUE Boolean			Runs Continuously	Type A One Trip
					Ignition Voltage Lo Ignition Voltage Hi	>= 8.5996 Volts <= 18 Volts	Disable Conditions: MIL not Illuminated for DTC's: TCM: P0603 ECM: None	
Transmission Control Modul (TCM)	P0604	Transmission Electro-Hydraulic Control Module Random Access Memory	RAM Read/Write Failure (Single Word)	= TRUE Boolean			= 5 Fail Counts = 16 Sample Counts	Type A One Trip
					Ignition Voltage Lo Ignition Voltage Hi	>= 8.5996 Volts <= 18 Volts	Disable Conditions: MIL not Illuminated for DTC's: TCM: P0604 ECM: None	
Transmission Control Modul (TCM)	P062F	Transmission Electro-Hydraulic Control Module Long Term Memory Performance	TCM Non-Volatile Memory bit Incorrect flag at Powerdown	= TRUE Boolean			Runs Continuously	Type A One Trip
					Ignition Voltage Lo Ignition Voltage Hi	>= 8.5996 Volts <= 18 Volts		

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					Disable Conditions: MIL not Illuminated for DTC's:	TCM: P062F ECM: None			
Transmission Control Modul (TCM)	P0634	Transmission Electro-Hydraulic Control Module Internal Temperature Too High	Fail Case 1	Substrate Temperature	>= 146.296875 °C		>= 5	Fail Time (Sec)	Type A One Trip
			Fail Case 2	Substrate Temperature	>= 50 °C		>= 2	Fail Time (Sec)	
				Ignition Voltage	>= 18 Volts				
					Substrate Temp Lo >= 0 °C Substrate Temp Hi <= 170 °C Substrate Temp Between Temp Range for Time >= 0.25 Sec	TCM: P0634 ECM: None			
HWIO	P0658	Actuator Supply Voltage Circuit Low		Open or ground short is detected by hardware circuitry	= TRUE Boolean		>= 3	Fail Counts	Type A One Trip
							= 5	Sample Counts	
					Ignition Voltage Lo >= 8.5996 Volts Ignition Voltage Hi <= 18 Volts Engine Speed Lo >= 500 RPM Engine Speed Hi <= 7500 RPM Engine Speed is within the allowable limits for >= 5 Sec HSD #1 Enabled = True Boolean	TCM: P0658 ECM: None			
					Disable Conditions: MIL not Illuminated for DTC's:				

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Transmission Fluid Temperature Sensor (TFT)	P0667	TCM internal temperature thermistor failed at a constant value or toggling at high frequency.	<u>Fail Case 1</u>	Enable Vehicle Speed	>= 8 Kph			>= 300	Special Type C No Trips	
			Enable TCC Slip	> 150 RPM			>= 150			
			Enable Transmission Fluid Temperature	>= 70 °C						
			Enable Transmission Fluid Temperature Delta from startup	>= 55 °C						
			Enable Substrate Temp Delta	< 2 °C			>= 100			
			Startup Substrate Temperature Lo Enable	>= -55 °C						
			Startup Substrate Temperature HI Enable When Above FC1	<= 21 °C						
			Enable Conditions have been Met, Increment Fail Timer				> 100			
			<u>Fail Case 2</u>	Vehicle Speed	>= 8 RPM					>= 300
			TCC Slip	> -12 RPM				>= -12		
Transmission Fluid Temperature	>= 70 °C									
Transmission Fluid Temperature Delta from startup	>= 55 °C									

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			Enable Substrate Temp Delta	< 2 °C			>= 100	Temp Delta Enable Time (Sec)
			Startup Substrate Temperature Lo Enable	>= 120 °C				
			Startup Substrate Temperature HI Enable When Above FC2 Enable Conditions have been Met, Increment Fail Timer	<= 150 °C			> 100	Fail Timer (Sec)
			<u>Fail Case 3</u> TCM Internal temp delta	>= 20 °C			>= 14	Fail Counts
							>= 7	Sample Time (Sec)
					TCM Internal Temp Lo TCM Internal Temp Hi Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= -55 °C <= 150 °C >= 8.5996 Volts <= 18 Volts >= 500 RPM <= 7500 RPM >= 5 Sec		
				<b>Disable Conditions:</b>	<b>MIL not Illuminated for DTC's:</b>	TCM: P0667, P0716, P0717, P0722, P0723  ECM: None		
Transmission Control Modul (TCM)	P0668	TCM internal temperature thermistor failed at a high temperature (short to Ground).	TCM Substrate Temp	>= -249 °C			>= 12.75	Fail Timer (Sec)
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi	>= 8.5996 Volts <= 18 Volts >= 500 RPM <= 7500 RPM		
								Special Type C No Trips

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					Engine Speed is within the allowable limits for	>= 5 Sec		
					<b>Disable Conditions:</b> MIL not Illuminated for DTC's:	TCM: P0668  ECM: None		
Transmission Control Modulal (TCM)	P0669	TCM internal temperature thermistor failed at a low temperature (open or short to power).	TCM Substrate Temp	<= 249 °C			>= 4 Fail Timer (Sec)	Special Type C No Trips
					TOSS Speed Toss Speed greater than above cal for TCC Slip TCC Slip greater than above cal for Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= 200 RPM >= 200 Sec >= -12 RPM >= 0 Sec >= 8.5996 Volts <= 18 Volts >= 500 RPM <= 7500 RPM >= 5 Sec		
					<b>Disable Conditions:</b> MIL not Illuminated for DTC's:	TCM: P0669, P0716, P0717, P0722, P0723 ECM: None		
Mode Switch	P071A	Transmission Mode Switch A Circuit	If Tow Haul / Winter Switch Active	= TRUE Boolean			>= 600 Fail Time (Sec)	Special Type C No Trips
					Tow Haul Mode Switch Diagnostic Enabled Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi	= TRUE Boolean >= 8.5996 Volts <= 18 Volts >= 500 RPM <= 7500 RPM		

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					Engine Speed is within the allowable limits for	>= 5 Sec			
					<b>Disable Conditions:</b>	<b>MIL not Illuminated for DTC's:</b>			
						TCM: P1762 ECM: None			
Transmission Fluid Temperature Sensor (TFT)	P0711	Trans Fluid Temp Sensor Circuit Range/Performance	<u>Fail Case 1</u>	Vehicle Speed	>= 8 Kph		>= 300	Vehicle Speed Enable Time (Sec)	Special Type C No Trips
			TCC Slip	>= 150 RPM		>= 0	TCC Slip Enable Time (Sec)		
			Transmission Fluid Temperature Lo	>= -50 °C					
			Transmission Fluid Temperature High	<= 21 °C					
			Engine Coolant Temp	>= 70 °C					
			Engine Coolant Temp Delta	>= 55 °C					
			TFT Delta from Startup	< 2 °C					
			If the Above Enable Conditons are Met, Then Increment Fail Counter				>= 100	Fail Time (Sec)	
			<u>Fail Case 2</u>	Vehicle Speed	>= 8 Kph		>= 300	Vehicle Speed Enable Time (Sec)	
			TCC Slip	>= -12 RPM			>= 0	TCC Slip Enable Time (Sec)	
			Transmission Fluid Temperature	>= 129 °C					

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COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
			Transmission Fluid Temperature	<= 170 °C				
			Engine Coolant Temp	>= 70 °C				
			Engine Coolant Temp Delta	>= 55 °C				
			TFT Delta from startup	< 2 °C			>= 100	TFT Delta Enable Time (Sec)
			If the Above Enable Conditions are Met, Then Increment Fail Counter				>= 100	Fail Time (Sec)
			<u>Fail Case 3</u> TFT Delta	>= 20 °C			= 5	Fail Counts
							= 7	Sample Time (Sec)
			<u>Fail Case 4</u> Transmission Fluid Temperature	<= 20 °C			>=	Please Refer to Table 1 in supporting Documents for Calibration Table Fail Time (Sec)
					Engine Torque Lo	>= 50 N*m		
					Engine Torque Hi	<= 1492 N*m		
					Throttle Position Lo	>= 8.0002 Pct		
					Throttle Position Hi	<= 99.998 Pct		
					Vehicle Speed Lo	>= 8 Kph		
					Vehicle Speed Hi	<= 511 Kph		
					Engine Speed Lo	>= 500 RPM		
					Engine Speed Hi	<= 6500 RPM		
					Engine Coolent Lo	>= -39 °C		
					Engine Coolent Hi	<= 149 °C		
					Engine Torque Signal Valid	= TRUE		Boolea n
					Accelerator Position Signal Valid	= TRUE		Boolea n
					Engine Crank Position Sensor Signal Valid	= TRUE		Boolea n

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COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
					Transmission Fluid Temperature Lo Transmission Fluid Temperature Hi Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Coolant Sensor Signal Valid Engine Speed is within the allowable limits for	>= -50 °C <= 170 °C >= 8.5996 Volts <= 18 Volts >= 500 RPM <= 7500 RPM = TRUE Boolean >= 5 Sec		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0711, P0716, P0717, P0722, P0723, P0742, P2726  ECM: P0101, P0102, P0103, P0116, P0117, P0118, P0121, P0122, P0123, P0336, P0337, P0338		



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Transmission Fluid Temperature Sensor (TFT)	P0712	Transmission fluid temperature thermistor failed at a high temperature (short to ground).	Transmission Fluid Temperature	>= -74 °C			Fail Time (Sec)	Special Type C No Trips
					Ignition Voltage Lo >= 8.5996 Volts Ignition Voltage Hi <= 18 Volts Engine Speed Lo >= 500 RPM Engine Speed Hi <= 7500 RPM Engine Speed is within the allowable limits for >= 5 Sec  Disable Conditions: MIL not Illuminated for DTC's: TCM: P0712, P0716, P0717, P0722, P0723 ECM: None	>= 12.75		
Transmission Fluid Temperature Sensor (TFT)	P0713	Transmission fluid temperature thermistor failed at a low temperature (open or short to power).	Transmission Fluid Temperature	>= 174 °C			Fail Time (Sec)	Special Type C No Trips
					Ignition Voltage Lo >= 8.5996 Volts Ignition Voltage Hi <= 18 Volts Engine Speed Lo >= 500 RPM Engine Speed Hi <= 7500 RPM Engine Speed is within the allowable limits for >= 5 Sec  Disable Conditions: MIL not Illuminated for DTC's: TCM: P0713, P0716, P0717, P0722, P0723 ECM: None	>= 10		

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COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
Transmission Input Speed Sensor (TISS)	P0716	Input Speed Sensor Performance	Transmission Input Speed Sensor Drops	>= 1350 RPM			>= 0.8 Fail Time (Sec)	Type A One Trip
						Ignition Voltage Lo >= 8.5996 Volts Ignition Voltage Hi <= 18 Volts Engine Speed Lo >= 500 RPM Engine Speed Hi <= 7500 RPM Engine Speed is within the allowable limits for >= 5 Sec Engine Torque Lo >= 0 N*m Engine Torque Hi <= 1492 N*m Vehicle Speed >= 10 Kph Throttle Position >= 0 Pct Engine Torque Signal Valid = TRUE Boolean Throttle Position Signal Valid = TRUE Boolean		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P0752, P0973, P0974  ECM: P0101, P0102, P0103, P0121, P0122, P0123		
Transmission Input Speed Sensor (TISS)	P0717	Input Speed Sensor Circuit Low Voltage	Transmission Input Speed Sensor	< 50 RPM			>= 4.5 Fail Time (Sec)	Type A One Trip
						Ignition Voltage Lo >= 8.5996 Volts Ignition Voltage Hi <= 18 Volts		

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					Engine Speed Lo >= 500 RPM Engine Speed Hi <= 7500 RPM Engine Speed is within the allowable limits for >= 5 Sec Engine Torque Lo >= 50 N*m Engine Torque Hi <= 1492 N*m Vehicle Speed >= 16 Kph			
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723  ECM: P0101, P0102, P0103		
Transmission Output Speed Sensor (TOSS)	P0722	Output Speed Sensor Circuit Low Voltage	Transmission Output Speed Sensor Raw Speed	<= 70 RPM			>= 4.5 Fail Time (Sec)	Type A One Trip
					Ignition Voltage Lo >= 8.5996 Volts Ignition Voltage Hi <= 18 Volts Engine Speed Lo >= 500 RPM Engine Speed Hi <= 7500 RPM Engine Speed is within the allowable limits for >= 5 Sec Engine Torque Lo >= 50 N*m Engine Torque Hi <= 1492 N*m Throttle Position >= 8 Pct Transmission Input Speed Lo >= 1000 RPM Transmission Input Speed Hi <= 8191 RPM Transmission Fluid Temperature >= -40 °C  Engine Torque Signal Valid = TRUE Boolean Throttle Position Signal Valid = TRUE Boolean			

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					Disable Conditions: MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722  ECM: P0101, P0102, P0103, P0121, P0122, P0123		
Transmission Output Speed Sensor (TOSS)	P0723	Output Speed Sensor Circuit Intermittent	Raw Output Speed	>= 210 RPM			>= 0.2 Enable Time (Sec)	Type A One Trip
			Input Speed Delta	< 4095 RPM			>= 0 Enable Time (Sec)	
			Output Speed Delta	<= 8191 RPM			>= 0 Enable Time (Sec)	
			Output Speed Drop	> 650 RPM			>= 1.5 Output Speed Drop Recover Fail Time (Sec)	
					Ignition Voltage Lo	>= 8.5996 Volts		
					Ignition Voltage Hi	<= 18 Volts		
					Engine Speed Lo	>= 3200 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Range Change Delay Timer	>= 5 Sec		
					4WD Range Change Delay Timer	>= 5 Sec		
					Engine Torque Signal Valid	= TRUE Boolean		
					Throttle Position Signal Valid	= TRUE Boolean		

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				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P0973, P0974, P0976, P0977  ECM: P0101, P0102, P0103, P0121, P0122, P0123		
Torque Converter Clutch (TCC)	P0741	TCC System Stuck OFF	TCC Pressure  Either Condition (A) or (B) Must be Met  (A) TCC Slip Error @ TCC On Mode  (B) TCC Slip Error @ Lock On Mode  If Above Conditions Have been Met, and Fail Timer Expired, Increment Fail Counter	>= 500 Kpa  >= RPM  >= 130 RPM	Please See Calibration Table 3 in Supporting Documents		>= 2 Enable Time (Sec)  >= 4 Enable Time (Sec)  >= 4 Enable Time (Sec)  >= 3 TCC Stuck Off Fail Counter	Type A One Trip
					Ignition Voltage Lo	>= 8.5996 Volts		

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					Ignition Voltage Hi <= 18 Volts Engine Torque Lo >= 50 N*m Engine Torque Hi <= 1492 N*m Trottle Position Lo >= 8.0002 Pct Trottle Position Hi <= 99.998 Pct 2nd Gear Ratio Lo >= 2.671 Ratio 2nd Gear Ratio High <= 3.073 Ratio 3rd Gear Ratio Lo >= 1.713 Ratio 3rd Gear Ratio High <= 1.9709 Ratio 4th Gear Ratio Lo >= 1.3151 Ratio 4th Gear Ratio High <= 1.5129 Ratio 5th Gear Ratio Lo >= 0.9301 Ratio 5th Gear Ratio Hi <= 1.0699 Ratio 6th Gear Ratio Lo >= 0.6901 Ratio 6th Gear Ratio High <= 0.7939 Ratio Transmission Fluid Temperature Lo >= 20 °C Transmission Fluid Temperature Hi <= 130 °C TCC Command Lock ON or ON = TRUE Boolean PTO Not Active = TRUE Boolean Engine Torque Signal Valid = TRUE Boolean Throttle Position Signal Valid = TRUE Boolean			

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					Disable Conditions: MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P0742, P2762, P2763, P2764  ECM: P0101, P0102, P0103, P0121, P0122, P0123		
Torque Converter Clutch (TCC)	P0742	TCC System Stuck ON	TCC Slip Speed TCC Slip Speed If TCC Slip is between above calcs when TCC Commanded Off, Increment Fail Timer If Fail Timer has expired, increment Fail Counter	>= -20 RPM <= 30 RPM			>= 2.5 Fail Time (Sec) = 6 Fail Counter	Type A One Trip
					Ignition Voltage Lo Ignition Voltage Hi Engine Torque Lo Engine Torque Hi Transmission Fluid Temperature Lo Transmission Fluid Temperature Hi Trottle Position Lo Trottle Position Hi Vehicle Speed Engine Speed Lo Engine Speed Hi	>= 8.5996 Volts <= 18 Volts >= 80 N*m <= 1492 N*m >= 20 °C <= 130 °C >= 8.0002 Pct <= 3 Pct >= 16 Kph >= 500 RPM <= 6500 RPM		

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					Gear Ratio Lo >= 0.6901 Ratio Gear Ratio Hi <= 3.073 Ratio Commanded Gear >= 2nd Gear Shift Solinoid A Enabled = TRUE Boolean TCC Command Off = TRUE Boolean Engine Torque Signal Valid = TRUE Boolean Throttle Position Signal Valid = TRUE Boolean			
					Disable Conditions: MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P0741, P0742, P1751, P2762, P2763, P2764  ECM: P0101, P0102, P0103, P0121, P0122, P0123		
Mode 2 Multiplex Valve	P0751	Shift Solenoid Valve A Stuck Off	Commaned Gear Slip  Commanded Gear	>= 200 RPM  = 1st Lock rpm			≠ 0 Neutral Timer (Sec)	Type B Two Trips



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			Closest Gear Ratio	= 4th Gear			>= 0.75	Fail Timer (Sec)	
					Ignition Voltage Lo >= 8.5996 Volts Ignition Voltage Hi <= 18 Volts Engine Speed Lo >= 500 RPM Engine Speed Hi <= 7500 RPM Engine Speed is within the allowable limits for >= 5 Sec TPS >= 0.4 % Shift is Complete AND Transmission Fluid Temperature >= 0 °C OR Output Speed >= 0 RPM Throttle Position Signal Valid from ECM = TRUE Boolean Engine Torque Signal Valid from ECM, High side driver is enabled = TRUE Boolean High-Side Driver is Enabled = TRUE Boolean				
					Disable Conditions: MIL not illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E  ECM: P0121, P0122, P0123			

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Mode 2 Multiplex Valve	P0752	Shift Solenoid Valve A Stuck On	Gear Box Slip	>= 200 Rpm			Please Refer to Table 7 in Supporting Documents	Type A One Trip
			Attained Gear ≠ 3rd Gear Commanded Gear = 3rd Gear Commanded Gear has Achieved 1st Locked OR 1st Free-Wheel OR 2nd C456/CBR1 Pressure Switch Error = TRUE Boolean					
					Ignition Voltage Lo >= 8.5996 Volts Ignition Voltage Hi <= 18 Volts Engine Speed Lo >= 500 RPM Engine Speed Hi <= 7500 RPM Engine Speed is within the allowable limits for >= 5 Sec High-Side Driver is Enabled = TRUE Boolean Throttle Position Signal Valid from ECM = TRUE Boolean Output Speed >= 0 RPM OR TPS >= 0.4 % Shift is Complete Transmission Fluid Temperature >= 0 °C			

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				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E  ECM: P0121, P0122, P0123		
Mode 2 Multiplex Valve	P0756	Shift Solenoid Valve B Stuck Off	Fail Case 1	Commanded Gear =	1st Locked or 1st FW		Please Refer to Table 7 in Neutral Timer (Sec)  >= Supporting Docum ents	Type A One Trip
				Gear Box Slip >=	200 RPM			
			Fail Case 2	Commanded Gear =	2nd Gear			
			Gear Box Slip <=	200 RPM				
			Closest Gear Ratio =	2nd Gear				
					Ignition Voltage Lo >= 8.5996 Volts Ignition Voltage Hi <= 18 Volts Engine Speed Lo >= 500 RPM Engine Speed Hi <= 7500 RPM Engine Speed is within the allowable limits for >= 5 Sec Output Speed >= 0 RPM OR TPS >= 0.4 % Shift is Complete Transmission Fluid Temperature >= 0 °C High-Side Driver is Enabled = TRUE Boolean Throttle Position Signal Valid from ECM = TRUE Boolean			

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					Disable Conditions: MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E  ECM: P0121, P0122, P0123		
Variable Bleed Solenoid (VBS)	P0776	Pressure Control (PC) Solenoid B Stuck Off [C35R]	<p>Fail Case 1</p> <p>Case: Steady State 3rd Gear Commanded Gear = 3rd Gear</p> <p>Gearbox Slip &gt;= 200 Rpm</p> <p>Intrusive Test: Command 4th Gear</p> <p>If attained Gear=4th gear for Time &gt;= 4 in (Sec) Refer to Table 4 in supporting documents</p> <p>If the above conditions are true, Increment Sum and Fail counters</p> <p>Fail Case 2</p> <p>Case: Steady State 5th Gear Commanded Gear = 5th Gear</p>				<p>Please Refer to Table 7 in Supporting Documents</p> <p>&gt;= Neutral Timer (Sec)</p> <p>&gt;= 2 3rd Gear Fail Counts</p> <p>&gt;= 14 3-5R Clutch Fail Counts</p>	Type A One Trip

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			<p>Gearbox Slip</p> <p>Intrusive Test: Command 6th Gear</p> <p>If attained Gear=6th gear Time</p> <p>If the above conditiions are true, Increment Sum and Fail counters</p>	<p>&gt;= 200 Rpm</p> <p>&gt;= Table Based Time Please Refer to Table 4 in supporting documents Enable Time (Sec)</p>			<p>Please Refer to Table 7 in Supporting Documents</p> <p>&gt;= Neutral Timer (Sec)</p> <p>&gt;= 3 5th Gear Fail Counts</p> <p>&gt;= 14 3-5R Clutch Fail Counts</p>	
					<p>PRNDL State defaulted</p> <p>inhibit RVT</p> <p>IMS fault pending indication</p> <p>TPS validity flag</p> <p>Hydraulic System Pressurized</p> <p>Minimum output speed for RVT</p> <p>A OR B</p> <p>(A) Output speed enable</p> <p>(B) Accelerator Pedal enable</p> <p>Ignition Voltage Lo</p> <p>Ignition Voltage Hi</p> <p>Engine Speed Lo</p> <p>Engine Speed Hi</p> <p>Engine Speed is within the allowable limits for</p>	<p>= FALSE Boolean</p> <p>= FALSE Boolean</p> <p>= FALSE Boolean</p> <p>= TRUE Boolean</p> <p>= TRUE Boolean</p> <p>&gt;= 0 RPM</p> <p>&gt;= 650 RPM</p> <p>&gt;= 0.4 Pct</p> <p>&gt;= 8.5996 Volts</p> <p>&lt;= 18 Volts</p> <p>&gt;= 500 RPM</p> <p>&lt;= 7500 RPM</p> <p>&gt;= 5 Sec</p>		

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					Throttle Position Signal valid HSD Enabled	= TRUE Boolean = TRUE Boolean		
				<b>Disable Conditions:</b>	<b>MIL not Illuminated for DTC's:</b>	TCM: P0716, P0717, P0722, P0723, P182E  ECM: P0121, P0122, P0123		
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solinoid B Stuck On [C35R] (Steady State)	<u>Fail Case 1</u>	Case: Steady State 1st Lock  Commanded Gear slip	<= 33 RPM  Table Based Time Please			
				If the Above is True for Time	>= Refer to Table 6 in supporting documents  Intrusive test: (CBR1 clutch exhausted)  3rd closest gear	= TRUE		>= 0.75 Fail Timer (Sec)
			<u>Fail Case 2</u>	Case: Steady State 2nd gear  Closest Gear Ratio Neutral Time	= 3rd Gear ≠ 0 Sec			
			Intrusive test: (CB26 clutch exhausted)  3rd closest gear	= TRUE			>= 0.75 Fail Timer (Sec)	
			<u>Fail Case 3</u>	Case: Steady State 4th gear  Closest Gear Ratio	= 3rd Gear			

### 09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
			Neutral Time Invasive test: (C456 clutch exhausted)	≠ 0 Sec				
			3rd closest gear	= TRUE			>= 0.75	Fail Timer (Sec)
			Fail Case 4 Case: Steady State 6th gear Closest Gear Ratio Neutral Time Invasive test: (CB26 clutch exhausted)	= 5th Gear Sec ≠ 0 Sec				
			5th closest gear	= TRUE			>= 0.75	Fail Timer (Sec)
					PRNDL State defaulted inhibit RVT = FALSE IMS fault pending indication = FALSE output speed >= 0 RPM TPS validity flag = TRUE Hydraulic_System_Pressurized = TRUE Minimum output speed for RVT >= 0 Nm A OR B (A) Output speed enable >= 650 Nm (B) Accelerator Pedal enable >= 0.4 Nm Ignition Voltage Lo >= 8.5996 Volts Ignition Voltage Hi <= 18 Volts Engine Speed Lo >= 500 RPM Engine Speed Hi <= 7500 RPM Engine Speed is within the allowable limits for >= 5 Sec			
					<b>Disable Conditions:</b>	<b>MIL not illuminated for DTC's:</b>	TCM: P182E  ECM: None	
Variable Bleed Solenoid (VBS)	P0777	Pressure Control (PC) Solenoid B StuckOn [C35R]	Primary Offgoing Clutch is exhausted (See Table 14 in Supporting Documents for Exhaust Delay Timers)  Primary Oncoming Clutch Pressure Command Status	= TRUE Boolean  = Maximum pressurized				Type A One Trip

### 09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
			Primary Offgoing Clutch Pressure Command Status	=	Clutch exhaust command			
			Range Shift Status	≠	Initial Clutch Control			
			Attained Gear Slip	<=	40 RPM			
			Fail 1 Timers Below:					
			fail timer 1 (3-1 shifting with Closed Throttle)	>=	1.200195313	Fail Time (Sec)		
			fail timer 1 (3-2 shifting with Throttle)	>=	1.200195313	Fail Time (Sec)		
			fail timer 1 (3-2 shifting with Closed Throttle)	>=	1.200195313	Fail Time (Sec)		
			fail timer 1 (3-4 shifting with Throttle)	>=	1.200195313	Fail Time (Sec)		
			fail timer 1 (3-4shifting with Closed Throttle)	>=	1.200195313	Fail Time (Sec)		
			fail timer 1 (3-5 shifting with Throttle)	>=	1.200195313	Fail Time (Sec)		
			fail timer 1 (3-5 shifting with Closed Throttle)	>=	1.200195313	Fail Time (Sec)		
			fail timer 1 (5-3 shifting with Throttle)	>=	1.200195313	Fail Time (Sec)		
			fail timer 1 (5-3 shifting with Closed Throttle)	>=	1.200195313	Fail Time (Sec)		
			fail timer 1 (5-4 shifting with Throttle)	>=	1.200195313	Fail Time (Sec)		
			fail timer 1 (5-4 shifting with Closed Throttle)	>=	1.200195313	Fail Time (Sec)		
			fail timer 1 (5-6 shifting with Throttle)	>=	1.200195313	Fail Time (Sec)		
			fail timer 1 (5-6 shifting with Closed Throttle)	>=	1.200195313	Fail Time (Sec)		



09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
			<p>If Attained Gear Slip is Less than Above Call Increment Fail Timers</p>				<p>Total Fail Time = (Fail 1 + Fail 2) See Enable Timers for Fail                      &gt;= Timer 1, and Reference Supporting Table 17 for Fail Timer 2</p>	
					<p>Trans oil temperature &gt; 0 °C                      Input Speed Sensor FA or TFTKO = FALSE Boolean                      output speed sensor fault = FALSE Boolean                      Command / Attained Gear ≠ 1st FW Boolean                      High Side Driver ON = TRUE Boolean                      output speed limit for TUT &gt;= 350 RPM                      input speed limit for TUT &gt;= 200 RPM                      TUT Enable temperature &gt;= 0 °C                      PRNDL state defaulted = FALSE Boolean                      IMS Fault Pending = FALSE Boolean                      Service Fast Learn Mode = FALSE Boolean                      HSD Enabled = TRUE Boolean</p>	<p>TCM: P182E                      ECM: None</p>		
				<p>Disable Conditions:</p>	<p>MIL not Illuminated for DTC's:</p>			

## 09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
Variable Bleed Solenoid (VBS)	P0796	Pressure Control (PC) Solenoid C Stuck Off [C456] (Steady State)	<u>Fail Case 1</u> Case: Steady State 4th Gear					Type A One Trip
			<p style="text-align: right;">Gear slip &gt;= 200 RPM</p> <p style="text-align: right;">Intrusive test: commanded 5th gear</p> <p style="text-align: right;">If attained Gear ≠ 5th for time &gt;= 4 in supporting documents</p> <p style="text-align: right;">Increment 4th Gear Fail Counter and C456 Fail Counters</p>	<p style="text-align: right;">Please See Table 7 For Neutral Timer (Sec) Cal</p> <p style="text-align: right;">&gt;= 2 4th Gear Fail Count</p> <p style="text-align: right;">&gt;= 14 C456 Fail Counts</p>				
			<u>Fail Case 2</u> Case: Steady State 5th Gear					
			<p style="text-align: right;">Gear slip &gt;= 200 RPM</p> <p style="text-align: right;">Intrusive test: commanded 6th gear</p> <p style="text-align: right;">If attained Gear ≠ 6th for time &gt;= 4 in supporting documents</p> <p style="text-align: right;">Increment 5th Gear Fail Counter and C456 Fail Counters</p>	<p style="text-align: right;">Please See Table 7 For Neutral Timer (Sec) Cal</p> <p style="text-align: right;">&gt;= 2 5th Gear Fail Count</p> <p style="text-align: right;">&gt;= 14 C456 Fail Counts</p>				

09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
			<p>Fail Case 3 Case: Steady State 6th Gear</p> <p>Gear slip</p> <p>Intrusive test: commanded 5th gear</p> <p>If attained Gear ≠ 5th for time</p> <p>Increment 6th Gear Fail Counter and C456 Fail Counters</p>	<p>&gt;= 200 RPM</p> <p>&gt;= Refer to Table 4 in supporting documents Enable Time (Sec)</p>			<p>Please See Table 7 For Neutral Timer (Sec)</p> <p>&gt;= 2 6th Gear Fail Count</p> <p>&gt;= 14 C456 Fail Counts</p>	
					<p>PRNDL State defaulted = FALSE</p> <p>inhibit RVT = FALSE</p> <p>IMS fault pending indication = FALSE</p> <p>TPS validity flag = TRUE</p> <p>Hydraulic System Pressurized = TRUE</p> <p>Minimum output speed for RVT &gt;= 0 RPM</p> <p>A OR B</p> <p>(A) Output speed enable &gt;= 650 RPM</p> <p>(B) Accelerator Pedal enable &gt;= 0.4 Pct</p> <p>Common Enable Criteria</p> <p>Ignition Voltage Lo &gt;= 8.5996 Volts</p> <p>Ignition Voltage Hi &lt;= 18 Volts</p> <p>Engine Speed Lo &gt;= 500 RPM</p> <p>Engine Speed Hi &lt;= 7500 RPM</p> <p>Engine Speed is within the allowable limits for &gt;= 5 Sec</p> <p>Throttle Position Signal valid = TRUE</p> <p>HSD Enabled = TRUE</p>	<p>Boolea n</p> <p>Boolea n</p> <p>Boolea n</p> <p>Boolea n</p> <p>Boolea n</p> <p>RPM</p> <p>RPM</p> <p>Pct</p> <p>Volts</p> <p>Volts</p> <p>RPM</p> <p>RPM</p> <p>Sec</p> <p>Boolea n</p> <p>Boolea n</p>		

09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
					Disable Conditions: MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E  ECM: P0121, P0122, P0123		
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456] (Steady State)	Fail Case 1	Case: Steady State 1st Lock Commanded Gear slip	<= 33 RPM Table Based Time Please			
				If the Above is True for Time	>= Refer to Table Enable Time 6 in (Sec) supporting documents			
				Intrusive test: (CBR1 clutch exhausted)  4th closest gear	= TRUE			>= 0.75 Fail Timer (Sec)
			Fail Case 2	Case Steady State 2nd 4th closest gear Neutral Time	= TRUE Boolean ≠ 0 Sec			
				Intrusive test: (CB26 clutch exhausted)  4th closest gear	= TRUE Boolean			>= 0.75 Fail Timer (Sec)
			Fail Case 3	Case Steady State 3rd 4th closest gear Closest Gear Ratio Neutral Time	= TRUE Boolean = 3rd Gear ≠ 0 Sec			
				Intrusive test: (C35R clutch exhausted)				

09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
			4th closest gear	= TRUE Boolean			>= 0.75 Fail Timer (Sec)	
					PRNDL State defaulted inhibit RVT IMS fault pending indication output speed Crank Enable Criteria is met TPS validity flag Hydraulic_System_Pressurized Minimum output speed for RVT A OR B (A) Output speed enable (B) Accelerator Pedal enable	= FALSE Boolean = FALSE Boolean = FALSE Boolean >= 0 RPM = TRUE Boolean = TRUE Boolean = TRUE Boolean >= 0 RPM >= 650 RPM >= 0.4 Pct		
					<b>Disable Conditions:</b>	<b>MIL not Illuminated for DTC's:</b> TCM: P182E  ECM: None		
Variable Bleed Solenoid (VBS)	P0797	Pressure Control (PC) Solenoid C Stuck On [C456]	Primary Offgoing Clutch is exhausted (See Table 13 in Supporting Documents for Exhaust Delay Timers) Primary Oncoming Clutch Pressure Command Status Primary Offgoing Clutch Pressure Command Status Range Shift Status Attained Gear Slip Fail 1 Timers Below: fail timer 1 (4-1 shifting without throttle)	= TRUE Boolean = Maximum pressurized = Clutch exhaust command ≠ Initial Clutch Control <= 40 RPM >= 1.200195313 Fail Time (Sec)				Type A One Trip

### 09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
			fail timer 1 (4-1 shifting with throttle)	>= 1.200195313	Fail Time (Sec)			
			fail timer 1 (4-2 shifting without throttle)	>= 1.200195313	Fail Time (Sec)			
			fail timer 1 (4-2 shifting with throttle)	>= 1.200195313	Fail Time (Sec)			
			fail timer 1 (4-3 shifting without throttle)	>= 1.200195313	Fail Time (Sec)			
			fail timer 1 (4-3 shifting with throttle)	>= 1.200195313	Fail Time (Sec)			
			fail timer 1 (5-3 shifting without throttle)	>= 1.200195313	Fail Time (Sec)			
			fail timer 1 (5-3 shifting with throttle)	>= 1.200195313	Fail Time (Sec)			
			fail timer 1 (6-2 shifting without throttle)	>= 1.200195313	Fail Time (Sec)			
			fail timer 1 (6-2 shifting with throttle)	>= 1.200195313	Fail Time (Sec)			
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers				Total Fail Time = (Fail Timer 1 + Fail Timer 2) See Below Enable Timers >= for Fail Timer 1, and Referen ce Support ing Table 17 for Fail Timer 2 sec	

09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
					Trans oil temperature > 0 °C Input Speed Sensor FA or TFTKO = FALSE Boolean output speed sensor fault = FALSE Boolean Command / Attained Gear ≠ 1st FW Boolean High Side Driver ON = TRUE Boolean output speed limit for TUT ≥ 350 RPM input speed limit for TUT ≥ 200 RPM TUT Enable temperature ≥ 0 °C PRNDL state defaulted = FALSE Boolean IMS Fault Pending = FALSE Boolean Service Fast Learn Mode = FALSE Boolean HSD Enabled = TRUE Boolean			
					Disable Conditions: MIL not Illuminated for DTC's:	TCM: P182E  ECM: None		
Tap Up Tap Down Switch (TUTD)	P0815	Upshift Switch Circuit	<u>Fail Case 1</u> Tap Up Switch Stuck in the Up Position in Gear 1 Enabled Tap Up Switch Stuck in the Up Position in Gear 2 Enabled Tap Up Switch Stuck in the Up Position in Gear 3 Enabled Tap Up Switch Stuck in the Up Position in Gear 4 Enabled Tap Up Switch Stuck in the Up Position in Gear 5 Enabled Tap Up Switch Stuck in the Up Position in Gear 6 Enabled Tap Up Switch Stuck in the Up Position in Neutral Enabled	= 0 Boolean = 0 Boolean = 0 Boolean = 0 Boolean = 0 Boolean = 0 Boolean = 1 Boolean	Time Since Last Range Change	≥ 1 Enable Time (Sec)		Special Type C No Trips

### 09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
			Tap Up Switch Stuck in the Up Position in Park Enabled	= 1 Boolean			>= 1 Fail Time (Sec)	
			Tap Up Switch Stuck in the Up Position in Reverse Enabled	= 0 Boolean				
			Tap Down Switch ON	= TRUE Boolean				
			<u>Fail Case 2</u> Tap Up Switch Stuck in the Up Position in Gear 1 Enabled	= 1 Boolean	Time Since Last Range Change	>= 1 Enable Time (Sec)	>= 600 Fail Time (Sec)	
			Tap Up Switch Stuck in the Up Position in Gear 2 Enabled	= 1 Boolean				
			Tap Up Switch Stuck in the Up Position in Gear 3 Enabled	= 1 Boolean				
			Tap Up Switch Stuck in the Up Position in Gear 4 Enabled	= 1 Boolean				
			Tap Up Switch Stuck in the Up Position in Gear 5 Enabled	= 1 Boolean				
			Tap Up Switch Stuck in the Up Position in Gear 6 Enabled	= 1 Boolean				
			Tap Up Switch Stuck in the Up Position in Neutral Enabled	= 0 Boolean				
			Tap Up Switch Stuck in the Up Position in Park Enabled	= 0 Boolean				
			Tap Up Switch Stuck in the Up Position in Reverse Enabled	= 0 Boolean				
			Tap Down Switch ON	= TRUE Boolean				
			NOTE: Both Failcase1 and Failcase 2 Must Be Met					
					Ignition Voltage Lo	>= 8.5996 Volts		
					Ignition Voltage Hi	<= 18 Volts		
					Engine Speed Lo	>= 500 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		



### 09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.	
				<b>Disable Conditions:</b>	<b>MIL not Illuminated for DTC's:</b>	TCM: P0826, P0815, P182E  ECM: None			
Tap Up Tap Down Switch (TUTD)	P0816	Downshift Switch Circuit	<u>Fail Case 1</u> Tap Down Switch Stuck in the Down Position in Gear 1 Enabled	=	0	Boolean	Time Since Last Range Change >= 1 Sec		Special Type C No Trips
			Tap Down Switch Stuck in the Down Position in Gear 2 Enabled	=	0	Boolean			
			Tap Down Switch Stuck in the Down Position in Gear 3 Enabled	=	0	Boolean			
			Tap Down Switch Stuck in the Down Position in Gear 4 Enabled	=	0	Boolean			
			Tap Down Switch Stuck in the Down Position in Gear 5 Enabled	=	0	Boolean			
			Tap Down Switch Stuck in the Down Position in Gear 6 Enabled	=	0	Boolean			
			Tap Down Switch Stuck in the Down Position in Gear Neutral Enabled	=	1	Boolean			
			Tap Down Switch Stuck in the Down Position in Gear Park Enabled	=	1	Boolean			
			Tap Down Switch Stuck in the Down Position in Gear Reverse Enabled	=	0	Boolean			
			Tap Down Switch ON	=	TRUE	Boolean			
							>= 1 sec		

### 09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
			<u>Fail Case 2</u> Tap Down Switch Stuck in the Down Position in Gear 1 Enabled Tap Down Switch Stuck in the Down Position in Gear 2 Enabled Tap Down Switch Stuck in the Down Position in Gear 3 Enabled Tap Down Switch Stuck in the Down Position in Gear 4 Enabled Tap Down Switch Stuck in the Down Position in Gear 5 Enabled Tap Down Switch Stuck in the Down Position in Gear 6 Enabled Tap Down Switch Stuck in the Down Position in Neutral Enabled Tap Down Switch Stuck in the Down Position in Park Enabled Tap Down Switch Stuck in the Down Position in Reverse Enabled Tap Down Switch ON	= 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 1 Boolean = 0 Boolean = 0 Boolean = 0 Boolean = TRUE Boolean	Time Since Last Range Change	>= 1 Sec	>= 600 sec	
			NOTE: Both Failcase1 and Failcase 2 Must Be Met		Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= 8.5996 Volts <= 18 Volts >= 500 RPM <= 7500 RPM >= 5 Sec		

09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
					Disable Conditions: MIL not Illuminated for DTC's:	TCM: P0826, P0816, P182E  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 Type C No Trips
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= 8.5996 Volts <= 18 Volts >= 500 RPM <= 7500 RPM >= 5 Sec		
					Disable Conditions: MIL not Illuminated for DTC's:	TCM: P0826, P1761  ECM: None		
Transmission Fluid Pressure Switch	P0872	Transmission Fluid Pressure (TFP) Sensor C Circuit Low Voltage	CB26 Hydraulic pressure  Hydraulic Delay Timer (Table Based)  Check for Switch to be in Exhausted Position after delay, If so then Increment Fail Counter	<= 50 KPa  See Table 9 for Delay Timer Cal >= Sec			>= 18 Fail Counts	Special Type C No Trips
					Transmission Fluid Temperature Lo Transmission Fluid Temperature Hi  Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= 0 °C <= 120 °C  >= 8.5996 Volts <= 18 Volts >= 500 RPM <= 7500 RPM >= 5 Sec		

## 09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
				Disable Conditions:	MIL not illuminated for DTC's:	TCM: P0711, P0712, P0713, P0973, P0974, P0976, P0977, P1915, P182E  ECM: None		
Transmission Fluid Pressure Switch	P0877	Transmission Fluid Pressure (TFP) Sensor D Circuit Low Voltage	C1234 Hydraulic pressure  Hydraulic Delay Timer (Table Based)  Check for Switch to be in Exhausted Position after delay, If so then Increment Fail Counter	<= 50 KPa  >= See Table 8 for Delay Timer Cal Sec			>= 5 Fail Counts	Special Type C No Trips
					Transmission Fluid Temperature Lo Transmission Fluid Temperature Hi Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= 0 °C <= 120 °C >= 8.5996 Volts <= 18 Volts >= 500 RPM <= 7500 RPM >= 5 Sec		

09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
					Disable Conditions: MIL not illuminated for DTC's:	TCM: P0711, P0712, P0713, P0973, P0974, P0976, P0977, P1915, P182E  ECM: None		
Variable Bleed Solenoid (VBS)	P0962	Pressure Control (PC) Solenoid A Control Circuit Low Voltage	Hardware circuitry detects ground short	= TRUE Boolean			>= 0.3 Fail Time (Sec) = 0.375 Sample Time (Sec)	Type A One Trip
					P0962 Test Enabled = TRUE Boolean Ignition Voltage Lo >= 8.5996 Volts Ignition Voltage Hi <= 18 Volts Engine Speed Lo >= 500 RPM Engine Speed Hi <= 7500 RPM Engine Speed is within the allowable limits for >= 5 Sec Line Pressure Control Solenoid Enabled = TRUE Boolean	Disable Conditions: MIL not illuminated for DTC's:	TCM: P0962  ECM: None	
Variable Bleed Solenoid (VBS)	P0966	Pressure Control (PC) Solenoid B Control Circuit Low Voltage	Hardware circuitry detects ground short	= TRUE Boolean			>= 0.3 Fail Time (Sec)	Type A One Trip

## 09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
							Sample Time (Sec) = 0.375	
						P0966 Test Enabled = TRUE Boolean Ignition Voltage Lo >= 8.5996 Volts Ignition Voltage Hi <= 18 Volts Engine Speed Lo >= 500 RPM Engine Speed Hi <= 7500 RPM Engine Speed is within the allowable limits for >= 5 Sec Line Pressure Control Solinoid Enabled = TRUE Boolean		
				<b>Disable Conditions:</b>	<b>MIL not Illuminated for DTC's:</b>	TCM: P0966  ECM: None		
Variable Bleed Solenoid (VBS)	P0967	Pressure Control (PC) Solenoid B Control Circuit High Voltage	Hardware circuitry detects open circuit or power short	= TRUE Boolean			Fail Time (Sec) => 0.3  Sample Time (Sec) = 0.375	Type A One Trip
						P0967 Test Enabled = TRUE Boolean Ignition Voltage Lo >= 8.5996 Volts Ignition Voltage Hi <= 18 Volts Engine Speed Lo >= 500 RPM Engine Speed Hi <= 7500 RPM Engine Speed is within the allowable limits for >= 5 Sec		
				<b>Disable Conditions:</b>	<b>MIL not Illuminated for DTC's:</b>	TCM: P0967  ECM: None		
Variable Bleed Solenoid (VBS)	P0970	Pressure Control (PC) Solenoid C Control Circuit Low Voltage	Hardware circuitry detects ground short	= TRUE Boolean			Fail Time (Sec) => 0.3	Type A One Trip

09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
							Sample Time (Sec) = 0.375	
					P0970 Test Enabled Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	= TRUE Boolean >= 8.5996 Volts <= 18 Volts >= 500 RPM <= 7500 RPM >= 5 Sec		
					<b>Disable Conditions:</b> MIL not Illuminated for DTC's:	TCM: P0970  ECM: None		
Variable Bleed Solenoid (VBS)	P0971	Pressure Control (PC) Solenoid Control Circuit High Voltage	Hardware circuitry detects open circuit or power short	= TRUE Boolean			Fail Time (Sec) >= 0.3  Sample Time (Sec) = 0.375	Type A One Trip
					P0971 Test Enabled Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	= TRUE Boolean >= 8.5996 Volts <= 18 Volts >= 500 RPM <= 7500 RPM >= 5 Sec		
					<b>Disable Conditions:</b> MIL not Illuminated for DTC's:	TCM: P0971  ECM: None		
Shift Solenoid	P0973	Shift Solenoid A Control Circuit Low	Hardware circuitry detects ground short	= TRUE Boolean			Fail Time (Sec) >= 1.2  Sample Time (Sec) = 1.5	Type A One Trip
					P0973 Test Enabled	= TRUE Boolean		

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COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= 8.5996 Volts <= 18 Volts >= 500 RPM <= 7500 RPM >= 5 Sec		
					<b>Disable Conditions:</b> MIL not Illuminated for DTC's:	TCM: P0973  ECM: None		
Shift Solenoid	P0974	Shift Solenoid A Control Circuit High	Hardware circuitry detects open circuit or power short	= TRUE Boolean			>= 1.2 Fail Time (Sec)  = 1.5 Sample Time (Sec)	Type B Two Tripss
					P0974 Test Enabled Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	= TRUE Boolean >= 8.5996 Volts <= 18 Volts >= 500 RPM <= 7500 RPM >= 5 Sec	TCM: P0974  ECM: None	
Mode 3 Multiplex Valve	P0976	Shift Solenoid C Control Circuit Low	Hardware circuitry detects ground short	= TRUE Boolean			>= 1.2 Sec  = 1.5 Sec	Type A One Trip
					P0976 Test Enabled Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	= TRUE Boolean >= 8.5996 Volts <= 18 Volts >= 500 RPM <= 7500 RPM >= 5 Sec		



## 09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
					<b>Disable Conditions:</b> MIL not illuminated for DTC's:	TCM: P0976  ECM: None		
Mode 3 Multiplex Valve	P0977	Shift Solenoid B Control Circuit High	Hardware circuitry detects high pressure error	= TRUE Boolean			>= 1.2 Sec	Type A One Trip
					P0977 Test Enabled = TRUE Boolean Ignition Voltage Lo >= 8.5996 Volts Ignition Voltage Hi <= 18 Volts Engine Speed Lo >= 500 RPM Engine Speed Hi <= 7500 RPM Engine Speed is within the allowable limits for >= 5 Sec	= 1.5 Sec		
Mode 2 Multiplex Valve	P1751	Shift valve 1 performance	Attained Gear Slip is If Slip is Greater than the Above Cal Increment Fail Counter If Slip is Greater than the Above Cal Increment Fail Sample	>= 100 RPM			= 5 Fail Counts = 5 Fail Samples	Type B Two Trips
					Once this evaluation is complete the system will allow the valve to get back into position by delaying the next test for Attained Gear Slip >= 100 M2 Solenoid is Commanded On = TRUE Boolean Current Gear ≠ 2nd Gear ≠ 2nd Gear Calculated line pressure is >= 1300 kPa The test can begin when the M2 valve is verified to be in place because absolute value of attained gear slip and commanded gear slip is <= 110 RPM	= 1 Seconds		

09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
					Test is delayed by a calibrated amount of time to allow the M2 valve to get into position Upshift is In Progress Input Speed Sensor Signal The torque converter clutch has transition from Locked to Unlocked. TCC Stuck On Enable Criteria: Gear Ratio Gear Ratio Engine Speed Hi Engine Speed Lo Vehicle Speed Hi Vehicle Speed Lo Stuck On During Upshift Enabled If Stuck On During Upshift is enabled (See Above), Engine Torque Must be Down Shift In Progress Current Gear ≠ 1st Gear Locked Engine Torque Hi Engine Torque Lo Current Range ≠ Reverse Transmission Sump Temperature Transmission Sump Temperature PTO Active Common Enables: Vehicle Speed Calculated from TOSS Ignition Voltage Ignition Voltage Vehicle Speed Engine Speed Engine Speed Engine Speed is within the allowable limits for Engine Torque Signal Valid	= 0.5 Sec = FALSE Boolean >= 1200 RPM = TRUE Boolean <= 3.073 Ratio >= 0.6901 Ratio <= 6500 RPM >= 500 RPM <= 511 KPH >= 16 KPH = 0 Boolean >= 55 Nm = FALSE Boolean ≠ 1st Gear Locked Boolean <= 1492 Nm >= 80 Nm ≠ Reverse Range <= 130 °C >= 20 °C = FALSE Boolean <= 511 KPH >= 8.5996 V <= 18 V <= 511 KPH >= 500 RPM <= 7500 RPM >= 5 Sec = TRUE Boolean		

09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
					Throttle Position Signal Valid	= TRUE Boolean		
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P0741, P0742, P1751, P2763, P2764  ECM: P0101, P0102, P0103, P0121, P0122, P0123		
Tap Up Tap Down Switch (TUTD)	P1761	Tap Up and Down switch signal circuit	Serial Data Signal is Corrupted or Missing	= TRUE Boolean			>= 3 Fail Counter Sample Timer (Sec) <= 10	Special Type C No Trips
					Rolling Count Diagnostic Enabled	= TRUE Boolean		
					Tap Up Tap Down Message Health	= TRUE Boolean		
					Ignition Voltage Lo	>= 8.5996 Volts		
					Ignition Voltage Hi	<= 18 Volts		
					Engine Speed Lo	>= 500 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		

09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
					<b>Disable Conditions:</b> <b>MIL not Illuminated for DTC's:</b>	TCM: None  ECM: None		
Mode Switch	P1762	Transmission Mode Switch Signal Circuit	Serial Data Signal is Corrupted or Missing	= TRUE Boolean			>= 3  Fail Counter  <= 10  Sample Timer (Sec)	Special Type C No Trips
					Pattern Switch Rolling Count Diagnostic Enabled = TRUE Boolean Pattern Switch Message Health = TRUE Boolean Ignition Voltage Low >= 8.5996 Volts Ignition Voltage High <= 18 Volts Engine Speed Low >= 500 RPM Engine Speed High <= 7500 RPM Engine Speed is within the allowable limits for >= 5 Sec			
Internal Mode Switch (IMS)	P182E	Internal Mode Switch - Circuit A Low Reported as Internal Mode Switch-Invalid Range	<u>Fail Case 1</u>  Current range  Previous range  Previous range  Either the S1 or S3 Pressure Switch indicates "Pressure Present" Steady State Engine Torque Steady State Engine Torque  If the above conditions are present Increment Fail Timer	= "Transitional 1" Range State  != CeTRGR_PR_NDL_Drive6 Range State  != CeTRGR_PR_NDL_Drive4 Range State  = TRUE Boolean  >= -50 Nm  <= 1492 Nm  >= 0.225 Seconds				Type A One Trip

### 09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
			If Fail Timer has Expired then Increment Fail Counter				>= 15 Fail Counts	
			<u>Fail Case 2</u> Current range = "Transitional 1" Range State S3 Pressure Switch indicates "Pressure Present" = FALSE Boolean Commanded Gear = 1st Locked Gear If the above conditions are present Increment Fail Timer If Fail Timer has Expired then Increment Fail Counter	>= 0.225 Seconds			>= 15 Fail Counts	
			<u>Fail Case 3</u> Current range = "Transitional 13" Either the S1 or S3 Pressure Switch indicates "Pressure Present" = TRUE Boolean Engine Torque >= -1492 Nm Engine Torque <= 1492 Nm If the above conditions are present Increment Fail Timer If Fail Timer has Expired then Increment Fail Counter	>= 0.225 Seconds	Previous range != CeTR GR_P RNDL_Drive3 Previous range != CeTR GR_P RNDL_Drive2 If the "IMS 7 Position" = 1 then the "previous range" criteria above must also be satisfied when the "current range" = "Transitional 13"		>= 15 Fail Counts	
			<u>Fail Case 4</u> Current range = "Transitional 2" or "Transitional 8" Either the S1 or S3 Pressure Switch indicates "Pressure Present" = TRUE Boolean Steady State Engine Torque >= -50 Nm Steady State Engine Torque <= 1492 Nm The above conditions are present for	>= 0.225 Seconds				

09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
			If the above Conditions have been met, Increment Fail Counter				>= 15 Fail Counts	
			Fail Case 5 Current range = "Illegal"		A Open Circuit Definition:			
			or		Last Valid Range State	≠ "Neutral, Transitional 8, or Transitional 11"		
			ECM Park/Neutral Message = "Park/Neutral"			and		
			and		Previous transitional state	≠ "Illegal"		
			Current Range ≠ Park or Neutral			and		
			or		PRNDL Circuit A	= Open Circuit		
			ECM Park/Neutral Message ≠ "Park/Neutral"		PRNDL Circuit B	= Closed Circuit		
			and		PRNDL Circuit C	= Open Circuit		
			Current range = Park, Neutral, Reverse, Transitional 8, or Transitional 11		PRNDL Circuit P	= Open Circuit		
			and					
			A Open Circuit (See Definition)	= FALSE Boolean				
			If the above Conditions are present, Increment Fail timer				>= 2 Seconds	
			Fail Case 6 Current PRNDL State = "Reverse"					
			and					
			Last Previous valid state = "Drive 4" Range					

09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
			If the above Conditions are present, Increment Fail timer				>= 2 Seconds	
					Ignition Voltage Lo >= 8.5996 Volts Ignition Voltage Hi <= 18 Volts Vehicle Speed Lo <= 511 KPH Engine Speed Lo >= 500 RPM Engine Speed Hi <= 7500 RPM Engine Speed is within the allowable limits for >= 5 Sec	TCM: P182E P0722, P0723 ECM: P0101, P0102, P0103, P0121, P0122, P0123		
Tap Up Tap Down Switch (TUTD)	P1876	Tap Up and Down Enable Switch Circuit	Current range ≠ CeTRGR_PR NDL_Drive4 Range State TUTD/MUMD Mode is Selected = TRUE Boolean Enable Switch is Active = TRUE Boolean The above conditions are present for = TRUE Boolean				>= 2 Fail Time (Sec)	Special Type C No Trips
					Ignition Voltage Lo >= 8.5996 Volts Ignition Voltage Hi <= 18 Volts Vehicle Speed Lo <= 511 KPH Engine Speed Lo >= 500 RPM Engine Speed Hi <= 7500 RPM Engine Speed is within the allowable limits for >= 5 Sec			

09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
				Disable Conditions:	MIL not Illuminated for DTC's:	TCM: P0815, P0816, P0826, P182E , P1876, U0100  ECM: None		
Internal Mode Switch (IMS)	P1915	Internal Mode Switch Does Not Indicate Park/Neutral (P/N) During Start	PRNDL State is  The following events must occur Sequentially  Initial Engine speed  Engine Speed Between Following Cals  Engine Speed Lo Hist Engine Speed Hi Hist Then Final Transmission Input Speed	≠ Park or Neutral Enumeration  ≤ 50 RPM  ≥ 50 RPM ≤ 480 RPM  ≥ 525 RPM			≥ 0.25 Enable Time (Sec)  ≥ 0.0688 Enable Time (Sec)  ≥ 1.25 Fail Time (Sec)	Type A One Trip
					PRNDL State is  DTC has Ran this Key Cycle? Ignition Voltage Lo Ignition Voltage Hi Transmission Output Speed	≠ Park or Neutral Enumeration  = FALSE Boolean ≥ 8.5996 V ≤ 18 V ≤ 90 rpm		



09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
					Disable Conditions: MIL not Illuminated for DTC's:	TCM: P0722, P0723, P1915 ECM: None		
Transmission Control Modulal (TCM)	P2534	Ignition Switch Run/Start Position Circuit Low	Ignition Voltage to TCM	< 6 Volts			>= 280 Fail Counts = 280 Sample Counts	Type A One Trip
					Normal CAN Comm Enabled = TRUE Boolean Engine Running Flag From ECM = TRUE Boolean Run Crank Diag Enabled = TRUE Boolean			
Variable Bleed Solenoid (VBS)	P2714	Pressure Control (PC) Solenoid D Stuck Off [CB26]	Fail Case 1	Case: Steady State 2nd Gear				Type A One Trip
				Gear slip	>= 200 RPM			
				Intrusive test: commanded 3rd gear				
				If attained Gear = 3rd for Time	>= Table Based Time Please see Table 4 in Supporting Documents Enable Time (Sec)		Please See Table 7 For Neutral Timer (Sec) Cal	
				If Above Conditions have been met, Increment Fail Counter and Sum Counters			>= 3 2nd Gear Fail Count	

09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
							CB26 Fail Count >= 14	
			Fail Case 2 Case: Steady State 6th Gear					
			Gear slip	>= 200 RPM				Please See Table 7 For Neutral Timer (Sec) >=
			Intrusive test: commanded 5th gear					
			If attained Gear = 5th For Time	>= Table Based Time Please see Table 4 in Supporting Documents Enable Time (Sec)				
			If Above Conditions have been met, Increment Fail Counter and Sum Counters				5th Gear Fail Count Total >= 3	
							Fail Count >= 14	
					PRNDL State defaulted	= FALSE Boolean		
					inhibit RVT	= FALSE Boolean		
					IMS fault pending indication	= FALSE Boolean		
					TPS validity flag	= TRUE Boolean		
					Hydraulic System Pressurized	= TRUE Boolean		
					Minimum output speed for RVT	>= 0 RPM		
					A OR B			
					(A) Output speed enable	>= 650 RPM		
					(B) Accelerator Pedal enable	>= 0.4 Pct		
					Common Enable Criteria			
					Ignition Voltage Lo	>= 8.5996 Volts		
					Ignition Voltage Hi	<= 18 Volts		
					Engine Speed Lo	>= 500 RPM		
					Engine Speed Hi	<= 7500 RPM		
					Engine Speed is within the allowable limits for	>= 5 Sec		
					Throttle Position Signal Valid	= TRUE Boolean		

### 09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
				<b>Disable Conditions:</b>	<b>MIL not Illuminated for DTC's:</b>	TCM: P0716, P0717, P0722,  P0723, P182E  ECM: P0121, P0122, P0123		
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 15 in Supporting Documents for Exhaust Delay Timers)  Primary Oncoming Clutch Pressure Command Status  Primary Offgoing Clutch Pressure Command Status  Range Shift Status  Attained Gear Slip  Fail 1 Timers Below: fail timer 1 (2-1 shifting with throttle) fail timer 1 (2-1 shifting without throttle) fail timer 1 (2-3 shifting with throttle) fail timer 1 (2-3 shifting without throttle) fail timer 1 (2-4 shifting with throttle)	= TRUE Boolean  = Maximum pressurized  = Clutch exhaust command  ≠ Initial Clutch Control ≤ 40 RPM  ≥ 1.200195313 Fail Time (Sec) ≥ 1.200195313 Fail Time (Sec) ≥ 1.200195313 Fail Time (Sec) ≥ 1.200195313 Fail Time (Sec) ≥ 1.200195313 Fail Time (Sec)				Type A One Trip

### 09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
			fail timer 1 (2-4 shifting without throttle)	>= 1.200195313	Fail Time (Sec)			
			fail timer 1 (6-4 shifting with throttle)	>= 1.200195313	Fail Time (Sec)			
			fail timer 1 (6-4 shifting without throttle)	>= 1.200195313	Fail Time (Sec)			
			fail timer 1 (6-5 shifting with throttle)	>= 1.200195313	Fail Time (Sec)			
			fail timer 1 (6-5 shifting without throttle)	>= 1.200195313	Fail Time (Sec)			
			If Attained Gear Slip is Less than Above Cal Increment Fail Timers				Total fail timer (fail timer1 + fail timer2) See Below Enable Timers for Fail Timer 1, and Reference Supporting Table 17 for Fail Timer 2	sec
					Trans oil temperature > 0 °C Input Speed Sensor FA or TFTKO = FALSE output speed sensor fault = FALSE Command / Attained Gear ≠ 1st FW High Side Driver ON = TRUE output speed limit for TUT >= 350 RPM input speed limit for TUT >= 200 RPM	Boolean Boolean Boolean Boolean		

09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
					TUT Enable temperature PRNDL state defaulted IMS Fault Pending Service Fast Learn Mode HSD Enabled	>= 0 °C = FALSE Boolean = FALSE Boolean = FALSE Boolean = TRUE Boolean		
					Disable Conditions: MIL not Illuminated for DTC's:	TCM: P182E ECM: None		
Variable Bleed Solenoid (VBS)	P2715	Pressure Control (PC) Solenoid D Stuck On [CB26] (Steady State)	<u>Fail Case 1</u> Case: Steady State 1st Gear Commanded Gear slip If Above is True for Time Intrusive test: (Exhaust CBR1) If Closest gear	<= 33 MPH Table Based Time Please see Table 6 in Supporting Documents >= Enable Time (Sec)				Type A One Trip
			<u>Fail Case 2</u> Case: Steady State 3rd Gear If Closet gear Intrusive test: (Exhaust C35R) If Closet gear	= 2nd gear = 2nd gear			>= 0.75 sec >= 0.75 sec	
			<u>Fail Case 3</u> Case: Steady State 4rd Gear If Closet gear Intrusive test: (Exhaust C1234) If Closet gear	= 6th gear = 6th gear			>= 0.75 sec >= 0.75 sec	
			<u>Fail Case 4</u> Case: Steady State 5th Gear If Closet gear Neutral Time Intrusive test: (Exhaust C35R) If Closet gear	= 6th gear ≠ 0 sec = 6th gear			>= 0.75 sec >= 0.75 sec	
					Trans oil temperature Input Speed Sensor FA or TFTKO	> 0 °C = FALSE Boolean	>= 0.75 sec	

### 09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.	
					output speed sensor fault = FALSE Boolean Command / Attained Gear ≠ 1st FW Boolean High Side Driver ON = TRUE Boolean output speed limit for TUT ≥ 350 RPM input speed limit for TUT ≥ 200 RPM TUT Enable temperature ≥ 0 °C PRNDL state defaulted = FALSE Boolean IMS Fault Pending = FALSE Boolean Service Fast Learn Mode = FALSE Boolean HSD Enabled = TRUE Boolean	= FALSE Boolean ≠ 1st FW Boolean = TRUE Boolean ≥ 350 RPM ≥ 200 RPM ≥ 0 °C = FALSE Boolean = FALSE Boolean = FALSE Boolean = TRUE Boolean	Disable Conditions: MIL not Illuminated for DTC's: TCM: P182E ECM: None		
Variable Bleed Solenoid (VBS)	P2720	Pressure Control (PC) Solenoid D Control Circuit High	Hardware Circuitry Detects a High Pressure Error	= TRUE Boolean			≥ 0.3 Fail Time (Sec) = 0.375 Sample Time (Sec)	Type A One Trip	
					Ignition Voltage Lo ≥ 8.5996 Volts Ignition Voltage Hi ≤ 18 Volts Engine Speed Lo ≥ 500 RPM Engine Speed Hi ≤ 7500 RPM	Disable Conditions: MIL not Illuminated for DTC's: TCM: P2720 ECM: None			
Variable Bleed Solenoid (VBS)	P2721	Pressure Control (PC) Solenoid D Control Circuit Low	Hardware Circuitry Detects a Low Pressure Error	= TRUE Boolean			≥ 0.3 Fail Time (Sec) = 0.375 Sample Time (Sec)	Type A One Trip	

09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi	>= 8.5996 Volts <= 18 Volts >= 500 RPM <= 7500 RPM		
					Disable Conditions:	MIL not Illuminated for DTC's: TCM: P2721 ECM: None		
Variable Bleed Solenoid (VBS)	P2723	Pressure Control (PC) Solenoid E Stuck Off	Fail Case 1 Case: Steady State 1st Gear Gear slip Intrusive test: commanded 2nd gear If attained Gear ≠ 2nd for Time If Above Conditions have been met, Increment Fail Counter and Sum Counters	>= 200 RPM >= Enable Time (Sec) Table based Timer, Please See Table 4 in Supporting Documents			Please See Table 7 For Neutral Time Cal >= 2 1st Gear Fail Count C1234 >= 14 Clutch Fail Count	Type A One Trip
			Fail Case 2 Case: Steady State 2nd Gear Gear slip Intrusive test: commanded 3rd gear	>= 200 RPM			Please See Table 7 For Neutral Time Cal >=	

### 09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
			<p>If attained Gear ≠ 3rd for Time</p> <p>If Above Conditions have been met, Increment Fail Counter and Sum Counters</p>	<p>Table based Timer, Please See Table 4 in Supporting Documents</p> <p>Enable Time (Sec)</p> <p>&gt;=</p>			<p>&gt;= 2 2nd Gear Fail Count Total</p> <p>&gt;= 14 14 Fail Count</p>	
			<p><u>Fail</u> Case: Steady State 3rd Gear</p> <p>Case 3</p> <p>Gear slip</p> <p>Intrusive test: commanded 4th gear</p> <p>If attained Gear ≠ 4th for time</p> <p>If Above Conditions have been met, Increment Fail Counter and Sum Counters</p>	<p>200 RPM</p> <p>Table based Timer, Please See Table 4 in Supporting Documents</p> <p>Enable Time (Sec)</p> <p>&gt;=</p>			<p>Please See Table 7 For Neutral Time Cal</p> <p>&gt;= 2 2nd Gear Fail Count C1234 Total Fail Count</p> <p>&gt;= 14 14 Fail Count</p>	
			<p><u>Fail</u> Case: Steady State 4th Gear</p> <p>Case 4</p> <p>Gear slip</p> <p>Intrusive test: commanded 5th gear</p>	<p>200 RPM</p>			<p>Please See Table 7 For Neutral Time Cal</p> <p>&gt;= 2 2nd Gear Fail Count C1234 Total Fail Count</p> <p>&gt;= 14 14 Fail Count</p>	



### 09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
			<p>If attained Gear = 5th For Time</p> <p>If Above Conditions have been met, Increment Fail Counter and Sum Counters</p>	<p>&gt;= Enable Time (Sec)</p> <p>Table based Timer, Please See Table 4 in Supporting Documents</p>			<p>&gt;= 3 4th Gear Fail Count Total</p> <p>&gt;= 14 Fail Count</p>	
					<p>PRNDL State defaulted = FALSE Boolean</p> <p>inhibit RVT = FALSE Boolean</p> <p>IMS fault pending indication = FALSE Boolean</p> <p>TPS validity flag = TRUE Boolean</p> <p>Hydraulic System Pressurized = TRUE Boolean</p> <p>Minimum output speed for RVT &gt;= 0 RPM</p> <p>A OR B</p> <p>(A) Output speed enable &gt;= 650 RPM</p> <p>(B) Accelerator Pedal enable &gt;= 0.4 Pct</p> <p>Common Enable Criteria</p> <p>Ignition Voltage Lo &gt;= 8.5996 Volts</p> <p>Ignition Voltage Hi &lt;= 18 Volts</p> <p>Engine Speed Lo &gt;= 500 RPM</p> <p>Engine Speed Hi &lt;= 7500 RPM</p> <p>Engine Speed is within the allowable limits for &gt;= 5 Sec</p> <p>Throttle Position Signal Valid = TRUE Boolean</p>			

### 09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
				Disable Conditions:	MIL not illuminated for DTC's:	TCM: P0716, P0717, P0722, P0723, P182E  ECM: P0121, P0122, P0123		
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On (Dynamic)	Primary Offgoing Clutch is exhausted (See Table 12 in Supporting Documents for Exhaust Delay Timers)  Primary Oncoming Clutch Pressure Command Status  Primary Offgoing Clutch Pressure Command Status  Range Shift Status  Attained Gear Slip  fail timer 1 (2-6 shifting with throttle)  fail timer 1 (2-6 shifting without throttle)  fail timer 1 (3-5 shifting with throttle)  fail timer 1 (3-5 shifting without throttle)  fail timer 1 (4-5 shifting with throttle)  fail timer 1 (4-5 shifting without throttle)	= TRUE Boolean  = Maximum pressurized  = Clutch exhaust command  ≠ Initial Clutch Control  ≤ 40 RPM  ≥ 1.200195313 sec  ≥ 1.200195313 sec  ≥ 1.200195313 sec  ≥ 1.200195313 sec  ≥ 1.200195313 sec  ≥ 1.200195313 sec				Type A One Trip

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COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
			fail timer 1 (4-6 shifting with throttle) fail timer 1 (4-6 shifting without throttle)	>= 1.200195313 sec >= 1.200195313 sec			Total fail timer (fail timer1 + fail timer2) See Below Enable Timers for Fail Timer 1, and Reference Supporting Table 19 for Fail Timer 2	
			If attained gear has been met then increment fail timers		Trans oil temperature > 0 °C Input Speed Sensor FA or TFTKO = FALSE output speed sensor fault = FALSE Command / Attained Gear ≠ 1st FW High Side Driver ON = TRUE output speed limit for TUT >= 350 RPM input speed limit for TUT >= 200 RPM TUT Enable temperature >= 0 °C PRNDL state defaulted = FALSE IMS Fault Pending = FALSE Service Fast Learn Mode = FALSE	Disable Conditions:	MIL not illuminated for DTC's: TCM: P182E ECM: None	

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COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
Variable Bleed Solenoid (VBS)	P2724	Pressure Control (PC) Solenoid E Stuck On	Case: 5th Gear Closest Gear = 4th gear Neutral Time ≠ 0 Sec					Type A One Trip
			<u>Fail Case 1</u> Intrusive test: (C35R clutch exhausted) If closest gear = 4th Gear				>= 0.75 sec	
			<u>Fail Case 2</u> Intrusive test: (CB26 clutch exhausted) If closest gear = 4th Gear					>= 0.75 sec
					output speed >= 0 RPM PRNDL State defaulted = FALSE Boolean inhibit RVT = FALSE Boolean IMS fault pending indication = FALSE Boolean TPS validity flag = TRUE Boolean output speed >= 0 RPM Ignition Voltage Lo >= 8.5996 Vplts Ignition Voltage Hi <= 18 Volts Engine Speed Lo >= 500 RPM Engine Speed Hi <= 7500 RPM Engine Speed is within the allowable limits for >= 5 Sec			
					<b>Disable Conditions:</b> <b>MIL not Illuminated for DTC's:</b> TCM: P182E ECM: None			
Variable Bleed Solenoid (VBS)	P2729	Pressure Control (PC) Solenoid E Control Circuit High	Hardware Circuitry Detects a High Pressure Error = TRUE Boolean				>= 0.3 Fail Time (Sec) Sample Time (Sec) = 0.375	Type A One Trip
						Ignition Voltage Lo >= 8.5996 Volt Ignition Voltage Hi <= 18 Volt Engine Speed Lo >= 500 RPM Engine Speed Hi <= 7500 RPM		

09 OBDG02 TRANS Diagnostics

COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
					Engine Speed is within the allowable limits for	>= 5 Sec		
					<b>Disable Conditions:</b>	<b>MIL not Illuminated for DTC's:</b>		
						TCM: P2729		
						ECM: None		
Variable Bleed Solenoid (VBS)	P2730	Pressure Control (PC) Solenoid E Control Circuit Low	Hardware Circuitry Detects a Low Pressure Error	= TRUE Boolean			>= 0.3 Fail Time (Sec) = 0.375 Sample Time (Sec)	Type A One Trip
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for	>= 8.5996 Volt <= 18 Volt >= 500 RPM <= 7500 RPM >= 5 Sec		
					<b>Disable Conditions:</b>	<b>MIL not Illuminated for DTC's:</b>		
						TCM: P2730		
						ECM: None		
Variable Bleed Solenoid (VBS)	P2763	Torque Converter Clutch Pressure High	Hardware Circuitry Detects a Low Pressure Error	= TRUE Boolean			>= 4.4 Fail Time (Sec) = 5 Sample Time (Sec)	Type A One Trip
					Ignition Voltage Lo Ignition Voltage Hi Engine Speed Lo Engine Speed Hi Engine Speed is within the allowable limits for High Side Driver Enabled	>= 8.5996 Volt <= 18 Volt >= 500 RPM <= 7500 RPM >= 5 Sec = TRUE Boolean		

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COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
					Disable Conditions: MIL not Illuminated for DTC's:	TCM: P2763, P2764, P0658, P0659 ECM: None		
Variable Bleed Solenoid (VBS)	P2764	Torque Converter Clutch Pressure Control Solenoid Control Circuit Low	Hardware Circuitry Detects a high Pressure Error	= TRUE Boolean			>= 4.4 MPH	Type A One Trip
							= 5 MPH	
					Disable Conditions: MIL not Illuminated for DTC's:	TCM: P2763, P2764, P0658, P0659 ECM: None		
Communication	U0073	Controller Area Network Bus Communication Error	CAN Hardware Circuitry Detects a Low Voltage Error	= TRUE Boolean			>= 5 Fail Count	Type A One Trip
							= 5 Sample Time (Sec)	
					Disable Conditions: MIL not Illuminated for DTC's:	TCM: P2763, P2764, P0658, P0659 ECM: None		
					Ignition Voltage Lo Ignition Voltage Hi	>= 8.5996 Volt <= 18 Volt		

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COMPONENT/ SYSTEM	FAULT CODE	MONITOR STRATEGY DESCRIPTION	MALFUNCTION CRITERIA	THRESHOLD VALUE	SECONDARY PARAMETERS	ENABLE CONDITIONS	TIME REQUIRED	MIL ILLUM.
					Disable Conditions: MIL not Illuminated for DTC's:	TCM: U0073 ECM: None		
Communication	U0100	Lost Communications with Engine Control System	Communication Message Missing From ECM	= TRUE Boolean			= 12 Fail Counts = 12 Sample Counts	Type A One Trip
					Ignition Voltage Lo Ignition Voltage Hi	>= 8.5996 Volt <= 18 Volt		
					Disable Conditions: MIL not Illuminated for DTC's:	TCM: U0100 ECM: None		

**Supporting Tables**

**Table 1**

Axis	-40	-0.00781	40	80	120	Units °C
Curve	2500	1000	800	520	200	Sec

**Table 2**

Axis	0	6.249905	12.49981	18.74971	24.99962	31.24952	37.49943	43.74933	49.99924	56.24914	62.49905	68.74895	74.99886	81.24876	87.49866	93.74857	99.99847	Units Pct	
Curve	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	800	Kpa

**Table 3**

Axis	0	64	128	192	256	320	384	448	512	Units N-M
Curve	50	50	50	50	50	50	50	50	50	RPM

**Table 4**

Axis	-0.008	0	40	Units °C
Curve	409.5938	2	2	Sec

**Table 5**

Axis	-0.008	0	40	Units °C
Curve	409.5938	3.5	3.5	Sec

**Table 6**

Axis	-0.008	0	40	Units °C
Curve	409.5938	2	2	Sec

**Table 7**

Axis	-0.008	0	40	Units °C
Curve	409.5938	1.5	1.5	Sec

**Table 8**

Axis	-40	-0.00781	40	80	120	Units °C
Curve	409	409	1.6	1.4	1.4	Sec

**Table 9**

Axis	-40	-0.00781	40	80	120	Units °C
Curve	409	409	1.4	1.3	1.2	Sec

**Table 10**

Axis	-40	-0.00781	40	80	120	Units °C
Curve	409	409	1.6	1.5	1.4	Sec



**Supporting Tables**

**Table 11**

Axis	-40	-0.00781	40	80	120	Units °C
Curve	409	409	1.3	1.2	1.1	Sec

**Table 12**

Axis	-40	-20	0	30	110	Units °C
Curve	3.099609	1.900391	1.099609	0.799805	0.599609	Sec

**Table 13**

Axis	-40	-20	0	30	110	Units °C
Curve	1.799805	1.200195	0.599609	0.400391	0.299805	Sec

**Table 14**

Axis	-40	-20	0	30	110	Units °C
Curve	2.200195	1.400391	0.900391	0.700195	0.400391	Sec

**Table 15**

Axis	-40	-20	0	30	110	Units °C
Curve	2.599609	1	0.5	0.299805	0.200195	Sec

**Table 16**

Axis	-40	-20	0	30	110	Units °C
Curve	3	0.900391	0.5	0.299805	0.200195	Sec

**Table 17**

Axis	-40	-30	-20	-10	0	10	20	30	40	Units °C
Curve	0	0	0	0	0	0	0	0	0	Sec