07 GRP08_All Transmissions.DOC

SENSED PARAMETER	FAULT CODE	ACCEPTABLE OPERATING RANGE AND RATIONALITY	PRIMARY MALF DETECTION PARAMETER	FAIL and PASS ENABLING CONDITIONS	MONITORING TIME LENGTH AND FREQUENCY OF CHECK	PRIMARY MALF PASS CONDITION	DTC TYPE
Vehicle Speed Sensor - Low Input	**P0502**	0 RPM to 8192 RPM This DTC detects a low vehicle speed when the vehicle has a large Engine speed in a driving gear range with a high engine torque value.	Vehicle Speed <= 100 RPM	Engine RPM between 475 & 6200 for 5 sec. System Voltage is between 8 & 18 Vehicle Speed less than 200 KPH No PSA DTC's No VSS Loss DTC Gear Range is not Park/Neutral 10%<Throttle Position <100% 65 Nm<Engine Torque<550 Nm 2850 < Engine Speed > 5000 RPM	4.5 seconds	Vehicle Speed => 250 RPM => 1.5 second.	DTC Type Federal & California B
Vehicle Speed Sensor - Loss	**P0503**	0 RPM to 8192 RPM This DTC detects an unrealistic large DROP in Vehicle/Output Speed.	Vehicle/Output Speed DROP / Loss => 500	Engine RPM between 475 & 6200 for 5 sec. System Voltage is between 8 & 18 Vehicle Speed less than 200 KPH No PSA DTC's 4WD LO Switch state change must be > 2.0 seconds. No PSA state change > 0.009 seconds iF Positive OSS reading > 500 RPM, then diag is delayed from running for 2.0 seconds. OSS Was > 1000 RPM for > 2.0 sec	3.5seconds	Vehicle Speed => 500 RPM and No change > 450 RPM for 1.5 second	DTC Type Federal & California B
Trans Fluid Temp Sensor Circuit Range/ Performance (Test for TFT Stuck at a Low Temperature)	**P0711** **FC1**	The DTC detects three failure modes of the TFT signal circuit or the TFT sensor: 1) A sensor that remains at a Low temperature value. (Stuck Sensor) FC1 OR 2) A sensor that remains at a High temperature value. (Stuck Sensor) FC2 OR 3) an unrealistically large change in Transmission Temperature. FC3	1) Stuck sensor: TFT Sensor is stuck at a low temperature value between -40 and +21 Deg. C	Engine RPM between 475 & 6200 for 5 sec. System Voltage is between 8 & 18 Vehicle Speed less than 200 KPH No Engine Coolant DTC's No Vehicle Speed DTC's No Transmission Component Slipping DTC -39.5 C <TFT < +149 C Engine Coolant => 80.0 deg C Engine Coolant has changed => 50.0 deg C since startup Vehicle Speed since startup => 20 KPH => 750 seconds (cumulative timer) TCC Slip => 80 RPM => 500 seconds (cumulative timer)	Stuck Sensor: => 80.0 seconds	TFT Sensor changes > 2.0 deg C for 5.0 seconds NOTE: Once the diagnostic passes, a failure is not looked for until the next power up.	DTC Type Federal & California C
Trans Fluid Temp Sensor Circuit Range/ Performance (Test for TFT Stuck at a High Temperature)	**P0711** **FC2**	See Above	2) Stuck sensor: TFT Sensor is stuck at a high temperature value between +135 and +149.9 Deg. C	See Above	Stuck sensor: => 80.0 seconds	Refer to P0711 A	See Above
Trans Fluid Temp Sensor Circuit Range/ Performance (Test for TFT Noisy signal)	**P0711** **FC3**	This portion of the diagnositc is calibrated not to function. This is due to the update rate of the TFT signal.					
Trans Fluid Temp Sensor Circuit - Low Input (High Temperature)	**P0712**	-40 to +150.5 degrees C The DTC detects a continuous short to ground in the TFT signal circuit or the TFT sensor	Raw TFT => 40.0 Ohms	Engine RPM between 475 & 6200 for 5 sec. System Voltage is between 8 & 18 Vehicle Speed less than 200 KPH	12.75 seconds	Raw TFT < 45.0 Ohms for 10.0 seconds	DTC Type Federal & California C

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Trans Fluid Temp. Sensor Circuit - High Input (Low Temperature)	**P0713**	-40 to +150.5 degrees C The DTC detects a continuous open or short to voltage in the TFT signal circuit or the TFT sensor	Raw TFT <= 111605 Ohms	Engine Running > 475 RPM > 7 sec System voltage between 8.0 & 18.0 volts Vehicle Speed less than 200 KPH No Vehicle Speed DTC's Trans Speed since start up => 100 RPM for => 300 seconds (cumulative timer) TCC Slip => 100 RPM => 300 seconds (cumulative timer)	12.75 seconds Continuous	Raw TFT > 111605 Ohms for 12.75 sec	DTC Type Federal & California C
TCC System Stuck OFF	**P0741**	This DTC detects High torque converter slip when the TCC is commanded ON in 2nd and 3rd Gear. (Protects the transmission during trailer towing in D3 Range)	Slip => 130.0 RPM	Engine RPM between 475 & 6200 for 5 sec. System Voltage is between 8 & 18 Vehicle Speed less than 200 KPH No VSS DTC's No PSA DTC's No TCC PWM Electrical DTC No TCC Stuck On DTC PSA = D3, or D2 +20C < TFT < +150.0 C 10.0% < TPS< 100% 55 Nm < Engine Torque > 525 Nm TCC On Time => 2.5 seconds TCC Capacity => 60% (Same as duty cycle) Ratio indicates between :1.50 & 1.45 OR1.05 & 0.95	12.75 seconds 3rd occurrence	Slip between -25 and +50 RPM => 1.5 seconds	DTC Type Federal & California B
TCC System Stuck ON	**P0742**	This DTC detects low torque converter slip when the TCC is commanded off.	Slip is => -20.0 RPM and <= +25.0 RPM	Engine RPM between 475 & 6200 for 5 sec. System Voltage is between 8 & 18 Vehicle Speed less than 200 KPH No VSS DTC's No PSA DTC's No TCC PWM Electrical DTC No TCC Stuck Off DTC TCC Mode = Off (0 % Duty Cycle) Commanded Gear not = to 1st PSA = D4 +20C < TFT < +130.0 C 10.0% < TPS< 90% 70 Nm < Engine Torque > 525 Nm 750 < Engine RPM < 4500 25 KPH < Vehicle Speed < 140 KPH Ratio indicates between : 1.52 & 0.95	5.0 seconds 3th occurrence Continuous	Slip is between +100 and +1500 RPM for => 2.0 seconds.	DTC Type Federal & California B

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Pressure Control Solenoid Circuit Electrical	**P0748**	0V to 12V This DTC detects a continuous open or short to ground in the PCS circuit .	Pressure Control Solenoid short/open bit is set. (i.e. - The FM Duty Cycle is outside the range of 0.5% - 95%.) For 2 Seconds	Pressure Control Solenoid is enabled. This diagnostic is disabled if system voltage falls below 10.5 volts at low temp (-40 C) or 11.5 at high temp (151 C) for > 0.025 sec. Engine Speed is greater than 275 RPM (Powertrain In Motion is set) The Diagnostic is enabled again when system voltage recovers to above 11 volts at low temp or 12 volts at high temp. The disable and enable voltage values are determined by linear interpolation when the transmission fluid temperature is between the low and high values. ** see description of retest mode at bottom	For 2 Seconds	Pressure Control Solenoid is enabled. This diagnostic is disabled if system voltage falls below 10.5 volts at low temp (-40 C) or 11.5 at high temp (151 C) for > 0.025 sec. The Diagnostic is enabled again when system voltage recovers to above 11 volts at low temp or 12 volts at high temp. The disable and enable voltage values are determined by linear interpolation when the transmission fluid temperature is between the low and high values. ** see description of retest mode at bottom Pass Timer is 2 Seconds	DTC Type Federal & California C
Shift Solenoid A Performance 2-2-3-3 (1-2 Shift Solenoid Stuck ON)	**P0751**	This DTC detects incorrect Gear Ratios with the Commanded Gear. For 2 Counts	**Stuck ON:** Commanded Gear = 1 with Ratio = 2nd for > 2 sec. **FC-1** **AND** Commanded Gear = 4/ with TCC applied or locked with Ratio = 3rd >6 seconds. **FC-2** (Both of the above increment the fail counter by one. The order they occur doesn't matter)	Engine RPM between 475 & 6200 for 5 sec. System Voltage is between 8 & 18 Vehicle Speed less than 200 KPH No VSS DTC's No PSA DTC's No Shift Solenoid Electrical DTC's PSA = D4, D3, D2 or D1 Vehicle Speed => 2.0 KPH TPS => 25% +20C < TFT < +130 C 55 Nm < Engine Torque > 550 Nm	**Stuck ON:** 1st gear => 2 sec AND 4th gear => 6 sec 2nd Occurrence	Commanded Gear = 1 with Ratio = 1st AND Commanded Gear = 4 with TCC Locked with Ratio = 4th Each condition met => 1.0 second.	DTC Type Federal & California B
Shift Solenoid A Performance 1-1-4-4 (1-2 Shift Solenoid Stuck OFF)	**P0752**	This DTC detects incorrect Gear Ratios with the Commanded Gear. For 2 Counts	**Stuck OFF:** Commanded Gear = 2 with Ratio = 1st => 2 seconds. **FC-3** **AND** Commanded Gear = 3 with Ratio = 4th => 3 seconds. **FC-4**	Engine RPM between 475 & 6200 for 5 sec. System Voltage is between 8 & 18 Vehicle Speed less than 200 KPH No VSS DTC's No PSA DTC's No Shift Solenoid Electrical DTC's PSA = D4, D3, D2 or D1 Vehicle Speed => 8.0 KPH TPS => 25% +20C < TFT < +130 C 55 Nm < Engine Torque > 550 Nm	**Stuck OFF:** 2nd gear => 2.0 sec AND 3rd gear => 3 2 Occurrences	Commanded Gear = 2 with Ratio = 2nd AND Commanded gear = 3rd with Ratio = 3rd Each condition met => 1.0 second.	DTC Type Federal & California B

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Shift Solenoid B Performance 4-3-3-4 2-3 Shift Solenoid Stuck OFF	**P0756**	This DTC detects incorrect Gear Ratios when a Gear is Commanded. For 2 Counts.	**Stuck OFF:** Commanded Gear = 1 Ratio = 4th (3rd) = > 2 seconds. **FC-5** **AND** Commanded Gear = 2 Ratio = 3rd => 3 sec. **FC-6**	Engine RPM between 475 & 6200 for 5 sec. System Voltage is between 8 & 18 Vehicle Speed less than 200 KPH No VSS DTC's No PSA DTC's No Shift Solenoid Electrical DTC's PSA = D4, D3, D2 or D1 Vehicle Speed => 2.0 MPH 25% < TPS < 100% +20C < TFT < +130 C Commanded Gear = 1 55 Nm < Engine Torque > 550 Nm Commanded Gear = 2 65 Nm < Engine Toprque > 550 Nm	**Stuck OFF:** Commanded Gear = 1 Ratio = 4th = > 2 seconds. AND Commanded Gear = 2 Ratio = 3rd => 3 sec. 2nd Occurrence	Commanded Gear = 1 w/ Ratio = 1st AND Commanded Gear = 2 w/ Ratio = 2nd Each condition met => 1.0 second.	DTC Type Federal & California A
Shift Solenoid B Performance 1-2-2-1 2-3 Shift Solenoid Stuck ON	**P0757**	This DTC detects incorrect Gear Ratios when a Gear is Commanded. For 2 Counts.	**Stuck ON:** Commanded Gear = 3 Ratio = 2nd =>2 sec. **FC-7** **AND** Commanded Gear = 4th with Ratio = 1st => 2 seconds. **FC-8**	Engine RPM between 475 & 6200 for 5 sec. System Voltage is between 8 & 18 Vehicle Speed less than 200 KPH No VSS DTC's No PSA DTC's No Shift Solenoid Electrical DTC's PSA = D4, D3, D2 or D1 Vehicle Speed => 8.0 MPH 25% < TPS < 100% +20C < TFT < +130 C 55 Nm < Engine Torque > 550 Nm	**Stuck ON:** Commanded Gear = 3 Ratio = 2nd => 2sec. And Commanded Gear = 4th with Ratio = 1st for 2 sec. 2nd occurrence	Commanded gr. = 3rd w/ Ratio = 3rd AND Commanded Gear = 4 with TCC Locked w/ Ratio = 4th 65 Nm < Engine Torque > 550 Nm Each condition met => 1.0 second.	DTC Type Federal & California A
3-2 Downshift Solenoid Circuit Low Voltage (Short to Ground or Open)	**P0787**	0V to 12V This DTC detects a continuous open or short to ground in the 3-2 DS circuit or the 3-2 DS solenoid.	Output State is invalid	Engine RPM between 475 & 6200 for 5 sec.System Voltage is between 8 & 18 Vehicle Speed less than 200 KPH	43 out of 50 counts. Continuous	43 out of 50 counts. Continuous	DTC Type Federal & California B
3-2 Downshift Solenoid Circuit High Voltage (Short to 12 Volts)	**P0788**	0V to 12V This DTC detects a continuous short to battery in the 3-2 DS circuit or the 3-2 DS solenoid.	Output State is invalid	Engine RPM between 475 & 6200 for 5 sec.System Voltage is between 8 & 18 Vehicle Speed less than 200 KPH	43 out of 50 counts. Continuous	43 out of 50 counts. Continuous	DTC Type Federal & California B
Shift Solenoid A (1-2 Sol) Circuit Low Voltage (Short to Ground or Open)	**P0973**	0V to 12V This DTC detects a continuous open or short to ground in the SSA circuit or the SSA solenoid.	Output State is invalid	Engine RPM between 475 & 6200 for 5 sec.System Voltage is between 8 & 18 Vehicle Speed less than 200 KPH	43 out of 50 counts. Continuous	43 out of 50 counts. Continuous	DTC Type Federal & California B
Shift Solenoid A (1-2 Sol) Circuit High Voltage (Short to 12 Volts Sol with very low res)	**P0974**	0V to 12V This DTC detects a continuous short to battery in the SSA circuit or the SSA solenoid.	Output State is invalid	Engine RPM between 475 & 6200 for 5 sec.System Voltage is between 8 & 18 Vehicle Speed less than 200 KPH	43 out of 50 counts. Continuous	43 out of 50 counts. Continuous	DTC Type Federal & California B
Shift Solenoid B (2-3 Sol) Circuit Low Voltage (Short to Ground or Open)	**P0976**	0V to 12V This DTC detects a continuous open, short to ground, or short to battery in the SSB circuit or the SSB solenoid.	Output State is invalid	Engine is running > 475 RPM > 7.0 seconds.System Voltage is between 8 & 18 Vehicle Speed less than 200 KPH	43 out of 50 counts. Continuous	43 out of 50 counts. Continuous	DTC Type Federal & California A
Shift Solenoid B (2-3 Sol) Circuit High Voltage (Short to 12 Volts Sol with very low res)	**P0977**	0V to 12V This DTC detects a continuous short to battery in the SSB circuit or the SSB solenoid.	Output State is invalid	Engine is running > 475 RPM > 7.0 seconds.System Voltage is between 8 & 18 Vehicle Speed less than 200 KPH	43 out of 50 counts. Continuous	43 out of 50 counts. Continuous	DTC Type Federal & California A

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PSA Circuit Illegal Range	**P1810**	0V to 12V This DTC detects an invalid state of the PSA sensor or the PSA circuit by deciphering the PSA inputs.	Illegal Range is true	Engine is running > 475 RPM > 7.0 seconds.System Voltage is between 8 & 18 Vehicle Speed less than 200 KPH	60.0 seconds Continuous	Illegal Range is NOT true => 5.0 seconds	DTC Type Federal & California B
PSA Start in Wrong Range	**P1815**	0V to 12V This DTC detects an invalid state of the PSA sensor or the PSA circuit by deciphering the PSA inputs.	PSA indicates D2 (ONLY) before and after Engine Start-up (625 RPM)	System Voltage is between 8.0 & 18.0 No VSS DTC's Engine Speed Transition: Below 50 RPM for => 1.0 sec. then, between 50 and 610 RPM > 0.075 sec. then => 625 RPM. (RPM must remain above the 625 RPM cal) Output Speed <= 250 RPM	5.0seconds Continuous	PSA indicates Park/Neutral after 625 RPM for => 0.00625 seconds. (Must occur before a failure is reported or the fila timer reaches it's limit)	DTC Type Federal & California B
PSA Indicates Park/Neutral with a Drive Ratio	**P1816**	0V to 12V This DTC detects an invalid state of the PSA sensor or the PSA circuit by deciphering the PSA inputs.	**A)** PSA indicates P/N when Ratio indicates a Drive Ratio NOTE: Ratio is measured NE/NO with TCC Locked (Or refered to as Speed Ratio)	Engine is running > 475 RPM > 7.0 seconds.System Voltage is between 8 & 18 Vehicle Speed less than 200 KPH No VSS DTC's No PSA DTC's No Shift Sol Electrical or Performance DTC's 1.58 > Speed Ratio > 0.599 Output Speed => 250 RPM 10.0% < TPS > 100.0% 65m < Engine Torque > 550	12.75 seconds	PSA indicates Drive with a Drive Ratio for 2.0 seconds.	DTC Type Federal & California B
TCC Enable Solenoid Circuit Low Voltage Short to Ground or Open	**P2769**	0V to 12V This DTC detects a continuous open or short to ground in the TCC Enable Solenoid circuit or the TCC Enable Solenoid.	Output State is invalid	Engine RPM between 475 & 6200 for 5 sec.System Voltage is between 8 & 18 Vehicle Speed less than 200 KPH	43 out of 50 counts. Continuous	43 out of 50 counts. Continuous	DTC Type Federal & California B
TCC Enable Solenoid Circuit High Voltage Short to 12 Volts (Sol with very low res)	**P2770**	0V to 12V This DTC detects a continuous short to battery in the TCC Enable Solenoid circuit or the TCC Enable Solenoid.	Output State is invalid	Engine RPM between 475 & 6200 for 5 sec.System Voltage is between 8 & 18 Vehicle Speed less than 200 KPH	43 out of 50 counts. Continuous	43 out of 50 counts. Continuous	DTC Type Federal & California B
TCC PWM Solenoid Circuit Low Voltage Short to Ground or Open	**P2764**	0V to 12V This DTC detects a continuous open or short to ground in the TCC PWM Solenoid circuit or the TCC PWM Solenoid.	Output State is invalid	Engine RPM between 475 & 6200 for 5 sec.System Voltage is between 8 & 18 Vehicle Speed less than 200 KPH	43 out of 50 counts. Continuous	43 out of 50 counts. Continuous	DTC Type Federal & California B
TCC PWM Solenoid Circuit High Voltage Short to 12 Volts (Sol with very low res)	**P2763**	0V to 12V This DTC detects a continuous short to battery in the TCC PWM Solenoid circuit or the TCC PWM Solenoid.	Output State is invalid	Engine RPM between 475 & 6200 for 5 sec.System Voltage is between 8 & 18 Vehicle Speed less than 200 KPH	43 out of 50 counts. Continuous	43 out of 50 counts. Continuous	DTC Type Federal & California B

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Transmission Component Slipping **Fail Case 1**	**P0894**	This DTC detects Slip in the Torque Converter Clutch with TCC in EC3 or Locked mode.	+100 < SLIP RPM < 550	Engine is running > 475 RPM > 7.0 seconds.System Voltage is between 8 & 18 Vehicle Speed less than 200 KPH No VSS DTC's No PSA DTC's No Shift Solenoid Electrical or Performance DTC's No TCC Stuck On or Off DTC's Shift Sol Perf counters are clear PRNDL = D4 100 Nm < Engine Torque > 525 Nm 10% < TPS >100% +20C < TFT < +130C 60 KPH < Vehicle Speed < 200 KPH 0.70 <Speed Ratio < 2.00 TCC Commanded on => 3.0 sec. TCC Capacity => 60 % (D/C)	12.75 seconds 3rd occurrence	Slip => 5 and <= +25 RPM for 5.0 seconds	DTC Type Federal & California B
Transmission Component Slipping **Fail Case 2**	**P0894**	This DTC detects Slip in the Torque Converter Clutch with TCC in EC3 or Locked mode.	Fail Case 2 can set the DTC before the 3 counts occur in FC1. The 3 sections of FC2 occur in sequence: **A)** +90 < TCC SLIP RPM < 550 **ACTION 1**: Freeze Adapts & Max Pressure. (actions cleared if gear/ PSA is not = to 4th or not in slip window) **AND** **B)** +90 < TCC SLIP RPM < 550 ACTION 2: Turn off TCC for 2.0 seconds (retians Max line) **AND** **C)** +90 < TCC SLIP RPM < 550	Same as Fail Case 1	A) 10.0 seconds **AND** B) 12.5 seconds **AND** C) 15.0 seconds	See Fail Case 1	See Fail Case 1
Four Wheel Drive Low - Switch Input Malfunction Fail Case 1: Switch Stuck Off	**P2771**	This DTC detects the continuous open in the Four Wheel Drive Low Switch Circuit	4WD Lo Switch indicates OFF and Measured Transfer Case Ratio >2.39 and < 2.79 in two different gears. Measured Transfer case ratio = NI / NO / commanded gear ratio	Engine is running > 475 RPM > 7.0 seconds.System Voltage is between 8 & 18 Vehicle Speed less than 200 KPH No VSS DTC's No PSA DTC's No Shift Solenoid Electrical or Performance DTC's Shift Sol Perf counters are clear No Shift Solenoid or TCC PWM Electrical DTC's PRNDL = D4 Vehicle Speed => 2.0 KPH 95 Nm < Engine Torque > 675 Nm 5.0 % < TPS >100% +20C < TFT < +130C	=> 5.0 seconds in two different commanded gears. 2 Fail Counts	4WD Lo switch is Clear and Measured Transfer Case Ratio =>0.95 and <=1.05 for > 0.5 second in any one gear. **OR** 4WD Lo switch is SET and Measured Transfer Case Ratio => 2.65 and <= 2.73 for > 0.5 second in any gear.	DTC Type Federal & California B

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Four Wheel Drive Low - Switch Input Malfunction Fail Case 2: Switch Stuck On.	**P2771**	This DTC detects the continuous short to ground in the Four Wheel Drive Low Switch Circuit	4WD Lo Switch indicates ON and Measured Transfer Case Ratio =>0.95 and <= 1.05 in any one gear. Measured Transfer case ratio = NI / NO / commanded gear ratio	Same as Fail Case 1	=> 5.0 seconds in any one gear. (4th gear TCC Mode 6 or 7) 2 Fail Counts	Same As Fail Case 1	Same As Fail Case 1
System Voltage Malfunction	**No DTC**	This function is based off of calibrations that take diagnostic actions. Currently calibrated to enable the actions after the correct System Voltage code is set. The voltage diagnostic cals reside on the engine side of the calibration map responsibility.	System Voltage is outside of 9.0 volts and 18.0 volts for 10 seconds	Does not apply	10 seconds	System Voltage in between 9.0 and 18.0 volts for 10.0 seconds. NOTE: This does not set a pass flag as a diagnostic code.	DTC Type Does not apply

NOTE**:**

- ABOVE ?? KPH and ??.0% TPS the Brake Switch Input is disregarded for disabling the TCC. (Driver will notice: in 4th with TCC On - Tap Brake pedal and TCC Will NOT TURN OFF.. THIS IS NORMAL FOR 1999 DIESELS. This action allows the brake switch and circuit to become a NON-OBD-II component.)
- Type C diagnostic Code Does not illuminate the MIL or any other lamp
- All Diagnostics are disabled with Power Take Off (PTO) active

**** P0748 Force Motor Diagnostic Retest Mode - an attempt to prevent transients from keeping the Force Motor off for the entire ignition cycle.**

1) When a Force Motor Circuit fault is detected, the Force Motor is shut off and the P0748 Diagnostic code is set. The adapts are frozen at this point.
2) After being shut off for 2 seconds, the Force Motor is turned on at 0.1 amp to retest the circuit.
3) If during the retest period (5 seconds) a fault is detected, the circuit is turned off for another 2 seconds before reentering the retest mode. If a circuit fault is detected 5 times in the retest mode without returning to normal operation, the circuit is turned off for the remainder of that ignition cycle.
4) During the retest period (0.1 amp commanded), if no circuit faults are detected for an entire 5 seconds period, the Force Motor is returned to normal operation and the P0748 diagnostic is passed.
5) If 3 circuit faults are detected in the normal operation mode, the Force Motor is turned off for the remainder of that ignition cycle and the P0748 diagnostic remains active.

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CLASS 2 Override Abort Calibrations

Function	Calibration	Unit
Engine RPM		
Max Engine Speed for overall overrides	6200	RPM
Force Motor		
Max Engine Speed for Force Motor Override	1500	RPM
Min Force Motor AMP override	0.08	AMPS
Max Force Motor AMP override	1.1	AMPS
Shift Speeds		
Max MPH for Solenoid override	180	KPH (Caled Out)
Max 2-1 downshift request	65	KPH (Caled Out)
Max 3-2 downshift request	140	KPH (Caled Out)
TCC Off Time		
Max TCC Override Off time	N/a yet	Seconds (common is 300 sec.)

4L60-E Shift Solenoid States and Ratios

Gear commanded	SSA state	SSB state	Gear Ratio

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1	On	On	3.059
2	Off	On	1.625
3	Off	Off	1.000
4	On	Off	0.696

Following tables describe fail and pass cases:

Diagnostic Trouble Code	Fail cases used	Pass cases used
P0751 2-2-3-3	1 and 2*	1 and 4*
P0752 1-1-4-4	3 and 4*	2 and 3
P0756 4-3-3-4	5 and 6	1 and 2
P0757 1-2-2-1	7 and 8*	3 and 4*

Fail Case	FC1	FC2	FC3	FC4*	FC5	FC6	FC7	FC8*
Commanded Gear	1	4	2	3	1	2	3	4
Gear ratio observed	2	3*****	1	4	4	3	2	1

Pass Case	PC1	PC2	PC3	PC4
Commanded Gear	1	2	3	4
Gear ratio observed	1	2	3	4*****