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NOTES

1.0 INTRODUCTION

IMPORTANT

The 2005 RS/RG model year vehicles will use both the standard EATX controlled transmission and the NGC controlled transmission based on the available powertrain combinations. You will need to identify which controller is being used on the vehicle that requires service.

- Diesel engines use a Transmission Control module (TCM) with an Engine Control Module (ECM).
- Gas engines use the Powertrain Control Module (PCM) NGC controller.

PCM - NGC CONTROLLER

RS/RG vehicles use an integrated Transmission Control Module and Powertrain Control Module into a single control module. This module is the Next Generation Controller (NGC) for Daimler-Chrysler and is referred to as the Powertrain Control Module (PCM). The PCM is located in the left front wheel well.

The PCM has four color coded connectors, C1 through C4, (C1-BLK, C2-GRAY, C3-WHITE, C4-GREEN), each PCM connector will have 38 pins. Miller tool #3638, and Miller tool #8815 are used for probing and repairing the PCM connectors. Miller tool #3638 is designed to release the pins from the PCM harness connectors. You must use the Miller tool #3638 to release the harness connector terminals or harness connector or terminal damage will occur. Miller tool #8815 was designed for probing the PCM harness connectors. You must use Miller tool #8815 for probing the PCM terminals or damage to the terminal will occur resulting in a poor terminal to pin connection.

TCM - EATX CONTROLLER

RS/RG vehicles use a Transmission Control Module (TCM) in Diesel powertrain applications. The TCM can be identified by the presence of a single 60 way harness connector. This stand alone TCM module is the used to control the transmission functions and is located in the left front wheel well. The Engine Control Module (ECM) which controls the engine functions is separate from the Transmission Control module.

The procedures contained in this manual include all of the specifications, instructions, and graphics needed to diagnose:

- 41TE TCM (EATX) Electronic Automatic Transmission problems
- 40TE/41TE PCM (NGC) Electronic Automatic Transmission problems

The diagnostics in this manual are based on the failure condition or symptom being present at the time of diagnosis. When repairs are required, refer to the appropriate volume of the service manual for the proper removal and repair procedure. Diagnostic procedures change every year. New diagnostic systems may be added and/or carryover systems may be enhanced.

READ THIS MANUAL BEFORE TRYING TO DIAGNOSE A VEHICLE TROUBLE CODE. It is recommended that you review the entire manual to become familiar with all new and changed diagnostic procedures. This book reflects many suggested changes from readers of past issues. After using this book, if you have any comments or recommendations, please fill out the form at the back of the book and mail it back to us.

1.1 SYSTEM COVERAGE

The diagnostic procedure manual covers all RS/RG vehicles equipped with an electronic transaxle.

1.2 SIX -STEP TROUBLESHOOTING PROCEDURE

Diagnosis of the electronic transaxle is done in six basic steps:

verification of complaint
verification of any related symptoms
symptom analysis
problem isolation
repair of isolated problem
verification of proper operation

2.0 IDENTIFICATION OF SYSTEM

The 40TE/41TE Transmission family can be identified through a visual inspection. Confirm the presence of a Solenoid/Pressure Switch Assembly, Transmission Range Sensor, Input Speed Sensor and Output Speed Sensor all located on the same side of the transmission case. Refer to the Service Information for transmission ID tag descriptions.

3.0 SYSTEM DESCRIPTION AND FUNCTIONAL OPERATION

3.1 GENERAL DESCRIPTION

The electronic transaxle is a conventional transaxle in that it uses hydraulically applied clutches to shift a planetary gear train. However, the electronic control system replaces many of the mechanical and hydraulic components used in conventional transmission valve bodies.

3.2 FUNCTIONAL OPERATION

The electronic transaxle has a fully adaptive control system. The system performs its functions based on continuous real-time sensor feedback information. The control system automatically adapts to changes in engine performance and friction element variations to provide consistent shift quality. The control system ensures that clutch operation during upshifting and downshifting is more responsive without increased harshness.

The control module continuously checks for electrical problems, mechanical problems, and some hydraulic problems. When a problem is sensed, the control module stores a diagnostic trouble code. Some of these codes cause the transaxle to go into Limp-in or?default mode. While in this mode, electrical power is removed from the transaxle, deenergizing the transmission control relay, and solenoid pack. When this happens, the only transaxle mechanical functions are:

Park and Neutral
Reverse
Second Gear

No upshifts or downshifts are possible. The position of the manual valve alone allows the three ranges that are available. Although vehicle performance is seriously degraded while in this mode, it allows the owner to drive the vehicle in for service.

Once the DRBIII® is in the Transmission portion of the diagnostic program, it constantly monitors the control module to see if the system is in Limp-in mode. If the transaxle is in Limp-in mode, the DRBIII® will flash the red LED.

3.2.1 TRANSMISSION OPERATION AND SHIFT SCHEDULING AT VARIOUS OIL TEMPERATURES.

The transmission covered in this manual has unique shift schedules depending on the temperature of the transmission oil. The shift schedule is modified to extend the life of the transmission while operating under extreme conditions.

The oil temperature is measured with a Temperature Sensor on the 41TE transmission. The Temperature Sensor is an integral component of the Transmission Range Sensor (TRS). If the Temperature Sensor is faulty, the transmission will default to a calculated oil temperature. Oil temperature will then be calculated through a complex heat transfer equation using engine coolant temperature, battery/ambient temperature, and engine off time. These inputs are received from the PCI bus periodically and used to initialize the oil temperature at start up. Once the engine is started, the control module updates the transmission oil temperature based on torque converter slip speed, vehicle speed, gear, and engine coolant temperature to determine an estimated oil temperature during vehicle operation. Vehicles using calculated oil temperature, are reasonably accurate, during normal operation. However, if a transmission is overfilled, a transmission oil cooler becomes restricted, or if a customer drives aggressively in low gear, the calculated oil temperature will be inaccurate. Consequently the shift schedule selected may be inappropriate for the current conditions.

3.3 DIAGNOSTIC TROUBLE CODES

Diagnostic trouble codes (DTC's) are codes stored by the PCM (NGC) or TCM (EATX) depending on the powertrain application and help diagnose Transmission problems. They are viewed using the DRBIII® scan tool.

Always begin by performing a visual inspection of the wiring, connectors, cooler lines and the transmission. Any obvious wiring problems or leaks should be repaired prior to performing any diagnostic test procedures. Some engine driveability problems can be misinterpreted as a transmission problem. Ensure that the engine is running properly and no engine DTC's are present that could cause a transmission complaint.

If there is a bus communication problem, trouble codes will not be accessible until the bus problem is fixed. The DRBIII® will display an appropriate message.

Each diagnostic trouble code is diagnosed by following a specific testing sequence. The diagnostic test procedures contain step-by-step instructions for determining the cause of a transmission diagnostic trouble code. Possible sources of the code are checked and eliminated one by one. It is not necessary to perform all of the tests in this book to diagnose an individual code. These tests are based on the problem being present at the time that the test is run.

All testing should be done with a fully charged battery.

If the control module records a DTC that will adversely affect vehicle emissions, it will request (via the communication bus) that the PCM illuminate the Malfunction Indicator Lamp (MIL). Although these DTC's will be stored immediately as a 1 trip failure, it may take up to five minutes of accumulated trouble confirmation set the DTC and illuminate the MIL. Three consecutive successful OBDII (EURO STAGE III OBD) trips or clearing the DTC's with a diagnostic tool (DRBIII® or equivalent) is required to extinguish the MIL. When the Transmission Control system requests that the PCM illuminate the MIL, the PCM sets a DTC P0700 ($89) to alert the technician that there are DTC's in the Transmission Control System. You

must also erase the DTC P0700 in the PCM, in order to extinguish the MIL.

3.3.1 HARD CODE

Any Diagnostic Trouble Code (DTC) that is set whenever the system or component is monitored is a HARD code. This means that the problem is there every time the Transmission Control System checks that system or component. Some codes will set immediately at start up and others will require a road test under specific conditions. It must be determined if a code is repeatable (Hard) or intermittent before attempting diagnosis.

3.3.2 ONE TRIP FAILURES

A One Trip Failure, when read from the Transmission Control System, is a hard OBDII (EURO STAGE III OBD) code that has not matured for the full 5 minutes to a hard fault. This applies to codes that will only set after 5 minutes of substituted gear operation.

3.3.3 INTERMITTENT CODE

A diagnostic trouble code that is not there every time the Transmission Control System checks the circuit or function is an a intermittent code. Some intermittent codes are caused by wiring or connector problems. However intermittent gear ratio codes are usually caused by intermittent hydraulic seal leakage in the clutch and/or accumulator circuits. Problems that come and go like this are the most difficult to diagnose, they must be looked for under the specific conditions that cause them.

3.3.4 STARTS SINCE SET COUNTER

For the most recent code, the Starts Since Set counter counts the number of times the vehicle has started since it was last set. The counter will count up to 255 starts. Note that this code only applies to the last or most recent code set.

When there are no diagnostic trouble codes stored in memory, the DRBIII® will display NO DTC'S PRESENT and the reset counter will show ″STARTS SINCE CLEAR = XXX

The number of starts helps determine if the diagnostic trouble code is hard or intermittent.

- If the count is less than 3, the code is usually a hard code.
- If the count is greater than 3, it is considered an intermittent code. This means that the engine has been started most of the time without the code recurring.

3.3.5 TROUBLE CODE ERASURE

A Diagnostic trouble code will be cleared from control module memory if it has not reset for 40 warm-up cycles.

A warm-up cycle is defined as sufficient vehicle operation such that the coolant temperature has risen by at least 22°C (40° F) from engine starting and reaches a minimum temperature of 71°C (160° F).

The Malfunction Indicator Lamp (MIL) will turn off after 3 good trips or when the DTC's are cleared from the control module.

3.3.6 QUICK LEARN

The Quick Learn function customizes adaptive parameters of the control module to the transmission characteristics of a vehicle. This gives the customer improved ″as received″ shift quality compared to the initial parameters stored in the control module.

Notes about Quick Learn Features

The nature of the Quick Learn function requires that certain features must be taken into consideration.

> Quick Learn should generally not be used as a repair procedure unless directed by a repair or diagnostic procedure. If the transmission system is exhibiting a problem that you think is caused by an invalid CVI, you should try to relearn the value by performing the appropriate driving maneuvers. In most cases, if Quick Learn makes a vehicle shift better, the vehicle will return with the same problem.

> Before performing Quick Learn, it is imperative that the vehicle be shifted into OD with the engine running and the oil level set to the correct level. This step will purge air from the clutch circuits to prevent erroneous clutch volume values, which could cause poor initial shift quality.

> If a new control module is installed on a vehicle with a HOT engine, Quick Learn will cause the control module to report a cold calculated oil temperature. This requires monitoring the calculated oil temperature using the DRBIII®. If the temperature is below 15 C (60° F), the transmission must be run at idle or driven in gear until the temperature goes above 15 C (60° F). If the temperature is above 93C (200° F), the transmission must cool to below 93 C (200° F).

> First gear is engaged in overdrive after Quick Learn is completed. Place the vehicle in park after performing Quick Learn.

The Quick Learn function should be performed:

- Upon installation of a new service control module

- After replacement or rebuild of internal transmission components or the torque converter
- If one or more of the clutch volumes indexes (CVI's) contain skewed readings because of abnormal conditions.

To perform the Quick Learn procedure, the following conditions must be met.

- It is imperative that the vehicle be shifted into OD with the engine running and the oil level set to the correct level. This step will purge the air in the clutch circuits to prevent erroneous clutch volume values, which could cause poor initial shift quality.
- Place the selector lever in neutral.
- The brakes must be applied.
- The engine must be idling.
- The throttle angle (TP sensor) must be less than 3 degrees.
- The shift lever position must stay in neutral until prompted to shift into OD.
- The shift lever must stay in OD after the ″Shift to Overdrive″ prompt until the DRBIII® indicates the procedure is complete.
- The oil temperature must be between 15 C (60° F) and 93 C (200° F).

NOTE: The above conditions must be maintained during the procedure to keep the procedure from being aborted.

The Quick Learn procedure is performed with the DRBIII® by selecting ″Transmission″ system then ″Miscellaneous″ functions, then ″Quick Learn″. Follow the procedure instructions displayed on the DRBIII®.

3.3.7 EATX DTC EVENT DATA

EATX DTC EVENT DATA can be used as a diagnostic aid when experiencing Electronic Transmissions with intermittent problems. When a Diagnostic Trouble Code (DTC) is set, the vehicles transmission inputs are stored in the controller memory and are retrievable with the DRBIII®. This information can be helpful when a DTC can not be duplicated.

The EATX DTC EVENT DATA is located in the DRBIII®, under the Transmission system menu, in the sub-screen Miscellaneous. It is a good practice to document the EATX DTC EVENT DATA before beginning any diagnostic or service procedure.

A thorough understanding of how the transmission works is beneficial in order to interpret the data correctly. These skills are necessary in order to avoid an incorrect diagnosis.

A MASTERTECH video and reference book was produced in January 2002 that explains many of the features of the EATX DTC EVENT DATA with several examples on how to interpret the information and suggested training material to help understand all the specifics.

EATX DTC EVENT DATA can only be erased by:

1. Disconnecting the battery.
2. Performing a DRBIII® QUICK LEARN procedure.
3. Reprogramming the NGC/EATX controller.

Erasing Transmission DTCs does not clear the EATX DTC EVENT DATA.

3.3.8 ELECTRONIC PINION FACTOR (IF APPLICABLE)

Note: After replacing the EATX/PCM, you must reprogram pinion factor. In some vehicle applications, the pinion factor is a fixed value and cannot be changed or updated.

The transmission output speed signal supplies distance pulses to the control module, which are used to calculate speed and mileage. A pinion factor is stored in the control module in order to provide the appropriate distance pulses for other vehicle systems. The pinion factor is programmed into the control module at the assembly plant.

The pinion factor must be set when replacing the control module. If the pinion factor is not set or incorrectly set, any speed related functions will not operate correctly i.e. speedometer, speed control, rolling door locks, other control modules will be affected that depend on speed information.

Using the following steps, the pinion factor can be checked and/or reset using the DRBIII®:

1. Select Transmission system, then Miscellaneous functions, then Pinion Factor. The DRBIII® will display the current tire size.
2. If the tire size is incorrect, press the Enter key and then select the correct size.
3. Press the Page Back key to exit the reset procedure.

Notes About Electronic Pinion Factor Features

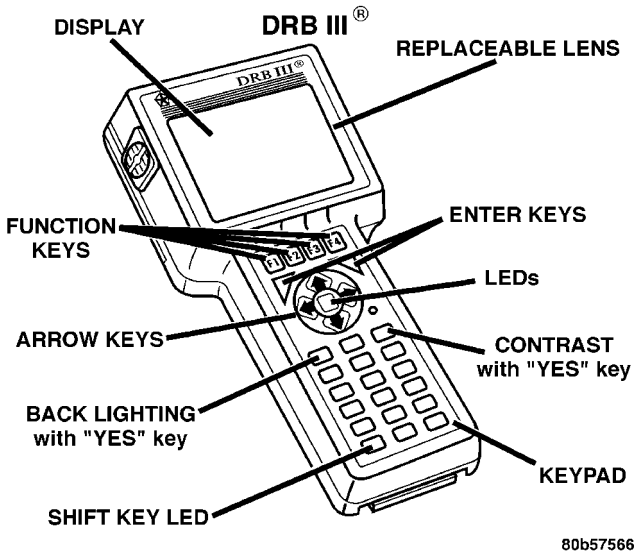
The nature of the electronic pinion factor requires that certain features must be taken into consideration.

> If no pinion factor is stored in an installed control module, the vehicle speedometer will not operate, engine speed will be limited to 2300 RPM, and catalyst damage may occur.

> Selecting a wrong tire size will cause the speedometer to be inaccurate and will also cause any speed related features to operate improperly.

3.4 USING THE DRBIII®

Refer to the DRBIII® users guide for instructions and assistance with reading trouble codes, erasing trouble codes, and other DRBIII® functions.



3.5 DRBIII® ERROR MESSAGES

Under normal operation, the DRBIII® will display one of only two error messages:
User-Requested WARM Boot
User-Requested COLD Boot

If the DRBIII® should display any other error message, record the entire display and call the S.T.A.R. Center.

3.5.1 DRBIII® DOES NOT POWER UP (BLANK SCREEN)

If the LED's do not light or no sound is emitted at start up, check for loose cable connections or a bad cable. Check the vehicle battery voltage. A minimum of 11 volts is required to adequately power the DRBIII®.

If all connections are proper between the DRBIII® and the vehicle or other devices, and the vehicle battery is fully charged, an inoperative DRBIII® may be the result of faulty cable or vehicle wiring. For a blank screen, refer to the appropriate Body Diagnostic manual.

3.5.2 DISPLAY IS NOT VISIBLE

Low temperatures will affect the visibility of the display. Adjust the contrast to compensate for this condition.

3.5.3 SOME DISPLAY ITEMS READ "---"

This is caused by the scrolling the DRBIII® display a single line up or down. The line which was scrolled onto the screen might read "---". Use the page down or page up function to display the information.

3.6 TRANSMISSION SIMULATOR (MILLER TOOL # 8333) AND FWD ADAPTER (MILLER TOOL #8333-1A)

Note: Remove the starter Relay when using the transmission simulator
***Failure to remove the Starter Relay can cause a PCM - No Response condition.**
***The removal of the Starter Relay will also prevent the engine from starting in gear.**
***The Transmission Simulator will not accurately diagnose intermittent faults.**

The transmission simulator, simply put, is an electronic device that simulates the electronic functions of any EATX or NGC controlled transmission (41TE, 41TE, 45RFE, and 545RFE). The basic function of the simulator is to aid the technician in determining if an internal transmission problem exists or if the problem resides in the vehicle wiring or control module. It is only useful for electrical problems. It will not aid in the diagnosis of a failed mechanical component, but it can tell you if the control module and wiring are working properly and that the problem is internal to the transmission.

The ignition switch should be in the lock position before attempting to install the simulator. Follow all instructions included with the simulator. If the feedback from the simulator is in doubt, you can verify the simulators operation by installing it on a known good vehicle. A "known good vehicle" would be defined as a vehicle that does not set any DTC's and drives and shifts as expected.

One important point to remember is that the Simulator receives power from the Trans Relay Output circuit. If the transmission system is in Limp-in (Relay open), the simulator will not operate. This is not really an indication of a problem, but an additional symptom. If the simulator does not power up ("P" led lit), this is an indication that the problem is still present with the simulator hooked up. This indicates that the problem is in the wiring or control module and not the transmission.

Miller Tool # 8333-1A consists of the adapter cables and overlay necessary to adapt the simulator to TE/AE/RLE/LE transmissions.

4.0 DISCLAIMERS, SAFETY, AND WARNINGS

4.1 DISCLAIMERS

All information, illustrations, and specifications contained in this manual are based on the latest information available at the time of publication. The right is reserved to make changes at any time without notice.

4.2 SAFETY

4.2.1 TECHNICIAN SAFETY INFORMATION

WARNING: ENGINES PRODUCE CARBON MONOXIDE THAT IS ODORLESS, CAUSES SLOWER REACTION TIME, AND CAN LEAD TO SERIOUS INJURY. WHEN THE ENGINE IS OPERATING KEEP SERVICE AREAS WELL VENTILATED OR ATTACH THE VEHICLE EXHAUST SYSTEM TO THE SHOP EXHAUST REMOVAL SYSTEM.

Set the parking brake and block the wheels before testing or repairing the vehicle. If is especially important to block the wheels on front-wheel drive vehicles: the parking brake does not hold the drive wheels.

Some operations in this manual require that hydraulic tubes, hoses, and fittings, disconnected for inspection or testing purposes. These systems, when fully charged, contain fluid at high pressure. Before disconnecting any hydraulic tubes, hoses, and fittings, be sure that the system is fully depressurized. When servicing a vehicle, always wear eye protection, and remove any metal jewelry such as watchbands or bracelets that might make an inadvertent electrical contact.

When diagnosing a Transmission system problem, it is important to follow approved procedures where applicable. These procedures can be found in the service information. Following these procedures is very important to the safety of individuals performing diagnostic tests.

4.2.2 VEHICLE PREPARATION FOR TESTING

Make sure the vehicle being tested has a fully charged battery. If it does not, false diagnostic DTC's or error messages may occur. It is extremely important that accurate shift lever position data is available to the control module. The accuracy of any DTC found in memory is doubtful unless the Shift Lever Test, performed on the DRBIII® Scan Tool, passes without failure.

4.2.3 SERVICING SUB-ASSEMBLIES

Some components of the Transmission system are to be serviced as an assembly only. Attempting to remove or repair certain system sub-components may result in personal injury and/or improper system operation. Only those components with approved repair and installation procedures in the service information should be serviced.

4.2.4 DRBIII® SAFETY INFORMATION

WARNING: EXCEEDING THE LIMITS OF THE DRBIII® MULTIMETER IS DANGEROUS. IT CAN EXPOSE YOU TO SERIOUS OR POSSIBLY FATAL INJURY. CAREFULLY READ AND UNDERSTAND THE CAUTIONS AND THE SPECIFICATION LIMITS.

- Follow the vehicle manufacturer's service specifications at all times.
- Do not use the DRBIII® if it has been damaged.
- Do not use the test leads if the insulation is damaged or if metal is exposed.
- To avoid electrical shock, do not touch the test leads, tips or the circuit being tested.
- Choose the proper range and function for the measurement. Do not try voltage or current measurements that may exceed the rated capacity.
- Do not exceed the limits shown in the table.

FUNCTION	INPUT LIMIT
Volts	0-500 volts peak AC 0-500 volts DC
Ohms (resistance)*	0-1.12 megohms
Frequency measured Frequency generated	0-10 khz
Temperature	-58-1100°F -50-600C
*Ohms cannot be measured if voltage is present. Ohms can be measured only in a non-powered circuit.	

- Voltage between any terminal and ground must not exceed 500v DC or 500v peak AC.
- Use caution when measured voltage above 25v DC or 25v AC.
- The circuit being tested must be protected by a 10A fuse or circuit breaker.

- Use the low current shunt to measure circuits up to 10A. Use the high current clamp to measure circuits exceeding 10A.
- When testing for the presence of voltage or current, make sure the meter is functioning correctly. Take a reading of a known voltage or current before accepting a zero reading.
- When measuring current, connect the meter in series with the load.
- Disconnect the live test lead before disconnecting the common test lead.
- When using the meter function, keep the DRBI-II® away from spark plug or coil wires to avoid measuring error from outside interference.

4.3 WARNINGS

4.3.1 VEHICLE DAMAGE WARNINGS

Before disconnecting any control module, make sure the ignition is ″lock″ position. Failure to do so could damage the module.

When testing voltage or continuity at any control module, use the terminal side (not the wire end) of the connector. Do not probe a wire through the insulation: this will damage the wire and eventually cause the wire to fail because of corrosion.

Be careful when performing electrical tests so as to prevent accidental shorting of terminals. Such mistakes can damage fuses or components. Also, a second DTC could be set, making diagnosis of the original problem more difficult.

When replacing a blown fuse, it is important to use only a fuse having the correct amperage rating. The use of a fuse with a rating other than indicated may result in a dangerous electrical system overload. If a properly rated fuse continues to blow, it indicates a problem in the circuit that must be corrected.

4.3.2 ROAD TESTING A COMPLAINT VEHICLE

Some complaints will require a test drive as part of the repair verification procedure. The purpose of the test drive is to try to duplicate the diagnostic DTC or symptom condition.

CAUTION: BEFORE ROAD TESTING A VEHICLE, BE SURE THAT ALL COMPONENTS ARE REASSEMBLED. DURING THE TEST DRIVE, DO NOT TRY TO READ DRBIII® SCREEN WHILE IN MOTION. DO NOT HANG THE DRBIII® FROM THE REAR VIEW MIRROR OR OPERATE IT YOURSELF. HAVE AN ASSISTANT AVAILABLE TO OPERATE THE DRBIII®.

Road testing is an essential step in the diagnostic process that must not be overlooked. Along with the diagnostic information obtained from the DRBIII® Scan Tool and the original customer concern, the road test helps verify the problem was current and any repairs performed, fixed the vehicle correctly. Always operate and observe the vehicle under actual driving conditions.

Just as important as the road test is, there are preliminary inspections that should be performed prior to the road test. Always check the fluid level and condition before taking the vehicle on a road test. Determine if an incorrect fluid type is being used, improper fluid will result in erratic transmission operation.

Some of the conditions of incorrect fluid level are as follows:

- Delayed engagement
- Poor shifting or erratic shifting
- Excessive noise
- Overheating

The next step is to verify that the shift linkage is correctly adjusted. If the shifter is incorrectly adjusted, a number of complaints can result.

The control module monitors the Shift Lever Position (SLP) Sensor continuously. If the shifter is incorrectly adjusted, the control module will sense a shift lever position that is not correct for the gear chosen by the driver. This may cause a DTC to be set.

The following complaints may also be the result of an incorrectly adjusted shifter:

- Delayed clutch engagement
- Erratic shifts
- Vehicle will drive in neutral
- Engine will not crank in park or neutral
- Shifter will be able to be moved without the key in the ignition
- Not able to remove the ignition key in park
- Parking pawl will not engage properly

The shifter should also be adjusted when replacing the Transmission, repairing the valve body, or when repairing any component between the shift lever and the Transmission.

Some questions to ask yourself when performing the road test are as follows:

- Is the complaint or concern what you think the problem is, based on the customers description?
- Is the Transmission operating normally, or is there a real problem?
- When does the problem occur?
- Is the problem only in one gear range?
- What temperature does the problem occur?
- Does the vehicle have to sit over night for the problem to occur?
- Does the transmission go into Limp-in mode?

4.4.3 BULLETINS AND RECALLS

Always perform all Safety Recalls and Service Bulletins that are applicable to the problem.

5.0 REQUIRED TOOLS AND EQUIPMENT

> DRBIII® (diagnostic read-out box) - Must be at latest release level.

> Transmission Simulator (Miller # 8333)

> Adapter harness/ panel overlay kit for Transmission Simulator (Miller # 8333-1A).

> Jumper wires

> Test Light (minimum of 25 ohms of resistance)

> Ohmmeter

> Voltmeter

> Pressure gauge 0-2068 kPa (0-300 PSI)

6.0 GLOSSARY OF TERMS

6.1 ACRONYMS

APPS	Accelerator Pedal Position Sensor
BCM	Body Control Module
CKT	Circuit
CKP	Crank Position Sensor
CVI	Clutch Volume Index
DLC	Data Link Connector
DRBIII®	Diagnostic Readout Box
DTC	Diagnostic Trouble Code
EATX	Electronic Automatic Transaxle
ECM	Engine Control Module (Diesel)
EMCC	Electronically Modulated Converter Clutch
FCM	Front Control Module (part of the IPM system)
FEMCC	Full Electronically Modulated Converter Clutch
IOD	Ignition off-draw
IPM	Integrated Power Module
IRT	Intelligent Recovery Timer
ISS	Input Speed Sensor
LED	Light Emitting Diode
LR	Low/reverse Clutch or Pressure Switch
LU	Lockup
MIC	Mechanical Instrument Cluster
MIL	Malfunction Indicator Lamp
NGC	Next Generation Controller
OBDII	On Board Diagnostics
OD	Overdrive Clutch or Pressure Switch
OSS	Output Speed Sensor
PCI	Vehicle bus system type
PCM	Powertrain Control Module
PEMCC	Partial Electronically Modulated Converter Clutch
PLU	Partial Lockup
REV	Reverse Clutch
SLPK	Solenoid Pack
SSV	Solenoid Switch Valve
SW	Switch
TCC	Torque Converter Clutch
TCM	Transmission Control Module
PCM	Combined PCM and Transmission Control Module
TP	Throttle Position
TRD	Torque Reduction
TRS	Transmission Range Sensor
UD	Underdrive Clutch
VSS	Vehicle Speed Signal
2/4	2nd and 4th gear Clutch or Pressure Switch

6.2 DEFINITIONS

OBDII (EURO STAGE III OBD) Trip - A vehicle start and drive cycle such that all once per trip diagnostic monitors have run.

Key Start - A vehicle start and run cycle of at least 20 seconds.

Warm-up Cycle - A vehicle start and run cycle such that the engine coolant must rise to at least 71 C (160° F) and must rise by at least 4.4 C (40° F) from initial start up. To count as a warm-up cycle, no DTC may occur during the cycle.

7.0

DIAGNOSTIC INFORMATION AND PROCEDURES

Symptom:

***NO RESPONSE FROM TRANSMISSION CONTROL MODULE - EATX (DIESEL)**

POSSIBLE CAUSES
NO RESPONSE FROM TRANSMISSION CONTROL MODULE
FCM OUTPUT (RUN/ST) CIRCUIT OPEN
FUSED IGNITION SWITCH OUTPUT (START) CIRCUIT OPEN
FUSED IGNITION SWITCH OUTPUT (START) CIRCUIT SHORT
FUSED B(+) CIRCUIT OPEN
GROUND CIRCUIT(S) OPEN
OPEN PCI BUS CIRCUIT
TRANSMISSION CONTROL MODULE

TEST	ACTION	APPLICABILITY
1	Ignition on, engine not running. **Note: As soon as one or more module communicates with the DRB, answer the question.** With the DRB, attempt to communicate with the Occupant Restraint Controller. With the DRB, attempt to communicate with the Body Control Module (BCM). Was the DRB able to I/D or establish communications with either of the modules? Yes → Go To 2 No → Refer to the Body Communication category and perform the symptom PCI Bus Communication Failure. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
2	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Ignition on, engine not running. Using a 12-volt test light connected to ground, probe the FCM Output (Run/St) circuit. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly? Yes → Go To 3 No → Repair the FCM Output (Run/St) circuit for an open. Refer to the wiring diagrams location in the Service Information. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

*NO RESPONSE FROM TRANSMISSION CONTROL MODULE - EATX (DIESEL) — Continued

TEST	ACTION	APPLICABILITY
3	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Remove the starter relay from the IPM. Using a 12-volt test light connected to ground, probe the Fused Ignition Switch Output (Start) circuit. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Observe the test light while momentarily turning the ignition switch to the Start position. Does the test light illuminate brightly? Yes → Go To 4 No → Repair the Fused Ignition Switch Output (Start) circuit for an open. Refer to the wiring diagrams located in the Service Information. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. **Note: Reinstall the original Starter Relay.**	All
4	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Remove the starter relay from the IPM. With a voltmeter in the millivolt scale, measure the voltage of the Fused Ignition Switch Output (Start) circuit. **NOTE: A no response condition can exist if voltage is present on this circuit with the ignition switch in any position except for the Start position.** **NOTE: Voltage up to .080 millivolts can cause this condition.** **NOTE: Check for after market components that could cause this condition.** Perform this step with the Ignition Switch in every position except for the Start position. Is any voltage present? Yes → Repair the Fused Ignition Switch Output (Start) circuit for a short to voltage. Refer to the wiring diagrams located in the Service Information. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 5 **Note: Reinstall the original Starter Relay.**	All
5	Turn the ignition off. Disconnect the TCM harness connector. Using a 12-volt test light connected to ground, check the Fused B(+) circuit. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly? Yes → Go To 6 No → Repair the Fused B(+) circuit for an open. Refer to the wiring diagrams located in the Service Information. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

*NO RESPONSE FROM TRANSMISSION CONTROL MODULE - EATX (DIESEL) — Continued

TEST	ACTION	APPLICABILITY
6	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Using a 12-volt test light connected to 12-volts, check each ground circuit in the TCM harness connector. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly at all the ground circuits? Yes → Go To 7 No → Repair the Ground circuit(s) for an open. Check the main ground connection to engine block and/or chassis. Refer to the wiring diagrams located in the Service Information. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
7	**Note: Ensure there is PCI Bus communication with other modules on the vehicle before proceeding. If not, refer to the symptom list from the menu and repair as necessary.** Disconnect the TCM harness connector. Use Scope input cable CH7058, Cable to Probe adapter CH7062, and the red and black test probes. Connect the scope input cable to the channel one connector on the DRB. Attach the red and black leads and the cable to probe adapter to the scope input cable. With the DRBIII® select Pep Module Tools. Select lab scope. Select Live Data. Select 12 volt square wave. Press F2 for Scope. Press F2 and use the down arrow to set voltage range to 20 volts. Press F2 again when complete. Connect the Black lead to the chassis ground. Connect the Red lead to the PCI Bus circuit in the TCM connector. Turn the ignition on. Observe the voltage display on the DRB Lab Scope. Does the voltage pulse from 0 to approximately 7.5 volts? Yes → Go To 8 No → Repair the PCI Bus circuit for an open. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
8	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Transmission Control Module in accordance with the service information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

Symptom:

*NO RESPONSE FROM TRANSMISSION CONTROL MODULE - NGC

POSSIBLE CAUSES
NO RESPONSE FROM TRANSMISSION CONTROL MODULE
FUSED IGNITION SWITCH OUTPUT CIRCUIT OPEN
FUSED B(+) CIRCUIT OPEN
GROUND CIRCUIT(S) OPEN
PCI BUS CIRCUIT OPEN
POWERTRAIN CONTROL MODULE

TEST	ACTION	APPLICABILITY
1	Turn the ignition on. **Note: As soon as one or more module communicates with the DRB, answer the question.** With the DRB, attempt to communicate with the Instrument Cluster. With the DRB, attempt to communicate with the Occupant Restraint Controller. Was the DRB able to I/D or establish communications with both of the modules? Yes → Go To 2 No → Refer to the Communications category and perform the appropriate symptom. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
2	Turn the ignition off. Disconnect the PCM harness connectors. **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Turn the ignition on. Using a 12-volt test light connected to ground, probe the Fused Ignition Switch Output circuit and the FCM output (cavs 11 and 12) in the appropriate terminal of special tool #8815. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Is the test light illuminated for both circuits? Yes → Go To 3 No → Repair the Fused Ignition Switch Output circuit or the FCM Output circuit for an open. Refer to the wiring diagrams located in the Service Information. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

*NO RESPONSE FROM TRANSMISSION CONTROL MODULE - NGC — Continued

TEST	ACTION	APPLICABILITY
3	Turn the ignition off. Disconnect the PCM harness connectors. **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Using a 12-volt test light connected to ground, probe the Fused B(+) circuit in the appropriate terminal of special tool #8815. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Is the test light illuminated? Yes → Go To 4 No → Repair the Fused B(+) circuit for an open. Refer to the wiring diagrams located in the Service Information. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
4	Turn the ignition off. Disconnect the PCM harness connectors. **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Using a 12-volt test light connected to 12-volts, probe each ground circuit in the appropriate terminal of special tool #8815. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Is the light illuminated at all ground circuits? Yes → Go To 5 No → Repair the Ground circuit(s) for an open. Check the main ground connection to engine block and/or chassis. Refer to the wiring diagrams located in the Service Information. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

*NO RESPONSE FROM TRANSMISSION CONTROL MODULE - NGC — Continued

TEST	ACTION	APPLICABILITY
5	**Note: Ensure there is PCI Bus communication with other modules on the vehicle before proceeding. If not, refer to the symptom list from the menu and repair as necessary.** Disconnect the PCM harness connectors. **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Use Scope input cable CH7058, Cable to Probe adapter CH7062, and the red and black test probes. Connect the scope input cable to the channel one connector on the DRB. Attach the red and black leads and the cable to probe adapter to the scope input cable. With the DRBIII® select Pep Module Tools. Select lab scope. Select Live Data. Select 12 volt square wave. Press F2 for Scope. Press F2 and use the down arrow to set voltage range to 20 volts. Press F2 again when complete. Connect the Black lead to the chassis ground. Connect the Red lead to the PCI Bus circuit in the appropriate terminal of special tool #8815. Turn the ignition on. Observe the voltage display on the DRB Lab Scope. Does the voltage pulse from 0 to approximately 7.5 volts? Yes → Go To 6 No → Repair the PCI Bus circuit for an open. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
6	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace and program the Powertrain Control Module in accordance with the service information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

Symptom:
P0122-TPS/APPS LOW

When Monitored and Set Condition:

P0122-TPS/APPS LOW

When Monitored: Continuously with the ignition on and engine running.

Set Condition: This DTC will set if the monitored TPS voltage drops below .078 volts for the period of 0.48 seconds.

POSSIBLE CAUSES
ENGINE APPS DTC'S PRESENT
APPS SIGNAL CIRCUIT HIGH RESISTANCE
TRANSMISSION CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All
2	With the DRBIII®, check Engine DTC's. Are there any Engine APPS related DTCs present? Yes → Refer to the Drivability category and perform the appropriate symptom. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All

P0122-TPS/APPS LOW — Continued

TEST	ACTION	APPLICABILITY
3	With the DRBIII® in Transmission Sensors, read the APPS voltage. Is the APPS voltage below 0.5 volts? Yes → Go To 4 No → Go To 6	All
4	Ignition on, engine not running. With the DRBIII® in Transmission Sensors, record the APPS voltage. While back probing the TCM harness connector, measure the voltage of the APPS Signal circuit. Compare the voltage readings between the DRBIII® and the reading from the digital multi meter. Are the voltages within 0.1 volt of each other? Yes → Repair the APPS signal circuit between the TCM harness connector and the APPS Senosr for high resistance. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 5	All
5	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Transmission Control Module per the Service information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
6	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wires while checking for shorted and open circuits. Pay particular attention to the point where the TPS signal and sensor ground circuits splice off from the engine circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P0123-TPS/APPS HIGH

When Monitored and Set Condition:

P0123-TPS/APPS HIGH

When Monitored: Continuously with the ignition on and engine running.

Set Condition: This DTC will set if the monitored TPS voltage rises above 4.94 volts for the period of 0.48 seconds.

POSSIBLE CAUSES
ENGINE APPS DTC'S PRESENT
APPS SIGNAL CIRCUIT OPEN TO TCM
SENSOR GROUND CIRCUIT OPEN TO TCM
TRANSMISSION CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All
2	With the DRBIII®, check Engine DTC's. Are there any engine APPS related DTCs present? Yes → Refer to the Driveability category and perform the appropriate symptom. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All

P0123-TPS/APPS HIGH — Continued

TEST	ACTION	APPLICABILITY
3	With the DRBIII® in Transmission Sensors, read the APPS voltage. Is the APPS voltage above 4.6 volts? Yes → Go To 4 No → Go To 7	All
4	Turn the ignition off to the lock position. Disconnect the APPS harness connector. Disconnect the TCM harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance of the APPS Signal Circuit from the TCM harness connector to the APPS harness connector. Is the resistance below 5.0 ohms? Yes → Go To 5 No → Repair the APPS Signal circuit between the TCM harness connector and the APPS for an open. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
5	Turn the ignition off to the lock position. Disconnect the APPS harness connector. Disconnect the TCM harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance of the Sensor Ground circuit between the APPS harness connector and the Transmission Control Module harness connector. Is the resistance below 5.0 ohms? Yes → Go To 6 No → Repair the Sensor Ground circuit between the TCM harness connector and the splice for an open. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
6	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Transmission Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
7	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wires while checking for shorted and open circuits. Pay particular attention to the APPS signal and sensor ground circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:

P0124-TPS/APPS INTERMITTENT

When Monitored and Set Condition:

P0124-TPS/APPS INTERMITTENT

When Monitored: Continuously with the ignition on and engine running.

Set Condition: This DTC will set with a throttle angle between 6° and 120.6° with a 5° or higher change under 7.0 milliseconds.

POSSIBLE CAUSES
ENGINE APPS DTC'S PRESENT
ACCELERATOR PEDAL POSITION SENSOR
TRANSMISSION CONTROL MODULE

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All
2	With the DRBIII®, check Engine DTC's. Are any Engine APPS related DTC's present? Yes → Refer to the Drivability category and perform the appropriate symptom. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All

P0124-TPS/APPS INTERMITTENT — Continued

TEST	ACTION	APPLICABILITY
3	Ignition On, Engine Not Running. With the DRBIII®, under Transmission Sensors, monitor the APPS voltage in the following step. Slowly open and close the throttle while checking for erratic voltage changes. Did the APPS voltage change smooth and consistent? Yes → Go To 4 No → Replace the APP Sensor per the Service Information. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
4	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Transmission Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

Symptom:

P0218-HIGH TEMPERATURE OPERATION ACTIVATED

When Monitored and Set Condition:

P0218-HIGH TEMPERATURE OPERATION ACTIVATED

When Monitored: Whenever the engine is running.

Set Condition: Immediately when the Overheat shift schedule is activated when the Transmission Oil Temperature reaches 116 °C or 240 °F.

POSSIBLE CAUSES
ENGINE COOLING SYSTEM MALFUNCTION
TRANSMISSION OIL COOLER PLUGGED
HIGH TEMPERATURE OPERATIONS ACTIVATED

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0218-HIGH TEMPERATURE OPERATION ACTIVATED — Continued

TEST	ACTION	APPLICABILITY
2	This DTC is an informational DTC designed to aid the Technician in diagnosing shift quality complaints. This DTC indicates that the Transmission has been operating in the ″Overheat″ shift schedule which may generate a customer complaint. The customer driving patterns may indicate the need for an additional Transmission Oil Cooler. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair the cause of the Transmission Overheating per the Service Information. If indicated install an additional Transmission Oil Cooler. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	Perform Engine Cooling System diagnostics per the Service Information Is the Engine Cooling System functioning properly? Yes → Go To 4 No → Repair the cause of the Engine Overheating. Refer to the Service Information for additional repair information. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
4	If there are no possible causes remaining, view repair. Repair Flush or replace the Transmission Oil cooler as necessary per the Service Information. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

Symptom:

P0562-LOW BATTERY VOLTAGE

When Monitored and Set Condition:

P0562-LOW BATTERY VOLTAGE

When Monitored: With the engine running and the TCM has closed the Transmission Control Relay.

Set Condition: If battery voltage at TCM Transmission Control Relay Output Sense circuit is less than 10.0 volts for 15 seconds. *This DTC generally indicates a gradually falling battery voltage or resistive connections to the TCM.

POSSIBLE CAUSES
RELATED CHARGING SYSTEM DTCS
FUSED B+ CIRCUIT OPEN OR HIGH RESISTANCE
GROUND CIRCUIT OPEN OR HIGH RESISTANCE
TRANSMISSION CONTROL RELAY OUTPUT CIRCUIT TO TCM OPEN OR HIGH RESISTANCE
TRANSMISSION CONTROL RELAY
TRANSMISSION CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0562-LOW BATTERY VOLTAGE — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, read the PCM DTC's. Are there any Charging System related DTC's stored in the PCM? Yes → Refer to the Charging System category and repair any PCM Charging System DTC's first. NOTE: After repairing the PCM charging system DTC's, perform the Transmission Verification test to verify the transmission was not damaged. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	**NOTE: Generator, battery, and charging system must be fully functional before performing this test.** With the DRBIII®, read Transmission DTC's. With the DRBIII®, Check the STARTS SINCE SET counter for P0562. **Note: This counter only applies to the last DTC set.** Is the Starts Since Set counter for P0562 set at 0? Yes → Go To 4 No → Go To 9	All
4	Turn the ignition off to the lock position. Disconnect the TCM harness connector. **Note: Check connectors - Clean/repair as necessary.** Using a 12-volt test light connected to 12-volts, check the ground circuits in the TCM harness connector. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly for all the ground circuits? Yes → Go To 5 No → Repair the Ground circuit(s) for an open or high resistance. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
5	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output in the Transmission Control Relay connector. Ignition on, engine not running. Using a 12-volt test light connected to ground, check the Fused B+ circuit in the TCM harness connector. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly? Yes → Go To 6 No → Repair the Fused B+ circuit for an open or high resistance. If the fuse is open make sure to check for a short to ground. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

P0562-LOW BATTERY VOLTAGE — Continued

TEST	ACTION	APPLICABILITY
6	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Using a 12-volt test light connected to ground, check both Transmission Control Relay Output circuits in the TCM harness connector. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly? Yes → Go To 7 No → Repair the Transmission Control Relay Output circuit for an open or high resistance. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
7	Turn the ignition off to the lock position. Install a substitute Relay in place of the Transmission Control Relay. Start the engine. Using a voltmeter, measure the battery voltage. With the DRBIII®, monitor the Transmission Switched Battery Voltage. Compare the DRBIII® Transmission Switched Battery voltage to the actual battery voltage. Is the DRBIII® voltage within 2.0 volts of the battery voltage? Yes → Replace the Transmission Control Relay. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 8	All
8	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Transmission Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
9	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:

P0604-INTERNAL TCM

When Monitored and Set Condition:

P0604-INTERNAL TCM

When Monitored:

Set Condition: The TCM is reporting internal errors and must be replaced.

POSSIBLE CAUSES
TCM - INTERNAL ERROR

TEST	ACTION	APPLICABILITY
1	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Transmission Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

Symptom:

P0605-INTERNAL TCM

When Monitored and Set Condition:

P0605-INTERNAL TCM

When Monitored:

Set Condition: The TCM is reporting internal errors and must be replaced.

POSSIBLE CAUSES
TCM - INTERNAL ERROR

TEST	ACTION	APPLICABILITY
1	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Transmission Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

Symptom:

P0613-INTERNAL TCM

When Monitored and Set Condition:

P0613-INTERNAL TCM

When Monitored: After the ignition is turned to the RUN position or after cranking the engine.

Set Condition: The controller runs a self diagnostic test that checks the integrity of the controllers RAM, ROM, and microprocessor. If the self diagnostic test fails in any one of series of different categories, the DTC will set.

POSSIBLE CAUSES
TCM - INTERNAL ERROR

TEST	ACTION	APPLICABILITY
1	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Transmission Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

Symptom:

P0706-CHECK SHIFTER SIGNAL

When Monitored and Set Condition:

P0706-CHECK SHIFTER SIGNAL

When Monitored: Continuously with the ignition key on.

Set Condition: 3 occurrences in one key start of an invalid PRNDL code which lasts for more than 0.1 second.

POSSIBLE CAUSES
CONDITION P0706 PRESENT
TRS T1 SENSE CIRCUIT OPEN
TRS T3 SENSE CIRCUIT OPEN
TRS T41 SENSE CIRCUIT OPEN
TRS T42 SENSE CIRCUIT OPEN
TRS T1 SENSE CIRCUIT SHORT TO GROUND
TRS T3 SENSE CIRCUIT SHORT TO GROUND
TRS T41 SENSE CIRCUIT SHORT TO GROUND
TRS T42 SENSE CIRCUIT SHORT TO GROUND
TRS T1 SENSE CIRCUIT SHORT TO VOLTAGE
TRS T3 SENSE CIRCUIT SHORT TO VOLTAGE
TRS T41 SENSE CIRCUIT SHORT TO VOLTAGE
TRS T42 SENSE CIRCUIT SHORT TO VOLTAGE
TRANSMISSION RANGE SENSOR
TRANSMISSION CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

P0706-CHECK SHIFTER SIGNAL — Continued

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All
2	Using the DRBIII®, perform the Shift Lever Position Test. Select the test outcome from the following: Test passes Go To 3 Test fails with DTC Go To 4 Test fails without DTC Adjust the shift linkage per the Service Information. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
3	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring while checking for shorted and open circuits. Check the Shift Linkage and cable for proper operation per the Service Information. Perform *PRNDL FAULT CLEARING PROCEDURE after completion of any repairs. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

P0706-CHECK SHIFTER SIGNAL — Continued

TEST	ACTION	APPLICABILITY
4	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit, Miller tool #8333-1A. Ignition on, engine not running. With the DRBIII®, perform the Shift Lever Position Test. When the DRBIII ® instructs you to put the Gear Selector in a particular position, you must do so using the Transmission Simulator. The LED for the gear position in question must be illuminated prior to hitting ″enter″ on the DRBIII®. Did the test pass? Yes → Go To 5 No → Go To 6 **NOTE: Disconnect the Transmission Simulator and reconnect all the harness connectors.**	All
5	If there are no possible causes remaining, view repair. Repair Replace the Transmission Range Sensor per the Service Information. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
6	Ignition on, engine not running. With the DRBIII® in Inputs/Outputs, read the TRS Sense circuits C1 thru C4. Move the shift lever thru all gear positions, pausing momentarily in each gear position. Watch for one of the circuits to not change state. Pick the one that did not change state. TRS T1 sense (C4) Go To 7 TRS T3 sense (C3) Go To 10 TRS T41 sense (C1) Go To 13 TRS T42 sense (C2) Go To 16	All
7	Turn the ignition off to the lock position. Disconnect the TRS harness connector. Disconnect the TCM harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance of the TRS T1 Sense circuit from the TCM harness connector to the TRS harness connector. Is the resistance above 5.0 ohms? Yes → Repair the TRS T1 Sense circuit for an open. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 8	All

P0706-CHECK SHIFTER SIGNAL — Continued

TEST	ACTION	APPLICABILITY
8	Turn the ignition off to the lock position. Disconnect the TRS harness connector. Disconnect the TCM harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance between ground and the TRS T1 circuit in the TCM harness connector. Is the resistance below 5.0 ohms? Yes → Repair the TRS T1 Sense circuit for a short to ground. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 9	All
9	Turn the ignition off to the lock position. Disconnect the TRS harness connector. Disconnect the TCM harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Measure the voltage of the TRS T1 Sense circuit. Is the voltage above 0.5 volt? Yes → Repair the TRS T1 Sense circuit for a short to voltage. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 19	All
10	Turn the ignition off to the lock position. Disconnect the TRS harness connector. Disconnect the TCM harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance of the TRS T3 Sense circuit from the TCM harness connector to the TRS harness connector. Is the resistance above 5.0 ohms? Yes → Repair the TRS T3 Sense circuit for an open. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 11	All
11	Turn the ignition off to the lock position. Disconnect the TRS harness connector. Disconnect the TCM harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance between ground and the TRS T3 Sense circuit. Is the resistance below 5.0 ohms? Yes → Repair the TRS T3 Sense circuit for a short to ground. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 12	All

P0706-CHECK SHIFTER SIGNAL — Continued

TEST	ACTION	APPLICABILITY
12	Turn the ignition off to the lock position. Disconnect the TRS harness connector. Disconnect the TCM harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Measure the voltage of the TRS T3 Sense circuit. Is the voltage above 0.5 volt? Yes → Repair the TRS T3 Sense circuit for a short to voltage. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 19	All
13	Turn the ignition off to the lock position. Disconnect the TRS harness connector. Disconnect the TCM harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance of the TRS T41 Sense circuit from the TCM connector to the TRS connector. Is the resistance above 5.0 ohms? Yes → Repair the TRS T41 Sense circuit for an open. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 14	All
14	Turn the ignition off to the lock position. Disconnect the TRS harness connector. Disconnect the TCM harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance between ground and the TRS T41 Sense circuit in the TCM harness connector. Is the resistance below 5.0 ohms? Yes → Repair the TRS T41 Sense circuit for a short to ground. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 15	All
15	Turn the ignition off to the lock position. Disconnect the TRS harness connector. Disconnect the TCM harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Measure the voltage of the TRS T41 Sense circuit. Is the voltage above 0.5 volt? Yes → Repair the TRS T41 Sense circuit for a short to voltage. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 19	All

P0706-CHECK SHIFTER SIGNAL — Continued

TEST	ACTION	APPLICABILITY
16	Turn the ignition off to the lock position. Disconnect the TRS harness connector. Disconnect the TCM harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance of the TRS T42 Sense circuit from the TCM harness connector to the TRS harness connector. Is the resistance above 5.0 ohms? Yes → Repair the TRS T42 Sense circuit for an open. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 17	All
17	Turn the ignition off to the lock position. Disconnect the TRS harness connector. Disconnect the TCM harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance between ground and the TRS T42 Sense circuit in the TCM harness connector. Is the resistance below 5.0 ohms? Yes → Repair the TRS T42 Sense circuit for a short to ground. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 18	All
18	Turn the ignition off to the lock position. Disconnect the TRS harness connector. Disconnect the TCM harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Measure the voltage of the TRS T42 Sense circuit. Is the voltage above 0.5 volt? Yes → Repair the TRS T42 Sense circuit for a short to voltage. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 19	All
19	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Transmission Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

Symptom:

P0711-TRANSMISSION TEMPERATURE SENSOR PERFORMANCE

When Monitored and Set Condition:

P0711-TRANSMISSION TEMPERATURE SENSOR PERFORMANCE

When Monitored: Continuously with the ignition on and engine running.

Set Condition: This DTC will set when the desired transmission temperature does not reach a normal operating temperature within a given time frame. Time is variable due to ambient temperature. Approximate times are starting temperature to warm up time: (-40° F / -40° C - 35 min) (-20° F / -28° C - 25 min) (20° F / -6.6° C - 20 min) (60° F / 15.5 ° C - 10 min)

POSSIBLE CAUSES
RELATED DTC'S PRESENT
TRANSMISSION TEMPERATURE SENSOR
TRANSMISSION CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0711-TRANSMISSION TEMPERATURE SENSOR PERFORMANCE — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, check Transmission DTC's. Are there any other Transmission Temperature Sensor related DTCs present? Yes → Refer to the Transmission category and perform the appropriate symptom. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	With the DRBIII®, Check the STARTS SINCE SET counter for P0711. **NOTE: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter 2 or less? Yes → Go To 4 No → Go To 7	All
4	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. **Note: Check connectors - Clean/repair as necessary.** Ignition on, engine not running. With the Transmission Simulator, turn the Input/Output switch to OFF. With the DRBIII®, monitor the TRANS TEMP VOLTS while turning the Thermistor Voltage switch to all three positions on the Transmission Simulator. Compare the DRBIII® readings with the numbers listed on the Transmission Simulator. Do the readings on the Transmission Simulator match the DRBIII® readings ± 0.2 volts? Yes → Go To 5 No → Go To 6	All
5	If there are no possible causes remaining, view repair. Repair Replace Transmission Solenoid/TRS Assembly per the Service Information. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
6	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Transmission Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

P0711-TRANSMISSION TEMPERATURE SENSOR PERFORMANCE — Continued

TEST	ACTION	APPLICABILITY
7	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wires while checking for shorts and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P0712-TRANSMISSION TEMPERATURE SENSOR LOW

When Monitored and Set Condition:

P0712-TRANSMISSION TEMPERATURE SENSOR LOW

When Monitored: Continuously with the ignition on and engine running.

Set Condition: The DTC will set when the monitored Temperature Sensor voltage drops below 0.078 volts for the period of 0.45 seconds.

POSSIBLE CAUSES
RELATED DTC'S PRESENT
TRANSMISSION TEMPERATURE SENSOR SIGNAL CIRCUIT SHORT TO GROUND
TRANSMISSION TEMPERATURE SENSOR
TRANSMISSION CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All
2	With the DRBIII®, check Transmission DTC's. Are there any Speed Sensor DTCs present? Yes → Refer to the Transmission category and perform the appropriate symptom. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All

P0712-TRANSMISSION TEMPERATURE SENSOR LOW — Continued

TEST	ACTION	APPLICABILITY
3	With the DRBIII®, Check the STARTS SINCE SET counter for P0712. **NOTE: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter 2 or less? Yes → Go To 4 No → Go To 8	All
4	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. **Note: Check connectors - Clean/repair as necessary.** Ignition on, engine not running. With the Transmission Simulator, turn the Input/Output switch to OFF. With the DRBIII®, monitor the TRANS TEMP VOLTS while turning the Thermistor Voltage switch to all three positions on the Transmission Simulator. Compare the DRBIII® readings with the numbers listed on the Transmission Simulator. Do the readings on the Transmission Simulator match the DRBIII® readings ± 0.2 volts? Yes → Go To 5 No → Go To 6	All
5	If there are no possible causes remaining, view repair. Repair Replace the Transmission Solenoid/TRS Assembly per the Service Information. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
6	Turn the ignition off to the lock position. Disconnect the TCM harness connector.. Disconnect the Transmission Solenoid/TRS Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance between ground and the Transmission Temperature Sensor Signal circuit. Is the resistance below 5.0 ohms? Yes → Repair the Transmission Temperature Sensor Signal circuit for a short to ground. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 7	All
7	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Transmission Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

P0712-TRANSMISSION TEMPERATURE SENSOR LOW — Continued

TEST	ACTION	APPLICABILITY
8	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wires while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P0713-TRANSMISSION TEMPERATURE SENSOR HIGH

When Monitored and Set Condition:

P0713-TRANSMISSION TEMPERATURE SENSOR HIGH

When Monitored: Continuously with the ignition on and engine running.

Set Condition: The DTC will set when the monitored Temperature Sensor voltage rises above 4.94 volts for the period of 0.45 seconds.

POSSIBLE CAUSES
TRANSMISSION TEMPERATURE SENSOR SIGNAL CIRCUIT OPEN
TRANSMISSION TEMPERATURE SENSOR SIGNAL CIRCUIT SHORT TO VOLTAGE
TRANSMISSION TEMPERATURE SENSOR
TRANSMISSION CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All
2	With the DRBIII®, Check the STARTS SINCE SET counter for P0713. **NOTE: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter 2 or less? Yes → Go To 3 No → Go To 8	All

P0713-TRANSMISSION TEMPERATURE SENSOR HIGH — Continued

TEST	ACTION	APPLICABILITY
3	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. **Note: Check connectors - Clean/repair as necessary.** Ignition on, engine not running. With the Transmission Simulator, turn the Input/Output switch to OFF. With the DRBIII®, monitor the TRANS TEMP VOLTS while turning the Thermistor Voltage switch to all three positions on the Transmission Simulator. Compare the DRBIII® readings with the numbers listed on the Transmission Simulator. Do the readings on the Transmission Simulator match the DRBIII® readings ± 0.2 volts? Yes → Go To 4 No → Go To 5	All
4	If there are no possible causes remaining, view repair. Repair Replace Transmission Solenoid/TRS Assembly per the Service Information. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
5	Turn the ignition off to the lock position. Disconnect the TCM harness connector.. Disconnect the Transmission Solenoid /TRS Assembly harness connector **Note: Check connectors - Clean/repair as necessary.** Measure the resistance of the Transmission Temperature Sensor Signal circuit from the TCM harness connector to the Transmission Solenoid/TRS Assembly harness connector. Is the resistance above 5.0 ohms? Yes → Repair the Transmission Temperature Sensor Signal circuit for an open. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 6	All
6	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Measure the voltage of the Transmission Temperature Sensor Signal circuit in the TCM harness connector. Is the voltage above 0.5 volts? Yes → Repair the Transmission Temperature Sensor Signal circuit for a short to voltage. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 7	All

P0713-TRANSMISSION TEMPERATURE SENSOR HIGH — Continued

TEST	ACTION	APPLICABILITY
7	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Transmission Control Module per the Service information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
8	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wires while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P0714-TRANSMISSION TEMPERATURE SENSOR INTERMITTENT

When Monitored and Set Condition:

P0714-TRANSMISSION TEMPERATURE SENSOR INTERMITTENT

When Monitored: Continuously with the ignition on and engine running.

Set Condition: The DTC will set when the monitored Temperature Sensor voltage fluctuates or changes abruptly within a predetermined period of time.

POSSIBLE CAUSES
RELATED DTC'S PRESENT
TRANSMISSION TEMPERATURE SENSOR
TRANSMISSION CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All
2	With the DRBIII®, check Transmission DTC's. Are there any Speed Sensor and/or other Temperature Sensor DTCs present? Yes → Refer to the Transmission category and perform the appropriate symptom. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All

P0714-TRANSMISSION TEMPERATURE SENSOR INTERMITTENT — Continued

TEST	ACTION	APPLICABILITY
3	With the DRBIII®, Check the STARTS SINCE SET counter for P0714. **NOTE: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter 2 or less? Yes → Go To 4 No → Go To 7	All
4	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit, Miller tool #8333-1A. **Note: Check connectors - Clean/repair as necessary.** Ignition on, engine not running. With the Transmission Simulator, turn the Input/Output switch to OFF. With the DRBIII®, monitor the TRANS TEMP VOLTS while turning the Thermistor Voltage switch to all three positions on the Transmission Simulator. Compare the DRBIII® readings with the numbers listed on the Transmission Simulator. Do the readings on the Transmission Simulator match a steady DRBIII® reading ± 0.2 volts? Yes → Go To 5 No → Go To 6	All
5	If there are no possible causes remaining, view repair. Repair Replace Transmission Solenoid/TRS Assembly per the Service Information. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
6	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Transmission Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
7	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wires while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:

P0715-INPUT SPEED SENSOR ERROR

When Monitored and Set Condition:

P0715-INPUT SPEED SENSOR ERROR

When Monitored: The transmission gear ratio is monitored continuously while the transmission is in gear.

Set Condition: If there is an excessive change in input RPM in any gear.

POSSIBLE CAUSES
INPUT SPEED SENSOR SIGNAL CIRCUIT OPEN
SPEED SENSOR GROUND CIRCUIT OPEN
INPUT SPEED SENSOR SIGNAL CIRCUIT SHORT TO GROUND
INPUT SPEED SENSOR SIGNAL CIRCUIT SHORT TO VOLTAGE
SPEED SENSOR GROUND CIRCUIT SHORT TO VOLTAGE
INPUT SPEED SENSOR ERROR
TRANSMISSION CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0715-INPUT SPEED SENSOR ERROR — Continued

TEST	ACTION	APPLICABILITY
2	Start the engine in park. With the DRBIII®, read the Input RPM. Is the Input RPM reading below 400 RPM? Yes → Go To 3 No → Go To 11	All
3	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. Ignition on, engine not running. With the Transmission Simulator, set the ″Input/Output Speed″ switch to ″ON″ and the rotary switch to the ″3000/1250″ position. With the DRBIII®, monitor the Input and Output RPM. Does the Input RPM read 3000 RPM and the Output RPM read 1250 RPM +/- 50 RPM? Yes → Go To 4 No → Go To 5 **NOTE: Disconnect the Transmission Simulator and reconnect all harness connectors.**	All
4	If there are no possible causes remaining, view repair. Repair Replace the Input Speed Sensor per the Service Information. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
5	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Input Speed Sensor harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance of the Input Speed Sensor Signal circuit from the TCM harness connector to the Input Speed Sensor harness connector. Is the resistance above 5.0 ohms? Yes → Repair the Input Speed Sensor Signal circuit for an open. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 6	All
6	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Input Speed Sensor harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance between ground and the Input Speed Sensor signal circuit. Is the resistance Below 5.0 ohms? Yes → Repair the Input Speed Sensor Signal circuit for a short to ground. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 7	All

P0715-INPUT SPEED SENSOR ERROR — Continued

TEST	ACTION	APPLICABILITY
7	Turn the ignition off to the lock position. Disconnect the Input Speed Sensor harness connector. Disconnect the TCM harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Measure the voltage of the Input Speed Sensor Signal circuit in the TCM harness connector. Is the voltage above 0.5 volts? Yes → Repair the Input Speed Sensor Signal circuit for a short to voltage. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 8	All
8	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Input Speed Sensor harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance of the Speed Sensor Ground circuit from the TCM harness connector to the Input Speed Sensor harness connector. Is the resistance above 5.0 ohms? Yes → Repair the Speed Sensor Ground circuit for an open. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 9	All
9	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the TRS harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Measure the voltage of the Speed Sensor Ground circuit in the TCM harness connector. Is the voltage above 0.5 volts? Yes → Repair the Speed Sensor Ground circuit for a short to voltage. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 10	All
10	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Transmission Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

P0715-INPUT SPEED SENSOR ERROR — Continued

TEST	ACTION	APPLICABILITY
11	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:

P0720-OUTPUT SPEED SENSOR ERROR

When Monitored and Set Condition:

P0720-OUTPUT SPEED SENSOR ERROR

When Monitored: The transmission gear ratio is monitored continuously while the transmission is in gear.

Set Condition: If there is an excessive change in output RPM in any gear.

POSSIBLE CAUSES
OUTPUT SPEED SENSOR SIGNAL CIRCUIT OPEN
SPEED SENSOR GROUND CIRCUIT OPEN
OUTPUT SPEED SENSOR SIGNAL CIRCUIT SHORT TO GROUND
OUTPUT SPEED SENSOR SIGNAL CIRCUIT SHORT TO VOLTAGE
SPEED SENSOR GROUND CIRCUIT SHORT TO VOLTAGE
OUTPUT SPEED SENSOR
TRANSMISSION CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0720-OUTPUT SPEED SENSOR ERROR — Continued

TEST	ACTION	APPLICABILITY
2	Start the engine in park. Raise the drive wheels off of the ground. **WARNING: PROPERLY SUPPORT THE VEHICLE.** Place transmission in drive, release foot from brake. **WARNING: BE SURE TO KEEP HANDS AND FEET CLEAR OF ROTATING WHEELS.** **Note: The drive wheels must be turning at this point.** With the DRBIII®, read the Output RPM Is the Output RPM below 100 RPM? Yes → Go To 3 No → Go To 11	All
3	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. Ignition on, engine not running. With the Transmission Simulator, set the ″Input/Output Speed″ switch to ″ON″ and the rotary switch to the ″3000/1250″ position. With the DRBIII®, read the Input RPM and Output RPM. Does the Input RPM read 3000 and the Output RPM read 1250 ± 50 RPM? Yes → Go To 4 No → Go To 5	All
4	If there are no possible causes remaining, view repair. Repair Replace the Output Speed Sensor per the Service Information. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
5	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Output Speed Sensor harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance of the Output Speed Sensor Signal circuit from the TCM harness connector to the Output Speed Sensor harness connector. Is the resistance above 5.0 ohms? Yes → Repair the Output Speed Sensor Signal circuit for an open. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 6	All
6	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Output Speed Sensor harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance between ground and the Output Speed Sensor Signal circuit. Is the resistance Below 5.0 ohms? Yes → Repair the Output Speed Sensor Signal circuit for a short to ground. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 7	All

P0720-OUTPUT SPEED SENSOR ERROR — Continued

TEST	ACTION	APPLICABILITY
7	Turn ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the TRS harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Measure the voltage of the Output Speed Sensor Signal circuit. Is the voltage above 0.5 volts? Yes → Repair Output Speed Sensor Signal circuit short to voltage. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 8	All
8	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Output Speed Sensor harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance of the Speed Sensor Ground circuit from the TCM harness connector to the Output Speed Sensor harness connector. Is the resistance above 5.0 ohms? Yes → Repair the Speed Sensor Ground circuit for an open. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 9	All
9	Turn ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the TRS harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Measure the voltage of the Speed Sensor Ground circuit. Is the voltage above 0.5 volts? Yes → Repair the Speed Sensor Ground circuit for a short to voltage. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 10	All
10	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Transmission Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

P0720-OUTPUT SPEED SENSOR ERROR — Continued

TEST	ACTION	APPLICABILITY
11	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P0725-ENGINE SPEED SENSOR CIRCUIT

When Monitored and Set Condition:

P0725-ENGINE SPEED SENSOR CIRCUIT

When Monitored: Whenever the engine is running.

Set Condition: Engine RPM less than 390 or greater than 8000 for more than 2 seconds while the engine is running.

POSSIBLE CAUSES
ECM CKP DTC'S PRESENT
CRANK POSITION SIGNAL CIRCUIT OPEN
CRANK POSITION SIGNAL CIRCUIT SHORT TO GROUND
CRANK POSITION SIGNAL CIRCUIT SHORT TO VOLTAGE
TRANSMISSION CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All
2	With the DRBIII®, read ECM DTCs. Are there any ECM Crank Position Sensor DTC's present? Yes → Refer to the Driveability category for the appropriate symptom. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All

P0725-ENGINE SPEED SENSOR CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
3	**NOTE: This code is not a Transmission Input Speed Sensor DTC** With the DRBIII®, Check the STARTS SINCE SET counter. **NOTE: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter set at 0? Yes → Go To 4 No → Go To 8	All
4	Turn ignition off to the lock position. Disconnect the ECM harness connector. Disconnect the TCM harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance of the Crank Position Signal circuit between the TCM harness connector and the ECM harness connector. Is the resistance above 5.0 ohms? Yes → Repair the Crank Position Signal circuit for an open. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 5	All
5	Turn the ignition off to the lock position. Disconnect the ECM harness connector. Disconnect the TCM harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance between ground the Crank Position Signal circuit. Is the resistance below 5.0 ohms? Yes → Repair the Crank Position Signal circuit for a short to ground. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 6	All
6	Turn ignition off to the lock position. Disconnect the ECM harness connector. **Note: Check connectors - Clean/repair as necessary.** Ignition on, engine not running. Measure the voltage of the Crank Position Signal circuit. Is the voltage above 10.0 volts? Yes → Repair the Crank Position Signal circuit for a short to voltage. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 7	All
7	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Transmission Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

P0725-ENGINE SPEED SENSOR CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
8	The conditions necessary to set the DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wires while checking for shorted and open circuits. Check the vehicles battery condition. Check the power and ground circuits of the Transmission Control Module. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:

P0731-GEAR RATIO ERROR IN 1ST

When Monitored and Set Condition:

P0731-GEAR RATIO ERROR IN 1ST

When Monitored: The Transmission Gear Ratio is monitored continuously while the Transmission is in gear.

Set Condition: If the ratio of the input RPM to the output RPM does not match the current Gear Ratio.

POSSIBLE CAUSES
RELATED DTC'S PRESENT
INTERMITTENT GEAR RATIO ERRORS
INTERNAL TRANSMISSION

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All
2	With the DRBIII®, read Transmission DTC's If any of these DTC's are present, perform their respective tests first. Are there any Loss of Prime, Line Pressure Sensor and/or Speed Sensor DTCs present? Yes → Refer to the Transmission category and perform the appropriate symptom. If any of these DTC's are present, they will cause a gear ratio error. Perform the test for Loss of Prime first if it is present. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All

P0731-GEAR RATIO ERROR IN 1ST — Continued

TEST	ACTION	APPLICABILITY
3	With the DRBIII®, perform the 1st Gear Clutch Test. Follow the instructions on the DRBIII®. Increase the throttle angle, TPS Degree, to 30° for no more than a few seconds. **CAUTION: Do not overheat the transmission.** Did the Clutch Test pass, Input Speed remain at 0? Yes → Go To 4 No → Go To 5	All
4	The conditions to set this DTC are not present at this time. Check the gearshift linkage adjustment. Gear ratio DTC's can be set by problems in the Input and Output Speed Sensor circuits. If the vehicle passes the clutch test and still sets gear ratio DTC('s), check the Speed Sensors for proper operation. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Check the Speed Sensor wiring and connectors for good connection, then perform a wiggle test using the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. This DTC can also be set under extreme temperature conditions, this is usually caused by an internal problem. Verify if the problem is only experienced under extreme hot or cold conditions. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All
5	If there are no possible causes remaining, view repair. Repair Repair internal transmission per the Service Information. Check all components related to the Underdrive and L/R clutches. Inspect the Oil Pump per the Service Information and repair or replace as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

Symptom:

P0732-GEAR RATIO ERROR IN 2ND

When Monitored and Set Condition:

P0732-GEAR RATIO ERROR IN 2ND

When Monitored: The Transmission Gear Ratio is monitored continuously while the Transmission is in Gear.

Set Condition: If the ratio of the input RPM to the output RPM does not match the current Gear Ratio.

POSSIBLE CAUSES
RELATED DTC'S PRESENT
RELATED PRESSURE SWITCH DTC'S PRESENT
INTERMITTENT GEAR RATIO ERRORS
TRANSMISSION - INTERNAL

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0732-GEAR RATIO ERROR IN 2ND — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, read Transmission DTC's If any of these DTC's are present, perform their respective tests first. Are there any Loss of Prime, Line Pressure Sensor and/or Speed Sensor DTCs present? Yes → Refer to the Transmission category and perform the appropriate symptom. If any of these DTC's are present, they will cause a gear ratio error. Perform the test for Loss of Prime first if it is present. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	With the DRBIII®, perform the 2nd Gear Clutch Test. Follow the instructions on the DRBIII®. Increase the Throttle Angle, TPS Degree, to 30° for no more than a few seconds. **CAUTION: Do not overheat the transmission.** Did the Clutch Test pass, Input Speed remain at 0? Yes → Go To 4 No → Go To 5	All
4	The conditions to set this DTC are not present at this time. Check the gearshift linkage adjustment. Gear ratio DTC's can be set by problems in the Input and Output Speed Sensor circuits. If the vehicle passes the clutch test and still sets Gear Ratio DTC(s), check the Speed Sensors for proper operation. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Check the Speed Sensor wiring and connectors for good connection, then perform a wiggle test using the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. This DTC can also be set under extreme temperature conditions, this is usually caused by an internal problem. Verify if the problem is only experienced under extreme hot or cold conditions. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All
5	With the DRBIII®, read Transmission DTC's. Is the DTC P0845 and/or P0846 present also? Yes → Replace the Solenoid/Pressure Switch Assembly per the Service Information. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 6	All
6	If there are no possible causes remaining, view repair. Repair Repair internal transmission problem. Check all of the components related to the Underdrive and 2/4 clutches. Inspect the Oil Pump per the Service Information and repair or replace as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

Symptom:

P0733-GEAR RATIO ERROR IN 3RD

When Monitored and Set Condition:

P0733-GEAR RATIO ERROR IN 3RD

When Monitored: The Transmission Gear Ratio is monitored continuously while the Transmission is in Gear.

Set Condition: If the ratio of the input RPM to the output RPM does not match the current Gear Ratio.

POSSIBLE CAUSES
RELATED DTC'S PRESENT
TRANSMISSION SOLENOID PRESSURE SWITCH ASSEMBLY
INTERNAL TRANSMISSION
INTERMITTENT GEAR RATIO ERRORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0733-GEAR RATIO ERROR IN 3RD — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, read Transmission DTC's If any of these DTC's are present, perform their respective tests first. Are there any Loss of Prime, Line Pressure Sensor and/or Speed Sensor DTCs present? Yes → Refer to the Transmission category and perform the appropriate symptom. If any of these DTC's are present, they will cause a gear ratio error. Perform the test for Loss of Prime first if it is present. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	With the DRBIII®, perform the 3rd gear clutch test. Follow the instructions on the DRBIII®. Increase the throttle angle, TPS Degree, to 30° for no more than a few seconds. **CAUTION: Do not overheat the transmission.** Did the Clutch Test pass, Input Speed remain at 0? Yes → Go To 4 No → Go To 5	All
4	The conditions to set this DTC are not present at this time. Check the gearshift adjustment. Gear ratio DTC's can be set by problems in the Input and Output Speed Sensor circuits. If the vehicle passes the clutch test and still sets Rear Ratio DTC(s), check the Speed Sensors for proper operation. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Check the speed sensor wiring and connectors for good connection, then perform a wiggle test using the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. This DTC can also be set under extreme temperature conditions, this is usually caused by an internal problem. Verify if the problem is only experienced under extreme hot or cold conditions. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All
5	With the DRBIII®, read Transmission DTC's. Is the DTC P0870 and/or P0871 present also? Yes → Replace the Transmission Solenoid/Pressure Switch Assembly per the Service Information. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 6	All
6	If there are no possible causes remaining, view repair. Repair Repair internal transmission per the Service Information. Check all of the components related to the Underdrive and Overdrive clutches. Inspect the Oil Pump per the Service Information and repair or replace as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

Symptom:

P0734-GEAR RATIO ERROR IN 4TH

When Monitored and Set Condition:

P0734-GEAR RATIO ERROR IN 4TH

When Monitored: The Transmission Gear Ratio is monitored continuously while the Transmission is in Gear.

Set Condition: If the ratio of the input RPM to the output RPM does not match the current Gear Ratio.

POSSIBLE CAUSES
RELATED DTC'S PRESENT
RELATED PRESSURE SWITCH DTC'S PRESENT
INTERMITTENT GEAR RATIO ERRORS
TRANSMISSION - INTERNAL

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0734-GEAR RATIO ERROR IN 4TH — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, read Transmission Control Module DTC's If any of these DTC's are present, perform their respective tests first. Are there any Loss of Prime, Line Pressure Sensor and/or Speed Sensor DTCs present? Yes → Refer to the Transmission category and perform the appropriate symptom. If any of these DTC's are present, they will cause a gear ratio error. Perform the test for Loss of Prime first if it is present. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	With the DRBIII®, perform the 4th gear clutch test. Follow the instructions on the DRBIII®. Increase the throttle angle, TPS Degree, to 30° for no more than a few seconds. **CAUTION: Do not overheat the transmission.** Did the Clutch Test pass, Input Speed remain at 0? Yes → Go To 4 No → Go To 5	All
4	The conditions to set this DTC are not present at this time. Check the gearshift linkage adjustment. Gear Ratio DTC's can be set by problems in the Input and Output Speed Sensor circuits. If the vehicle passes the clutch test and still sets Gear Ratio DTC(s), check the Speed Sensors for proper operation. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Check the Speed Sensor wiring and connectors for good connection, then perform a wiggle test using the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. This DTC can also be set under extreme temperature conditions, this is usually caused by an internal problem. Verify if the problem is only experienced under extreme hot or cold conditions. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All
5	With the DRBIII®, read Transmission DTC's. Is the DTC P0845 and/or P0846 present also? Yes → Replace the Solenoid/Pressure Switch Assembly per the Service Information. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 6	All
6	If there are no possible causes remaining, view repair. Repair Repair internal transmission problem. Check all of the components related to the Overdrive and 2/4 clutches. Inspect the Oil Pump per the Service Information and repair or replace as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

Symptom:
P0736-GEAR RATIO ERROR IN REVERSE

When Monitored and Set Condition:

P0736-GEAR RATIO ERROR IN REVERSE

When Monitored: The Transmission Gear Ratio is monitored continuously while the Transmission is in Gear.

Set Condition: If the ratio of the input RPM to the output RPM does not match the current Gear Ratio.

POSSIBLE CAUSES
RELATED DTC'S PRESENT
INTERMITTENT GEAR RATIO ERRORS
TRANSMISSION - INTERNAL

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All
2	With the DRBIII®, read Transmission DTC's If any of these DTC's are present, perform their respective tests first. Are there any Loss of Prime, Line Pressure Sensor and/or Speed Sensor DTCs present? Yes → Refer to the Transmission category and perform the appropriate symptom. If any of these DTC's are present, they will cause a gear ratio error. Perform the test for Loss of Prime first if it is present. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All

P0736-GEAR RATIO ERROR IN REVERSE — Continued

TEST	ACTION	APPLICABILITY
3	With the DRBIII®, perform the Reverse gear clutch test. Follow the instructions on the DRBIII®. Increase the throttle angle, TPS Degree, to 30° for no more than a few seconds. **CAUTION: Do not overheat the Transmission.** Did the Clutch Test pass, Input Speed remain at 0? Yes → Go To 4 No → Go To 5	All
4	The conditions to set this DTC are not present at this time. Check the gearshift adjustment. Gear Ratio DTC's can be set by problems in the Input and Output Speed Sensor circuits. If the vehicle passes the clutch test and still sets Gear Ratio DTC(s), check the Speed Sensors for proper operation. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Check the speed sensor wiring and connectors for good connection, then perform a wiggle test using the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. This DTC can also be set under extreme temperature conditions, this is usually caused by an internal problem. Verify if the problem is only experienced under extreme hot or cold conditions. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All
5	If there are no possible causes remaining, view repair. Repair Repair internal transmission problem. Check all of the components related to the Reverse and L/R clutches. Inspect the Oil Pump per the Service Information and repair or replace as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

Symptom:
P0740-TCC OUT OF RANGE

When Monitored and Set Condition:

P0740-TCC OUT OF RANGE

When Monitored: During Electronically Modulated Converter Clutch (EMCC) Operation.

Set Condition: Transmission must be in EMCC, with input speed greater than 1750 RPM. TCC/L-R Solenoid achieves the maximum duty cycle and can not pull engine RPM within 60 RPM of input speed. Or the Transmissions is in FEMCC and engine slips, TCC greater than 100 RPM for 10 seconds.

POSSIBLE CAUSES
RELATED DTC'S PRESENT
INTERNAL TRANSMISSION
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All
2	Ignition on, engine not running. With the DRBIII®, read Transmission DTC's Is the DTC P0750 and/or P0841 present also? Yes → Refer to the Transmission category and perform the appropriate symptom. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All

P0740-TCC OUT OF RANGE — Continued

TEST	ACTION	APPLICABILITY
3	Ignition on, engine not running. With the DRBIII®, record and erase Transmission DTCs. Drive the vehicle until it is fully warmed up to at least 43° C or 110° F. Perform the following steps 3 times. With the DRBIII®, monitor TPS degree. Drive the vehicle to the speed of 83 Km/h or 50 MPH and allow 4th gear to engage for at least 10 seconds. Close the throttle, then tip back in until the throttle angle, TPS degrees, is between 25 and 29 degrees. **NOTE: If you go over 30 TPS degrees, you must back off of the throttle and retry.** Did the TCC engage during any of the attempts? Yes → Go To 4 No → Go To 5	All
4	The conditions necessary to set the DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wires while checking for shorted and open circuits. This DTC can also be set under extreme temperature conditions, this is usually caused by an internal problem. Verify if the problem is only experienced under extreme hot or cold conditions. Check for any Technical Service Bulletins (TSB's) that may apply. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All
5	If there are no possible causes remaining, view repair. Repair Perform the Hydraulic Pressure test in the Service Information. Repair the internal transmission components and torque converter per the Service Information. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

Symptom:
P0750-LR SOLENOID CIRCUIT

When Monitored and Set Condition:

P0750-LR SOLENOID CIRCUIT

When Monitored: Initially at power-up, then every 10 seconds thereafter. The solenoids will also be tested immediately after a Gear Ratio or Pressure Switch error is detected.

Set Condition: Three consecutive solenoid continuity test failures, or one failure if a test is run in response to a Gear Ratio or Pressure Switch error.

POSSIBLE CAUSES
RELATED RELAY DTC'S PRESENT
TRANSMISSION CONTROL RELAY OUTPUT CIRCUIT OPEN
L/R SOLENOID CONTROL CIRCUIT OPEN
L/R SOLENOID CONTROL CIRCUIT SHORT TO GROUND
L/R SOLENOID CONTROL CIRCUIT SHORT TO VOLTAGE
L/R SOLENOID
TRANSMISSION CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0750-LR SOLENOID CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
2	Ignition on, engine not running. With the DRBIII®, read Transmission Control Module DTC's Are there any Transmission Control Relay DTC's present also? Yes → Refer to symptom list and perform the appropriate symptom for Transmission Control Relay related DTC's. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	With the DRBIII®, Check the STARTS SINCE SET counter for P0750. **NOTE: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter for P0750 set at 0? Yes → Go To 4 No → Go To 11	All
4	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. Ignition on, engine not running. With the DRBIII®, actuate the L/R Solenoid. With the Transmission Simulator, monitor the L/R Solenoid LED. Did the L/R Solenoid LED on the Transmission Simulator blink on and off during actuation? Yes → Go To 5 No → Go To 6	All
5	If there are no possible causes remaining, view repair. Repair Replace the Transmission Solenoid/Pressure Switch Assembly per the Service Information. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
6	Turn the ignition off to the lock position. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Using a 12-volt test light connected to ground, check the Transmission Control Relay Output circuit. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly? Yes → Go To 7 No → Repair the Transmission Control Relay Output circuit for an open or high resistance. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

P0750-LR SOLENOID CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
7	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Measure the resistance of the L/R Solenoid Control circuit from the TCM harness connector to the Transmission Solenoid/Pressure Switch Assembly harness connector. Is the resistance above 5.0 ohms? Yes → Repair the L/R Solenoid Control circuit for an open. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 8	All
8	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Measure the resistance between ground and the L/R Solenoid Control circuit. Is the resistance below 5.0 ohms? Yes → Repair the L/R Solenoid Control circuit for a short to ground. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 9	All
9	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Measure the voltage of the L/R Solenoid Control circuit. Is the voltage above 0.5 volt? Yes → Repair the L/R Solenoid Control circuit for a short to voltage. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 10	All
10	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Transmission Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
11	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:

P0755-2/4 SOLENOID CIRCUIT

When Monitored and Set Condition:

P0755-2/4 SOLENOID CIRCUIT

When Monitored: Initially at power-up, then every 10 seconds thereafter. They will also be tested immediately after a Gear Ratio or Pressure Switch error is detected.

Set Condition: Three consecutive Solenoid continuity test failures, or one failure if test is run in response to a Gear Ratio or Pressure Switch error.

POSSIBLE CAUSES
RELATED RELAY DTC'S PRESENT
TRANSMISSION CONTROL RELAY OUTPUT CIRCUIT OPEN
2/4 SOLENOID CONTROL CIRCUIT OPEN
2/4 SOLENOID CONTROL CIRCUIT SHORT TO GROUND
2/4 SOLENOID CONTROL CIRCUIT SHORT TO VOLTAGE
2/4 SOLENOID
TRANSMISSION CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0755-2/4 SOLENOID CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, read Transmission DTC's Are there any Transmission Control Relay DTC's present? Yes → Refer to the Transmission category and perform the appropriate symptom. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	With the DRBIII®, Check the STARTS SINCE SET counter. **NOTE: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter for P0755 set at 0? Yes → Go To 4 No → Go To 11	All
4	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. Ignition on, engine not running. With the DRBIII®, actuate the 2/4 Solenoid. With the Transmission Simulator, monitor the 2/4 Solenoid LED. Did the 2/4 Solenoid LED on the Transmission Simulator blink on and off during actuation? Yes → Go To 5 No → Go To 6	All
5	If there are no possible causes remaining, view repair. Repair Replace the Transmission Solenoid/Pressure Switch Assembly per the Service Information. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
6	Turn the ignition off to the lock position. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Using a 12-volt test light connected to ground, check the Transmission Control Relay Output circuit. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly? Yes → Go To 7 No → Repair the Transmission Control Relay Output circuit for an open or high resistance. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

P0755-2/4 SOLENOID CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
7	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance of the 2/4 Solenoid Control circuit from the TCM harness connector to the Transmission Solenoid/Pressure Switch Assembly harness connector. Is the resistance above 5.0 ohms? Yes → Repair the 2/4 Solenoid Control circuit for an open. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 8	All
8	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance between ground and the 2/4 Solenoid Control circuit. Is the resistance below 5.0 ohms? Yes → Repair the 2/4 Solenoid Control circuit for a short to ground. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 9	All
9	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Measure the voltage of the 2/4 Solenoid Control circuit. Is the voltage above 0.5 volt? Yes → Repair the 2/4 Solenoid Control circuit for a short to voltage. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 10	All
10	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Transmission Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

P0755-2/4 SOLENOID CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
11	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:

P0760-OD SOLENOID CIRCUIT

When Monitored and Set Condition:

P0760-OD SOLENOID CIRCUIT

When Monitored: Initially at power-up, then every 10 seconds thereafter. They will also be tested immediately after a Gear Ratio or Pressure Switch error is detected.

Set Condition: Three consecutive solenoid continuity test failures, or one failure if test is run in response to a Gear Ratio or Pressure Switch error.

POSSIBLE CAUSES
RELATED RELAY DTC'S PRESENT
INTERMITTENT WIRING AND CONNECTORS
TRANSMISSION CONTROL RELAY OUTPUT CIRCUIT OPEN
OD SOLENOID CONTROL CIRCUIT OPEN
OD SOLENOID CONTROL CIRCUIT SHORT TO GROUND
OD SOLENOID CONTROL CIRCUIT SHORT TO VOLTAGE
OD SOLENOID
TRANSMISSION CONTROL MODULE

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0760-OD SOLENOID CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, read Transmission Control Module DTC's Are there any Transmission Control Relay DTC's present also? Yes → Refer to the Transmission category and perform the appropriate symptom. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	With the DRBIII®, Check the STARTS SINCE SET counter for P0760. **NOTE: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter for P0760 set at 0? Yes → Go To 4 No → Go To 11	All
4	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. Ignition on, engine not running. With the Transmission Simulator, monitor the OD Solenoid LED. With the DRBIII®, actuate the OD Solenoid. Did the OD Solenoid LED on the Transmission Simulator blink on and off during actuation? Yes → Go To 5 No → Go To 6	All
5	If there are no possible causes remaining, view repair. Repair Replace the Transmission Solenoid/Pressure Switch Assembly per the Service Information. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
6	Turn the ignition off to the lock position. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Using a 12-volt test light connected to ground, check the Transmission Control Relay Output circuit. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly? Yes → Go To 7 No → Repair the Transmission Control Relay Output circuit for an open or high resistance. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

P0760-OD SOLENOID CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
7	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance of the OD Solenoid Control circuit from the TCM harness connector to the Transmission Solenoid/Pressure Switch Assembly harness connector. Is the resistance above 5.0 ohms? Yes → Repair the OD Solenoid Control circuit for an open. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 8	All
8	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance between ground and the OD Solenoid Control circuit. Is the resistance below 5.0 ohms? Yes → Repair the OD Solenoid Control circuit for a short to ground. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 9	All
9	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Measure the voltage of the OD Solenoid Control circuit. Is the voltage above 0.5 volt? Yes → Repair the OD Solenoid Control circuit for a short to voltage. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 10	All
10	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Transmission Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

P0760-OD SOLENOID CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
11	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:

P0765-UD SOLENOID CIRCUIT

When Monitored and Set Condition:

P0765-UD SOLENOID CIRCUIT

When Monitored: Initially at power-up, then every 10 seconds thereafter. They will also be tested immediately after a Gear Ratio or Pressure Switch error is detected.

Set Condition: Three consecutive Solenoid continuity test failures, or one failure if test is run in response to a Gear Ratio or Pressure Switch error.

POSSIBLE CAUSES
RELATED RELAY DTC'S PRESENT
TRANSMISSION CONTROL RELAY OUTPUT CIRCUIT OPEN
UD SOLENOID CONTROL CIRCUIT OPEN
UD SOLENOID CONTROL CIRCUIT SHORT TO GROUND
UD SOLENOID CONTROL CIRCUIT SHORT TO VOLTAGE
UD SOLENOID
TRANSMISSION CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0765-UD SOLENOID CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, read Transmission Control Module DTC's Are there any Transmission Control Relay DTC's present also? Yes → Refer to the Transmission category and perform the appropriate symptom. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	With the DRBIII®, Check the STARTS SINCE SET counter. **NOTE: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter for P0765 set at 0? Yes → Go To 4 No → Go To 11	All
4	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. Ignition on, engine not running. With the DRBIII®, actuate the UD Solenoid. With the Transmission Simulator, monitor the UD Solenoid LED. Did the UD Solenoid LED on the Transmission Simulator blink on and off? Yes → Go To 5 No → Go To 6	All
5	If there are no possible causes remaining, view repair. Repair Replace Transmission Solenoid/Pressure Switch Assembly per the Service Information. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
6	Turn the ignition off to the lock position. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Using a 12-volt test light connected to ground, check the Transmission Control Relay Output circuit. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly? Yes → Go To 7 No → Repair the Transmission Control Relay Output circuit for an open or high resistance. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

P0765-UD SOLENOID CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
7	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance of the UD Solenoid Control circuit from the TCM harness connector to the Transmission Solenoid/Pressure Switch Assembly harness connector. Is the resistance above 5.0 ohms? Yes → Repair the UD Solenoid Control circuit for an open. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 8	All
8	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance between ground and the UD Solenoid Control circuit. Is the resistance below 5.0 ohms? Yes → Repair the UD Solenoid Control circuit for a short to ground. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 9	All
9	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. Connect a jumper wire between the Fused B+ circuits and Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. **Note: Check connectors - Clean/repair as necessary.** Measure the voltage of the UD Solenoid Control circuit. Is the voltage above 0.5 volt? Yes → Repair the UD Solenoid Control circuit for a short to voltage. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 10	All
10	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Transmission Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

P0765-UD SOLENOID CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
11	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:

P0841-LR PRESSURE SWITCH SENSE CIRCUIT

When Monitored and Set Condition:

P0841-LR PRESSURE SWITCH SENSE CIRCUIT

When Monitored: Whenever the engine is running.

Set Condition: The appropriate DTC is set if one of the Pressure Switches are open or closed at the wrong time in a given gear .

POSSIBLE CAUSES
LOSS OF PRIME DTC P0944 PRESENT
TRANSMISSION CONTROL RELAY DTCS PRESENT
TCM AND WIRING
TRANSMISSION CONTROL RELAY OUTPUT CIRCUIT OPEN
L/R PRESSURE SWITCH SENSE CIRCUIT OPEN
L/R PRESSURE SWITCH SENSE CIRCUIT SHORT TO GROUND
L/R PRESSURE SWITCH SENSE CIRCUIT SHORT TO VOLTAGE
TRANSMISSION CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0841-LR PRESSURE SWITCH SENSE CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, check for other Transmission DTC's. Is the DTC P0944 present also? Yes → Refer to the Transmission category and perform the appropriate symptom. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	With the DRBIII®, read Transmission DTC's Are there any Transmission Control Relay related DTC's P0888, P0890, or P0891 present? Yes → Refer to the Transmission category and perform the appropriate symptom. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 4	All
4	With the DRBIII®, Check the STARTS SINCE SET counter for P0841. **NOTE: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter 2 or less? Yes → Go To 5 No → Go To 11	All
5	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit, Miller tool #8333-1A. **Note: Check connectors - Clean/repair as necessary.** Ignition on, engine not running. On the Transmission Simulator select L/R on the Pressure Switch selector switch. With the DRBIII®, monitor the L/R Pressure Switch state while pressing the Pressure Switch Test button on the Transmission Simulator. Did the Pressure Switch state change from OPEN to CLOSED when the test button was pressed? Yes → Replace the Transmission Solenoid/Pressure Switch Assembly per the Service Information. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 6	All

P0841-LR PRESSURE SWITCH SENSE CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
6	Turn the ignition off to the lock position. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and Transmission Control Relay Output circuit in the Transmission Control Relay connector. Using a 12-volt test light connected to ground, check the Transmission Control Relay Output circuit in the Solenoid/Pressure Switch Assembly harness connector. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly? Yes → Go To 7 No → Repair the Transmission Control Relay Output circuit for an open or high resistance. If the fuse is open make sure to check for a short to ground. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
7	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance of the L/R Pressure Switch Sense circuit from the TCM harness connector to the Transmission Solenoid/Pressure Switch Assembly harness connector. Is the resistance above 5.0 ohms? Yes → Repair the L/R Pressure Switch Sense circuit for an open. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 8	All
8	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance between ground and the L/R Pressure Switch Sense circuit. Is the resistance below 5.0 ohms? Yes → Repair the L/R Pressure Switch circuit for a short to ground. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 9	All
9	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Measure the voltage of the L/R Pressure Switch Sense circuit. Is the voltage above 0.5 volt? Yes → Repair the L/R Pressure Switch Sense circuit for a short to voltage. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 10	All

P0841-LR PRESSURE SWITCH SENSE CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
10	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair Repair Replace the Transmission Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
11	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:

P0845-2/4 HYDRAULIC PRESSURE TEST FAILURE

When Monitored and Set Condition:

P0845-2/4 HYDRAULIC PRESSURE TEST FAILURE

When Monitored: In any forward gear with engine speed above 1000 RPM, shortly after a shift, and every minute thereafter.

Set Condition: After a shift into a forward gear, with engine speed greater than 1000 RPM, the TCM momentarily turns on element pressure to the clutch circuits that do not have pressure to identify the correct pressure switch closes. If the pressure switch does not close 2 times the DTC sets.

POSSIBLE CAUSES
LOSS OF PRIME P0944 PRESENT
RELATED DTC'S PRESENT
TRANSMISSION CONTROL RELAY OUTPUT CIRCUIT OPEN
2/4 PRESSURE SWITCH SENSE CIRCUIT OPEN
2/4 PRESSURE SWITCH SENSE CIRCUIT SHORT TO GROUND
2/4 PRESSURE SWITCH SENSE CIRCUIT SHORT TO VOLTAGE
INTERNAL TRANSMISSION
TRANSMISSION CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

P0845-2/4 HYDRAULIC PRESSURE TEST FAILURE — Continued

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All
2	With the DRBIII®, check for other Transmission DTCs. Is the DTC P0944 present also? Yes → Refer to the Transmission category and perform the appropriate symptom. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	With the DRBIII®, read Transmission DTC's. Is the DTC P0732, P0734 and/or P0846 present also? Yes → Repair internal transmission as necessary. Refer to the Service Information for the proper repair procedure for components related to the OD clutch. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 4	All
4	With the DRBIII®, Check the STARTS SINCE SET counter for P0845. **NOTE: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter 2 or less? Yes → Go To 5 No → Go To 12	All

P0845-2/4 HYDRAULIC PRESSURE TEST FAILURE — Continued

TEST	ACTION	APPLICABILITY
5	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. **Note: Check connectors - Clean/repair as necessary.** Ignition on, engine not running. With the Transmission Simulator, select ″2/4″ on the Pressure Switch rotary switch. With the DRBIII®, monitor the 2/4 Pressure Switch state while pressing the Pressure Switch Test button on the Transmission Simulator. Wiggle the wiring leading to the TCM while pressing the button. Did the 2/4 Pressure Switch state change to closed and remain closed while wiggling the wires? Yes → Go To 6 No → Go To 7	All
6	If there are no possible causes remaining, view repair. Repair Disassemble and inspect the Valve Body per the Service Information and repair or replace as necessary. If there are no problems found in the Valve Body, replace the Transmission Solenoid/Pressure Switch Assembly per the Service Information. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
7	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance of the 2/4 Pressure Switch Sense circuit from the TCM harness connector to the Transmission Solenoid/Pressure Switch Assembly harness connector. Is the resistance above 5.0 ohms? Yes → Repair the 2/4 Pressure Switch Sense circuit for an open. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 8	All
8	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance between ground and the 2/4 Pressure Switch Sense circuit. Is the resistance below 5.0 ohms? Yes → Repair the 2/4 Pressure Switch Sense circuit for a short to ground. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 9	All

P0845-2/4 HYDRAULIC PRESSURE TEST FAILURE — Continued

TEST	ACTION	APPLICABILITY
9	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Measure the voltage of the 2/4 Pressure Switch Sense circuit. Is the voltage above 0.5 volt? Yes → Repair the 2/4 Pressure Switch Sense circuit for a short to voltage. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 10	All
10	Turn the ignition off to the lock position. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and Transmission Control Relay Output circuit in the Transmission Control Relay connector. Using a 12-volt test light connected to ground, check the Transmission Control Relay Output circuit. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly? Yes → Go To 11 No → Repair the Transmission Control Relay Output circuit for an open or high resistance. If the fuse is open make sure to check for a short to ground. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
11	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Transmission Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
12	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:

P0846-2/4 PRESSURE SWITCH SENSE CIRCUIT

When Monitored and Set Condition:

P0846-2/4 PRESSURE SWITCH SENSE CIRCUIT

When Monitored: Whenever the engine is running.

Set Condition: The appropriate DTC is set if one of the Pressure Switches are open or closed at the wrong time in a given gear .

POSSIBLE CAUSES
TRANSMISSION CONTROL RELAY DTC'S PRESENT
TRANSMISSION CONTROL RELAY OUTPUT CIRCUIT OPEN
2/4 PRESSURE SWITCH SENSE CIRCUIT OPEN
2/4 PRESSURE SWITCH SENSE CIRCUIT SHORT TO GROUND
2/4 PRESSURE SWITCH SENSE CIRCUIT SHORT TO VOLTAGE
2/4 PRESSURE SWITCH
TRANSMISSION CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0846-2/4 PRESSURE SWITCH SENSE CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, read Transmission DTC's Are there any Transmission Control Relay related DTC's present? Yes → Refer to the Transmission category and perform the appropriate symptom. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	With the DRBIII®, Check the STARTS SINCE SET counter. **NOTE: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter 2 or less for P0846? Yes → Go To 4 No → Go To 11	All
4	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. **Note: Check connectors - Clean/repair as necessary.** Ignition on, engine not running. With the Transmission Simulator, select 2/4 on the Pressure Switch selector switch. With the DRBIII®, monitor the 2/4 Pressure Switch state while pressing the Pressure Switch Test button on the Transmission Simulator. Did the Pressure Switch state change from OPEN to CLOSED when the test button was pressed? Yes → Go To 5 No → Go To 6	All
5	If there are no possible causes remaining, view repair. Repair Replace Transmission Solenoid/Pressure Switch Assembly per the Service Information. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
6	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance of the 2/4 Pressure Switch Sense circuit from the TCM harness connector to the Transmission Solenoid/Pressure Switch Assembly harness connector. Is the resistance above 5.0 ohms? Yes → Repair the 2/4 Pressure Switch Sense circuit for an open. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 7	All

P0846-2/4 PRESSURE SWITCH SENSE CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
7	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance between ground and the 2/4 Pressure Switch Sense circuit. Is the resistance below 5.0 ohms? Yes → Repair the 2/4 Pressure Switch Sense circuit for a short to ground. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 8	All
8	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Measure the voltage of the 2/4 Pressure Switch Sense circuit. Is the voltage above 0.5 volt? Yes → Repair the 2/4 Pressure Switch Sense circuit for a short to voltage. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 9	All
9	Turn the ignition off to the lock position. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Using a 12-volt test light connected to ground, check the Transmission Control Relay Output circuit. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly? Yes → Go To 10 No → Repair the Transmission Control Relay Output circuit for an open. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
10	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Transmission Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

P0846-2/4 PRESSURE SWITCH SENSE CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
11	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:

P0870-OD HYDRAULIC PRESSURE TEST FAILURE

When Monitored and Set Condition:

P0870-OD HYDRAULIC PRESSURE TEST FAILURE

When Monitored: In any forward gear with engine speed above 1000 RPM shortly after a shift and every minute thereafter.

Set Condition: After a shift into a forward gear, with engine speed > 1000 RPM, the TCM momentarily turns on element pressure to the clutch ckts that don't have pressure to identify the correct pressure sw closes. If the pressure sw does not close 2 times the code sets

POSSIBLE CAUSES
LOSS OF PRIME DTC P0944 PRESENT
RELATED DTC'S PRESENT
INTERMITTENT WIRING AND CONNECTORS
TRANSMISSION CONTROL RELAY OUTPUT CIRCUIT OPEN
OD PRESSURE SWITCH SENSE CIRCUIT OPEN
OD PRESSURE SWITCH SENSE CIRCUIT SHORT TO GROUND
OD PRESSURE SWITCH SENSE CIRCUIT SHORT TO VOLTAGE
INTERNAL TRANSMISSION
TRANSMISSION CONTROL MODULE

P0870-OD HYDRAULIC PRESSURE TEST FAILURE — Continued

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All
2	With the DRBIII®, check for other Transmission DTCs. Is the DTC P0944 present also? Yes → Refer to the Transmission category and perform the appropriate symptom. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	With the DRBIII®, read Transmission DTC's. Is the DTC P0733 and/or P0871 present also? Yes → Replace the Transmission or Solenoid/Pressure Switch Assembly per the Service Information. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 4	All
4	With the DRBIII®, Check the STARTS SINCE SET counter for P0870. **NOTE: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter 2 or less? Yes → Go To 5 No → Go To 12	All

P0870-OD HYDRAULIC PRESSURE TEST FAILURE — Continued

TEST	ACTION	APPLICABILITY
5	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit, Miller tool #8333-1A. **NOTE: Check connectors - Clean/repair as necessary.** With the Transmission Simulator, select ″OD″ on the Pressure Switch rotary switch. With the DRBIII®, monitor the OD Pressure Switch state while pressing the Pressure Switch Test button on the Transmission Simulator. Wiggle the wires leading to the TCM while pressing the test button. Did the O/D Pressure Switch state change to closed and remain closed while wiggling the wires? Yes → Go To 6 No → Go To 7	All
6	If there are no possible causes remaining, view repair. Repair Disassemble and inspect the Valve Body per the Service Information and repair or replace as necessary. If no problems are found in the Valve Body, replace the Transmission Solenoid/Pressure Switch Assembly per the Service Information. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
7	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance of the OD Pressure Switch Sense circuit from the Transmission Solenoid/Pressure Switch Assembly harness connector to the TCM harness connector. Is the resistance above 5.0 ohms? Yes → Repair the O/D Pressure Switch Sense circuit for an open. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 8	All
8	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance between ground and the OD Pressure Switch Sense circuit. Is the resistance below 5.0 ohms? Yes → Repair the OD Pressure Switch Sense circuit for a short to ground. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 9	All

P0870-OD HYDRAULIC PRESSURE TEST FAILURE — Continued

TEST	ACTION	APPLICABILITY
9	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Measure the voltage of the OD Pressure Switch Sense circuit. Is the voltage above 0.5 volt? Yes → Repair OD Pressure Switch Sense circuit for a short to voltage. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 10	All
10	Turn the ignition off to the lock position. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Using a 12-volt test light connected to ground, check the Transmission Control Relay Output circuit. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly? Yes → Go To 11 No → Repair the Transmission Control Relay Output circuit for an open or high resistance. If the fuse is open make sure to check for a short to ground. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
11	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Transmission Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
12	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:

P0871-OD PRESSURE SWITCH SENSE CIRCUIT

When Monitored and Set Condition:

P0871-OD PRESSURE SWITCH SENSE CIRCUIT

When Monitored: Whenever the engine is running.

Set Condition: The appropriate DTC is set if one of the Pressure Switches are open or closed at the wrong time in a given gear.

POSSIBLE CAUSES
TRANSMISSION CONTROL RELAY DTCS PRESENT
TRANSMISSION CONTROL RELAY OUTPUT CIRCUIT OPEN
O/D PRESSURE SWITCH SENSE CIRCUIT OPEN
O/D PRESSURE SWITCH SENSE CIRCUIT SHORT TO GROUND
O/D PRESSURE SWITCH SENSE CIRCUIT SHORT TO VOLTAGE
O/D PRESSURE SWITCH
TRANSMISSION CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0871-OD PRESSURE SWITCH SENSE CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, read Transmission DTC's Are there any Transmission Control Relay related DTC's present? Yes → Refer to the Transmission category and perform the appropriate symptom. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	With the DRBIII®, Check the STARTS SINCE SET counter. **NOTE: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter 2 or less for P0871? Yes → Go To 4 No → Go To 11	All
4	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit, Miller tool #8333-1A. **Note: Check connectors - Clean/repair as necessary.** Ignition on, engine not running. On the Transmission Simulator, select OD on the Pressure Switch selector switch. With the DRBIII®, monitor the OD Pressure Switch state while pressing the Pressure Switch Test button on the Transmission Simulator. Did the Pressure Switch state change from OPEN to CLOSED when the test button was pressed? Yes → Go To 5 No → Go To 6	All
5	If there are no possible causes remaining, view repair. Repair Replace Transmission Solenoid/Pressure Switch Assembly per the Service Information. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
6	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance of the O/D Pressure Switch Sense circuit from the TCM harness connector to the Transmission Solenoid/Pressure Switch Assembly harness connector. Is the resistance above 5.0 ohms? Yes → Repair the O/D Pressure Switch Sense circuit for an open. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 7	All

P0871-OD PRESSURE SWITCH SENSE CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
7	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance between ground and the O/D Pressure Switch Sense circuit. Is the resistance below 5.0 ohms? Yes → Repair the O/D Pressure Switch circuit for a short to ground. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 8	All
8	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Measure the voltage of the O/D Pressure Switch Sense circuit. Is the voltage above 0.5 volt? Yes → Repair the O/D Pressure Switch Sense circuit for a short to voltage. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 9	All
9	Turn the ignition off to the lock position. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Using a 12-volt test light connected to ground, check the Transmission Control Relay Output circuit. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly? Yes → Go To 10 No → Repair the Transmission Control Relay Output circuit for an open. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
10	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Transmission Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

P0871-OD PRESSURE SWITCH SENSE CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
11	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:

P0884-POWER UP AT SPEED

When Monitored and Set Condition:

P0884-POWER UP AT SPEED

When Monitored: When Transmission Control Module powers up.

Set Condition: This DTC will set if the TCM powers up and senses the vehicle in a valid forward gear (no PRNDL DTCs) with a output speed above 800 RPM (approximately 32Km/h or 20 MPH).

POSSIBLE CAUSES
POWER UP AT SPEED

TEST	ACTION	APPLICABILITY
1	This DTC is set when the TCM is initialized while the vehicle is moving down the road in a valid forward gear. Check all of the Fused B+, Fused Ignition Switch Output, and Ground circuits to the TCM for an intermittent open or short to ground. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair wiring and/or connectors as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:

P0888-RELAY OUTPUT ALWAYS OFF

When Monitored and Set Condition:

P0888-RELAY OUTPUT ALWAYS OFF

When Monitored: Continuously

Set Condition: This code is set when less than 3 volts are present at the transmission control relay output circuits at the Transmission Control Module when the TCM is energizing the relay.

POSSIBLE CAUSES
FUSED B+ CIRCUIT OPEN
TRANSMISSION CONTROL RELAY OUTPUT CIRCUIT OPEN
TRANSMISSION CONTROL RELAY CONTROL CIRCUIT OPEN
TRANSMISSION CONTROL RELAY GROUND CIRCUIT OPEN
TRANSMISSION CONTROL RELAY CONTROL CIRCUIT SHORT TO GROUND
TRANSMISSION CONTROL RELAY OUTPUT CIRCUIT SHORT TO GROUND
TRANSMISSION CONTROL RELAY
TRANSMISSION SOLENOID/PRESSURE SWITCH ASSEMBLY
TRANSMISSION CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0888-RELAY OUTPUT ALWAYS OFF — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, Check the STARTS SINCE SET counter for P0888. **Note: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter set at 0? Yes → Go To 3 No → Go To 13	All
3	Turn the ignition off to the lock position. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Ignition on, engine not running. Using a 12-volt test light connected to ground, check the Fused B+ circuit in the Transmission Control Relay connector. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly? Yes → Go To 4 No → Go To 10	All
4	Turn the ignition off to the lock position. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit. Ignition on, engine not running. With the DRBIII® in Transmission Sensors, read the Switched Battery voltage. Does the Switched Battery voltage read battery voltage? Yes → Go To 5 No → Repair the Transmission Control Relay Output circuits for an open or high resistance. Note: There are multiple Transmission Control Relay Output circuits. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
5	Turn the ignition off to the lock position. Install a substitute Relay in place of the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Ignition on, engine not running. With the DRBIII® in Transmission Sensors, read the Switched Battery voltage. Does the Switched Battery voltage read battery voltage? Yes → Replace the Transmission Control Relay. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 6	All

P0888-RELAY OUTPUT ALWAYS OFF — Continued

TEST	ACTION	APPLICABILITY
6	Turn the ignition off to the lock position. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Using a 12-volt test light connected to 12-volts, check the Transmission Control Relay Ground circuit. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly? Yes → Go To 7 No → Repair the Transmission Control Relay Ground circuit for an open or high resistance. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
7	Turn the ignition off to the lock position. Remove the Transmission Control Relay. Disconnect the TCM harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance of the Transmission Control Relay Control circuit between the Transmission Control Relay connector and the TCM harness connector. Is the resistance above 5.0 ohms? Yes → Repair the Transmission Control Relay Control circuit for an open. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 8	All
8	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance between ground and the Transmission Control Relay Control circuit. Is the resistance below 5.0 ohms? Yes → Repair the Transmission Control Relay Control circuit for a short to ground. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 9	All
9	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Transmission Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

P0888-RELAY OUTPUT ALWAYS OFF — Continued

TEST	ACTION	APPLICABILITY
10	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance between ground and the Transmission Control Relay Output circuit. Is the resistance below 5.0 ohms? Yes → Go To 11 No → Repair the Fused B+ circuit for an open. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
11	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance between ground and the Transmission Control Relay Output circuit. Is the resistance below 5.0 ohms? Yes → Repair the Transmission Control Relay Output circuit for a short to ground. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 12	All
12	If there are no possible causes remaining, view repair. Repair Replace Transmission Solenoid/Pressure Switch Assembly per the Service Information. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
13	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring while checking for shorts and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P0890-SWITCHED BATTERY

When Monitored and Set Condition:

P0890-SWITCHED BATTERY

When Monitored: Ignition key is turned from the OFF position to RUN position and/or ignition key is turned from the CRANK position to RUN position.

Set Condition: This DTC is set if the Transmission Control Module senses voltage on any of the Pressure Switch Inputs prior to the TCM energizing the Transmission Control Relay.

POSSIBLE CAUSES
2/4 PRESSURE SWITCH SENSE CIRCUIT SHORT TO VOLTAGE
L/R PRESSURE SWITCH SENSE CIRCUIT SHORT TO VOLTAGE
OD PRESSURE SWITCH SENSE CIRCUIT SHORT TO VOLTAGE
TRANSMISSION CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All
2	With the DRBIII®, Check the STARTS SINCE SET counter for P0890. **Note: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter for P0890 set at 0? Yes → Go To 3 No → Go To 7	All

P0890-SWITCHED BATTERY — Continued

TEST	ACTION	APPLICABILITY
3	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Measure the voltage of the 2/4 Pressure Switch Sense circuit. Is the voltage above 0.5 volt? Yes → Repair the 2/4 Pressure Switch Sense circuit for a short to voltage. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 4	All
4	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Measure the voltage of the L/R Pressure Switch Sense circuit. Is the voltage above 0.5 volt? Yes → Repair the L/R Pressure Switch Sense circuit for a short to voltage. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 5	All
5	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Measure the voltage of the OD Pressure Switch Sense circuit. Is the voltage above 0.5 volt? Yes → Repair the OD Pressure Switch Sense circuit for a short to voltage. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 6	All
6	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Transmission Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

P0890-SWITCHED BATTERY — Continued

TEST	ACTION	APPLICABILITY
7	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:

P0891-TRANSMISSION RELAY ALWAYS ON

When Monitored and Set Condition:

P0891-TRANSMISSION RELAY ALWAYS ON

When Monitored: When the ignition is turned from the OFF position to the RUN position and/or the ignition is turned from the CRANK position to RUN position.

Set Condition: This DTC is set if the Transmission Control Module senses greater than 3.0 volts at the Transmission Control Relay Output terminal of the TCM prior to the TCM energizing the Transmission Control Relay.

POSSIBLE CAUSES
INTERMITTENT WIRING AND CONNECTORS
TRANSMISSION CONTROL RELAY STUCK CLOSED
TRANSMISSION CONTROL RELAY CONTROL CIRCUIT SHORT TO VOLTAGE
TRANSMISSION CONTROL RELAY OUTPUT CIRCUIT SHORT TO VOLTAGE
TRANSMISSION CONTROL MODULE

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0891-TRANSMISSION RELAY ALWAYS ON — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, check the STARTS SINCE SET counter for P0891. **Note: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter set to 0? Yes → Go To 3 No → Go To 7	All
3	Turn the ignition off to the lock position. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance between the Fused B+ circuit and the Transmission Control Relay Output Circuit in the Transmission Control Relay. Is the resistance above 5.0 ohms? Yes → Go To 4 No → Replace the Transmission Control Relay. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
4	Turn the ignition off to the lock position. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Ignition on, engine not running. Measure the voltage of the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Is the voltage above 0.5 volt? Yes → Repair the Transmission Control Relay Output circuit for a short to voltage Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 5	All
5	Turn the ignition off to the lock position. Remove the Transmission Control Relay. **NOTE: Check connectors - Clean/repair as necessary.** Ignition on, engine not running. **NOTE: The Transmission Controller will power up the Transmission Control Relay Control circuit for approximately 3.0 seconds after an initial ignition on. Wait at least 3.0 seconds before performing the following voltage check.** **NOTE: A One-trip fault may set for P0888 Relay Output Always Off, disregard the DTC.** Measure the voltage of the Transmission Control Relay Control circuit after a 3.0 second wait period. Is the voltage above 0.5 volt? Yes → Repair Transmission Relay Control Circuit for a short to voltage. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 6	All
6	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Transmission Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

P0891-TRANSMISSION RELAY ALWAYS ON — Continued

TEST	ACTION	APPLICABILITY
7	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P0897-WORN OUT/BURNT TRANSAXLE FLUID

When Monitored and Set Condition:

P0897-WORN OUT/BURNT TRANSAXLE FLUID

When Monitored: With each transition from full Torque Convertor to partial Torque Convertor engagement for A/C bump prevention.

Set Condition: When vehicle shudder is detected during partial engagement (PEMCC).

POSSIBLE CAUSES
WORN OUT/ BURNT TRANSMISSION FLUID

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0897-WORN OUT/BURNT TRANSAXLE FLUID — Continued

TEST	ACTION	APPLICABILITY
2	Turn the ignition off. Remove the Transmission Oil Pan and Oil Filter per the Service Information. Install a new Transmission Oil Filter per Service Information. Reinstall Transmission Oil Pan, and refill with new Transmission Fluid per the Service Information. **Note: The Transmission Cooler must be flushed before prodceeding.** Start the engine, check and adjust the Transmission Fluid Level per Service Information. Allow the engine to idle for 10 minutes, in Park. Flush the Transmission Oil Cooler per the Service Information. Turn the ignition off. Drain and refill the Transmission Fluid. Flush the Transmission Oil Cooler again. Start the engine, check and adjust the Transmission Fluid Level per Service Information. With the DRBIII®, perform a Battery Disconnect. **Note: This must be done to re enable EMCC during an A/C Clutch engagement.** The vehicle may exhibit intermittent shudder during the first few hundred miles. **Note: The oil will gradually penetrate the TCC friction material and the shudder should disappear.** Erase the DTC and return the vehicle to the customer. Did the Code reset or does the vehicle still shudder after a few thousand miles? Yes → Replace the Torque Convertor per the Service Information. Note: After replacing the Torque Convertor, use the DRBIII to perform the TCC Break In procedure. This will prevent a possible shudder condition. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:

P0944-LOSS OF PRIME

When Monitored and Set Condition:

P0944-LOSS OF PRIME

When Monitored: If the transmission is slipping in any forward gear and the pressure switches are not indicating pressure, a loss of prime test is run.

Set Condition: If the Trans. begins to slip in a forward gear & the press. switch(s) that should be closed are open a loss of prime test begins. Available elements are turned on by the TCM to see if pump prime exists.The code sets if no pressure switches respond.

POSSIBLE CAUSES
SHIFT LEVER POSITION
PLUGGED TRANSMISSION OIL FILTER
TRANSMISSION OIL PUMP
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0944-LOSS OF PRIME — Continued

TEST	ACTION	APPLICABILITY
2	Place the gear selector in park. Start the engine. **NOTE: The TRANS TEMP DEG must be at least 43° C or 110° F before performing the following steps.** The Transmission must be at operating temperature prior to checking pressure. A cold Transmission will give higher readings. Place the Transmission in Reverse. With the DRBIII®, observe the Transmission Pressure Switch states. Are any of the Pressure Switches closed? Yes → Go To 3 No → Go To 5	All
3	The conditions necessary to set this DTC are not present at this time. Test drive the vehicle. Allow the Transmission to shift through all gears and ranges. Did you experience a delayed engagement and/or a no drive condition? Yes → Go To 5 No → Go To 4	All
4	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All
5	With the DRBIII®, perform a Shift Lever Position test. Follow the instructions on the DRBIII®. Did the Shift Lever Position Test pass? Yes → Go To 6 No → Refer to symptom list and perform test for DTC P0706. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
6	Remove and inspect the Transmission Oil Pan and Transmission Oil Filter per the Service Information. Does the Transmission Oil Pan contain excessive debris and/or is the Oil Filter plugged? Yes → Repair the cause of the plugged Transmission Oil Filter. Refer to the Service Information for the proper repair procedure. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 7	All
7	If there are no possible causes remaining, view repair. Repair Replace the Transmission Oil Pump per the Service Information. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

Symptom:

P0992- 2-4/OD HYDRAULIC PRESSURE TEST FAILURE

When Monitored and Set Condition:

P0992- 2-4/OD HYDRAULIC PRESSURE TEST FAILURE

When Monitored: In any forward gear with engine speed above 1000 RPM shortly after a shift and every minute thereafter.

Set Condition: After a shift into a forward gear, with engine speed > 1000 RPM, the TCM momentarily turns on element pressure to the clutch ckts that don't have pressure to identify the correct pressure sw closes. If the pressure sw does not close 2 times the code sets.

POSSIBLE CAUSES
CONDITION P0992 PRESENT

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0992- 2-4/OD HYDRAULIC PRESSURE TEST FAILURE — Continued

TEST	ACTION	APPLICABILITY
2	**NOTE: The vehicle must be driven to set this DTC, the transmission must be warm or hot with the Engine RPM above 1000 RPM.** This DTC is an indicator of a 2/4 and/or O/D Hydraulic Pressure Switch DTC's present. Perform the tests for P0870 and/or P0845 to determine which switch is failing. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. If there are no possible causes remaining, view repair. Repair Refer to the Transmission category and perform the appropriate symptom for P0870 and/or P0845. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

Symptom:
P1652-SERIAL COMMUNICATION LINK MALFUNCTION

When Monitored and Set Condition:

P1652-SERIAL COMMUNICATION LINK MALFUNCTION

When Monitored: Continuously with engine running.

Set Condition: The DTC sets in approximately 20 seconds if no BUS messages are received by the TCM.

POSSIBLE CAUSES
NO COMMUNICATION WITH MIC
NO COMMUNICATION WITH PCM
INTERMITTENT WIRING AND CONNECTORS
TRANSMISSION CONTROL MODULE

TEST	ACTION	APPLICABILITY
1	With the DRBIII®, erase TCM DTC's. **Note: Erase P0700 DTC in the PCM to turn the MIL light off after making transmission repairs.** Start the engine in park. Did the DTC reset after the engine was started? Yes → Go To 2 No → Go To 5	All
2	Ignition on, engine not running. With the DRBIII®, attempt communication with the MIC Can you communicate with the MIC? Yes → Go To 3 No → Refer to the Communication category for the related symptom(s). Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
3	Ignition on, engine not running. With the DRBIII®, select the following screens in order: ″BODY″ ″MIC″ ″MONITOR DISPLAY″ ″PCI BUS ENGINE INFO″. Does the DRBIII®, read ″NO RESPONSE″ from any of the listed PCM monitors? Yes → Refer to Communication Category for the related symptom(s). Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 4	All

P1652-SERIAL COMMUNICATION LINK MALFUNCTION — Continued

TEST	ACTION	APPLICABILITY
4	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Transmission Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
5	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P1684-BATTERY WAS DISCONNECTED

When Monitored and Set Condition:

P1684-BATTERY WAS DISCONNECTED

When Monitored: Whenever the key is in the Run/Start position.

Set Condition: This code is set whenever Transmission Control Module (TCM) is disconnected from battery power B+ or ground. It will also be set during the DRBIII® Quick Battery Disconnect procedure.

POSSIBLE CAUSES
QUICK LEARN WAS PERFORMED
RECENT BATTERY DISCONNECTION
TCM WAS REPLACED OR DISCONNECTED
INTERMITTENT WIRING AND CONNECTORS
FUSED B+ CIRCUIT TO TCM OPEN
GROUND CIRCUIT OPEN

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P1684-BATTERY WAS DISCONNECTED — Continued

TEST	ACTION	APPLICABILITY
2	Turn ignition off to the lock position. Disconnect the TCM harness connector. Ignition on, engine not running. Measure the voltage of the Fused B+ circuit in the TCM harness connector. Is the voltage below 10.0 volts? Yes → Go To 3 No → Go To 5	All
3	Turn the ignition off to the lock position. Disconnect the TCM harness connector. **Note: Check connectors - Clean/repair as necessary.** Ignition on, engine not running. Using a 12-volt test light connected to ground, check the Fused B+ circuit in the TCM harness connector. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly? Yes → Go To 4 No → Repair the Fused B+ circuit for an open or high resistance. If the fuse is open make sure to check for a short to ground. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
4	Turn ignition off to the lock position. Disconnect the TCM harness connector. **Note: Check connectors - Clean/repair as necessary.** Using a 12-volt test light connected to 12-volts, check all the ground circuits in the TCM harness connector. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the light illuminate brightly at all the ground circuits? Yes → Test Complete. No → Repair the Ground circuit(s) as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
5	Has the battery been disconnected, lost it's charge, or been replaced recently? Yes → This is the cause of the DTC. Erase the DTC and return the vehicle to the customer. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 6	All
6	Has the Quick Learn procedure been performed? Yes → This is the cause of the DTC. Erase the DTC and return the vehicle to the customer. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 7	All
7	Has the TCM been replaced or disconnected? Yes → Replacing or disconnecting the TCM will set this DTC. Erase the DTC and return the vehicle to the customer. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 8	All

P1684-BATTERY WAS DISCONNECTED — Continued

TEST	ACTION	APPLICABILITY
8	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring while checking for shorted and open circuits. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P1687-NO COMMUNICATION WITH THE MIC

When Monitored and Set Condition:

P1687-NO COMMUNICATION WITH THE MIC

When Monitored: Continuously with engine running.

Set Condition: The DTC sets in approximately 25 seconds if no BUS messages are received form the MIC.

POSSIBLE CAUSES
OTHER BUS PROBLEMS PRESENT
INTERMITTENT WIRING AND CONNECTORS
MIC - NO COMMUNICATION
TRANSMISSION CONTROL MODULE

TEST	ACTION	APPLICABILITY
1	With the DRBIII®, Check the STARTS SINCE SET counter for P1687. **Note: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter set at 0? Yes → Go To 2 No → Go To 5	All
2	With the DRBIII®, check all of the other modules on the vehicle for evidence of a vehicle bus problem. Bus related DTC's in other modules point to an overall vehicle bus problem. Other symptoms such as a customer complaint of intermittent operation of bus controlled features also indicate a bus problem. Does the PRNDL display indicate ″No Bus″ or is there any evidence of an overall vehicle bus problem? Yes → Refer to the Communications category and perform the appropriate symptom. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	Ignition on, engine not running. With the DRBIII®, clear all DTC's. Start the engine in park. With the DRBIII®, read the MIC DTC's. **NOTE: It may take up to 30 seconds of a consistent fault to set this DTC.** Can the DRBIII® communicate with the MIC? Yes → Go To 4 No → Refer to the Communication category and perform the appropriate symptom related to No Response to MIC. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

P1687-NO COMMUNICATION WITH THE MIC — Continued

TEST	ACTION	APPLICABILITY
4	Ignition on, engine not running. With the DRBIII®, erase Transmission DTC's. Start the engine in park. With the DRBIII®, read Transmission DTC's. Is the DTC, P1687- No Communication with the MIC, present? Yes → Replace the Transmission Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All
5	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P1694-BUS COMMUNICATION WITH ENGINE MODULE

When Monitored and Set Condition:

P1694-BUS COMMUNICATION WITH ENGINE MODULE

When Monitored: Continuously with ignition key on.

Set Condition: If no bus messages are received from the Powertrain Control Module for 10 seconds.

POSSIBLE CAUSES
NO COMMUNICATION WITH ECM
OTHER BUS PROBLEMS PRESENT
TRANSMISSION CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	With the DRBIII®, Check the STARTS SINCE SET counter for P1694. **Note: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter for P1694 set to 0? Yes → Go To 2 No → Go To 5	All
2	With the DRBIII®, check all of the other modules on the vehicle for evidence of a vehicle bus problem. Bus related DTC's in other modules point to an overall vehicle bus problem. Other symptoms such as a customer complaint of intermittent operation of bus controlled features also indicate a bus problem. Does the PRNDL display indicate ″No Bus″ or is there any evidence of an overall vehicle bus problem? Yes → Refer to the Communication category and perform the appropriate symptom. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	Ignition on, engine not running. With the DRBIII®, attempt to communicate with the Engine Control Module. Can the DRBIII® communicate with the ECM? Yes → Go To 4 No → Refer to the Communication category and perform the appropriate symptom. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

P1694-BUS COMMUNICATION WITH ENGINE MODULE — Continued

TEST	ACTION	APPLICABILITY
4	Ignition on, engine not running. With the DRBIII®, erase Transmission DTC's. Start the engine in park. With the DRBIII®, read Transmission DTC's. Did the DTC, P1694, return? Yes → Replace the Transmission Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 5	All
5	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P1775-SOLENOID SWITCH VALVE LATCHED IN TCC POSITION

When Monitored and Set Condition:

P1775-SOLENOID SWITCH VALVE LATCHED IN TCC POSITION

When Monitored: During an attempted shift into 1st gear.

Set Condition: This DTC is set if three unsuccessful attempts are made to shift into 1st gear in one given ignition start.

POSSIBLE CAUSES
RELATED DTC P0841 PRESENT
L/R PRESSURE SWITCH
TRANSMISSION CONTROL RELAY OUTPUT CIRCUIT OPEN
L/R PRESSURE SWITCH SENSE CIRCUIT OPEN
L/R PRESSURE SWITCH CIRCUIT SHORT TO GROUND
L/R PRESSURE SWITCH SENSE CIRCUIT SHORT TO VOLTAGE
TRANSMISSION CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P1775-SOLENOID SWITCH VALVE LATCHED IN TCC POSITION — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, check for other Transmission DTC's Is the DTC P0841 present also? Yes → Refer to the Transmission category and perform the appropriate symptom. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	With the DRBIII®, Check the STARTS SINCE SET counter for P1775. **NOTE: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter 2 or less? Yes → Go To 4 No → Go To 10	All
4	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. Ignition on, engine not running. With the DRBIII®, monitor the L/R Pressure Switch state while pressing the Pressure Switch Test button on the Transmission Simulator. With the Transmission Simulator, select the L/R on the Pressure Switch selector. While observing the LR pressure switch state with the DRBIII®, depress the Pressure Switch Test button. Did the L/R Pressure Switch state change from OPEN to CLOSED when the test button was pressed? Yes → Inspect the Solenoid Switch Valve in the Valve Body per the Service Information and repair or replace as necessary. If no problems are found in Valve Body, replace the Transmission Solenoid/Pressure Switch Assembly per the Service Information. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 5	All
5	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance of the L/R Pressure Switch Sense circuit from the TCM harness connector to the Transmission Solenoid/Pressure Switch Assembly harness connector. Is the resistance above 5.0 ohms? Yes → Repair the L/R Pressure Switch Sense circuit for an open. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 6	All

P1775-SOLENOID SWITCH VALVE LATCHED IN TCC POSITION — Continued

TEST	ACTION	APPLICABILITY
6	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance between ground and the L/R Pressure Switch Sense circuit. Is the resistance below 5.0 ohms? Yes → Repair the L/R Pressure Switch Sense circuit for a short to ground. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 7	All
7	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Measure the voltage of the L/R Pressure Switch Sense circuit. Is the voltage above 0.5 volt? Yes → Repair the L/R Pressure Switch Sense circuit for a short to voltage. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 8	All
8	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between Fused B+ circuit and the Transmission Control Relay Output circuit. Ignition on, engine not running. Using a 12-volt test light connected to ground, check the Transmission Control Relay Output circuit in the Solenoid/Pressure Switch Assembly harness connector. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly? Yes → Go To 9 No → Repair the Transmission Control Relay Output circuit for an open or high resistance. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
9	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Transmission Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

P1775-SOLENOID SWITCH VALVE LATCHED IN TCC POSITION — Continued

TEST	ACTION	APPLICABILITY
10	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring while checking for shorted and open circuits. Test drive the vehicle. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Did you experience any 2nd gear launches or no TCC engagement? Yes → Inspect the Valve Body for signs of a stuck valve or other problem in the SSV area. If no problems are found, replace the Solenoid/ Pressure Switch Assembly. If excessive debris is present in the Pan or Valve Body, repair cause of the debris as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P1776-SOLENOID SWITCH VALVE LATCHED IN LR POSITION

When Monitored and Set Condition:

P1776-SOLENOID SWITCH VALVE LATCHED IN LR POSITION

When Monitored: Continuously when doing partial or full EMCC (PEMCC or FEMCC).

Set Condition: This DTC will set if the TCM senses the L/R Pressure Switch closing while performing PEMCC or FEMCC or after two unsuccessful attempts to perform PEMCC or FEMCC.

POSSIBLE CAUSES
RELATED DTC P0841 PRESENT
L/R PRESSURE SWITCH
TRANSMISSION CONTROL RELAY OUTPUT CIRCUIT OPEN
L/R PRESSURE SWITCH SENSE CIRCUIT OPEN
L/R PRESSURE SWITCH SENSE CIRCUIT SHORT TO GROUND
L/R PRESSURE SWITCH SENSE CIRCUIT SHORT TO VOLTAGE
TRANSMISSION CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P1776-SOLENOID SWITCH VALVE LATCHED IN LR POSITION — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, check for other Transmission DTCs Is the DTC P0841 present also? Yes → Refer to the Transmission category and perform the appropriate symptom. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	With the DRBIII®, Check the STARTS SINCE SET counter for P1776. **NOTE: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter 2 or less? Yes → Go To 4 No → Go To 10	All
4	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the FWD Adapter Cable kit, Miller tool #8333-1A. Ignition on, engine not running. On the Transmission Simulator select L/R on the Pressure Switch selector switch. With the DRBIII®, monitor the L/R Pressure Switch state while pressing the Pressure Switch Test button on the Transmission Simulator. Did the Pressure Switch state change from OPEN to CLOSED when the test button was pressed? Yes → Inspect the Solenoid Switch Valve in the Valve Body per the Service Information and repair or replace as necessary. If no problems are found in Valve Body, replace the Transmission Solenoid/Pressure Switch Assembly per the Service Information. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 5	All
5	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance of the L/R Pressure Switch Sense circuit from the TCM harness connector to the Transmission Solenoid/Pressure Switch Assembly harness connector. Is the resistance above 5.0 ohms? Yes → Repair the L/R Pressure Switch Sense circuit for an open. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 6	All

P1776-SOLENOID SWITCH VALVE LATCHED IN LR POSITION — Continued

TEST	ACTION	APPLICABILITY
6	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance between ground and the L/R Pressure Switch Sense circuit. Is the resistance below 5.0 ohms? Yes → Repair the L/R Pressure Switch Sense circuit for a short to ground. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 7	All
7	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Measure the voltage of the L/R Pressure Switch Sense circuit. Is the voltage above 0.5 volts? Yes → Repair the L/R Pressure Switch Sense circuit for a short to voltage. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 8	All
8	Turn the ignition off to the lock position. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Using a 12-volt test light connected to ground, check the Transmission Control Relay Output circuit. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly? Yes → Go To 9 No → Repair the Transmission Control Relay Output circuit for an open or high resistance. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
9	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Transmission Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

P1776-SOLENOID SWITCH VALVE LATCHED IN LR POSITION — Continued

TEST	ACTION	APPLICABILITY
10	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring while checking for shorted and open circuits. Test drive the vehicle. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Did you experience any 2nd gear launches or no TCC engagement? Yes → Inspect the Valve Body for signs of a stuck valve or other problem in the SSV area. If no problems are found, replace the Solenoid/ Pressure Switch Assembly. If excessive debris is present in the Pan or Valve Body, repair the cause of debris as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P1790-FAULT IMMEDIATELY AFTER SHIFT

When Monitored and Set Condition:

P1790-FAULT IMMEDIATELY AFTER SHIFT

When Monitored: After a speed ratio error is stored.

Set Condition: This code is set if the associated speed ratio code is stored within 1.3 seconds after a shift.

POSSIBLE CAUSES
CONDITION P1790 PRESENT

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All
2	This DTC is set along with a gear ratio DTC. Perform the appropriate test for the Gear Ratio DTC stored. **NOTE: Check 1 trip failures if there are no Gear Ratio DTC's current.** With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. If there are no possible causes remaining, view repair. Repair Refer to the Transmission category and perform the appropriate symptom. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

Symptom:
P1793-TRD LINK COMMUNICATION ERROR

When Monitored and Set Condition:

P1793-TRD LINK COMMUNICATION ERROR

When Monitored: The transmission controller pulses the 12 volt TRD signal from the PCM to ground, during torque managed shifts with the throttle angle above 54 degrees. The TRD system is also tested whenever the vehicle is stopped and the engine speed is at idle.

Set Condition: This code is set when the Transmission Control Module (TCM) sends two subsequent torque reduction messages to the Powertrain Control Module (PCM) via the TRD link circuit and does not receive a confirmation from the PCM over the communication bus.

POSSIBLE CAUSES
RELATED COMMUNICATION DTC'S PRESENT
TORQUE MANAGEMENT REQUEST SENSE CIRCUIT OPEN
TORQUE MANAGEMENT REQUEST SENSE SHORT TO GROUND
TORQUE MANAGEMENT REQUEST SENSE CIRCUIT SHORT TO VOLTAGE
ENGINE CONTROL MODULE
TRANSMISSION CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P1793-TRD LINK COMMUNICATION ERROR — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, read DTC's. Are any communication DTCs present? Yes → If any bus DTC's are present, disregard the P1793 DTC and refer to the communication category and perform the appropriate symptom. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	With the DRBIII®, Check the STARTS SINCE SET counter. **Note: This counter only applies to the last DTC set.** Is the STARTS SINCE SET equal to 0? Yes → Go To 4 No → Go To 9	All
4	Turn the ignition off to the lock position. Disconnect the ECM harness connector. Disconnect the TCM harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance of the Torque Management Request Sense circuit from the TCM harness connector to the ECM harness connector. Is the resistance above 5.0 ohms? Yes → Repair the Torque Management Request Sense circuit for an open. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 5	All
5	Turn the ignition off to the lock position. Disconnect the ECM harness connector. Disconnect the TCM harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance between ground and the Torque Management Request Sense circuit. Is the resistance below 5.0 ohms? Yes → Repair Torque Management Request Sense circuit for a short to ground. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 6	All
6	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Ignition on, engine not running. Measure the voltage of the Torque Management Request Sense circuit. Is the voltage above 10.5 volts? Yes → Repair Torque Management Request Sense circuit for a short to voltage. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 7	All

P1793-TRD LINK COMMUNICATION ERROR — Continued

TEST	ACTION	APPLICABILITY
7	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Ignition on, engine not running. Measure the voltage of the Torque Management Request Sense circuit in the TCM harness connector. Is the voltage above 7.0 volts? Yes → Replace the Transmission Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 8	All
8	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace and program the Engine Control Module per the Service Information. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All
9	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P1794-SPEED SENSOR GROUND ERROR

When Monitored and Set Condition:

P1794-SPEED SENSOR GROUND ERROR

When Monitored: The transmission gear ratio is monitored continuously while the transmission is in gear.

Set Condition: After a TCM reset in neutral and Input/Output equals a ratio of input to output of 2.5 to 1.

POSSIBLE CAUSES
SPEED SENSOR GROUND CIRCUIT OPEN
TRANSMISSION CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P1794-SPEED SENSOR GROUND ERROR — Continued

TEST	ACTION	APPLICABILITY
2	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit, Miller tool #8333-1A. Ignition on, engine not running. Using the Transmission Simulator, set the selector switch to the 3000/1250 position. Turn the Input/Output switch to ON. With the DRBIII®, read the Input and Output Speed Sensor RPM. Does the Input Speed read 3000 RPM and the Output Speed read 1250 RPM within 50 RPM? Yes → Go To 3 No → Go To 4	All
3	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All
4	Turn the ignition off to the lock position. Disconnect the TCM harness connector. Disconnect the Input Speed Sensor harness connector. Disconnect the Output Speed Sensor harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance of the Speed Sensor Ground circuit from the TCM harness connector to both Speed Sensor harness connectors. Is the resistance above 5.0 ohms on either Speed Sensor harness connector? Yes → Repair the Speed Sensor Ground circuit for an open or high resistance. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 5	All
5	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Transmission Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

Symptom:

P1797-MANUAL SHIFT OVERHEAT

When Monitored and Set Condition:

P1797-MANUAL SHIFT OVERHEAT

When Monitored: Whenever engine is running and transmission is in the AutoStick mode.

Set Condition: If the engine temperature exceeds 124° C or 255° F or the transmission temperature exceeds 135° C or 275° F while in AutoStick mode. Note: Aggressive driving or driving in low for extended periods of time in AutoStick® mode will set this DTC.

POSSIBLE CAUSES
MANUAL SHIFT OVERHEAT

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many Transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read the engine DTC's. Check and repair all engine DTC's prior to performing Transmission Symptom Diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Transmission Control Module. Some problems are corrected by software upgrades to the Transmission Control Module.** **NOTE: Check for applicable Service Bulletins related to the symptom.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P1797-MANUAL SHIFT OVERHEAT — Continued

TEST	ACTION	APPLICABILITY
2	This is an informational DTC only. Check the Engine and Transmission Cooling Systems for proper operation. Check the Radiator Cooling Fan operation. Check the Transmission Cooling Fan operation if equipped. Check the Transmission Fluid Level. Make sure it is not overfilled. **NOTE: Aggressive driving or driving in low for extended periods of time in Autostick® mode will set this DTC.** With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:

*CHECKING PARK/NEUTRAL SWITCH OPERATION

POSSIBLE CAUSES
P/N POSITION SWITCH SENSE CIRCUIT OPEN
P/N POSITION SWITCH SENSE CIRCUIT SHORTED TO GROUND
TRANSMISSION RANGE SENSOR
ENGINE CONTROL MODULE

TEST	ACTION	APPLICABILITY
1	Turn the ignition on. With the DRBIII®, read the Park/Neutral Position Switch input state. While moving the gear selector through all gear positions, Park to 1 and back to Park, watch the DRBIII® display. Did the DRBIII® display show P/N and D/R in the correct gear positions? Yes → Test Complete. No → Go To 2	All
2	Turn the ignition off. Disconnect the PCM harness connectors. Disconnect the Transmission Range Sensor harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance of the P/N Position Switch Sense circuit. Is the resistance below 5.0 ohms? Yes → Go To 3 No → Repair the P/N Position Switch Sense circuit for an open.	All
3	Turn the ignition off. Disconnect the PCM harness connectors. Disconnect the Transmission Range Sensor harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance between ground and the P/N Position Switch Sense circuit. Is the resistance above 100k ohms? Yes → Go To 4 No → Repair the P/N Position Switch Sense circuit for a short to ground.	All
4	Turn the ignition off. Disconnect the PCM harness connectors. Move the Gear selector through all gear positions, from Park to 1st and back. While moving the gear selector through each gear, measure the resistance between ground and the P/N Position Switch Sense circuit. Did the resistance change from above 10.0 ohms to below 10.0 ohms? Yes → Go To 5 No → Replace the Transmission Range Sensor per the Service Information.	All

*CHECKING PARK/NEUTRAL SWITCH OPERATION — Continued

TEST	ACTION	APPLICABILITY
5	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace and program the Engine Control Module per the Service Information.	All

Symptom:

*INCORRECT TRANSMISSION FLUID LEVEL

POSSIBLE CAUSES
INCORRECT FLUID LEVEL

TEST	ACTION	APPLICABILITY
1	The transmission must be above 70 degree F. prior to checking fluid level. Adjusting fluid level on a cold transmission will result in an overfilled transmission. Check the transmission fluid level per the service information. Is the fluid level OK? Yes → Test Complete. No → Adjust fluid level and inspect the Transmission and cooler lines for any leaks and repair as necessary.	All

Symptom:

***NO SPEEDOMETER OPERATION**

POSSIBLE CAUSES
NO SPEEDOMETER OPERATION

TEST	ACTION	APPLICABILITY
1	With the DRBIII®, under Transmission, check the pinion factor setting. Is the pinion factor missing or set incorrectly? Yes → One possible cause is the pinion factor is not set or is set incorrectly in the TCM. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
*PRNDL FAULT CLEARING PROCEDURE

POSSIBLE CAUSES
PRNDL FAULT CLEARING PROCEDURE .

TEST	ACTION	APPLICABILITY
1	With the DRBIII®, erase Transmission DTCs. Cycle the ignition off, then start the vehicle. Firmly apply the brakes and shift into Overdrive. **NOTE: Vehicle must remain in Overdrive for at least 3.0 seconds.** With the brakes firmly applied, shift slowly through all gears (PRNDL) as least three times, pausing momentarily in each gear. **NOTE: If all the PRNDL lights box individually then the error was cleared.** Shift into park and turn the ignition off to the lock position. Ignition on, engine not running. With the DRBIII®, read Transmission DTCs. Does the DTC P0706 reset, or do all the PRNDL indicators remain boxed in park or neutral? Yes → Return to the symptom list and perform diagnostics for P0706 CHECK SHIFTER SIGNAL. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete. Perform 41TE TRANSMISSION VERIFICATION TEST - VER 1.	All

Symptom:

*TRANSMISSION NOISY WITH NO DTC'S PRESENT

POSSIBLE CAUSES
INCORRECT FLUID LEVEL
INTERNAL TRANSMISSION PROBLEM - NOISY
INTERNAL TRANSMISSION PROBLEM - NOISY WHILE STANDING STILL

TEST	ACTION	APPLICABILITY
1	Check the Transmission Fluid Level per the Service Information. Is the fluid level OK? Yes → Go To 2 No → Adjust fluid level and repair cause of incorrect fluid level.	All
2	Place vehicle on hoist. **WARNING: BE SURE TO KEEP HANDS AND FEET CLEAR OF ROTATING WHEELS.** Run vehicle on hoist under conditions necessary to duplicate the noise. **NOTE: It may be necessary to test drive the vehicle to duplicate the noise.** Using Chassis Ears or other suitable listening device, verify the source of the noise. Is the noise coming from the transmission? Yes → Go To 3 No → Test Complete.	All
3	With the shift lever in neutral, raise the engine speed and listen to the noise. **NOTE: THE RADIO MUST BE TURNED OFF. Alternator noise can come through the speakers and be misinterpreted as Transmission Pump Whine. This can happen even with the volume turned down.** Does the noise get louder or change pitch while the engine speed is changing? Yes → Go To 4 No → Go To 5	All
4	If there are no possible causes remaining, view repair. Repair Repair internal transmission problem as necessary. Inspect all of the transmission components for signs of wear. If no problems found, replace the Transmission oil pump..	All
5	If there are no possible causes remaining, view repair. Repair Repair internal transmission problem as necessary. Inspect all of the transmission components for signs of wear. Pay particular attention to bearings, pinion gears, etc. Repair or replace as necessary.	All

Symptom:

*TRANSMISSION SHIFTS EARLY WITH NO DTC'S

POSSIBLE CAUSES
INTERNAL TRANSMISSION PROBLEM - NOISY

TEST	ACTION	APPLICABILITY
1	If there are no possible causes remaining, view repair. Repair Repair internal transmission problem as necessary. Inspect all of the transmission components for signs of wear. Pay particular attention to bearings, pinion gears, etc. Repair or replace as necessary.	All

Symptom:

***TRANSMISSION SIMULATOR 8333 WILL NOT POWER UP**

TEST	ACTION	APPLICABILITY
1	**NOTE: If the Transmission Simulator Miller tool #8333 will not power up, this is a symptom of the Transmission Relay being open, such as Limp-in, and/or this also could be a indication of the Transmission Simulator not installed correctly on the vehicle.** **NOTE: Check the Simulator ground cable connection.** **NOTE: Check all Transmission Simulator harness connections.** Repair these symptoms before having the Transmission Simulator Miller Tool #8333 repaired. Continue Test Complete.	All

Symptom:
P0122-THROTTLE POSITION SENSOR/APPS LOW

When Monitored and Set Condition:

P0122-THROTTLE POSITION SENSOR/APPS LOW

When Monitored: Continuously with the ignition on and engine running.

Set Condition: This DTC will set if the monitored TPS voltage drops below .078 volts for the period of 0.48 seconds.

POSSIBLE CAUSES
RELATED TPS ENGINE DTC'S PRESENT
POWERTRAIN CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All
2	With the DRBIII®, check Engine DTC's, this includes all one trip failures. Are there any Engine TPS DTCs present? Yes → Refer to the Powertrain category and perform the appropriate symptom. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All

P0122-THROTTLE POSITION SENSOR/APPS LOW — Continued

TEST	ACTION	APPLICABILITY
3	With the DRBIII®, record the EATX EVENT DATA to help identify the conditions in which the DTC was set. With the DRBIII®, erase Transmission DTCs. **NOTE: To erase EATX EVENT DATA information, a BATTERY DISCONNECT must be performed. Performing a BATTERY DISCONNECT will reset all learned Transmission values to controller defaults which may lead to erratic shift schedules.** Drive the vehicle and try to duplicate the conditions in which the DTC was reported by the EATX EVENT DATA. With the DRBIII®, read Transmission DTCs. Did the DTC P0122 THROTTLE POSITION SENSOR LOW, reset? Yes → Go To 4 No → Go To 5	All
4	**NOTE: Due to the integration of the Powertrain and Transmission Control Modules, bus communication between the modules is internal.** Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Powertrain Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
5	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wires while checking for shorted and open circuits. Pay particular attention to the TPS signal and sensor ground circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P0123-THROTTLE POSITION SENSOR/APPS HIGH

When Monitored and Set Condition:

P0123-THROTTLE POSITION SENSOR/APPS HIGH

When Monitored: Continuously with the ignition on and engine running.

Set Condition: This DTC will set if the monitored TPS voltage rises above 4.94 volts for the period of 0.48 seconds.

POSSIBLE CAUSES
RELATED TPS ENGINE DTC'S PRESENT
POWERTRAIN CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All
2	With the DRBIII®, check Engine DTC's, this includes all one trip failures. Are there any Engine TPS DTCs present? Yes → Refer to the Powertrain category and perform the appropriate symptom. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All

P0123-THROTTLE POSITION SENSOR/APPS HIGH — Continued

TEST	ACTION	APPLICABILITY
3	With the DRBIII®, record the EATX EVENT DATA to help identify the conditions in which the DTC was set. With the DRBIII®, erase Transmission DTCs. **NOTE: To erase EATX EVENT DATA information, a BATTERY DISCONNECT must be performed. Performing a BATTERY DISCONNECT will reset all learned Transmission values to controller defaults which may lead to erratic shift schedules.** Drive the vehicle and try to duplicate the conditions in which the DTC was reported by the EATX EVENT DATA. With the DRBIII®, read Transmission DTCs. Did the DTC P0123 THROTTLE POSITION SENSOR HIGH, reset? Yes → Go To 4 No → Go To 5	All
4	**NOTE: Due to the integration of the Powertrain and Transmission Control Modules, communication between the modules is internal.** Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Powertrain Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
5	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wires while checking for shorted and open circuits. Pay particular attention to the TPS signal and sensor ground circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P0124-THROTTLE POSITION SENSOR/APPS INTERMITTENT

When Monitored and Set Condition:

P0124-THROTTLE POSITION SENSOR/APPS INTERMITTENT

When Monitored: Continuously with the ignition on and engine running.

Set Condition: This DTC will set if the monitored TPS throttle angle between the angles of 6° and 120° and the degree change is greater than 5° within a period of less than 7.0 ms.

POSSIBLE CAUSES
RELATED TPS ENGINE DTC'S PRESENT
THROTTLE POSITION SENSOR
POWERTRAIN CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All
2	With the DRBIII®, check Engine DTC's, this includes all one trip failures. Are there any Engine TPS DTCs present? Yes → Refer to the Powertrain category and perform the appropriate symptom. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All

P0124-THROTTLE POSITION SENSOR/APPS INTERMITTENT — Continued

TEST	ACTION	APPLICABILITY
3	With the DRBIII®, record the EATX EVENT DATA to help identify the conditions in which the DTC was set. With the DRBIII®, erase Transmission DTCs. **NOTE: To erase EATX EVENT DATA information, a BATTERY DISCONNECT must be performed. Performing a BATTERY DISCONNECT will reset all learned Transmission values to controller defaults which may lead to erratic shift schedules.** Drive the vehicle and try to duplicate the conditions in which the DTC was reported by the EATX EVENT DATA. With the DRBIII®, read Transmission DTCs. Did the DTC P0124 THROTTLE POSITION SENSOR INTERMITTENT, reset? Yes → Go To 4 No → Go To 6	All
4	Ignition On, Engine Not Running. With the DRBIII®, under Transmission Sensors, monitor the TPS voltage in the following step. Slowly open and close the throttle while checking for erratic voltage changes. Did the TPS voltage change smooth and consistent? Yes → Go To 5 No → Replace the Throttle Position Sensor per the Service Information. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
5	**NOTE: Due to the integration of the Powertrain and Transmission Control Modules, communication between the modules is internal.** Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Powertrain Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
6	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wires while checking for shorted and open circuits. Pay particular attention to the TPS signal and sensor ground circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P0218-HIGH TEMPERATURE OPERATION ACTIVATED

When Monitored and Set Condition:

P0218-HIGH TEMPERATURE OPERATION ACTIVATED

When Monitored: Whenever the engine is running. NOTE: This is an informational DTC designed to aid the technician in diagnosing shift quality complaints.

Set Condition: Immediately when a Overheat shift schedule is activated when the Transmission Oil Temperature reaches 155° C or 240° F.

POSSIBLE CAUSES
ENGINE COOLING SYSTEM MALFUNCTION
TRANSMISSION OIL COOLER PLUGGED
HIGH TEMPERATURE OPERATIONS ACTIVATED

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All
2	Perform Engine Cooling System diagnostics per the Service Information. Is the Engine Cooling System functioning properly? Yes → Go To 3 No → Repair the cause of the engine overheating. Refer to the Service Information for the related symptoms or repair procedures. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

P0218-HIGH TEMPERATURE OPERATION ACTIVATED — Continued

TEST	ACTION	APPLICABILITY
3	Perform Transmission Cooler Flow Check per the Service Information. Did the Transmission Cooler Flow Check test pass? Yes → Go To 4 No → Repair or replace the plugged Transmission Oil Cooler per the Service Information. Repair the cause of the plugged Transmission Oil Cooler as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
4	This DTC is an informational DTC designed to aid the Technician in diagnosing shift quality complaints. This DTC indicates that the transmission has been operating in the ″Overheat″ shift schedule which may generate a customer complaint. The customer driving patterns may indicate the need for an additional transmission oil cooler. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. View repair options. Repair Repair the cause of transmission overheating per the Service Information. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

Symptom:

P0562-LOW BATTERY VOLTAGE

When Monitored and Set Condition:

P0562-LOW BATTERY VOLTAGE

When Monitored: With the engine running and the PCM has closed the Transmission Control Relay.

Set Condition: If the battery voltage of the Transmission Control Relay Output Sense circuit(s) to the PCM is less than 10.0 volts for the period of 15 seconds. Note: P0562 generally indicates a gradually falling battery voltage or a resistive connection(s) to the PCM. The DTC will also set if the battery voltage sensed at the PCM is less than 6.5v for 200ms or where Transmission Control Relay Output circuits is less than 7.2v for 200ms.

POSSIBLE CAUSES
RELATED CHARGING SYSTEM DTC'S
GROUND CIRCUIT OPEN OR HIGH RESISTANCE
FUSED B+ CIRCUIT TO PCM HIGH RESISTANCE
TRANSMISSION CONTROL RELAY OUTPUT TO TCM OPEN OR HIGH RESISTANCE
TRANSMISSION CONTROL RELAY
POWERTRAIN CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0562-LOW BATTERY VOLTAGE — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, read the Engine DTC's. Are there any Charging System related DTC's present also? Yes → Refer to the Charging System category and repair any PCM Charging System DTC's, before testing DTC P0562. NOTE: After repairing the PCM Charging System DTC's, perform the Transmission Verification test to verify the transmission was not damaged. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	**NOTE: Generator, battery, and charging system must be fully functional before performing this test.** With the DRBIII®, read Transmission DTC's. With the DRBIII®, Check the STARTS SINCE SET counter for P0562. **Note: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter set at 0? Yes → Go To 4 No → Go To 9	All
4	Turn the ignition off to the lock position. Disconnect the PCM harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Using a 12-volt test light connected to 12-volts, check the Ground circuits in the appropriate terminal of special tool #8815. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly for all the Ground circuits? Yes → Go To 5 No → Repair the Ground circuit and/or circuits for an open or high resistance. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

P0562-LOW BATTERY VOLTAGE — Continued

TEST	ACTION	APPLICABILITY
5	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between Fused B+ circuit and Transmission Control Relay Output circuit in the Transmission Relay connector. Ignition on, engine not running. **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Using a 12-volt test light connected to ground, check the Fused B+ circuit in the appropriate terminal of special tool #8815. **NOTE: The Test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly? Yes → Go To 6 No → Repair the Fused B+ Circuit circuit for an open or high resistance. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
6	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Connect a jumper wire between Fused B+ circuit and the Transmission Control Relay Output circuit. Ignition on, engine not running. Using a 12-volt test light connected to ground, check both Transmission Control Relay Output circuits in the appropriate terminal of special tool #8815. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly? Yes → Go To 7 No → Repair the Transmission Control Relay Output circuit for an open or high resistance. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

P0562-LOW BATTERY VOLTAGE — Continued

TEST	ACTION	APPLICABILITY
7	Turn the ignition off to the lock position. Install a substitute Relay in place of the Transmission Control Relay. Start the engine. Using a voltmeter, measure the battery voltage. With the DRBIII®, monitor the Transmission Switched Battery Voltage. Compare the DRBIII® Transmission Switched Battery voltage to the actual battery voltage. Is the DRBIII® voltage within 2.0 volts of the battery voltage? Yes → Replace the Transmission Control Relay. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 8	All
8	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Powertrain Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
9	The conditions necessary to set the DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring and connectors while checking for shorts and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom List:

P0604-INTERNAL TCM
P0605-INTERNAL TCM
P0613-INTERNAL TCM

Test Note: All symptoms listed above are diagnosed using the same tests. The title for the tests will be P0604-INTERNAL TCM.

POSSIBLE CAUSES
PCM - INTERNAL ERROR

TEST	ACTION	APPLICABILITY
1	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Powertrain Control Module. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

Symptom:

P0706-CHECK SHIFTER SIGNAL

When Monitored and Set Condition:

P0706-CHECK SHIFTER SIGNAL

When Monitored: Continuously with the ignition on.

Set Condition: After 3 occurrences in one ignition cycle of an invalid PRNDL DTC which lasts for more than 0.1 second. Note: All indicator lights on the instrument cluster will illuminate boxed when the vehicle engine is not running, ignition on or engine running in park or neutral if a problem exists.

POSSIBLE CAUSES
SHIFTER OUT OF ADJUSTMENT
TRS T1 SENSE CIRCUIT OPEN
TRS T3 SENSE CIRCUIT OPEN
TRS T41 SENSE CIRCUIT OPEN
TRS T42 SENSE CIRCUIT OPEN
TRS T1 SENSE CIRCUIT SHORT TO GROUND
TRS T3 SENSE CIRCUIT SHORT TO GROUND
TRS T41 SENSE CIRCUIT SHORT TO GROUND
TRS T42 SENSE CIRCUIT SHORT TO GROUND
TRS T1 SENSE CIRCUIT SHORT TO VOLTAGE
TRS T3 SENSE CIRCUIT SHORT TO VOLTAGE
TRS T41 SENSE CIRCUIT SHORT TO VOLTAGE
TRS T42 SENSE CIRCUIT SHORT TO VOLTAGE
TRANSMISSION RANGE SENSOR
POWERTRAIN CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

P0706-CHECK SHIFTER SIGNAL — Continued

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All
2	With the DRBIII®, erase Transmission DTCs. Cycle the ignition off, then start the vehicle. Firmly apply the brakes and shift into Overdrive. **NOTE: Vehicle must remain in Overdrive for at least three seconds.** With the brakes firmly applied, shift slowly through all gears (PRNDL) as least three times, pausing momentarily in each gear. **NOTE: If all the PRNDL lights box individually then the error was cleared.** Shift into park and turn the ignition off to the lock position. Ignition on, engine not running. With the DRBIII®, read Transmission DTCs. Does the DTC P0706 reset, or do all the PRNDL indicators remain boxed in park or neutral? Yes → Go To 3 No → Go To 21	All
3	With the DRBIII®, perform the Shift Lever Position Test. Select the test outcome from the following: Test passes Go To 21 Test fails with DTC Go To 4 Test fails without DTC Go To 20	All

P0706-CHECK SHIFTER SIGNAL — Continued

TEST	ACTION	APPLICABILITY
4	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. Ignition on, engine not running. With the DRBIII®, perform the Shift Lever Position Test. When the DRBIII ® instructs you to put the Gear Selector in a particular position, you must do so using the Transmission Simulator. The LED for the gear position in question must be illuminated on the Transmission Simulator, prior to pressing the ENTER key on the DRBIII®. Did the Shift Lever Position Test pass? Yes → Go To 5 No → Go To 6 **NOTE: After completion of this procedure, make sure to disconnect the Transmission Simulator, Miller tool #8333 and FWD adaptor cable kit, Miller tool #8333-1A and reconnect all connectors.**	All
5	If there are no possible causes remaining, view repair. Repair Replace the Transmission Range Sensor per the Service Information. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
6	Ignition on, engine not running. With the DRBIII®, monitor the TRS Sense circuits on the Input/Output screen - C1 thru C4. Move the shift lever through all gear positions, pausing momentarily in each gear position and watch for one of the circuits to not change state. Pick the one that did not change state. TRS T1 sense (C4) Go To 7 TRS T3 sense (C3) Go To 10 TRS T41 sense (C1) Go To 13 TRS T42 sense (C2) Go To 16	All

P0706-CHECK SHIFTER SIGNAL — Continued

TEST	ACTION	APPLICABILITY
7	Turn the ignition off to the lock position. Disconnect the TRS harness connector. Disconnect the PCM harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance of the TRS T1 Sense circuit from the appropriate terminal of special tool #8815 to the TRS harness connector. Is the resistance above 5.0 ohms? Yes → Repair the TRS T1 Sense circuit for an open. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 8	All
8	Turn the ignition off to the lock position. Disconnect the TRS harness connector. Disconnect the PCM harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance between ground and the TRS T1 Sense circuit. Is the resistance below 5.0 ohms? Yes → Repair the TRS T1 Sense circuit for a short to ground. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 9	All
9	Turn the ignition off to the lock position. Disconnect the TRS harness connector. Disconnect the PCM harness connector. Remove the Transmission Control Relay from the PDC. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Measure the voltage of the TRS T1 Sense circuit at the appropriate terminal of special tool #8815. Is the voltage above 0.5 volt? Yes → Repair the TRS T1 Sense circuit for a short to voltage. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 19	All

P0706-CHECK SHIFTER SIGNAL — Continued

TEST	ACTION	APPLICABILITY
10	Turn the ignition off to the lock position. Disconnect the TRS harness connector. Disconnect the PCM harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance of the TRS T3 Sense circuit from the appropriate terminal of special tool #8815 to the TRS harness connector. Is the resistance above 5.0 ohms? Yes → Repair the TRS T3 Sense circuit for an open. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 11	All
11	Turn the ignition off to the lock position. Disconnect the TRS harness connector. Disconnect the PCM harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance between ground and the TRS T3 Sense circuit. Is the resistance below 5.0 ohms? Yes → Repair the TRS T3 Sense circuit for a short to ground. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 12	All
12	Turn the ignition off to the lock position. Disconnect the TRS harness connector. Disconnect the PCM harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Measure the voltage of the TRS T3 Sense circuit. Is the voltage above 0.5 volt? Yes → Repair the TRS T3 Sense circuit for a short to voltage. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 19	All

P0706-CHECK SHIFTER SIGNAL — Continued

TEST	ACTION	APPLICABILITY
13	Turn the ignition off to the lock position. Disconnect the TRS harness connector. Disconnect the PCM harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance of the TRS T41 Sense circuit from the appropriate terminal of special tool #8815 to the TRS harness connector. Is the resistance above 5.0 ohms? Yes → Repair the TRS T41 Sense circuit for an open. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 14	All
14	Turn the ignition off to the lock position. Disconnect the TRS harness connector. Disconnect the PCM harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance between ground and the TRS T41 Sense circuit Is the resistance below 5.0 ohms? Yes → Repair the TRS T41 Sense circuit for a short to ground. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 15	All
15	Turn the ignition off to the lock position. Disconnect the TRS harness connector. Disconnect the PCM harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Measure the voltage of the TRS T41 Sense circuit. Is the voltage above 0.5 volt? Yes → Repair the TRS T1 Sense circuit for a short to voltage. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 19	All

P0706-CHECK SHIFTER SIGNAL — Continued

TEST	ACTION	APPLICABILITY
16	Turn the ignition off to the lock position. Disconnect the TRS harness connector. Disconnect the PCM harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance of the TRS T42 Sense circuit from the appropriate terminal of special tool #8815 to the TRS harness connector. Is the resistance above 5.0 ohms? Yes → Repair the TRS T42 Sense circuit for an open. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 17	All
17	Turn the ignition off to the lock position. Disconnect the TRS harness connector. Disconnect the PCM harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance between ground and the TRS T42 Sense circuit. Is the resistance below 5.0 ohms? Yes → Repair the TRS T42 Sense circuit for a short to ground. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 18	All
18	Turn the ignition off to the lock position. Disconnect the TRS harness connector. Disconnect the PCM harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the voltage of the TRS T42 Sense circuit. Is the voltage above 0.5 volt? Yes → Repair the TRS T42 Sense circuit for a short to voltage. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 19	All

P0706-CHECK SHIFTER SIGNAL — Continued

TEST	ACTION	APPLICABILITY
19	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Powertrain Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
20	If there are no possible causes remaining, view repair. Repair Adjust the Shift Linkage and/or cable per the Service Information. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
21	The conditions necessary to set the DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring and connectors while checking for shorted and open circuits. Check the Shift Linkage and cable for proper operation per the Service Information. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Perform *PRNDL FAULT CLEARING PROCEDURE after completion of any repairs. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P0711-TRANSMISSION TEMPERATURE SENSOR PERFORMANCE

When Monitored and Set Condition:

P0711-TRANSMISSION TEMPERATURE SENSOR PERFORMANCE

When Monitored: Continuously with the ignition on and engine running.

Set Condition: This DTC will set when the desired transmission temperature does not reach a normal operating temperature within a given time frame. Time is variable due to ambient temperature. Approximate times are starting temperature to warm up time: (-40° F / -40° C - 35 min) (-20° F / -28° C - 25 min) (20° F / -6.6° C - 20 min) (60° F / 15.5 ° C - 10 min)

POSSIBLE CAUSES
RELATED DTC'S PRESENT
TRANSMISSION TEMPERATURE SENSOR
POWERTRAIN CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0711-TRANSMISSION TEMPERATURE SENSOR PERFORMANCE — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, check Transmission DTC's. Are there any other Transmission Temperature Sensor related DTCs present? Yes → Refer to the Transmission category and perform the appropriate symptom. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	With the DRBIII®, Check the STARTS SINCE SET counter for P0711. **NOTE: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter 2 or less? Yes → Go To 4 No → Go To 7	All
4	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. **Note: Check connectors - Clean/repair as necessary.** Ignition on, engine not running. With the Transmission Simulator, turn the Input/Output switch to OFF. With the DRBIII®, monitor the TRANS TEMP VOLTS while turning the Thermistor Voltage switch to all three positions on the Transmission Simulator. Compare the DRBIII® readings with the numbers listed on the Transmission Simulator. Do the readings on the Transmission Simulator match the DRBIII® readings ± 0.2 volts? Yes → Go To 5 No → Go To 6	All
5	If there are no possible causes remaining, view repair. Repair Replace Transmission Solenoid/TRS assembly per the Service Information. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
6	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Powertrain Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

P0711-TRANSMISSION TEMPERATURE SENSOR PERFORMANCE — Continued

TEST	ACTION	APPLICABILITY
7	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wires while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P0712-TRANSMISSION TEMPERATURE SENSOR LOW

When Monitored and Set Condition:

P0712-TRANSMISSION TEMPERATURE SENSOR LOW

When Monitored: Continuously with the ignition on and engine running.

Set Condition: The DTC will set when the monitored Temperature Sensor voltage drops below 0.078 volts for the period of 0.45 seconds.

POSSIBLE CAUSES
RELATED DTC'S PRESENT
TRANSMISSION TEMPERATURE SENSOR SIGNAL CIRCUIT SHORT TO GROUND
TRANSMISSION TEMPERATURE SENSOR
POWERTRAIN CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All
2	With the DRBIII®, check Transmission DTC's. Are there any Speed Sensor DTCs present? Yes → Refer to the Transmission category and perform the appropriate symptom. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All

P0712-TRANSMISSION TEMPERATURE SENSOR LOW — Continued

TEST	ACTION	APPLICABILITY
3	With the DRBIII®, Check the STARTS SINCE SET counter for P0712. **NOTE: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter 2 or less? Yes → Go To 4 No → Go To 8	All
4	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. **Note: Check connectors - Clean/repair as necessary.** Ignition on, engine not running. With the Transmission Simulator, turn the Input/Output switch to OFF. With the DRBIII®, monitor the TRANS TEMP VOLTS while turning the Thermistor Voltage switch to all three positions on the Transmission Simulator. Compare the DRBIII® readings with the numbers listed on the Transmission Simulator. Do the readings on the Transmission Simulator match the DRBIII® readings ± 0.2 volts? Yes → Go To 5 No → Go To 6	All
5	If there are no possible causes remaining, view repair. Repair Replace Transmission Solenoid/TRS assembly per the Service Information. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
6	Turn the ignition off to the lock position. Disconnect the PCM C4 harness connector. Disconnect the Transmission Solenoid/TRS Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance between ground and the Transmission Temperature Sensor Signal circuit. Is the resistance below 5.0 ohms? Yes → Repair the Transmission Temperature Sensor Signal circuit for a short to ground. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 7	All

P0712-TRANSMISSION TEMPERATURE SENSOR LOW — Continued

TEST	ACTION	APPLICABILITY
7	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Powertrain Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
8	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wires while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P0713-TRANSMISSION TEMPERATURE SENSOR HIGH

When Monitored and Set Condition:

P0713-TRANSMISSION TEMPERATURE SENSOR HIGH

When Monitored: Continuously with the ignition on and engine running.

Set Condition: The DTC will set when the monitored Temperature Sensor voltage rises above 4.94 volts for the period of 0.45 seconds.

POSSIBLE CAUSES
RELATED DTC'S PRESENT
TRANSMISSION TEMPERATURE SENSOR SIGNAL CIRCUIT OPEN
TRANSMISSION TEMPERATURE SENSOR SIGNAL CIRCUIT SHORT TO VOLTAGE
TRANSMISSION TEMPERATURE SENSOR
POWERTRAIN CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0713-TRANSMISSION TEMPERATURE SENSOR HIGH — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, check Transmission DTC's. Are there any Speed Sensor DTCs present? Yes → Refer to the Transmission category and perform the appropriate symptom. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	With the DRBIII®, Check the STARTS SINCE SET counter for P0713. **NOTE: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter 2 or less? Yes → Go To 4 No → Go To 9	All
4	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. **Note: Check connectors - Clean/repair as necessary.** Ignition on, engine not running. With the Transmission Simulator, turn the Input/Output switch to OFF. With the DRBIII®, monitor the TRANS TEMP VOLTS while turning the Thermistor Voltage switch to all three positions on the Transmission Simulator. Compare the DRBIII® readings with the numbers listed on the Transmission Simulator. Do the readings on the Transmission Simulator match the DRBIII® readings ± 0.2 volts? Yes → Go To 5 No → Go To 6	All
5	If there are no possible causes remaining, view repair. Repair Replace Transmission Solenoid/TRS assembly per the Service Information. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

P0713-TRANSMISSION TEMPERATURE SENSOR HIGH — Continued

TEST	ACTION	APPLICABILITY
6	Turn the ignition off to the lock position. Disconnect the PCM C4 harness connector.. Disconnect the Transmission Solenoid /TRS Assembly harness connector **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance of the Transmission Temperature Sensor Signal circuit from the appropriate terminal of special tool #8815 to the Transmission Solenoid/TRS Assembly harness connector. Is the resistance above 5.0 ohms? Yes → Repair the Transmission Temperature Sensor Signal circuit for an open. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 7	All
7	Turn the ignition off to the lock position. Disconnect the PCM C4 harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Measure the voltage of the Transmission Temperature Sensor Signal circuit in the appropriate terminal of special tool #8815. Is the voltage above 0.5 volts? Yes → Repair the Transmission Temperature Sensor Signal circuit for a short to voltage. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 8	All
8	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Powertrain Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

P0713-TRANSMISSION TEMPERATURE SENSOR HIGH — Continued

TEST	ACTION	APPLICABILITY
9	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wires while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P0714-TRANSMISSION TEMPERATURE SENSOR INTERMITTENT

When Monitored and Set Condition:

P0714-TRANSMISSION TEMPERATURE SENSOR INTERMITTENT

When Monitored: Continuously with the ignition on and engine running.

Set Condition: The DTC will set when the monitored Temperature Sensor voltage fluctuates or changes abruptly within a predetermined period of time.

POSSIBLE CAUSES
RELATED DTC'S PRESENT
TRANSMISSION TEMPERATURE SENSOR
POWERTRAIN CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All
2	With the DRBIII®, check Transmission DTC's. Are there any Speed Sensor and/or other Temperature Sensor DTCs present? Yes → Refer to the Transmission category and perform the appropriate symptom. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All

P0714-TRANSMISSION TEMPERATURE SENSOR INTERMITTENT — Continued

TEST	ACTION	APPLICABILITY
3	With the DRBIII®, Check the STARTS SINCE SET counter for P0714. **NOTE: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter 2 or less? Yes → Go To 4 No → Go To 7	All
4	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. **Note: Check connectors - Clean/repair as necessary.** Ignition on, engine not running. With the Transmission Simulator, turn the Input/Output switch to OFF. With the DRBIII®, monitor the TRANS TEMP VOLTS while turning the Thermistor Voltage switch to all three positions on the Transmission Simulator. Compare the DRBIII® readings with the numbers listed on the Transmission Simulator. Do the readings on the Transmission Simulator match a non-fluctuating DRBIII® reading ± 0.2 volts? Yes → Go To 5 No → Go To 6	All
5	If there are no possible causes remaining, view repair. Repair Replace Transmission Solenoid/TRS assembly per the Service Information. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
6	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Powertrain Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
7	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wires while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P0715-INPUT SPEED SENSOR ERROR

When Monitored and Set Condition:

P0715-INPUT SPEED SENSOR ERROR

When Monitored: The transmission gear ratio is monitored continuously while the transmission is in gear.

Set Condition: If there is an excessive change in the Input RPM in any gear.

POSSIBLE CAUSES
INPUT SPEED SENSOR SIGNAL CIRCUIT OPEN
SPEED SENSOR GROUND CIRCUIT OPEN
INPUT SPEED SENSOR SIGNAL CIRCUIT SHORT TO GROUND
INPUT SPEED SENSOR SIGNAL CIRCUIT SHORT TO VOLTAGE
SPEED SENSOR GROUND CIRCUIT SHORT TO VOLTAGE
INPUT SPEED SENSOR
POWERTRAIN CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0715-INPUT SPEED SENSOR ERROR — Continued

TEST	ACTION	APPLICABILITY
2	Start the engine. Place the shifter in park. With the DRBIII®, read the Input Speed Sensor RPM. Is the Input Speed Sensor reading below 400 RPM? Yes → Go To 3 No → Go To 11	All
3	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. Ignition on, engine not running. With the Transmission Simulator, set the ″Input/Output Speed″ switch to ″ON″ and the rotary switch to the ″3000/1250″ position. With the DRBIII®, read the Input and Output RPM. Does the Input speed read 3000 RPM and the Output speed read 1250 RPM ± 50 RPM? Yes → Go To 4 No → Go To 5	All
4	If there are no possible causes remaining, view repair. Repair Replace the Input Speed Sensor per the Service Information. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
5	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Input Speed Sensor harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance of the Input Speed Sensor Signal circuit from the appropriate terminal of special tool #8815 to the Input Speed Sensor connector. Is the resistance above 5.0 ohms? Yes → Repair the Input Speed Sensor Signal circuit for an open. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 6	All

P0715-INPUT SPEED SENSOR ERROR — Continued

TEST	ACTION	APPLICABILITY
6	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Input Speed Sensor harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance of the Speed Sensor Ground circuit from the Pinout Box to the Input Speed Sensor harness connector. Is the resistance above 5.0 ohms? Yes → Repair the Speed Sensor Ground circuit for an open. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 7	All
7	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Input Speed Sensor harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance between ground and the Input Speed Sensor Signal circuit. Is the resistance Below 5.0 ohms? Yes → Repair the Input Speed Sensor Signal circuit for a short to ground. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 8	All
8	Turn the ignition off to the lock position. Disconnect the Input Speed Sensor harness connector. Disconnect the PCM harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Measure the voltage of the Input Speed Sensor Signal circuit. Is the voltage above 0.5 volts? Yes → Repair the Input Speed Sensor Signal circuit for a short to voltage. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 9	All

P0715-INPUT SPEED SENSOR ERROR — Continued

TEST	ACTION	APPLICABILITY
9	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the TRS harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the voltage of the Speed Sensor Ground circuit in the Pinout Box. Is the voltage above 0.5 volt? Yes → Repair the Speed Sensor Ground circuit for a short to voltage. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 10	All
10	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Powertrain Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
11	The conditions necessary to set the DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring and connectors while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P0720-OUTPUT SPEED SENSOR ERROR

When Monitored and Set Condition:

P0720-OUTPUT SPEED SENSOR ERROR

When Monitored: The transmission gear ratio is monitored continuously while the transmission is in gear.

Set Condition: If there is an excessive change in the Output RPM in any gear.

POSSIBLE CAUSES
OUTPUT SPEED SENSOR SIGNAL CIRCUIT OPEN
SPEED SENSOR GROUND CIRCUIT OPEN
OUTPUT SPEED SENSOR SIGNAL CIRCUIT SHORT TO GROUND
OUTPUT SPEED SENSOR SIGNAL CIRCUIT SHORT TO VOLTAGE
SPEED SENSOR GROUND CIRCUIT SHORT TO VOLTAGE
OUTPUT SPEED SENSOR
POWERTRAIN CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0720-OUTPUT SPEED SENSOR ERROR — Continued

TEST	ACTION	APPLICABILITY
2	Start the engine in park. Raise the drive wheels off of the ground. **WARNING: PROPERLY SUPPORT THE VEHICLE.** Firmly apply the brakes and place the transmission selector in drive. **WARNING: BE SURE TO KEEP HANDS AND FEET CLEAR OF ROTATING WHEELS.** Release the brakes and allow the drive wheels to spin freely. **Note: The drive wheels must be turning at this point.** With the DRBIII®, read the Output RPM Is the Output RPM below 100? Yes → Go To 3 No → Go To 11	All
3	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. Ignition on, engine not running. With the Transmission Simulator, set the ″Input/Output Speed″ switch to ″ON″ and the rotary switch to the ″3000/1250″ position. With the DRBIII®, read the Input and Output RPM. Does the Input RPM read 3000 and the Output RPM read 1250 (within 50 RPM)? Yes → Go To 4 No → Go To 5	All
4	If there are no possible causes remaining, view repair. Repair Replace the Output Speed Sensor per the Service Information. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
5	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Output Speed Sensor harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance of the Output Speed Sensor Signal circuit from appropriate terminal of special tool #8815 to the Output Speed Sensor harness connector. Is the resistance above 5.0 ohms? Yes → Repair the Output Speed Sensor Signal circuit for an open. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 6	All

P0720-OUTPUT SPEED SENSOR ERROR — Continued

TEST	ACTION	APPLICABILITY
6	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Output Speed Sensor harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance of the Speed Sensor Ground circuit from the appropriate terminal of special tool #8815 to the Output Speed Sensor harness connector. Is the resistance above 5.0 ohms? Yes → Repair the Speed Sensor Ground circuit for an open. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 7	All
7	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Output Speed Sensor harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance between ground and the Output Speed Sensor Signal circuit. Is the resistance below 5.0 ohms? Yes → Repair the Output Speed Sensor Signal circuit for a short to ground. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 8	All
8	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Output Speed Sensor harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the voltage of the Output Speed Sensor Signal circuit. Is the voltage above 0.5 volt? Yes → Repair the Output Speed Sensor Signal circuit for a short to voltage. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 9	All

P0720-OUTPUT SPEED SENSOR ERROR — Continued

TEST	ACTION	APPLICABILITY
9	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the TRS harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ and Transmission Control Relay Output circuits in the Transmission Control Relay connector. Ignition on, engine not running. **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the voltage of the Speed Sensor Ground circuit. Is the voltage above 0.5 volts? Yes → Repair the Speed Sensor Ground circuit for a short to voltage. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 10	All
10	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Powertrain Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
11	The conditions necessary to set the DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring and connectors while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P0725-ENGINE SPEED SENSOR CIRCUIT

When Monitored and Set Condition:

P0725-ENGINE SPEED SENSOR CIRCUIT

When Monitored: Whenever the engine is running.

Set Condition: The Engine RPM is less than 390 or greater than 8000 for more than 2 seconds while the engine is running.

POSSIBLE CAUSES
ENGINE DTCS PRESENT
POWERTRAIN CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All
2	Start the engine. **NOTE: This DTC is not a Transmission Input Speed Sensor DTC.** With the DRBIII®, Check the STARTS SINCE SET counter for P0725. **NOTE: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter for P0725 set at 0? Yes → Go To 3 No → Go To 5	All

P0725-ENGINE SPEED SENSOR CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
3	With the DRBIII®, read Engine DTCs. Are there any Engine DTC's present? Yes → Refer to the Powertrain category and perform the appropriate symptom. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 4	All
4	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Powertrain Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
5	The conditions necessary to set the DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring and connectors while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:

P0731-GEAR RATIO ERROR IN 1ST

When Monitored and Set Condition:

P0731-GEAR RATIO ERROR IN 1ST

When Monitored: The Transmission gear ratio is monitored continuously while the transmission is in gear.

Set Condition: If the ratio of the Input RPM to the Output RPM does not match the current gear ratio.

POSSIBLE CAUSES
RELATED DTC'S PRESENT
INTERNAL TRANSMISSION
INTERMITTENT GEAR RATIO ERRORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0731-GEAR RATIO ERROR IN 1ST — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, read Transmission DTC's. If any of these DTC's are present, perform their respective tests first. Are there any Loss of Prime, Line Pressure Sensor and/or Speed Sensor DTCs present? Yes → Refer to appropriate symptom in the Transmission category. If any of these DTC's are present, they will cause a gear ratio error. Perform the test for Loss of Prime first if it is present. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	With the DRBIII®, perform the 1st gear clutch test. Follow the instructions on the DRBIII®. Increase the throttle angle or TPS Degree to 30° for no more than a few seconds. **CAUTION: Do not overheat the transmission.** Did the Clutch Test pass, Input Speed remain at zero? Yes → Go To 4 No → Go To 5	All
4	The conditions to set this DTC are not current at this time. Check the gearshift linkage adjustment. Gear ratio DTC's can be set by problems in the Input and Output Speed Sensor circuits. If the vehicle passes the Clutch Test and still sets Gear Ratio DTC, check the Speed Sensors for proper operation. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Check the wiring and connectors for the Speed Sensors for a good connection, then perform a wiggle test using the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. This DTC can also be set under extreme temperature conditions, this is usually caused by an internal problem. Verify if the problem is only experienced under extreme hot or cold conditions. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All
5	If there are no possible causes remaining, view repair. Repair Repair internal Transmission per the Service Information. Check all of the components related to the UD and LR clutches. Inspect the Oil Pump and repair or replace per the Service Information. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

Symptom:

P0732-GEAR RATIO ERROR IN 2ND

When Monitored and Set Condition:

P0732-GEAR RATIO ERROR IN 2ND

When Monitored: The Transmission gear ratio is monitored continuously while the Transmission is in gear.

Set Condition: If the ratio of the Input RPM to the Output RPM does not match the current gear ratio.

POSSIBLE CAUSES
RELATED DTC'S PRESENT
TRANSMISSION SOLENOID/PRESSURE SWITCH ASSEMBLY
INTERNAL TRANSMISSION
INTERMITTENT GEAR RATIO ERRORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0732-GEAR RATIO ERROR IN 2ND — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, read Transmission DTC's. If any of these DTC's are present, perform their respective tests first. Are there any Loss of Prime, Line Pressure Sensor and/or Speed Sensor DTCs present? Yes → Refer to the Transmission category and perform the appropriate symptom. If any of these DTC's are present, they will cause a gear ratio error. Perform the test for Loss of Prime first if it is present. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	With the DRBIII®, perform the 2nd gear clutch test. Follow the instructions on the DRBIII®. Increase the throttle angle or TPS Degree to 30° for no more than a few seconds. **CAUTION: Do not overheat the transmission.** Did the Clutch Test pass - Input Speed remain at zero? Yes → Go To 4 No → Go To 5	All
4	The conditions to set this DTC are not current at this time. Check the Gearshift Linkage adjustment. Gear ratio DTC's can be set by problems in the Input and Output Speed Sensor circuits. If the vehicle passes the Clutch Test and still sets Gear Ratio DTC's, check the Speed Sensors for proper operation. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Check the Speed Sensor wiring and connectors for good connection, then perform a wiggle test using the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. This DTC can also be set under extreme temperature conditions, this is usually caused by an internal problem. Verify if the problem is only experienced under extreme hot or cold conditions. Check for any Technical Service Bulletins (TSBs) that may apply. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All
5	With the DRBIII®, read Transmission DTC's. Are the DTC's P0845 and/or P0846 present also? Yes → Replace the Transmission Solenoid/Pressure Switch Assembly per the Service Information. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 6	All

P0732-GEAR RATIO ERROR IN 2ND — Continued

TEST	ACTION	APPLICABILITY
6	If there are no possible causes remaining, view repair. Repair Repair internal transmission per the Service Information. Check all of the components related to the UD and 2/4 clutches. Inspect the Oil Pump and repair or replace per the Service Information. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

Symptom:

P0733-GEAR RATIO ERROR IN 3RD

When Monitored and Set Condition:

P0733-GEAR RATIO ERROR IN 3RD

When Monitored: The Transmission gear ratio is monitored continuously while the Transmission is in gear.

Set Condition: If the ratio of the Input RPM to the Output RPM does not match the current gear ratio.

POSSIBLE CAUSES
RELATED DTC'S PRESENT
TRANSMISSION SOLENOID/PRESSURE SWITCH ASSEMBLY
INTERNAL TRANSMISSION
INTERMITTENT GEAR RATIO ERRORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0733-GEAR RATIO ERROR IN 3RD — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, read Transmission DTC's. If any of these DTC's are present, perform their respective tests first. Are there any Loss of Prime, Line Pressure Sensor and/or Speed Sensor DTCs present? Yes → Refer to appropriate symptom in the Transmission category. If any of these DTC's are present, they will cause a gear ratio error. Perform the test for Loss of Prime DTC first if it is present. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	With the DRBIII®, perform the 3rd Gear Clutch test. Follow the instructions on the DRBIII®. Increase the throttle angle or TPS Degree to 30° for no more than a few seconds. **CAUTION: Do not overheat the transmission.** Did the clutch test pass, Input Speed remain at zero? Yes → Go To 4 No → Go To 5	All
4	The conditions to set this DTC are not current at this time. Check the gearshift linkage adjustment. Gear ratio DTC's can be set by problems in the input and output speed sensor circuits. If the vehicle passes the clutch test and still sets gear ratio DTC's, check the Speed Sensors for proper operation. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Check the speed sensor wiring and connectors for good connection, then perform a wiggle test using the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. This DTC can also be set under extreme temperature conditions, this is usually caused by an internal problem. Verify if the problem is only experienced under extreme hot or cold conditions. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All
5	With the DRBIII®, read Transmission DTC's. Are the DTC's P0870 and/or P0871 present also? Yes → Replace the Transmission Solenoid/Pressure Switch Assembly per the Service Information. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 6	All

P0733-GEAR RATIO ERROR IN 3RD — Continued

TEST	ACTION	APPLICABILITY
6	If there are no possible causes remaining, view repair. Repair Repair internal transmission per the Service Information. Check all of the components related to the UD and OD clutches. Inspect the Oil Pump and repair or replace per the Service Information. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

Symptom:

P0734-GEAR RATIO ERROR IN 4TH

When Monitored and Set Condition:

P0734-GEAR RATIO ERROR IN 4TH

When Monitored: The Transmission gear ratio is monitored continuously while the Transmission is in gear.

Set Condition: If the ratio of the Input RPM to the Output RPM does not match the current gear ratio.

POSSIBLE CAUSES
RELATED DTC'S PRESENT
TRANSMISSION SOLENOID/PRESSURE SWITCH ASSEMBLY
INTERNAL TRANSMISSION
INTERMITTENT GEAR RATIO ERRORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0734-GEAR RATIO ERROR IN 4TH — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, read Transmission DTC's. If any of these DTC's are present, perform their respective tests first. Are there any Loss of Prime, Line Pressure Sensor and/or Speed Sensor DTCs present? Yes → Refer to the Transmission category and perform the appropriate symptom. If any of these DTC's are present, they will cause a gear ratio error. Perform the test for Loss of Prime first if it is present. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	With the DRBIII®, perform the 4th gear clutch test. Follow the instructions on the DRBIII®. Increase the throttle angle or TPS Degree to 30° for no more than a few seconds. **CAUTION: Do not overheat the transmission.** Did the clutch test pass - Input Speed remain at zero? Yes → Go To 4 No → Go To 5	All
4	The conditions to set this DTC are not current at this time. Check the gearshift linkage adjustment. Gear ratio DTC's can be set by problems in the Input and Output Speed Sensor circuits. If the vehicle passes the clutch test and still sets gear ratio DTC's, check the Speed Sensors for proper operation. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Check the Speed Sensor wiring and connectors for good connection, then perform a wiggle test using the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. This DTC can also be set under extreme temperature conditions, this is usually caused by an internal problem. Verify if the problem is only experienced under extreme hot or cold conditions. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All
5	With the DRBIII®, read Transmission DTC's. Are the DTC's P0870 and/or P0871 present also? Yes → Replace the Solenoid/Pressure Switch Assembly per the Service Information. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 6	All

P0734-GEAR RATIO ERROR IN 4TH — Continued

TEST	ACTION	APPLICABILITY
6	If there are no possible causes remaining, view repair. Repair Repair internal transmission per the Service Information. Check all of the components related to the OD and 2/4 clutches. Inspect the Oil Pump and repair or replace per the Service Information. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

Symptom:

P0736-GEAR RATIO ERROR IN REVERSE

When Monitored and Set Condition:

P0736-GEAR RATIO ERROR IN REVERSE

When Monitored: The Transmission gear ratio is monitored continuously while the Transmission is in gear.

Set Condition: If the ratio of the Input RPM to the Output RPM does not match the current gear ratio.

POSSIBLE CAUSES
RELATED DTC'S PRESENT
INTERNAL TRANSMISSION
INTERMITTENT GEAR RATIO ERRORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0736-GEAR RATIO ERROR IN REVERSE — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, read Transmission DTC's. If any of these DTC's are present, perform their respective tests first. Are there any Loss of Prime, Line Pressure Sensor and/or Speed Sensor DTCs present? Yes → Refer to the Transmission category and perform the appropriate symptom. If any of these DTC's are present, they will cause a gear ratio error. Perform the test for Loss of Prime first if it is present. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	With the DRBIII®, perform the Reverse Gear Clutch test. Follow the instructions on the DRBIII®. Increase the throttle angle or TPS Degree to 30° for no more than a few seconds. **CAUTION: Do not overheat the transmission.** Did the clutch test pass - Input Speed remain at zero? Yes → Go To 4 No → Go To 5	All
4	The conditions to set this DTC are not current at this time. Check the gearshift linkage adjustment. Gear ratio DTC's can be set by problems in the Input and Output Speed Sensor circuits. If the vehicle passes the clutch test and still sets gear ratio DTC's, check the Speed Sensors for proper operation. Remove the Starter Relay. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Check the Speed Sensor wiring and connectors for good connection, then perform a wiggle test using the Transmission Simulator, Miller tool #8333 and Electronic Transmission Adapter kit, Miller tool #8333-1. This DTC can also be set under extreme temperature conditions, this is usually caused by an internal problem. Verify if the problem is only experienced under extreme hot or cold conditions. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All
5	If there are no possible causes remaining, view repair. Repair Repair internal transmission per the Service Information. Check all of the components related to the Reverse and LR clutches. Inspect the Oil Pump and repair or replace per the Service Information. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

Symptom:
P0740-TCC OUT OF RANGE

When Monitored and Set Condition:

P0740-TCC OUT OF RANGE

When Monitored: The Torque Converter Clutch (TCC) is in FEMCC or PEMCC, Transmission temperature is hot, Engine temperature is greater than 38° C or 100° F, Transmission Input Speed greater than 1750 RPM, TPS less than 30°.

Set Condition: The TCC is modulated by controlling the duty cycle of the L/R Solenoid until the difference between the Engine and the Transmission Input Speed RPM or duty cycle is within a desired range. The DTC is set after the period of 10 seconds and 3 occurrences of either: FEMCC - with slip greater than 100 RPM or PEMCC - duty cycle greater than 85%.

POSSIBLE CAUSES
RELATED DTC'S PRESENT
INTERNAL TRANSMISSION
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0740-TCC OUT OF RANGE — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, read Transmission DTC's Are the DTC's P0750 and/or P0841 present also? Yes → Refer to the Transmission category and perform the appropriate symptom. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	Ignition on, engine not running. With the DRBIII®, record and erase DTC's. Drive the vehicle until it is fully warmed up. At least 110 degrees. Perform the following step 3 times. Drive the vehicle at 50 MPH and allow 4th gear to engage for at least 10 seconds. Close the throttle, then tip back in until the throttle angle is between 25 and 29 degrees. Note that if you go over 30 degrees, you must back off of the throttle and retry. Did the TCC engage during any of the attempts? Yes → Go To 4 No → Go To 5	All
4	The conditions necessary to set the DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring and connectors while checking for shorted and open circuits. This DTC can also be set under extreme temperature conditions, this is usually caused by an internal problem. Verify if the problem is only experienced under extreme hot or cold conditions. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All
5	If there are no possible causes remaining, view repair. Repair Perform the Hydraulic Pressure test per the Service Information and repair the internal transmission components and Torque convertor as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

Symptom:
P0750-LR SOLENOID CIRCUIT

When Monitored and Set Condition:

P0750-LR SOLENOID CIRCUIT

When Monitored: Initially at power-up, then every 10 seconds thereafter. The solenoids will also be tested immediately after a gear ratio or pressure switch error is detected.

Set Condition: Three consecutive solenoid continuity test failures, or one failure if test is run in response to a gear ratio or pressure switch error.

POSSIBLE CAUSES
RELATED RELAY DTC'S PRESENT
TRANSMISSION CONTROL RELAY OUTPUT CIRCUIT OPEN
LR SOLENOID CONTROL CIRCUIT OPEN
LR SOLENOID CONTROL CIRCUIT SHORT TO GROUND
LR SOLENOID CONTROL CIRCUIT SHORT TO VOLTAGE
LR SOLENOID/PRESSURE SWITCH ASSEMBLY
POWERTRAIN CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0750-LR SOLENOID CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, read Transmission DTC's Are there any Transmission Control Relay DTC's present also? Yes → Refer to the Transmission category and perform the appropriate symptom. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	With the DRBIII®, Check the STARTS SINCE SET counter. **NOTE: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter for P0750 set at 0? Yes → Go To 4 No → Go To 11	All
4	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. Ignition on, engine not running. With the DRBIII®, actuate the L/R Solenoid. Monitor the L/R Solenoid LED on the Transmission Simulator. Did the L/R Solenoid LED on the Transmission Simulator blink on and off during actuation? Yes → Go To 5 No → Go To 6	All
5	If there are no possible causes remaining, view repair. Repair Replace the Transmission Solenoid/Pressure Switch Assembly per the Service Information. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
6	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance of the LR Solenoid Control circuit from the appropriate terminal of special tool #8815 to the Solenoid/Pressure Switch Assembly harness connector. Is the resistance above 5.0 ohms? Yes → Repair the LR Solenoid Control circuit for an open. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 7	All

P0750-LR SOLENOID CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
7	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance between ground and the LR Solenoid Control circuit. Is the resistance below 5.0 ohms? Yes → Repair the LR Solenoid Control circuit for a short to ground. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 8	All
8	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the voltage of the LR Solenoid Control circuit. Is the voltage above 0.5 volts? Yes → Repair the LR Solenoid Control circuit for a short to voltage. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 9	All
9	Turn the ignition off to the lock position. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and Transmission Control Relay Output circuit in the Transmission Control Relay connector. Using a 12-volt test light connected to ground, check the Transmission Relay Output circuit in the Transmission Solenoid/Pressure Switch harness connector. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly? Yes → Go To 10 No → Repair the Transmission Control Relay Output circuit for an open. If the fuse is open make sure to check for a short to ground. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

P0750-LR SOLENOID CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
10	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Powertrain Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
11	The conditions necessary to set the DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wires while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:

P0755-2/4 SOLENOID CIRCUIT

When Monitored and Set Condition:

P0755-2/4 SOLENOID CIRCUIT

When Monitored: Initially at power-up, then every 10 seconds thereafter. They will also be tested immediately after a gear ratio or pressure switch error is detected.

Set Condition: Three consecutive solenoid continuity test failures, or one failure if test is run in response to a gear ratio or pressure switch error.

POSSIBLE CAUSES
RELATED RELAY DTC'S PRESENT
TRANSMISSION CONTROL RELAY OUTPUT CIRCUIT OPEN
2/4 SOLENOID CONTROL CIRCUIT OPEN
2/4 SOLENOID CONTROL CIRCUIT SHORT TO GROUND
2/4 SOLENOID CONTROL CIRCUIT SHORT TO VOLTAGE
2/4 SOLENOID
POWERTRAIN CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0755-2/4 SOLENOID CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, read Transmission DTC's Are there any Transmission Control Relay DTC's present also? Yes → Refer to the Transmission category and perform the appropriate symptom. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	With the DRBIII®, Check the STARTS SINCE SET counter for P0755. **NOTE: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter set at 0? Yes → Go To 4 No → Go To 11	All
4	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. Ignition on, engine not running. With the DRBIII®, actuate the 2/4 Solenoid. With the Transmission Simulator, monitor the 2/4 Solenoid LED. Did the 2/4 Solenoid LED on the Transmission Simulator blink on and off during actuation? Yes → Go To 5 No → Go To 6	All
5	If there are no possible causes remaining, view repair. Repair Replace the Transmission Solenoid/Pressure Switch Assembly per the Service Information. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
6	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance of the 2/4 Solenoid Control circuit from the appropriate terminal of special tool #8815 to the Solenoid/Pressure Switch Assembly harness connector. Is the resistance above 5.0 ohms? Yes → Repair the 2-4 Solenoid Control circuit for an open. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 7	All

P0755-2/4 SOLENOID CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
7	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance between ground and the 2/4 Solenoid Control circuit. Is the resistance below 5.0 ohms? Yes → Repair the 2/4 Solenoid Control circuit for a short to ground. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 8	All
8	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the voltage of the 2/4 Solenoid Control circuit. Is the voltage above 0.5 volts? Yes → Repair the 2/4 Solenoid Control circuit for a short to voltage. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 9	All
9	Turn the ignition off to the lock position. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and Transmission Control Relay Output circuit in the Transmission Control Relay connector. Using a 12-volt test light connected to ground, check the Transmission Control Relay Output circuit in the Solenoid/Pressure Switch Assembly harness connector. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly? Yes → Go To 10 No → Repair the Transmission Control Relay Output circuit for an open. If the fuse is open make sure to check for a short to ground. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

P0755-2/4 SOLENOID CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
10	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Powertrain Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
11	The conditions necessary to set the DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring and connectors while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P0760-OD SOLENOID CIRCUIT

When Monitored and Set Condition:

P0760-OD SOLENOID CIRCUIT

When Monitored: Initially at power-up, then every 10 seconds thereafter. Also tested immediately after a gear ratio or pressure switch error is detected.

Set Condition: Three consecutive solenoid continuity test failures, or one failure if test is run in response to a gear ratio or pressure switch error.

POSSIBLE CAUSES
RELATED RELAY DTC'S PRESENT
TRANSMISSION CONTROL RELAY OUTPUT CIRCUIT OPEN
OD SOLENOID CONTROL CIRCUIT OPEN
OD SOLENOID CONTROL CIRCUIT SHORT TO GROUND
OD SOLENOID CONTROL CIRCUIT SHORT TO VOLTAGE
OD SOLENOID
POWERTRAIN CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0760-OD SOLENOID CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, read Transmission DTC's Are there any Transmission Control Relay DTC's present also? Yes → Refer to the Transmission category and perform the appropriate symptom. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	With the DRBIII®, Check the STARTS SINCE SET counter for P0760. **NOTE: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter set at 0? Yes → Go To 4 No → Go To 11	All
4	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. Ignition on, engine not running. With the Transmission Simulator, monitor the OD Solenoid LED. With the DRBIII®, actuate the OD Solenoid. Did the OD Solenoid LED on the Transmission Simulator blink on and off during actuation? Yes → Go To 5 No → Go To 6	All
5	If there are no possible causes remaining, view repair. Repair Replace the Transmission Solenoid/Pressure Switch Assembly per the Service Information. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
6	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance of the OD Solenoid Control circuit from the appropriate terminal of special tool #8815 to the Transmission Solenoid/Pressure Switch Assembly harness connector. Is the resistance above 5.0 ohms? Yes → Repair the OD Solenoid Control circuit for an open. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 7	All

P0760-OD SOLENOID CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
7	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance between ground and the OD Solenoid Control circuit. Is the resistance below 5.0 ohms? Yes → Repair the OD Solenoid Control circuit for a short to ground. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 8	All
8	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the voltage of the OD Solenoid Control circuit. Is the voltage above 0.5 volts? Yes → Repair the OD Solenoid Control circuit for a short to voltage. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 9	All
9	Turn the ignition off to the lock position. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and Transmission Control Relay Output circuit in the Transmission Control Relay connector. Using a 12-volt test light connected to ground, check the Transmission Control Relay Output circuit in the Solenoid/Pressure Switch Assembly harness connector. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly? Yes → Go To 10 No → Repair the Transmission Control Relay Output circuit for an open. If the fuse is open make sure to check for a short to ground. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

P0760-OD SOLENOID CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
10	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Powertrain Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
11	The conditions necessary to set the DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring and connectors while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P0765-UD SOLENOID CIRCUIT

When Monitored and Set Condition:

P0765-UD SOLENOID CIRCUIT

When Monitored: Initially at power-up, then every 10 seconds thereafter. They will also be tested immediately after a gear ratio or pressure switch error is detected.

Set Condition: Three consecutive solenoid continuity test failures, or one failure if test is run in response to a gear ratio or pressure switch error.

POSSIBLE CAUSES
RELATED RELAY DTC'S PRESENT
TRANSMISSION CONTROL RELAY OUTPUT CIRCUIT OPEN
UD SOLENOID CONTROL CIRCUIT OPEN
UD SOLENOID CONTROL CIRCUIT SHORT TO GROUND
UD SOLENOID CONTROL CIRCUIT SHORT TO VOLTAGE
UD SOLENOID
POWERTRAIN CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0765-UD SOLENOID CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, read Transmission DTC's Are there any Transmission Control Relay DTC's present also? Yes → Refer to the Transmission category and perform the appropriate symptom. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	With the DRBIII®, Check the STARTS SINCE SET counter for P0765. **NOTE: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter set at 0? Yes → Go To 4 No → Go To 11	All
4	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. Ignition on, engine not running. Monitor the UD Solenoid LED on the Transmission Simulator. With the DRBIII®, actuate the UD Solenoid. Did the UD Solenoid LED on the Transmission Simulator blink on and off? Yes → Go To 5 No → Go To 6	All
5	If there are no possible causes remaining, view repair. Repair Replace the Transmission Solenoid/Pressure Switch Assembly per the Service Information. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
6	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance of the UD Solenoid Control circuit from the appropriate terminal of special tool #8815 to the Transmission Solenoid/Pressure Switch Assembly harness connector. Is the resistance above 5.0 ohms? Yes → Repair the UD Solenoid Control circuit for an open. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 7	All

P0765-UD SOLENOID CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
7	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance between ground and the UD Solenoid Control circuit. Is the resistance below 5.0 ohms? Yes → Repair the UD Solenoid Control circuit for a short to ground. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 8	All
8	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the voltage of the UD Solenoid Control circuit. Is the voltage above 0.5 volts? Yes → Repair the UD Solenoid Control circuit for a short to voltage. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 9	All
9	Turn the ignition off to the lock position. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and Transmission Control Relay Output circuit in the Transmission Control Relay connector. Using a 12-volt test light connected to ground, check the Transmission Control Relay Output circuit in the Transmission Solenoid/Pressure Switch Assembly harness connector. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly? Yes → Go To 10 No → Repair the Transmission Control Relay Output circuit for an open. If the fuse is open make sure to check for a short to ground. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

P0765-UD SOLENOID CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
10	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Powertrain Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
11	The conditions necessary to set the DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring and connectors while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P0841-LR PRESSURE SWITCH SENSE CIRCUIT

When Monitored and Set Condition:

P0841-LR PRESSURE SWITCH SENSE CIRCUIT

When Monitored: Whenever the engine is running.

Set Condition: The DTC is set if one of the pressure switches are open or closed at the wrong time in a given gear.

POSSIBLE CAUSES
RELATED RELAY DTC'S PRESENT
LOSS OF PRIME P0944 PRESENT
L/R PRESSURE SWITCH SENSE CIRCUIT OPEN
TRANSMISSION CONTROL RELAY OUTPUT CIRCUIT OPEN
L/R PRESSURE SWITCH SENSE CIRCUIT SHORT TO GROUND
L/R PRESSURE SWITCH SENSE CIRCUIT SHORT TO VOLTAGE
L/R PRESSURE SWITCH
POWERTRAIN CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0841-LR PRESSURE SWITCH SENSE CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, read Transmission DTC's Are there any Transmission Control Relay DTC's present also? Yes → Refer to the Transmission category and perform the appropriate symptom. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	With the DRBIII®, check for other Transmission DTC's. Is the DTC P0944 present also? Yes → Refer to the Transmission category and perform the appropriate symptom. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 4	All
4	With the DRBIII®, Check the STARTS SINCE SET counter for P0841. **NOTE: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter 2 or less? Yes → Go To 5 No → Go To 12	All
5	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. **Note: Check connectors - Clean/repair as necessary.** Ignition on, engine not running. With the Transmission Simulator, turn the Pressure Switch selector to L/R. With the DRBIII®, monitor the L/R Pressure Switch state while pressing the Pressure Switch Test button on the Transmission Simulator. Did the L/R Pressure Switch state change? Yes → Go To 6 No → Go To 7	All
6	If there are no possible causes remaining, view repair. Repair Replace the Transmission Solenoid/Pressure Switch Assembly per the Service Information. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

P0841-LR PRESSURE SWITCH SENSE CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
7	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance of the L/R Pressure Switch Sense circuit from the appropriate terminal of special tool #8815 to the Transmission Solenoid/Pressure Switch Assembly harness connector. Is the resistance above 5.0 ohms? Yes → Repair the L/R Pressure Switch Sense circuit for an open. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 8	All
8	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance between ground and the L/R Pressure Switch Sense circuit. Is the resistance below 5.0 ohms? Yes → Repair the L/R Pressure Switch Sense circuit for a short to ground. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 9	All
9	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and Transmission Control Relay Output circuit. Ignition on, engine not running. **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the voltage of the L/R Pressure Switch Sense circuit. Is the voltage above 0.5 volts? Yes → Repair the L/R Pressure Switch Sense circuit for a short to voltage. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 10	All

P0841-LR PRESSURE SWITCH SENSE CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
10	Turn the ignition off to the lock position. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Using a 12-volt test light connected to ground, check the Transmission Control Relay Output circuit in the Transmission Solenoid/Pressure Switch Assembly harness connector. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly? Yes → Go To 11 No → Repair the Transmission Control Relay Output circuit for an open. If the fuse is open make sure to check for a short to ground. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
11	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Powertrain Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
12	The conditions necessary to set the DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wires while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:

P0845-2/4 HYDRAULIC PRESSURE TEST FAILURE

When Monitored and Set Condition:

P0845-2/4 HYDRAULIC PRESSURE TEST FAILURE

When Monitored: In any forward gear with engine speed above 1000 RPM, shortly after a shift and every minute thereafter.

Set Condition: After a shift into a forward gear, with engine speed greater than 1000 RPM, the PCM momentarily turns on element pressure to the clutch circuits that don't have pressure to identify the correct pressure switch closes. If the pressure switch does not close 2 times the DTC sets.

POSSIBLE CAUSES
LOSS OF PRIME P0944 PRESENT
TRANSMISSION CONTROL RELAY OUTPUT CIRCUIT OPEN
2/4 PRESSURE SWITCH SENSE CIRCUIT OPEN
2/4 PRESSURE SWITCH CIRCUIT SHORT TO GROUND
INTERNAL TRANSMISSION
2/4 PRESSURE SWITCH SENSE CIRCUIT SHORT TO VOLTAGE
TRANSMISSION SOLENOID/TRS ASSEMBLY
POWERTRAIN CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

P0845-2/4 HYDRAULIC PRESSURE TEST FAILURE — Continued

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All
2	With the DRBIII®, check for other Transmission DTC's. Is the DTC P0944 present also? Yes → Refer to the Transmission category and perform the appropriate symptom. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	With the DRBIII®, read Transmission DTC's. Are any of the DTCs P0732, P0734 and/or P0846 present also? Yes → Replace the Transmission Solenoid/Pressure Switch Assembly per the Service Information. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 4	All
4	With the DRBIII®, Check the STARTS SINCE SET counter for P0845. **NOTE: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter 2 or less? Yes → Go To 5 No → Go To 12	All

P0845-2/4 HYDRAULIC PRESSURE TEST FAILURE — Continued

TEST	ACTION	APPLICABILITY
5	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. **Note: Check connectors - Clean/repair as necessary.** Ignition on, engine not running. With the Transmission Simulator, turn the Pressure Switch selector switch to 2/4. With the DRBIII®, monitor the UD Pressure Switch state while pressing the Pressure Switch Test button on the Transmission Simulator. Wiggle the wires leading to the PCM while pressing and holding the Pressure Switch Test button. Did the 2/4 Pressure Switch state change to closed and remain closed while wiggling the wires? Yes → Go To 6 No → Go To 7	All
6	If there are no possible causes remaining, view repair. Repair Disassemble and inspect the Valve Body per the Service Information and repair or replace as necessary. If no problems are found in the Valve Body, replace the Transmission Solenoid/Pressure Switch Assembly. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
7	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **NOTE: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance of the 2/4 Pressure Switch Sense circuit from the appropriate terminal of special tool #8815 to the Transmission Solenoid/Pressure Switch Assembly harness connector. Is the resistance above 5.0 ohms? Yes → Repair the 2-4 Pressure Switch Sense circuit for an open. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 8	All

P0845-2/4 HYDRAULIC PRESSURE TEST FAILURE — Continued

TEST	ACTION	APPLICABILITY
8	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance between ground and the 2/4 Pressure Switch Sense circuit. Is the resistance below 5.0 ohms? Yes → Repair the 2-4 Pressure Switch Sense circuit for a short to ground. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 9	All
9	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit. Ignition on, engine not running. **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the voltage of the 2/4 Pressure Switch Sense circuit. Is the voltage above 0.5 volts? Yes → Repair the 2-4 Pressure Switch Sense circuit for a short to voltage. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 10	All
10	Turn the ignition off to the lock position. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. Using a 12-volt test light connected to ground, check Transmission Control Relay Output circuit in the Transmission Solenoid/Pressure Switch Assembly harness connector. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly? Yes → Go To 11 No → Repair the Transmission Control Relay Output circuit for an open. If the fuse is open make sure to check for a short to ground. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

P0845-2/4 HYDRAULIC PRESSURE TEST FAILURE — Continued

TEST	ACTION	APPLICABILITY
11	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Powertrain Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
12	The conditions necessary to set the DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wires while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P0846-2/4 PRESSURE SWITCH SENSE CIRCUIT

When Monitored and Set Condition:

P0846-2/4 PRESSURE SWITCH SENSE CIRCUIT

When Monitored: Whenever the engine is running.

Set Condition: The DTC is set if one of the pressure switches are open or closed at the wrong time in a given gear .

POSSIBLE CAUSES
RELATED RELAY DTC'S PRESENT
2/4 PRESSURE SWITCH SENSE CIRCUIT OPEN
TRANSMISSION CONTROL RELAY OUTPUT CIRCUIT OPEN
2/4 PRESSURE SWITCH SENSE CIRCUIT SHORT TO GROUND
2/4 PRESSURE SWITCH SENSE CIRCUIT SHORT TO VOLTAGE
2/4 PRESSURE SWITCH
POWERTRAIN CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0846-2/4 PRESSURE SWITCH SENSE CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, read Transmission DTC's Are there any Transmission Control Relay DTC's present also? Yes → Refer to the Transmission category and perform the appropriate symptom. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	With the DRBIII®, Check the STARTS SINCE SET counter for P0846. **NOTE: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter 2 or less? Yes → Go To 4 No → Go To 11	All
4	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. **Note: Check connectors - Clean/repair as necessary.** Ignition on, engine not running. With the Transmission Simulator turn the Pressure Switch selector to 2/4. With the DRBIII®, monitor the 2/4 Pressure Switch state while pressing the Pressure Switch Test button on the Transmission Simulator. Did the state of the 2/4 Pressure Switch change while pressing the Pressure Switch Test button? Yes → Go To 5 No → Go To 6	All
5	If there are no possible causes remaining, view repair. Repair Replace the Transmission Solenoid/Pressure Switch Assembly per the Service Information. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
6	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance of the 2/4 Pressure Switch Sense circuit from the appropriate terminal of special tool #8815 to the Transmission Solenoid/Pressure Switch Assembly harness connector. Is the resistance above 5.0 ohms? Yes → Repair the 2/4 Pressure Switch Sense circuit for an open. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 7	All

P0846-2/4 PRESSURE SWITCH SENSE CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
7	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance between ground and the 2/4 Pressure Switch Sense circuit. Is the resistance below 5.0 ohms? Yes → Repair the 2/4 Pressure Switch Sense circuit for a short to ground. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 8	All
8	Turn the ignition off to the lock position. Disconnect the PCM harness connector Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit. Ignition on, engine not running. **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the voltage of the 2/4 Pressure Switch Sense circuit. Is the voltage above 0.5 volts? Yes → Repair the 2/4 Pressure Switch Sense circuit for a short to voltage. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 9	All
9	Turn the ignition off to the lock position. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit. Using a 12-volt test light connected to ground, check the Transmission Control Relay Output circuit in the Transmission Solenoid/Pressure Switch Assembly harness connector. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly? Yes → Go To 10 No → Repair the Transmission Control Relay Output circuit for an open. If the fuse is open make sure to check for a short to ground. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

P0846-2/4 PRESSURE SWITCH SENSE CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
10	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Powertrain Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
11	The conditions necessary to set the DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wires while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:

P0870-OD HYDRAULIC PRESSURE TEST FAILURE

When Monitored and Set Condition:

P0870-OD HYDRAULIC PRESSURE TEST FAILURE

When Monitored: In any forward gear with engine speed above 1000 RPM shortly after a shift and every minute thereafter.

Set Condition: After a shift into a forward gear, with engine speed greater than 1000 RPM, the TCM momentarily turns on element pressure to the clutch circuits that don't have pressure to identify the correct pressure switch closes. If the pressure switch does not close 2 times the DTC sets

POSSIBLE CAUSES
LOSS OF PRIME - P0944 PRESENT
TRANSMISSION CONTROL RELAY OUTPUT CIRCUIT OPEN
OD PRESSURE SWITCH SENSE CIRCUIT SHORT TO GROUND
OD PRESSURE SWITCH SENSE CIRCUIT OPEN
OD PRESSURE SWITCH SENSE CIRCUIT SHORT TO VOLTAGE
TRANSMISSION SOLENOID/PRESSURE SWITCH ASSEMBLY
INTERNAL TRANSMISSION
POWERTRAIN CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

P0870-OD HYDRAULIC PRESSURE TEST FAILURE — Continued

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All
2	With the DRBIII®, check for other Transmission DTC's. Is the DTC P0944 present also? Yes → Refer to the Transmission category and perform the appropriate symptom. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	With the DRBIII®, read Transmission DTC's. Is the DTC P0733 and/or P0871 present also? Yes → Replace the Transmission Solenoid/Pressure Switch Assembly per the Service Information. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 4	All
4	With the DRBIII®, Check the STARTS SINCE SET counter for P0870. **NOTE: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter 2 or less? Yes → Go To 5 No → Go To 12	All

P0870-OD HYDRAULIC PRESSURE TEST FAILURE — Continued

TEST	ACTION	APPLICABILITY
5	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. **Note: Check connectors - Clean/repair as necessary.** With the Transmission Simulator select the OD Pressure Switch. With the DRBIII®, monitor the OD Pressure Switch state in the following step: Wiggle the wiring and connectors pertaining to this circuit while pressing the Pressure Switch Test button on the Transmission Simulator. Did the OD Pressure Switch state change to closed and remain closed while wiggling the wires? Yes → Go To 6 No → Go To 7	All
6	If there are no possible causes remaining, view repair. Repair Disassemble and inspect the Valve Body per the Service Information and repair or replace as necessary. If no problems are found in the Valve Body, replace the Transmission Solenoid/Pressure Switch Assembly per the Service Information. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
7	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance of the OD Pressure Switch Sense circuit from the appropriate terminal of special tool #8815 to the Transmission Solenoid/Pressure Switch Assembly harness connector. Is the resistance above 5.0 ohms? Yes → Repair the OD Pressure Switch Sense circuit for an open. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 8	All

P0870-OD HYDRAULIC PRESSURE TEST FAILURE — Continued

TEST	ACTION	APPLICABILITY
8	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance between ground and the OD Pressure Switch Sense circuit. Is the resistance below 5.0 ohms? Yes → Repair the OD Pressure Switch Sense circuit for a short to ground. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 9	All
9	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and Transmission Control Relay Output circuit. Ignition on, engine not running. **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the voltage of the OD Pressure Switch Sense circuit. Is the voltage above 0.5 volts? Yes → Repair the OD Pressure Switch Sense circuit for a short to voltage. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 10	All
10	Turn the ignition off to the lock position. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and Transmission Control Relay Output circuit in the Transmission Control Relay connector. Using a 12-volt test light connected to ground, check the Transmission Control Relay Output circuit in the Solenoid/Pressure Switch Assembly harness connector. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery..** Does the test light illuminate brightly? Yes → Go To 11 No → Repair the Transmission Control Relay Output circuit for an open. If the fuse is open make sure to check for a short to ground. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

P0870-OD HYDRAULIC PRESSURE TEST FAILURE — Continued

TEST	ACTION	APPLICABILITY
11	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Powertrain Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
12	The conditions necessary to set the DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wires while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:

P0871-OD PRESSURE SWITCH SENSE CIRCUIT

When Monitored and Set Condition:

P0871-OD PRESSURE SWITCH SENSE CIRCUIT

When Monitored: Whenever the engine is running.

Set Condition: The DTC is set if one of the pressure switches are open or closed at the wrong time in a given gear.

POSSIBLE CAUSES
RELATED RELAY DTC'S PRESENT
OD PRESSURE SWITCH SENSE CIRCUIT OPEN
OD PRESSURE SWITCH SENSE CIRCUIT SHORT TO GROUND
TRANSMISSION RELAY OUTPUT CIRCUIT OPEN
OD PRESSURE SWITCH SENSE CIRCUIT SHORT TO VOLTAGE
OD PRESSURE SWITCH
POWERTRAIN CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0871-OD PRESSURE SWITCH SENSE CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, read Transmission DTC's Are there any Transmission Control Relay DTC's present also? Yes → Refer to the Transmission category and perform the appropriate symptom. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	With the DRBIII®, Check the STARTS SINCE SET counter for P0871. **NOTE: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter 2 or less? Yes → Go To 4 No → Go To 11	All
4	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. **Note: Check connectors - Clean/repair as necessary.** Ignition on, engine not running. With the Transmission Simulator turn the Pressure Switch selector to OD. With the DRBIII®, monitor the OD Pressure Switch state while pressing Pressure Switch test button. Did the OD Pressure Switch state change while pressing the Pressure Switch test button? Yes → Go To 5 No → Go To 6	All
5	If there are no possible causes remaining, view repair. Repair Replace the Solenoid/Pressure Switch Assembly per the Service Information. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
6	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance of the OD Pressure Switch Sense circuit from the appropriate terminal of special tool #8815 and the Transmission Solenoid/Pressure Switch Assembly harness connector. Is the resistance above 5.0 ohms? Yes → Repair the OD Pressure Switch Sense circuit for an open. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 7	All

P0871-OD PRESSURE SWITCH SENSE CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
7	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance between ground and the OD Pressure Switch Sense circuit. Is the resistance below 5.0 ohms? Yes → Repair the OD Pressure Switch Sense circuit for a short to ground. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 8	All
8	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and Transmission Control Relay Output circuit. Ignition on, engine not running. **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the voltage of the OD Pressure Switch Sense circuit. Is the voltage above 0.5 volts? Yes → Repair the OD Pressure Switch Sense circuit for a short to voltage. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 9	All
9	Turn the ignition off to the lock position. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and Transmission Control Relay Output circuit. Using a 12-volt test light connected to ground, check the Transmission Control Relay Output circuit. **NOTE: The Test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly? Yes → Go To 10 No → Repair the Transmission Control Relay Output circuit for an open. If the fuse is open make sure to check for a short to ground. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

P0871-OD PRESSURE SWITCH SENSE CIRCUIT — Continued

TEST	ACTION	APPLICABILITY
10	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Powertrain Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
11	The conditions necessary to set the DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring and connectors while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:

P0884-POWER UP AT SPEED

When Monitored and Set Condition:

P0884-POWER UP AT SPEED

When Monitored: When the Transmission Control Module initially powers up. Note: the Transmission Control Module is integrated with Powertrain Control Module. The Transmission Control Module has separate powers and grounds specifically to its portion of the PCM.

Set Condition: This DTC will set if the TCM powers up and senses the vehicle in a valid forward gear (no PRNDL DTCs) with a output speed above 800 RPM (approximately 32Km/h or 20 MPH).

POSSIBLE CAUSES
P0884 POWER UP AT SPEED

TEST	ACTION	APPLICABILITY
1	This DTC is set when the PCM is initialized while the vehicle is moving down the road in a valid forward gear. This is usually a momentarily loss of power to the Transmission portion of the PCM. **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** **NOTE: Due to the integration of the Powertrain and Transmission Control Modules, the transmission part of the PCM has its own specific power and ground circuits.** Check all of the Fused B+, Fused Ignition Switch Output, and Ground circuits related to the PCM for an intermittent open or short to ground. Perform a wiggle test on all wiring and connectors pertaining to the PCM while looking for shorts and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. If there are no possible causes remaining, view repair. Repair Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

Symptom:

P0888-RELAY OUTPUT ALWAYS OFF

When Monitored and Set Condition:

P0888-RELAY OUTPUT ALWAYS OFF

When Monitored: Continuously

Set Condition: This DTC is set when less than 3 volts are present at the Transmission Control Relay output circuits at the Transmission Control Module (TCM) when the TCM is energizing the relay. Note: Due to the integration of the Powertrain and Transmission Control Modules, the transmission part of the PCM has its own specific power and ground circuits.

POSSIBLE CAUSES
FUSED B+ CIRCUIT OPEN
TRANSMISSION CONTROL RELAY OUTPUT CIRCUIT OPEN
TRANSMISSION CONTROL RELAY
TRANSMISSION CONTROL RELAY CONTROL CIRCUIT OPEN
TRANSMISSION CONTROL RELAY GROUND CIRCUIT OPEN
TRANSMISSION CONTROL RELAY CONTROL CIRCUIT SHORT TO GROUND
TRANSMISSION CONTROL RELAY OUTPUT CIRCUIT SHORT TO GROUND
POWERTRAIN CONTROL MODULE
TRANSMISSION SOLENOID/PRESSURE SWITCH ASSEMBLY
INTERMITTENT WIRING AND CONNECTORS

P0888-RELAY OUTPUT ALWAYS OFF — Continued

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All
2	With the DRBIII®, Check the STARTS SINCE SET counter for P0888. **Note: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter equal to 0? Yes → Go To 3 No → Go To 13	All
3	Turn the ignition off to the lock position. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Using a 12-volt test light connected to ground, check the Fused B+ circuit in the Transmission Control Relay connector. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly? Yes → Go To 4 No → Go To 10	All
4	Turn the ignition off to the lock position. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit. Ignition on, engine not running. With the DRBIII® in Transmission Sensors, read the Switched Battery voltage. Does the Switched Battery voltage read battery voltage? Yes → Go To 5 No → Repair the Transmission Control Relay Output circuit for an open or high resistance. Note: There are multiple Transmission Control Relay Output circuits. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

P0888-RELAY OUTPUT ALWAYS OFF — Continued

TEST	ACTION	APPLICABILITY
5	Turn the ignition off to the lock position. Install a substitute Relay in place of the Transmission Control Relay. Ignition on, engine not running. With the DRBIII® in Transmission Sensors, read the Switched Battery voltage. Does the Switched Battery voltage read battery voltage? Yes → Replace the Transmission Control Relay. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 6	All
6	Turn the ignition off to the lock position. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Using a 12-volt test light connected to 12-volts, check the Transmission Control Relay Ground circuit. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly? Yes → Go To 7 No → Repair the Transmission Control Relay Ground circuit for an open. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
7	Turn the ignition off to the lock position. Remove the Transmission Control Relay. Disconnect the PCM harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance of the Transmission Control Relay Control circuit between the Transmission Control Relay connector and the appropriate terminal of special tool #8815. Is the resistance above 5.0 ohms? Yes → Repair the Transmission Control Relay Control circuit for an open. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 8	All

P0888-RELAY OUTPUT ALWAYS OFF — Continued

TEST	ACTION	APPLICABILITY
8	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance between ground and the Transmission Control Relay Control circuit. Is the resistance below 5.0 ohms? Yes → Repair the Transmission Control Relay Control circuit for a short to ground. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 9	All
9	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Powertrain Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
10	Turn the ignition off to the lock position. Remove the Transmission Control Relay. Disconnect the PCM harness connectors. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance between ground and the Transmission Control Relay Output circuit. Is the resistance below 5.0 ohms? Yes → Go To 11 No → Repair the Fused B+ circuit for an open. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

P0888-RELAY OUTPUT ALWAYS OFF — Continued

TEST	ACTION	APPLICABILITY
11	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance between ground and the Transmission Control Relay Output circuit. Is the resistance below 5.0 ohms? Yes → Repair the Transmission Control Relay Output circuit for a short to ground. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 12	All
12	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Transmission Solenoid/Pressure Switch Assembly per the Service Information. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
13	The conditions necessary to set the DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring and connectors while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P0890-SWITCHED BATTERY

When Monitored and Set Condition:

P0890-SWITCHED BATTERY

When Monitored: When the ignition is turned from the ″off″ position to the ″run″ position and/or the ignition is turned from the ″crank″ position to the ″run″ position.

Set Condition: This DTC is set if the Transmission Control Module (TCM) senses voltage on any of the pressure switch inputs prior to the TCM energizing the relay. Note: Due to the integration of the Powertrain and Transmission Control Modules, the transmission part of the PCM has its own specific power and ground circuits.

POSSIBLE CAUSES
2/4 PRESSURE SWITCH SENSE CIRCUIT SHORT TO VOLTAGE
L/R PRESSURE SWITCH SENSE CIRCUIT SHORT TO VOLTAGE
OD PRESSURE SWITCH SENSE CIRCUIT SHORT TO VOLTAGE
POWERTRAIN CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0890-SWITCHED BATTERY — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, Check the STARTS SINCE SET counter for P0890. **Note: This counter only applies to the last DTC set.** Is the ″STARTS SINCE SET″ counter set at 0? Yes → Go To 3 No → Go To 7	All
3	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the voltage of the OD Pressure Switch Sense circuit. Is the voltage above 0.5 volt? Yes → Repair the OD Pressure Switch Sense circuit for a short to voltage. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 4	All
4	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the voltage of the 2/4 Pressure Switch Sense circuit. Is the voltage above 0.5 volt? Yes → Repair the 2/4 Pressure Switch Sense circuit for a short to voltage. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 5	All

P0890-SWITCHED BATTERY — Continued

TEST	ACTION	APPLICABILITY
5	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the voltage of the L/R Pressure Switch Sense circuit. Is the voltage above 0.5 volts? Yes → Repair the L/R Pressure Switch Sense circuit for a short to voltage. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 6	All
6	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Powertrain Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
7	The conditions necessary to set the DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring and connectors while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P0891-TRANSMISSION RLY ALWAYS ON

When Monitored and Set Condition:

P0891-TRANSMISSION RLY ALWAYS ON

When Monitored: When the ignition is turned from the ″off″ position to the ″run″ position and/or the ignition is turned from the ″crank″ position to the ″run″ position.

Set Condition: This DTC set if the Transmission Control Module (TCM) senses greater than 3 volts at the Transmission Control Relay Output circuits at the TCM prior to the TCM energizing the relay. Note: Due to the integration of the Powertrain and Transmission Control Modules, the transmission part of the PCM has its own specific power and ground circuits.

POSSIBLE CAUSES
TRANSMISSION CONTROL RELAY STUCK CLOSED
TRANSMISSION CONTROL RELAY CONTROL CIRCUIT SHORT TO VOLTAGE
TRANSMISSION CONTROL RELAY OUTPUT CIRCUIT SHORT TO VOLTAGE
POWERTRAIN CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0891-TRANSMISSION RLY ALWAYS ON — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, Check the STARTS SINCE SET counter for P0891. **Note: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter equal to 0? Yes → Go To 3 No → Go To 7	All
3	Turn the ignition off to the lock position. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance between the Fused B+ circuit and the Transmission Control Relay Output Circuit in the Transmission Control Relay. Is the resistance above 5.0 ohms? Yes → Go To 4 No → Replace the Transmission Control Relay. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
4	Turn the ignition off to the lock position. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Ignition on, engine not running. Measure the voltage at the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Is the voltage above 0.5 volts? Yes → Repair the Transmission Control Relay Output circuit for a short to voltage. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 5	All
5	Turn the ignition off to the lock position. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Ignition on, engine not running. **NOTE: The Transmission Controller will power up the Transmission Control Relay Control circuit for approximately 3.0 seconds after initial ignition on. Wait at least 3.0 seconds before performing the following voltage check.** **NOTE: A One-trip fault may set for P0888 Relay Always Off, disregard the DTC.** Measure the voltage at the Transmission Control Relay Control circuit after a 3.0 second wait period. Is the voltage above 0.5 volts? Yes → Repair the Transmission Control Relay Control circuit for a short to voltage. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 6	All

P0891-TRANSMISSION RLY ALWAYS ON — Continued

TEST	ACTION	APPLICABILITY
6	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Transmission Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
7	The conditions necessary to set the DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring and connectors while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P0897-WORN OUT/BURNT TRANSAXLE FLUID

When Monitored and Set Condition:

P0897-WORN OUT/BURNT TRANSAXLE FLUID

When Monitored: With each transition from full Torque Convertor to partial Torque Convertor engagement for A/C bump prevention.

Set Condition: When vehicle shudder is detected during partial engagement (PEMCC).

POSSIBLE CAUSES
WORN OUT/ BURNT TRANSAXLE FLUID

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0897-WORN OUT/BURNT TRANSAXLE FLUID — Continued

TEST	ACTION	APPLICABILITY
2	Turn the ignition off to the lock position. Flush the Transmission Oil Cooler and lines, replace the Transmission Oil Filter, refill with new Transmission Fluid, start the engine, and adjust the fluid per the Service Information. **Note: The Transmission Cooler must be flushed before prodceeding.** Allow the engine to idle for 10 minutes, in Park. Turn the ignition off to the lock position. Again, flush the Transmission Oil Cooler and lines, replace the Transmission Oil Filter, refill with new Transmission Fluid, start the engine, and adjust the fluid per the Service Information. With the DRBIII®, perform a Battery Disconnect. **NOTE: The Battery Disconnect must be done to re-enable EMCC during an A/C Clutch engagement.** **NOTE: The vehicle may exhibit intermittent shudder during the first few hundred miles. The new Transmission Fluid will gradually penetrate the Torque Convertor Clutch friction material and the shudder should disappear.** Erase the DTC and return the vehicle to the customer. Did the DTC reset and/or does the vehicle still shudder after a few thousand miles? Yes → Replace the Torque Converter per the Service Information. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:

P0944-LOSS OF PRIME

When Monitored and Set Condition:

P0944-LOSS OF PRIME

When Monitored: If the transmission is slipping in any forward gear and the pressure switches are not indicating pressure, a loss of prime test is run.

Set Condition: If the Transmission begins to slip in a forward gear and the pressure switch(s) that should be closed are open, a loss of prime test begins. Available elements are turned on by the PCM to see if pump prime exists. The DTC sets if no pressure switches respond.

POSSIBLE CAUSES
SHIFT LEVER POSITION
PLUGGED TRANSMISSION OIL FILTER
TRANSMISSION OIL PUMP
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0944-LOSS OF PRIME — Continued

TEST	ACTION	APPLICABILITY
2	Place the gear selector in park. Start the engine. **NOTE: The TRANS TEMP DEG must be at least 43° C or 110° F before performing the following steps.** The Transmission must be at operating temperature prior to checking pressure. A cold Transmission will give higher readings. Place the Transmission in Reverse. With the DRBIII®, observe the Transmission Pressure Switch states. Are any of the Pressure Switches closed? Yes → Go To 3 No → Go To 5	All
3	The conditions necessary to set this DTC are not present at this time. Test drive the vehicle. Allow the Transmission to shift through all gears and ranges. Did you experience a delayed engagement and/or a no drive condition? Yes → Go To 5 No → Go To 4	All
4	The conditions necessary to set this DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All
5	With the DRBIII®, perform a Shift Lever Position test. Follow the instructions on the DRBIII®. Did the Shift Lever Position Test pass? Yes → Go To 6 No → Refer to symptom list and perform test for DTC P0706. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
6	Remove and inspect the Transmission Oil Pan and Transmission Oil Filter per the Service Information. Does the Transmission Oil Pan contain excessive debris and/or is the Oil Filter plugged? Yes → Repair the cause of the plugged Transmission Oil Filter. Refer to the Service Information for the proper repair procedure. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 7	All

P0944-LOSS OF PRIME — Continued

TEST	ACTION	APPLICABILITY
7	If there are no possible causes remaining, view repair. Repair Replace the Transmission Oil Pump per the Service Information. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

Symptom:
P0952-AUTOSTICK INPUT CIRCUIT LOW

When Monitored and Set Condition:

P0952-AUTOSTICK INPUT CIRCUIT LOW

When Monitored: The AutoStick circuit is checked every .007 seconds, with the ignition on, and in both AutoStick and non-AutoStick modes.

Set Condition: If either the monitored upshift or downshift switch voltages are reported closed in a non AutoStick mode or the monitored voltage drops below 0.3 volts.

POSSIBLE CAUSES
AUTOSTICK/OD OFF MUX INPUT CIRCUIT SHORT TO GROUND
AUTOSTICK SWITCH
POWERTRAIN CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All
2	With the DRBIII®, Check the STARTS SINCE SET counter for P0952. **Note: This counter only applies to the last DTC set.** Is the Starts Since Set counter set at 0? Yes → Go To 3 No → Go To 6	All

P0952-AUTOSTICK INPUT CIRCUIT LOW — Continued

TEST	ACTION	APPLICABILITY
3	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the AutoStick/OD Switch harness connector. **NOTE: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance between ground and the AutoStick/OD Off MUX Input circuit. Is the resistance below 5.0 ohms? Yes → Repair the AutoStick/OD Off MUX Input circuit for a short to ground. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 4	All
4	Turn the ignition off to the lock position. Replace the AutoStick Switch per the Service Information. Ignition on, engine not running. With the DRBIII®, erase Transmission DTCs. In AutoStick mode, perform multiple AutoStick upshifts and downshifts. With the DRBIII®, read Transmission DTCs. Does the DTC return? Yes → Go To 5 No → Test Complete. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
5	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Powertrain Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
6	The conditions necessary to set the DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring and connectors while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P0953-AUTOSTICK INPUT CIRCUIT HIGH

When Monitored and Set Condition:

P0953-AUTOSTICK INPUT CIRCUIT HIGH

When Monitored: The AutoStick circuit is checked every .007 seconds, with the ignition on, and in both AutoStick and non-AutoStick modes.

Set Condition: When the monitored circuit voltage rises above 4.8 volts.

POSSIBLE CAUSES
AUTOSTICK SWITCH GROUND CIRCUIT OPEN
AUTOSTICK/OD OFF MUX INPUT CIRCUIT OPEN
AUTOSTICK/OD OFF MUX INPUT CIRCUIT SHORT TO VOLTAGE
AUTOSTICK SWITCH
POWERTRAIN CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All
2	With the DRBIII®, Check the STARTS SINCE SET counter for P0953. **Note: This counter only applies to the last DTC set.** Is the Starts Since Set counter set at 0? Yes → Go To 3 No → Go To 8	All

P0953-AUTOSTICK INPUT CIRCUIT HIGH — Continued

TEST	ACTION	APPLICABILITY
3	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the AutoStick/OD Switch harness connector. **NOTE: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance of the AutoStick/OD Off MUX Input circuit between the AutoStick/OD Switch harness connector and the PCM harness connector. Is the resistance below 5.0 ohms? Yes → Go To 4 No → Repair the AutoStick/OD Off MUX Input circuit for an open. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
4	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the AutoStick/OD Switch harness connector. **NOTE: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance of the ground circuit between the AutoStick/OD Switch harness connector and ground. Is the resistance below 5.0 ohms? Yes → Go To 5 No → Repair the AutoStick Switch Ground circuit for an open. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
5	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Autostick/OD switch harness connector. **NOTE: Check connectors - Clean/repair as necessary.** Ignition on, engine not running. **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the voltage of the AutoStick/OD Off MUX Input circuit. Is the voltage above 0.5 volts? Yes → Repair the AutoStick/OD Off MUX Input circuit for a short to voltage. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 6	All

P0953-AUTOSTICK INPUT CIRCUIT HIGH — Continued

TEST	ACTION	APPLICABILITY
6	Turn the ignition off to the lock position. Replace the AutoStick Switch per the Service Information. Ignition on, engine not running. With the DRBIII®, erase Transmission DTCs. In AutoStick mode, perform multiple AutoStick upshifts and downshifts. With the DRBIII®, read Transmission DTCs. Does the DTC return? Yes → Go To 7 No → Test Complete. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
7	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Powertrain Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
8	The conditions necessary to set the DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring and connectors while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P0992-2-4/OD HYDRAULIC PRESSURE TEST FAILURE

When Monitored and Set Condition:

P0992-2-4/OD HYDRAULIC PRESSURE TEST FAILURE

When Monitored: In any forward gear with engine speed above 1000 RPM shortly after a shift and every minute thereafter.

Set Condition: After a shift into a forward gear, with engine speed >1000 RPM, the PCM momentarily turns on element pressure to the clutch circuits that don't have pressure to identify the correct pressure switch closes. If the pressure switch does not close 2 times, the DTC sets.

POSSIBLE CAUSES
CONDITION P0992 PRESENT

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P0992-2-4/OD HYDRAULIC PRESSURE TEST FAILURE — Continued

TEST	ACTION	APPLICABILITY
2	**NOTE: The vehicle must be driven to set this DTC. The transmission must be warm or hot with the Engine RPM above 1000 RPM.** This DTC is an indication of both the 2/4 and the O/D Hydraulic Pressure Switch DTCs present. Perform diagnostics for both P0870 and P0845 to determine which switch is failing. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. If there are no possible causes remaining, view repair. Repair Refer to the Transmission category and perform the symptoms for P0845 and P0870. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

Symptom:
P1652-SERIAL COMMUNICATION LINK MALFUNCTION

When Monitored and Set Condition:

P1652-SERIAL COMMUNICATION LINK MALFUNCTION

When Monitored: Continuously with engine running.

Set Condition: The DTC sets in approximately 20 seconds if no BUS messages are received by the TCM. Note: Due to the integration of the Powertrain and Transmission Control Modules, bus communication between the modules is internal.

POSSIBLE CAUSES
ENGINE COMMUNICATION DTCS PRESENT
POWERTRAIN CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	Ignition on, engine not running. With the DRBIII®, read Engine DTC's. Are there any Engine Communication DTC's present? Yes → Refer to the Powertrain category and perform the appropriate symptom. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 2	All
2	With the DRBIII®, erase Transmission DTC's. Start the Engine in Park. With the DRBIII®, read Transmission DTCs. **NOTE: The Engine must run for at least 20 seconds to reset this DTC.** Did the DTC reset after the engine was started? Yes → Go To 3 No → Go To 4	All
3	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Powertrain Control Module. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

P1652-SERIAL COMMUNICATION LINK MALFUNCTION — Continued

TEST	ACTION	APPLICABILITY
4	The conditions necessary to set the DTC are not present at this time. Make sure to check for any Communication DTCs or customer concerns of possible bus problems. This includes any other controllers on the bus on this vehicle. If there is a bus problem refer to the Communication Category for diagnosis. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P1684-BATTERY WAS DISCONNECTED

When Monitored and Set Condition:

P1684-BATTERY WAS DISCONNECTED

When Monitored: Whenever the ignition is in the Run/Start position.

Set Condition: This DTC is set whenever the Transmission Control Module (TCM) is disconnected from battery power (B+) or ground. It will also be set during the DRBIII® Quick Battery Disconnect procedure. Note: Due to the integration of the Powertrain and Transmission Control Modules, the transmission part of the PCM has its own specific power and ground circuits.

POSSIBLE CAUSES
BATTERY WAS DISCONNECTED
PCM WAS REPLACED OR DISCONNECTED
QUICK LEARN WAS PERFORMED
FUSED B+ CIRCUIT TO TCM OPEN
GROUND CIRCUIT OPEN
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P1684-BATTERY WAS DISCONNECTED — Continued

TEST	ACTION	APPLICABILITY
2	Has the battery been disconnected, lost it's charge, or been replaced recently? Yes → Disconnecting or replacing the battery will set this DTC. Erase the DTC. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	Has a Quick Learn procedure been performed? Yes → Performing Quick Learn will set this DTC. Erase the DTC. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 4	All
4	Has the PCM been replaced or disconnected? Yes → Replacing or disconnecting the PCM will set this DTC. Erase the DTC. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 5	All
5	Turn the ignition off to the lock position. Disconnect the PCM harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Using a 12-volt test light connected to ground, check the Fused B+ circuit. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly? Yes → Go To 6 No → Repair the Fused B+ circuit for an open. If the fuse is open make sure to check for a short to ground. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

P1684-BATTERY WAS DISCONNECTED — Continued

TEST	ACTION	APPLICABILITY
6	Turn the ignition off to the lock position. Disconnect the PCM harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Using a 12-volt test light connected to 12-volts, check the Ground circuits in the appropriate terminal of special tool #8815. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly for all the ground circuits? Yes → Go To 7 No → Repair the Ground circuits for an open. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
7	The conditions necessary to set the DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wires while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P1687-NO COMMUNICATION WITH THE MIC

When Monitored and Set Condition:

P1687-NO COMMUNICATION WITH THE MIC

When Monitored: Continuously with engine running.

Set Condition: The DTC sets in approximately 25 seconds if no BUS messages are received form the MIC.

POSSIBLE CAUSES
OTHER BUS PROBLEMS PRESENT
MIC - NO COMMUNICATION
POWERTRAIN CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All
2	With the DRBIII®, Check the STARTS SINCE SET counter for P1687. **Note: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter set to zero? Yes → Go To 3 No → Go To 6	All

P1687-NO COMMUNICATION WITH THE MIC — Continued

TEST	ACTION	APPLICABILITY
3	With the DRBIII®, check all of the other modules on the vehicle for evidence of a vehicle bus problem. Bus related DTC's in other modules point to an overall vehicle bus problem. Other symptoms such as a customer complaint of intermittent operation of bus controlled features also indicate a bus problem. Does the PRNDL display indicate ″No Bus″ or is there any evidence of an overall vehicle bus problem? Yes → Refer to the Communications category and perform the appropriate symptom. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 4	All
4	Ignition on, engine not running. With the DRBIII®, clear all DTC's. Start the engine in park. **NOTE: May take up to 30 seconds of a consistent fault to set this DTC.** With the DRBIII®, read the BCM DTC's. Does the Body Control Module have a ″MIC MESSAGES NOT RECEIVED″ DTC? Yes → Refer to the Communications category and perform test for ″MIC MESSAGES NOT RECEIVED″. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 5	All
5	Ignition on, engine not running. With the DRBIII®, erase Transmission DTC's. Start the engine in park. With the DRBIII®, read Transmission DTC's. Is the DTC ″P1687 NO COMMUNICATION WITH THE MIC″ present? Yes → Replace the Powertrain Control Module. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All
6	The conditions necessary to set the DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wiring and connectors while checking for shorts and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P1694-BUS COMMUNICATION WITH ENGINE MODULE

When Monitored and Set Condition:

P1694-BUS COMMUNICATION WITH ENGINE MODULE

When Monitored: Continuously with ignition key on.

Set Condition: If no bus messages are received from the Powertrain Control Module (PCM) for 10 seconds. Note: Due to the integration of the Powertrain and Transmission Control Modules, bus communication between the modules is internal.

POSSIBLE CAUSES
POWERTRAIN CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	With the DRBIII®, erase Transmission DTC's. Start the Engine in Park. With the DRBIII®, read Transmission DTCs. **NOTE: The Engine must run for at least 20 seconds to reset this DTC.** Did the DTC reset after the engine was started? Yes → Go To 2 No → Go To 3	All
2	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Powertrain Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
3	The conditions necessary to set the DTC are not present at this time. Make sure to check for any Communication DTCs or customer concerns of possible bus problems. This includes any other controllers on the bus on this vehicle. If there is a bus problem refer to the Communication Category for diagnosis. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P1775-SOLENOID SWITCH VALVE LATCHED IN TCC POSITION

When Monitored and Set Condition:

P1775-SOLENOID SWITCH VALVE LATCHED IN TCC POSITION

When Monitored: During an attempted shift into 1st gear.

Set Condition: This DTC is set if three unsuccessful attempts are made to get into 1st gear in one given ignition start.

POSSIBLE CAUSES
RELATED DTC P0841 PRESENT
INTERMITTENT WIRING AND CONNECTORS
L/R PRESSURE SWITCH SENSE CIRCUIT OPEN
TRANSMISSION CONTROL RELAY OUTPUT CIRCUIT OPEN
L/R PRESSURE SWITCH SENSE CIRCUIT SHORT TO GROUND
L/R PRESSURE SWITCH SENSE CIRCUIT SHORT TO VOLTAGE
INTERNAL TRANSMISSION
POWERTRAIN CONTROL MODULE

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P1775-SOLENOID SWITCH VALVE LATCHED IN TCC POSITION — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, check for other Transmission DTC's Is the DTC P0841 present also? Yes → Refer to the Transmission category and perform the appropriate symptom. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	With the DRBIII®, Check the STARTS SINCE SET counter for P1775. **NOTE: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter 2 or less? Yes → Go To 4 No → Go To 11	All
4	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. Ignition on, engine not running. With the Transmission Simulator, turn the Pressure Switch selector switch to L/R. With the DRBIII®, monitor the L/R Pressure Switch State while pressing the Pressure Switch Test button. Did the Pressure Switch state change from open to closed when the test button was pressed? Yes → Go To 5 No → Go To 6	All
5	If there are no possible causes remaining, view repair. Repair Repair internal transmission as necessary per the Service Information. Inspect the Solenoid Switch Valve per the Service Information and repair or replace as necessary. If no problems are found, replace the Transmission Solenoid/Pressure Switch Assembly. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

P1775-SOLENOID SWITCH VALVE LATCHED IN TCC POSITION — Continued

TEST	ACTION	APPLICABILITY
6	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance of the L/R Pressure Switch Sense circuit from the appropriate terminal of special tool #8815 to the Transmission Solenoid/Pressure Switch Assembly harness connector. Is the resistance above 5.0 ohms? Yes → Repair the L/R Pressure Switch Sense circuit for an open. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 7	All
7	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance between ground and the L/R Pressure Switch Sense circuit. Is the resistance below 5.0 ohms? Yes → Repair the L/R Pressure Switch Sense circuit for a short to ground. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 8	All
8	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and Transmission Control Relay Output circuit in the Transmission Control Relay connector. Ignition on, engine not running. **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the voltage of the L/R Pressure Switch Sense circuit. Is the voltage above 0.5 volts? Yes → Repair the L/R Pressure Switch Sense circuit for a short to voltage. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 9	All

P1775-SOLENOID SWITCH VALVE LATCHED IN TCC POSITION — Continued

TEST	ACTION	APPLICABILITY
9	Turn the ignition off to the lock position. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Disconnect the PCM C4 harness connector. Using a 12-volt test light connected to ground, check all three Transmission Control Relay Output circuits in the appropriate terminals of special tool #8815. **NOTE: The test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly on all three output circuits? Yes → Repair the Transmission Control Relay Output circuit for an open. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 10	All
10	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Powertrain Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
11	The conditions necessary to set this DTC are not present at this time. Test drive and verify if the transmission is launching in 2nd gear and/or no TCC engagement. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Are there 2nd gear launches and/or no TCC engagement? Yes → Disassemble and inspect the Valve Body per the Service Information and repair or replace as necessary. If no problems are found in the Valve Body, replace the Transmission Solenoid Pressure Switch Assembly. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P1776-SOLENOID SWITCH VALVE LATCHED IN LR POSITION

When Monitored and Set Condition:

P1776-SOLENOID SWITCH VALVE LATCHED IN LR POSITION

When Monitored: Continuously when doing partial or full EMCC (PEMCC or FEMCC).

Set Condition: If the PCM senses the L/R Pressure Switch closing while performing PEMCC or FEMCC. This DTC will be set after two unsuccessful attempts to perform PEMCC or FEMCC.

POSSIBLE CAUSES
RELATED DTC P0841 PRESENT
TRANSMISSION CONTROL RELAY OUTPUT CIRCUIT OPEN
L/R PRESSURE SWITCH SENSE CIRCUIT OPEN
L/R PRESSURE SWITCH SENSE CIRCUIT SHORT TO GROUND
L/R PRESSURE SWITCH SENSE CIRCUIT SHORT TO VOLTAGE
INTERNAL TRANSMISSION
POWERTRAIN CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P1776-SOLENOID SWITCH VALVE LATCHED IN LR POSITION — Continued

TEST	ACTION	APPLICABILITY
2	With the DRBIII®, check for other transmission DTC's Is the DTC P0841 present also? Yes → Refer to the Transmission category and perform the appropriate symptom. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 3	All
3	With the DRBIII®, Check the STARTS SINCE SET counter for P1776. **NOTE: This counter only applies to the last DTC set.** Is the STARTS SINCE SET counter 2 or less? Yes → Go To 4 No → Go To 11	All
4	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. Ignition on, engine not running. With the Transmission Simulator, turn the Pressure Switch selector switch to L/R. With the DRBIII® monitor the L/R Pressure Switch State while pressing the Pressure Switch Test button on the Transmission Simulator. Did the Pressure Switch state change from open to closed when test button was pressed? Yes → Go To 5 No → Go To 6	All
5	If there are no possible causes remaining, view repair. Repair Repair Internal Transmission as necessary. Inspect the Solenoid Switch Valve per the Service Information and repair or replace as necessary. If no problems are found, replace the Transmission Solenoid/Pressure Switch Assembly. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

P1776-SOLENOID SWITCH VALVE LATCHED IN LR POSITION — Continued

TEST	ACTION	APPLICABILITY
6	Turn the ignition off to the lock position. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** Connect a jumper wire between the Fused B+ circuit and the Transmission Control Relay Output circuit in the Transmission Control Relay connector. Using a 12-volt test light connected to ground, check the Transmission Control Relay Output circuit in the Solenoid/Pressure Switch Assembly harness connector. **NOTE: The Test light must illuminate brightly. Compare the brightness to that of a direct connection to the battery.** Does the test light illuminate brightly? Yes → Go To 7 No → Repair the Transmission Control Relay Output circuit for an open. If the fuse is open make sure to check for a short to ground. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
7	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance of the L/R Pressure Switch Sense circuit from the Pinout Box to the Transmission Solenoid/Pressure Switch Assembly harness connector. Is the resistance above 5.0 ohms? Yes → Repair the L/R Pressure Switch Sense circuit for an open. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 8	All
8	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance between ground and the L/R Pressure Switch Sense circuit. Is the resistance below 5.0 ohms? Yes → Repair the L/R Pressure Switch Sense circuit for a short to ground. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 9	All

P1776-SOLENOID SWITCH VALVE LATCHED IN LR POSITION — Continued

TEST	ACTION	APPLICABILITY
9	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Transmission Solenoid/Pressure Switch Assembly harness connector. Remove the Transmission Control Relay. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Connect a jumper wire between the Fused B+ circuit and Transmission Control Relay Output circuit. Ignition on, engine not running. Measure the voltage of the L/R Pressure Switch Sense circuit. Is the voltage above 0.5 volt? Yes → Repair the L/R Pressure Switch Sense circuit for a short to voltage. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 10	All
10	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Powertrain Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All
11	The conditions necessary to set this DTC are not present at this time. Test Drive and verify if the transmission is launching in 2nd gear and/or no TCC engagement. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Are there 2nd gear launches and/or no TCC engagement? Yes → Disassemble and inspect the Valve Body per the Service Information and repair or replace as necessary. If no problems are found in the Valve Body, replace the Transmission Solenoid Pressure Switch Assembly. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All

Symptom:
P1790-FAULT IMMEDIATELY AFTER SHIFT

When Monitored and Set Condition:

P1790-FAULT IMMEDIATELY AFTER SHIFT

When Monitored: After a speed ratio error is stored.

Set Condition: This DTC is set if the associated speed ratio DTC is stored within 1.3 seconds after a shift.

POSSIBLE CAUSES
FAULT AFTER SHIFT

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All
2	This test is set along with a gear ratio DTC. Perform the appropriate test for the Gear Ratio DTC stored. **NOTE: Check 1 trip failures if there are no gear ratio DTCs current.** If there are no possible causes remaining, view repair. Repair Refer to the Transmission category and perform the appropriate symptom. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

Symptom:
P1793-TRD LINK COMMUNICATION ERROR

When Monitored and Set Condition:

P1793-TRD LINK COMMUNICATION ERROR

When Monitored: The Transmission Control Module (TCM) pulses the 12 volt TRD signal from the Powertrain Control Module (PCM) to ground, during torque managed shifts with the throttle angle above 54 degrees. The TRD system is also tested whenever the vehicle is stopped and the engine speed is at idle.

Set Condition: This DTC is set when the Transmission Control Module (TCM) sends two subsequent torque reduction messages to the Powertrain Control Module (PCM) and does not receive a confirmation from the PCM. Note: Due to the integration of the Powertrain and Transmission Control Modules, bus communication between the modules is internal.

POSSIBLE CAUSES
POWERTRAIN CONTROL MODULE

TEST	ACTION	APPLICABILITY
1	**NOTE: Due to the integration of the Engine and Transmission controllers into one module, the TRD bus messages are sent over a internal bus circuit.** View repair. Repair Replace the Powertrain Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

Symptom:
P1794-SPEED SENSOR GROUND ERROR

When Monitored and Set Condition:

P1794-SPEED SENSOR GROUND ERROR

When Monitored: The transmission gear ratio is monitored continuously while the transmission is in gear.

Set Condition: After a PCM reset in neutral and Input/Output Ratio equals a ratio of 2.50 to 1.0 ± 50.0 RPM.

POSSIBLE CAUSES
SPEED SENSOR GROUND CIRCUIT OPEN
POWERTRAIN CONTROL MODULE
INTERMITTENT WIRING AND CONNECTORS

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P1794-SPEED SENSOR GROUND ERROR — Continued

TEST	ACTION	APPLICABILITY
2	Turn the ignition off to the lock position. Remove the Starter Relay. **CAUTION: Removal of the Starter Relay is to prevent a Transmission, NO RESPONSE, condition and disable the starter.** Install the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A. Ignition on, engine not running. With the Transmission Simulator, set the ″Input/Output Speed″ switch to ″ON″ and the rotary switch to the ″3000/1250″ position. With the DRBIII®, monitor the Input and Output Speed Sensor readings. Does the Input Speed read 3000 RPM and the Output Speed read 1250 RPM, ± 50 RPM? Yes → Go To 3 No → Go To 4	All
3	The conditions necessary to set the DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wires while checking for shorted and open circuits. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Were there any problems found? Yes → Repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete.	All
4	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the Input and Output Speed Sensor harness connectors. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance of the Speed Sensor Ground circuit from the appropriate terminal of special tool #8815 to the Input and Output Speed Sensor harness connectors. Is the resistance above 5.0 ohms on either circuit? Yes → Repair the Speed Sensor Ground circuit for an open. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Go To 5	All
5	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace and program the Powertrain Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

Symptom:
P1797-MANUAL SHIFT OVERHEAT

When Monitored and Set Condition:

P1797-MANUAL SHIFT OVERHEAT

When Monitored: Whenever the engine is running and transmission is in the AutoStick® mode.

Set Condition: If the Engine Temperature exceeds 123° C or 255° F, or the Transmission Temperature exceeds 135° C or 275° F while in AutoStick® mode. Note: Aggressive driving or driving in low for extended periods of time in AutoStick® mode will set this DTC.

POSSIBLE CAUSES
MANUAL SHIFT OVERHEAT

TEST	ACTION	APPLICABILITY
1	**NOTE: Low fluid level can be the cause of many transmission problems. If the fluid level is low locate and repair the leak then check and adjust the fluid level per the Service Information.** **NOTE: Always perform diagnostics with a fully charged battery to avoid false symptoms.** With the DRBIII®, read Engine DTC's. Check and repair all Engine DTC's prior to performing any transmission symptom diagnostics. With the DRBIII®, read Transmission DTC's. Record all DTC's and 1 Trip Failures. **NOTE: Diagnose 1 Trip Failures as a fully matured DTC.** Using the wiring diagram/schematic as a guide, inspect the wiring and connectors. Repair as necessary. Perform the Shift Lever Position Test. If the test does not pass, refer to Symptom test for P0706 Check Shifter Signal. For Gear Ratio DTC's, check and record all CVI's. Most DTC's set on start up but some must be set by driving the vehicle such that all diagnostic monitors have run. **NOTE: Verify flash level of Powertrain Control Module. Some problems are corrected by software upgrades to the Transmission and Engine software.** **NOTE: Check for applicable TSB's related to the problem.** Perform this procedure prior to Symptom diagnosis. Continue Go To 2	All

P1797-MANUAL SHIFT OVERHEAT — Continued

TEST	ACTION	APPLICABILITY
2	This is an informational DTC only. With the DRBIII®, check the EATX EVENT DATA to help identify the conditions in which the DTC was set. Check the engine and transmission cooling system for proper operation. Check the Radiator Cooling Fan operation. Check the Transmission Cooling Fan operation if equipped. Check the Transmission Fluid Level per the Service Information. Make sure it is not overfilled. **NOTE: Aggressive driving or driving in low for extended periods of time in AutoStick mode will set this DTC.** If there are no possible causes remaining, view repair. Repair If the Transmission Fluid is low, repair any Transmission Fluid leak as necessary and adjust the Transmission Fluid Level per the Service Information. Refer to Service Information for the related symptoms and repair as necessary. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

Symptom:

*CHECKING PARK/NEUTRAL SWITCH OPERATION

POSSIBLE CAUSES
P/N POSITION SWITCH SENSE CIRCUIT OPEN
P/N POSITION SWITCH SENSE CIRCUIT SHORT TO GROUND
TRANSMISSION RANGE SENSOR
POWERTRAIN CONTROL MODULE

TEST	ACTION	APPLICABILITY
1	Ignition on, engine not running. With the DRBIII®, monitor the Park/Neutral Position Switch input state. Move the gear selector through all gear positions, Park to 1 and back to Park. Did the DRBIII® display show P/N and D/R in the correct gear positions? Yes → Test Complete. No → Go To 2	All
2	Turn the ignition off to the lock position. Disconnect the PCM harness connectors. Disconnect the TRS harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance of the P/N Position Switch Sense circuit from the appropriate terminal of special tool #8815 to the Transmission Range Sensor harness connector. Is the resistance below 5.0 ohms? Yes → Go To 3 No → Repair the P/N Position Switch Sense circuit for an open.	All
3	Turn the ignition off to the lock position. Disconnect the PCM harness connectors. Disconnect the TRS harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance between ground and the P/N Position Switch Sense circuit. Is the resistance above 100 kohms? Yes → Go To 4 No → Repair the P/N Position Switch Sense circuit for a short to ground.	All

*CHECKING PARK/NEUTRAL SWITCH OPERATION — Continued

TEST	ACTION	APPLICABILITY
4	Turn the ignition off to the lock position. Disconnect the PCM harness connectors. Move the Gear selector through all gear positions, from Park to 1st and back. While moving the gear selector through each gear, measure the resistance between ground and the P/N Position Switch Sense circuit in the appropriate terminal of special tool #8815. **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Did the resistance change from above 10.0 ohms to below 10.0 ohms? Yes → Go To 5 No → Replace the Transmission Range Sensor per the Service Information.	All
5	Using the schematics as a guide, inspect the wiring and connectors. Repair as necessary. Pay particular attention to all power and ground circuits. If there are no possible causes remaining, view repair. Repair Replace the Powertrain Control Module per the Service Information.	All

Symptom:

***NO MANUAL AUTOSTICK OPERATION**

POSSIBLE CAUSES
AUTOSTICK® DOWNSHIFT SENSE CIRCUIT OPEN
AUTOSTICK® GROUND CIRCUIT OPEN
AUTOSTICK® UPSHIFT SENSE CIRCUIT OPEN
FUSED IGNITION SWITCH OUTPUT CIRCUIT OPEN
PCM - AUTOSTICK®

TEST	ACTION	APPLICABILITY
1	Turn the ignition off to the lock position. Disconnect the AutoStick® Switch harness connector. **Note: Check connectors - Clean/repair as necessary.** Ignition on, engine not running. Measure the voltage of the Fused Ignition Switch Output circuit in the AutoStick® Switch harness connector. Is the voltage above 10.0 volts? Yes → Go To 2 No → Repair the Fused Ignition Switch Output circuit for an open.	All
2	Turn the ignition off to the lock position. Disconnect the AutoStick® Switch harness connector. **Note: Check connectors - Clean/repair as necessary.** Measure the resistance between ground and the AutoStick® Ground circuit at the AutoStick® harness connector. Is the resistance above 5.0 ohms? Yes → Repair the AutoStick® Ground circuit for an open. No → Go To 3	All
3	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the AutoStick® Switch harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance of the Upshift Sense circuit between the Pinout Box and the AutoStick® Switch harness connector. Is the resistance above 5.0 ohms? Yes → Repair the AutoStick® Upshift Sense circuit for an open. No → Go To 4	All

*NO MANUAL AUTOSTICK OPERATION — Continued

TEST	ACTION	APPLICABILITY
4	Turn the ignition off to the lock position. Disconnect the PCM harness connector. Disconnect the AutoStick® Switch harness connector. **Note: Check connectors - Clean/repair as necessary.** **CAUTION: DO NOT PROBE THE PCM HARNESS CONNECTORS. PROBING THE PCM HARNESS CONNECTORS WILL DAMAGE THE PCM TERMINALS RESULTING IN POOR TERMINAL TO PIN CONNECTION. INSTALL MILLER SPECIAL TOOL #8815 TO PERFORM DIAGNOSIS.** Measure the resistance of the Downshift Sense circuit between the Pinout Box and the AutoStick® Switch harness connector. Is the resistance above 5.0 ohms? Yes → Repair the AutoStick® Downshift Sense circuit for an open. No → Go To 5	All
5	Ignition on, engine not running. With the DRBIII® monitor the AutoStick® Switch status. Firmly apply the brake and shift into AutoStick®. Push the shift lever to the right several times to actuate the AutoStick® Upshift Switch and then to the left several times to actuate the AutoStick® Downshift Switch. Do both AutoStick® Upshift and Downshift Switch states toggle? Yes → Test Complete. No → Replace the Powertrain Control Module per the Service Information. WITH THE DRBIII® PERFORM QUICK LEARN AND REPROGRAM PINION FACTOR.	All

Symptom:

*PRNDL FAULT CLEARING PROCEDURE

POSSIBLE CAUSES
PRNDL FAULT CLEARING PROCEDURE .

TEST	ACTION	APPLICABILITY
1	With the DRBIII®, erase Transmission DTCs. Cycle the ignition off, then start the vehicle. Firmly apply the brakes and shift into Overdrive. **NOTE: Vehicle must remain in Overdrive for at least 3.0 seconds.** With the brakes firmly applied, shift slowly through all gears (PRNDL) as least three times, pausing momentarily in each gear. **NOTE: If all the PRNDL lights box individually then the error was cleared.** Shift into park and turn the ignition off to the lock position. Ignition on, engine not running. With the DRBIII®, read Transmission DTCs. Does the DTC P0706 reset, or do all the PRNDL indicators remain boxed in park or neutral? Yes → Return to the symptom list and perform diagnostics for P0706 CHECK SHIFTER SIGNAL. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1. No → Test Complete. Perform 40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1.	All

Symptom:
*TRANSMISSION NOISY WITH NO DTC'S PRESENT

POSSIBLE CAUSES
INTERNAL TRANSMISSION PROBLEM - NOISY
INTERNAL TRANSMISSION PROBLEM - NOISY WHILE STANDING STILL

TEST	ACTION	APPLICABILITY
1	Check and adjust the oil level per the Service Information before continuing. Place vehicle on hoist. Run vehicle on hoist under conditions necessary to duplicate the noise. **CAUTION: BE SURE TO KEEP HANDS AND FEET CLEAR OF ROTATING WHEELS.** Using Chassis Ears or other suitable device, verify that the noise is coming from the transmission. Is the noise coming from the transmission? Yes → Go To 2 No → Test Complete.	All
2	With the shift lever in neutral, raise the engine speed and listen to the noise. **NOTE: THE RADIO MUST BE TURNED OFF. Alternator noise can come through the speakers and be misinterpreted as Transmission Pump Whine. This can happen even with the volume turned down.** Does the noise get louder or change pitch while the engine speed is changing? Yes → Go To 3 No → Go To 4	All
3	If there are no possible causes remaining, view repair. Repair Repair internal transmission problem as necessary. Inspect all of the transmission components for signs of wear. If no problems found, replace the Transmission Oil pump.	All
4	If there are no possible causes remaining, view repair. Repair Repair internal transmission problem as necessary. Inspect all of the transmission components for signs of wear. Pay particular attention to bearings, pinion gears, etc. Repair or replace as necessary.	All

Symptom:

*TRANSMISSION SHIFTS EARLY WITH NO DTC'S

POSSIBLE CAUSES
VEHICLE BUS PROBLEMS
CHECK FOR INTERMITTENT WIRING & CONNECTORS
COLD TRANSMISSION

TEST	ACTION	APPLICABILITY
1	Using the DRBIII®, check all other Modules for signs of a PCI bus problem such as bus related DTC's and/or communication problems. Check and diagnose all 1 trip failures as a hard code. Although it takes two occurences of a missed TRD link message to set the DTC P1793, one missed message will cause the transmission to short shift until the next start up. If the vehicle has any indications of a bus problem, the bus must be repaired first Do any of the other modules show signs of a bus problem? Yes → Refer to the Communication category and perform the appropriate diagnostics. No → Go To 2	All
2	The conditions necessary to set the DTC are not present at this time. Using the schematics as a guide, inspect the wiring and connectors specific to this circuit. Wiggle the wires while checking for shorts and open circuits. Although it takes two occurences of a missed TRD link message to set the DTC P1793, one missed message will cause the transmission to short shift until the next start up. If the vehicle has any indications of a bus problem, the bus must be repaired first Were there any problems found? Yes → Repair as necessary. No → Go To 3	All
3	If the transmission shifts too early when the transmission is cold, this is a normal condition. The software is designed to protect the transmission from high torque and/or high RPM shifts during cold operation. Did the problem occur when the transmission temperature was cold? Yes → This is a normal condition. The software is designed to protect the transmission from high torque and/or high RPM shifts during cold operation. No → Test Complete.	All

Symptom:

*TRANSMISSION SIMULATOR 8333 WILL NOT POWER UP

POSSIBLE CAUSES
TRANSMISSION SIMULATOR WILL NOT POWER UP

TEST	ACTION	APPLICABILITY
1	**NOTE: Make sure to check for any Transmission Control Relay DTCs. or conditions. A stuck open Transmission Control Relay can cause the Transmission Simulator to not Power up.** **NOTE: If the Transmission Simulator, Miller tool #8333 and the Electronic Transmission Adapter kit 8333-1A will not power up make sure to check all connectors and the ground cable for proper installation.** If there are no possible causes remaining, view repair. Repair Check and repair these symptoms before having the Transmission Simulator repaired.	All

Verification Tests

40/41TE (NGC) TRANSMISSION VERIFICATION TEST - VER 1	APPLICABILITY
1. NOTE: After completion of the Transmission Verification Test, the Powertrain Verification Test must be performed. Refer to the Powertrain Category. 2. Connect the DRBIII® to the Data Link Connector (DLC). 3. Reconnect any disconnected components. 4. With the DRBIII®, erase all Transmission DTC's, also erase the PCM DTC's. 5. Perform *PRNDL FAULT CLEARING PROCEDURE after completion of repairs for P0706 CHECK SHIFTER SIGNAL. 6. With the DRBIII®, display Transmission Temperature. Start and run the engine until the Transmission Temperature is HOT, above 43° C or 110° F. 7. Check the transmission fluid and adjust if necessary. Refer to the Service Information for the Fluid Fill procedure. **8. NOTE: If the Transmission Control Module or Torque Converter has been replaced, or if the Transmission has been repaired or replaced, it is necessary to perform the DRBIII® Quick Learn Procedure and reset the "Pinion Factor".** 9. Road test the vehicle. With the DRBIII®, monitor the engine RPM. Make 15 to 20 1-2, 2-3, 3-4 upshifts. Perform these shifts from a standing start to 45 MPH with a constant throttle opening of 20 to 25 degrees. 10. Below 25 MPH, make 5 to 8 wide open throttle kickdowns to 1st gear. Allow at least 5 seconds each in 2nd and 3rd gear between each kickdown. 11. For a specific DTC, drive the vehicle to the Symptom's When Monitored/When Set conditions to verify the DTC is repaired. 12. If equipped with AutoStick®, upshift and downshift several times using the AutoStick® feature during the road test. **13. NOTE: Use the EATX OBDII task manager to run Good Trip time in each gear, this will confirm the repair and to ensure that the DTC has not re-matured.** 14. Check for Diagnostic Trouble Codes (DTC's) during the road test. If a DTC sets during the road test , return to the Symptom list and perform the appropriate symptom. **15. NOTE: Erase P0700 DTC in the PCM to turn the MIL light off after making transmission repairs.** Were there any Diagnostic Trouble Codes set during the road test? Yes → Repair is not complete, refer to the appropriate symptom. No → Repair is complete.	All

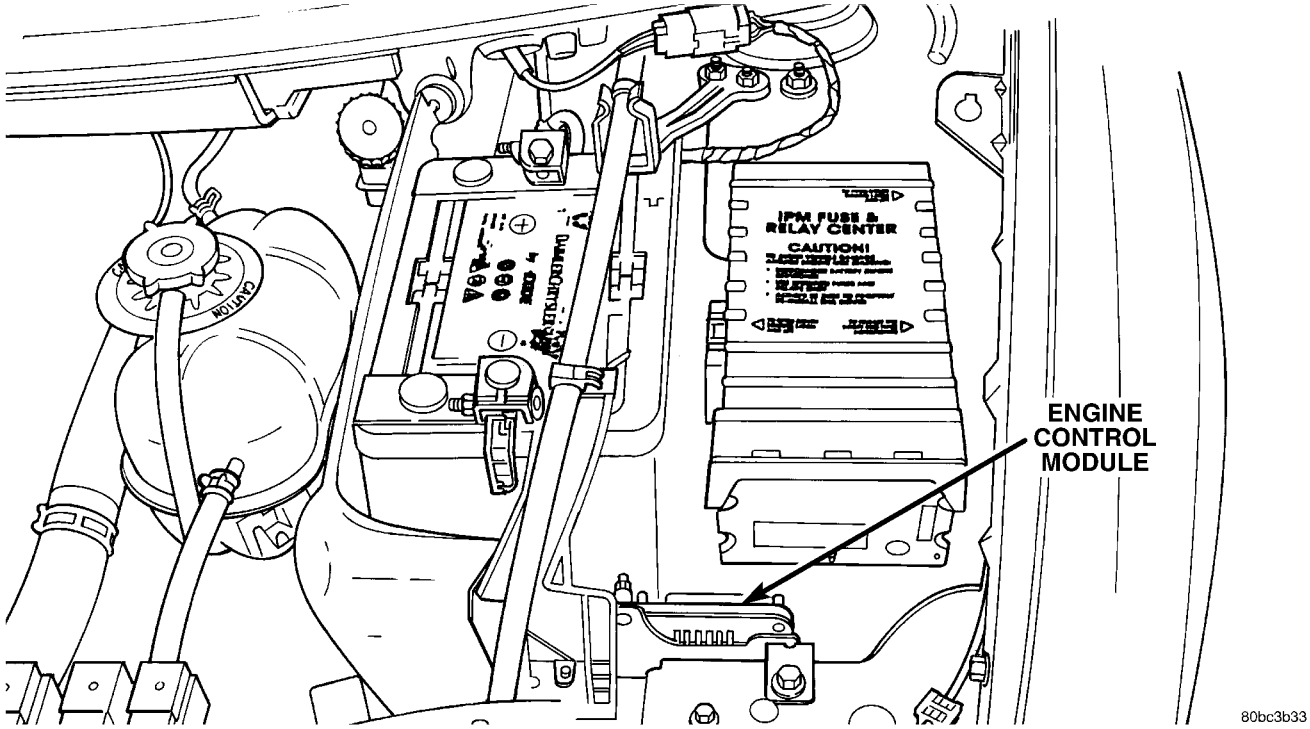
Verification Tests — Continued

41TE TRANSMISSION VERIFICATION TEST - VER 1	APPLICABILITY
1. Connect the DRBIII® to the Data Link Connector (DLC). 2. Reconnect any disconnected components. 3. With the DRBIII®, erase all Transmission DTC's, also erase the ECM/PCM DTC's. 4. Perform *PRNDL FAULT CLEARING PROCEDURE after completion of repairs for P0706 CHECK SHIFTER SIGNAL. **5. NOTE: Erase DTC P0700 in the ECM/PCM to turn the Malfunction Indicator Lamp (MIL) off after making Transmission repairs.** 6. With the DRBIII®, display Transmission Temperature. Start and run the engine until the Transmission Temperature is HOT - above 43° C or 110° F. 7. Check the Transmission Fluid and adjust if necessary. Refer to the Service information for the Fluid Fill procedure. **8. NOTE: If the Transmission Control Module or the Transmission has been repaired or replaced it is necessary to perform the DRBIII® Quick Learn Procedure and reset the ″Pinion Factor″** 9. Road test the vehicle. With the DRBIII®, monitor the engine RPM. Make 15 to 20 1-2, 2-3, 3-4 upshifts. Perform these shifts from a standing start to 45 MPH with a constant throttle opening of 20 to 25 degrees. 10. Below 25 MPH, make 5 to 8 wide open throttle kickdowns to 1st gear. Allow at least 5 seconds each in 2nd and 3rd gear between each kickdown. 11. For a specific DTC, drive the vehicle to the Symptom's When Monitored/When Set conditions to verify the DTC repair. 12. If equipped with AutoStick®, up-shift and down-shift several times using the AutoStick® feature during the road test. **13. NOTE: Use the EATX OBDII Task Manager to run Good Trip time in each gear, this will confirm the repair and to ensure that the DTC has not re-matured.** 14. Check for Diagnostic Trouble Codes (DTC's) during the road test. If a DTC sets during the road test , return to the Symptom list and perform the appropriate Symptom. Were there any Diagnostic Trouble Codes (DTCs) set during the road test? Yes → Refer to the Symptom List for appropriate Symptom(s). No → Repair is complete.	All

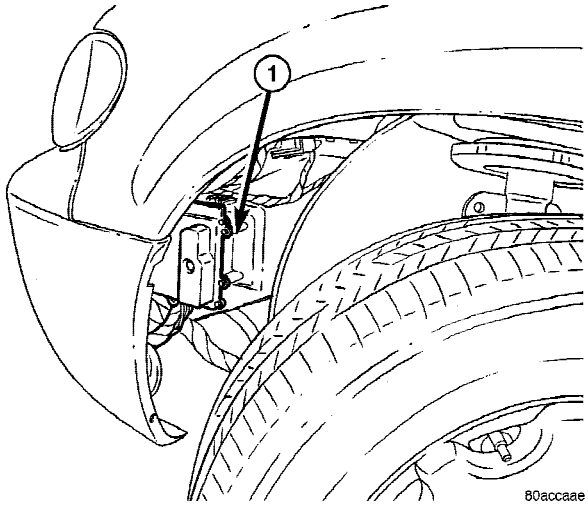
8.0 COMPONENT LOCATIONS

8.1 CONTROL MODULE LOCATIONS

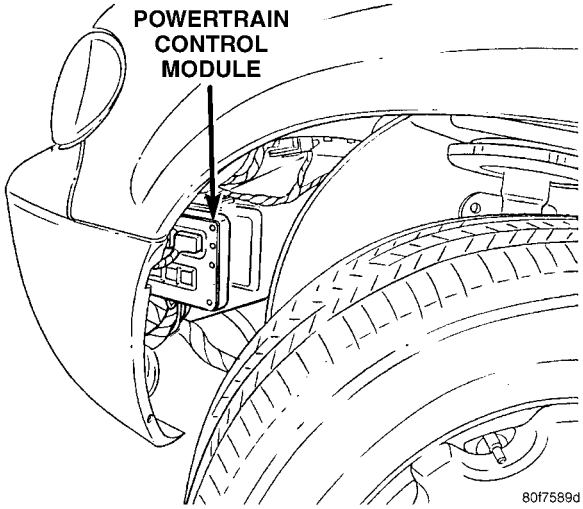
ECM - DIESEL



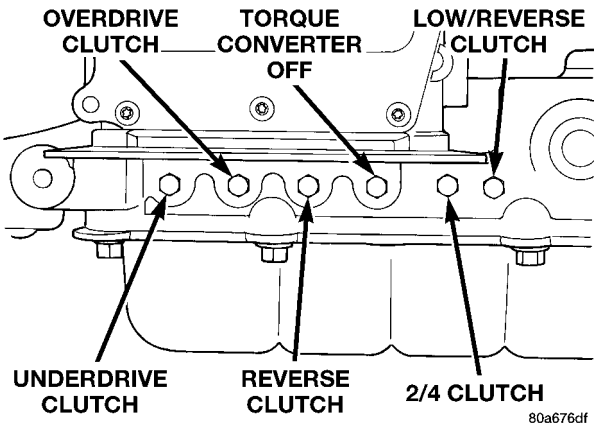
TCM-EATX



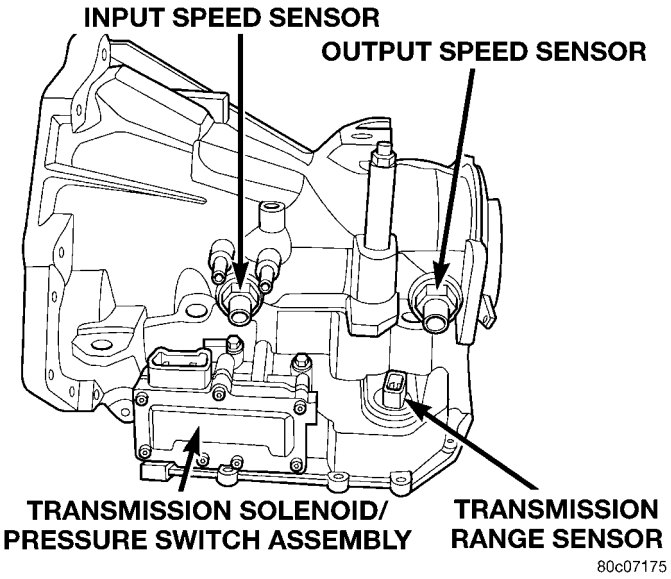
PCM-NGC



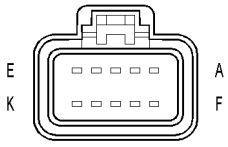
8.2 PRESSURE PORT LOCATIONS



8.3 TRANSMISSION COMPONENT LOCATIONS



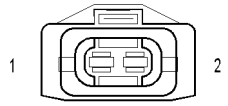
9.0 CONNECTOR PINOUTS



ACCELERATOR PEDAL POSITION SENSOR (DIESEL)

ACCELERATOR PEDAL POSITION SENSOR (DIESEL) - 10 WAY

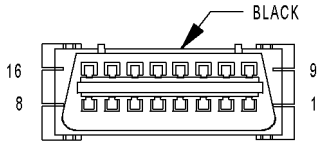
CAV	CIRCUIT	FUNCTION
A	-	-
B	-	-
C	-	-
D	K4 20BK/LB	SENSOR GROUND
E	K151 20WT	LOW IDLE POSITION SWITCH SENSE
F	-	-
G	K22 20OR/DB	ACCELERATOR PEDAL POSITION SENSOR SIGNAL NO.1
H	K23 20BR/WT	ACCELERATOR PEDAL POSITION SENSOR SIGNAL NO.2
J	K900 20DB/DG	SENSOR GROUND
K	F852 20VT/PK	ACCELERATOR PEDAL POSITION SENSOR 5 VOLT SUPPLY



CRANKSHAFT POSITION SENSOR (DIESEL)

CRANKSHAFT POSITION SENSOR (DIESEL) - 2 WAY

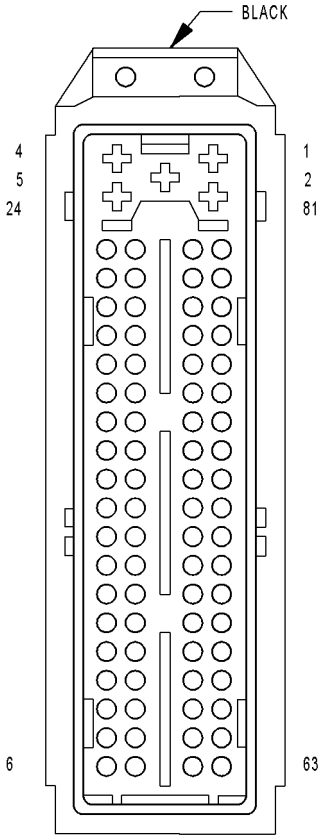
CAV	CIRCUIT	FUNCTION
1	K3 20BR/OR	CRANKSHAFT POSITION SENSOR SIGNAL NO. 1
2	K24 20BR/LB	CRANKSHAFT POSITION SENSOR SIGNAL NO. 2



DATA LINK CONNECTOR

DATA LINK CONNECTOR - BLACK 16 WAY

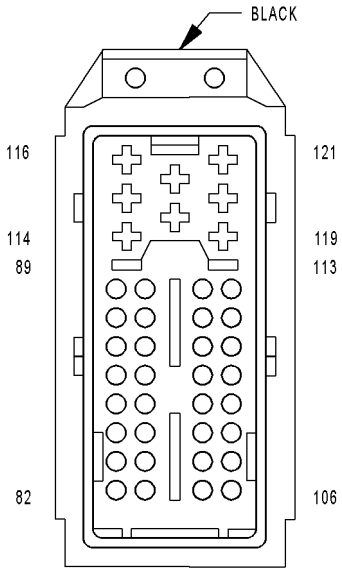
CAV	CIRCUIT	FUNCTION
1	-	-
2	D25 20WT/VT	PCI BUS
3	-	-
4	Z11 20BK/LG	GROUND
5	Z111 20BK/WT	GROUND
6	-	-
7	D21 20WT/DG (DIESEL)	SCI TRANSMIT (ECM)
7	D21 20WT/DG (GAS)	SCI TRANSMIT (PCM)
8	-	-
9	D123 20WT/BR	FLASH PROGRAM ENABLE
10	-	-
11	-	-
12	D20 20WT/LG (GAS)	SCI RECEIVE (PCM)
13	-	-
14	-	-
15	D15 20DG/YL (EATX)	SCI TRANSMIT (TCM)
16	A105 20DB/RD	FUSED B(+)



ENGINE CONTROL MODULE C1 (DIESEL)

ENGINE CONTROL MODULE C1 (DIESEL) - BLACK 81 WAY

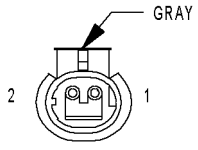
CAV	CIRCUIT	FUNCTION
1	Z130 14BK/BR	GROUND
2	Z131 14BK/DG	GROUND
3	K20 14BR/GY	GENERATOR FIELD CONTROL
4	K342 14BR/WT	ECM/PCM RELAY OUTPUT
5	K342 14BR/WT	ECM/PCM RELAY OUTPUT
6	-	-
7	D25 20WT/VT	PCI BUS
8	K944 20BK/GY	CAMSHAFT POSITION SENSOR SHIELD GROUND
9	K44 20DB/GY	CAMSHAFT POSITION SENSOR SIGNAL
10	-	-
11	K37 20DB/YL	BOOST PRESSURE SENSOR SIGNAL
12	K55 20DB/OR	MASS AIR FLOW SENSOR SIGNAL
13	K78 20GY	FUEL PRESSURE SENSOR SIGNAL
14	-	-
15	K22 20OR/DB	ACCELERATOR PEDAL POSITION SENSOR SIGNAL NO. 1
16	K80 20DB/TN	FUEL PRESSURE SENSOR GROUND
17	-	-
18	-	-
19	K342 20BR/WT	ECM/PCM RELAY OUTPUT
20	Z138 20BK/OR	GROUND
21	K900 20DB/DG	SENSOR GROUND
22	F202 20PK/GY	FUSED IGNITION SWITCH OUTPUT (RUN-START)
23	F851 20LB/PK	SENSOR REFERENCE VOLTAGE B
24	K3 20BR/OR	CRANKSHAFT POSITION SENSOR SIGNAL NO. 1
25	-	-
26	-	-
27	-	-
28	-	-
29	-	-
30	G6 20VT/GY	ENGINE OIL PRESSURE SENSOR SIGNAL
31	F853 20LG/PK	WATER IN FUEL SENSOR SIGNAL
32	K25 20BR/TN	BATTERY TEMPERATURE SENSOR SIGNAL
33	-	-
34	K4 20BK/LB	SENSOR GROUND
35	F852 20VT/PK	ACCELERATOR PEDAL POSITION SENSOR 5 VOLT SUPPLY
36	C18 20LB/BR	A/C PRESSURE SENSOR SIGNAL
37	-	-
38	V37 20VT/TN	SPEED CONTROL SWITCH SIGNAL
39	-	-
40	K2 20TN/BK	ENGINE COOLANT TEMPERATURE SENSOR SIGNAL
41	K21 20DB/LG	INTAKE AIR TEMPERATURE SENSOR SIGNAL
42	Z122 18WT	GROUND (DRAIN)
43	K24 20BR/LB	CRANKSHAFT POSITION SENSOR SIGNAL NO. 2
44	-	-
45	-	-
46	-	-
47	L50 20WT/TN	PRIMARY BRAKE SWITCH SIGNAL
48	B29 20DG/WT	SECONDARY BRAKE SWITCH SIGNAL
49	T751 20YL	FUSED IGNITION SWITCH OUTPUT (START)
50	F855 20PK/YL	SENSOR REFERENCE VOLTAGE A
51	-	-
52	K121 20DB	BOOST PRESSURE SENSOR GROUND
53	-	-
54	K957 20BK/OR	MASS AIR FLOW SENSOR GROUND
55	N7 20DB/OR	VEHICLE SPEED SENSOR SIGNAL
56	C918 20BK/LB	A/C PRESSURE SENSOR GROUND
57	T10 20DG/LG (EATX)	TORQUE MANAGEMENT REQUEST SENSE
58	-	-
59	-	-
60	K9 20LB	FUEL PRESSURE SENSOR 5 VOLT SUPPLY
61	K51 20BR/WT	ECM/PCM RELAY CONTROL
62	-	-
63	D21 20WT/DG	SCI TRANSMIT (ECM)
64	K151 20WT	LOW IDLE POSITION SWITCH SENSE
65	-	-
66	K936 20BR/YL	ENGINE OIL PRESSURE SENSOR GROUND
67	-	-
68	-	-
69	C13 20LB/OR	A/C COMPRESSOR CLUTCH RELAY CONTROL
70	N210 20DB/DG	LOW SPEED RADIATOR FAN RELAY CONTROL
71	-	-
72	N21 20DB/TN	LIFT PUMP RELAY CONTROL
73	-	-
74	T752 20DG/OR	STARTER MOTOR RELAY CONTROL
75	-	-
76	-	-
77	K152 20DB/WT	GLOW PLUG RELAY CONTROL
78	N122 20DB/YL	HIGH SPEED RADIATOR FAN DUAL RELAY CONTROL
79	-	-
80	K87 20BR	FUEL PRESSURE SOLENOID CONTROL
81	K87 20BR	FUEL PRESSURE SOLENOID CONTROL



ENGINE CONTROL MODULE C2 (DIESEL)

ENGINE CONTROL MODULE C2 (DIESEL) - BLACK 40 WAY

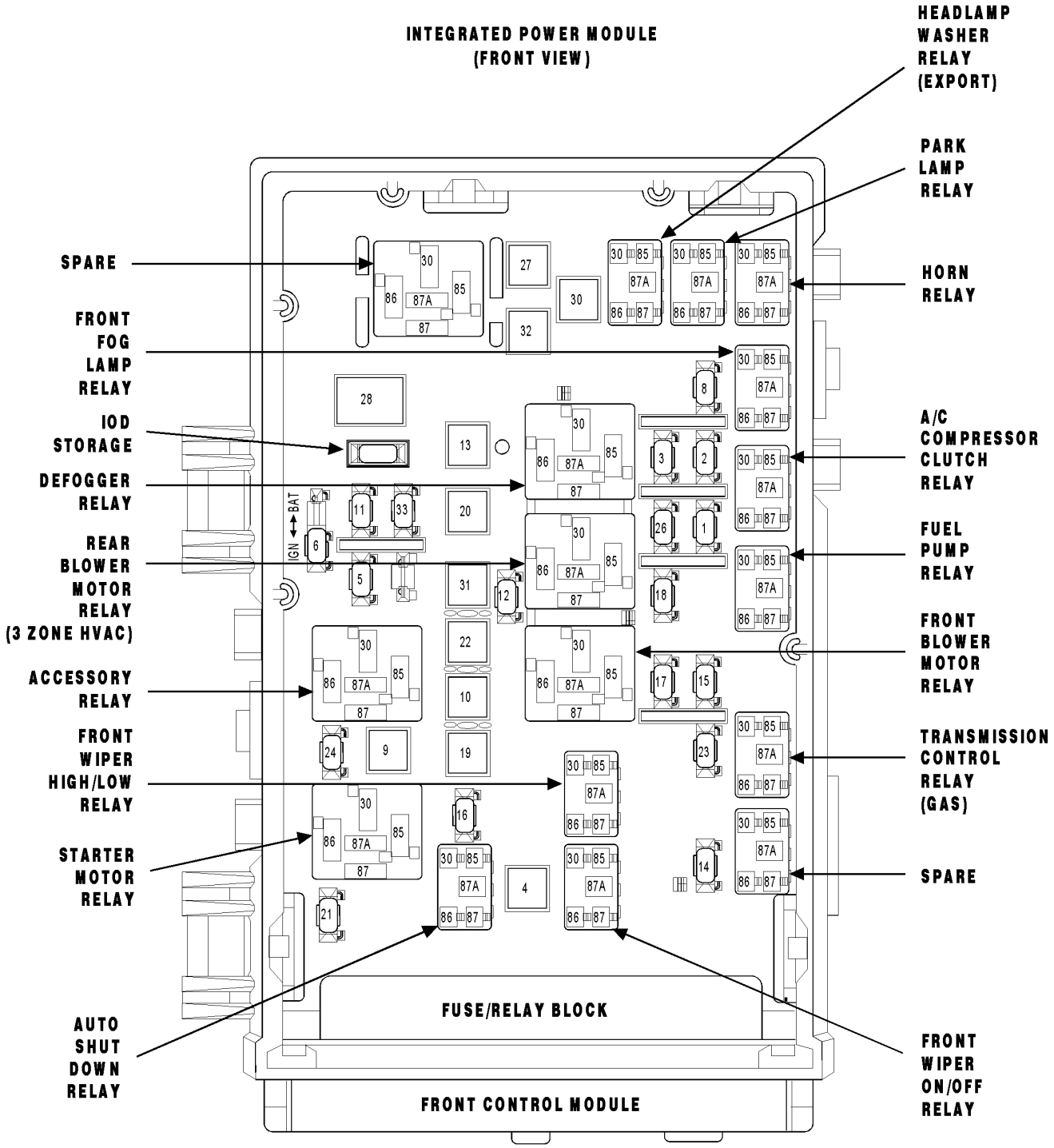
CAV	CIRCUIT	FUNCTION
80	-	-
81	-	-
82	-	-
83	K24 20BR/LB (EATX)	CRANKSHAFT POSITION SENSOR SIGNAL NO. 2
84	-	-
85	-	-
86	-	-
87	-	-
88	K35 20GY/YL	EGR SOLENOID CONTROL
89	K35 20GY/YL	EGR SOLENOID CONTROL
90	-	-
91	-	-
92	-	-
93	-	-
94	-	-
95	-	-
96	-	-
97	-	-
98	-	-
99	-	-
100	-	-
101	-	-
102	-	-
103	-	-
104	-	-
105	-	-
106	-	-
107	-	-
108	-	-
109	-	-
110	-	-
111	-	-
112	T41 20DG/GY (EATX)	TRS T41 SENSE
112	K119 20DB/LG (MTX)	CLUTCH PEDAL UPSTOP SWITCH SENSE
113	-	-
114	-	-
115	K14 14LB/BR	FUEL INJECTOR NO. 4 CONTROL
116	K111 14DB/LB	COMMON INJECTOR DRIVER
117	-	-
118	K11 14WT/DB	FUEL INJECTOR NO. 1 CONTROL
119	K12 14TN	FUEL INJECTOR NO. 2 CONTROL
120	K13 14BR/LB	FUEL INJECTOR NO. 3 CONTROL
121	-	-



INPUT SPEED SENSOR

INPUT SPEED SENSOR - GRAY 2 WAY

CAV	CIRCUIT	FUNCTION
1	T13 18DG/VT	SPEED SENSOR GROUND
2	T52 18DG/WT	INPUT SPEED SENSOR SIGNAL

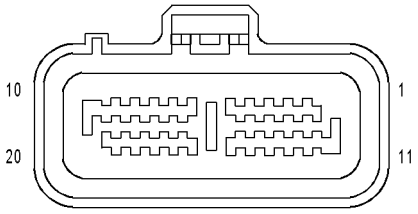

INTEGRATED POWER MODULE
(FRONT VIEW)
HEADLAMP WASHER RELAY (EXPORT)
PARK LAMP RELAY
SPARE
HORN RELAY
FRONT FOG LAMP RELAY
IOD STORAGE
A/C COMPRESSOR CLUTCH RELAY
DEFOGGER RELAY
FUEL PUMP RELAY
REAR BLOWER MOTOR RELAY (3 ZONE HVAC)
FRONT BLOWER MOTOR RELAY
ACCESSORY RELAY
TRANSMISSION CONTROL RELAY (GAS)
FRONT WIPER HIGH/LOW RELAY
SPARE
STARTER MOTOR RELAY
AUTO SHUT DOWN RELAY
FRONT WIPER ON/OFF RELAY
IGN
BAT
FUSE/RELAY BLOCK
FRONT CONTROL MODULE

FUSES (IPM)

FUSE NO.	AMPS	FUSED CIRCUIT	FUNCTION
1	20A	INTERNAL	FUSED B(+)
2	15A	INTERNAL	FUSED PARK LAMP RELAY OUTPUT
3	15A	INTERNAL	FUSED PARK LAMP RELAY OUTPUT
4	30A	INTERNAL	FUSED B(+)
5	20A	F306 16DB/PK	FUSED ACCESSORY RELAY OUTPUT
6	20A	F307 16LB/PK (ACCESSORY RELAY POSITION)	FUSED ACCESSORY RELAY OUTPUT
6	20A	F307 16LB/PK (BATTERY POSITION)	FUSED B(+)
8	20A	INTERNAL	FUSED B(+)
9	40A	INTERNAL	FUSED B(+)
10	40A	C7 12DB	FUSED FRONT BLOWER MOTOR RELAY OUTPUT
11	20A	F302 18GY/PK	FUSED ACCESSORY RELAY OUTPUT
12	25A	C51 12LB/BR	FUSED REAR BLOWER MOTOR RELAY OUTPUT
13	40A	C15 12DB/WT	FUSED DEFOGGER RELAY OUTPUT
14	20A	INTERNAL	FUSED B(+) (I.O.D.)
15	20A	INTERNAL (DIESEL)	FUSED B(+)
15	20A	INTERNAL (EATX)	FUSED B(+)
16	25A	INTERNAL	FUSED B(+)
17	20A	INTERNAL	FUSED B(+)
18	15A	INTERNAL	FUSED B(+)
19	40A	A101 12VT/RD	FUSED B(+)
20	30A	A102 12WT/RD	FUSED B(+)
21	25A	A111 12DG/RD	FUSED B(+)
22	40A	A110 12OR/RD	FUSED B(+)
23	10A	A106 20LB/RD	FUSED B(+)
24	20A	A701 16BR/RD	FUSED B(+) (HAZARD)
26	20A	A103 18GY/RD	FUSED B(+)
27	40A	A112 12OR/RD	FUSED B(+)
28	40A	F30 12PK/YL	FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
30	40A	INTERNAL (EXPORT)	FUSED B(+)
31	40A	A113 12WT/RD	FUSED B(+)
32	40A	A115 12YL/RD	FUSED B(+)
33	15A	INTERNAL	FUSED ACCESSORY RELAY OUTPUT

TRANSMISSION CONTROL RELAY (GAS)

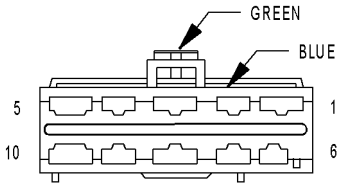
CAV	CIRCUIT	FUNCTION
30	T16 18YL/OR	TRANSMISSION CONTROL RELAY OUTPUT
85	Z115 18BK/OR (2.4L)	GROUND
85	Z115 20BK/OR (3.3L/3.8L)	GROUND
86	T15 18YL/BR	TRANSMISSION CONTROL RELAY CONTROL
87	INTERNAL	FUSED B(+)
87A	-	-



INTEGRATED POWER MODULE C1

INTEGRATED POWER MODULE C1 - 20 WAY

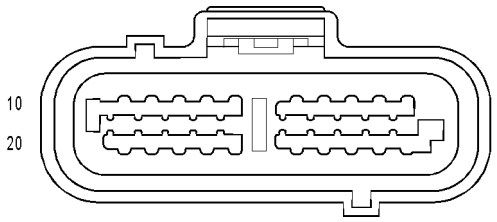
CAV	CIRCUIT	FUNCTION
1	-	-
2	-	-
3	-	-
4	L43 18WT/DB	LEFT LOW BEAM DRIVER
5	Z344 16BK/TN	GROUND
6	L34 16WT/GY	RIGHT HIGH BEAM DRIVER
7	W1 18BR/TN	WASHER FLUID LEVEL SWITCH SENSE
8	L33 18WT/LG	LEFT HIGH BEAM DRIVER
9	G31 18VT/LG (DIESEL)	AMBIENT TEMPERATURE SENSOR SIGNAL
10	L44 16WT/TN	RIGHT LOW BEAM DRIVER
11	-	-
12	-	-
13	Z343 18BK/LG	GROUND
14	-	-
15	L78 18WT/OR	FUSED PARK LAMP RELAY OUTPUT (RIGHT)
16	L77 18WT/BR	FUSED PARK LAMP RELAY OUTPUT (LEFT)
17	-	-
18	G931 18VT/BR (DIESEL)	AMBIENT TEMPERATURE SENSOR RETURN
19	W20 18BR/YL	REAR WASHER PUMP MOTOR CONTROL
20	W10 18BR	FRONT WASHER PUMP MOTOR CONTROL



INTEGRATED POWER MODULE C2

INTEGRATED POWER MODULE C2 - GREEN/BLUE 10 WAY

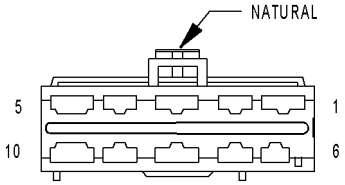
CAV	CIRCUIT	FUNCTION
1	N173 18DB/VT (GAS)	RAD FAN RELAY CONTROL
2	V53 12BR/OR (EXPORT)	HEADLAMP WASHER RELAY OUTPUT
3	L60 18WT/TN	RIGHT FRONT TURN SIGNAL DRIVER
4	L13 18WT/YL (EXPORT)	HEADLAMP ADJUST SIGNAL
5	X2 18DG/OR	HORN RELAY OUTPUT
6	L90 18WT/OR (FOG LAMPS)	FRONT FOG LAMP RELAY OUTPUT
7	L61 18WT/LB	LEFT FRONT TURN SIGNAL DRIVER
8	-	-
9	A112 12OR/RD	FUSED B(+)
10	L89 18WT/YL (FOG LAMPS)	FRONT FOG LAMP RELAY OUTPUT



INTEGRATED POWER MODULE C3

INTEGRATED POWER MODULE C3 - 20 WAY

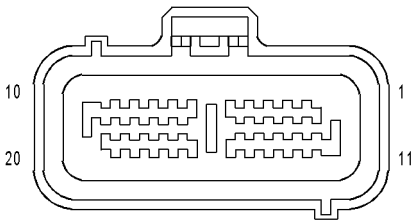
CAV	CIRCUIT	FUNCTION
1	N21 20DB/TN (DIESEL)	LIFT PUMP RELAY CONTROL
1	Z115 20BK/OR (GAS)	GROUND
2	F1 18PK/WT	FCM OUTPUT (UNLOCK-RUN-START)
3	T751 20YL (DIESEL)	FUSED IGNITION SWITCH OUTPUT (START)
3	T751 18YL (GAS)	FUSED IGNITION SWITCH OUTPUT (START)
4	T2 18DG/WT (MTX)	TRS REVERSE SENSE
5	N2 18DB/YL (DIESEL)	LIFT PUMP RELAY OUTPUT
5	T16 18YL/OR (GAS EATX)	TRANSMISSION CONTROL RELAY OUTPUT
6	F202 20PK/GY (DIESEL)	FUSED IGNITION SWITCH OUTPUT (RUN-START)
6	T15 18YL/BR (GAS EATX)	TRANSMISSION CONTROL RELAY CONTROL
7	C3 20DB/YL	A/C CLUTCH RELAY OUTPUT
8	Z114 18BK/LG (DIESEL)	GROUND
8	K31 18BR (GAS)	FUEL PUMP RELAY CONTROL
9	C13 20LB/OR (DIESEL)	A/C COMPRESSOR CLUTCH RELAY CONTROL
9	C13 18LB/OR (GAS)	A/C COMPRESSOR CLUTCH RELAY CONTROL
10	A119 16RD/OR (DIESEL)	FUSED B(+)
11	C41 20LB/DG (DIESEL)	CABIN HEATER ASSIST CONTROL
12	-	-
13	D25 20WT/VT (DIESEL MTX)	PCI BUS
13	D25 18WT/VT (GAS/ DIESEL EATX)	PCI BUS
14	T752 20DG/OR (DIESEL)	STARTER MOTOR RELAY CONTROL
14	T752 18DG/OR (GAS)	STARTER RELAY CONTROL
15	Z116 18BK/VT	GROUND
16	K51 20BR/WT (DIESEL)	ECM/PCM RELAY CONTROL
16	K51 18BR/WT (GAS)	ASD RELAY CONTROL
17	F202 20PK/GY	FUSED IGNITION SWITCH OUTPUT (RUN-START)
18	K173 18BR/VT (GAS)	RAD FAN RELAY CONTROL
19	K342 16BR/WT (DIESEL)	ECM/PCM RELAY OUTPUT
19	F202 20PK/GY (GAS)	FUSED IGNITION SWITCH OUTPUT (RUN-START)
20	A109 18OR/RD (GAS)	FUSED B(+)



INTEGRATED POWER MODULE C6

INTEGRATED POWER MODULE C6 - NATURAL 10 WAY

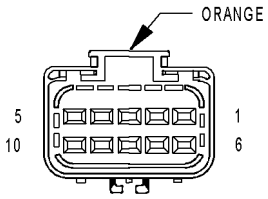
CAV	CIRCUIT	FUNCTION
1	A101 12VT/RD	FUSED B(+)
2	Z117 16BK/WT	GROUND
3	Z118 16BK/WT (LWB/ EXPORT)	GROUND
3	Z118 16BK/YL (SWB/ EXCEPT EXPORT)	GROUND
4	A110 12OR/RD (POWER SEAT)	FUSED B(+)
5	-	-
6	-	-
7	C7 12DB	FUSED FRONT BLOWER MOTOR RELAY OUTPUT
8	F307 18LB/PK (ACCES- SORY RELAY POSITION)	FUSED ACCESSORY RELAY OUTPUT
8	F307 18LB/PK (BATTERY POSITION)	FUSED B(+)
9	A113 12WT/RD (POWER SLIDING DOOR)	FUSED B(+)
10	-	-



INTEGRATED POWER MODULE C7

INTEGRATED POWER MODULE C7 - 20 WAY

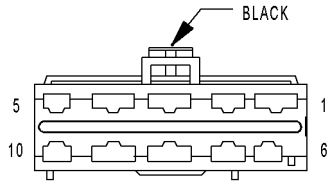
CAV	CIRCUIT	FUNCTION
1	C16 20DB/GY	FUSED DEFOGGER RELAY OUTPUT
2	T141 20YL/OR (DIESEL)	FUSED IGNITION SWITCH OUTPUT (START)
2	T751 20YL (GAS)	FUSED IGNITION SWITCH OUTPUT (START)
3	D25 20WT/VT	PCI BUS
4	L13 20WT/YL (EXPORT)	HEADLAMP ADJUST SIGNAL
5	K32 18DB/YL	BRAKE TRANSMISSION SHIFT INTERLOCK SOLENOID CONTROL
6	-	-
7	W7 20BR/GY	WIPER PARK SWITCH SENSE
8	B20 20DG/OR	BRAKE FLUID LEVEL SWITCH SENSE
9	F201 20PK/OR	ORC RUN-START DRIVER
10	-	-
11	A106 20LB/RD	FUSED B(+)
12	P201 20LG/DB (EXCEPT EXPORT/EXCEPT MEMORY)	ADJUSTABLE PEDALS RELAY CONTROL
13	F2 18PK/YL	FCM OUTPUT (UNLOCK-RUN-START)
14	-	-
15	A114 16GY/RD	FUSED B(+) (I.O.D.)
16	D123 20WT/BR	FLASH PROGRAM ENABLE
17	L50 18WT/TN (DIESEL)	PRIMARY BRAKE SWITCH SIGNAL
17	L50 18WT/TN (GAS)	BRAKE LAMP SWITCH OUTPUT
18	-	-
19	X3 20DG/VT	HORN SWITCH SENSE
20	F100 18PK/VT	ORC RUN ONLY DRIVER



INTEGRATED POWER MODULE C8

INTEGRATED POWER MODULE C8 - ORANGE 10 WAY

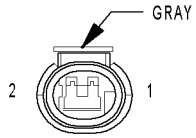
CAV	CIRCUIT	FUNCTION
1	W3 14BR/WT	FRONT WIPER HIGH/LOW RELAY LOW SPEED OUTPUT
2	N1 16DB/OR (DIESEL)	FUEL HEATER RELAY OUTPUT
2	N1 18DB/OR (GAS)	FUEL PUMP RELAY OUTPUT
3	A108 18LG/RD (EXCEPT EXPORT)	FUSED B(+)
3	A108 20LG/RD (EXPORT)	FUSED B(+)
3	A108 20LG/RD (EXPORT)	FUSED B(+)
4	A103 18GY/RD	FUSED B(+)
5	L77 18WT/BR	FUSED PARK LAMP RELAY OUTPUT (LEFT)
6	W4 14BR/OR	FRONT WIPER HIGH/LOW RELAY HIGH SPEED OUTPUT
7	C51 12LB/BR (3 ZONE HVAC)	FUSED REAR BLOWER MOTOR RELAY OUTPUT
8	-	-
9	L78 18WT/OR	FUSED PARK LAMP RELAY OUTPUT (RIGHT)
10	L60 18WT/TN	RIGHT FRONT TURN SIGNAL DRIVER



INTEGRATED POWER MODULE C9

INTEGRATED POWER MODULE C9 - BLACK 10 WAY

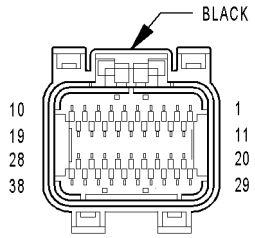
CAV	CIRCUIT	FUNCTION
1	A116 14YL/RD (HIGHLINE AUDIO)	FUSED B(+)
2	F20 18PK/WT	FUSED IGNITION SWITCH OUTPUT (RUN-START)
3	C15 12DB/WT	FUSED DEFOGGER RELAY OUTPUT
4	A105 18DB/RD	FUSED B(+)
5	L61 20WT/LB	LEFT FRONT TURN SIGNAL DIVER
6	A701 18BR/RD	FUSED B(+) (HAZARD)
6	A701 16BR/RD	FUSED B(+) (HAZARD)
7	F306 16DB/PK	FUSED ACCESSORY RELAY OUTPUT
8	F30 12PK/YL (POWER WINDOWS)	FUSED ACCESSORY RELAY OUTPUT
9	A115 12YL/RD	FUSED B(+)
10	F302 18GY/PK	FUSED ACCESSORY RELAY OUTPUT



OUTPUT SPEED SENSOR

OUTPUT SPEED SENSOR - GRAY 2 WAY

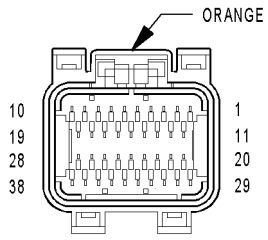
CAV	CIRCUIT	FUNCTION
1	T13 18DG/VT	SPEED SENSOR GROUND
2	T14 18DG/BR	OUTPUT SPEED SENSOR SIGNAL



POWERTRAIN CONTROL MODULE C1

POWERTRAIN CONTROL MODULE C1 - BLACK 38 WAY

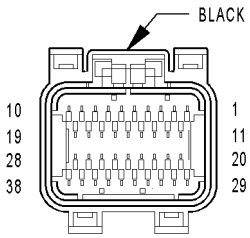
CAV	CIRCUIT	FUNCTION
1	-	-
2	-	-
3	-	-
4	-	-
5	-	-
6	-	-
7	-	-
8	-	-
9	Z130 18BK/BR	GROUND
10	-	-
11	F202 20PK/GY	FUSED IGNITION SWITCH OUTPUT (RUN-START)
12	F1 18PK/WT (EATX)	FCM OUTPUT (UNLOCK-RUN-START)
13	N7 18DB/OR (MTX)	VEHICLE SPEED SENSOR SIGNAL
14	-	-
15	-	-
16	-	-
17	-	-
18	Z131 18BK/DG	GROUND
19	-	-
20	G6 16VT/GY	ENGINE OIL PRESSURE SENSOR SIGNAL
21	-	-
22	G31 18VT/LG	AAT SIGNAL
23	-	-
24	-	-
25	D20 20WT/LG	SCI RECEIVE (PCM)
26	D123 20WT/BR (2.4L EATX)	SCI RECEIVE (TCM)
26	D123 20WT/OR (3.3L/3.8L)	SCI RECEIVE (TCM)
27	-	-
28	-	-
29	A109 18OR/RD	FUSED B(+)
30	T751 18YL	FUSED IGNITION SWITCH OUTPUT (START)
31	K141 18DB/YL	O2 1/2 SIGNAL
32	K904 18DB/DG (2.4L)	O2 RETURN (DOWN)
32	K904 18BR/DG (3.3L/3.8L)	O2 RETURN (DOWN)
33	-	-
34	-	-
35	-	-
36	D21 20WT/DG (2.4L)	SCI TRANSMIT (PCM)
36	D21 20WT/BR (3.3L/3.8L)	SCI TRANSMIT (PCM)
37	D15 18DG/YL (EATX)	SCI TRANSMIT (TCM)
38	D25 18WT/VT	PCI BUS



POWERTRAIN CONTROL MODULE C2

POWERTRAIN CONTROL MODULE C2 - ORANGE 38 WAY

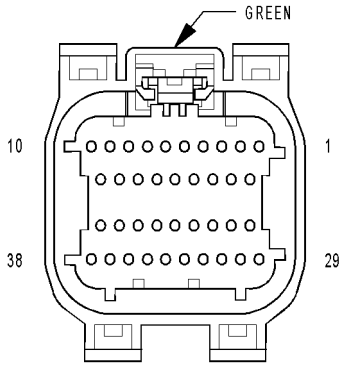
CAV	CIRCUIT	FUNCTION
1	-	-
2	-	-
3	-	-
4	K58 16BR/VT (3.3L/3.8L)	INJECTOR CONTROL NO. 6
5	K38 16BR/OR (3.3L/3.8L)	INJECTOR CONTROL NO. 5
6	-	-
7	K18 16BR/OR (3.3L/3.8L)	COIL CONTROL NO. 3
8	K35 18DB/VT (3.3L)	EGR SOLENOID CONTROL
9	K17 16DB/TN	IGNITION COIL NO. 2 DRIVER
10	K19 16DB/DG	COIL CONTROL NO. 1
11	K14 16 BR/TN	INJECTOR CONTROL NO. 4
12	K13 16BR/LB	INJECTOR CONTROL NO. 3
13	K12 16BR/DB	INJECTOR CONTROL NO. 2
14	K11 16BR/YL	INJECTOR CONTROL NO. 1
15	-	-
16	-	-
17	-	-
18	K99 18BR/LG	O2 1/1 HEATER CONTROL
19	K20 18BR/GY	GEN FIELD CONTROL
20	K2 18VT/OR	ECT SIGNAL
21	K22 18BR/OR	TP SIGNAL
22	K34 18DB/LG (3.3L)	EGR SOLENOID SIGNAL
23	K1 18VT/BR	MAP SIGNAL
24	K942 18BR/LG (EXCEPT 3.3L)	KS RETURN
25	K42 18DB/YL (EXCEPT 3.3L)	KS SIGNAL
26	-	-
27	K900 18DB/DG	SENSOR GROUND
28	K961 18BR/VT	IAC RETURN
29	F855 20PK/YL	5 VOLT SUPPLY
30	K21 18DB/LG	IAT SIGNAL
31	K41 18DB/LB	O2 1/1 SIGNAL
32	K902 18BR/DG	O2 RETURN (UP)
33	-	-
34	K44 18DB/GY	CMP SIGNAL
35	K24 18BR/LB	CKP SIGNAL
36	-	-
37	-	-
38	K61 18VT/GY	IAC MOTOR CONTROL



POWERTRAIN CONTROL MODULE C3

POWERTRAIN CONTROL MODULE C3 - NATURAL 38 WAY

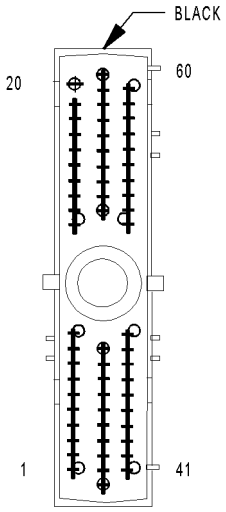
CAV	CIRCUIT	FUNCTION
1	-	-
2	-	-
3	K51 18BR/WT	ASD RELAY CONTROL
4	-	-
5	V35 18VT/OR	S/C VENT CONTROL
6	K173 18BR/VT	RAD FAN RELAY CONTROL
7	V32 18VT/YL	SPEED CONTROL SUPPLY
8	K106 20VT/LB (EXCEPT EXPORT)	NVLD SOL CONTROL
9	K299 18BR/WT	O2 1/2 HEATER CONTROL
10	-	-
11	C13 18LB/OR	A/C CLUTCH RELAY CONTROL
12	V36 18VT/YL	S/C VACUUM CONTROL
13	-	-
14	-	-
15	-	-
16	-	-
17	-	-
18	-	-
19	K342 16BR/WT	ASD RELAY OUTPUT
20	K52 18DB/WT	EVAP PURGE CONTROL
21	T141 18YL (MTX EXPORT)	FUSED IGNITION SWITCH OUTPUT (START)
22	-	-
23	B29 18DG/WT	BRAKE SWITCH SIGNAL
24	-	-
25	-	-
26	-	-
27	-	-
28	K342 16BR/WT	ASD RELAY OUTPUT
29	K70 18DB/BR	EVAP PURGE SIGNAL
30	-	-
31	C18 18LB/BR	A/C PRESSURE SIGNAL
32	K91 18DB/YL	BATTERY TEMP SIGNAL
33	-	-
34	V37 18VT	S/C SWITCH NO. 1 SIGNAL
35	K107 20VT/WT (EXCEPT EXPORT)	NVLD SWITCH SIGNAL
36	-	-
37	K31 18BR	FUEL PUMP RELAY CONTROL
38	T752 18DG/OR	STARTER RELAY CONTROL



POWERTRAIN CONTROL MODULE C4

POWERTRAIN CONTROL MODULE C4 - GREEN 38 WAY

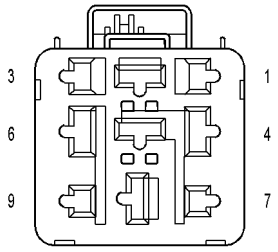
CAV	CIRCUIT	FUNCTION
1	T60 18YL/GY	OVERDRIVE SOLENOID CONTROL
2	T59 18DB/LB	UNDERDRIVE SOLENOID CONTROL
3	-	-
4	-	-
5	-	-
6	T19 18YL/DB	2-4 SOLENOID CONTROL
7	-	-
8	-	-
9	-	-
10	T20 18DG/WT	LOW/REVERSE SOLENOID CONTROL
11	-	-
12	-	-
13	Z133 16BK/LG	GROUND
14	Z133 16BK/LG	GROUND
15	T1 18DG/LB	TRS T1 SENSE
16	T3 18DG/DB	TRS T3 SENSE
17	-	-
18	T15 18YL/BR	TRANSMISSION CONTROL RELAY CONTROL
19	T16 18YL/OR	TRANSMISSION CONTROL RELAY OUTPUT
20	-	-
21	-	-
22	T9 18DG/TN	OVERDRIVE PRESSURE SWITCH SENSE
23	-	-
24	-	-
25	-	-
26	-	-
27	T41 18DG/GY	TRS T41 SENSE
28	T16 18YL/OR	TRANSMISSION CONTROL RELAY OUTPUT
29	T50 18YL/TN	LOW/REVERSE PRESSURE SWITCH SENSE
30	T47 18YL/DG	2-4 PRESSURE SWITCH SENSE
31	-	-
32	T14 18DG/BR	OUTPUT SPEED SENSOR SIGNAL
33	T52 18DG/WT	INPUT SPEED SENSOR SIGNAL
34	T13 18DG/VT	SPEED SENSOR GROUND
35	T54 18DG/OR	TRANSMISSION TEMPERATURE SENSOR SIGNAL
36	-	-
37	T42 18DG/YL	TRS T42 SENSE
38	T16 18YL/OR	TRANSMISSION CONTROL RELAY OUTPUT



TRANSMISSION CONTROL MODULE (DIESEL)

TRANSMISSION CONTROL MODULE (DIESEL) - BLACK

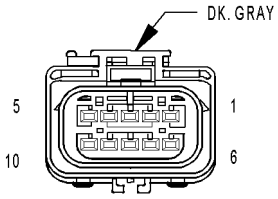
CAV	CIRCUIT	FUNCTION
1	T1 18DG/LB	TRS T1 SENSE
2	-	-
3	T3 18DG/DB	TRS T3 SENSE
4	-	-
5	-	-
6	K24 20BR/LB	CRANKSHAFT POSITION SENSOR SIGNAL NO.2
7	D15 20DG/YL	SCI TRANSMIT (TCM)
8	T751 20YL	FUSED IGNITION SWITCH OUTPUT (START)
9	T9 18DG/TN	OVERDRIVE PRESSURE SWITCH SENSE
10	T10 20DG/LG	TORQUE MANAGEMENT REQUEST SENSE
11	F1 18PK/WT	FCM OUTPUT (UNLOCK-RUN-START)
12	K23 20BR/OR	ACCELERATOR PEDAL POSITION SENSOR SIGNAL NO.2
13	T13 18DG/VT	SPEED SENSOR GROUND
14	T14 18DG/BR	OUTPUT SPEED SENSOR SIGNAL
15	T15 18YL/BR	TRANSMISSION CONTROL RELAY CONTROL
16	T16 18YL/OR	TRANSMISSION CONTROL RELAY OUTPUT
17	T16 18YL/OR	TRANSMISSION CONTROL RELAY OUTPUT
18	-	-
19	T19 18YL/DB	2-4 SOLENOID CONTROL
20	T20 18DG/WT	L/R SOLENOID CONTROL
21	-	-
22	-	-
23	-	-
24	-	-
25	-	-
26	-	-
27	-	-
28	-	-
29	-	-
30	-	-
31	-	-
32	-	-
33	-	-
34	-	-
35	-	-
36	-	-
37	-	-
38	-	-
39	-	-
40	-	-
41	T41 18DG/GY	TRS T41 SENSE
42	T42 18DG/YL	TRS T42 SENSE
43	D25 18WT/VT	PCI BUS
44	-	
45	-	
46	D123 20WT/OR	SCI RECIEVE (TCM)
47	T47 18YL/DG	2-4 PRESSURE SWITCH SENSE
48	-	-
49	-	-
50	T50 18YL/TN	LOW/REVERSE PRESSURE SWITCH SENSE
51	K900 20DB/DG	SENSOR GROUND
52	T52 18DG/WT	INPUT SPEED SENSOR SIGNAL
53	Z132 16BK/YL	GROUND
54	T54 18DG/OR	TRANSMISSION TEMPERATURE SENSOR SIGNAL
55	-	-
56	A104 18YL/RD	FUSED B(+)
57	Z133 16BK/LG	GROUND
58	N7 20DB/OR	VEHICLE SPEED SENSOR SIGNAL
59	T59 18YL/LB	UNDERDRIVE SOLENOID CONTROL
60	T60 18YL/GY	OVERDRIVE SOLENOID CONTROL



TRANSMISSION CONTROL RELAY (DIESEL)

TRANSMISSION CONTROL RELAY (DIESEL) - 9 WAY

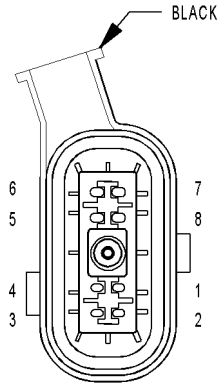
CAV	CIRCUIT	FUNCTION
1	-	-
2	T16 18YL/OR	TRANSMISSION CONTROL RELAY OUTPUT
3	-	-
4	T15 18YL/BR	TRANSMISSION CONTROL RELAY CONTROL
5	-	-
6	Z115 18BK/OR	GROUND
7	-	-
8	A104 18YL/RD	FUSED B(+)
9	-	-



TRANSMISSION RANGE SENSOR

TRANSMISSION RANGE SENSOR - DK. GRAY 10 WAY

CAV	CIRCUIT	FUNCTION
1	-	-
2	-	-
3	T13 18DG/VT	SPEED SENSOR GROUND
4	T54 18DG/OR	TRANSMISSION TEMPERATURE SENSOR SIGNAL
5	T41 18DG/GY (DIESEL)	TRS T41 SENSE
6	-	-
7	T1 18DG/LB	TRS T1 SENSE
8	T3 18DG/DB	TRS T3 SENSE
9	T42 18DG/YL	TRS T42 SENSE
10	T41 20DG/GY (DIESEL)	TRS T41 SENSE
10	T41 18DG/GY (GAS)	TRS T41 SENSE



TRANSMISSION SOLENOID/PRESSURE SWITCH ASSEMBLY

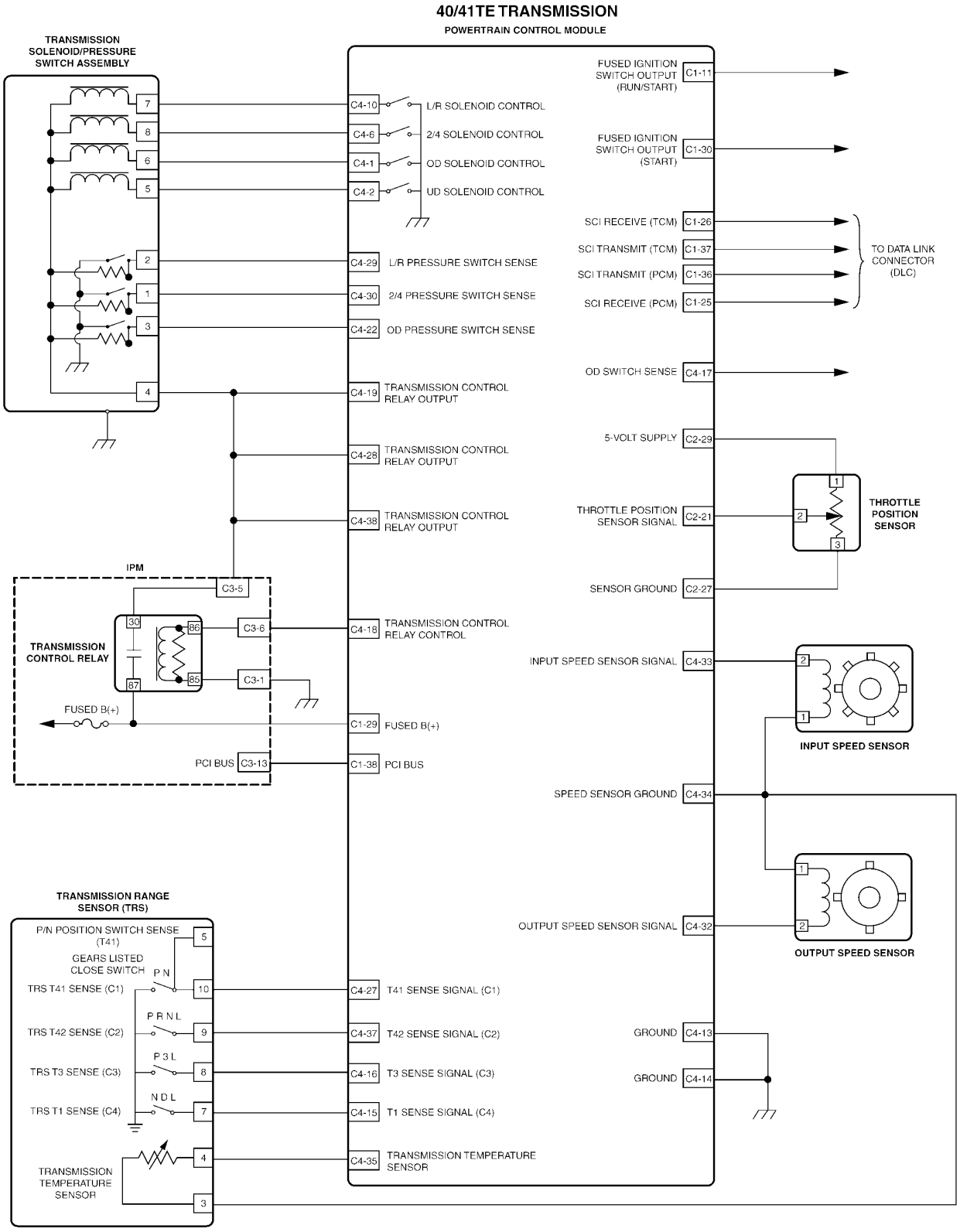
TRANSMISSION SOLENOID/PRESSURE SWITCH ASSEMBLY - BLACK 8 WAY

CAV	CIRCUIT	FUNCTION
1	T47 18YL/DG	2-4 PRESSURE SWITCH SENSE
2	T50 18YL/TN	LOW/REVERSE PRESSURE SWITCH SENSE
3	T9 18DG/TN	OVERDRIVE PRESSURE SWITCH SENSE
4	T16 18YL/OR	TRANSMISSION CONTROL RELAY OUTPUT
5	T59 18DB/LB	UNDERDRIVE SOLENOID CONTROL
6	T60 18YL/GY	OVERDRIVE SOLENOID CONTROL
7	T20 18DG/WT	LOW/REVERSE SOLENOID CONTROL
8	T19 18YL/DB	2-4 SOLENOID CONTROL

NOTES

10.0 SCHEMATIC DIAGRAMS

10.1 PCM-NGC-GAS



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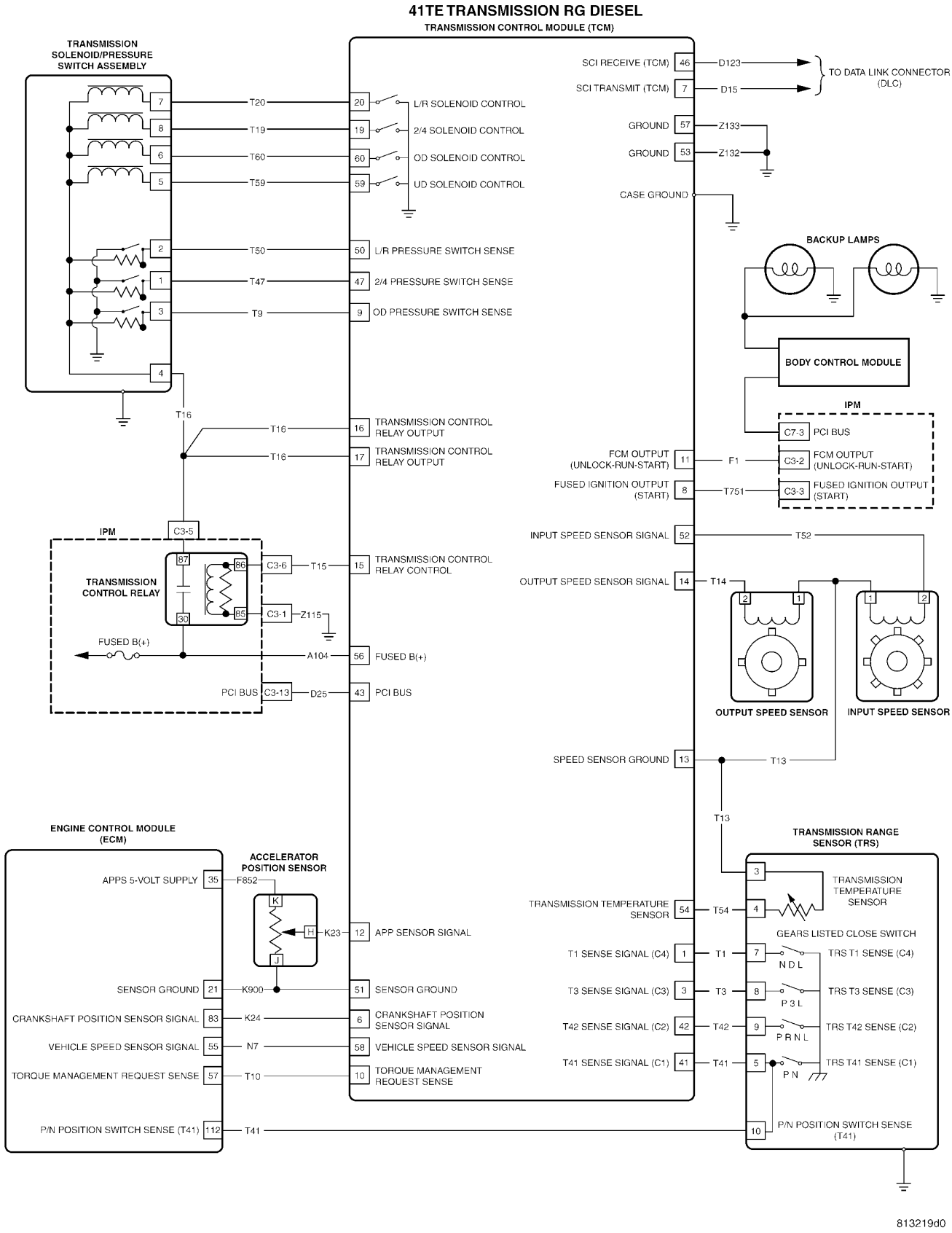
10.2 TCM - EATX - DIESEL



11.0 CHARTS AND GRAPHS

11.1 TRANSMISSION RANGE SENSOR STATES

TRANSMISSION RANGE SENSOR STATES											
TRS	PARK	T1	REVERSE	T2	NEUTRAL	T2	OD	T3	D3/AS	T3	L
T1 (C4)	OPEN	OPEN	OPEN	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	OPEN	CLOSED	CLOSED
T3 (C3)	CLOSED	CLOSED	OPEN	OPEN	OPEN	OPEN	OPEN	CLOSED	CLOSED	CLOSED	CLOSED
T41 (C1)	CLOSED	OPEN	OPEN	OPEN	CLOSED	OPEN	OPEN	OPEN	OPEN	OPEN	OPEN
T42 (C2)	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	CLOSED	OPEN	OPEN	OPEN	OPEN	CLOSED

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11.2 PRESSURE SWITCH STATES

PRESSURE SWITCH STATES

SWITCHES	R	N	1ST	2ND	3RD	4TH
L/R	OPEN	CLOSED	CLOSED	OPEN	OPEN	OPEN
2/4	OPEN	OPEN	OPEN	CLOSED	OPEN	CLOSED
O/D	OPEN	OPEN	OPEN	OPEN	CLOSED	CLOSED

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11.3 SOLENOID APPLICATION CHART

SOLENOID APPLICATION CHART

GEAR	UD	OD	REV	2/4	LR
PARK					X
REVERSE			X		X
NEUTRAL					X
1ST	X				X
2ND	X			X	
3RD	X	X			
4TH		X		X	

80ccf4c0

11.4 SHIFT LEVER ERROR CODES

SHIFT LEVER ERROR CODES REPORTED BY THE DRBIII®

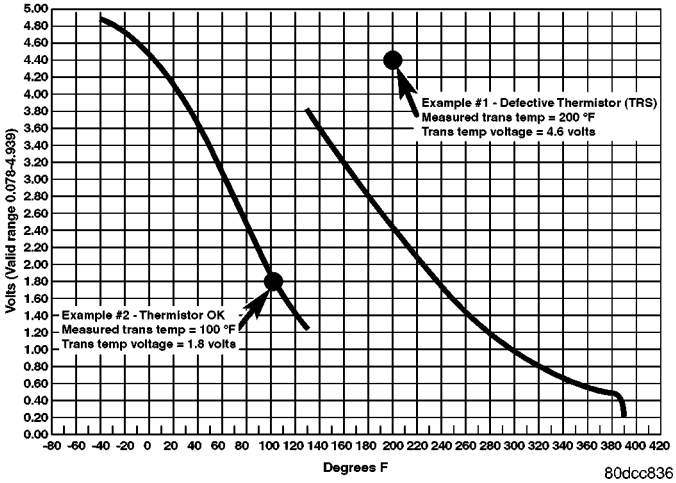
ERROR CODE	SWITCH STUCK	POSITION
1	T1/C4 STUCK	OPEN
2	T1/C4 STUCK	CLOSED
3	T3/C3 STUCK	OPEN
4	T3/C3 STUCK	CLOSED
5	T42/C2 STUCK	OPEN
6	T24/C2 STUCK	CLOSED
7	T41/C1 STUCK	OPEN
8	T41/C1 STUCK	CLOSED

80ccf2de

11.5 TRANSMISSION TEMPERATURE SENSOR

TRANSMISSION TEMPERATURE SENSOR (DUAL RANGE)

START ENGINE. WITH DRB, MONITOR AND RECORD TRANSMISSION TEMPERATURE VOLTAGE. COMPARE THE MEASURED TEMPERATURE AND VOLTAGE WITH THE GRAPH SHOWN BELOW. THE MEASURED VALUE SHOULD FALL ON ONE OF THE LINES ON THE GRAPH.



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