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## NOTES

## 1.0 INTRODUCTION

The procedures contained in this manual include all the specifications, instructions, and graphics needed to diagnose body system problems. The diagnostics in this manual are based on the failure condition or symptom being present at time of diagnosis.

Please follow the recommendations below when choosing your diagnostic path.

1. First make sure the DRBIII® is communicating with the appropriate modules: i.e., if the DRBIII® displays a "No Response" condition, you must diagnose that first.
2. Read DTC's (diagnostic trouble codes) with the DRBIII®.
3. If no DTC's are present, identify the customer complaint.
4. Once the DTC or customer complaint is identified, locate the matching test in the Table of Contents and begin to diagnose the symptom.

All component location views are in Section 8.0. All connector pinouts are in Section 9.0. All schematics are in Section 10.0.

An asterisk (\*) placed before the symptom description indicates a customer complaint.

When repairs are required, refer to the appropriate service manual for the proper removal and repair procedure.

Diagnostic procedures change every year. New diagnostic systems may be added; carryover systems may be enhanced. **READ THIS MANUAL BEFORE TRYING TO DIAGNOSE A VEHICLE DIAGNOSTIC TROUBLE CODE.** It is recommended that you review the entire manual to become familiar with all the 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 suggestion, please fill out the form in the back of the book, and mail it back to us.

### 1.1 SYSTEM COVERAGE

This diagnostic procedures manual covers all 2002 Jeep® Wrangler (TJ) vehicles.

### 1.2 SIX-STEP TROUBLESHOOTING PROCEDURE

Diagnosis of the body system is performed in six basic steps:

1. verification of complaint
2. verification of any related symptoms
3. symptom analysis
4. problem isolation

5. repair of isolated problem
6. verification of proper operation

## 2.0 IDENTIFICATION OF SYSTEM

The vehicle systems that are part of the "body" system are:

- airbag system
- chime
- electrically heated systems
- instrument cluster
- vehicle communications

## 3.0 SYSTEM DESCRIPTION AND FUNCTIONAL OPERATION

The body system on the 2002 Jeep® Wrangler (TJ) consists of a combination of modules that communicate over the PCI bus (Programmable Communication Interface multiplex system). Through the PCI bus, information about the operation of vehicle components and circuits is relayed quickly to the appropriate module(s). All modules receive all the information transmitted on the bus even though a module may not require all information to perform its function. It will only respond to messages "addressed" to it through a binary coding process. This method of data transmission significantly reduces the complexity of the wiring in the vehicle and the size of wiring harnesses. All of the information about the functioning of all the systems is organized, controlled, and communicated by the PCI bus, which is described in the Vehicle Communication Section of the general information.

### 3.1 AIRBAG SYSTEM

The airbag system is designed to provide increased driver and passenger protection if the vehicle is involved in a front-end collision. The system is designed to be used in conjunction with the seat belt system. Currently, DaimlerChrysler Corporation uses two types of airbag control modules (ACM).

Whenever the ignition key is turned to the "run" or "start" position, the airbag control module (ACM) performs a warning indicator check by turning the AIRBAG warning indicator on. The indicator stays lit for 6 to 8 seconds, then goes off. If the indicator remains off, it means the ACM has checked the system and found it to be free of discernable malfunctions.

The ACM monitors critical input and output circuits within the airbag system, making sure they are operating correctly. Some circuits are tested



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continuously, others are checked only under certain circumstances. The ACM provides diagnostic information about the airbag system to the technician through the DRBIII® via the PCI bus.

The deceleration of g-forces resulting from the impact of a front-end collision causes the electronic sensor inside of the ACM to be triggered. This causes the inflators to be actuated, thus deploying the airbags. The total time between determining to deploy and deflation of the air bag is 1/10th of a second (100mS).

2002 Jeep® Wranglers (TJ) will be equipped with a passenger airbag on/off switch. This switch has an ACM controlled LED that will light when the switch is in the "OFF" position.

Use the test procedures in this book to find the cause of any customer complaint regarding the AIRBAG warning indicator such as:

- Airbag warning indicator does not come on at all
- Airbag warning indicator stays on

### 3.1.1 PASSENGER AIRBAG ON-OFF SWITCH

The Passenger Airbag On-Off Switch allows the customer to turn the passenger airbag function ON or OFF. The OFF indicator will be illuminated whenever the switch is turned to the off position and for 2 seconds at ignition on for an indicator bulb test. The switch assembly is mounted to the console in front of floor shifter to make the OFF indicator visible to both front seat occupants.

**WARNING: ALWAYS CHECK THE PASSENGER AIRBAG ON-OFF SWITCH POSITION BEFORE DRIVING THE VEHICLE. A SWITCH IN THE WRONG POSITION INCREASES THE RISK OF SERIOUS INJURY OR DEATH IN A COLLISION.**

To operate, insert the ignition key into the switch keyhole, push key in to release the internal plunger, and rotate to the desired switch position. The spring-loaded locking plunger prevents the user from leaving the key in the switch. The key will be automatically ejected when force is not applied. The ignition key is the only key or object that should ever be inserted into the switch.

**NOTE: Do not turn the on-off switch with the ignition on.**

The ACM continuously monitors the resistance of the Passenger Airbag On-Off Switch circuits to identify the switch position and provide circuit diagnostics. The on-off switch ON position resistance is 175 to 190 ohms and the OFF position resistance is 820 to 870 ohms. If the on-off switch circuits are open, shorted to ground or battery the

ACM will set active and stored DTCs. Upon receiving a switch diagnostic trouble code the airbag warning indicator, in the instrument cluster, will be turned on by the ACM. Whenever the airbag warning indicator is illuminated, the ACM should be the first module interrogated.

**WARNING: IGNORING THE AIRBAG WARNING INDICATOR IN YOUR INSTRUMENT PANEL COULD MEAN THE PASSENGER AIRBAG ON-OFF SWITCH IS NOT FUNCTIONAL AND THE AIRBAG MAY DEPLOY IF AN IMPACT OCCURS. IF THE AIRBAG WARNING INDICATOR TURNS ON WHILE DRIVING, THE AIRBAG ON-OFF SWITCH SETTING WILL REMAIN FUNCTIONAL FOR THAT KEY CYCLE. IF THE AIRBAG WARNING INDICATOR COMES ON AGAIN AT THE NEXT KEY ON AND STAYS LIT FOR MORE THAN 6-8 SECONDS, THE ACM WILL DEFAULT TO PASSENGER AIRBAG ON.**

### 3.1.2 SPECIAL TOOLS

Some airbag diagnostic test use special tools, 8310 and 8443 airbag load tool, for testing squib circuits. The load tools contain fixed resistive loads, jumpers and adapters. The fixed loads are connected to cables and mounted in a storage case. The cables can be directly connected to some airbag system connectors. Jumpers are used to convert the load tool cable connectors to the other airbag system connectors. The adapters are connected to the module harness connector to open shorting clips and protect the connector terminal during testing.

When using the load tool follow all of the safety procedures in the service information for disconnecting airbag system components. Inspect the wiring, connector and terminals for damage or misalignment. Substitute the airbag load tool in place of a Driver or Passenger airbag, curtain airbag, clockspring, or seat belt tensioner (use a jumper if needed). Then follow all of the safety procedures in the service information for connecting airbag system components. Read the module active DTC's. If the module reports NO ACTIVE DTC's the defective component has been removed from the system and should be replaced. If the DTC is still active, continue this process until all components in the circuit have been tested. Then disconnect the module connector and connect the matching adapter to the module connector. With all airbags disconnected and the adapter installed the squib wiring can be tested for open and shorted conditions.



### 3.1.3 DIAGNOSTIC TROUBLE CODES

Airbag diagnostic trouble codes consist of active and stored codes. If more than one exists, diagnostic priority should be given to the active code(s).

Each diagnostic trouble code is diagnosed by following a specific testing procedure. The diagnostic test procedures contain step-by-step instructions for determining the cause of the trouble codes. It is not necessary to perform all of the tests in this book to diagnose an individual code.

Always begin by reading the diagnostic trouble codes using the DRBIII®. If more than one code exists, diagnostic priority should be given to the active codes(s).

Active diagnostic trouble codes for the airbag system are not permanent and will change the moment the reason for the code is corrected. In certain test procedures within this manual, diagnostic trouble codes are used as a diagnostic tool.

#### 3.1.3.1 ACTIVE CODES

An active trouble code indicates an on-going malfunction. This means that the defect is currently there every time the airbag control module checks that circuit/function. It is impossible to erase an active code; active codes automatically erase themselves when the reason for the code has been corrected.

With the exception of the warning indicator trouble codes or malfunctions, when a malfunction is detected, the AIRBAG indicator remains lit for a minimum of 12 seconds or as long as the malfunction is present.

#### 3.1.3.2 STORED CODES

Airbag codes are automatically stored in the ACM's memory as soon as the malfunction is detected. With the exception of the Loss of Ignition Run Only code, which is an active code only.

A "stored" code indicates there was an active code present at some time. However, the code currently may not be present as an active code, although another active code could be.

When a trouble code occurs, the AIRBAG warning indicator illuminates for 12 seconds minimum (even if the problem existed for less than 12 seconds). Stored codes display the time in minutes that the code was active, and the number of times the ignition has been cycled since the active code was last detected.

The minimum time shown for any code will be one minute, even if the code was actually present for less than one minute. Thus, the time shown for a code that was present for two minutes 13 seconds, for example, would be three minutes.

Maintain a safe distance from all Airbags while performing the following inspection. If a malfunction

is not active while performing a diagnostic test procedure, the active code diagnostic test will not locate the source of the problem. In this case, the stored code can indicate an area to inspect.

If no obvious problems are found, erase stored codes, and with the ignition "on", wiggle the wire harness and connectors, rotate the steering wheel from stop to stop. Recheck for codes periodically as you work through the system. This procedure may uncover a malfunction that is difficult to locate.

## 3.2 ELECTRO/MECHANICAL INSTRUMENT CLUSTER (EMIC)

### 3.2.1 SMART CLUSTER FEATURES

The Electro/Mechanical Instrument Cluster houses the Fuel, Voltmeter, Engine Coolant Temp, and Oil Pressure gauges, the Speedometer and the Tachometer. The cluster positions the analog gauges using PCI Bus messages received from the PCM. The cluster also contains 11 (eleven) warning indicators as well as indicators for the Right and Left turn signals and the High Beam headlamps. Some of the indicators are hardwired to the cluster and some indicators are controlled by messages received on the PCI Bus. The vehicle Chime function, Courtesy Lamp Output, the Battery Saver function, and the Rear Window Defogger timer are contained internally within the cluster. The cluster contains a vacuum fluorescent (VF) display for the Odometer/Trip function. The cluster VF will also display P-codes and vehicle status messages. The cluster has the ability to store DTCs, communicate on the PCI Bus, display engine information, and display certain inputs using the DRBIII®. The cluster is also able to perform a manual self-test.

#### 3.2.1.1 NORMAL OPERATION

As the ignition switch is rotated to the on position, the cluster will illuminate the Low Fuel, Seat Belt, Check Gauges, Airbag, SKIM, and Upshift (if equipped with a manual transmission) indicators. As the ignition switch is rotated towards the start position, the cluster will illuminate the Brake and ABS (if equipped) indicators. The vacuum fluorescent (VF) display will indicate the last selected mode, either Odometer or Trip. The Odometer will remain in the last mode selected, Odometer or Trip, after each ignition cycle.

#### 3.2.1.2 INSTRUMENT CLUSTER SELF TEST

The Instrument Cluster is capable of performing a manual self test. The self test is actuated by depressing and holding the trip reset button while

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turning the ignition from the off to the on position. The self test will terminate if the tachometer is greater than 300 RPM, the ignition is turned off or the test is complete. The cluster will perform the self test in the following manner:

1. Chime once.
2. Scroll an "8" across the VF.
3. Illuminate the VF decimal point.
4. Display the cluster software level (example: SOF 8.9).
5. Display the last 6 (six) digits of the Vehicle Identification Number (VIN).
6. Display fault codes in the VF display if set or scroll "no FAULTS" if no faults are set.
  - ACM - Air Bag Message = bus b8.
  - Indicator Open/Short = Airbag
  - Panel Sense - Open Circuit = PanEL OPEn.
  - PCM - MIL Message = buS b0.
  - SKIM - SKIM Message = buS b1.
7. Illuminate all applicable indicators.
  - Brake Warning
  - Check Gauges
  - Cruise
  - High Beam
  - Low Fuel Warning
  - MIL (Malfunction Indicator Lamp)
  - Part Time
  - Seat Belt
  - SKIM
  - Upshift
8. Display Speedometer Calibration Points.
9. Display Fuel Gauge Calibration Points.
10. Display Temperature Gauge Calibration Points.
11. Display Tachometer Calibration Points.
12. Display Volt Gauge Calibration Points.
13. Display Oil Gauge Calibration Points.

### 3.2.1.3 DTC CAPABILITIES

The Instrument Cluster is capable of storing diagnostic trouble codes (DTC) and will communicate with the DRBIII® to display codes. The cluster has the ability to set DTCs for internal cluster failure, lack of communication with other modules, Air Bag Lamp circuit failure, and Panel Dimmer circuit failure.

If the cluster failure is a gauge or meter concern, DTCs will be stored by the PCM. Because the Instrument Cluster receives gauge and meter information from the PCM over the PCI Bus, it is the PCM's function to monitor these inputs and to store

DTCs. For this reason the PCM DTCs should be checked first for any condition regarding a gauge problem, except for the Oil Pressure gauge.

There are DTCs associated with all the gauges except for the Oil Pressure gauge. The cluster receives oil pressure information from the PCM over the PCI Bus, but the PCM does not create DTCs for any oil pressure concerns. When diagnosing a gauge concern, the input that is used for the gauge message (fuel level sender, for example) must be valid. Because of OBD II requirements, most of the information used for monitoring the OBD II system is the same information used by the PCM to generate the PCI Bus gauge messages. OBD II requirements state that the fuel level sender must be checked for rationality. This includes determining if the fuel sending unit voltage is too high or too low or if the voltage hasn't changed over time. If the PCM has determined that the sender information isn't valid, it will set a DTC. The presence or absence of a fuel level sending code in the PCM is an important factor to determine whether a fuel gauge problem is in the sending unit or in the cluster.

This same situation is used in all cluster diagnostics related to gauge operation with the exception of the Oil Pressure gauge. OBD II requirements do not include oil pressure monitoring. Therefore, oil pressure diagnostics would dictate that a mechanical oil pressure gauge be attached to the engine for verification of oil pressure readings.

### 3.2.2 VEHICLE STATUS MESSAGES DISPLAYED IN THE VF DISPLAY

During normal operation, if a condition is present, the cluster will inform the driver by displaying one of the following messages in the VF display. These messages will alternate (1 second on / 1 second off) with the odometer if the vehicle speed is 0 (zero). If multiple conditions exist, the cluster will cycle through all messages including the odometer/trip odometer. When the vehicle speed is greater than 0 (zero), only the odometer will be displayed. The VF will only display faults while the condition exists. Messages with more than 6 characters will be scrolled. The displaying of P-codes will take priority over any Vehicle Status Messages and odometer/trip odometer information in the VF display.

#### 3.2.2.1 "NO FUSE" IN VF DISPLAY

- The M1 fuse is not detected by the cluster.

#### 3.2.2.2 "NO BUS" IN VF DISPLAY

While a loss of communication condition exists for all the following conditions:

- Airbag

- PCM
- SKIM

### 3.2.3 REAR WINDOW DEFOGGER

The timing circuit for the Rear Window Defogger is contained internally within the cluster. When the ignition is on, the first actuation of the Rear Window Defogger switch initiates a 10 (ten) minute time cycle. After 10 (ten) minutes of the same ignition cycle has elapsed, the cluster will turn the defogger off by opening the ground to the Rear Window Defogger Relay. If the defogger switch is actuated a second time during the same ignition cycle, the cluster will turn the defogger off after 5 (five) minutes. While the defogger is on, depressing the switch a second time will turn the defogger off. If the ignition is turned off while the defogger is operating, the defogger will remain off when the ignition is cycled.

### 3.2.4 CHIME

The chime function is a tone generator internally contained within the cluster. The chime will only be operational when the M1 fuse is present and the ignition is in the Run/Start position except for the following functions:

#### 3.2.4.1 PARK/HEADLAMPS ON REMINDER

- The Park or Headlamps are on.
- The ignition is off.
- The driver door is open (ajar switch closed to ground).
- This chime will timeout after 3 (three) minutes.

#### 3.2.4.2 KEY-IN IGNITION

- The key is in the ignition.
- The ignition is off.
- The driver door is open (ajar switch closed to ground).
- This chime continues until the condition changes.

The following chime functions are listed in order of priority. If the cluster senses multiple chime situations and the lower priority chime request condition no longer exists, the cluster will ignore the request.

#### 3.2.4.3 SEAT BELT

- The ignition is cycled to the Run/Start position.
- The drivers seat belt is retracted (seat belt switch closed).
- The cluster illuminates the Seat Belt indicator for 6 (six) seconds or stops immediately if the seat belt is buckled.

- The chime sounds for 6 (six) seconds or stops immediately if the seat belt is buckled.

#### 3.2.4.4 DRIVER DOOR AJAR WARNING

- The ignition is on.
- The driver door is open (ajar switch closed to ground).
- No engine RPM message to the cluster. The cluster will not sound the chime if the engine is running.
- The chime will sound until the condition changes or will timeout after 20 (twenty) minutes.

#### 3.2.4.5 PASSENGER DOOR AJAR WARNING

- The ignition is on.
- No engine RPM message to the cluster. The cluster will not sound the chime if the engine is running.
- 3 (three) sets of 2 (two) quick chimes are sounded.

#### 3.2.4.6 LOW OIL PRESSURE

- When the Oil Pressure Gauge indicates approximately 4 (four) psi and engine RPM is greater than 300 (three hundred).
- The cluster will illuminate the Check Gauges indicator.
- The cluster receives low oil pressure data on the PCI Bus from the PCM.
- The chime will sound until the condition changes.

#### 3.2.4.7 ENGINE TEMPERATURE

- When the Engine Coolant Temperature gauge indicates 127C (260°F).
- The cluster will illuminate the Check Gauges indicator.
- The cluster receives engine coolant temperature data on the PCI Bus from the PCM.
- A single chime is sounded.

#### 3.2.4.8 LOW FUEL

- When the Fuel Gauge indicates low fuel, approximately between 1/8th remaining and "E".
- The cluster will illuminate the Low Fuel indicator.
- A single chime is sounded.

#### 3.2.4.9 BATTERY VOLTAGE

- When the cluster detects a charging system fault condition or system voltage high condition based on PCI Bus data received from the PCM.

## GENERAL INFORMATION

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- The cluster will illuminate the Check Gauges indicator.
- A single chime is sounded.

### 3.2.4.10 HIGH SPEED WARNING (GULF COAST VEHICLES ONLY)

- When the Speedometer exceeds 120Km/h.
- The chime will continue to sound until the vehicle speed drops below 120 Km/h.

### 3.2.4.11 TURN SIGNAL ON

- When the Left or Right turn signal is turned on continuously for 1.0 mile (U.S. vehicles).
- Turn signal on continuously for 4.0 kilometers (BUX vehicles).
- Turn signal on continuously for 1.6 kilometers (Canadian vehicles).
- Vehicle speed is greater than 15 mph (22 Km/h).
- The chime will sound until the turn signal input is deactivated. If the other turn signal input becomes active or the vehicle speed drops below 15 mph (22 Km/h), the distance traveled will be reset.

### 3.2.4.12 SKIM (IF EQUIPPED)

- When the SKIM indicator is illuminated.
- The cluster receives SKIM data on the PCI Bus from the SKIM module.
- A single chime is sounded.

### 3.2.4.13 PARK BRAKE REMINDER

- When the Park Brake input is switched to ground and vehicle speed is present at the cluster.
- The cluster will chime 10 (ten) times.

### 3.2.4.14 AIR BAG

- When the Air Bag Warning indicator is illuminated.
- The cluster receives Air Bag data on the PCI Bus from the ACM.
- A single chime is sounded.

## 3.2.5 HARDWIRED INDICATORS

The following indicators are hardwired to the Instrument Cluster and will only operate with the ignition in the Run/Start position.

### 3.2.5.1 SEAT BELT

- Illuminates during bulb check for 6 (six) seconds unless the seat belt is buckled (seat belt switch closed).

- Illuminates when a ground input is provided to the cluster.
- Non-replaceable LED.

### 3.2.5.2 PART TIME

- Does not illuminate during bulb check.
- Indicates which mode the transfer case is in.
- Non-replaceable LED.

### 3.2.5.3 BRAKE/PARK BRAKE

- Illuminates during bulb check for 4 (four) seconds.
- Illuminates when a ground input is provided to the cluster from the Park Brake Switch or when the Brake Warning Indicator Switch is grounded.
- If the Park Brake input is grounded and vehicle speed is present, the cluster will flash the indicator.
- Non-replaceable LED.

### 3.2.5.4 HIGH BEAM

- Does not illuminate during bulb check.
- Illuminates when a battery input is provided to the cluster.
- If the Park or Headlamps inputs are switched to battery with the driver door open and the ignition off, the cluster will flash the indicator.
- Replaceable bulb.

### 3.2.5.5 TURN SIGNAL - LEFT

- Does not illuminate during bulb check.
- Illuminates when a battery input is provided to the cluster.
- Replaceable bulb.

### 3.2.5.6 TURN SIGNAL - RIGHT

- Does not illuminate during bulb check.
- Illuminates when a battery input is provided to the cluster.
- Replaceable bulb.

### 3.2.5.7 FRONT/REAR FOG

- Does not illuminate during bulb check.
- Illuminates when a battery input is provided to the cluster.
- Non-replaceable LED.

### 3.2.5.8 ABS

- Does not illuminate during bulb check.



- Illuminates when a ground input is provided to the cluster.
- Non-replaceable LED.

## 3.2.6 PANEL DIMMING ILLUMINATION

The Instrument Cluster contains 5 (five) illumination bulbs that are hardwired to the cluster. Illumination and dimming is accomplished when the cluster senses voltage at the Headlamp Switch Output from the Park Lamp Feed circuit of the Multi-Function Switch. The cluster then applies voltage to ground on the Panel Lamps Dimmer Signal circuit through the Multi-Function Switch. The cluster interprets the resulting voltage drop through the Multi-Function Switch dimming rheostat to supply a dimmed voltage output to the illumination bulbs and other components on the Panel Lamps Feed circuit. The cluster and component bulbs are permanently grounded so the bulbs illuminate with the Panel Lamps Feed voltage. The cluster illumination bulbs are replaceable.

### 3.2.6.1 PANEL DIMMING FAULT

- If the cluster detects a panel dimming resistance greater than 9250 ohms for 5 (five) seconds, the Panel Dimmer Switch is considered open and the cluster will set a DTC.
- During an open circuit condition, the cluster VF display will default to full brightness and general panel dimming will default to full brightness with the headlamps on.

### 3.2.6.2 RADIO ILLUMINATION

- The cluster provides an output to switch a 12-volt signal to control the radio display illumination.
- Radio dimming will follow the Headlamp switch except when in the Parade mode or Dome Lamp on positions.
- When in the Parade mode or Dome Lamp on positions, the cluster interrupts the switched 12-volt signal to the radio. This allows the radio display to remain bright.

### 3.2.6.3 DIMMABLE INDICATORS

- The cluster provides a one-step dimming for the Cruise, Upshift, and Part Time indicators.
- When the headlamps are on, these indicators will be dimmed at 60% (sixty percent).
- When the headlamps are off, the indicators will be maximum brightness.

## 3.2.7 PCI BUS INDICATORS

The following indicators are internally controlled by the Instrument Cluster using information re-

ceived from PCI Bus messages. These indicators are only operational when the ignition is in the Run/Start position.

### 3.2.7.1 AIR BAG WARNING INDICATOR

- Illuminates when cluster receives PCI Bus data request from the Airbag Control Module (ACM).
- The cluster performs an indicator check each time indicator is commanded on or off. If an open lamp or short fault is detected by the cluster, the fault will be sent to the ACM over the PCI Bus.
- Non-replaceable LED.

### 3.2.7.2 MALFUNCTION INDICATOR LAMP (ISO ENGINE ICON)

- Illuminates or blinks when cluster receives PCI Bus data request from the PCM.
- Non-replaceable LED.
- The PCM can command the cluster to display P-codes in the vacuum fluorescent (VF) display. The cluster will not display these codes if a RPM message greater than 0 (zero) is received. The displaying of P-codes will take priority over any Vehicle Status messages in the VF display.

### 3.2.7.3 CHECK GAUGES

- Illuminates when cluster receives PCI Bus data from the PCM.
- Illuminates for engine temperature high and engine temperature critical.
- Illuminates for oil pressure low.
- Illuminates for charging system fault.
- Non-replaceable LED.

### 3.2.7.4 CRUISE

- Illuminates when the cluster receives PCI Bus data request from the PCM.
- Represents the status of the Cruise Control being turned on (not the setting of the cruise control speed).
- Non-replaceable LED.

### 3.2.7.5 LOW FUEL

- Illuminates internally from a calibration in the cluster EEPROM.
- The cluster illuminates the indicator when the remaining fuel is approximately between 1/8 and E as displayed by the Fuel gauge.
- If the cluster receives PCI Bus data indicating a fuel level sensor error, the cluster will position

## GENERAL INFORMATION

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the gauge pointer needle to the E position and illuminate the Low Fuel indicator.

- Non-replaceable LED.

### 3.2.7.6 SKIM (IF EQUIPPED)

- Illuminates when the cluster receives PCI Bus data from the SKIM module.
- The SKIM module can command the indicator to illuminate or flash.
- Non-replaceable LED.

### 3.2.7.7 UPSHIFT (IF EQUIPPED)

- Illuminates when the cluster receives PCI Bus data request from the PCM.
- Indicator operates in U.S. and Canadian clusters only.
- Non-replaceable LED.

## 3.2.8 INTERIOR/COURTESY LIGHTING

The Smart Cluster controls the interior/courtesy lighting. The lighting includes the dome lamp, 2 (two) courtesy lamps located on the lower instrument panel, and the hardtop rear lamp. The cluster controls the dome/courtesy lamp illuminated entry, theater dimming timeout, the door ajar timeout, and the ignition off illumination.

### 3.2.8.1 ILLUMINATED ENTRY

- Operates when any door is opened (ajar switch closed to ground).
- The cluster will turn on all of the interior lamps.
- The interior lamps will remain on for a maximum of 20 (twenty) minutes or until the conditions change.
- After 20 (twenty) minutes, the cluster will turn off the interior lamps. The 20 minute timeout will be reset when any door or liftgate status changes.
- The interior lamps will not timeout if the ignition is on and engine RPM is greater than 300.

### 3.2.8.2 THEATER DIMMING

- After the doors are closed, the cluster will turn off the interior lamps with theater dimming within approximately 5 (five) seconds.
- If the ignition is in the Run/Start position before the theater dimming timeout, the interior lamps will be turned off immediately.

### 3.2.8.3 COURTESY LAMPS

- When the Panel Dimming Switch is adjusted to the interior lamp position, the cluster illuminates the interior lamps.

- The cluster will turn off the interior lamps after approximately 20 (twenty) minutes.
- If the vehicle conditions change, the cluster will reinitiate the 20 minute timeout feature.
- This feature will operate with ignition in the off or Run/Start position.
- This feature will not operate with the engine running.

### 3.2.8.4 IGNITION-OFF COURTESY LAMPS (ILLUMINATED EXIT)

When the ignition switch transitions from the Run/Start to the Lock position, the cluster will illuminate the interior lamps for approximately 10 (ten) seconds.

## 3.2.9 ODOMETER/TRIP ODOMETER

The VF odometer illuminates after the ignition is turned on. The total and trip odometers use a common display. A trip reset button is used to toggle between the total and trip display modes. The trip odometer will roll over at 9999.9. The maximum value for the total odometer is 999999.9 miles/Km. The total odometer will not roll over but will remain latched at the maximum value.

### 3.2.9.1 TRIP SELECT BUTTON

- If the trip reset button is held for approximately 1 (one) second, the cluster will toggle between the total and trip odometers.
- Holding the trip reset button for approximately 2 (two) seconds or more, the cluster will reset the trip odometer.
- Holding the trip reset button while turning the ignition to the Run/Start position will cause the cluster to enter the self-test diagnostics. Refer to the Self Test Description.

### 3.2.9.2 ODOMETER ON WITH DOOR AJAR

- The VF display will illuminate when the cluster receives a Driver or Passenger door ajar input with the key off, 0 (zero) MPH, and 0 (zero) RPM.
- The cluster will display the last function of the odometer, either total or trip.
- This feature will timeout after 20 (twenty) minutes.

## 3.2.10 BATTERY SAVER FEATURE

The Battery Saver feature is contained internally in the Instrument Cluster. This feature prevents battery run-down in the event of extended parasitic draw from the courtesy lamp circuit when the ignition is in the off position.

### 3.2.10.1 POWER - DOWN

The cluster has a sleep mode to lower current draw during ignition off. When the cluster is in the sleep mode, portions of the cluster are powered down. Conditions that will prevent the cluster from entering the sleep mode:

- Ignition in the Run/Start position.
- Park/Headlamps on.
- Vehicle door(s) open (ajar switch closed to ground). Operates without the doors off vehicle jumper fuse removed.
- Cluster processing PCI Bus messages.
- Panel dimming switch set to illuminate interior lamps.

The cluster will enter the sleep mode approximately 5 (five) seconds after all of the above conditions are eliminated. If all of the conditions are met except the door ajar switches, the cluster will keep the courtesy lamps illuminated for approximately 20 (twenty) minutes. Then the cluster will turn off the courtesy lamps and then enter the sleep mode. While the cluster is in the sleep mode, an internal timer will wake the cluster microprocessor every 262 milliseconds to check input status. If conditions change the cluster will resume normal operation, otherwise it will stay in the sleep mode.

### 3.2.10.2 POWER - UP

When the cluster is in the sleep mode, it will awaken to the operating mode with the following conditions:

- Any door opening (ajar switch closed to ground).
- Park/Headlamp switch input.
- Ignition switch transition to Run/Start.
- PCI Bus messages.
- Panel dimming switch transitions to interior lamp illumination.

### 3.2.11 GAUGE POINTER PICK - UP AND ZERO SET

During battery re-connect, the cluster will return the Tachometer and Speedometer pointers to zero. When the ignition is turned off, the cluster will position all gauge pointers at zero or the minimum indication of the gauge.

## 3.3 VEHICLE COMMUNICATION

The Programmable Communication Interface or PCI Bus is a single wire multiplexed network capable of supporting binary encoded messages shared between multiple modules. The PCI bus circuit is identified as D25 and is violet with a yellow tracer. The modules are wired in parallel. Connections are

made in the harness using splices. The following modules are used on 2002 Jeep® Wrangler (TJ).

- Airbag Control Module
- Mechanical Instrument Cluster
- Powertrain Control Module
- Sentry Key Immobilizer Module

Each module provides its own bias and termination in order to transmit and receive messages. The bus voltage is at zero volts when no modules are transmitting and is pulled up to about seven and a half volts when modules are transmitting.

The bus messages are transmitted at a rate averaging 10800 bits per second. Since there is only voltage present when the modules transmit and the message length is only about 500 milliseconds, it is ineffective to try and measure the bus activity with a conventional voltmeter. The preferred method is to use the DRBIII® lab scope. The 12v square wave selection on the 20-volt scale provides a good view of the bus activity. Voltage on the bus should pulse between zero and about seven and a half volts. Refer to the following figure for some typical displays.

The PCI Bus Failure modes are broken down into two categories. Complete PCI Bus Communication Failure and individual module no response. Causes of a complete PCI Bus Communication Failure include a short to ground or battery on the PCI circuit. Individual module no response can be caused by an open circuit at the module, or an open battery or ground circuit to the affected module.

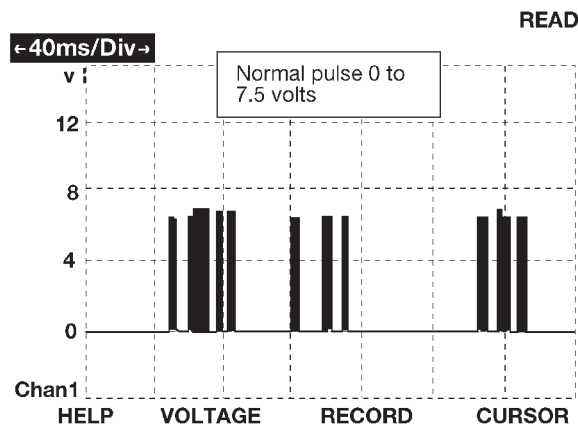
Symptoms of a complete PCI Bus Communication Failure would include but are not limited to:

- All gauges on the MIC stay at zero
- All telltales on MIC illuminate
- MIC backlighting at full intensity
- No response received from any module on the PCI bus (except PCM)
- No start (if equipped with Sentry Key Immobilizer)

Symptoms of individual module failure could include any one or more of the above. The difference would be that at least one or more modules would respond to the DRBIII®.

Diagnosis starts with symptom identification. If a complete PCI Bus Communication Failure is suspected, begin by identifying which modules the vehicle is equipped with and then attempt to get a response from the module with the DRBIII®. If any modules are responding, the failure is not related to the total bus, but can be caused by one or more modules, PCI circuit or power supply and ground circuits. The DRBIII® may display "BUS +/- SIGNAL OPEN" or "NO RESPONSE" to indicate a communication problem. These same messages will be displayed if the vehicle is not equipped with that





**NOTE:** Communication over the BUS is essential to the proper operation of the vehicles on-board diagnostic systems and the DRBIII®. Problems with the operation of the BUS or DRBIII® must be corrected before proceeding with diagnostic testing. If there is a problem, refer to the communications category of this manual.

## 3.4 USING THE DRBIII®

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

### 3.4.1 DRBIII® ERROR MESSAGES AND BLANK SCREEN

Under normal operation, the DRBIII® will display one of only two error messages:

- User-Requested WARM Boot
- User-Requested COLD Boot

This is a sample of such an error message display:

```
ver: 2.14
date: 26 Jul93
file: key_itf.cc
date: Jul 26 1993
line: 548
err: 0x1
User-Requested COLD Boot
```

Press MORE to switch between this display and the application screen.  
Press F4 when done noting information.

If the DRBIII® should display any other error message, record the entire display and call the STAR Center for information and assistance.

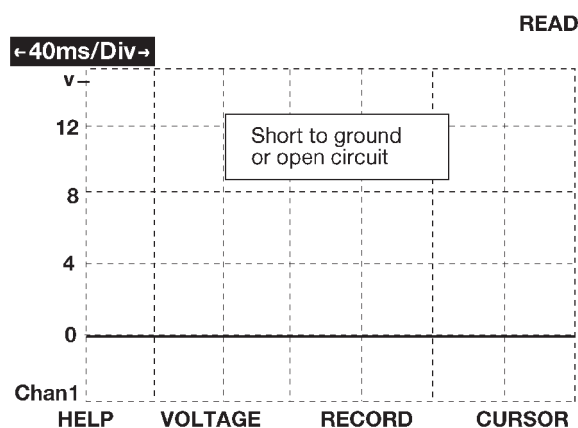
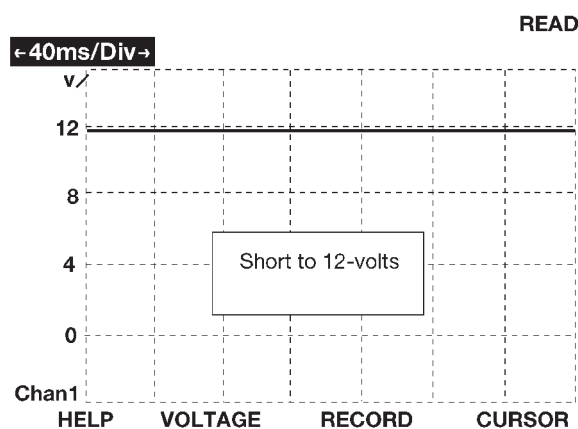
### 3.4.2 DRBIII® DOES NOT POWER UP

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 (data link connector cavity 16). 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.

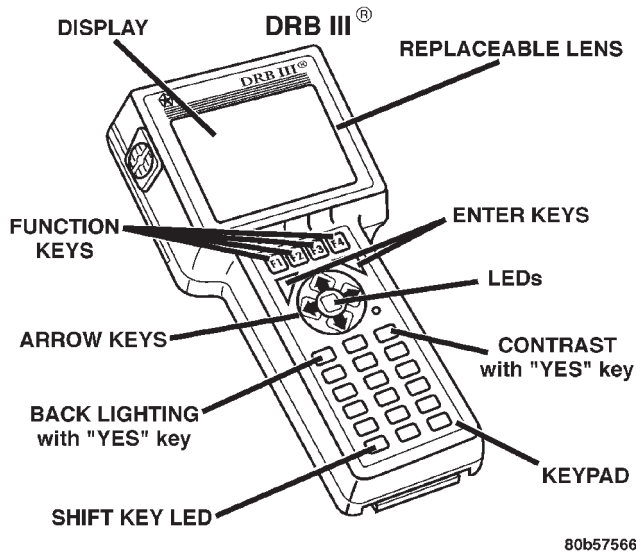
### 3.4.3 DISPLAY IS NOT VISIBLE

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



80bdbcf6

particular module. The CCD error message is a default message used by the DRBIII® and in no way indicates whether or not the PCI Bus is operational. The message is only an indication that a module is either not responding or the vehicle is not equipped.



## 4.0 DISCLAIMERS, SAFETY, WARNING

### 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. It is especially important to block the wheels on front-wheel drive vehicles: the parking brake does not hold the drive wheels.

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 body system problem, it is important to follow approved procedures where applicable. These procedures can be found in the

service manual. 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 error messages may occur.

#### 4.2.3 SERVICING SUB-ASSEMBLIES

Some components of the body system are intended to be serviced in 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 manual 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 below:

FUNCTION	INPUT LIMIT
Volts	0-500 volts peak AC 0-500 volts DC
Ohms (resistance)*	0-1.12 megohms
Frequency measured Frequency generated	1-10 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.

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- 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 DRBIII® 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 "off". 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 it and eventually cause it 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 code 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.

Service and general information labels about the airbag system can be found on the driver's sun visor, the glove box door, and in the engine compartment.

To ensure that the airbag will be ready to deploy in a collision, have the system serviced by an authorized dealer.

#### 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 code 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®.

### 5.0 REQUIRED TOOLS AND EQUIPMENT

- 8310 Airbag System Load Tool
- 8443 Supplemental Restraints System Load Tool
- DRBIII® (diagnostic read-out box)
- jumper wires
- ohmmeter
- test light
- voltmeter

### 6.0 GLOSSARY OF TERMS

<b>4WD</b>	4-Wheel Drive
<b>ABS</b>	Antilock Braking System
<b>ACM</b>	Airbag Control Module
<b>AECM</b>	Airbag Electronic Control Module
<b>AIRBAG</b>	Also called "squib" initiator. Located inside the driver side airbag assembly.
<b>ASDM</b>	Airbag System Diagnostic System
<b>CAB</b>	Controller Antilock Brake
<b>DAB</b>	Driver AirBag
<b>DLC</b>	Data Link Connector
<b>DTC</b>	Diagnostic Trouble Code
<b>EMIC</b>	Electro/Mechanical Instrument Cluster
<b>LED</b>	Light Emitting Diode
<b>LFW</b>	Low Fuel Warning
<b>MIC</b>	Mechanical Instrument Cluster
<b>MIL</b>	Malfunction Indicator Lamp
<b>PAB</b>	Passenger AirBag

<b>PCI</b>	Programmable Communication Interface
<b>PCM</b>	Powertrain Control Module
<b>PDC</b>	Power Distribution Center
<b>S.T.A.R.</b>	Service Technical Assistance Resource
<b>SKIM</b>	Sentry Key Immobilizer Module
<b>SKIS</b>	Sentry Key Immobilizer System
<b>SRS</b>	Supplemental Restraints System
<b>VFD</b>	Vacuum Fluorescent Display

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## NOTES

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# 7.0

## DIAGNOSTIC INFORMATION AND PROCEDURES

**Symptom List:**

**ACM ACCELEROMETER - ACTIVE**  
**ACM ACCELEROMETER - STORED**  
**ACM STORED ENERGY FIRING 1 - ACTIVE**  
**ACM STORED ENERGY FIRING 1 - STORED**  
**INTERNAL 1 - ACTIVE**  
**INTERNAL 1 - STORED**  
**NO PCI TRANSMISSION - ACTIVE**  
**OUTPUT DRIVER 1 - ACTIVE**  
**OUTPUT DRIVER 1 - STORED**  
**SAFING SENSOR - ACTIVE**  
**SAFING SENSOR - STORED**  
**STORED ENERGY LOGIC - ACTIVE**  
**STORED ENERGY LOGIC - STORED**

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**Test Note: All symptoms listed above are diagnosed using the same tests.**  
**The title for the tests will be MODULE TEST.**

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**When Monitored and Set Condition:**

**ACM ACCELEROMETER - ACTIVE**

When Monitored: Continuously with the ignition on.

Set Condition: The ACM has detected a diagnostic condition, replace the module.

**ACM ACCELEROMETER - STORED**

When Monitored: Continuously with the ignition on.

Set Condition: The ACM has detected a diagnostic condition, replace the module.

**ACM STORED ENERGY FIRING 1 - ACTIVE**

When Monitored: Continuously with ignition on.

Set Condition: The ACM has detected a diagnostic condition , replace the module.

**ACM STORED ENERGY FIRING 1 - STORED**

When Monitored: Continuously with ignition on.

Set Condition: The ACM has detected a diagnostic condition , replace the module.

**INTERNAL 1 - ACTIVE**

When Monitored: Continuously with the ignition on.

Set Condition: The ACM has detected a diagnostic condition, replace the module.



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**MODULE TEST — Continued**

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**INTERNAL 1 - STORED**

When Monitored: Continuously with the ignition on.

Set Condition: The ACM has detected a diagnostic condition, replace the module.

**NO PCI TRANSMISSION - ACTIVE**

When Monitored: With the ignition in the On position and the ACM transmitting information on the PCI BUS.

Set Condition: The code will set if the ACM cannot detect the ACM transmitting information on the PCI BUS for 5 consecutive seconds. NOTE: Any PCI Bus Failure will cause this code to set.

**OUTPUT DRIVER 1 - ACTIVE**

When Monitored: Continuously with ignition on.

Set Condition: The ACM has detected a diagnostic condition, replace the module.

**OUTPUT DRIVER 1 - STORED**

When Monitored: Continuously with the ignition on.

Set Condition: The ACM has detected a diagnostic condition, replace the module.

**SAFING SENSOR - ACTIVE**

When Monitored: Continuously with the ignition on.

Set Condition: The ACM has detected a diagnostic condition, replace the module.

**SAFING SENSOR - STORED**

When Monitored: Continuously with the ignition on.

Set Condition: The ACM has detected a diagnostic condition, replace the module.

**STORED ENERGY LOGIC - ACTIVE**

When Monitored: Continuously with the ignition on.

Set Condition: The ACM has detected a diagnostic condition, replace the module.

**STORED ENERGY LOGIC - STORED**

When Monitored: Continuously with the ignition on.

Set Condition: The ACM has detected a diagnostic condition, replace the module.

## MODULE TEST — Continued

POSSIBLE CAUSES
ACM, ACTIVE AND STORED CODE

TEST	ACTION	APPLICABILITY
1	<p><b>NOTE: Ensure that the battery is fully charged.</b></p> <p><b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p><b>WARNING: IF THE AIRBAG MODULE IS DROPPED AT ANY TIME, IT MUST BE REPLACED.</b></p> <p>View repair.</p> <p>Repair</p> <p>Replace the Airbag Control Module in accordance with Service Instructions. <b>WARNING:</b> make sure the battery is disconnected and wait 2 minutes before proceeding.</p> <p>Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting airbag system components the Ignition must be turned off and the Battery must be disconnected.</b></p>	All

**Symptom:****AIRBAG WARNING INDICATOR OPEN - ACTIVE****When Monitored and Set Condition:****AIRBAG WARNING INDICATOR OPEN - ACTIVE**

**When Monitored:** When the ignition is On, the ACM monitors the PCI Bus for a message from the MIC containing the airbag warning indicator status Ok or Open. The MIC transmit the message one time per second in response to the ACM lamp On/Off message.

**Set Condition:** The code is set if the lamp state is open for 2 consecutive messages.

**POSSIBLE CAUSES**

MIC, COMMUNICATION FAILURE

AIRBAG WARNING INDICATOR CKT OPEN

ACM, AIRBAG WARNING INDICATOR CIRCUIT OPEN

TEST	ACTION	APPLICABILITY
1	Turn the ignition on. With the DRBIII®, attempt to communicate with the Instrument Cluster. Did the DRB establish communication with the Instrument Cluster?  Yes → Go To 2  No → Refer to category COMMUNICATION and select the related symptom INSTRUMENT CLUSTER BUS +/- SIGNAL OPEN. Perform AIRBAG VERIFICATION TEST - VER 1.	All
2	With the DRB select PASSIVE RESTRAINTS, AIRBAG and MONITOR DISPLAY. With the DRBIII®, read the WARNING LAMP MONITOR screen. Select the LAMP STATUS displayed on the DRB monitors screen.  1. LAMP STATUS: OK Go To 3  2. LAMP STATUS: OPEN Replace Instrument Cluster circuit board. Perform BODY VERIFICATION TEST - VER 1.	All
3	<b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b> <b>WARNING: IF THE AIRBAG CONTROL MODULE IS DROPPED AT ANY TIME, IT MUST BE REPLACED.</b> If there are no possible causes remaining, view repair.  Repair Replace the Airbag Control Module in accordance with Service Instructions. <b>WARNING:</b> make sure the battery is disconnected and wait 2 minutes before proceeding. Perform AIRBAG VERIFICATION TEST - VER 1.  <b>NOTE: When reconnecting airbag system components the Ignition must be turned off and the Battery must be disconnected.</b>	All

### Symptom List:

**AIRBAG WARNING INDICATOR OPEN - STORED**  
**AIRBAG WARNING INDICATOR SHORT - STORED**  
**CLUSTER MESSAGE MISMATCH - STORED**  
**DRIVER SQUIB 1 CIRCUIT OPEN - STORED**  
**DRIVER SQUIB 1 CIRCUIT SHORT - STORED**  
**DRIVER SQUIB 1 SHORT TO BATTERY - STORED**  
**DRIVER SQUIB 1 SHORT TO GROUND - STORED**  
**LOSS OF IGNITION RUN - START - STORED**  
**NO CLUSTER MESSAGE - STORED**  
**NO PCI TRANSMISSION - STORED**  
**PASSENGER AIRBAG ON - OFF SWITCH CIRCUIT OPEN - STORED**  
**PASSENGER AIRBAG ON - OFF SWITCH SHORT TO BATTERY - STORED**  
**PASSENGER AIRBAG ON - OFF SWITCH SHORT TO GROUND - STORED**  
**PASSENGER OFF INDICATOR SHORT TO BATTERY - STORED**  
**PASSENGER OFF INDICATOR SHORT TO GROUND - STORED**  
**PASSENGER SQUIB 1 CIRCUIT OPEN - STORED**  
**PASSENGER SQUIB 1 CIRCUIT SHORT - STORED**  
**PASSENGER SQUIB 1 SHORT TO BATTERY - STORED**  
**PASSENGER SQUIB 1 SHORT TO GROUND - STORED**

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**Test Note: All symptoms listed above are diagnosed using the same tests.**  
**The title for the tests will be STORED CODE TEST.**

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### When Monitored and Set Condition:

#### **AIRBAG WARNING INDICATOR OPEN - STORED**

**When Monitored:** When the ignition is On, the ACM monitors the PCI Bus for a message from the MIC containing the airbag warning indicator status Ok or Open. The MIC transmit the message one time per second in response to the ACM lamp On/Off message.

**Set Condition:** The code is set if the indicator state is open for 2 consecutive messages.

#### **AIRBAG WARNING INDICATOR SHORT - STORED**

**When Monitored:** When the ignition is On, the ACM monitors the PCI Bus for a message from the MIC containing the airbag warning indicator status Ok, Open, or Short. The MIC transmit the message one time per second in response to the ACM lamp On-Off message.

**Set Condition:** The code is set if the indicator status is SHORT for 2 consecutive messages.

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**STORED CODE TEST — Continued**

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**CLUSTER MESSAGE MISMATCH - STORED**

When Monitored: After the MIC bulb test is completed, the ACM compares the ACM warning indicator request (On or Off) and the MIC warning lamp state (On or Off) PCI Bus messages. Each message is transmitted one time per second or when a change in the lamp state occurs.

Set Condition: If the ACM warning lamp request (On or Off) and the MIC warning indicator state (On or Off) messages do not match for 3 consecutive transmissions, the code will set.

**DRIVER SQUIB 1 CIRCUIT OPEN - STORED**

When Monitored: When the ignition is on, the ACM monitors the resistance of the Driver Squib 1 circuits.

Set Condition: The ACM has detected an open circuit or high resistance in the Driver Squib 1 circuits.

**DRIVER SQUIB 1 CIRCUIT SHORT - STORED**

When Monitored: When the ignition is on, the ACM monitors the resistance of the Driver Squib 1 circuits.

Set Condition: The ACM has detected low resistance on the Driver Squib 1 circuits.

**DRIVER SQUIB 1 SHORT TO BATTERY - STORED**

When Monitored: When the ignition is on, the ACM monitors the voltage of the Driver Squib 1 circuits.

Set Condition: The code will set if the ACM detects any voltage on the Driver Squib 1 circuits.

**DRIVER SQUIB 1 SHORT TO GROUND - STORED**

When Monitored: When the ignition is on, the ACM monitors the voltage of the Driver Squib 1 circuits.

Set Condition: The ACM has detected a short to ground in the Driver Squib 1 circuits.

**LOSS OF IGNITION RUN - START - STORED**

When Monitored: With the ignition in the Run - Start position the ACM monitors the Fused Ignition Switch Output Run - Start circuit for proper system voltage.

Set Condition: If the voltage on the Fused Ignition Switch Output Run - Start circuit drops below approximately 4.5 volts, the code will set.

**NO CLUSTER MESSAGE - STORED**

When Monitored: With ignition on, the cluster transmits an airbag warning indicator message on the PCI Bus one time every second. The ACM monitors the PCI Bus for the airbag warning indicator message.

Set Condition: If the ACM fails to see the status message for 5 continuous seconds the code will be set.

## **STORED CODE TEST — Continued**

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### **NO PCI TRANSMISSION - STORED**

When Monitored: With the ignition in the On position and the ACM transmitting information on the PCI BUS.

Set Condition: The code will set if the ACM cannot detect the ACM transmitting information on the PCI BUS for 5 consecutive seconds. NOTE: Any PCI Bus Failure will cause this code to set.

### **PASSENGER AIRBAG ON - OFF SWITCH CIRCUIT OPEN - STORED**

When Monitored: When the ignition is on, the PAB MUX Switch Sense circuit supplies a 3 to 10 ms pulse every 100 ms across the On or Off switch resistor to the MUX switch return circuit.

Set Condition: The code will set if the ACM senses an open or high resistance on the PAB MUX Switch Sense circuit or PAB MUX Switch Return circuit.

### **PASSENGER AIRBAG ON - OFF SWITCH SHORT TO BATTERY - STORED**

When Monitored: When the ignition is on, the MUX Switch Sense circuit supplies a 3 to 10 ms pulse every 100 ms across the switch resistor to the MUX switch return circuit. Once the code is active, the ACM will disable the indicator for the duration of the ignition cycle.

Set Condition: The code will set if the ACM senses constant voltage over approximately 4.0 volts on the PAB MUX Switch circuit.

### **PASSENGER AIRBAG ON - OFF SWITCH SHORT TO GROUND - STORED**

When Monitored: When the ignition is on, the PAB MUX Switch Sense circuit supplies a 3 to 10 ms pulse every 100 ms across the On or Off switch resistor to the MUX switch return circuit.

Set Condition: The code will set if the ACM senses low resistance on the PAB MUX Switch sense circuit.

### **PASSENGER OFF INDICATOR SHORT TO BATTERY - STORED**

When Monitored: When the ignition is on, the ACM monitors the PAB Indicator Driver circuit for voltage from the PAB On - Off Switch indicator circuit.

Set Condition: The code will set if the ACM senses battery voltage on the PAB Indicator Driver circuit.

### **PASSENGER OFF INDICATOR SHORT TO GROUND - STORED**

When Monitored: When the ignition is on, the ACM monitors the PAB Indicator Driver circuit for voltage from the PAB On - Off Switch indicator circuit.

Set Condition: The code will set if the ACM cannot detect voltage on the PAB Indicator Driver circuit.

**STORED CODE TEST — Continued****PASSENGER SQUIB 1 CIRCUIT OPEN - STORED**

When Monitored: With the ignition is On, the ACM monitors the resistance of the Passenger Squib 1 circuits.

Set Condition: The ACM has detected an open circuit or high resistance on the Driver Squib 1 circuits.

**PASSENGER SQUIB 1 CIRCUIT SHORT - STORED**

When Monitored: When the ignition is on, the ACM monitors the resistance of the Passenger Squib 1 circuits.

Set Condition: The ACM has detected low resistance in the Passenger Squib 1 circuits.

**PASSENGER SQUIB 1 SHORT TO BATTERY - STORED**

When Monitored: When the ignition is on, the ACM monitors the voltage of the Passenger Squib 1 circuits.

Set Condition: The code will set if the ACM detects any voltage on the Passenger Squib 1 circuits.

**PASSENGER SQUIB 1 SHORT TO GROUND - STORED**

When Monitored: Continuously with the ignition on.

Set Condition: The ACM has detected a short to ground in the Passenger Squib 1 circuits.

**POSSIBLE CAUSES**

ACTIVE OR STORED CODE PRESENT

STORED CODE OR INTERMITTENT CONDITION



**STORED CODE TEST — Continued**

TEST	ACTION	APPLICABILITY
1	<p><b>NOTE: Ensure the battery is fully charged.</b></p> <p>Active codes must be resolved before diagnosing stored codes.</p> <p>Turn the ignition on.</p> <p>With the DRBIII®, record and erase all DTCs from all modules.</p> <p>With the DRBIII® monitor active codes as you work through the system.</p> <p>Wiggle the wiring harness and connectors of the Airbag System and rotate the steering wheel from stop to stop.</p> <p><b>NOTE: Check connectors - Clean and repair as necessary.</b></p> <p>You have just attempted to simulate the condition that initially set the trouble code message.</p> <p>The following additional checks may assist you in identifying a possible intermittent problem:</p> <ul style="list-style-type: none"><li>- Visually inspect related wire harness connectors. Look for broken, bent, pushed out, spread, corroded, or contaminated terminals.</li><li>- Visually inspect the related harnesses. Look for chafed, pierced, pinched or partially broken wire.</li><li>- Refer to Wiring Diagrams and Technical Service Bulletins that may apply.</li></ul> <p>Did the DTCs become active?</p> <p>Yes → Select appropriate active symptom from Symptom List.</p> <p>No → No problem found at this time. Erase all codes before returning vehicle to customer.</p>	All

**Symptom:****AIRBAG WARNING INDICATOR SHORT - ACTIVE****When Monitored and Set Condition:****AIRBAG WARNING INDICATOR SHORT - ACTIVE**

**When Monitored:** When the ignition is On, the ACM monitors the PCI Bus for a message from the MIC containing the airbag warning indicator status Ok, Open, or Short. The MIC transmit the message one time per second in response to the ACM lamp On/Off message.

**Set Condition:** The code is set if the lamp status is SHORT for 2 consecutive messages.

**POSSIBLE CAUSES**

MIC, COMMUNICATION FAILURE

AIRBAG WARNING INDICATOR CKT SHORT

ACM, AIRBAG WARNING INDICATOR CIRCUIT SHORT

TEST	ACTION	APPLICABILITY
1	Turn the ignition on. With the DRBIII®, attempt to communicate with the Instrument Cluster. Did the DRB establish communication with the Instrument Cluster?  Yes → Go To 2  No → Refer to category COMMUNICATION and select the related symptom INSTRUMENT CLUSTER BUS +/- SIGNAL OPEN. Perform AIRBAG VERIFICATION TEST - VER 1.	All
2	With the DRB select PASSIVE RESTRAINTS, AIRBAG and MONITOR DISPLAY. With the DRBIII®, read the WARNING LAMP MONITOR screen. Select the LAMP STATUS displayed on the DRB monitors screen.  1. LAMP STATUS: OK Go To 3  2. LAMP STATUS: SHORT Replace Instrument Cluster circuit board. Perform BODY VERIFICATION TEST - VER 1.	All
3	<b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b> <b>WARNING: IF THE AIRBAG CONTROL MODULE IS DROPPED AT ANY TIME, IT MUST BE REPLACED.</b> If there are no possible causes remaining, view repair.  Repair Replace the Airbag Control Module in accordance with Service Instructions. <b>WARNING:</b> make sure the battery is disconnected and wait 2 minutes before proceeding. Perform AIRBAG VERIFICATION TEST - VER 1.  <b>NOTE: When reconnecting airbag system components the Ignition must be turned off and the Battery must be disconnected.</b>	All

## Symptom:

### CLUSTER MESSAGE MISMATCH - ACTIVE

#### When Monitored and Set Condition:

#### CLUSTER MESSAGE MISMATCH - ACTIVE

**When Monitored:** After the MIC bulb test is completed, the ACM compares the ACM indicator lamp request (On or Off) and the MIC warning lamp state (On or Off) PCI Bus messages. Each message is transmitted one time per second or when a change in the lamp state occurs.

**Set Condition:** If the ACM warning indicator request (On or Off) and the MIC warning lamp state (On or Off) messages do not match for 3 consecutive transmissions, the code will set.

#### POSSIBLE CAUSES

MIC, CLUSTER MESSAGE MISMATCH

ACM, CLUSTER MESSAGE MISMATCH

TEST	ACTION	APPLICABILITY
1	<p>Note: Ensure communications with the Mechanical Instrument Cluster. If the MIC does not communicate go to the Symptom List and select NO RESPONSE FROM MIC.</p> <p>With the DRBIII® select PASSIVE RESTRAINTS, AIRBAG and MONITOR DISPLAY.</p> <p>With the DRBIII®, read the WARNING LAMP STATUS monitors.</p> <p>Cycle the ignition key and observe the LAMP ON BY MIC and LAMP REQ BY ACM monitors for 6 to 8 seconds.</p> <p>Does the LAMP ON BY MIC and LAMP REQ BY ACM monitors match?</p> <p>YES</p> <p>Go To 2</p> <p>NO</p> <p>Replace instrument cluster circuit board.</p> <p>Perform BODY VERIFICATION TEST - VER 1.</p>	All
2	<p><b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p><b>WARNING: IF THE AIRBAG CONTROL MODULE IS DROPPED AT ANY TIME, IT MUST BE REPLACED.</b></p> <p>If there are no possible causes remaining, view repair.</p> <p>Repair</p> <p>Replace the Airbag Control Module in accordance with Service Instructions. WARNING: make sure the battery is disconnected and wait 2 minutes before proceeding.</p> <p>Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting Airbag system components, the ignition must be turned off and the battery must be disconnected.</b></p>	All

**Symptom:****DRIVER SQUIB 1 CIRCUIT OPEN - ACTIVE****When Monitored and Set Condition:****DRIVER SQUIB 1 CIRCUIT OPEN - ACTIVE**

**When Monitored:** When the ignition is on, the ACM monitors the resistance of the Driver Squib 1 circuits.

**Set Condition:** The ACM has detected an open circuit or high resistance in the Driver Squib 1 circuits.

**POSSIBLE CAUSES**

DRIVER AIRBAG OPEN  
 CLOCKSPRING, DRIVER AIRBAG CIRCUITS OPEN  
 DRIVER AIRBAG LINE 2 OPEN  
 DRIVER AIRBAG LINE 1 OPEN  
 ACM, DRIVER AIRBAG CIRCUIT OPEN

TEST	ACTION	APPLICABILITY
1	<p><b>NOTE: Ensure that the battery is fully charged.</b>  <b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b>  <b>WARNING: DO NOT PLACE AN INTACT UNDEPLOYED AIRBAG FACE DOWN ON A HARD SURFACE, THE AIRBAG WILL PROPEL INTO THE AIR IF ACCIDENTALLY DEPLOYED.</b></p> <p>Disconnect the Driver Airbag.  <b>NOTE: Check connectors - Clean and repair as necessary.</b>          Connect the Airbag System Load Tool 8310 brown cable and jumper harness to the Driver Airbag connector.          Turn the ignition on then reconnect the battery.          Reconnect the battery.          With the DRBIII®, read the active Airbag DTC's.          Does the DRB show DRIVER SQUIB CIRCUIT OPEN?</p> <p>Yes → Go To 2</p> <p>No → Replace the Driver Airbag.          Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting Airbag system components, the ignition must be turned off and the battery must be disconnected.</b></p>	All

**DRIVER SQUIB 1 CIRCUIT OPEN - ACTIVE — Continued**

TEST	ACTION	APPLICABILITY
2	<p><b>NOTE: Ensure that the battery is fully charged.</b>  <b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b>  <b>WARNING: DO NOT PLACE AN INTACT UNDEPLOYED AIRBAG FACE DOWN ON A HARD SURFACE, THE AIRBAG WILL PROPEL INTO THE AIR IF ACCIDENTALLY DEPLOYED.</b></p> <p>Disconnect the Clockspring connector.  <b>NOTE: Check connectors - Clean and repair as necessary.</b>          Connect the Airbag System Load Tool 8310 Clockspring cable and jumper harness to the Clockspring connector.          Turn the ignition on then reconnect the battery.          Reconnect the battery.          With the DRBIII®, read the active Airbag DTC's.          Does the DRB show DRIVER SQUIB CIRCUIT OPEN?</p> <p>Yes → Go To 3          No → Replace the Clockspring.          Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting Airbag system components, the ignition must be turned off and the battery must be disconnected.</b></p>	All
3	<p><b>NOTE: Ensure that the battery is fully charged.</b>  <b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p>Disconnect the Clockspring connector.          Disconnect the ACM connector.  <b>NOTE: Check connectors - Clean and repair as necessary.</b>          Connect the Airbag System Load Tool 8310 ACM Adaptor to the Airbag Control Module connector.          Measure the resistance of the Driver Airbag Line 1 circuit between the ACM Adaptor and the Clockspring connector.          Is the resistance below 5.0 ohms?</p> <p>Yes → Go To 4          No → Repair the Driver Airbag Line 1 circuit for an open or high resistance.          Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting airbag system components the ignition must be turned off and the battery must be disconnected.</b></p>	All

**DRIVER SQUIB 1 CIRCUIT OPEN - ACTIVE — Continued**

TEST	ACTION	APPLICABILITY
4	<p><b>NOTE: Ensure that the battery is fully charged.</b>  <b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b>            Disconnect the Clockspring connector.            Disconnect the Airbag Control Module connector.  <b>NOTE: Check connectors - Clean and repair as necessary.</b>            Connect the Airbag System Load Tool 8310 ACM Adaptor to the Airbag Control Module connector.            Measure the resistance of the Driver Airbag Line 2 circuit between the ACM Adaptor and the Clockspring connector.            Is the resistance below 5.0 ohms?</p> <p>Yes → Go To 5</p> <p>No → Repair the Driver Airbag Line 2 circuit for an open or high resistance.            Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting Airbag system components, the ignition must be turned off and the battery must be disconnected.</b></p>	All
5	<p><b>NOTE: Ensure that the battery is fully charged.</b>  <b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b>  <b>WARNING: IF THE AIRBAG MODULE IS DROPPED AT ANY TIME, IT MUST BE REPLACED.</b>            If there are no possible causes remaining, view repair.</p> <p>Repair</p> <p>Replace the Airbag Control Module in accordance with Service Instructions. <b>WARNING:</b> make sure the battery is disconnected and wait 2 minutes before proceeding.            Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting Airbag system components, the ignition must be turned off and the battery must be disconnected.</b></p>	All

## Symptom:

### DRIVER SQUIB 1 CIRCUIT SHORT - ACTIVE

## When Monitored and Set Condition:

### DRIVER SQUIB 1 CIRCUIT SHORT - ACTIVE

**When Monitored:** When the ignition is on, the ACM monitors the resistance of the Driver Squib 1 circuits.

**Set Condition:** The ACM has detected low resistance on the Driver Squib 1 circuits.

## POSSIBLE CAUSES

DRIVER AIRBAG LINE 1 SHORT TO LINE 2  
 CLOCKSPRING, DAB LINE 1 SHORT TO LINE 2  
 DRIVER AIRBAG CIRCUIT LINE 1 SHORT TO LINE 2  
 ACM, DRIVER AIRBAG CIRCUIT SHORT

TEST	ACTION	APPLICABILITY
1	<p><b>NOTE: Ensure that the battery is fully charged.</b>  <b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b>  <b>WARNING: DO NOT PLACE AN INTACT UNDEPLOYED AIRBAG FACE DOWN ON A HARD SURFACE, THE AIRBAG WILL PROPEL INTO THE AIR IF ACCIDENTALLY DEPLOYED, AND COULD RESULT IN SERIOUS OR FATAL INJURY.</b></p> <p>Disconnect the Driver Airbag.  <b>NOTE: Check connectors - Clean and repair as necessary.</b>          Connect the Airbag System Load Tool 8310 brown cable and jumper harness to the Driver Airbag connector.          Turn ignition on then reconnect the battery.          Reconnect the battery.          With the DRBIII®, read the active Airbag DTCs.          Does the DRB show DRIVER SQUIB CIRCUIT SHORT?</p> <p>Yes → Go To 2</p> <p>No → Replace Driver Airbag Module.          Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting Airbag system components, the ignition must be turned off and the battery must be disconnected.</b></p>	All



**DRIVER SQUIB 1 CIRCUIT SHORT - ACTIVE — Continued**

TEST	ACTION	APPLICABILITY
2	<p><b>NOTE: Ensure that the battery is fully charged.</b></p> <p><b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p><b>WARNING: DO NOT PLACE AN INTACT UNDEPLOYED AIRBAG FACE DOWN ON A HARD SURFACE, THE AIRBAG WILL PROPEL INTO THE AIR IF ACCIDENTALLY DEPLOYED, AND COULD RESULT IN SERIOUS OR FATAL INJURY.</b></p> <p>Disconnect the Driver Airbag.</p> <p>Disconnect the Clockspring connector.</p> <p><b>Note: Check connectors - Clean and repair as necessary.</b></p> <p>Connect the Airbag System Load Tool 8310 Clockspring cable and jumper harness to the Clockspring connector.</p> <p><b>WARNING: TURN THE IGNITION ON, THEN RECONNECT THE BATTERY.</b></p> <p>With the DRBIII®, read the active Airbag DTCs</p> <p>Does the DRB show DRIVER SQUIB CIRCUIT SHORT?</p> <p>Yes → Go To 3</p> <p>No → Replace Clockspring.</p> <p>Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting Airbag system components, the ignition must be turned off and the battery must be disconnected.</b></p>	All
3	<p><b>NOTE: Ensure that the battery is fully charged.</b></p> <p><b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p><b>WARNING: DO NOT PLACE AN INTACT UNDEPLOYED AIRBAG FACE DOWN ON A HARD SURFACE, THE AIRBAG WILL PROPEL INTO THE AIR IF ACCIDENTALLY DEPLOYED, AND COULD RESULT IN SERIOUS OR FATAL INJURY.</b></p> <p>Disconnect the ACM connector.</p> <p>Disconnect the Clockspring connector.</p> <p><b>NOTE: Check connectors - Clean and repair as necessary.</b></p> <p>Connect the Airbag System Load Tool 8310 ACM Adaptor to the Airbag Control Module connector.</p> <p>Measure the resistance between the Driver Airbag Line 1 and Line 2 at the Clockspring connector.</p> <p>Is the resistance below 10K ohms?</p> <p>Yes → Repair Driver Airbag Line 1 circuit for a short to Driver Airbag Line 2 circuit.</p> <p>Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p>No → Go To 4</p> <p><b>Note: When reconnecting airbag system components the Ignition must be turned off and the Battery must be disconnected.</b></p>	All

## DRIVER SQUIB 1 CIRCUIT SHORT - ACTIVE — Continued

TEST	ACTION	APPLICABILITY
4	<p><b>NOTE: Ensure the battery is fully charged.</b></p> <p><b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p><b>WARNING: IF THE AIRBAG CONTROL MODULE IS DROPPED AT ANY TIME, IT MUST BE REPLACED.</b></p> <p>If there are no possible causes remaining, view repair.</p> <p>Repair</p> <p>Replace the Airbag Control Module in accordance with Service Instructions. <b>WARNING:</b> make sure the battery is disconnected and wait 2 minutes before proceeding.</p> <p>Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>Note: When reconnecting airbag system components the Ignition must be turned off and the Battery must be disconnected.</b></p>	All

**Symptom:****DRIVER SQUIB 1 SHORT TO BATTERY - ACTIVE****When Monitored and Set Condition:****DRIVER SQUIB 1 SHORT TO BATTERY - ACTIVE**

**When Monitored:** When the ignition is on, the ACM monitors the voltage of the Driver Squib 1 circuits.

**Set Condition:** The code will set if the ACM detects any voltage on the Driver Squib 1 circuits.

**POSSIBLE CAUSES**

DRIVER AIRBAG MODULE SHORT TO BATTERY  
 CLOCKSPRING, DRIVER AIRBAG SHORT TO BATTERY  
 DRIVER AIRBAG LINE 1 SHORT TO BATTERY  
 DRIVER AIRBAG LINE 2 SHORT TO BATTERY  
 ACM, DRIVER AIRBAG SHORT TO BATTERY

TEST	ACTION	APPLICABILITY
1	<p><b>NOTE: Ensure the battery is fully charged.</b>  <b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b>  <b>WARNING: DO NOT PLACE AN INTACT UNDEPLOYED AIRBAG FACE DOWN ON A HARD SURFACE, THE AIRBAG WILL PROPEL INTO THE AIR IF ACCIDENTALLY DEPLOYED, AND COULD RESULT IN SERIOUS OR FATAL INJURY.</b></p> <p>Disconnect the Driver Airbag.  <b>NOTE: Check connectors - Clean and repair as necessary.</b>          Connect the Airbag System Load Tool 8310 brown cable and jumper harness to the Driver Airbag connector.          Turn Ignition On and then reconnect the Battery.          With the DRBIII®, read the active codes.          Does the DRB show DRIVER SQUIB SHORT TO BATTERY?</p> <p>Yes → Go To 2</p> <p>No → Replace the Driver Airbag Module.          Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting Airbag system components, the ignition must be turned off and the battery must be disconnected.</b></p>	All

**DRIVER SQUIB 1 SHORT TO BATTERY - ACTIVE — Continued**

TEST	ACTION	APPLICABILITY
2	<p><b>NOTE: Ensure the battery is fully charged.</b></p> <p><b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p><b>WARNING: DO NOT PLACE AN INTACT UNDEPLOYED AIRBAG FACE DOWN ON A HARD SURFACE, THE AIRBAG WILL PROPEL INTO THE AIR IF ACCIDENTALLY DEPLOYED, AND COULD RESULT IN SERIOUS OR FATAL INJURY.</b></p> <p>Disconnect the Driver Airbag.</p> <p>Disconnect the Clockspring connector.</p> <p><b>NOTE: Check connectors - Clean and repair as necessary.</b></p> <p>Connect the Airbag System Load Tool 8310 Clockspring cable and jumper harness to the Clockspring connector.</p> <p>Turn Ignition On and then reconnect the Battery.</p> <p>With the DRBIII®, read active DTCs.</p> <p>Does the DRB show DRIVER SQUIB SHORT TO BATTERY ?</p> <p>Yes → Go To 3</p> <p>No → Replace the Clockspring.</p> <p>Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting Airbag system components, the ignition must be turned off and the battery must be disconnected.</b></p>	All
3	<p><b>NOTE: Ensure that the battery is fully charged.</b></p> <p><b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p><b>WARNING: DO NOT PLACE AN INTACT UNDEPLOYED AIRBAG FACE DOWN ON A HARD SURFACE, THE AIRBAG WILL PROPEL INTO THE AIR IF ACCIDENTALLY DEPLOYED, AND COULD RESULT IN SERIOUS OR FATAL INJURY.</b></p> <p>Disconnect the Clockspring connector.</p> <p>Disconnect the ACM connector.</p> <p><b>NOTE: Check connectors - Clean and repair as necessary.</b></p> <p>Connect the Airbag System Load Tool 8310 ACM Adaptor to the Airbag Control Module connector.</p> <p>Turn Ignition On and then reconnect the Battery.</p> <p>Measure the voltage of the Driver Airbag Line 1 circuit between the Clockspring connector and ground.</p> <p>Is the voltage above 0.5 volts on Driver Airbag Line 1 circuit?</p> <p>Yes → Repair Driver Airbag Line 1 circuit short to battery voltage.</p> <p>Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p>No → Go To 4</p> <p><b>NOTE: When reconnecting Airbag system components, the ignition must be turned off and the battery must be disconnected.</b></p>	All

**DRIVER SQUIB 1 SHORT TO BATTERY - ACTIVE — Continued**

TEST	ACTION	APPLICABILITY
4	<p><b>NOTE: Ensure that the battery is fully charged.</b></p> <p><b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p><b>WARNING: DO NOT PLACE AN INTACT UNDEPLOYED AIRBAG FACE DOWN ON A HARD SURFACE, THE AIRBAG WILL PROPEL INTO THE AIR IF ACCIDENTALLY DEPLOYED, AND COULD RESULT IN SERIOUS OR FATAL INJURY.</b></p> <p>Disconnect the Clockspring connector.</p> <p>Disconnect the Airbag Control Module connector.</p> <p><b>NOTE: Check connectors - Clean and repair as necessary.</b></p> <p>Connect the Airbag System Load Tool 8310 ACM Adaptor to the Airbag Control Module connector.</p> <p>Turn Ignition On and then reconnect the Battery.</p> <p>Measure the voltage of the Driver Airbag Line 2 circuit between the Clockspring connector and ground.</p> <p>Is the voltage above 0.5 volts</p> <p>Yes → Repair Driver Airbag Line 2 circuit short to battery voltage. Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p>No → Go To 5</p> <p><b>NOTE: When reconnecting Airbag system components, the ignition must be turned off and the battery must be disconnected.</b></p>	All
5	<p><b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p><b>WARNING: IF THE AIRBAG CONTROL MODULE IS DROPPED AT ANY TIME, IT MUST BE REPLACED.</b></p> <p>If there are no possible causes remaining, view repair.</p> <p>Repair</p> <p>Replace the Airbag Control Module in accordance with Service Instructions. <b>WARNING:</b> make sure the battery is disconnected and wait 2 minutes before proceeding.</p> <p>Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting Airbag system components, the ignition must be turned off and the battery must be disconnected.</b></p>	All

## Symptom:

### DRIVER SQUIB 1 SHORT TO GROUND - ACTIVE

## When Monitored and Set Condition:

### DRIVER SQUIB 1 SHORT TO GROUND - ACTIVE

**When Monitored:** When the ignition is on, the ACM monitors the voltage of the Driver Squib 1 circuits.

**Set Condition:** The ACM has detected a short to ground in the Driver Squib 1 circuits.

## POSSIBLE CAUSES

DRIVER AIRBAG SHORT TO GROUND

CLOCKSPRING, CIRCUITS SHORT TO GROUND

DRIVER AIRBAG LINE 1 SHORT TO GROUND

DRIVER AIRBAG LINE 2 SHORT TO GROUND

ACM, DRIVER AIRBAG SHORT TO GROUND

TEST	ACTION	APPLICABILITY
1	<p><b>NOTE: Ensure that the battery is fully charged.</b></p> <p><b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p><b>WARNING: DO NOT PLACE AN INTACT UNDEPLOYED AIRBAG FACE DOWN ON A HARD SURFACE, THE AIRBAG WILL PROPEL INTO THE AIR IF ACCIDENTALLY DEPLOYED, AND COULD RESULT IN SERIOUS OR FATAL INJURY.</b></p> <p>Disconnect the Driver Airbag Module.</p> <p><b>NOTE: Check connectors - Clean and repair as necessary.</b></p> <p>Connect the Airbag System Load Tool 8310 brown cable and jumper harness to the Driver Airbag connector.</p> <p>Turn Ignition On and then reconnect the Battery.</p> <p>With the DRBIII®, read active DTCs.</p> <p>Does the DRB show DRIVER SQUIB SHORT TO GROUND?</p> <p>Yes → Go To 2</p> <p>No → Replace the Driver Airbag Module. Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting Airbag system components, the ignition must be turned off and the battery must be disconnected.</b></p>	All

**DRIVER SQUIB 1 SHORT TO GROUND - ACTIVE — Continued**

TEST	ACTION	APPLICABILITY
2	<p><b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p><b>WARNING: DO NOT PLACE AN INTACT UNDEPLOYED AIRBAG FACE DOWN ON A HARD SURFACE, THE AIRBAG WILL PROPEL INTO THE AIR IF ACCIDENTALLY DEPLOYED, AND COULD RESULT IN SERIOUS OR FATAL INJURY.</b></p> <p>Disconnect the Driver Airbag Module.</p> <p>Disconnect the Clockspring connector.</p> <p><b>NOTE: Check connectors - Clean and repair as necessary.</b></p> <p>Connect the Airbag System Load Tool 8310 Clockspring cable and jumper harness to the Clockspring connector.</p> <p>Turn Ignition On and then reconnect the Battery.</p> <p>With the DRBIII®, read active DTCs.</p> <p>Does the DRB show DRIVER SQUIB SHORT TO GROUND?</p> <p>Yes → Go To 3</p> <p>No → Replace the Clockspring.</p> <p>Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting Airbag system components, the ignition must be turned off and the battery must be disconnected.</b></p>	All
3	<p><b>NOTE: Ensure the battery is fully charged.</b></p> <p><b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p><b>WARNING: IF THE AIRBAG CONTROL MODULE IS DROPPED AT ANY TIME, IT MUST BE REPLACED.</b></p> <p>Disconnect the Clockspring connector.</p> <p>Disconnect the ACM connector.</p> <p><b>NOTE: Check connectors - Clean and repair as necessary.</b></p> <p>Connect the Airbag System Load Tool 8310 ACM adaptor to the Airbag Control Module connector.</p> <p>Measure the resistance of the Driver Airbag Line 1 circuit between the Clockspring connector and ground.</p> <p>Is the resistance below 10.0K ohms?</p> <p>Yes → Repair Driver Airbag Line 1 circuit short to ground.</p> <p>Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p>No → Go To 4</p> <p><b>NOTE: When reconnecting Airbag system components, the ignition must be turned off and the battery must be disconnected.</b></p>	All

## DRIVER SQUIB 1 SHORT TO GROUND - ACTIVE — Continued

TEST	ACTION	APPLICABILITY
4	<p><b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p><b>WARNING: DO NOT PLACE AN INTACT UNDEPLOYED AIRBAG FACE DOWN ON A HARD SURFACE, THE AIRBAG WILL PROPEL INTO THE AIR IF ACCIDENTALLY DEPLOYED, AND COULD RESULT IN SERIOUS OR FATAL INJURY.</b></p> <p>Disconnect the Clockspring connector.</p> <p>Disconnect the Airbag Control Module connector.</p> <p><b>NOTE: Check connectors - Clean and repair as necessary.</b></p> <p>Connect the Airbag System Load Tool 8310 ACM adaptor to the Airbag Control Module connector.</p> <p>Measure the resistance of the Driver Airbag Line 2 circuit between the Clockspring connector and ground.</p> <p>Is the resistance below 10.0K ohms?</p> <p>Yes → Repair Driver Airbag Line 2 Circuit short to ground. Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p>No → Go To 5</p> <p><b>NOTE: When reconnecting airbag system components the Ignition must be turned off and the Battery must be disconnected..</b></p>	All
5	<p><b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p><b>WARNING: IF THE AIRBAG CONTROL MODULE IS DROPPED AT ANY TIME, IT MUST BE REPLACED.</b></p> <p>If there are no possible causes remaining, view repair.</p> <p>Repair</p> <p>Replace the Airbag Control Module in accordance with Service Instructions. <b>WARNING:</b> make sure the battery is disconnected and wait 2 minutes before proceeding.</p> <p>Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting airbag system components the Ignition must be turned off and the Battery must be disconnected.</b></p>	All



**Symptom:****LOSS OF IGNITION RUN ONLY - ACTIVE****When Monitored and Set Condition:****LOSS OF IGNITION RUN ONLY - ACTIVE**

**When Monitored:** With the ignition in the run only position the ACM monitors the Fused Ignition Switch Output Run circuit for proper system voltage.

**Set Condition:** If the voltage on the Fused Ignition Switch Output Run circuit drops below approximately 4.5 volts, the code will set.

**POSSIBLE CAUSES**

IGNITION SWITCH RUN ONLY CIRCUIT OPEN

ON-OFF SWITCH, FUSED IGNITION SWITCH OUTPUT RUN-START CIRCUIT SHORTED TO GROUND

OPEN RUN-START FUSE

FUSED IGNITION SWITCH OUTPUT RUN-START CIRCUIT SHORT TO GROUND

ACM, FUSED RUN-START CIRCUIT SHORTED TO GROUND

ACM, OPEN FUSED RUN-START CIRCUIT

TEST	ACTION	APPLICABILITY
1	Remove the Fused Ignition Switch Output Run Only circuit Fuse. Turn the ignition on. Measure the voltage of the Ignition Switch Output circuit at the Airbag Run- Only fuse. Is the voltage above approximately 4.5 volts?  Yes → Go To 2 No → Repair the open Ignition Switch Output Run Only circuit. Perform AIRBAG VERIFICATION TEST - VER 1.	All
2	Turn the ignition off. Measure the resistance of the Fused Ignition Switch Output Run-Start circuit between the Airbag Run-Start Fuse and ground. Is the resistance above 250K ohms?  Yes → Go To 3 No → Go To 4	All
3	Test the Airbag Run-Start Fuse. Is the Fuse open?  Yes → Replace the fuse. Perform AIRBAG VERIFICATION TEST - VER 1.  No → Go To 6	All

## LOSS OF IGNITION RUN ONLY - ACTIVE — Continued

TEST	ACTION	APPLICABILITY
4	<p>Disconnect the Passenger Airbag On-Off Switch connector</p> <p><b>NOTE: Check connectors - Clean and repair as necessary.</b></p> <p>Measure the voltage of the Fused Ignition Switch Output circuit at the Airbag Run-Start fuse.</p> <p>Is the resistance above 100K ohms?</p> <p>Yes → Replace the Passenger Airbag On-Off Switch and Airbag Run-Start Fuse. Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p>No → Go To 5</p>	All
5	<p><b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p><b>WARNING: IF THE AIRBAG CONTROL MODULE IS DROPPED AT ANY TIME, IT MUST BE REPLACED.</b></p> <p>Disconnect the Airbag Control Module connector</p> <p><b>NOTE: Check connectors - Clean and repair as necessary.</b></p> <p>Measure the voltage of the Fused Ignition Switch Output circuit at the Airbag Run-Start fuse.</p> <p>Is the resistance above 100K ohms?</p> <p>Yes → Replace the Airbag Control Module in accordance with Service Instructions. Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p>No → Go To 6</p>	All
6	<p><b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p><b>WARNING: IF THE AIRBAG CONTROL MODULE IS DROPPED AT ANY TIME, IT MUST BE REPLACED.</b></p> <p>Disconnect the Airbag Control Module connector.</p> <p><b>NOTE: Check connectors - Clean and repair as necessary.</b></p> <p>Connect the Airbag System Load Tool 8310 ACM Adaptor to the Airbag Control Module connector.</p> <p>Reinstall the Run - Start fuse.</p> <p><b>WARNING: TURN THE IGNITION ON, THEN RECONNECT THE BATTERY.</b></p> <p>Measure the voltage of the Fused Ignition Switch Output Run - Start circuit between the ACM adaptor Run - Start terminal and ground.</p> <p>Is the voltage above 10.0 volts?</p> <p>Yes → Replace the Airbag Control Module in accordance with Service Instructions. Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p>No → Repair the open Fused Ignition Switch Output Run-Start circuit. Perform AIRBAG VERIFICATION TEST - VER 1.</p>	All

**Symptom:****LOSS OF IGNITION RUN-START - ACTIVE****When Monitored and Set Condition:****LOSS OF IGNITION RUN-START - ACTIVE**

**When Monitored:** With the ignition in the Run-Start position the ACM monitors the Fused Ignition Switch Output Run - Start circuit for proper system voltage.

**Set Condition:** If the voltage on the Fused Ignition Switch Output Run-Start circuit drops below approximately 4.5 volts, the code will set.

**POSSIBLE CAUSES**

IGNITION SWITCH RUN-START CIRCUIT OPEN

ON-OFF SWITCH, FUSED IGNITION SWITCH OUTPUT RUN-START CIRCUIT SHORTED TO GROUND

OPEN RUN-START FUSE

FUSED IGNITION SWITCH OUTPUT RUN-START CIRCUIT SHORT TO GROUND

ACM, FUSED RUN-START CIRCUIT SHORTED TO GROUND

ACM, OPEN FUSED RUN-START CIRCUIT

TEST	ACTION	APPLICABILITY
1	Remove the Fused Ignition Switch Output Run - Start circuit Fuse. Turn the ignition on. Measure the voltage of the Ignition Switch Output circuit at the Airbag Run-Start fuse. Is the voltage above approximately 4.5 volts?  Yes → Go To 2 No → Repair the open Ignition Switch Output Run-Start circuit. Perform AIRBAG VERIFICATION TEST - VER 1.	All
2	Turn the ignition off. Measure the resistance of the Fused Ignition Switch Output Run-Start circuit between the Airbag Run-Start Fuse and ground. Is the resistance above 250K ohms?  Yes → Go To 3 No → Go To 4	All
3	Test the Airbag Run-Start Fuse. Is the Fuse open?  Yes → Replace the fuse. Perform AIRBAG VERIFICATION TEST - VER 1.  No → Go To 6	All

## LOSS OF IGNITION RUN-START - ACTIVE — Continued

TEST	ACTION	APPLICABILITY
4	<p>Disconnect the Passenger Airbag On-Off Switch connector</p> <p><b>NOTE: Check connectors - Clean and repair as necessary.</b></p> <p>Measure the voltage of the Fused Ignition Switch Output circuit at the Airbag Run-Start fuse.</p> <p>Is the resistance above 100K ohms?</p> <p>Yes → Replace the Passenger Airbag On-Off Switch and Airbag Run-Start Fuse.</p> <p>Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p>No → Go To 5</p>	All
5	<p><b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p><b>WARNING: IF THE AIRBAG CONTROL MODULE IS DROPPED AT ANY TIME, IT MUST BE REPLACED.</b></p> <p>Disconnect the Airbag Control Module connector</p> <p><b>NOTE: Check connectors - Clean and repair as necessary.</b></p> <p>Measure the voltage of the Fused Ignition Switch Output circuit at the Airbag Run-Start fuse.</p> <p>Is the resistance above 100K ohms?</p> <p>Yes → Replace the Airbag Control Module in accordance with Service Instructions.</p> <p>Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p>No → Go To 6</p>	All
6	<p><b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p><b>WARNING: IF THE AIRBAG CONTROL MODULE IS DROPPED AT ANY TIME, IT MUST BE REPLACED.</b></p> <p>Disconnect the Airbag Control Module connector.</p> <p><b>NOTE: Check connectors - Clean and repair as necessary.</b></p> <p>Connect the Airbag System Load Tool 8310 ACM Adaptor to the Airbag Control Module connector.</p> <p>Reinstall the Run - Start fuse.</p> <p><b>WARNING: TURN THE IGNITION ON, THEN RECONNECT THE BATTERY.</b></p> <p>Measure the voltage of the Fused Ignition Switch Output Run - Start circuit between the ACM adaptor Run - Start terminal and ground.</p> <p>Is the voltage above 10.0 volts?</p> <p>Yes → Replace the Airbag Control Module in accordance with Service Instructions.</p> <p>Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p>No → Repair the open Fused Ignition Switch Output Run-Start circuit.</p> <p>Perform AIRBAG VERIFICATION TEST - VER 1.</p>	All

**Symptom:**  
**NO CLUSTER MESSAGE - ACTIVE**

**When Monitored and Set Condition:**

**NO CLUSTER MESSAGE - ACTIVE**

**When Monitored:** With ignition on, the cluster transmits an airbag warning indicator message on the PCI Bus one time every second. The ACM monitors the PCI Bus for the airbag warning indicator message.

**Set Condition:** If the ACM fails to see the status message for 5 continuous seconds the code will be set.

**POSSIBLE CAUSES**

MIC, NO CLUSTER MESSAGE - ACTIVE

ACM, NO CLUSTER MESSAGES

TEST	ACTION	APPLICABILITY
1	<p>Note: Ensure communications with the Mechanical Instrument Cluster.            With the DRBIII® select PASSIVE RESTRAINTS, AIRBAG and MONITOR DISPLAY, WARNING LAMP STATUS.            Using the DRBIII®, read the MIC LAMP STATUS monitor.            Cycle the ignition key and observe the warning lamp monitors.            Does the DRBIII® show ACTUAL LAMP STATE: ON or OFF?</p> <p>YES</p> <p>Replace the Airbag Control Module in accordance with Service Instructions. WARNING: make sure the battery is disconnected and wait 2 minutes before proceeding.            Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p>NO</p> <p>Refer to symptom list for problems related to Instrument Cluster communications.            Perform AIRBAG VERIFICATION TEST - VER 1.</p>	All

## Symptom:

### PASSENGER AIRBAG ON - OFF SWITCH CIRCUIT OPEN - ACTIVE

## When Monitored and Set Condition:

### PASSENGER AIRBAG ON - OFF SWITCH CIRCUIT OPEN - ACTIVE

**When Monitored:** When the ignition is on, the PAB MUX Switch Sense circuit supplies a 3 to 10 ms pulse every 100 ms across the On or Off switch resistor to the MUX Switch Return circuit.

**Set Condition:** The code will set if the ACM senses an open or high resistance on the PAB MUX Switch Sense circuit or PAB MUX Switch Return circuit.

### POSSIBLE CAUSES

PAB ON-OFF SWITCH OPEN

PASSENGER AIRBAG MUX SWITCH CIRCUITS OPEN

ACM, PASSENGER ON-OFF SWITCH CIRCUITS OPEN

TEST	ACTION	APPLICABILITY
1	<p><b>NOTE: Ensure that the battery is fully charged.</b></p> <p><b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p>Disconnect the Passenger Airbag On-Off Switch.</p> <p><b>NOTE: Check connectors - Clean and repair as necessary.</b></p> <p>Measure the PAB On-Off Switch resistance between terminals 3 and 6 in both switch positions.</p> <p>The switch resistance specifications are: ON position = 175.0 to 190.0 ohms and OFF position = 820.0 to 870.0 ohms.</p> <p>Is the resistance within range for both switch positions?</p> <p>Yes → Go To 2</p> <p>No → Replace the Passenger Airbag ON-OFF Switch. Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting airbag system components the Ignition must be turned off and the Battery must be disconnected.</b></p>	All



## PASSENGER AIRBAG ON - OFF SWITCH CIRCUIT OPEN - ACTIVE — Continued

TEST	ACTION	APPLICABILITY
2	<p><b>NOTE: Ensure that the battery is fully charged.</b></p> <p><b>WARNING: TURN IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p><b>WARNING: IF THE AIRBAG CONTROL MODULE IS DROPPED AT ANY TIME, IT MUST BE REPLACED.</b></p> <p>Disconnect the Passenger On-Off Switch connector.</p> <p>Disconnect the Airbag Control Module connector</p> <p><b>NOTE: Check connectors - Clean and repair as necessary.</b></p> <p>Measure the resistance of the PAB MUX Switch Sense between the ACM and the PAB On-Off Switch connector.</p> <p>Measure the resistance of the PAB MUX Switch Return circuit between the ACM and the PAB On-Off Switch connector.</p> <p>Is the resistance below 5.0 ohms on both circuits?</p> <p>Yes → Go To 3</p> <p>No → Repair the open Passenger Airbag MUX Switch circuit. Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting Airbag system components, the ignition must be turned off and the battery must be disconnected.</b></p>	All
3	<p><b>WARNING: TURN IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p><b>WARNING: IF THE AIRBAG CONTROL MODULE IS DROPPED AT ANY TIME, IT MUST BE REPLACED.</b></p> <p>If there are no possible causes remaining, view repair.</p> <p>Repair</p> <p>Replace the Airbag Control Module in accordance with Service Instructions. <b>WARNING:</b> make sure the battery is disconnected and wait 2 minutes before proceeding.</p> <p>Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting airbag system components the Ignition must be turned off and the Battery must be disconnected.</b></p>	All

## Symptom:

### **PASSENGER AIRBAG ON - OFF SWITCH SHORT TO BATTERY - ACTIVE**

## When Monitored and Set Condition:

### **PASSENGER AIRBAG ON - OFF SWITCH SHORT TO BATTERY - ACTIVE**

**When Monitored:** When the ignition is on, the MUX Switch Sense circuit supplies a 3 to 10 ms pulse every 100 ms across the switch resistor to the MUX switch return circuit. Once the code is active, the ACM will disable the indicator for the duration of the ignition cycle.

**Set Condition:** The code will set if the ACM senses constant voltage over approximately 4.0 volts on the PAB MUX Switch circuits.

### **POSSIBLE CAUSES**

PAB ON-OFF SWITCH CIRCUIT SHORTED  
PAB ON-OFF SWITCH SHORT  
PAB MUX SWITCH CIRCUITS SHORTED TO BATTERY  
ACM, PAB ON-OFF SWITCH CIRCUITS SHORT

TEST	ACTION	APPLICABILITY
1	<p><b>NOTE: Ensure that the battery is fully charged.</b>  <b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b>  Disconnect the Passenger Airbag On-Off Switch.  <b>NOTE: Check connectors - Clean and repair as necessary.</b>  Measure the PAB On-Off Switch resistance between terminals 1 &amp; 3 and 2 &amp; 3.  Is the resistance below 10.0K ohms on either test?</p> <p>Yes → Replace the Passenger Airbag ON-OFF Switch.  Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p>No → Go To 2</p> <p><b>NOTE: When reconnecting airbag system components the Ignition must be turned off and the Battery must be disconnected.</b></p>	All

## PASSENGER AIRBAG ON - OFF SWITCH SHORT TO BATTERY - ACTIVE

— Continued

TEST	ACTION	APPLICABILITY
2	<p><b>NOTE: Ensure that the battery is fully charged.</b>  <b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b>            Disconnect the Passenger Airbag On-Off Switch.  <b>NOTE: Check connectors - Clean and repair as necessary.</b>            Measure the PAB On-Off Switch resistance between terminals 3 and 6 in both switch positions.            The switch resistance specifications are: ON position = 175.0 to 190.0 ohms and OFF position = 820.0 to 870.0 ohms.            Is the resistance within range for both switch positions?</p> <p>Yes → Go To 3</p> <p>No → Replace the Passenger Airbag ON-OFF Switch.            Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting airbag system components the Ignition must be turned off and the Battery must be disconnected.</b></p>	All
3	<p><b>NOTE: Ensure that the battery is fully charged.</b>  <b>WARNING: TURN IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b>  <b>WARNING: IF THE AIRBAG CONTROL MODULE IS DROPPED AT ANY TIME, IT MUST BE REPLACED.</b>            Disconnect the Passenger On-Off Switch connector.            Disconnect the Airbag Control Module connector  <b>NOTE: Check connectors - Clean and repair as necessary.</b>            Turn the ignition on and then reconnect the battery.            Measure the voltage on the PAB MUX Switch Sense and PAB MUX Switch Return circuits at the PAB On-Off Switch connector.            Is there any voltage on either circuit?</p> <p>Yes → Repair the Passenger Airbag MUX Switch circuits shorted to battery.            Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p>No → Go To 4</p> <p><b>NOTE: When reconnecting Airbag system components, the ignition must be turned off and the battery must be disconnected.</b></p>	All
4	<p><b>WARNING: TURN IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b>  <b>WARNING: IF THE AIRBAG CONTROL MODULE IS DROPPED AT ANY TIME, IT MUST BE REPLACED.</b>            If there are no possible causes remaining, view repair.</p> <p>Repair</p> <p>Replace the Airbag Control Module in accordance with Service Instructions. <b>WARNING:</b> make sure the battery is disconnected and wait 2 minutes before proceeding.            Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting airbag system components the Ignition must be turned off and the Battery must be disconnected.</b></p>	All

## Symptom:

**PASSENGER AIRBAG ON - OFF SWITCH SHORT TO GROUND - ACTIVE**

## When Monitored and Set Condition:

### PASSENGER AIRBAG ON - OFF SWITCH SHORT TO GROUND - ACTIVE

**When Monitored:** When the ignition is on, the PAB MUX Switch Sense circuit supplies a 3 to 10 ms pulse every 100 ms across the On or Off switch resistor to the MUX switch return circuit.

**Set Condition:** The code will set if the ACM senses low resistance on the PAB MUX Switch sense circuit.

### POSSIBLE CAUSES

PAB ON-OFF SWITCH CIRCUIT SHORTED

PAB ON-OFF SWITCH SHORT

PAB MUX SWITCH CIRCUITS SHORT TO GROUND

PAB MUX SWITCH CIRCUITS SHORTED TOGETHER

ACM, PAB ON-OFF SWITCH CIRCUITS SHORT TO GROUND

TEST	ACTION	APPLICABILITY
1	<p><b>NOTE: Ensure that the battery is fully charged.</b></p> <p><b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p>Disconnect the Passenger Airbag On-Off Switch.</p> <p><b>NOTE: Check connectors - Clean and repair as necessary.</b></p> <p>Measure the PAB On-Off Switch resistance between terminals 2 &amp; 3.</p> <p>Is the resistance below 10.0K ohms?</p> <p>Yes → Replace the Passenger Airbag ON-OFF Switch. Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p>No → Go To 2</p> <p><b>NOTE: When reconnecting airbag system components the Ignition must be turned off and the Battery must be disconnected.</b></p>	All

## PASSENGER AIRBAG ON - OFF SWITCH SHORT TO GROUND - ACTIVE

— Continued

TEST	ACTION	APPLICABILITY
2	<p><b>NOTE: Ensure that the battery is fully charged.</b>  <b>WARNING: TURN IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b>  <b>WARNING: IF THE AIRBAG CONTROL MODULE IS DROPPED AT ANY TIME, IT MUST BE REPLACED.</b>            Disconnect the Passenger On-Off Switch connector.            Disconnect the Airbag Control Module connector  <b>NOTE: Check connectors - Clean and repair as necessary.</b>            Measure the resistance of the PAB MUX Switch Sense circuit between the PAB On-Off Switch connector and ground.            Is the resistance below 10.0K ohms?</p> <p>Yes → Repair the Passenger Airbag MUX Switch Sense circuit shorted to ground.            Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p>No → Go To 3</p> <p><b>NOTE: When reconnecting Airbag system components, the ignition must be turned off and the battery must be disconnected.</b></p>	All
3	<p><b>NOTE: Ensure that the battery is fully charged.</b>  <b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b>            Disconnect the Passenger Airbag On-Off Switch.  <b>NOTE: Check connectors - Clean and repair as necessary.</b>            Measure the PAB On-Off Switch resistance between terminals 3 and 6 in both switch positions.            The switch resistance specifications are: ON position = 175.0 to 190.0 ohms and OFF position = 820.0 to 870.0 ohms.            Is the resistance within range for both switch positions?</p> <p>Yes → Go To 4</p> <p>No → Replace the Passenger Airbag ON-OFF Switch.            Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting airbag system components the Ignition must be turned off and the Battery must be disconnected.</b></p>	All
4	<p><b>NOTE: Ensure that the battery is fully charged.</b>  <b>WARNING: TURN IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b>  <b>WARNING: IF THE AIRBAG CONTROL MODULE IS DROPPED AT ANY TIME, IT MUST BE REPLACED.</b>            Disconnect the Passenger On-Off Switch connector.            Disconnect the Airbag Control Module connector  <b>NOTE: Check connectors - Clean and repair as necessary.</b>            Measure the resistance between the PAB MUX Switch Sense circuit and the PAB MUX Switch Return circuit at the PAB On-Off Switch connector.            Is the resistance on either circuits below 10.0K ohms?</p> <p>Yes → Repair the Passenger Airbag MUX Switch circuits shorted together.            Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p>No → Go To 5</p> <p><b>NOTE: When reconnecting Airbag system components, the ignition must be turned off and the battery must be disconnected.</b></p>	All

## PASSENGER AIRBAG ON - OFF SWITCH SHORT TO GROUND - ACTIVE

— Continued

TEST	ACTION	APPLICABILITY
5	<p><b>WARNING: TURN IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p><b>WARNING: IF THE AIRBAG CONTROL MODULE IS DROPPED AT ANY TIME, IT MUST BE REPLACED.</b></p> <p>If there are no possible causes remaining, view repair.</p> <p>Repair</p> <p>Replace the Airbag Control Module in accordance with Service Instructions. <b>WARNING:</b> make sure the battery is disconnected and wait 2 minutes before proceeding.</p> <p>Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting airbag system components the Ignition must be turned off and the Battery must be disconnected.</b></p>	All

**Symptom:****PASSENGER OFF INDICATOR SHORT TO BATTERY - ACTIVE****When Monitored and Set Condition:****PASSENGER OFF INDICATOR SHORT TO BATTERY - ACTIVE**

**When Monitored:** When the ignition is on, the ACM monitors the PAB Indicator Driver circuit for voltage from the PAB On - Off Switch indicator circuit.

**Set Condition:** The code will set if the ACM senses battery voltage on the PAB Indicator Driver circuit.

**POSSIBLE CAUSES**

PAB ON-OFF SWITCH INDICATOR SHORT

PASSENGER AIRBAG INDICATOR DRIVER CIRCUIT SHORTED TO BATTERY

PASSENGER AIRBAG INDICATOR SHORT TO FUSED RUN-START CIRCUIT

ACM, PAB INDICATOR DRIVER CIRCUIT SHORT TO BATTERY

TEST	ACTION	APPLICABILITY
1	<p><b>NOTE: Ensure that the battery is fully charged.</b>  <b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b>            Disconnect the Passenger Airbag On-Off Switch.  <b>NOTE: Check connectors - Clean and repair as necessary.</b>            Measure the resistance between PAB On-Off Switch terminals 1 and 2.            Is the resistance between 12.0 and 16.0 ohms?</p> <p>Yes → Go To 2</p> <p>No → Replace the Passenger Airbag On-Off Switch.            Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting airbag system components the Ignition must be turned off and the Battery must be disconnected.</b></p>	All
2	<p><b>WARNING: TURN IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b>            Disconnect the Passenger On-Off Switch connector.            Disconnect the Airbag Control Module connector  <b>NOTE: Check connectors - Clean and repair as necessary.</b>            Turn the ignition on then reconnect the battery.            Measure the voltage on the Passenger Airbag Indicator Driver circuit between the PAB On-Off Switch connector and ground.            Is there any voltage present?</p> <p>Yes → Go To 3</p> <p>No → Go To 4</p> <p><b>NOTE: When reconnecting Airbag system components, the ignition must be turned off and the battery must be disconnected.</b></p>	All



## PASSENGER OFF INDICATOR SHORT TO BATTERY - ACTIVE — Continued

TEST	ACTION	APPLICABILITY
3	<p>Remove the Fused Ignition Switch Output Run-Start circuit fuse.  Measure the voltage on the Passenger Airbag Indicator Driver circuit at the PAB On-Off Switch connector.  Is there any voltage present?</p> <p>Yes → Repair the Passenger Airbag Indicator Driver circuit shorted to battery.  Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p>No → Repair the Fused ignition Switch Output Run-Start circuit shorted to the PAB Indicator Driver circuit.  Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting Airbag system components, the ignition must be turned off and the battery must be disconnected.</b></p>	All
4	<p><b>WARNING: TURN IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b>  <b>WARNING: IF THE AIRBAG CONTROL MODULE IS DROPPED AT ANY TIME, IT MUST BE REPLACED.</b></p> <p>If there are no possible causes remaining, view repair.</p> <p>Repair</p> <p>Replace the Airbag Control Module in accordance with Service Instructions. <b>WARNING:</b> make sure the battery is disconnected and wait 2 minutes before proceeding.  Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting airbag system components the Ignition must be turned off and the Battery must be disconnected.</b></p>	All

**Symptom:****PASSENGER OFF INDICATOR SHORT TO GROUND - ACTIVE****When Monitored and Set Condition:****PASSENGER OFF INDICATOR SHORT TO GROUND - ACTIVE**

**When Monitored:** When the ignition is on, the ACM monitors the PAB Indicator Driver circuit for voltage from the PAB On - Off Switch indicator circuit.

**Set Condition:** The code will set if the ACM cannot detect voltage on the PAB Indicator Driver circuit.

**POSSIBLE CAUSES**

ACTIVE ACM RUN-START CODES

FUSED IGNITION SWITCH OUTPUT RUN-START

PAB ON-OFF INDICATOR OPEN

PASSENGER AIRBAG INDICATOR DRIVER CIRCUIT OPEN

PASSENGER AIRBAG INDICATOR DRIVER CIRCUIT SHORT

ACM, PASSENGER ON-OFF INDICATOR CIRCUITS OPEN

TEST	ACTION	APPLICABILITY
1	<p>With the DRBIII®, read active Airbag Control Module DTCs. Does the DRBIII® display LOSS OF IGNITION RUN-START ?</p> <p>Yes → Refer to symptom list for problems related to the active Fused Ignition Switch Output Run-Start DTC. Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p>No → Go To 2</p> <p><b>NOTE: When reconnecting airbag system components the Ignition must be turned off and the Battery must be disconnected.</b></p>	All
2	<p><b>NOTE: Ensure that the battery is fully charged.</b> <b>WARNING: TURN IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b> <b>WARNING: IF THE AIRBAG CONTROL MODULE IS DROPPED AT ANY TIME, IT MUST BE REPLACED.</b></p> <p>Disconnect the Passenger On-Off Switch connector. <b>NOTE: Check connectors - Clean and repair as necessary.</b> Turn the ignition on then reconnect the battery. Measure the voltage on the Fused Ignition Switch Output Run-Start circuit between the PAB On-Off Switch connector and ground. Is the voltage above 10.0 volts?</p> <p>Yes → Go To 3</p> <p>No → Repair the open Fused ignition Switch Output Run-Start circuit. Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting Airbag system components, the ignition must be turned off and the battery must be disconnected.</b></p>	All

**PASSENGER OFF INDICATOR SHORT TO GROUND - ACTIVE — Continued**

TEST	ACTION	APPLICABILITY
3	<p><b>NOTE: Ensure that the battery is fully charged.</b>  <b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b>            Disconnect the Passenger Airbag On-Off Switch.  <b>NOTE: Check connectors - Clean and repair as necessary.</b>            Measure the resistance between PAB On-Off Switch terminals 1 and 2.            Is the resistance approximately 14 ohms?</p> <p>Yes → Go To 4</p> <p>No → Replace the Passenger Airbag ON-OFF Switch.            Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting airbag system components the Ignition must be turned off and the Battery must be disconnected.</b></p>	All
4	<p><b>NOTE: Ensure that the battery is fully charged.</b>  <b>WARNING: TURN IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b>  <b>WARNING: IF THE AIRBAG CONTROL MODULE IS DROPPED AT ANY TIME, IT MUST BE REPLACED.</b>            Disconnect the Passenger On-Off Switch connector.            Disconnect the Airbag Control Module connector  <b>NOTE: Check connectors - Clean and repair as necessary.</b>            Measure the resistance of the PAB Indicator Driver circuit between the ACM and the PAB On-Off Switch connector.            Is the resistance below 5.0 ohms?</p> <p>Yes → Go To 5</p> <p>No → Repair the open Passenger Airbag Indicator Driver circuit.            Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting Airbag system components, the ignition must be turned off and the battery must be disconnected.</b></p>	All
5	<p><b>NOTE: Ensure that the battery is fully charged.</b>  <b>WARNING: TURN IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b>  <b>WARNING: IF THE AIRBAG CONTROL MODULE IS DROPPED AT ANY TIME, IT MUST BE REPLACED.</b>            Disconnect the Passenger On-Off Switch connector.            Disconnect the Airbag Control module connector  <b>NOTE: Check connectors - Clean and repair as necessary.</b>            Measure the resistance of the PAB Indicator Driver circuit between the PAB On-Off Switch connector and ground.            Is the resistance below 10.0K ohms?</p> <p>Yes → Repair the Passenger Airbag Indicator Driver circuit shorted to ground.            Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p>No → Go To 6</p> <p><b>NOTE: When reconnecting Airbag system components, the ignition must be turned off and the battery must be disconnected.</b></p>	All

**PASSENGER OFF INDICATOR SHORT TO GROUND - ACTIVE — Continued**

TEST	ACTION	APPLICABILITY
6	<p><b>WARNING: TURN IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p><b>WARNING: IF THE AIRBAG CONTROL MODULE IS DROPPED AT ANY TIME, IT MUST BE REPLACED.</b></p> <p>If there are no possible causes remaining, view repair.</p> <p>Repair</p> <p>Replace the Airbag Control Module in accordance with Service Instructions. <b>WARNING:</b> make sure the battery is disconnected and wait 2 minutes before proceeding.</p> <p>Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting airbag system components the Ignition must be turned off and the Battery must be disconnected.</b></p>	All

## Symptom:

### PASSENGER SQUIB 1 CIRCUIT OPEN - ACTIVE

## When Monitored and Set Condition:

### PASSENGER SQUIB 1 CIRCUIT OPEN - ACTIVE

**When Monitored:** When the ignition is On, the ACM monitors the resistance of the Passenger Squib 1 circuits.

**Set Condition:** The ACM has detected an open circuit or high resistance on the Passenger Squib 1 circuits.

## POSSIBLE CAUSES

PASSENGER AIRBAG OPEN

PASSENGER AIRBAG LINE 1 CIRCUIT OPEN

PASSENGER AIRBAG LINE 2 CIRCUIT OPEN

ACM, PASSENGER AIRBAG OPEN

TEST	ACTION	APPLICABILITY
1	<p><b>Note: Ensure the battery is fully charged.</b>  <b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b>  <b>WARNING: DO NOT PLACE AN INTACT UNDEPLOYED AIRBAG FACE DOWN ON A HARD SURFACE, THE AIRBAG WILL PROPEL INTO THE AIR IF ACCIDENTALLY DEPLOYED, AND COULD RESULT IN SERIOUS OR FATAL INJURY.</b>            Disconnect the Passenger Airbag Module.  <b>NOTE: Check connectors - Clean and repair as necessary.</b>            Connect the Airbag System Load Tool 8443 Passenger cable and jumper harness to the Passenger Airbag Module connector.            Turn the ignition on.            Reconnect the battery.            With the DRBIII®, read the active Airbag DTCs.            Does the DRB show PASSENGER SQUIB OPEN?</p> <p>Yes → Go To 2</p> <p>No → Replace Passenger Airbag.            Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting airbag system components the Ignition must be turned off and the Battery must be disconnected.</b></p>	All

## PASSENGER SQUIB 1 CIRCUIT OPEN - ACTIVE — Continued

TEST	ACTION	APPLICABILITY
2	<p><b>Note: Ensure that the battery is fully charged.</b>  <b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b>  <b>WARNING: DO NOT PLACE AN INTACT UNDEPLOYED AIRBAG FACE DOWN ON A HARD SURFACE, THE AIRBAG WILL PROPEL INTO THE AIR IF ACCIDENTALLY DEPLOYED, AND COULD RESULT IN SERIOUS OR FATAL INJURY.</b></p> <p>Disconnect the Passenger Airbag.  Disconnect the ACM connector.  <b>NOTE: Check connectors - Clean and repair as necessary.</b>  Connect the Airbag System Load Tool 8310 ACM adaptor to the Airbag Control Module connector.  Measure the resistance of the Passenger Airbag Line 1 circuit between the ACM Adaptor and the Passenger Airbag connector.  Is the resistance below 5.0 ohms ?</p> <p>Yes → Go To 3</p> <p>No → Repair the Passenger Airbag Line 1 for an open or high resistance.  Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>Note: When reconnecting Airbag system components, the ignition must be turned off and the battery must be disconnected.</b></p>	All
3	<p><b>Note: Ensure that the battery is fully charged.</b>  <b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b>  <b>WARNING: DO NOT PLACE AN INTACT UNDEPLOYED AIRBAG FACE DOWN ON A HARD SURFACE, THE AIRBAG WILL PROPEL INTO THE AIR IF ACCIDENTALLY DEPLOYED, AND COULD RESULT IN SERIOUS OR FATAL INJURY.</b></p> <p>Disconnect the Passenger Airbag.  Disconnect the ACM connector.  <b>NOTE: Check connectors - Clean and repair as necessary.</b>  Connect the Airbag System Load Tool 8310 ACM adaptor to the Airbag Control Module connector.  Measure the resistance of the Passenger Airbag Line 2 circuit at the ACM Adaptor and the Passenger Airbag connector and the Passenger Airbag connector.  Is the resistance below 5.0 ohms?</p> <p>Yes → Go To 4</p> <p>No → Repair the Passenger Airbag Line 2 circuit for an open or high resistance.  Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>Note: When reconnecting airbag system components the Ignition must be turned off and the Battery must be disconnected.</b></p>	All

**PASSENGER SQUIB 1 CIRCUIT OPEN - ACTIVE — Continued**

TEST	ACTION	APPLICABILITY
4	<p><b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p><b>WARNING: IF THE AIRBAG CONTROL MODULE IS DROPPED AT ANY TIME, IT MUST BE REPLACED.</b></p> <p>View repair.</p> <p>Repair</p> <p>Replace the Airbag Control Module in accordance with Service Instructions. <b>WARNING:</b> make sure the battery is disconnected and wait 2 minutes before proceeding.</p> <p>Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>Note: When reconnecting airbag system components the Ignition must be turned off and the Battery must be disconnected.</b></p>	All



**Symptom:****PASSENGER SQUIB 1 CIRCUIT SHORT - ACTIVE****When Monitored and Set Condition:****PASSENGER SQUIB 1 CIRCUIT SHORT - ACTIVE**

**When Monitored:** When the ignition is on, the ACM monitors the resistance of the Passenger Squib 1 circuits.

**Set Condition:** The ACM has detected low resistance in the Passenger Squib 1 circuits.

**POSSIBLE CAUSES**

PASSENGER AIRBAG MODULE SHORT

PASSENGER AIRBAG LINE 1 SHORT TO LINE 2

ACM, PASSENGER AIRBAG SHORT

TEST	ACTION	APPLICABILITY
1	<p><b>NOTE: Ensure the battery is fully charged.</b>  <b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b>  <b>WARNING: DO NOT PLACE AN INTACT UNDEPLOYED AIRBAG FACE DOWN ON A HARD SURFACE, THE AIRBAG WILL PROPEL INTO THE AIR IF ACCIDENTALLY DEPLOYED, AND COULD RESULT IN SERIOUS OR FATAL INJURY.</b></p> <p>Disconnect the Passenger Airbag.  <b>NOTE: Check connectors - Clean and repair as necessary.</b>            Connect the Airbag System Load Tool 8443 Passenger cable and jumper harness to the Passenger Airbag connector.            Turn the ignition on.            Reconnect the battery.            With the DRBIII®, read active Airbag DTCs.            Does the DRB show PASSENGER SQUIB CIRCUIT SHORT?</p> <p>Yes → Go To 2</p> <p>No → Replace Passenger Airbag.            Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>Note: When reconnecting airbag system components the Ignition must be turned off and the Battery must be disconnected.</b></p>	All

**PASSENGER SQUIB 1 CIRCUIT SHORT - ACTIVE — Continued**

TEST	ACTION	APPLICABILITY
2	<p><b>NOTE: Ensure the battery is fully charged.</b></p> <p><b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p><b>WARNING: DO NOT PLACE AN INTACT UNDEPLOYED AIRBAG FACE DOWN ON A HARD SURFACE, THE AIRBAG WILL PROPEL INTO THE AIR IF ACCIDENTALLY DEPLOYED, AND COULD RESULT IN SERIOUS OR FATAL INJURY.</b></p> <p>Disconnect the Passenger Airbag connector.  Disconnect the Airbag Control Module connector</p> <p><b>NOTE: Check connectors - Clean and repair as necessary.</b></p> <p>Connect the Airbag System Load Tool 8310 ACM adaptor to the Airbag Control Module connector.</p> <p>Measure the resistance between the Passenger Airbag Line 1 and Line 2 circuit at the Load Tool ACM Adaptor.</p> <p>Is the resistance below 10.0K ohms?</p> <p style="padding-left: 40px;">Yes → Repair the Passenger Airbag Line 1 circuit for a short to the Passenger Airbag Line 2 circuit.  Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p style="padding-left: 40px;">No → Go To 3</p> <p><b>NOTE: When reconnecting Airbag system components, the ignition must be turned off and the battery must be disconnected.</b></p>	All
3	<p><b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p><b>WARNING: IF THE AIRBAG CONTROL MODULE IS DROPPED AT ANY TIME, IT MUST BE REPLACED.</b></p> <p>View repair.</p> <p style="padding-left: 40px;">Repair</p> <p style="padding-left: 80px;">Replace the Airbag Control Module in accordance with Service Instructions. <b>WARNING:</b> make sure the battery is disconnected and wait 2 minutes before proceeding.  Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting Airbag system components, the ignition must be turned off and the battery must be disconnected.</b></p>	All

**Symptom:****PASSENGER SQUIB 1 SHORT TO BATTERY - ACTIVE****When Monitored and Set Condition:****PASSENGER SQUIB 1 SHORT TO BATTERY - ACTIVE**

**When Monitored:** When the ignition is on, the ACM monitors the voltage of the Passenger Squib circuits.

**Set Condition:** The code will set if the ACM detects any voltage on the Passenger Squib circuits.

**POSSIBLE CAUSES**

PASSENGER AIRBAG SHORT TO BATTERY

PASSENGER AIRBAG CIRCUIT LINE 1 SHORT TO BATTERY

PASSENGER AIRBAG CIRCUIT LINE 2 SHORT TO BATTERY

ACM, PASSENGER AIRBAG SHORT TO VOLTAGE

TEST	ACTION	APPLICABILITY
1	<p><b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p><b>CAUTION: DO NOT PLACE AN INTACT UNDEPLOYED AIRBAG FACE DOWN ON A HARD SURFACE, THE AIRBAG WILL PROPEL INTO THE AIR IF ACCIDENTALLY DEPLOYED, AND COULD RESULT IN SERIOUS OR FATAL INJURY.</b></p> <p>Disconnect the Passenger Airbag.</p> <p><b>NOTE: Check connectors - Clean and repair as necessary.</b></p> <p>Connect the Airbag System Load Tool 8310 brown cable and jumper harness to the Passenger Airbag connector.</p> <p>Turn ignition On and then reconnect the Battery.</p> <p>With the DRBIII®, read active DTCs.</p> <p>Does the DRB show PASSENGER SQUIB CIRCUIT SHORT TO BATTERY?</p> <p>Yes → Go To 2</p> <p>No → Replace Passenger Airbag Module.</p> <p>Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting Airbag system components, the ignition must be turned off and the battery must be disconnected.</b></p>	All

## PASSENGER SQUIB 1 SHORT TO BATTERY - ACTIVE — Continued

TEST	ACTION	APPLICABILITY
2	<p><b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p><b>WARNING: DO NOT PLACE AN INTACT UNDEPLOYED AIRBAG FACE DOWN ON A HARD SURFACE, THE AIRBAG WILL PROPEL INTO THE AIR IF ACCIDENTALLY DEPLOYED, AND COULD RESULT IN SERIOUS OR FATAL INJURY.</b></p> <p>Disconnect the Passenger Airbag. Disconnect the ACM connector.</p> <p><b>NOTE: Check connectors - Clean and repair as necessary.</b></p> <p>Connect the Airbag System Load Tool 8310 ACM adaptor to the Airbag Control Module connector.</p> <p>Turn Ignition On and then reconnect the Battery.</p> <p>Measure the voltage of the Passenger Airbag Line 1 circuit in the Passenger Airbag connector.</p> <p>Is the voltage above 0.5 volts on Passenger Airbag Line 1 circuit?</p> <p>Yes → Repair Passenger Airbag Line 1 shorted to battery. Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p>No → Go To 3</p> <p><b>NOTE: When reconnecting airbag system components the Ignition must be turned off and the Battery must be disconnected.</b></p>	All
3	<p><b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p><b>WARNING: DO NOT PLACE AN INTACT UNDEPLOYED AIRBAG FACE DOWN ON A HARD SURFACE, THE AIRBAG WILL PROPEL INTO THE AIR IF ACCIDENTALLY DEPLOYED, AND COULD RESULT IN SERIOUS OR FATAL INJURY.</b></p> <p>Disconnect the Passenger Airbag. Disconnect the Airbag Control Module connector.</p> <p><b>NOTE: Check connectors - Clean and repair as necessary.</b></p> <p>Turn Ignition on and then reconnect the Battery.</p> <p>Measure the voltage of the Passenger Airbag Line 2 circuit in the Passenger Airbag connector.</p> <p>Is the voltage above 0.5 volts on Passenger Airbag Line 2 circuit ?</p> <p>Yes → Repair Passenger Airbag Line 2 short to battery. Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p>No → Go To 4</p> <p><b>NOTE: When reconnecting airbag system components the Ignition must be turned off and the Battery must be disconnected.</b></p>	All
4	<p><b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p><b>WARNING: IF THE AIRBAG CONTROL MODULE IS DROPPED AT ANY TIME, IT MUST BE REPLACED.</b></p> <p>If there are no possible causes remaining, view repair.</p> <p>Continue</p> <p>Replace the Airbag Control Module in accordance with Service Instructions. <b>WARNING: make sure the battery is disconnected and wait 2 minutes before proceeding.</b></p> <p>Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting airbag system components the Ignition must be turned off and the Battery must be disconnected.</b></p>	All

**Symptom:****PASSENGER SQUIB 1 SHORT TO GROUND - ACTIVE****When Monitored and Set Condition:****PASSENGER SQUIB 1 SHORT TO GROUND - ACTIVE**

When Monitored: Continuously with the ignition on.

Set Condition: The ACM has detected a short to ground in the Passenger Squib 1 circuits.

**POSSIBLE CAUSES**

PASSENGER AIRBAG CIRCUITS SHORT TO GROUND  
 PASSENGER AIRBAG LINE 1 SHORT TO GROUND  
 PASSENGER AIRBAG LINE 2 SHORT TO GROUND  
 ACM, PASSENGER AIRBAG CIRCUIT SHORT TO GROUND

TEST	ACTION	APPLICABILITY
1	<p><b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p><b>WARNING: DO NOT PLACE AN INTACT UNDEPLOYED AIRBAG FACE DOWN ON A HARD SURFACE, THE AIRBAG WILL PROPEL INTO THE AIR IF ACCIDENTALLY DEPLOYED, AND COULD RESULT IN SERIOUS OR FATAL INJURY.</b></p> <p>Disconnect the Passenger Airbag Module connector.</p> <p><b>NOTE: Check connectors - Clean and repair as necessary.</b></p> <p>Connect the Airbag System Load Tool 8310 black cable and jumper harness to the Passenger Airbag Module connector.</p> <p>Turn Ignition On and then reconnect the Battery.</p> <p>With the DRBIII®, read active DTCs.</p> <p>Does the DRB show PASSENGER SQUIB CIRCUIT SHORT TO GROUND?</p> <p>Yes → Go To 2</p> <p>No → Replace the Passenger Airbag.</p> <p>Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting airbag system components the Ignition must be turned off and the Battery must be disconnected.</b></p>	All

## PASSENGER SQUIB 1 SHORT TO GROUND - ACTIVE — Continued

TEST	ACTION	APPLICABILITY
2	<p><b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p><b>WARNING: DO NOT PLACE AN INTACT UNDEPLOYED AIRBAG FACE DOWN ON A HARD SURFACE, THE AIRBAG WILL PROPEL INTO THE AIR IF ACCIDENTALLY DEPLOYED, AND COULD RESULT IN SERIOUS OR FATAL INJURY.</b></p> <p>Disconnect the Passenger Airbag. Disconnect the Airbag Control Module connector</p> <p><b>NOTE: Check connectors - Clean and repair as necessary.</b></p> <p>Connect the Airbag System Load Tool 8310 ACM adaptor to the Airbag Control Module connector.</p> <p>Measure the resistance of the Passenger Airbag Line 1 circuit between the Airbag Module connector and ground.</p> <p>Is the resistance below 10.0K ohms on Passenger Airbag Line 1 circuit ?</p> <p>Yes → Repair Passenger Airbag Line 1 for a short to ground. Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p>No → Go To 3</p> <p><b>NOTE: When reconnecting airbag system components the Ignition must be turned off and the Battery must be disconnected.</b></p>	All
3	<p><b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p><b>WARNING: DO NOT PLACE AN INTACT UNDEPLOYED AIRBAG FACE DOWN ON A HARD SURFACE, THE AIRBAG WILL PROPEL INTO THE AIR IF ACCIDENTALLY DEPLOYED, AND COULD RESULT IN SERIOUS OR FATAL INJURY.</b></p> <p>Disconnect the Passenger Airbag. Disconnect the Airbag Control Module connector</p> <p><b>NOTE: Check connectors - Clean and repair as necessary.</b></p> <p>Connect the Airbag System Load Tool 8310 ACM adaptor to the Airbag Control Module connector.</p> <p>Measure the resistance of the Passenger Airbag Line 2 circuit between the Passenger Airbag connector and ground.</p> <p>Is the resistance below 10.0K ohms on Passenger Airbag Line 2 circuit ?</p> <p>Yes → Repair Passenger Airbag Line 2 for a short to ground. Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p>No → Go To 4</p> <p><b>NOTE: When reconnecting airbag system components the Ignition must be turned off and the Battery must be disconnected.</b></p>	All
4	<p><b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b></p> <p><b>WARNING: IF THE AIRBAG CONTROL MODULE IS DROPPED AT ANY TIME, IT MUST BE REPLACED.</b></p> <p>If there are no possible causes remaining, view repair.</p> <p>Continue</p> <p>Replace the Airbag Control Module in accordance with Service Instructions. <b>WARNING: make sure the battery is disconnected and wait 2 minutes before proceeding.</b></p> <p>Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting airbag system components the Ignition must be turned off and the Battery must be disconnected.</b></p>	All

**Symptom:****\*AIRBAG INDICATOR ON WITHOUT ACTIVE TROUBLE CODES****POSSIBLE CAUSES**

AIRBAG WARNING INDICATOR ON WITHOUT TROUBLE CODES

INSTRUMENT CLUSTER PROBLEMS

TEST	ACTION	APPLICABILITY
1	<p>Turn the ignition on.            Make sure that all Airbag and Instrument Cluster DTCs have been repaired before performing this procedure.            With the DRBIII® select MONITOR DISPLAY, WARNING LAMP STATUS and read the PASSIVE RESTRAINTS, AIRBAG, MONITOR DISPLAY, WARNING LAMP STATES.            With no active DTCs, Does the LAMP REQ by ACM monitor show ON?</p> <p>Yes → Replace the Airbag Control Module in accordance with Service Instructions. WARNING: make sure the battery is disconnected and wait 2 minutes before proceeding.            Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p>No → Repair or replace the Instrument Cluster as necessary.            Perform BODY VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting Airbag system components, the ignition must be turned off and the battery must be disconnected.</b></p>	All

**Symptom:****\*CHIME INOPERATIVE AT ALL TIMES****POSSIBLE CAUSES**

INSTRUMENT CLUSTER - CHIME INOPERATIVE

TEST	ACTION	APPLICABILITY
1	If there are no possible causes remaining, view repair.  Repair Replace the Instrument Cluster in accordance with the Service Information. Perform BODY VERIFICATION TEST - VER 1.	All



**Symptom:****\*CHIME INOPERATIVE WITH DRIVER SEAT BELT UNFASTENED****POSSIBLE CAUSES**

SEAT BELT SWITCH STATUS WRONG

SEAT BELT SWITCH SHORTED

SEAT BELT SWITCH SENSE WIRE SHORT TO GROUND

INSTRUMENT CLUSTER - SEAT BELT SWITCH SHORTED

TEST	ACTION	APPLICABILITY
1	<p>Ensure the drivers seat belt is unfastened.            With the DRB III select: Electro Mech Cluster Input Output.            Turn the ignition on.            Read the Driver Belt SW status.            Does the DRB III show Driver Belt SW: CLOSED?</p> <p>Yes → Go To 2</p> <p>No → Replace the Instrument Cluster.            Perform BODY VERIFICATION TEST - VER 1.</p>	All
2	<p>Disconnect the Seat Belt Switch connector.            With the DRB III select: Electro Mech Cluster Input Outputs.            Turn the ignition on.            Read the Driver Belt Sw status.            Does the DRB III show Seat Belt SW: CLOSED?</p> <p>Yes → Go To 3</p> <p>No → Repair Seat Belt switch pigtail wiring for a short to ground or            replace the Seat Belt buckle assembly.            Perform BODY VERIFICATION TEST - VER 1.</p>	All
3	<p>Turn the ignition off.            Remove the Instrument Cluster from the instrument panel.            Disconnect the Seat Belt Switch connector.            Measure the resistance between ground and the Seat Belt Switch Sense circuit at the            Instrument Cluster C2 connector.            Is the resistance below 100.0 ohms?</p> <p>Yes → Repair the Seat Belt Switch Sense wire for a short to ground.            Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Go To 4</p>	All
4	<p>If there are no possible causes remaining, view repair.</p> <p>Repair</p> <p>Replace the Instrument Cluster.            Perform BODY VERIFICATION TEST - VER 1.</p>	All

**Symptom:**

**\*CHIME INOPERATIVE WITH EXTERIOR LAMPS ON AND DRIVER DOOR OPEN**

POSSIBLE CAUSES
VERIFY KEY-IN IGNITION, DRIVER'S DOOR OPEN CHIME OPERATION HEADLAMP SWITCH OUTPUT OPEN MIC - CHIME INOP WITH EXTERIOR LAMPS ON

TEST	ACTION	APPLICABILITY
1	Turn the ignition off. Ensure the key is in the ignition switch all the way. Open the driver door. Does the chime sound?  Yes → Go To 2  No → Refer to symptom *CHIME INOPERATIVE WITH KEY IN IG- NITION, DRIVER'S DOOR OPEN in the CHIME category. Perform BODY VERIFICATION TEST - VER 1.	All
2	Turn the ignition off. Remove the Instrument Cluster From the I/P. Turn the Exterior Lamps on. Measure the voltage of the Headlamp Switch Output circuit in the Instrument Cluster C1 connector. Is the voltage above 10.0 volts?  Yes → If there are no possible causes remaining, replace the Instrument Cluster. Perform BODY VERIFICATION TEST - VER 1.  No → Repair the Headlamp Switch Output circuit for an open. Perform BODY VERIFICATION TEST - VER 1.	All

**Symptom:**

**\*CHIME INOPERATIVE WITH KEY IN IGNITION, DRIVER'S DOOR OPEN**

POSSIBLE CAUSES
OPEN DOOR AJAR GROUND CKT OPEN/MISSING FUSE 4 DRIVER DOOR AJAR SWITCH DOOR AJAR SWITCH OUTPUT CIRCUIT OPEN DRIVER DOOR AJAR SWITCH SENSE CIRCUIT OPEN INSTRUMENT CLUSTER - DOOR AJAR IGNITION SWITCH GROUND CIRCUIT OPEN KEY-IN IGNITION SWITCH OPEN KEY-IN IGNITION SWITCH SENSE CIRCUIT OPEN INSTRUMENT CLUSTER - KEY-IN

TEST	ACTION	APPLICABILITY
1	Turn the ignition on. Open the driver door. With the DRB, read the "DR DOOR AJAR SW" state. Does the DRB display "DR DOOR AJAR SW: CLOSED"?  Yes → Go To 2 No → Go To 6	All
2	Turn the ignition off. Disconnect the Ignition Switch harness connector. <b>Note: Ensure the key is in the Ignition Switch Lock Cylinder.</b> Measure the resistance of the Key-in Ignition Switch with the key in. Is the resistance below 20 ohms?  Yes → Go To 3 No → Check the Ignition Lock Cylinder for damage. If OK, replace the Ignition Switch. Perform BODY VERIFICATION TEST - VER 1.	All
3	Turn the ignition off. Disconnect the Ignition Switch harness connector. Measure the resistance of the ground circuit in the ignition switch harness connector. Is the resistance below 5.0 ohms?  Yes → Go To 4 No → Repair the ground circuit for an open. Perform BODY VERIFICATION TEST - VER 1.	All

**\*CHIME INOPERATIVE WITH KEY IN IGNITION, DRIVER'S DOOR OPEN — Continued**

TEST	ACTION	APPLICABILITY
4	<p>Turn the ignition off.            Disconnect the Ignition Switch harness connector.            Remove the Instrument Cluster from the I/P.            Measure the resistance of the Key-in Ignition Switch Sense circuit between the ignition switch harness connector and the Instrument Cluster C2 connector.            Is the resistance below 5.0 ohms?</p> <p>Yes → Go To 5</p> <p>No → Repair the key-in ignition switch sense circuit for an open.            Perform BODY VERIFICATION TEST - VER 1.</p>	All
5	<p>If there are no possible causes remaining, view repair.</p> <p>Repair</p> <p>Replace the Instrument Cluster in accordance with the Service Information..            Perform BODY VERIFICATION TEST - VER 1.</p>	All
6	<p>Gain access to the Fuse Block Fuse #4 and inspect.            Was the fuse missing or open?</p> <p>Yes → Replace Fuse.            Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Go To 7</p>	All
7	<p>Using a 12-volt Test Light connected to 12-volts, test the Ground circuit at fuse #4 for continuity.            Does the light illuminate?</p> <p>Yes → Go To 8</p> <p>No → Repair the Ground circuit for an open.            Perform BODY VERIFICATION TEST - VER 1.</p>	All
8	<p>Reinstall fuse if removed in previous test.            Disconnect the Driver Door Ajar Switch connector.            With the DRBIII® in Inputs/Outputs, read the DRV DR AJAR SW state.            Connect a jumper wire between Sense circuit and the Output circuit.            Does the DRBIII® display DRV DR AJAR SW: CLOSED?</p> <p>Yes → Replace the Driver Door Ajar Switch.            Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Go To 9</p>	All
9	<p>Disconnect the Driver Door Ajar Switch connector.            Measure the resistance of the Door Ajar Output from the ajar switch to the fuse.            Is the resistance below 5.0 ohms?</p> <p>Yes → Go To 10</p> <p>No → Repair the Door Ajar Switch Output circuit for an open.            Perform BODY VERIFICATION TEST - VER 1.</p>	All

**\*CHIME INOPERATIVE WITH KEY IN IGNITION, DRIVER'S DOOR OPEN — Continued**

TEST	ACTION	APPLICABILITY
10	Remove the Instrument Cluster from the I/P. Disconnect the Driver Door Ajar Switch connector. Measure the resistance of the Driver Door Ajar Switch Sense circuit from the Driver Door Ajar switch to the Instrument Cluster C2 connector. Is the resistance below 5.0 ohms?  Yes → Go To 11  No → Repair the Driver Door Ajar Switch Sense circuit for an open. Perform BODY VERIFICATION TEST - VER 1.	All
11	If there are no possible causes remaining, view repair.  Repair Replace the Instrument Cluster in accordance with the Service Information. Perform BODY VERIFICATION TEST - VER 1.	All

**Symptom:****\*CHIME SOUNDS WITH DRIVER SEAT BELT FASTENED**

POSSIBLE CAUSES	
SEAT BELT SWITCH STATUS WRONG	
SEAT BELT SWITCH OPEN	
GROUND WIRE OPEN	
SEAT BELT SWITCH SENSE OPEN	
INSTRUMENT CLUSTER - SEAT BELT SENSE OPEN	

TEST	ACTION	APPLICABILITY
1	<p>Ensure the drivers seat belt is fastened.            With the DRB III select: Electro Mech Cluster Input/Outputs.            Turn the ignition on.            Read the Driver Belt SW status.            Does the DRB III show Driver Belt SW: CLOSED?</p> <p>Yes → Replace the Instrument Cluster.            Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Go To 2</p>	All
2	<p>Disconnect the Seat Belt Switch connector.            Turn all interior lights off.            Measure the resistance of the Ground circuit in the Seat Belt Switch connector to ground.            Is the resistance below 5.0 ohms?</p> <p>Yes → Go To 3</p> <p>No → Repair the open Ground wire.            Perform BODY VERIFICATION TEST - VER 1.</p>	All
3	<p>Disconnect the Seat Belt Switch connector.            Connect a jumper wire between Seat Belt Switch Sense circuit and the Ground circuit in the Seat Belt Switch connector.            With the DRB III select: Electro Mech Cluster Input/Outputs.            Turn the ignition on.            Read the Driver Belt SW status.            Does the DRB III show Driver Belt SW: CLOSED?</p> <p>Yes → Repair Seat Belt switch pigtail wiring or replace Buckle assembly.            Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Go To 4</p>	All
4	<p>Turn the ignition off.            Remove the Instrument Cluster from the instrument panel.            Disconnect the Seat Belt Switch connector.            Measure the resistance of the Seat Belt Switch Sense circuit between the Instrument Cluster C2 connector and the Seat Belt Switch connector.            Is the resistance below 5.0 ohms?</p> <p>Yes → Go To 5</p> <p>No → Repair the open Seat Belt Switch Sense wire.            Perform BODY VERIFICATION TEST - VER 1.</p>	All

**\*CHIME SOUNDS WITH DRIVER SEAT BELT FASTENED — Continued**

TEST	ACTION	APPLICABILITY
5	If there are no possible causes remaining, view repair.  Repair Replace the Instrument Cluster. Perform BODY VERIFICATION TEST - VER 1.	All

**Symptom:****\*CHIME SOUNDS WITH DRIVER'S DOOR OPEN, KEY REMOVED****POSSIBLE CAUSES**

KEY-IN IGNITION SWITCH SHORTED

KEY-IN IGNITION SW SENSE SHORT TO GROUND

INSTRUMENT CLUSTER - KEY-IN IGNITION SHORTED

TEST	ACTION	APPLICABILITY
1	Disconnect the Ignition Switch connector. Did the chime turn off?  Yes → Check the Ignition Lock Cylinder for damage. If OK replace the Ignition Switch. Perform BODY VERIFICATION TEST - VER 1.  No → Go To 2	All
2	Turn ignition off. Disconnect the Ignition Switch connector. Remove the Instrument Cluster from the I/P. Measure the resistance of the Key-in Ignition Switch Sense circuit to ground at the Instrument Cluster C2 connector. Is the resistance below 100.0 ohms?  Yes → Repair the Key-In Ignition Switch Sense wire for a short to ground.. Perform BODY VERIFICATION TEST - VER 1.  No → Go To 3	All
3	If there are no possible causes remaining, view repair.  Repair Replace the Instrument Cluster. Perform BODY VERIFICATION TEST - VER 1.	All



**Symptom:**

**\*BUS +/- SIGNALS OPEN OR NO RESPONSE FROM INSTRUMENT CLUSTER**

POSSIBLE CAUSES
<p>OPEN GROUND CIRCUIT</p> <p>OPEN FUSED IGNITION SWITCH OUTPUT CIRCUIT</p> <p>OPEN FUSED B+ CIRCUIT</p> <p>OPEN PCI BUS CIRCUIT</p> <p>INSTRUMENT CLUSTER</p>

TEST	ACTION	APPLICABILITY
1	<p>Turn the ignition off.</p> <p>Turn all lights off.</p> <p>Disconnect the Instrument Cluster C1 harness connector.</p> <p>Using a 12-volt test light connected to 12-volts, probe the ground circuit.</p> <p>Is the test light illuminated?</p> <p>Yes → Go To 2</p> <p>No → Repair the ground circuit for an open.</p> <p>Perform BODY VERIFICATION TEST - VER 1.</p>	All
2	<p>Turn the ignition off.</p> <p>Disconnect the Instrument Cluster C1 harness connector.</p> <p>Turn the ignition on.</p> <p>Using a 12-volt test light connected to ground, probe the Fused Ignition Switch Output circuit.</p> <p>Is the test light illuminated?</p> <p>Yes → Go To 3</p> <p>No → Check Fuse #10 in the Fuse Block for an open. If ok, repair the Fused Ignition Switch Output circuit for an open.</p> <p>Perform BODY VERIFICATION TEST - VER 1.</p>	All
3	<p>Turn the ignition off.</p> <p>Disconnect the Instrument Cluster C1 harness connector.</p> <p>Using a 12-volt test light connected to ground, probe the Fused B+ circuit.</p> <p>Is the test light illuminated?</p> <p>Yes → Go To 4</p> <p>No → Repair the Fused B+ circuit for an open.</p> <p>Perform BODY VERIFICATION TEST - VER 1.</p>	All

## \*BUS +/- SIGNALS OPEN OR NO RESPONSE FROM INSTRUMENT CLUSTER — Continued

TEST	ACTION	APPLICABILITY
4	<p><b>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.</b></p> <p>Disconnect the Instrument Cluster C2 harness connector.</p> <p>Use Scope input cable CH7058, Cable to Probe adapter CH7062, and the red and black test probes.</p> <p>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.</p> <p>With the DRBIII® select Pep Module Tools.</p> <p>Select lab scope.</p> <p>Select Live Data.</p> <p>Select 12 volt square wave.</p> <p>Press F2 for Scope.</p> <p>Press F2 and use the down arrow to set voltage range to 20 volts. Set Probe to x10.</p> <p>Press F2 again when complete.</p> <p>Connect the Black lead to the chassis ground. Connect the Red lead to the PCI Bus circuit in the Instrument Cluster connector.</p> <p>Turn the ignition on.</p> <p>Observe the voltage display on the DRB Lab Scope.</p> <p>Does the voltage pulse from 0 to approximately 7.5 volts?</p> <p>Yes → Go To 5</p> <p>No → Repair the PCI Bus circuit for an open.</p> <p>Perform BODY VERIFICATION TEST - VER 1.</p>	All
5	<p>If there are no possible causes remaining, view repair.</p> <p>Repair</p> <p>Replace the Instrument Cluster in accordance with the service information.</p> <p>Perform BODY VERIFICATION TEST - VER 1.</p>	All

**Symptom:**

**\*BUS +/- SIGNALS OPEN OR NO RESPONSE FROM SENTRY KEY IMMOBILIZER MODULE**

POSSIBLE CAUSES
<p>ATTEMPT TO COMMUNICATE WITH THE MIC</p> <p>GROUND CIRCUIT OPEN</p> <p>FUSED IGNITION SWITCH OUTPUT CIRCUIT OPEN</p> <p>FUSED B(+) CIRCUIT OPEN</p> <p>OPEN PCI BUS CIRCUIT</p> <p>SENTRY KEY IMMOBILIZER MODULE</p>

TEST	ACTION	APPLICABILITY
1	<p>Turn the ignition on. With the DRB, enter Body then Electro/Mech Cluster. Was the DRB able to I/D or communicate with the MIC?</p> <p>Yes → Go To 2</p> <p>No → Refer to the symptom list for problems related to no communication with the MIC. Perform SKIS VERIFICATION.</p>	All
2	<p>Turn the ignition off. Disconnect the SKIM harness connector. Using a 12-volt test light connected to 12-volts, probe each ground circuit. Is the test light illuminated for each circuit?</p> <p>Yes → Go To 3</p> <p>No → Repair the ground circuit for an open. Perform SKIS VERIFICATION.</p>	All
3	<p>Turn the ignition off. Disconnect the SKIM harness connector. Turn the ignition on. Using a 12-volt test light connected to ground, probe the Fused Ignition Switch Output circuit. Is the test light illuminated?</p> <p>Yes → Go To 4</p> <p>No → Repair the Fused Ignition Switch Output circuit for an open. Perform SKIS VERIFICATION.</p>	All
4	<p>Turn the ignition off. Disconnect the SKIM harness connector. Using a 12-volt test light connected to ground, probe the Fused B(+) circuit. Is the test light illuminated?</p> <p>Yes → Go To 5</p> <p>No → Check Fuse #1 in the Fuse Block for an open. If OK, repair the Fused B+ circuit for an open. Perform SKIS VERIFICATION.</p>	All

## \*BUS +/- SIGNALS OPEN OR NO RESPONSE FROM SENTRY KEY IMMOBILIZER MODULE — Continued

TEST	ACTION	APPLICABILITY
5	<p><b>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.</b></p> <p>Disconnect the SKIM harness connector.</p> <p>Use Scope input cable CH7058, Cable to Probe adapter CH7062, and the red and black test probes.</p> <p>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.</p> <p>With the DRBIII® select Pep Module Tools.</p> <p>Select lab scope.</p> <p>Select Live Data.</p> <p>Select 12 volt square wave.</p> <p>Press F2 for Scope.</p> <p>Press F2 and use the down arrow to set voltage range to 20 volts. Set Probe to x10.</p> <p>Press F2 again when complete.</p> <p>Connect the Black lead to the chassis ground. Connect the Red lead to the PCI Bus circuit in the SKIM connector.</p> <p>Turn the ignition on.</p> <p>Observe the voltage display on the DRB Lab Scope.</p> <p>Does the voltage pulse from 0 to approximately 7.5 volts?</p> <p>Yes → Go To 6</p> <p>No → Repair the PCI Bus circuit for an open.</p> <p>Perform SKIS VERIFICATION.</p>	All
6	<p>If there are no possible causes remaining, view repair.</p> <p>Repair</p> <p>Replace and program the Sentry Key Immobilizer Module in accordance with the Service Information.</p> <p>Perform SKIS VERIFICATION.</p>	All

**Symptom:**
**\*NO RESPONSE FROM AIRBAG CONTROL MODULE**
**POSSIBLE CAUSES**

CHECKING FOR VOLTAGE AT ACM

GROUND CIRCUIT OPEN

OPEN PCI BUS CIRCUIT

AIRBAG CONTROL MODULE

TEST	ACTION	APPLICABILITY
1	<p>Ensure that the battery is fully charged.  <b>WARNING: TURN THE IGNITION OFF, DISCONNECT THE BATTERY AND WAIT TWO MINUTES BEFORE PROCEEDING.</b>  Disconnect the ACM harness connector.  Turn the ignition on and then reconnect the Battery.  Using a 12-volt test light connected to ground, probe the Fused Ignition Switch Output (Run) Circuit and the Fused Ignition Switch Output (Run/Start) Circuit at the ACM connector.  NOTE: One open circuit will not cause a NO RESPONSE condition.  Is the test light illuminated on both circuits?</p> <p>Yes → Go To 2</p> <p>No → Repair the Fused Ignition Switch Output (Run) and Fused Ignition Switch Output (Run/Start) circuits for an open.  Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting airbag system components, the ignition must be turned off and the battery must be disconnected.</b></p>	All
2	<p><b>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.</b>  <b>Warning: Turn the ignition Off, disconnect the Battery and wait 2 minutes before proceeding.</b>  Disconnect the Airbag Control Module harness connector.  Using a 12-volt test light connected to 12-volts, probe the ground circuit.  Is the test light illuminated?</p> <p>Yes → Go To 3</p> <p>No → Repair the ground circuit for an open.  Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>Note: When reconnecting Airbag system components, the ignition must be turned off and the battery must be disconnected.</b></p>	All

## \*NO RESPONSE FROM AIRBAG CONTROL MODULE — Continued

TEST	ACTION	APPLICABILITY
3	<p><b>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.</b></p> <p>Turn the ignition off and wait 2 minutes before proceeding.            Disconnect the Airbag Control Module 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. Set Probe to x10.            Press F2 again when complete.            Connect the Black lead to the chassis ground. Connect the Red lead to the PCI Bus circuit in the ACM 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?</p> <p>Yes → Go To 4</p> <p>No → Repair the PCI Bus circuit for an open.            Perform AIRBAG VERIFICATION TEST - VER 1.</p> <p><b>NOTE: When reconnecting Airbag system components, the ignition must be turned off and the battery must be disconnected.</b></p>	All
4	<p>If there are no possible causes remaining, view repair.</p> <p>Repair</p> <p>Replace the Airbag Control Module (ACM) in accordance with the Service Information.            Perform AIRBAG VERIFICATION TEST - VER 1.</p>	All

**Symptom:**

**\*NO RESPONSE FROM CONTROLLER ANTILOCK BRAKE**

POSSIBLE CAUSES
<p>ATTEMPT TO COMMUNICATE WITH THE PCM</p> <p>CHECK FUSE #7 IN FUSE BLOCK</p> <p>OPEN GROUND CIRCUITS</p> <p>OPEN FUSED IGNITION SWITCH OUTPUT CIRCUIT</p> <p>SCI TRANSMIT CIRCUIT OPEN</p> <p>CONTROLLER ANTILOCK BRAKE</p>

TEST	ACTION	APPLICABILITY
1	<p>Turn the ignition on.</p> <p>With the DRB attempt to communicate with the PCM.</p> <p>Was the DRB able to communicate with the PCM?</p> <p>Yes → Go To 2</p> <p>No → Refer to symptom list for problems related to No Response From PCM.</p> <p>Perform ABS VERIFICATION TEST - VER 1.</p>	All
2	<p>Turn the ignition off.</p> <p>Remove and inspect fuse #7 in the Fuse Block.</p> <p>Is the fuse open?</p> <p>Yes → Refer to the wiring diagrams located in the service information to help isolate a possible short to ground.</p> <p>Perform ABS VERIFICATION TEST - VER 1.</p> <p>No → Go To 3</p>	All
3	<p>Turn the ignition off.</p> <p>Disconnect the CAB harness connector.</p> <p>Using a 12-volt test light connected to 12-volts, probe each ground circuit.</p> <p>Is the test light illuminated for each circuit?</p> <p>Yes → Go To 4</p> <p>No → Repair the ground circuit for an open.</p> <p>Perform ABS VERIFICATION TEST - VER 1.</p>	All
4	<p>Turn the ignition off.</p> <p><b>NOTE: Ensure fuse #7 is installed in the Fuse Block.</b></p> <p>Disconnect the CAB harness connector.</p> <p>Turn the ignition on.</p> <p>Using a 12-volt test light connected to ground, probe the Fused Ignition Switch Output circuit.</p> <p>Is the test light illuminated?</p> <p>Yes → Go To 5</p> <p>No → Repair the Fused Ignition Switch Output circuit for an open.</p> <p>Perform ABS VERIFICATION TEST - VER 1.</p>	All

## **\*NO RESPONSE FROM CONTROLLER ANTILOCK BRAKE — Continued**

TEST	ACTION	APPLICABILITY
5	Turn the ignition off. Disconnect the CAB harness connector. Measure the resistance of the SCI Transmit circuit between the CAB connector and the DLC. Is the resistance below 5.0 ohms? Yes → Go To 6 No → Repair the SCI Transmit circuit for an open. Perform ABS VERIFICATION TEST - VER 1.	All
6	If there are no possible causes remaining, view repair. Repair Replace the Controller Antilock Brake in accordance with the Service Information. Perform ABS VERIFICATION TEST - VER 1.	All



# Symptom:

## \*NO RESPONSE FROM PCM (PCI BUS)

### POSSIBLE CAUSES

PCM PCI NO RESPONSE  
PCI BUS CIRCUIT OPEN  
POWERTRAIN CONTROL MODULE

TEST	ACTION	APPLICABILITY
1	<p>Turn the ignition on.</p> <p><b>NOTE: As soon as one or more module communicates with the DRB, answer the question.</b></p> <p>With the DRBIII®, enter Body then Electro/Mechanical Cluster (MIC).</p> <p>With the DRBIII®, enter Passive Restraints then Airbag.</p> <p>Were you able to establish communications with any of the modules?</p> <p>Yes → Go To 2</p> <p>No → Refer to symptom PCI Bus Communication Failure in the Communications category.</p> <p>Perform POWERTRAIN VERIFICATION TEST VER - 1.</p>	All
2	<p>With the DRBIII® read PCM Diagnostic Trouble Codes. This is to ensure power and grounds to the PCM are operational.</p> <p><b>NOTE: If the DRBIII® will not read PCM DTC's, follow the NO RESPONSE TO PCM (SCI only) symptom path.</b></p> <p><b>NOTE: If the vehicle will not start and the DRBIII® displays a no response message, refer to the appropriate symptom in the powertrain diagnostic procedures.</b></p> <p>Turn the ignition off.</p> <p>Disconnect the PCM C3 harness connector.</p> <p>Use Scope input cable CH7058, Cable to Probe adapter CH7062, and the red and black test probes.</p> <p>Connect the scope input cable to the channel one connector on the DRBIII®. Attach the red and black leads and the cable to probe adapter to the scope input cable.</p> <p>With the DRBIII® select Pep Module Tools.</p> <p>Select lab scope.</p> <p>Select Live Data.</p> <p>Select 12 volt square wave.</p> <p>Press F2 for Scope.</p> <p>Press F2 and use the down arrow to set voltage range to 20 volts. Set Probe to x10.</p> <p>Press F2 again when complete.</p> <p>Connect the Black lead to the PCM ground. Connect the Red lead to the PCI Bus circuit in the PCM connector.</p> <p>Turn the ignition on.</p> <p>Observe the voltage display on the DRBIII® Lab Scope.</p> <p>Does the voltage pulse from 0 to approximately 7.5 volts?</p> <p>Yes → Replace and program the Powertrain Control Module in accordance with the Service Information.</p> <p>Perform POWERTRAIN VERIFICATION TEST VER - 1.</p> <p>No → Repair the PCI Bus circuit for an open.</p> <p>Perform POWERTRAIN VERIFICATION TEST VER - 1.</p>	All

## Symptom:

**\*NO RESPONSE FROM PCM (SCI ONLY)**

POSSIBLE CAUSES
SCI TRANSMIT CIRCUIT SHORTED TO GROUND CHECK PCM POWERS AND GROUNDS CONTROLLER ANTILOCK BRAKE SCI TRANSMIT CIRCUIT SHORTED TO GROUND SCI RECEIVE CIRCUIT SHORTED TO GROUND SCI RECEIVE CIRCUIT OPEN SCI TRANSMIT CIRCUIT OPEN POWERTRAIN CONTROL MODULE

TEST	ACTION	APPLICABILITY
1	Perform the symptom Checking PCM Power and Ground Circuits in the Driveability category. Did the vehicle pass this test? Yes → Go To 2 No → Repair as necessary. Perform POWERTRAIN VERIFICATION TEST VER - 1.	All
2	Is this vehicle equipped with antilock brakes? Yes → Go To 3 No → Go To 5	All
3	Turn the ignition off. Disconnect the PCM C3 harness connector. Disconnect the DRB from the DLC. Measure the resistance between ground and the SCI Transmit circuit. Is the resistance below 5.0 ohms? Yes → Go To 4 No → Go To 6	All
4	Turn the ignition off. Disconnect the CAB harness connectors. Measure the resistance between ground and the SCI Transmit circuit. Is the resistance below 5.0 ohms? Yes → Repair the SCI Transmit circuit for a short to ground. Perform POWERTRAIN VERIFICATION TEST VER - 1. No → Replace the Controller Antilock Brake in accordance with the service information. Perform POWERTRAIN VERIFICATION TEST VER - 1.	All

**\*NO RESPONSE FROM PCM (SCI ONLY) — Continued**

TEST	ACTION	APPLICABILITY
5	<p>Turn the ignition off.  Disconnect the PCM C3 harness connector.  Disconnect the DRBIII® from the DLC.  Measure the resistance between ground and the SCI Transmit circuit.  Is the resistance below 5.0 ohms?</p> <p>Yes → Repair the SCI Transmit circuit for a short to ground.  Perform POWERTRAIN VERIFICATION TEST VER - 1.</p> <p>No → Go To 6</p>	All
6	<p>Turn the ignition off.  Disconnect the PCM C3 harness connector.  Disconnect the DRBIII® from the DLC.  Measure the resistance between ground and the SCI Receive circuit.  Is the resistance below 5.0 ohms?</p> <p>Yes → Repair the SCI Receive circuit for a short to ground.  Perform POWERTRAIN VERIFICATION TEST VER - 1.</p> <p>No → Go To 7</p>	All
7	<p>Turn the ignition off.  Disconnect the PCM C3 harness connector.  Disconnect the DRBIII® from the DLC.  Measure the resistance of the SCI Receive circuit between the PCM connector and the DLC.  Is the resistance below 5.0 ohms?</p> <p>Yes → Go To 8</p> <p>No → Repair the SCI Receive circuit for an open.  Perform POWERTRAIN VERIFICATION TEST VER - 1.</p>	All
8	<p>Turn the ignition off.  Disconnect the PCM C3 harness connector.  Disconnect the DRBIII® from the DLC.  Measure the resistance of the SCI Transmit circuit between the PCM connector and the DLC.  Is the resistance below 5.0 ohms?</p> <p>Yes → Go To 9</p> <p>No → Repair the SCI Transmit circuit for an open.  Perform POWERTRAIN VERIFICATION TEST VER - 1.</p>	All
9	<p>If there are no possible causes remaining, view repair.</p> <p>Repair</p> <p>Replace and program the Powertrain Control Module in accordance with the Service Information.  Perform POWERTRAIN VERIFICATION TEST VER - 1.</p>	All

## Symptom:

### \*PCI BUS COMMUNICATION FAILURE

POSSIBLE CAUSES
<p>WIRING HARNESS INTERMITTENT</p> <p>OPEN PCI BUS CIRCUIT AT THE DATA LINK CONNECTOR (DLC)</p> <p>PCI BUS CIRCUIT SHORTED TO VOLTAGE</p> <p>MODULE SHORT TO VOLTAGE</p> <p>PCI BUS CIRCUIT SHORTED TO GROUND</p> <p>MODULE SHORT TO GROUND</p>

TEST	ACTION	APPLICABILITY
1	<p><b>Note: Determine which modules this vehicle is equipped with before beginning.</b></p> <p><b>Note: When attempting to communicate with any of the modules on this vehicle, the DRB will display 1 of 2 different communication errors: a NO RESPONSE message or a BUS +/- SIGNALS OPEN message.</b></p> <p>Turn the ignition on.</p> <p>Using the DRB, attempt to communicate with the following control modules:</p> <p>Airbag Control Module</p> <p>SKIM (SENTRY KEY IMMOBILIZER)</p> <p>MIC (INSTRUMENT CLUSTER)</p> <p>Was the DRBIII® able to communicate with one or more Module(s)?</p> <p>Yes → Go To 2</p> <p>No → Go To 3</p>	All
2	<p>Turn the ignition off.</p> <p><b>Note: Visually inspect the related wiring harness. Look for any chafed, pierced, pinched, or partially broken wires.</b></p> <p><b>Note: Visually inspect the related wire harness connectors. Look for broken, bent, pushed out, or corroded terminals.</b></p> <p><b>Note: If the DRB can not communicate with a single module, refer to the category list for the related symptom.</b></p> <p>Were any problems found?</p> <p>Yes → Repair wiring harness/connectors as necessary. Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Test Complete.</p>	All
3	<p>Turn the ignition off.</p> <p>Disconnect the PCM harness connector.</p> <p>Disconnect the DRB from the Data Link Connector (DLC).</p> <p>Disconnect the negative battery cable.</p> <p>Measure the resistance of the PCI Bus circuit between the Data Link Connector (DLC) and the PCM connector.</p> <p>Is the resistance below 5.0 ohms?</p> <p>Yes → Go To 4</p> <p>No → Repair the PCI Bus circuit for an open. Perform BODY VERIFICATION TEST - VER 1.</p>	All

**\*PCI BUS COMMUNICATION FAILURE — Continued**

TEST	ACTION	APPLICABILITY
4	<p><b>NOTE: Reconnect the PCM harness connector and the negative battery cable.</b></p> <p>Turn the ignition on.            Measure the voltage of the PCI Bus circuit at the Data Link Connector (DLC).            Is the voltage above 1.5 volts?</p> <p>Yes → Go To 5            No → Go To 6</p>	All
5	<p>Turn the ignition off.            Using a voltmeter, connect one end to the PCI Bus circuit at the DLC, and the other end to ground.  <b>Note: When performing the next step turn the ignition off (wait one minute) before disconnecting any module. When the module is disconnected turn the ignition on to check for a short to voltage.</b>            Turn the ignition on.            While monitoring the voltmeter, disconnect each module the vehicle is equipped with one at a time.            Is the voltage steadily above 1.5 volts with all the modules disconnected?</p> <p>Yes → Repair the PCI Bus circuit for a short to voltage.            Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Replace the module that when disconnected the short to voltage was eliminated.            Perform BODY VERIFICATION TEST - VER 1.</p>	All
6	<p>Turn the ignition off.            Disconnect the negative battery cable.            Using a ohmmeter, connect one end to the PCI Bus circuit at the DLC, and the other end to ground.            While monitoring the ohmmeter, disconnect each module the vehicle is equipped with one at a time.            Is the resistance below 1000.0 ohms with all the modules disconnected?</p> <p>Yes → Repair the PCI Bus circuit for a short to ground.            Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Replace the module that when disconnected the short to ground was eliminated.            Perform BODY VERIFICATION TEST - VER 1.</p>	All

## ELECTRICALLY HEATED SYSTEMS

### Symptom:

#### \*REAR DEFFOGER RELAY OPEN

#### POSSIBLE CAUSES

FUSED B+ CKT SHORTED TO GROUND  
REAR DEFOGGER RELAY OUTPUT CKT SHORT TO GROUND  
FUSE #2 OPEN  
FUSED B+ CIRCUIT OPEN  
REAR WINDOW DEFOGGER RELAY  
REAR WINDOW DEFOGGER RELAY CONTROL SHORT TO GROUND.  
PDC  
INSTRUMENT CLUSTER

TEST	ACTION	APPLICABILITY
1	Turn the ignition off. Remove and inspect Fuse Block fuse #7. Is Fuse Block fuse #7 open?  Yes → Go To 2 No → Go To 4	All
2	Turn the ignition off. Remove the Rear Window Defogger Relay from the PDC. Measure resistance of the Fused B+ circuits in the Rear Window Defogger Relay connector to ground. Is the resistance below 5.0 ohms?  Yes → Repair the Fused B+ circuit for a short to ground condition. Perform BODY VERIFICATION TEST - VER 1.  No → Go To 3	All
3	Turn the ignition off. Disconnect the Rear Window Defogger connector at the rear window Grid. Remove the Rear Window Defogger Relay from the PDC. Measure resistance between ground and the Rear Window Defogger Relay Output circuit at the Rear Window Defogger connector. Is the resistance below 5.0 ohms?  Yes → Repair the Rear Window Defogger Relay Output Circuit for a short to ground condition. Perform BODY VERIFICATION TEST - VER 1.  No → Replace Fuse Block fuse #2. Perform BODY VERIFICATION TEST - VER 1.	All

**\*REAR DEFFOGER RELAY OPEN — Continued**

TEST	ACTION	APPLICABILITY
4	<p>Turn the ignition off.  Remove the Rear Window Defogger Relay from the PDC.  Turn the ignition on.  Measure voltage of the Fused B(+) Circuit in the Rear Window Defogger Relay connector.  Is the voltage above 10.0 volts?</p> <p>Yes → Go To 5</p> <p>No → Repair the open Fused B+ Circuit from PDC fuse #7.  Perform BODY VERIFICATION TEST - VER 1.</p>	All
5	<p>Turn the ignition off.  Remove the Rear Window Defogger Relay from the PDC.  Connect a test light between the Rear Window Defogger Relay Control Circuit and the Fused B+ Circuit on the coil side of the relay.  Turn the ignition on.  With the DRBIII®, actuate the Rear Defog Relay and observe the test light.  Does the test light flash on and off when the relay is actuated?</p> <p>Yes → Replace the Rear Window Defogger Relay.  Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Go To 6</p>	All
6	<p>Turn the ignition off.  Remove the Rear Window Defogger Relay from the PDC.  Disconnect the Instrument Cluster.  Measure the resistance of the Rear Window Defogger Relay Control circuit to ground.  Is the resistance below 1000.0 ohms?</p> <p>Yes → Replace the PDC.  Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Go To 7</p>	All
7	<p>Turn the ignition off.  Remove the Rear Window Defogger Relay from the PDC.  Disconnect the Instrument Cluster.  Measure resistance of the Rear Window Defogger Relay Control Circuit.  Is the resistance below 5.0 ohms?</p> <p>Yes → Replace the Instrument Cluster.  Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Replace the Power Distribution Center.  Perform BODY VERIFICATION TEST - VER 1.</p>	All

**Symptom:****\*REAR DEFOGGER RELAY SHORT TO VOLTAGE****POSSIBLE CAUSES**

REAR DEFOGGER RELAY

FUSE BLOCK

INSTRUMENT CLUSTER

TEST	ACTION	APPLICABILITY
1	<p>Turn the ignition off. Remove the Rear Window Defogger Relay from the PDC. Connect a test light between the Rear Window Defogger Relay Control circuit and the Fused B+ circuit in the Relay connector. Turn the ignition on. With the DRBIII®, actuate the Rear Defogger Relay and observe the test light. Does the test light flash on and off when the relay is actuated?</p> <p>Yes → Replace the Rear Window Defogger Relay. Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Go To 2</p>	All
2	<p>Turn the ignition off. Remove the Rear Window Defogger Relay. Disconnect the Instrument Cluster. Turn the ignition on. Measure voltage between the Rear Window Defogger Relay Control circuit and the Fused B+ circuit in the Relay connector. Is the voltage above 1.0 volt?</p> <p>Yes → Replace the Fuse Block. Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Replace the Instrument Cluster. Perform BODY VERIFICATION TEST - VER 1.</p>	All



**Symptom:****\*REAR DEFOGGER SWITCH INDICATOR INOPERATIVE****POSSIBLE CAUSES**

FUSED REAR WINDOW DEFOGGER RELAY OUTPUT CKT SHORTED TO GROUND

FUSE BLOCK FUSE #17

FUSED REAR WINDOW DEFOGGER RELAY OUTPUT CKT OPEN

DEFOGGER SWITCH

TEST	ACTION	APPLICABILITY
1	Inspect Fuse Block fuse #17. Is Fuse Block fuse #17 open?  Yes → Go To 2 No → Go To 3	All
2	Turn the ignition off. Disconnect the Rear Defogger Switch. Measure resistance of the Fused Rear Window Defogger Relay Output circuit to ground. Is the resistance below 5.0 ohms?  Yes → Repair the Fused Rear Window Defogger Relay Output circuit for a short to ground condition. Perform BODY VERIFICATION TEST - VER 1.  No → Replace Fuse Block fuse #17. Perform BODY VERIFICATION TEST - VER 1.	All
3	Turn the ignition off. Disconnect the Rear Defogger Switch. Remove the Rear Window Defogger Relay. Ensure that Fuse Block fuse #17 is installed. Measure resistance of the Fused Rear Window Defogger Relay Output circuit from the relay output terminal to the Defogger Switch connector. Is the resistance below 5.0 ohms?  Yes → Replace the Rear Window Defogger Switch. Perform BODY VERIFICATION TEST - VER 1.  No → Repair the Fused Rear Window Defogger Relay Output circuit for an open condition. Perform BODY VERIFICATION TEST - VER 1.	All

## Symptom:

### \*REAR WINDOW DEFOGGER GRID INOPERATIVE

POSSIBLE CAUSES
REAR WINDOW DEFOGGER GROUND CKT
REAR WINDOW DEFOGGER GRID OPEN
REAR WINDOW DEFOGGER RELAY OUTPUT OPEN
REAR WINDOW DEFOGGER RELAY
REAR WINDOW DEFOGGER RELAY OUTPUT SHORTED TO GROUND
FUSE #2 OPEN
FUSED B(+) CKT OPEN
SUBSTITUTE RELAY
FUSE BLOCK
INTERMITTENT CONDITION
REAR WINDOW DEFOGGER SWITCH SENSE CKT OPEN
REAR WINDOW DEFOGGER SWITCH SENSE CKT SHORTED TO GROUND
REAR WINDOW DEFOGGER SWITCH SENSE CKT SHORTED TO VOLTAGE
REAR WINDOW DEFOGGER SWITCH
INSTRUMENT CLUSTER

TEST	ACTION	APPLICABILITY
1	Toggle the Rear Defogger switch and observe the indicator. Does the indicator toggle on and off when the switch is pressed?  Yes → Go To 2 No → Go To 4	All
2	Turn the ignition off. Open the tailgate. Measure resistance between ground and the Rear Window Defogger Ground circuit. Is the resistance below 5.0 ohms?  Yes → Go To 3 No → Repair the Rear Window Defogger Ground Circuit for an open condition. Perform BODY VERIFICATION TEST - VER 1.	All

**\*REAR WINDOW DEFOGGER GRID INOPERATIVE — Continued**

TEST	ACTION	APPLICABILITY
3	Turn the ignition on. Turn the Rear Window Defogger on. Measure voltage between the Rear Window Defogger Relay Output circuit at the defogger grid to ground. Is the voltage above 12.0 volts?  Yes → Repair the open in the Rear Window Defogger Grid. Perform BODY VERIFICATION TEST - VER 1.  No → Repair the Rear Window Defogger Relay Output Circuit for an open condition. Perform BODY VERIFICATION TEST - VER 1.	All
4	Turn the ignition on. With the DRBIII®, read the R DEFOG SWITCH Input/Output display. Toggle the Rear Window Defogger Switch on and off and observe the DRB. Does the DRBIII® show that the Rear Defog Switch is toggling on and off?  Yes → Go To 5 No → Go To 11	All
5	Remove and inspect Fuse Block Fuse #2. Is the Fuse open?  Yes → Go To 6 No → Go To 8	All
6	Remove the Rear Window Defogger Relay from the PDC. Measure resistance of the Rear Window Defogger Relay Control Circuit and Fused B+ on the coil side. Is the resistance between 50.0 and 100.0 ohms?  Yes → Go To 7 No → Replace the Rear Window Defogger Relay. Perform BODY VERIFICATION TEST - VER 1.	All
7	Disconnect the Rear Window Defogger connector at the Defogger Grid. Remove the Rear Window Defogger Relay from the PDC. Measure resistance between ground and the Rear Window Defogger Relay Output circuit at the Rear Window Defogger connector. Is the resistance below 5.0 ohms?  Yes → Repair the Rear Window Defogger Relay Output Circuit for a short to ground condition. Perform BODY VERIFICATION TEST - VER 1.  No → Replace the PDC fuse #2. Perform BODY VERIFICATION TEST - VER 1.	All
8	Remove the Rear Window Defogger Relay. Turn the ignition on. Measure voltage of the Fused B+ Circuit in the Rear Window Defogger Relay connector. Is the voltage above 10.0 volts?  Yes → Go To 9 No → Repair the open Fused B+ Circuit from PDC fuse #2. Perform BODY VERIFICATION TEST - VER 1.	All

## ELECTRICALLY HEATED SYSTEMS

### \*REAR WINDOW DEFOGGER GRID INOPERATIVE — Continued

TEST	ACTION	APPLICABILITY
9	<p>Remove the Rear Window Defogger Relay. Install a known good relay in the Rear Window Defogger Relay connector. Turn the ignition on. Check the Rear Window Defogger for proper operation. Does the system operate normally?</p> <p>Yes → Replace the original Rear Window Defogger Relay. Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Go To 10</p>	All
10	<p>With the DRBIII®, actuate the R DEFOG RELAY. Using a 12-volt Test Light connected to ground, check the Rear Window Defogger Relay Output Circuit in the Fuse Block connector. Does the test light flash on and off when the relay is actuated?</p> <p>Yes → The condition that caused this symptom is currently not present. Inspect the related wiring harness for a possible intermittent condition. Look for any chafed, pierced, pinched or partially broken wires. Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Replace the Fuse Block. Perform BODY VERIFICATION TEST - VER 1.</p>	All
11	<p>Turn the ignition off. Disconnect the Instrument Cluster C2 connector. Disconnect the Rear Window Defogger Switch. Measure resistance of the Rear Window Defogger Switch Sense Circuit. Is the resistance below 5.0 ohms?</p> <p>Yes → Go To 12</p> <p>No → Repair the Rear Window Defogger Switch Sense Circuit for an open condition. Perform BODY VERIFICATION TEST - VER 1.</p>	All
12	<p>Turn the ignition off. Disconnect the Instrument Cluster C2 connector. Disconnect the Rear Window Defogger Switch connector. Measure resistance between ground and the Rear Window Defogger Switch Sense Circuit. Is the resistance below 5.0 ohms?</p> <p>Yes → Repair the Rear Window Defogger Switch Sense Circuit for a short to ground condition. Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Go To 13</p>	All

**\*REAR WINDOW DEFOGGER GRID INOPERATIVE — Continued**

TEST	ACTION	APPLICABILITY
13	<p>Turn the ignition off.            Disconnect the Instrument Cluster C2 connector.            Disconnect the Rear Window Defogger Switch connector.            Turn the ignition on.            Measure voltage between the Rear Window Defogger Switch Sense Circuit and ground.            Is any voltage present?</p> <p>Yes → Repair the Rear Window Switch Sense Circuit for a short to voltage condition.            Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Go To 14</p>	All
14	<p>Turn the ignition off.            Disconnect the Rear Window Defogger Switch connector.            Connect a jumper wire between the Rear Window Defogger Switch Sense circuit in the Defogger Switch connector to ground.            Turn the ignition on.            With the DRBIII®, read the R DEFOG SWITCH status.            Does the DRBIII® display R DEFOG SWITCH: CLOSED?</p> <p>Yes → Replace the Rear Window Defogger Switch.            Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Replace the Instrument Cluster.            Perform BODY VERIFICATION TEST - VER 1.</p>	All

### Symptom:

**ACM MESSAGE NOT REC'D BY MIC**

### When Monitored and Set Condition:

**ACM MESSAGE NOT REC'D BY MIC**

**When Monitored:** With the ignition in the Run/Start position, Instrument Cluster in power-up state.

**Set Condition:** The Instrument Cluster detects loss of communication with the Air Bag Control Module (ACM).

## POSSIBLE CAUSES

ACM MESSAGE NOT RECEIVED

TEST	ACTION	APPLICABILITY
1	<p>Turn the ignition on.</p> <p><b>NOTE: Ensure the Instrument Cluster communicates on the PCI Bus.</b></p> <p>With the DRBIII®, select Body, Electro/Mech Cluster, then read DTCs.</p> <p>Does the DRBIII® display ACM Message Not Rec'd by MIC?</p> <p>Yes → Refer to the COMMUNICATION category and perform the appropriate symptom. Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Test Complete.</p>	All

**Symptom:****AIR BAG LAMP CIRCUIT OPEN****When Monitored and Set Condition:****AIR BAG LAMP CIRCUIT OPEN**

**When Monitored:** With the ignition in the Run/Start position, Instrument Cluster in power-up state.

**Set Condition:** The Instrument Cluster performs an indicator check when the indicator is commanded on or off by the ACM. If an open lamp failure is detected, the Cluster sends this message to the ACM.

**POSSIBLE CAUSES**

INSTRUMENT CLUSTER

TEST	ACTION	APPLICABILITY
1	Turn the ignition on. <b>NOTE: Ensure the Instrument Cluster and the Air Bag Control Module communicate on the PCI Bus.</b> <b>NOTE: The Airbag indicator can only be turned on or off by the ACM. The Instrument Cluster reports the indicator status to the ACM on the PCI Bus.</b> With the DRBIII®, read DTCs. Does the DRBIII® display Air Bag Lamp Circuit Open?  Yes → Replace the Instrument Cluster in accordance with the Service Information. Perform BODY VERIFICATION TEST - VER 1.  No → Test Complete.	All

## Symptom: AIR BAG LAMP CIRCUIT SHORT

### When Monitored and Set Condition:

#### AIR BAG LAMP CIRCUIT SHORT

**When Monitored:** With the ignition in the Run/Start position, the Instrument Cluster in power-up state.

**Set Condition:** The Instrument Cluster performs an indicator check when the indicator is commanded on by the ACM. If a shorted lamp failure is detected, the Cluster sends this message to the ACM.

### POSSIBLE CAUSES

INSTRUMENT CLUSTER

TEST	ACTION	APPLICABILITY
1	<p>Turn the ignition on.</p> <p><b>NOTE: Ensure the Instrument Cluster and the Air Bag Control Module communicate on the PCI Bus.</b></p> <p><b>NOTE: The Airbag indicator can only be turned on or off by the ACM. The Instrument Cluster reports the status of the indicator to the ACM on the PCI Bus.</b></p> <p>With the DRBIII®, read DTCs.</p> <p>Does the DRBIII® display Air Bag Lamp Circuit Shorted?</p> <p>Yes → Replace the Instrument Cluster in accordance with the Service Information. Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Test Complete.</p>	All



**Symptom:**  
**CHECKSUM FAILURE**

**When Monitored and Set Condition:**

**CHECKSUM FAILURE**

When Monitored: Instrument Cluster detects battery connection.

Set Condition: Instrument Cluster fails EEPROM checksum test. (The Instrument Cluster performs an EEPROM checksum as a continuous self test to verify functionality.)

**POSSIBLE CAUSES**

INSTRUMENT CLUSTER

TEST	ACTION	APPLICABILITY
1	Turn the ignition on. With the DRBIII®, select Body, then Electro/Mech Cluster, read DTCs. Does the DRBIII® display Checksum Failure?  Yes → Replace the Instrument Cluster in accordance with the Service Information. Perform BODY VERIFICATION TEST - VER 1.  No → Test Complete.	All

## Symptom: PANEL DIMMER OPEN

### When Monitored and Set Condition:

#### PANEL DIMMER OPEN

**When Monitored:** The Instrument Cluster detects Battery voltage input on the Head-lamp Switch Output circuit.

**Set Condition:** The Instrument Cluster detects the Panel Lamp Dimmer Signal circuit resistance is greater than 9250 ohms @ 13.5VDC for 5 (five) seconds. During an open circuit condition, the VF display and general panel illumination will default to full intensity.

#### POSSIBLE CAUSES

INTERMITTENT CONDITION  
PANEL LAMP DIMMER SIGNAL CIRCUIT OPEN  
MULTI-FUNCTION SWITCH  
MULTI-FUNCTION SWITCH GROUND CIRCUIT OPEN  
INSTRUMENT CLUSTER

TEST	ACTION	APPLICABILITY
1	Turn the ignition on. With the DRBIII®, erase DTCs. Cycle the ignition. With the DRBIII®, read DTCs. Does the DRBIII® display Panel Dimmer Open?  Yes → Go To 2  No → The condition is not present at this time. Monitor DRBIII® parameters while wiggling the related wire harness. Refer to any Technical Service Bulletins (TSB) that may apply. Visually inspect the related wiring harness and connector terminals. Perform BODY VERIFICATION TEST - VER 1.	All
2	Turn the ignition off. Disconnect the Instrument Cluster C2 harness connector. Disconnect the Multi-Function Switch harness connector. Check connectors - Clean/repair as necessary. Measure the resistance of the Panel Lamp Dimmer Signal circuit. Is the resistance below 5.0 ohms?  Yes → Go To 3  No → Repair the Panel Lamp Dimmer Signal circuit for an open. Perform BODY VERIFICATION TEST - VER 1.	All

**PANEL DIMMER OPEN — Continued**

TEST	ACTION	APPLICABILITY
3	<p>Turn the ignition off. Disconnect the Multi-Function Switch harness connector. Check connectors - Clean/repair as necessary. Measure the resistance of the Multi-Function Switch between terminal pin 7 and terminal pin 8. Does the resistance measure above 9250 ohms?</p> <p>Yes → Replace the Multi-Function Switch in accordance with the Service Information. Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Go To 4</p>	All
4	<p>Turn the ignition off. Disconnect the Multi-Function Switch harness connector. Check connectors - Clean/repair as necessary. Measure the resistance between ground and the Multi-Function Switch Ground circuit. Is the resistance below 5.0 ohms?</p> <p>Yes → Replace the Instrument Cluster in accordance with the Service Information. Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Repair the Multi-Function Switch Ground circuit for an open. Perform BODY VERIFICATION TEST - VER 1.</p>	All

### Symptom:

**PCM MESSAGE NOT REC'D BY MIC**

### When Monitored and Set Condition:

**PCM MESSAGE NOT REC'D BY MIC**

**When Monitored:** With the ignition in the Run/Start position, Instrument Cluster in power-up state.

**Set Condition:** The Instrument Cluster detects loss of communication with Powertrain Control Module (PCM). .

## POSSIBLE CAUSES

PCM MESSAGE NOT REC'D BY MIC

TEST	ACTION	APPLICABILITY
1	<p>Turn the ignition on.</p> <p><b>NOTE: Ensure the Instrument Cluster communicates on the PCI Bus.</b></p> <p>With the DRBIII®, select Body, Electro/Mech Cluster, then read DTCs.</p> <p>Does the DRBIII® display NO RESPONSE FROM PCM (PCI)?</p> <p>Yes → Refer to the COMMUNICATION category and perform the appropriate symptom. Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Test Complete.</p>	All

**SKIM MESSAGE NOT REC'D BY MIC**

**Set Condition:** The Instrument Cluster detects loss of communication with the Sentry Key Immobilizer Module (SKIM). .

SKIM MESSAGE NOT RECEIVED

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## INSTRUMENT CLUSTER

### Symptom:

#### \*4WD INDICATOR INOPERATIVE

POSSIBLE CAUSES
TRANSFER CASE SWITCH
TRANSFER CASE SWITCH GROUND CIRCUIT OPEN
INDICATOR CIRCUIT OPEN
INDICATOR LED
INSTRUMENT CLUSTER

TEST	ACTION	APPLICABILITY
1	<p>Turn the ignition on.            With the DRBIII®, select Body, MIC, then Inputs/Outputs.            Move the transfer case shift lever from the 2H to the 4H or 4L position.            Does the DRBIII® display 4WD Switch "Closed" with the shift lever in the 4H or 4L position?</p> <p>Yes → Go To 5</p> <p>No → Go To 2</p>	All
2	<p>Turn the ignition off.            Disconnect the Transfer Case Switch harness connector.            Connect a jumper wire between cavity A and cavity B.            Turn the ignition on.            With the DRBIII®, read the 4WD Switch input.            Does the DRBIII® display "Closed".</p> <p>Yes → Replace the Transfer Case Switch in accordance with the Service Information.            Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Go To 3</p>	All
3	<p>Turn the ignition off.            Disconnect the Transfer Case Switch harness connector.            Connect a jumper wire between the Indicator circuit and ground.            Turn the ignition on.            With the DRBIII®, read the 4WD Switch state.            Does the DRBIII® display "Closed"?</p> <p>Yes → Go To 4</p> <p>No → Repair the 4WD Indicator circuit for an open.            Perform BODY VERIFICATION TEST - VER 1.</p>	All
4	<p>Turn the ignition off.            Disconnect the Transfer Case Switch harness connector.            Measure the resistance between ground and the Transfer Case Switch Ground circuit.            Is the resistance below 5.0 ohms?</p> <p>Yes → Go To 5</p> <p>No → Repair the Transfer Case Switch Ground circuit for an open.            Perform BODY VERIFICATION TEST - VER 1.</p>	All

**\*4WD INDICATOR INOPERATIVE — Continued**

TEST	ACTION	APPLICABILITY
5	<p>Turn the ignition off. Remove the Instrument Cluster. Remove the indicator LED from the Instrument Cluster. Using a DVOM, select "Diode Mode", and connect the leads across the LED. <b>NOTE: Ensure that the RED lead is attached to the "+" of the LED.</b> Did the LED illuminate?</p> <p>Yes → Replace the Instrument Cluster in accordance with the Service Information. Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Replace the Indicator LED in accordance with the Service Information. Perform BODY VERIFICATION TEST - VER 1.</p>	All

## INSTRUMENT CLUSTER

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### Symptom:

#### \*ABS INDICATOR INOPERATIVE

#### POSSIBLE CAUSES

ABS DTC

INSTRUMENT CLUSTER

TEST	ACTION	APPLICABILITY
1	<p><b>NOTE: The Instrument Cluster ABS Indicator will not illuminate during the cluster Self Test. The indicator is controlled by PCI Bus messages received from the CAB.</b></p> <p><b>NOTE: The CAB will command the ABS Indicator on when the ignition is cycled to the Run/Start position.</b></p> <p>With the DRBIII®, read DTCs. Does the DRBIII® display any ABS DTCs?</p> <p>Yes → Refer to the Anti-Lock Brake System category and perform the appropriate symptom. Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Replace the Instrument Cluster in accordance with the Service Information. Perform BODY VERIFICATION TEST - VER 1.</p>	All



**Symptom:****\*AIR BAG INDICATOR INOPERATIVE****POSSIBLE CAUSES**

INSTRUMENT CLUSTER

AIR BAG INDICATOR DTC

TEST	ACTION	APPLICABILITY
1	<p><b>NOTE: The Instrument Cluster Air Bag Indicator will not illuminate during the cluster Self Test. The indicator is controlled by PCI Bus messages received from the Air Bag Control Module (ACM).</b></p> <p><b>NOTE: The ACM will command the indicator on when the ignition is cycled to the Run/Start position.</b></p> <p>With the DRBIII®, select Body, then MIC, read DTCs. Does the DRBIII® display Air Bag Lamp Open or Air Bag Lamp Shorted?</p> <p>Yes → Refer to the Service Information and perform the appropriate symptom. Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Replace the Instrument Cluster in accordance with the Service Information. Perform BODY VERIFICATION TEST - VER 1.</p>	All

## INSTRUMENT CLUSTER

### Symptom:

#### **\*ALL GAUGES INOPERATIVE**

#### POSSIBLE CAUSES

NO RESPONSE - PCI BUS

NO RESPONSE - PCI BUS - POWERTRAIN CONTROL MODULE

FUSED IGNITION SWITCH CIRCUIT SHORT TO GROUND

NO RESPONSE - PCI BUS - INSTRUMENT CLUSTER

FUSED IGNITION SWITCH OUTPUT CIRCUIT OPEN

INSTRUMENT CLUSTER GROUND CIRCUIT OPEN

INSTRUMENT CLUSTER

TEST	ACTION	APPLICABILITY
1	Turn the ignition on. With the DRBIII®, select System Monitors, then J1850 Module Scan. Does the DRBIII® display MIC PRESENT on the BUS?  Yes → Go To 2  No → Refer to the COMMUNICATION category and perform the appropriate symptom. Perform BODY VERIFICATION TEST - VER 1.	All
2	Turn the ignition on. With the DRBIII®, select Body, MIC, MODULE DISPLAY. Does the DRBIII® display NO RESPONSE from MIC?  Yes → Refer to the symptom list for problems related to *NO RESPONSE FROM THE INSTRUMENT CLUSTER. Perform BODY VERIFICATION TEST - VER 1.  No → Go To 3	All
3	Turn the ignition on. With the DRBIII®, select Body, MIC, SYSTEM TESTS, PCM Monitor. Does the DRBIII® display PCM INACTIVE ON THE BUS?  Yes → Refer to the symptom list for problems related to *NO RESPONSE FROM THE POWERTRAIN CONTROL MODULE. Perform BODY VERIFICATION TEST - VER 1.  No → Go To 4	All

**\*ALL GAUGES INOPERATIVE — Continued**

TEST	ACTION	APPLICABILITY
4	<p>Turn the ignition off.  Inspect the #10 Fuse in the Fuse Block.  If the fuse is open, replace with proper rated fuse.  Turn the ignition on for one minute.  Turn the ignition off.  Inspect the #10 Fuse in the Fuse Block.  Is the fuse open?</p> <p>Yes → Repair the Fused Ignition Switch Output circuit for a short to ground.  Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Go To 5</p>	All
5	<p>Turn the ignition off.  Disconnect the Instrument Cluster C1 harness connector.  Check connectors - Clean/repair as necessary.  Turn the ignition on.  Measure the voltage between the Fused Ignition Switch Output circuit and ground.  Is the voltage above 10.5 volts?</p> <p>Yes → Go To 6</p> <p>No → Repair the Fused Ignition Switch Output circuit for an open.  Perform BODY VERIFICATION TEST - VER 1.</p>	All
6	<p>Turn the ignition off.  Disconnect the Instrument Cluster C1 harness connector.  Check connectors - Clean/repair as necessary.  Measure the resistance between ground and the Instrument Cluster Ground circuit.  Is the resistance below 5.0 ohms?</p> <p>Yes → Replace the Instrument Cluster in accordance with the Service Information.  Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Repair the Instrument Cluster Ground circuit for an open.  Perform BODY VERIFICATION TEST - VER 1.</p>	All

## INSTRUMENT CLUSTER

### Symptom:

#### \*ANY PCI BUS INDICATOR INOPERATIVE

POSSIBLE CAUSES
NO RESPONSE - PCI BUS
NO RESPONSE - INSTRUMENT CLUSTER
NO RESPONSE - POWERTRAIN CONTROL MODULE
INOPERATIVE INDICATOR
INSTRUMENT CLUSTER

TEST	ACTION	APPLICABILITY
1	<p>Turn the ignition on. With the DRBIII®, select System Monitors, then J1850 Module Scan. Does the DRBIII® display MIC PRESENT on the Bus?</p> <p>Yes → Go To 2</p> <p>No → Refer to the COMMUNICATION category and perform the appropriate symptom. Perform BODY VERIFICATION TEST - VER 1.</p>	All
2	<p>Turn the ignition on. With the DRBIII®, Select Body, MIC, then MODULE DISPLAY. Does the DRBIII® display NO RESPONSE from MIC?</p> <p>Yes → Refer to the symptom list for problems related to *NO RESPONSE FROM THE INSTRUMENT CLUSTER Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Go To 3</p>	All
3	<p>Turn the ignition on. With the DRBIII®, select Body, MIC, SYSTEM TESTS, PCM MONITOR. Does the DRBIII® display PCM INACTIVE on the BUS?</p> <p>Yes → Refer to the symptom list for problems related to *NO RESPONSE FROM THE POWERTRAIN CONTROL MODULE Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Go To 4</p>	All
4	<p><b>NOTE: Diagnose and repair any PCM DTCs before proceeding with this test.</b> Perform the Instrument Cluster Self Test. Observe the indicator in question during the Self Test. Did the indicator illuminate?</p> <p>Yes → Refer to the appropriate Service Information category to diagnose the related system. Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Replace the Instrument Cluster in accordance with the Service Information. Perform BODY VERIFICATION TEST - VER 1.</p>	All

**Symptom:****\*BRAKE WARNING INDICATOR ALWAYS ON****POSSIBLE CAUSES**

BRAKE WARNING INDICATOR CIRCUIT SHORT TO GROUND

BRAKE WARNING INDICATOR SWITCH

PARK BRAKE SWITCH

TEST	ACTION	APPLICABILITY
1	<p><b>NOTE: Ensure that the Base brake system functions properly and that the Brake Master Cylinder is filled with proper amount of fluid.</b></p> <p><b>NOTE: If equipped, diagnose and repair any ABS DTCs before continuing with this test.</b></p> <p>Turn the ignition off.</p> <p>Disconnect the Park Brake Switch harness connector.</p> <p>Turn the ignition on and observe the Brake Warning Indicator.</p> <p>Does the Brake Warning Indicator remain illuminated?</p> <p>Yes → Go To 2</p> <p>No → Replace the Park Brake Switch in accordance with the Service Information.</p> <p>Perform BODY VERIFICATION TEST - VER 1.</p>	All
2	<p>Turn the ignition off.</p> <p>Disconnect the Brake Warning Indicator Switch harness connector.</p> <p>Connect a jumper wire between cavity 1 and cavity 2.</p> <p>Turn the ignition on and observe the Brake Warning Indicator.</p> <p>Does the Brake Warning Indicator remain illuminated?</p> <p>Yes → Repair the Brake Warning Indicator circuit for a short to ground.</p> <p>Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Replace the Brake Warning Indicator Switch in accordance with the Service Information.</p> <p>Perform BODY VERIFICATION TEST - VER 1.</p>	All

## INSTRUMENT CLUSTER

### Symptom:

#### \*BRAKE WARNING INDICATOR INOPERATIVE

POSSIBLE CAUSES
BRAKE WARNING INDICATOR CIRCUIT SHORT TO VOLTAGE
BRAKE WARNING INDICATOR CIRCUIT OPEN
BRAKE WARNING INDICATOR SWITCH
PARK BRAKE SWITCH
INSTRUMENT CLUSTER

TEST	ACTION	APPLICABILITY
1	Turn the ignition off. Perform the Instrument Cluster Self Test. Did the Brake Warning Indicator illuminate during the Self Test?  Yes → Go To 2  No → Replace the Instrument Cluster in accordance with the Service Information. Perform BODY VERIFICATION TEST - VER 1.	All
2	Turn the ignition off. Disconnect the Instrument Cluster C2 harness connector. Check connectors - Clean/repair as necessary. Measure the voltage between the Brake Warning Indicator circuit and ground. Is there any voltage present?  Yes → Repair the Brake Warning Indicator circuit for a short to voltage. Perform BODY VERIFICATION TEST - VER 1.  No → Go To 3	All
3	<b>NOTE: Ensure that the Instrument Cluster harness connector is connected.</b> Turn the ignition off. Disconnect the Brake Warning Indicator Switch (Pressure Switch) harness connector. Connect a jumper wire between cavity 1 and cavity 2. Disconnect the Park Brake Switch harness connector. Connect a jumper wire between the Brake Warning Indicator circuit and ground. Turn the ignition on and observe the Brake Warning Indicator. Does the Brake Warning Indicator illuminate?  Yes → Replace the Park Brake Switch in accordance with the Service Information. Perform BODY VERIFICATION TEST - VER 1.  No → Go To 4	All

**\*BRAKE WARNING INDICATOR INOPERATIVE — Continued**

TEST	ACTION	APPLICABILITY
4	<p>Turn the ignition off. Disconnect the Instrument Cluster C2 harness connector. Disconnect the Park Brake Switch harness connector. Disconnect the Brake Warning Indicator Switch harness connector. Connect a jumper wire between cavity 1 and cavity 2. Measure the resistance of the Brake Warning Indicator circuit. Is the resistance below 5.0 ohms?</p> <p>Yes → Replace the Brake Warning Indicator Switch in accordance with the Service Information. Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Repair the Brake Warning Indicator circuit for an open. Perform BODY VERIFICATION TEST - VER 1.</p>	All

## Symptom:

### \*FOG LAMP INDICATOR INOPERATIVE - DOMESTIC

#### POSSIBLE CAUSES

FOG LAMP INDICATOR CIRCUIT OPEN

INSTRUMENT CLUSTER

TEST	ACTION	APPLICABILITY
1	<p><b>NOTE: Ensure that the Fog Lamps operate properly. If not, refer to EXTERIOR LIGHTING in the Service Information.</b></p> <p><b>NOTE: The Headlamps must be on Low Beam for indicator to operate.</b></p> <p>Turn the ignition off.</p> <p>Disconnect the Instrument Cluster.</p> <p>Check connectors - Clean/repair as necessary.</p> <p>Turn the Headlamps on and actuate the Fog Lamps.</p> <p>Using a 12-volt test light connected to ground, check the Fog Lamp Indicator circuit.</p> <p>Does the test light illuminate brightly?</p> <p>Yes → Replace the Instrument Cluster in accordance with the Service Information.</p> <p>Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Repair the Fog Lamp Indicator circuit for an open.</p> <p>Perform BODY VERIFICATION TEST - VER 1.</p>	All



**Symptom:****\*HIGH BEAM INDICATOR INOPERATIVE****POSSIBLE CAUSES**

HIGH BEAM INDICATOR CIRCUIT OPEN

INDICATOR BULB

INSTRUMENT CLUSTER

TEST	ACTION	APPLICABILITY
1	<p><b>NOTE: Ensure that the Headlamp High Beams operate properly. If not, refer to the Exterior Lighting Service Information.</b></p> <p>Turn the ignition off.            Disconnect the Instrument Cluster C1 harness connector.            Check connectors - Clean/repair as necessary.            Turn the Headlamps on and actuate the High Beams.  <b>NOTE: Ensure that the Fog Lamps are not actuated (Domestic vehicles only).</b>            Using a 12-volt test light connected to ground, back probe the High Beam Indicator circuit.            Does the test light illuminate brightly?</p> <p>Yes → Go To 2</p> <p>No → Repair the Dimmer Switch High Beam Output circuit for an open.            Perform BODY VERIFICATION TEST - VER 1.</p>	All
2	<p>Turn the ignition off.            Disconnect the Instrument Cluster.            Check connectors - Clean/repair as necessary.            Remove and inspect the High Beam Indicator bulb.            Is the indicator bulb filament open?</p> <p>Yes → Replace the High Beam Indicator Bulb in accordance with the Service Information.            Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Replace the Instrument Cluster in accordance with the Service Information.            Perform BODY VERIFICATION TEST - VER 1.</p>	All

## INSTRUMENT CLUSTER

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### Symptom:

**\*NO BUS IN VF DISPLAY**

#### POSSIBLE CAUSES

PCI BUS MESSAGES NOT REC'D BY MIC  
INSTRUMENT CLUSTER

TEST	ACTION	APPLICABILITY
1	Turn the ignition on. With the DRBIII®, select J1850 Module Scan. Does the DRBIII® display MIC in the J1850 Module Scan?  Yes → Replace the Instrument Cluster in accordance with the Service Information. Perform BODY VERIFICATION TEST - VER 1.  No → Refer to the COMMUNICATION category and perform the appropriate symptom. Perform BODY VERIFICATION TEST - VER 1.	All

**Symptom:****\*NO FUSE IN VF DISPLAY****POSSIBLE CAUSES**

FUSED B+ CIRCUIT SHORT TO GROUND

FUSED B+ CIRCUIT OPEN

INSTRUMENT CLUSTER

TEST	ACTION	APPLICABILITY
1	Turn the ignition off. Inspect the #24 fuse in the Power Distribution Center. If the fuse is open, replace with proper rated fuse. Turn the ignition on for one minute. Turn the ignition off. Inspect the #24 fuse in the Power Distribution Center. Is the fuse open?  Yes → Repair the Fused B(+) circuit for a short to ground. Perform BODY VERIFICATION TEST - VER 1.  No → Go To 2	All
2	Turn the ignition off. Disconnect the Instrument Cluster C1 harness connector. Check connectors - Clean/repair as necessary. Measure the voltage between the Fused B(+) circuit and ground. Is the voltage above 10.5 volts?  Yes → Replace the Instrument Cluster in accordance with the Service Information. Perform BODY VERIFICATION TEST - VER 1.  No → Repair the Fused B(+) circuit for an open. Perform BODY VERIFICATION TEST - VER 1.	All

## INSTRUMENT CLUSTER

### Symptom:

#### \*ONE GAUGE INOPERATIVE

POSSIBLE CAUSES
INTERMITTENT CONDITION
POWERTRAIN CONTROL MODULE DTCS
INSTRUMENT CLUSTER

TEST	ACTION	APPLICABILITY
1	<p>Turn the ignition on. With the DRBIII®, read DTCs. <b>NOTE: The PCM will not store any DTCs regarding Oil Pressure concerns.</b> <b>NOTE: If Oil Pressure gauge readings are in question and the gauge tests good, a mechanical oil pressure gauge must be attached to the engine.</b> Does the DRBIII® display any PCM DTCs?</p> <p>Yes → Refer to the DRIVEABILITY category and perform the appropriate symptom. Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Go To 2</p>	All
2	<p>Turn the ignition off. Perform the Instrument Cluster Self Test. Observe the gauge in question while the Instrument Cluster performs the Self Test. The gauges should position at the following calibration points: Speedometer: 20mph (40km/h BUX), 55mph (80km/h BUX), 75mph (120km/h BUX) Tachometer: 2000, 5000 Fuel: Empty Stop, E, 1/2, F, Full Stop Temperature: Lo, Mid Lo, Mid High, High Oil Pressure: 0, 40, 60, Volt: Off, 9, 12, 14, 16, 19 Did the gauge in question operate properly?</p> <p>Yes → The condition is not present at this time. Monitor DRBIII® parameters while wiggling the related wire harness. Refer to any Technical Service Bulletins (TSB) that may apply. Visually inspect the related wiring harness and connector terminals. Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Replace the Instrument Cluster in accordance with the Service Information. Perform BODY VERIFICATION TEST - VER 1.</p>	All

**Symptom:****\*PANEL DIMMING INOPERATIVE****POSSIBLE CAUSES**

INSTRUMENT CLUSTER PANEL DIMMING DTC

PARK LAMP FEED CIRCUIT OPEN

ILLUMINATION BULB

INSTRUMENT CLUSTER

TEST	ACTION	APPLICABILITY
1	<p><b>NOTE: Ensure that the Park/Headlamps operate properly before continuing with this test.</b></p> <p><b>NOTE: Ensure that other Instrument Cluster functions operate properly before continuing with this test.</b></p> <p>Turn the ignition on.</p> <p>With the DRBIII®, select Body, Electro/Mech Cluster, read DTCs.</p> <p>Does the DRBIII® display PANEL DIMMER OPEN?</p> <p>Yes → Refer to PANEL DIMMER OPEN DTC in the Service Information.</p> <p>Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Go To 2</p>	All
2	<p>Turn the ignition off.</p> <p>Disconnect the Instrument Cluster C1 harness connector.</p> <p>Check connectors - Clean/repair as necessary.</p> <p>Turn the Park lamps on.</p> <p>Measure the voltage between the Park Lamp Feed circuit and ground.</p> <p>Is the voltage above 10.5 volts?</p> <p>Yes → Go To 3</p> <p>No → Repair the Park Lamp Feed circuit for an open.</p> <p>Perform BODY VERIFICATION TEST - VER 1.</p>	All
3	<p>Turn the ignition off.</p> <p>Disconnect the Instrument Cluster C1 harness connector.</p> <p>Check connectors - Clean/repair as necessary.</p> <p>Remove and inspect the inoperative illumination bulb(s).</p> <p>Is the illumination bulb filament open?</p> <p>Yes → Replace the Instrument Cluster Illumination Bulb(s) in accordance with the Service Information.</p> <p>Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Replace the Instrument Cluster in accordance with the Service Information.</p> <p>Perform BODY VERIFICATION TEST - VER 1.</p>	All

## INSTRUMENT CLUSTER

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### Symptom:

**\*REAR FOG LAMP INDICATOR INOPERATIVE - BUX ONLY**

#### POSSIBLE CAUSES

REAR FOG LAMP INDICATOR CIRCUIT OPEN  
INSTRUMENT CLUSTER

TEST	ACTION	APPLICABILITY
1	<p><b>NOTE: Ensure that the Rear Fog Lamp operates properly. If not, refer to EXTERIOR LIGHTING in the Service Information.</b></p> <p><b>NOTE: Headlamps must be turned on for Rear Fog Lamp and indicator to operate.</b></p> <p>Turn the ignition off. Disconnect the Instrument Cluster. Check connectors - Clean/repair as necessary. Turn on the Headlamps and Rear Fog Lamp. Using a 12-volt test light connected to ground, check the Rear Fog Lamp Indicator circuit. Does the test light illuminate brightly?</p> <p>Yes → Replace the Instrument Cluster in accordance with the Service Information. Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Repair the Fog Lamp Indicator circuit for an open. Perform BODY VERIFICATION TEST - VER 1.</p>	All

**Symptom:****\*SEAT BELT INDICATOR NOT OPERATING PROPERLY****POSSIBLE CAUSES**

SEAT BELT SWITCH SENSE CIRCUIT SHORT TO GROUND

SEAT BELT SWITCH SENSE CIRCUIT OPEN

SEAT BELT SWITCH GROUND CIRCUIT OPEN

SEAT BELT SWITCH

SEAT BELT SWITCH SENSE CIRCUIT SHORT TO VOLTAGE

INSTRUMENT CLUSTER

TEST	ACTION	APPLICABILITY
1	Turn the ignition on. With the DRBIII® in Inputs/Outputs, read the Driver Belt Switch state while buckling and unbuckling the Seat Belt. Does the DRBIII® display Open while the belt is buckled and Closed while unbuckled?  Yes → Go To 2 No → Go To 3	All
2	Turn the ignition off. Perform the Instrument Cluster Self Test while observing the Seat Belt Indicator. Did the Seat Belt Indicator illuminate during the Self Test?  Yes → Test Complete. No → Replace the Instrument Cluster in accordance with the Service Information. Perform BODY VERIFICATION TEST - VER 1.	All
3	Turn the ignition off. Disconnect the Instrument Cluster C2 harness connector. Check connectors - Clean/repair as necessary. <b>NOTE: Ensure that the Seat Belt is buckled.</b> Measure the voltage between the Seat Belt Switch Sense circuit and ground. Is there any voltage present?  Yes → Repair the Seat Belt Switch Sense circuit for a short to voltage. Perform BODY VERIFICATION TEST - VER 1.  No → Go To 4	All
4	Turn the ignition off. Disconnect the Seat Belt Switch harness connector. Disconnect the Instrument Cluster C2 harness connector. Check connectors - Clean/repair as necessary. Measure the resistance between ground and the Seat Belt Switch Sense circuit. Is the resistance below 5.0 ohms?  Yes → Repair the Seat Belt Switch Sense circuit for a short to ground. Perform BODY VERIFICATION TEST - VER 1.  No → Go To 5	All

## \*SEAT BELT INDICATOR NOT OPERATING PROPERLY — Continued

TEST	ACTION	APPLICABILITY
5	<p>Turn the ignition off.            Disconnect the Seat Belt Switch harness connector.            Disconnect the Instrument Cluster C2 harness connector.            Check connectors - Clean/repair as necessary.            Measure the resistance of the Seat Belt Switch Sense circuit.            Is the resistance above 5.0 ohms?</p> <p>Yes → Repair the Seat Belt Switch Sense circuit for an open.            Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Go To 6</p>	All
6	<p>Turn the ignition off.            Disconnect the Seat Belt Switch harness connector.            Check connectors - Clean/repair as necessary.            Measure the resistance between ground and the Seat Belt Switch Ground circuit.            Is the resistance below 5.0 ohms?</p> <p>Yes → Replace the Seat Belt Switch in accordance with the Service Information.            Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Repair the Seat Belt Switch Ground circuit for an open.            Perform BODY VERIFICATION TEST - VER 1.</p>	All



**Symptom:****\*VF DISPLAY INOPERATIVE****POSSIBLE CAUSES**

INSTRUMENT CLUSTER

TEST	ACTION	APPLICABILITY
1	<b>NOTE: Ensure that all other Instrument Cluster functions operate properly.</b> Turn the ignition off. Perform the Instrument Cluster Self Test. Did any or all of the VF display fail to operate?  Repair Replace the Instrument Cluster in accordance with the Service Information. Perform BODY VERIFICATION TEST - VER 1.	All

## INSTRUMENT CLUSTER

### Symptom:

#### \*VF ODOMETER INOPERATIVE WITH DOOR OPEN

POSSIBLE CAUSES
DEFECTIVE FUSE DOOR AJAR SENSE CIRCUIT SHORT TO VOLTAGE AJAR SWITCH DOOR AJAR SWITCH SENSE CIRCUIT OPEN DOOR AJAR SWITCH GROUND CIRCUIT OPEN INSTRUMENT CLUSTER

TEST	ACTION	APPLICABILITY
1	Turn the ignition off. Inspect the #4 fuse in the Fuse Block. If the fuse is open, replace with proper rated fuse. <b>NOTE: Ensure that the ignition is in the off position.</b> Open the door(s). Inspect the #4 fuse in the Fuse Block. Is the fuse open?  Yes → Go To 2 No → Go To 3	All
2	Turn the ignition off. Disconnect the Instrument Cluster C2 harness connector. Check connectors - Clean/repair as necessary. Measure the voltage between the Door Ajar Switch Sense circuit and ground. <b>NOTE: This test will work for either the Driver or Passenger Door Ajar Switch Sense circuit.</b> Is there any voltage present?  Yes → Repair the Door Ajar Switch Sense circuit for a short to voltage. Perform BODY VERIFICATION TEST - VER 1.  No → Go To 3	All
3	Turn the ignition off. Disconnect the Door Ajar Switch harness connector. <b>NOTE: This test will work for the Driver or Passenger Door Ajar Switch.</b> Connect a jumper wire between cavity 1 and cavity 3. Does the VF Odometer illuminate?  Yes → Replace the inoperative Door Ajar Switch in accordance with the Service Information. Perform BODY VERIFICATION TEST - VER 1.  No → Go To 4	All

**\*VF ODOMETER INOPERATIVE WITH DOOR OPEN — Continued**

TEST	ACTION	APPLICABILITY
4	<p>Turn the ignition off.            Disconnect the Door Ajar Switch harness connector.            Connect a jumper wire between the Door Ajar Switch Sense circuit and ground.  <b>NOTE: This test will work for the Driver or Passenger Door Ajar Switch Sense circuit.</b>            Does the VF display illuminate?</p> <p>Yes → Go To 5</p> <p>No → Repair the Door Ajar Switch Sense circuit for an open.            Perform BODY VERIFICATION TEST - VER 1.</p>	All
5	<p>Turn the ignition off.            Disconnect the Door Ajar Switch harness connector.            Check connectors - Clean/repair as necessary.            Measure the resistance between ground and the Door Ajar Switch Ground circuit.  <b>NOTE: This test will work for the Driver or Passenger Door Ajar Switch.</b>            Is the resistance below 5.0 ohms?</p> <p>Yes → Replace the Instrument Cluster in accordance with the Service Information.            Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Repair the Door Ajar Switch Ground circuit for an open.            Perform BODY VERIFICATION TEST - VER 1.</p>	All

## INTERIOR LIGHTING

### Symptom:

#### \*COURTESY LAMPS INOPERATIVE - ALL LAMPS

POSSIBLE CAUSES
FUSED B+ CIRCUIT OPEN
INSTRUMENT CLUSTER - COURTESY LAMP OPEN
COURTESY LAMP FEED CIRCUIT OPEN
INTERMITTENT CONDITION

TEST	ACTION	APPLICABILITY
1	Remove the dome lamp lens. Remove and ensure the bulb is good. Using a 12-volt test light connected to ground, check the Fused B+ circuit. Does the test light illuminate brightly?  Yes → Go To 2  No → Repair the Fused B+ Circuit for an open condition. Perform BODY VERIFICATION TEST - VER 1.	All
2	Disconnect the Instrument Cluster. Connect a jumper wire between the Courtesy Lamp Feed Circuit and ground. Observe the Dome Lamp. Does the test light illuminate brightly?  Yes → Replace the Instrument Cluster. Perform BODY VERIFICATION TEST - VER 1.  No → Go To 3	All
3	Remove the dome lamp bulb. Disconnect the Instrument Cluster. Connect a jumper wire between the Courtesy Lamp Feed Circuit in the Instrument Cluster connector and ground. Measure resistance of the Courtesy Lamp Feed Circuit from the Dome Lamp to the Instrument Cluster connector. Is the resistance below 5.0 ohms?  Yes → Repair the Courtesy Lamp Feed Circuit for an open condition. Perform BODY VERIFICATION TEST - VER 1.  No → The condition that caused this symptom is currently not present. Inspect the related wiring for a possible intermittent condition. Look for any chafed, pierced, pinched or partially broken wires. Perform BODY VERIFICATION TEST - VER 1.	All

**Symptom:**

**\*COURTESY LAMPS ON AT ALL TIMES**

POSSIBLE CAUSES	
DRIVERS DOOR AJAR SWITCH	
DRIVERS DOOR AJAR SWITCH SENSE CIRCUIT SHORT TO GROUND	
INSTRUMENT CLUSTER	
PANEL LAMPS DIMMER SIGNAL CIRCUIT SHORT TO GROUND	
MULTIFUNCTION SWITCH	
DOOR AJAR SWITCH OPEN	
PASSENGER DOOR AJAR SWITCH SENSE CIRCUIT SHORT TO GROUND	
COURTESY LAMP DRIVER CIRCUIT SHORT TO GROUND	
INSTRUMENT CLUSTER	

TEST	ACTION	APPLICABILITY
1	<p>Close all the doors. Turn the Panel Lamps Dimmer Switch to the MID position. With the DRBIII®, read the Electro/Mech Cluster, I/O's. Does the DRBIII® read CLOSED?</p> <p>Yes → Go To 2</p> <p>No → Go To 6</p>	All
2	<p>Open the Drivers door. Disconnect the Driver Door Ajar Switch connector. With the DRBIII® select: Body, Electro/Mech Cluster, Input/Output. Read the: Drv Door Ajar Sw - state. Does the DRBIII® show: Open?</p> <p>Yes → Replace the Drivers Door Ajar Switch. Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Go To 3</p>	All
3	<p>Turn the ignition off. Disconnect the Driver Door Ajar Switch connector. Disconnect the Instrument Cluster connector. Measure resistance of the Driver Door Ajar Switch Sense Circuit from the door ajar switch connector to ground. Is the resistance below 100.0 ohms?</p> <p>Yes → Repair the Drivers Door Ajar Switch Sense Circuit for a short to ground condition. Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Go To 4</p>	All

## INTERIOR LIGHTING

### \*COURTESY LAMPS ON AT ALL TIMES — Continued

TEST	ACTION	APPLICABILITY
4	<p>Turn the Panel Lamps Dimmer to the MID position.  Remove the Instrument Cluster.  Measure the resistance between ground and the Panel Lamps Dimmer Signal Circuit in the C2 connector.  Is the resistance below 100.0 ohms?</p> <p>Yes → Go To 5</p> <p>No → Replace the Instrument Cluster.  Perform BODY VERIFICATION TEST - VER 1.</p>	All
5	<p>Disconnect the Instrument Cluster.  Disconnect the Multifunction Switch connector.  Measure the resistance of the Panel Lamps Dimmer Signal Circuit in the instrument cluster connector to ground.  Is the resistance below 200.0 ohms?</p> <p>Yes → Repair the Panel Lamps Dimmer Signal Circuit for a short to ground condition.  Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Replace the Multifunction Switch.  Perform BODY VERIFICATION TEST - VER 1.</p>	All
6	<p>Close all the passenger doors.  With the DRBIII® select: Body, Electro/Mech Cluster, Input /Output.  Read the, Pas Door Ajar Sw - state.  Remove the passenger door ajar switch and observe the DRBIII®.  Did the DRBIII® change states to read: Pas Door Ajar Sw: Open?</p> <p>Yes → Replace the applicable open Door Ajar Switch.  Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Go To 7</p>	All
7	<p>Turn the ignition off.  Disconnect the passenger door ajar switch.  Disconnect the Instrument Cluster connector.  Measure the resistance of the Passenger Door Ajar Circuit in the Passenger Door Ajar Switch connector.  Is the resistance below 100.0 ohms?</p> <p>Yes → Repair the Passenger Door Ajar Switch Sense Circuit for a short to ground condition.  Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Go To 8</p>	All
8	<p>Turn the Panel Lamps Dimmer to the MID position.  Disconnect the Instrument Cluster Connector.  Measure the resistance between ground and the Courtesy Lamp Driver Circuit.  Is the resistance below 100.0 ohms?</p> <p>Yes → Repair the Courtesy Lamp Driver Circuit for a short to ground condition.  Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → Replace the Instrument Cluster.  Perform BODY VERIFICATION TEST - VER 1.</p>	All

**Symptom:**

**\*ILLUMINATED ENTRY INOPERATIVE**

**POSSIBLE CAUSES**

COURTESY LAMPS OPERATIONAL  
INTERMITTENT CONDITION  
ILLUMINATED ENTRY NOT ENABLED

TEST	ACTION	APPLICABILITY
1	<p>Check the Courtesy Lamps for proper operation. Do the Courtesy Lamps operate properly from the Door Ajar Switches?</p> <p>Yes → Go To 2</p> <p>No → Refer to Symptom list for problems related to COURTESY LAMPS INOPERATIVE. Perform BODY VERIFICATION TEST - VER 1.</p>	All
2	<p>With the DRBIII® select: ENABLE ILLUMINATED ENTRY. With the DRBIII®, read the ILLUMINATED ENTRY status. Does the DRBIII® display ENABLED?</p> <p>Yes → The condition that caused this symptom is currently not present. Inspect the related wiring harness for a possible intermittent condition. Look for any chafed, pierced, pinched or partially broken wires. Perform BODY VERIFICATION TEST - VER 1.</p> <p>No → With the DRB, enable the Illuminated Entry. Perform BODY VERIFICATION TEST - VER 1.</p>	All

## Verification Tests

ABS VERIFICATION TEST - VER 1	APPLICABILITY
<ol style="list-style-type: none"> <li>1. Turn the ignition off.</li> <li>2. Connect all previously disconnected components and connectors.</li> <li>3. Ensure all accessories are turned off and the battery is fully charged.</li> <li>4. Ensure that the Ignition is on, and with the DRBIII, erase all Diagnostic Trouble Codes from ALL modules. Start the engine and allow it to run for 2 minutes and fully operate the system that was malfunctioning.</li> <li>5. Turn the ignition off and wait 5 seconds. Turn the ignition on and using the DRBIII, read DTC's from ALL modules.</li> <li>6. If any Diagnostic Trouble Codes are present, return to Symptom list and troubleshoot new or recurring symptom.</li> <li>7. <b>NOTE: For Sensor Signal and Pump Motor faults, the CAB must sense all 4 wheels at 25 km/h (15 mph) before it will extinguish the ABS Indicator.</b></li> <li>8. If there are no DTC's present after turning ignition on, road test the vehicle for at least 5 minutes. Perform several antilock braking stops.</li> <li>9. <b>Caution: Ensure braking capability is available before road testing.</b></li> <li>10. Again, with the DRBIII® read DTC's. If any DTC's are present, return to Symptom list.</li> <li>11. If there are no Diagnostic Trouble Codes (DTC's) present, and the customer's concern can no longer be duplicated, the repair is complete.</li> </ol> <p>Are any DTC's present or is the original concern still present?</p> <p>Yes → Repair is not complete, refer to appropriate symptom.</p> <p>No → Repair is complete.</p>	All
AIRBAG VERIFICATION TEST - VER 1	APPLICABILITY
<ol style="list-style-type: none"> <li>1. Remove any special tools or jumper wires and reconnect all previously disconnected components - except the Battery.</li> <li>2. Turn the Ignition key On and reconnect the Battery.</li> <li>3. Connect the DRB to the Data Link Connector - use the most current software available.</li> <li>4. Use the DRB III and erase the stored codes.</li> <li>5. Turn the Ignition Off, and wait 15 seconds before turning the Ignition On.</li> <li>6. Wait one minute, and read active or stored codes and if there are none present read the stored codes.</li> <li>7. Note: If equipped with Passenger Airbag On/Off switch, read the DTC's in all switch positions.</li> <li>8. If the DRB shows any active or stored codes, return to the Symptom list and follow path specified for that trouble code. If no active or stored codes are present, the repair is complete.</li> </ol> <p>Are any codes present?</p> <p>YES</p> <p>Select the appropriate system from the category List and continue diagnostics.</p> <p>NO</p> <p>Repair is complete.</p>	All



## Verification Tests — Continued

BODY VERIFICATION TEST - VER 1	APPLICABILITY
<p>1. Disconnect all jumper wires and reconnect all previously disconnected components and connectors.</p> <p>2. If the Sentry Key Immobilizer Module (SKIM) or the Powertrain Control Module (PCM) were replaced, continue to next step. If the SKIM or PCM were not replaced, proceed to number 10.</p> <p>3. Obtain the Vehicle's unique PIN number assigned to it's original SKIM module from either the vehicle's invoice or from Chrysler's Customer Center (1-800-992-1997).</p> <p>4. With the DRBIII, select THEFT ALARM, SKIM, MISCELLANEOUS and select "Skim Module Replaced" function. Enter the 4 digit PIN number to put SKIM in "Access Mode".</p> <p>5. The DRBIII will prompt you through the following steps. (1) Program the country code into the SKIM's memory. (2) Program the vehicle's VIN number into the SKIM's memory. (3) Transfer the vehicle's Secret Key data from the PCM.</p> <p>6. Once secured access mode is active, the SKIM will remain in that mode for 60 seconds.</p> <p>7. Using the DRBIII, program all customer keys into the SKIM's memory. This requires that the SKIM be in secured access mode, using the 4 digit code.</p> <p>8. Note: If the PCM is replaced, the unique Secret Key data must be transferred from the SKIM to the PCM. This procedure requires the SKIM to be placed in secured access mode using the 4-digit code.</p> <p>9. Note: If 3 attempts are made to enter secured access mode using an incorrect PIN, secured access mode will be locked out for 1 hour which causes the DRB III to display "Bus +\ - Signals Open". To exit this mode, turn ignition to the "Run" pos. for 1 hour.</p> <p>10. Ensure all accessories are turned off and the battery is fully charged.</p> <p>11. Ensure that the Ignition is on, and with the DRBIII®, erase all Diagnostic Trouble Codes from ALL modules. Start the engine and allow it to run for 2 minutes and fully operate the system that was malfunctioning.</p> <p>12. Turn the ignition off and wait 5 seconds. Turn the ignition on and using the DRBIII®, read DTC's from ALL modules.</p> <p>Are any DTCs present or is the original complaint still present?</p> <p>Yes → Repair is not complete, refer to appropriate symptom.</p> <p>No → Repair is complete.</p>	All

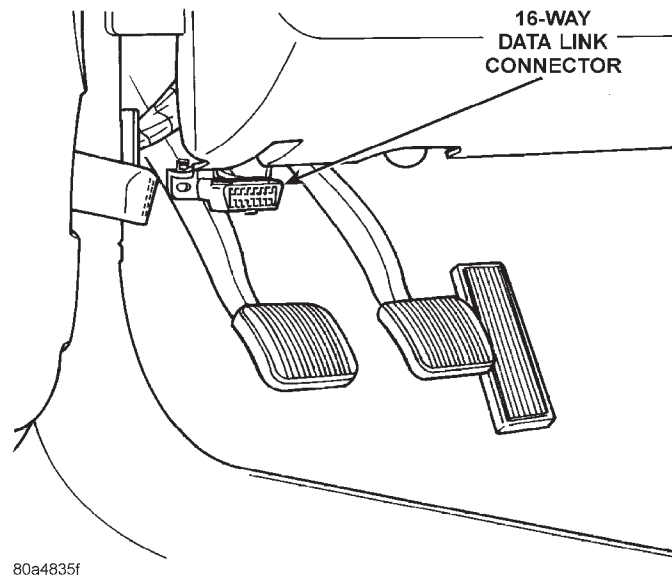
POWERTRAIN VERIFICATION TEST VER - 1	APPLICABILITY
<p>1. Inspect the vehicle to ensure that all engine components are properly installed and connected. Reassemble and reconnect components as necessary.</p> <p>2. Inspect the engine oil for contamination. If oil contamination is suspected, change the oil and filter.</p> <p>3. If the PCM was not replaced skip steps 4 through 6 and continue with the verification.</p> <p>4. If the PCM was replaced the correct VIN and mileage must be programmed or a DTC will set in the ABS and Air Bag modules. In addition, if the vehicle is equipped with Sentry Key Immobilizer Module (SKIM), Secret Key data must be updated to enable start.</p> <p>5. For ABS and Air Bag systems: Enter correct VIN and Mileage in PCM. Erase codes in ABS and Air Bag modules.</p> <p>6. For SKIM theft alarm: Connect DRBIII® to data link conn. Go to Theft Alarm, SKIM, Misc. and place SKIM in secured access mode, by using the appropriate PIN code for this vehicle. Select Update the Secret Key data. Data will be transferred from SKIM to PCM</p> <p>7. Attempt to start the engine.</p> <p>8. If the conditions cannot be duplicated, erase all DTCs.</p> <p>Is the vehicle still unable to start and/or are there any DTCs or symptoms remaining?</p> <p>Yes → Check for any related Technical Service Bulletins and/or refer to the appropriate Symptom list (Diagnostic Procedure).</p> <p>No → Repair is complete.</p>	All

## Verification Tests — Continued

SKIS VERIFICATION	APPLICABILITY
<p>1. Reconnect all previously disconnected components and connectors.</p> <p>2. Obtain the vehicle's unique Personal Identification Number (PIN) assigned to it's original SKIM. This number can be obtained from the vehicle's invoice or Chrysler's Customer Center (1-800-992-1997).</p> <p><b>3. NOTE: When entering the PIN, care should be taken because the SKIM will only allow 3 consecutive attempts to enter the correct PIN. If 3 consecutive incorrect PINs are entered, the SKIM will Lock Out the DRB for 1 hour.</b></p> <p>4. To exit Lock Out mode, the ignition key must remain in the Run position continually for 1 hour. Turn off all accessories and connect a battery charger if necessary.</p> <p>5. With the DRB, select Theft Alarm, SKIM and Miscellaneous. Then, select the desired procedure and follow the steps that will be displayed.</p> <p>6. If the SKIM has been replaced, ensure all of the vehicle ignition keys are programmed to the new SKIM.</p> <p><b>7. NOTE: Prior to returning vehicle to the customer, perform a module scan to be sure that all DTCs are erased. Erase any DTCs that are found.</b></p> <p>8. With the DRB, erase all DTCs. Perform 5 ignition key cycles leaving the key on for at least 90 seconds per cycle.</p> <p>9. With the DRB, read the SKIM DTCs.</p> <p>Are there any SKIM DTCs?</p> <p>Yes → Repair is not complete, refer to appropriate symptom.</p> <p>No → Repair is complete.</p>	All

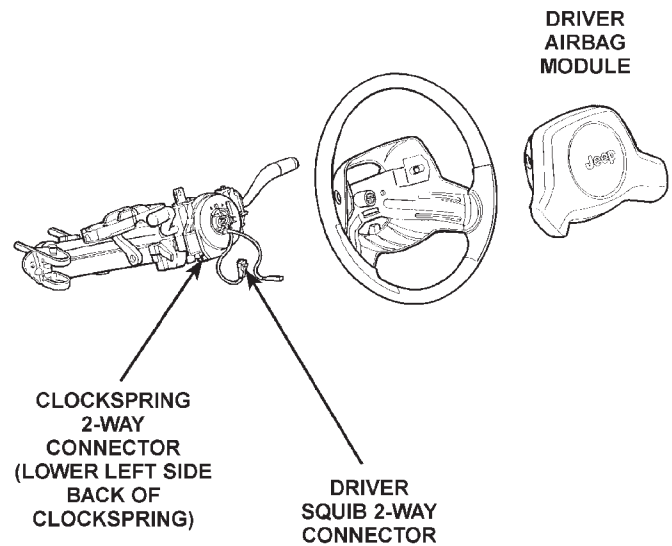
## 8.0 SYSTEM COMPONENT LOCATIONS

### 8.1 DATA LINK CONNECTOR



### 8.2 AIRBAG

#### 8.2.1 DRIVER AIRBAG MODULE & CLOCKSPRING

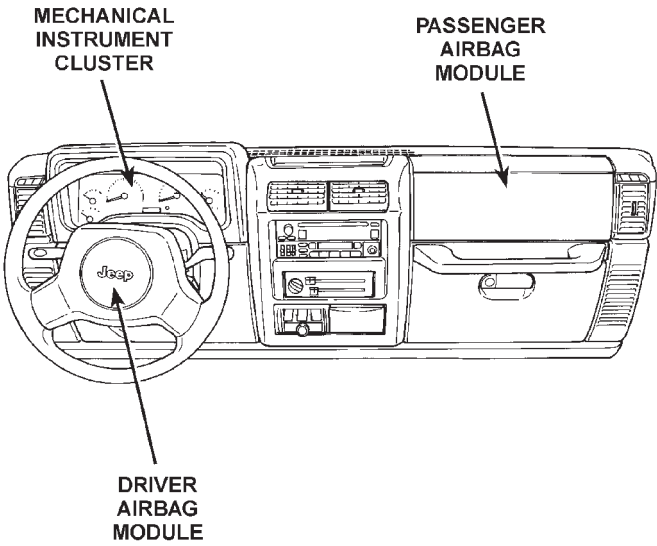


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# COMPONENT LOCATIONS

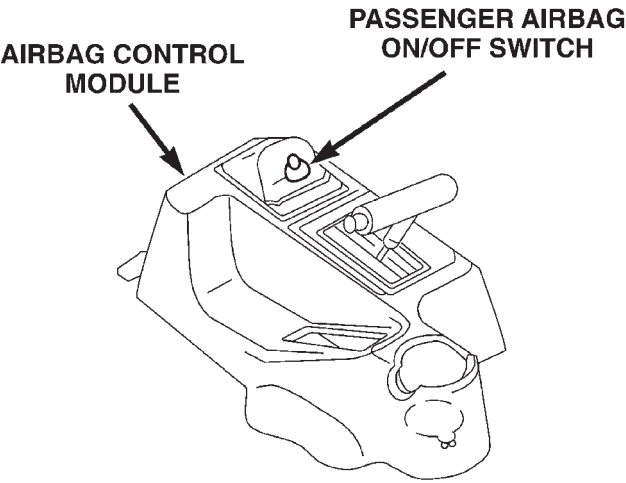
## 8.2 AIRBAG (Continued)

### 8.2.2 DRIVER/PASSENGER AIRBAG MODULES & MECHANICAL INSTRUMENT CLUSTER



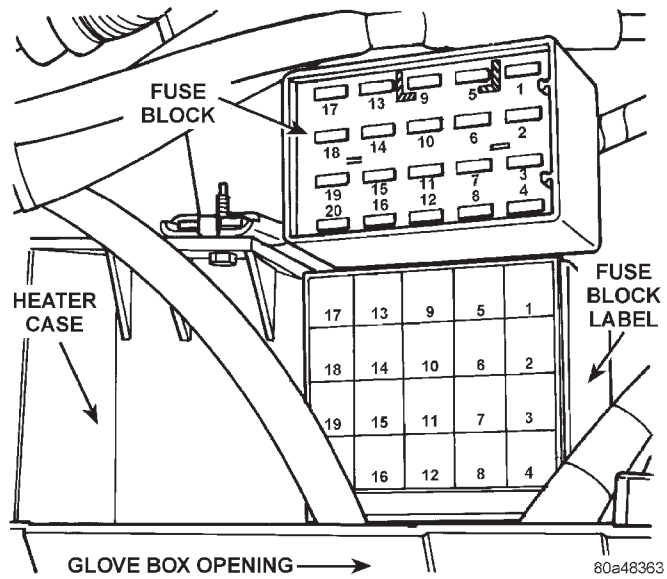
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### 8.2.3 AIRBAG CONTROL MODULE AND PASSENGER AIRBAG ON/OFF SWITCH



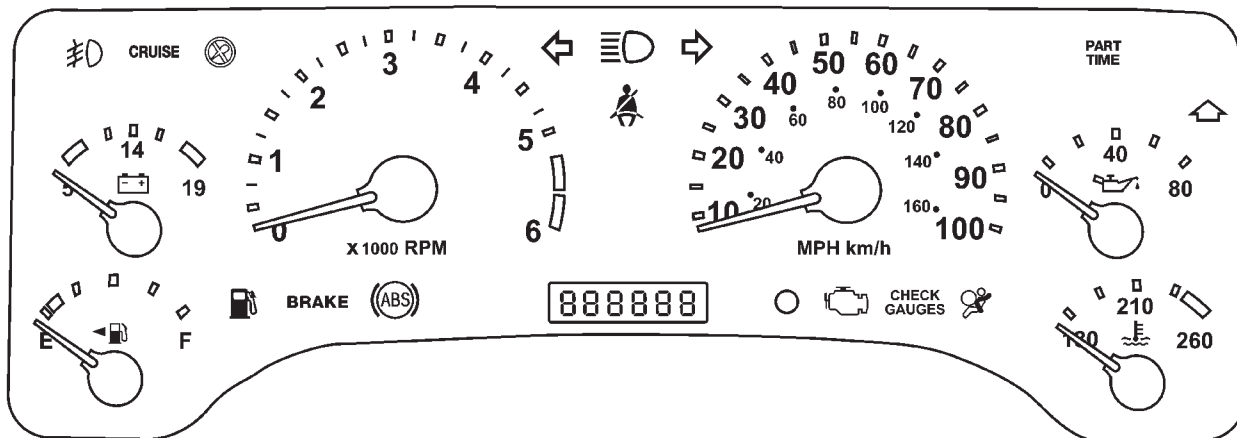
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## 8.3 FUSE BLOCK



## 8.4 INSTRUMENT CLUSTER

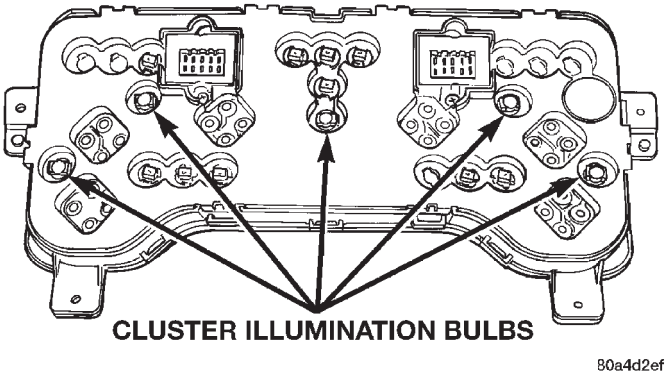
### 8.4.1 FRONT VIEW



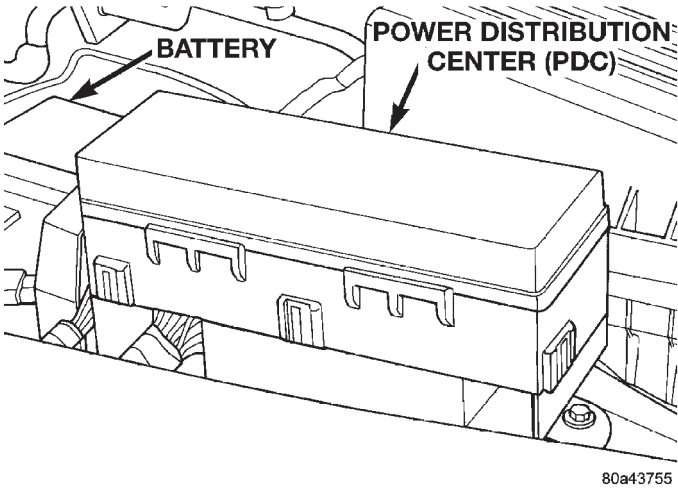
# COMPONENT LOCATIONS

## 8.4 INSTRUMENT CLUSTER (Continued)

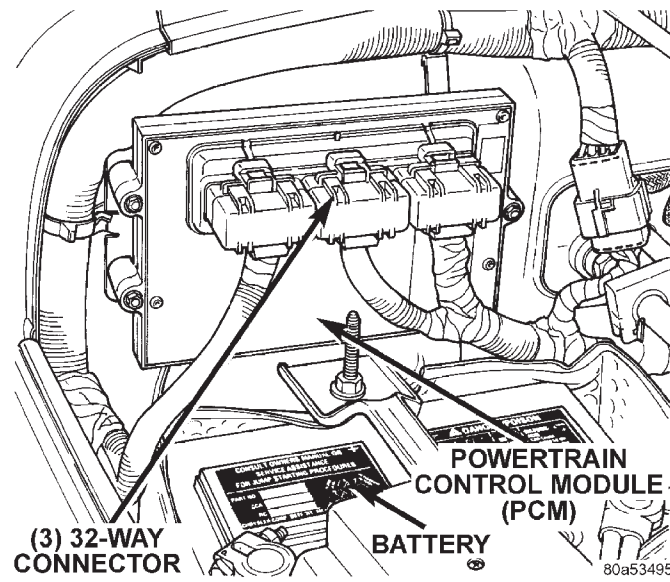
### 8.4.2 REAR VIEW



## 8.5 POWER DISTRIBUTION CENTER (PDC)



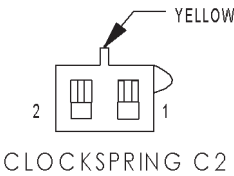
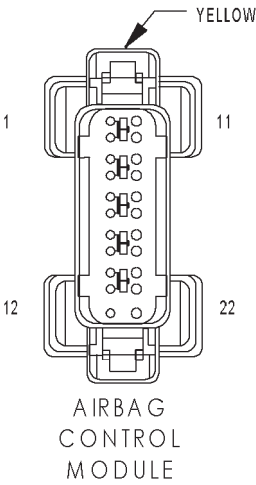
## 8.6 POWERTRAIN CONTROL MODULE



NOTES



9.0 CONNECTOR PINOUTS



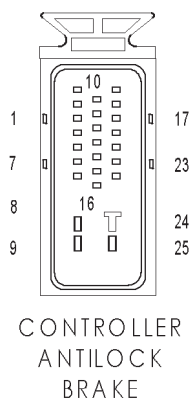
AIRBAG CONTROL MODULE - YELLOW 22 WAY

CAV	CIRCUIT	FUNCTION
1	R45 18DG/LB	DRIVER SQUIB 1 LINE 2
2	R43 18BK/LB	DRIVER SQUIB 1 LINE 1
3	-	-
4	-	-
5	R42 18BK/YL	PASSENGER SQUIB 1 LINE 1
6	R44 18DG/YL	PASSENGER SQUIB 1 LINE 2
7	-	-
8	R166 18LG/BR	PASSENGER AIRBAG INDICATOR DRIVER
9	-	-
10	Z6 18BK/PK	GROUND
11	R65 18LG/OR	PASSENGER AIRBAG MUX SWITCH SENSE
12	-	-
13	-	-
14	-	-
15	-	-
16	-	-
17	F14 18LG/YL	FUSED IGNITION SWITCH OUTPUT (RUN-START)
18	D25 18VT/YL	PCI BUS
19	-	-
20	F23 18DB/YL	FUSED IGNITION SWITCH OUTPUT (RUN)
21	-	-
22	R66 18LG/DG	PASSENGER AIRBAG MUX SWITCH RETURN

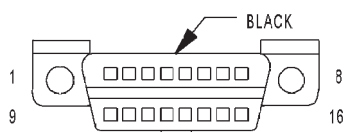
CLOCKSPEED C2 - YELLOW 2 WAY

CAV	CIRCUIT	FUNCTION
1	R45 18DG/LB	DRIVER SQUIB 1 LINE 2
2	R43 18BK/LB	DRIVER SQUIB 1 LINE 1

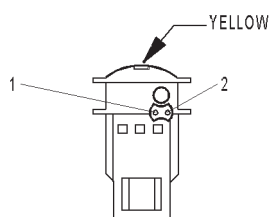
# CONNECTOR PINOUTS



CONTROLLER  
ANTILOCK  
BRAKE



DATA LINK  
CONNECTOR



DRIVER  
AIRBAG

## CONTROLLER ANTILOCK BRAKE - 25 WAY

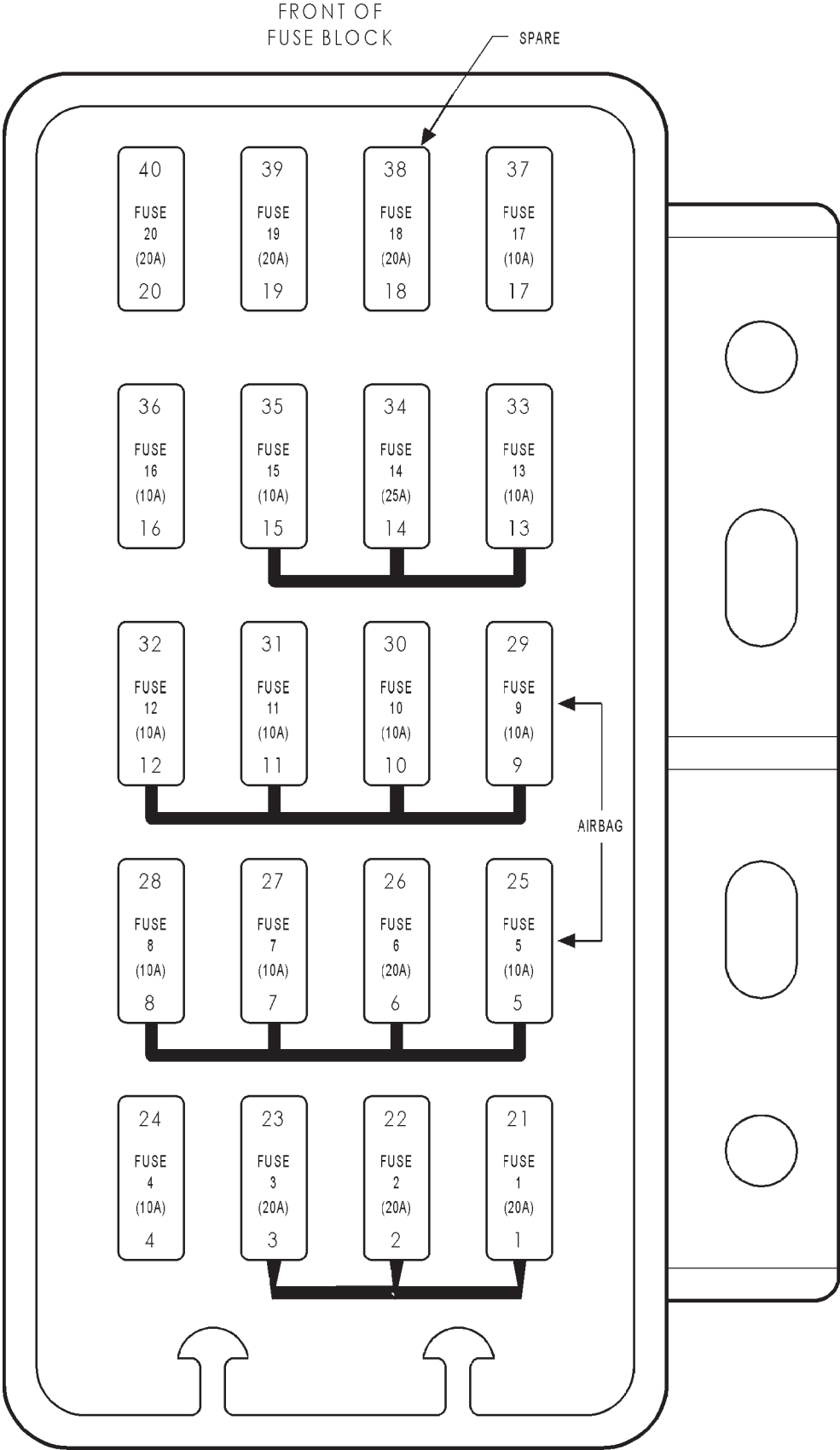
CAV	CIRCUIT	FUNCTION
1	B1 18YL/DB	RIGHT REAR WHEEL SPEED SENSOR (-)
2	B3 18LG/DB	LEFT REAR WHEEL SPEED SENSOR (-)
3	B7 18WT	RIGHT FRONT WHEEL SPEED SENSOR (+)
4	B9 18RD	LEFT FRONT WHEEL SPEED SENSOR (+)
5	-	-
6	B41 18YL/VT	G-SWITCH NO. 1 SENSE
7	B42 18TN/WT	G-SWITCH NO. 2 SENSE
8	Z22 12BK/PK	GROUND
9	A20 12RD/DB	FUSED B(+)
10	B4 18LG	LEFT REAR WHEEL SPEED SENSOR (+)
11	B8 18RD/DB	LEFT FRONT WHEEL SPEED SENSOR (-)
12	L50 18WT/TN	BRAKE LAMP SWITCH OUTPUT
13	B43 18PK/OR	G-SWITCH TEST SIGNAL
14	-	-
15	-	-
16	G83 18GY/BK	ABS RELAY CONTROL
17	B2 18YL	RIGHT REAR WHEEL SPEED SENSOR (+)
18	B6 18WT/DB	RIGHT FRONT WHEEL SPEED SENSOR (-)
19	-	-
20	D21 18PK	SCI TRANSMIT
21	-	-
22	-	-
23	F20 18VT/WT	FUSED IGNITION SWITCH OUTPUT (RUN)
24	Z22 12BK/PK	GROUND
25	A10 12RD/DG	FUSED B(+)

## DATA LINK CONNECTOR - BLACK 16 WAY

CAV	CIRCUIT	FUNCTION
1	-	-
2	D25 20VT/YL	PCI BUS
3	-	-
4	Z12 20BK/LB	GROUND
5	Z12 20BK/TN	GROUND
6	D32 20LG	SCI RECEIVE
7	D21 20PK	SCI TRANSMIT
8	-	-
9	-	-
10	-	-
11	-	-
12	-	-
13	-	-
14	-	-
15	-	-
16	M1 20PK/WT	FUSED B(+)

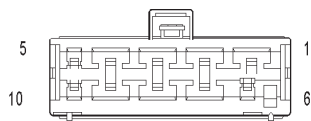
## DRIVER AIRBAG - YELLOW 2 WAY

CAV	CIRCUIT	FUNCTION
1	R45 18DG/LB	DRIVER SQUIB 1 LINE 2
2	R43 18BK/LB	DRIVER SQUIB 1 LINE 1



CONNECTOR PINOUTS

# CONNECTOR PINOUTS



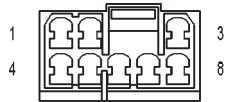
IGNITION  
SWITCH

## FUSES (FUSE/RELAY BLOCK)

FUSE NO.	AMPS	FUSED CIRCUIT	FUNCTION
1	20A	F33 20PK/RD	FUSED B(+)
1	20A	F33 18PK/RD	FUSED B(+)
2	20A	F32 18PK/DB	FUSED B(+)
3	20A	X60 16DG/RD	FUSED B(+)
4	10A	Z1 20BK	DOOR AJAR SWITCH OUTPUT
5	10A	F23 18DB/YL	FUSED IGNITION SWITCH OUTPUT (RUN)
6	20A	V23 18BR/PK	FUSED IGNITION SWITCH OUTPUT (RUN)
7	10A	F20 20VT/WT	FUSED IGNITION SWITCH OUTPUT (RUN)
8	10A	F24 20RD/DG	FUSED IGNITION SWITCH OUTPUT (RUN)
9	10A	F14 18LG/YL (RHD)	FUSED IGNITION SWITCH OUTPUT (RUN-START)
9	10A	F14 18LG/YL	FUSED IGNITION SWITCH OUTPUT (RUN-START)
10	10A	G5 20DB/WT	FUSED IGNITION SWITCH OUTPUT (RUN-START)
10	10A	G5 20DB/WT	FUSED IGNITION SWITCH OUTPUT (RUN-START)
11	10A	F12 20RD/LG	FUSED IGNITION SWITCH OUTPUT (RUN-START)
12	10A	F15 20DB	FUSED IGNITION SWITCH OUTPUT (RUN-START)
12	10A	F15 20DB	FUSED IGNITION SWITCH OUTPUT (RUN-START)
13	10A	L5 20BK/GY	FUSED IGNITION SWITCH OUTPUT (RUN-START)
14	25A	V6 16PK/BK	FUSED IGNITION SWITCH OUTPUT (RUN-START)
14	25A	V6 16PK/BK	FUSED IGNITION SWITCH OUTPUT (RUN-START)
15	10A	X12 16PK	FUSED IGNITION SWITCH OUTPUT (RUN-START)
16	10A	L22 10LG/DG	DIMMER SWITCH LOW BEAM OUTPUT
17	10A	F81 20DB/RD	FUSED REAR WINDOW DEFOGGER RELAY OUTPUT
18	20A	SPARE	-
19	20A	F38 16LB	FUSED IGNITION SWITCH OUTPUT (RUN)
19	20A	F38 16LB	FUSED IGNITION SWITCH OUTPUT (RUN)
20	20A	T141 14YL/RD (A/T)	FUSED IGNITION SWITCH OUTPUT (START)

## IGNITION SWITCH - 10 WAY

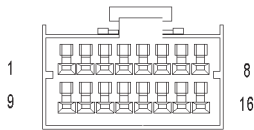
CAV	CIRCUIT	FUNCTION
1	A1 14RD	FUSED B(+)
2	A21 14DB	IGNITION SWITCH OUTPUT (RUN-START)
3	F22 12WT/PK	IGNITION SWITCH OUTPUT (RUN-ACC)
4	F30 12RD/PK	FUSED B(+)
5	G26 20LB	KEY-IN IGNITION SWITCH SENCE
6	A41 14YL	IGNITION SWITCH OUTPUT (START)
7	A31 14BK/DG	IGNITION SWITCH OUTPUT (RUN-ACC)
8	A22 12BK/OR	IGNITION SWITCH OUTPUT (RUN)
9	A2 12PK/BK	FUSED B(+)
10	Z1 20BK (RHD)	GROUND
10	Z1 16BK (LHD)	GROUND



INSTRUMENT  
CLUSTER C1

INSTRUMENT CLUSTER C1 - 8 WAY

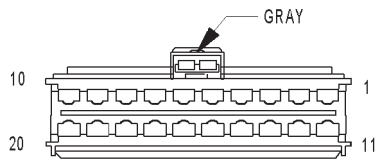
CAV	CIRCUIT	FUNCTION
1	L61 18GY	LEFT TURN SIGNAL
2	L60 18TN	RIGHT TURN SIGNAL
3	G34 16RD/GY	HIGH BEAM INDICATOR DRIVER
4	L7 18BK/YL	HEADLAMP SWITCH OUTPUT
5	Z2 18BK/LG	GROUND
6	L38 18BR/WT (BUILT-UP-EXPORT)	FOG LAMP FEED
6	L39 16LB (EXCEPT BUILT-UP-EXPORT)	FOG LAMP FEED
7	G5 20DB/WT	FUSED IGNITION SWITCH OUTPUT (RUN-START)
8	M1 20PK/WT	FUSED B(+)



INSTRUMENT  
CLUSTER C2

INSTRUMENT CLUSTER C2 - 16 WAY

CAV	CIRCUIT	FUNCTION
1	C80 20DB/WT (EXCEPT LHD EXCEPT BUILT-UP-EXPORT)	REAR WINDOW DEFOGGER SWITCH SENSE
2	G10 20LG/RD	SEAT BELT SWITCH SENSE
3	G76 20TN/YL	PASSENGER DOOR AJAR SWITCH SENSE
4	G75 20TN	DRIVER DOOR AJAR SWITCH SENSE
5	M2 20YL	COURTESY LAMP FEED
6	E2 20OR	CLUSTER ILLUMINATION LAMPS
7	C81 20LB/WT (EXCEPT LHD EXCEPT BUILT-UP-EXPORT)	REAR WINDOW DEFOGGER RELAY CONTROL
8	G19 20LG/OR	ABS WARNING INDICATOR DRIVER
9	G99 20GY/WT	BRAKE WARNING INDICATOR DRIVER
10	-	-
11	L107 20WT	PARK LAMP RELAY OUTPUT
12	D25 20VT/YL	PCI BUS
13	G26 20LB	KEY-IN IGNITION SWITCH SENSE
14	-	-
15	E19 20RD	PANEL LAMPS DIMMER SIGNAL
16	G107 20BK/RD	4WD INDICATOR

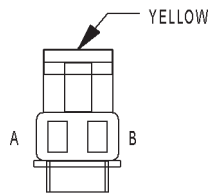


MULTI-FUNCTION  
SWITCH

MULTI-FUNCTION SWITCH - GRAY 20 WAY

CAV	CIRCUIT	FUNCTION
1	L50 18WT/TN	BRAKE LAMP SWITCH OUTPUT
2	L61 18GY	LEFT TURN SIGNAL
3	L5 20BK/GY	FUSED IGNITION SWITCH OUTPUT (RUN-ACC)
4	L63 18DG/RD	LEFT TURN/STOP SIGNAL
5	L62 18BR/RD	RIGHT TURN/STOP SIGNAL
6	L60 18TN	RIGHT TURN SIGNAL
7	Z1 18BK	BODY GROUND
8	E19 20RD	PANEL LAMPS DIMMER SIGNAL
9	L7 18BK/YL	PARK LAMP FEED
10	-	-
11	L9 18BK/WT	HAZARD FLASHER FEED
12	L38 18BR/WT	HEADLAMP SWITCH OUTPUT
13	F39 16PK/LG	FUSED B(+)
14	F61 16WT/OR	FUSED FOG LAMP RELAY OUTPUT
15	-	-
16	L4 14VT/WT	HEADLAMP (LOW BEAM)
17	L3 14RD/OR	HEADLAMP (HI BEAM)
18	F3 12LB/OR	FUSED B(+)
19	F3 12LB/OR	FUSED B(+)
20	F33 18PK/RD	FUSED B(+)

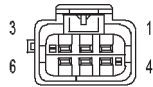
# CONNECTOR PINOUTS



PASSENGER  
AIRBAG

PASSENGER AIRBAG - YELLOW 2 WAY

CAV	CIRCUIT	FUNCTION
A	R44 18DG/YL	PASSENGER SQUIB 1 LINE 2
B	R42 18BK/YL	PASSENGER SQUIB 1 LINE 1

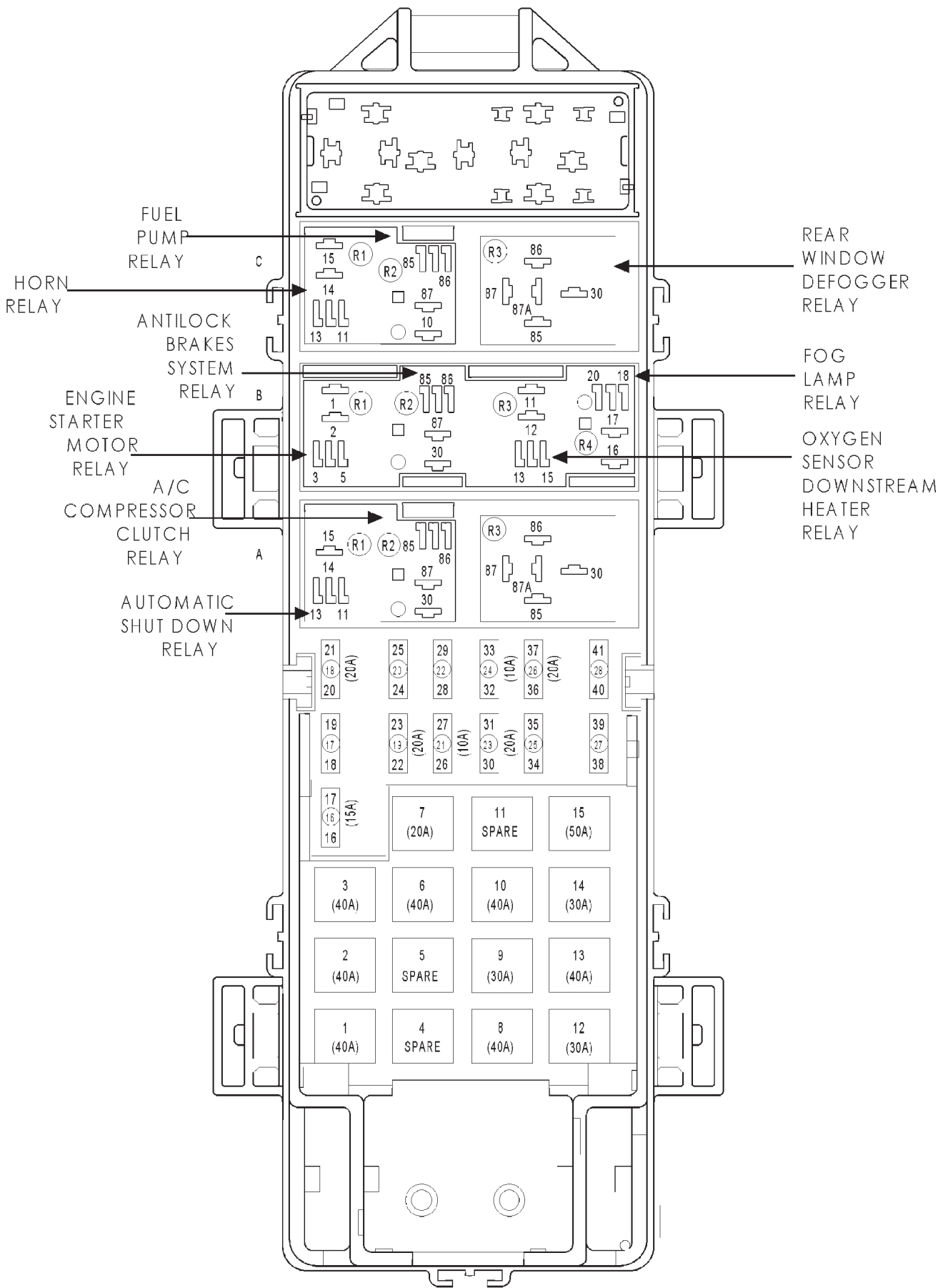


PASSENGER AIRBAG  
ON/OFF SWITCH

PASSENGER AIRBAG ON/OFF SWITCH - 6 WAY

CAV	CIRCUIT	FUNCTION
1	F14 18LG/YL	FUSED IGNITION SWITCH OUTPUT (RUN-START)
2	R166 18LG/BR	PASSENGER AIRBAG INDICATOR DRIVER
3	R65 18LG/OR	PASSENGER AIRBAG MUX SWITCH SENSE
4	-	-
5	-	-
6	R66 18LG/DG	PASSENGER AIRBAG MUX SWITCH RETURN

POWER DISTRIBUTION CENTER



CONNECTOR PINOUTS

# CONNECTOR PINOUTS

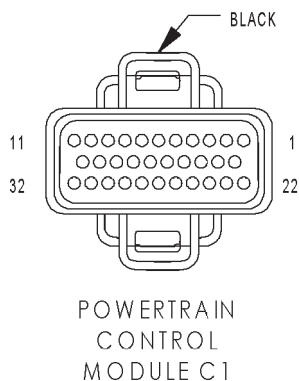
## FUSES (PDC)

FUSE NO.	AMPS	FUSED CIRCUIT	FUNCTION
1	40A	A111 12RD/LB	FUSED B(+)
2	40A	A4 12BK/PK	FUSED B(+)
3	40A	A6 12RD/BK	FUSED B(+)
4	-	-	-
5	-	-	-
6 (ABS)	40A	A10 12PK/BK	FUSED B(+)
7 (ABS)	20A	L9 16BK/WT	FUSED B(+)
8	40A	A10 12RD/DG	FUSED B(+)
9	30A	A14 14RD/WT	FUSED B(+)
9	30A	A14 14RD/WT	FUSED B(+)
10	40A	A3 12RD/WT	FUSED B(+)
11	-	-	-
12	30A	A20 12RD/DB	FUSED B(+)
13	40A	F30 12RD/PK	FUSED B(+)
14	30A	A1 14RD	FUSED B(+)
15	50A	M1 16PK/WT	FUSED B(+)
16	15A	F142 18OR/DG	AUTOMATIC SHUT DOWN RELAY OUTPUT
17	-	-	-
18	20A	F31 18VT	FUSED B(+)
18	20A	F31 18VT	FUSED B(+)
19	20A	F39 16PK/LG	FUSED B(+)
20	-	-	-
21	10A	A17 20RD/GY	FUSED B(+)
22	-	-	-
23	20A	A61 18DG/BK	FUSED B(+)
24	10A	M1 20PK/WT	FUSED B(+)
25	-	-	-
26	20A	F42 18DG/LG	AUTOMATIC SHUT DOWN RELAY OUTPUT
27	-	-	-
28	-	-	-

## REAR WINDOW DEFOGGER RELAY

CAV	CIRCUIT	FUNCTION
30	C15 12BK/WT	REAR WINDOW DEFOGGER RELAY OUTPUT
85	A4 12BK/PK	FUSED B(+)
86	C81 20LB/WT	REAR WINDOW DEFOGGER RELAY CONTROL
87A	-	-
87	F20 20VT/WT	FUSED IGNITION SWITCH OUTPUT (RUN)

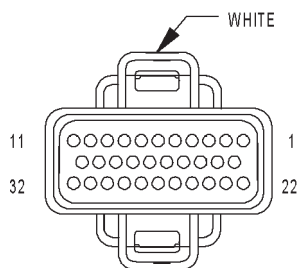




POWERTRAIN CONTROL MODULE C1 - BLACK 32 WAY		
CAV	CIRCUIT	FUNCTION
A1	K18 18RD/YL (4.0L)	IGNITION COIL NO. 3 DRIVER
A2	F15 18DB	FUSED IGNITION SWITCH OUTPUT (RUN-START)
A3	-	-
A4	K4 18BK/LB	SENSOR GROUND
A5	-	-
A6	T41 18BR/LB	PARK/NEUTRAL POSITION SWITCH SENSE
A7	K19 18GY	IGNITION COIL NO. 1 DRIVER
A8	K24 18GY/BK	CRANKSHAFT POSITION SENSOR SIGNAL
A9	-	-
A10	K60 18YL/BK	IDLE AIR CONTROL NO. 2 DRIVER
A11	K40 18BR/WT	IDLE AIR CONTROL NO. 3 DRIVER
A12	K10 18DB/BR (2.5L)	POWER STEERING PRESSURE SWITCH SENSE
A13	-	-
A14	-	-
A15	K21 18BK/RD	INTAKE AIR TEMPERATURE SENSOR SIGNAL
A16	K2 18TN/BK	ENGINE COOLANT TEMPERATURE SENSOR SIGNAL
A17	K7 18OR	5V SUPPLY
A18	K44 18TN/YL	CAMSHAFT POSITION SENSOR SIGNAL
A19	K39 18GY/RD	IDLE AIR CONTROL NO. 1 DRIVER
A20	K59 18VT/BK	IDLE AIR CONTROL NO. 4 DRIVER
A21	-	-
A22	A4 14RD/WT	FUSED B(+)
A23	K22 18OR/DB	THROTTLE POSITION SENSOR SIGNAL
A24	K41 18BK/DG	OXYGEN SENSOR 1/1 SIGNAL
A25	K141 18TN/WT	OXYGEN SENSOR 1/2 SIGNAL
A26	K241 18LG/RD (4.0L CALIFORNIA)	OXYGEN SENSOR 2/1 SIGNAL
A27	K1 18DG/RD	MANIFOLD ABSOLUTE PRESSURE SENSOR SIGNAL
A28	-	-
A29	K341 18TN (4.0L CALIFORNIA)	OXYGEN SENSOR 2/2 SIGNAL
A31	Z12 14BK/TN	GROUND
A30	-	-
A32	Z12 14BK/TN	GROUND

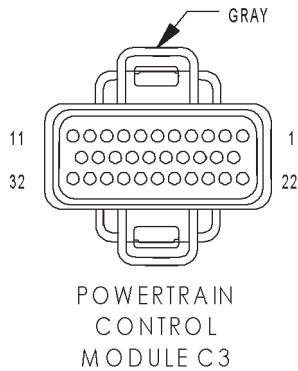
# CONNECTOR PINOUTS

POWERTRAIN CONTROL MODULE C2 - WHITE 32 WAY

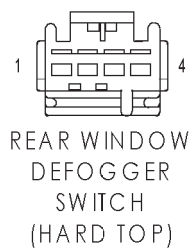


POWERTRAIN  
CONTROL  
MODULE C2

CAV	CIRCUIT	FUNCTION
B8	-	-
B1	-	-
B2	-	-
B3	-	-
B4	K11 18WT/DB	FUEL INJECTOR NO. 1 DRIVER
B5	K13 18YL/WT	FUEL INJECTOR NO. 3 DRIVER
B6	K15 18PK/BK (LHD 4.0L CALIFORNIA)	FUEL INJECTOR NO. 5 DRIVER
B6	K38 18GY (4.0L)	FUEL INJECTOR NO. 5 DRIVER
B7	-	-
B9	K17 18DB/TN (4.0L)	IGNITION COIL NO. 2 DRIVER
B10	K20 18DG	GENERATOR FIELD
B11	T23 18OR/LG	TRANSMISSION LOW/OVERDRIVE SOLENOID
B12	K16 18LG/BK (4.0L)	FUEL INJECTOR NO. 6 DRIVER
B13	-	-
B14	-	-
B15	K12 18TN	FUEL INJECTOR NO. 2 DRIVER
B16	K14 18LB/BR	FUEL INJECTOR NO. 4 DRIVER
B17	-	-
B18	-	-
B19	-	-
B20	-	-
B21	-	-
B22	-	-
B23	G60 18GY/YL	ENGINE OIL PRESSURE SENSOR SIGNAL
B24	-	-
B25	-	-
B26	-	-
B27	G7 18WT/OR (RHD)	VEHICLE SPEED SENSOR SIGNAL
B27	G7 20WT/OR (LHD 4.0L CALIFORNIA/EUROPEAN)	VEHICLE SPEED SENSOR SIGNAL
B28	-	-
B29	-	-
B30	-	-
B31	K6 18VT/OR	5V SUPPLY
B32	-	-

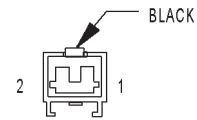


POWERTRAIN CONTROL MODULE C3 - GRAY 32 WAY		
CAV	CIRCUIT	FUNCTION
C1	C13 18DB/OR	A/C COMPRESSOR CLUTCH RELAY CONTROL
C2	-	-
C3	K51 18DB/YL	AUTOMATIC SHUT DOWN RELAY CONTROL
C4	V36 18TN/RD (SPEED CONTROL)	SPEED CONTROL VACUUM SOLENOID CONTROL
C5	V35 18LG/RD (SPEED CONTROL)	SPEED CONTROL VENT SOLENOID CONTROL
C6	-	-
C7	-	-
C8	K299 18BR/WT (EXCEPT 4.0L CALIFORNIA)	OXYGEN SENSOR UPSTREAM CONTROL
C8	K99 18BR/OR (4.0L CALIFORNIA)	OXYGEN SENSOR UPSTREAM CONTROL
C9	K512 18RD/YL (4.0L CALIFORNIA)	OXYGEN SENSOR DOWNSTREAM HEATER RELAY CONTROL
C10	K106 18WT/DG (DRL)	LEAK DETECTION PUMP SOLENOID CONTROL
C11	V32 18YL/RD (SPEED CONTROL)	SPEED CONTROL ON/OFF SWITCH SENSE
C12	A142 14DG/PK	AUTOMATIC SHUT DOWN RELAY OUTPUT
C13	-	-
C14	K107 18OR (DRL)	LEAK DETECTION PUMP SWITCH SENSE
C15	K118 18PK/YL	BATTERY TEMPERATURE SENSOR SIGNAL
C16	K299 18BR/WT	OXYGEN SENSOR UPSTREAM CONTROL
C17	-	-
C18	-	-
C19	K31 18BR	FUEL PUMP RELAY CONTROL
C20	K52 18PK/BK	EVAP/PURGE SOLENOID CONTROL
C21	-	-
C22	C21 18DB/OR	A/C SWITCH SENSE
C23	C90 18LG	A/C SELECT INPUT
C24	K29 18WT/PK	BRAKE LAMP SWITCH SENSE
C25	K125 18WT/DB	GENERATOR SOURCE
C26	K226 18DB/LG	FUEL LEVEL SENSOR SIGNAL
C27	D21 18PK	SCI TRANSMIT
C28	-	-
C29	D32 18LG	SCI RECEIVE
C30	D25 18VT/YL	PCI BUS
C31	-	-
C32	V37 18RD/LG (SPEED CONTROL)	SPEED CONTROL SWITCH SIGNAL



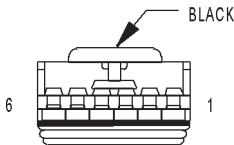
REAR WINDOW DEFOGGER SWITCH (HARD TOP) - 4 WAY		
CAV	CIRCUIT	FUNCTION
1	Z1 20BK	GROUND
2	C80 20DB/WT	REAR WINDOW DEFOGGER SWITCH SENSE
3	F81 20DB/RD	FUSED REAR WINDOW DEFOGGER RELAY OUTPUT
4	E2 20OR	FUSED PANEL LAMPS DIMMER SWITCH SIGNAL

# CONNECTOR PINOUTS



SEAT BELT  
SWITCH  
(RHD BUILT-  
UP-EXPORT)

SEAT BELT SWITCH (RHD BUILT-UP-EXPORT) - BLACK 2 WAY		
CAV	CIRCUIT	FUNCTION
1	G10 20LG/RD	SEAT BELT SWITCH SENSE
2	Z1 20BK	GROUND

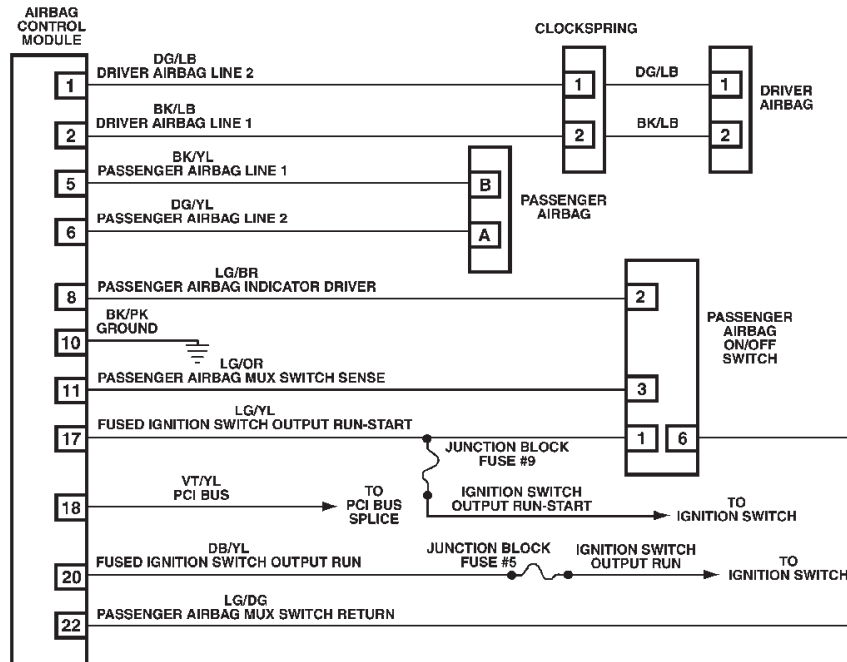


SENTRY KEY  
IMMOBILIZER  
MODULE

SENTRY KEY IMMOBILIZER MODULE - BLACK 6 WAY		
CAV	CIRCUIT	FUNCTION
1	-	-
2	D25 20VT/YL	PCI BUS
3	Z12 20BK/LB	GROUND
4	F15 20DB	FUSED IGNITION SWITCH OUTPUT (RUN-START)
5	Z1 20BK	GROUND
6	F33 18PK/RD	FUSED B(+)

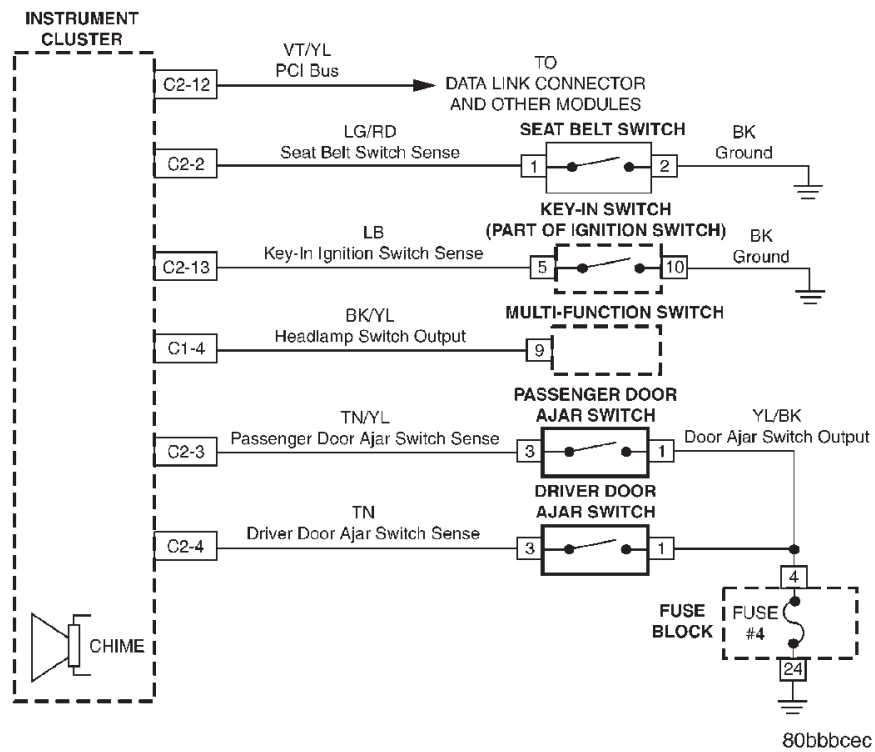
## 10.0 SCHEMATIC DIAGRAMS

## 10.1 AIRBAG SYSTEM



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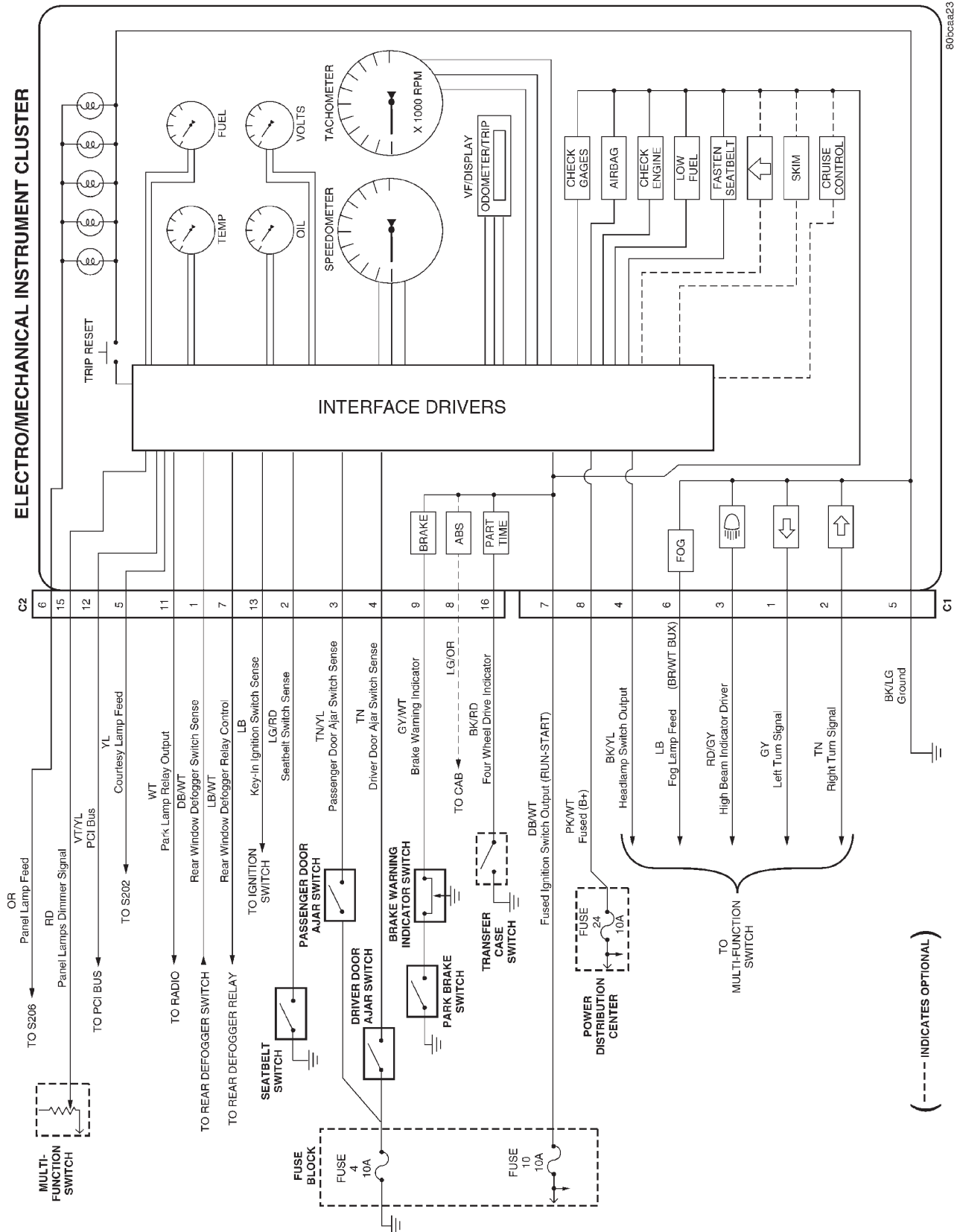
## 10.2 CHIME SYSTEM



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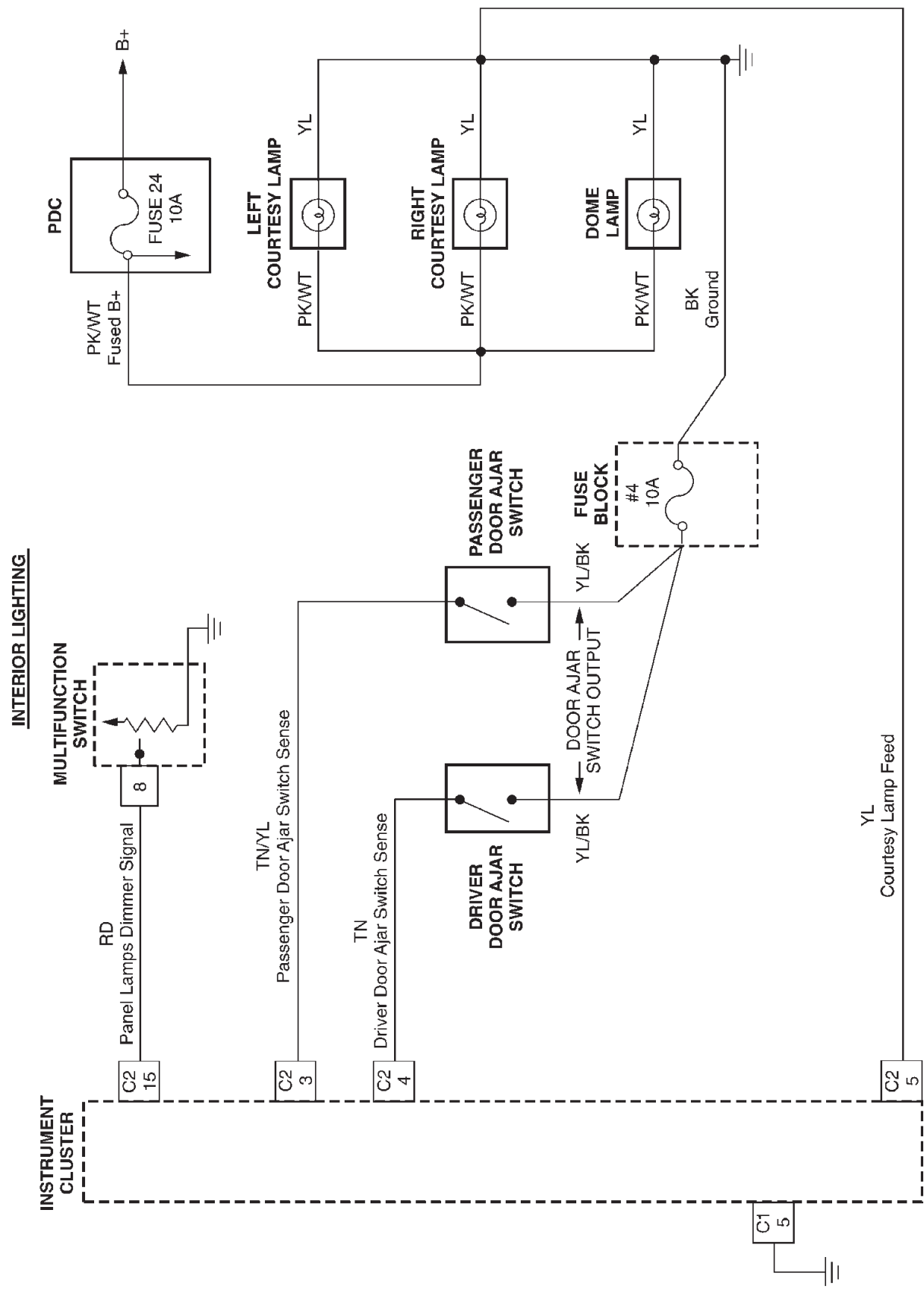
## SCHEMATIC DIAGRAMS

## 10.3 INSTRUMENT CLUSTER SYSTEM



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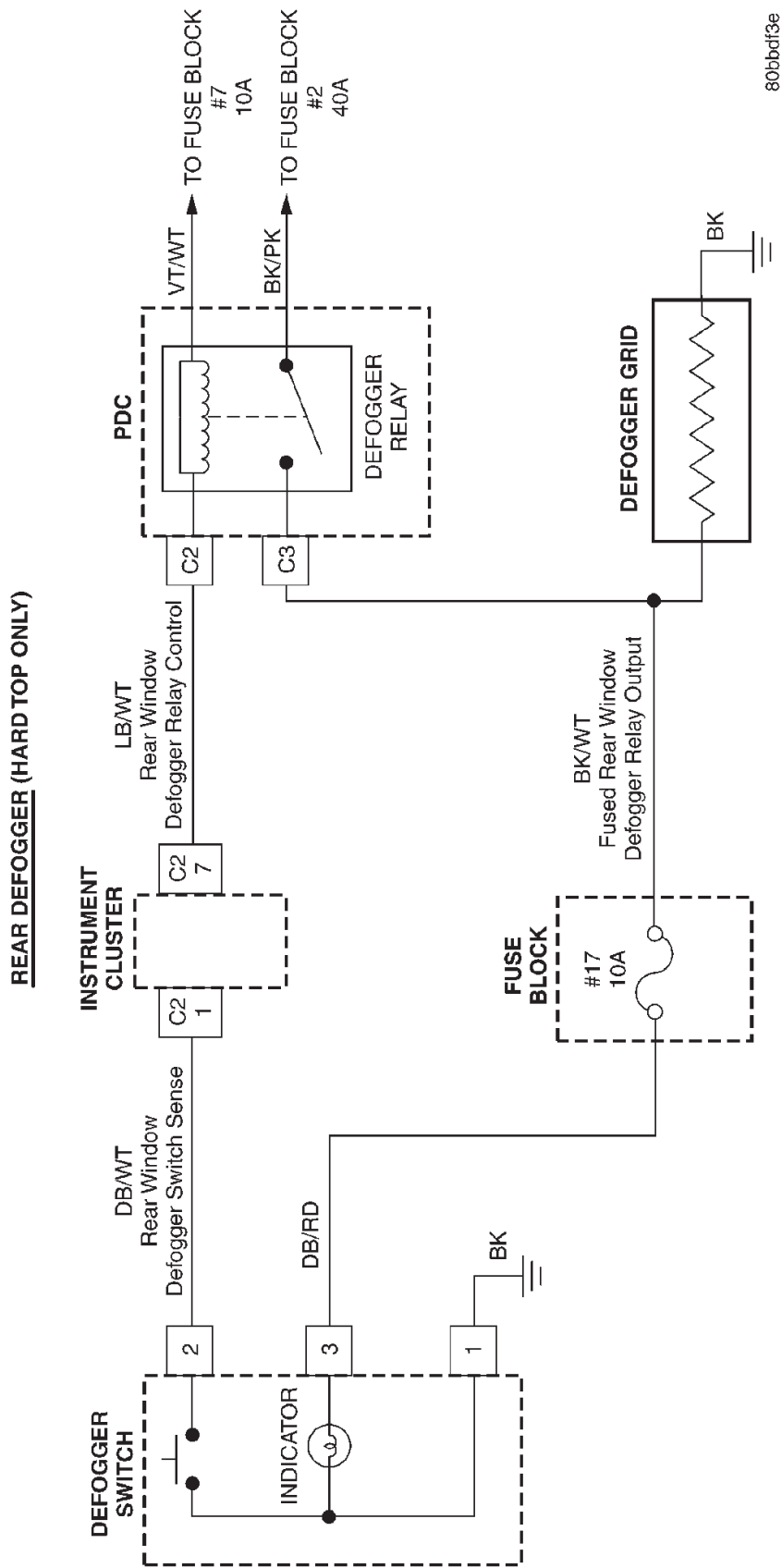
10.4 INTERIOR LIGHTING



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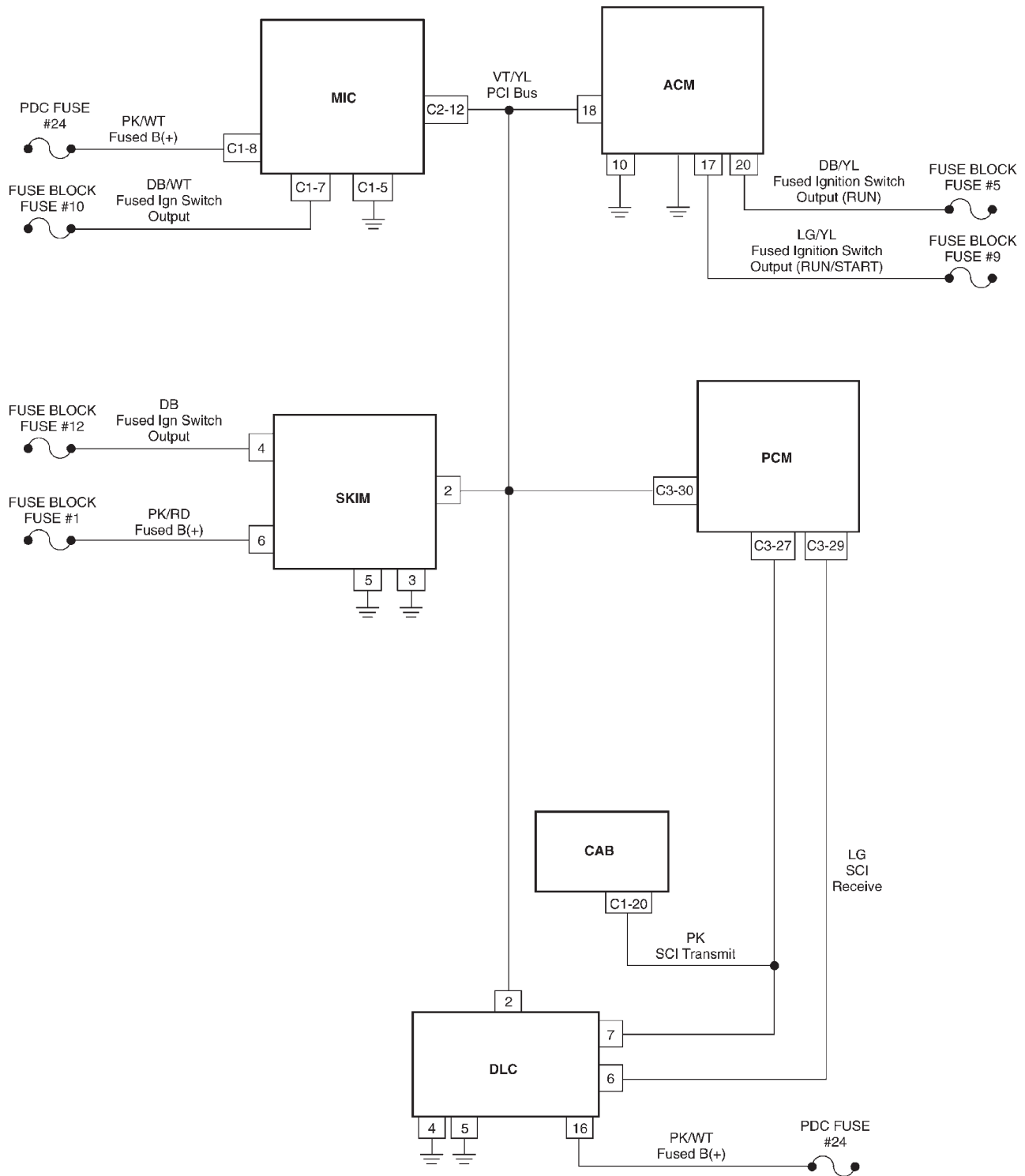
# SCHEMATIC DIAGRAMS

## 10.5 REAR DEFOGGER





## 10.6 VEHICLE COMMUNICATIONS



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## NOTES