

**2001 ACCESSORIES/SAFETY EQUIPMENT****General Motors Corp. - Air Bag Restraint Systems****DESCRIPTION & OPERATION**

**WARNING: Accidental air bag deployment is possible. Personal injury may result. To avoid accidental air bag deployment or injury, read and carefully follow all WARNINGS and AIR BAG SAFETY PRECAUTIONS .**

**SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM**

SIR system is designed to protect the driver and passenger in a frontal or side impact collision. The driver and passenger-side air bag modules will deploy only upon frontal impact of no more than 30 degrees off the center line of vehicle. A frontal impact of sufficient severity will cause the Sensing and Diagnostic Module (SDM) to detect sudden vehicle deceleration. The SDM then deploys the air bag modules. Additionally, vehicle is equipped with driver and passenger front seat belt pretensioners which are also deployed independent of air bags by the SDM.

The side impact system is comprised of Side Impact Sensors (SIS) 1 and side impact air bag modules. Deployment of side impact system on side of impact will occur when one of the Side Impact Sensors (SIS) detects a side impact severe enough to warrant deployment. Malfunction monitoring of the side impact system is performed by the SDM.

**SENSING & DIAGNOSTIC MODULE (SDM)**

The SDM monitors vehicle velocity changes to detect frontal crashes which are severe enough to warrant air bag module deployment. When a frontal crash of sufficient force is detected, SDM will cause enough current to flow through system to deploy air bag modules and seat belt pretensioners. SDM receives input from Side Impact Sensors (SIS) to determine when side impact air bag modules should be deployed. A 36 Volt Loop Reserve (36 VLR) energy supply is maintained by SDM to provide deployment energy for up to one minute in cases where Ignition 1 (IGN1) voltage is lost.

Additionally, the SDM provides diagnostic monitoring of the SIR system electrical components. When a malfunction is detected, the SDM sets a Diagnostic Trouble Code (DTC) which is retrieved using a scan tool. The SDM warns the driver of system malfunctions by controlling the AIR BAG warning light.

**SIDE IMPACT SENSORS (SIS)**

SIS monitor door velocity changes to detect side crashes which are severe enough to warrant side impact air bag module deployment on side of impact. When a side crash of sufficient force is detected, SIS causes current flow through air bag module to deploy respective air bag module.

Additionally, SIS provides diagnostic monitoring of side impact SIR system electrical components. When a malfunction is detected, SIS communicates status of side impact system to SDM.

**AIR BAG WARNING LIGHT**

SDM communicates with Instrument Panel Cluster (IPC) using serial data communications. When ignition switch is first turned on, AIR BAG warning light flashes 7 times while SDM verifies condition of SIR system. If system is okay, AIR BAG warning light will turn off. During vehicle operation, AIR BAG warning light will come on to warn driver of malfunctions which could potentially affect SIR system operation.

**SIR COIL ASSEMBLY**

SIR coil assembly consists of 2 or more current-carrying coils. Coils are attached to steering column and allow rotation of steering wheel while maintaining continuous continuity of driver-side air bag module deployment loop.

Shorting bar across terminal connector short circuits connectors to SIR coil and driver-side air bag module when disconnected. This prevents deployment of air bag module when servicing steering column or other SIR components.

**AIR BAG MODULES**

Air bag modules consist of an inflatable bag and inflator. When vehicle is in an accident of sufficient force, SDM causes current flow through deployment loops. Current passing through modules ignites inflator charges, producing gas which rapidly inflates air bags.

Shorting bars on connectors short circuits wires on air bag modules when disconnected. This prevents deployment of air bag modules when servicing SIR components.

**SEAT BELT PRETENSIONERS**

Seat belt pretensioners consist of an end buckle and buckle sleeve, a routing cable with piston and piston tube, a mounting bracket and a gas generator. When vehicle is in a frontal crash of sufficient force, SDM causes current to flow through pretensioner deployment loops. Seat belt pretensioners may deploy without the front air bags in a mild collision and will deploy immediately before front air bags in a mild-to-severe collision.

**KNEE BOLSTERS**

Knee bolsters are used to absorb energy and control forward movement of front passengers. This is accomplished by limiting leg movement during a frontal crash.

**COMPONENT LOCATIONS**

**COMPONENT LOCATIONS**

<b>Component</b>	<b>Location</b>
AIR BAG warning light	In Instrument Panel Cluster (IPC)
Clockspring	Below steering wheel
Driver-side air bag	On steering wheel
Knee bolsters	Lower edge of driver & passenger-side instrument panel
Passenger-side air bag	Passenger side dashboard
Seat belt pretensioners	Driver & passenger-side inner front seat belt buckles
Sensing & Diagnostic Module (SDM)	Under rear of center console
Side impact air bag modules	Driver & passenger front seat outer seat backs
Side Impact Sensors (SIS)	Inside driver & passenger-side lower doors

**SYSTEM OPERATION CHECK**

If system is functioning normally, AIR BAG warning light flashes 7 times and then turns off when ignition switch is turned on. System malfunction is indicated when light does not illuminate at all, light comes on while vehicle is driven, light flashes 7 times and remains on or light does not flash but remains on when ignition switch is turned on.

**AIR BAG SAFETY PRECAUTIONS**

Observe the following precautions when working with SIR system:

- SDM maintains sufficient voltage to cause air bag deployment for up to one minute after ignition switch is turned off.
- After repairs, ensure AIR BAG warning light is working properly and no system faults are indicated. See

### **SYSTEM OPERATION CHECK**

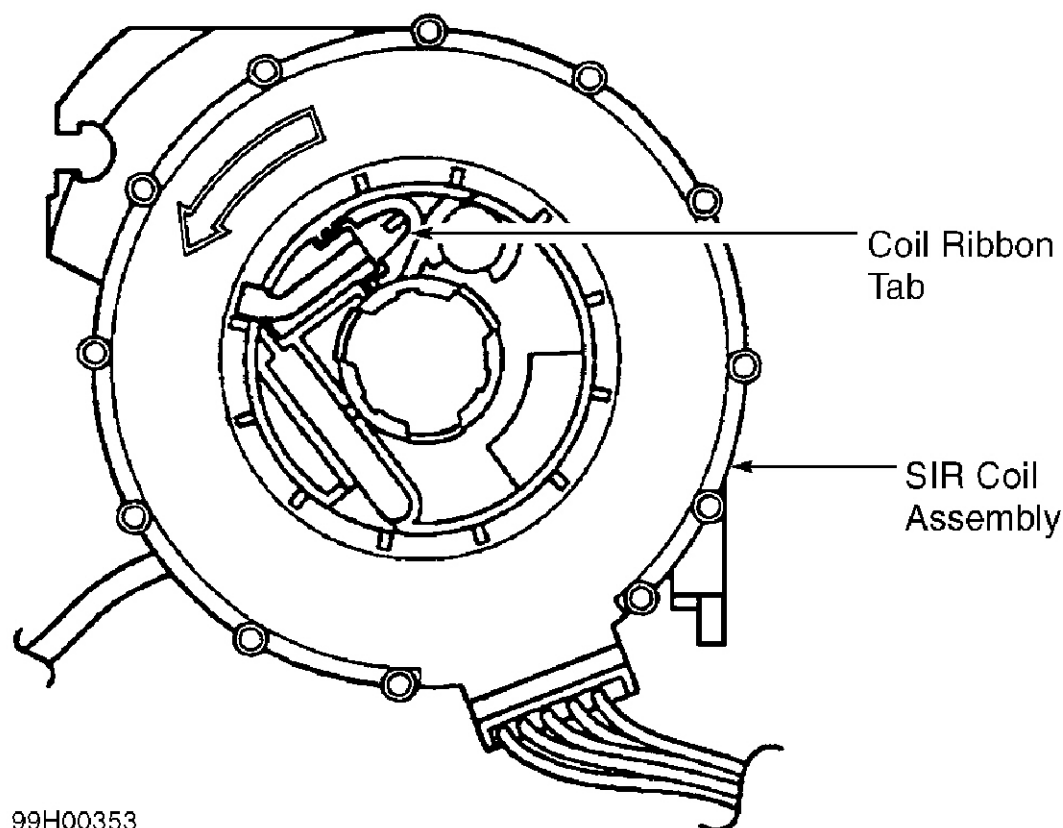
- Always wear safety glasses when servicing or handling an air bag module.
- Air bag modules must be stored in original special containers until used for service. Store in a clean, dry place, away from sources of extreme heat, sparks, or high electrical energy.
- Air bag modules or SDM should not be subjected to temperatures greater than 150 F (65 C).
- Air bag modules, pretensioners, SDM, SIR coil assembly and SIS should not be used if they have been dropped from a height of 3 feet (0.9 m) or greater.
- When placing a live air bag module on a bench or other surface, always make certain that trim cover faces up. This will reduce motion of module if accidentally deployed.
- After deployment, air bag surface may contain deposits of sodium hydroxide, which can irritate skin. Always wear safety glasses, rubber gloves and long-sleeved shirt during clean-up and wash hands using mild soap and water. Follow correct disposal procedures. See **DISPOSAL PROCEDURES**.
- At no time should any electrical source be allowed near inflator on back of air bag module.
- Do not apply power to SIR system unless all components are connected or a diagnostic test requests it, as this will set a diagnostic trouble code.
- When carrying a live air bag module, trim cover should be pointed away from body to minimize injury in case of accidental deployment.
- Do not attempt to service any SIR component. All defective SIR components must be replaced.
- Do not probe a wire through insulator; this damages wire and eventually causes failure due to corrosion.
- When performing electrical tests, prevent accidental shorting of terminals. Such mistakes can damage fuses or components and may cause a second fault code to set, making diagnosis of original problem more difficult.
- When using diagnostic tests to diagnose SIR system, under no circumstances should a volt-ohmmeter, test light or any type of electrical equipment not specified by manufacturer be used.
- If SIR system is not fully functional for any reason, vehicle should not be driven until system is repaired. Do not remove bulbs, modules, sensors or other components or in any way disable system from operating normally.

## **ADJUSTMENTS**

### **CENTERING COIL ASSEMBLY**

**NOTE:**      **New coil assemblies are pre-centered and include a centering tab that is removed once coil is installed.**

While holding coil assembly housing, depress spring lock and rotate center counterclockwise until resistance is felt. See **Fig. 1**. Rotate coil center clockwise approximately 2 1/2 turns until arrow in center of coil aligns with arrow on the outer casing.



99H00353

**Fig. 1: Centering SIR Coil Assembly**  
 Courtesy of GENERAL MOTORS CORP.

## DISABLING & ACTIVATING AIR BAG SYSTEM

**CAUTION:** Vehicle computer and memory systems may lose memory data when battery is disconnected. Driveability problems may exist until computer systems have completed a relearn cycle. See Computer Relearn Procedures in the Reference Information section. Record preset radio stations and obtain code for theft deterrent-equipped radios before disconnecting battery.

### DISABLING SYSTEM

**WARNING:** Accidental air bag deployment is possible. Personal injury may result. SDM maintains sufficient voltage to cause air bag deployment for up to one minute after ignition switch is turned OFF.

**NOTE:** Power for SIR system is fed to SDM directly from ignition switch.

1. Turn steering wheel to place vehicle wheels in straight-ahead position. Turn ignition switch to LOCK position. Remove key from ignition switch and wait one minute until energy reserve has discharged.
2. Remove driver-side air bag module from steering wheel. Disconnect driver-side air bag module connector from SIR coil assembly.
3. Remove passenger-side air bag module cover. Disconnect passenger-side air bag module connector. Remove driver and passenger-side seat track trim covers. Disconnect seat belt pretensioner connectors. Disconnect driver and passenger's seat air bag module connectors. System is now disabled.

### ACTIVATING SYSTEM

1. With steering wheel turned so vehicle wheels are in straight-ahead position and ignition switch in LOCK position, reconnect all SIR component connectors. Reinstall all trim covers.
2. Stay well away from air bags and turn ignition switch to RUN position. Check system for proper operation. See **SYSTEM OPERATION CHECK** .

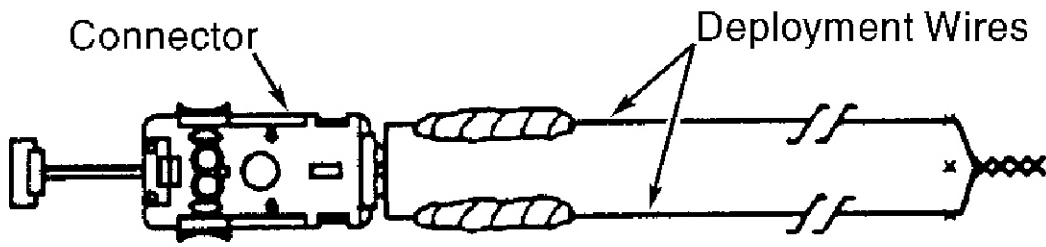
## DISPOSAL PROCEDURES

**WARNING: Accidental air bag deployment is possible. Personal injury may result. To prevent accidental deployment and personal injury, deploy air bags before disposal. DO NOT dispose of undeployed air bag modules at normal refuse locations. Undeployed air bag modules contain substances that can cause severe illness or personal injury if sealed container is damaged during disposal.**

**NOTE: If vehicle is to be scrapped, perform on-vehicle air bag deployment procedure.**

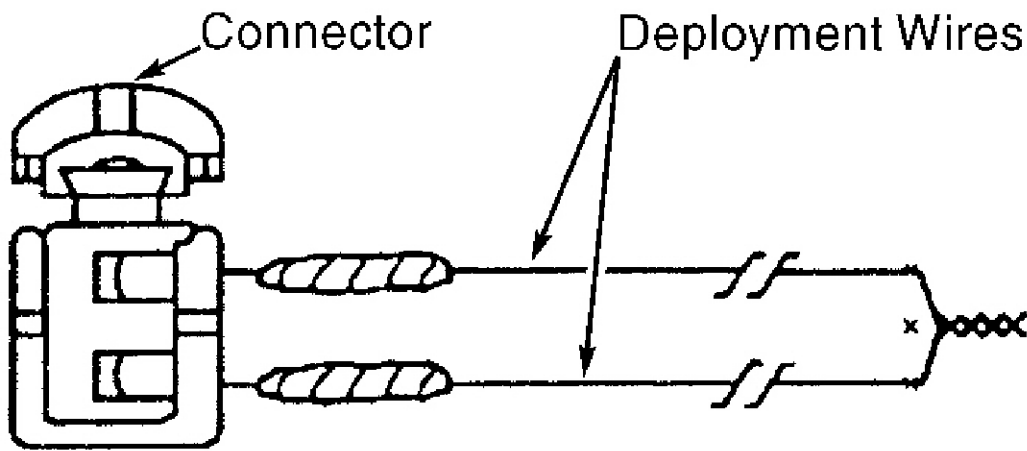
## ON-VEHICLE DEPLOYMENT

1. Before proceeding, see **AIR BAG SAFETY PRECAUTIONS** . Turn ignition switch off, remove key and put on safety glasses. Disable air bag system. See **DISABLING & ACTIVATING AIR BAG SYSTEM** .
2. Cut air bag module harness connector from vehicle leaving at least 6" (152 mm) of wire at the connector. Strip 0.50" (13 mm) of insulation from each wire lead to the connector. Cut 2 deployment wires at least 20 feet long (6.1 m) from 18-gauge multi-strand wire. Strip 0.50" (13 mm) of insulation from each connector wire lead. Cut 2 15-foot (4.6 m) deployment wires from 18-gauge multi-strand wire. Strip 0.50" (13 mm) of insulation from both ends of wires. Twist wires together at one end to short.
3. Twist together one connector wire lead to other end of each deployment wire. See **Fig. 2** . Bend twisted connection flat and wrap tightly with electrical tape to insulate. Repeat this step for other connector wire lead.
4. Remove all loose objects from front seat, and ensure no one is in vehicle. Connect deployment harness to air bag module connector. Stretch wires away from car as far as possible.
5. Repeat steps 2) through 4) for passenger-side air bag module, side impact air bag modules and seat belt pretensioners. See **Fig. 3 & Fig. 4** . Cover windshield and front door openings with a drop cloth.
6. Separate wire ends. Connect wires to a 12-volt battery. Air bag should deploy. Disconnect wires from battery. DO NOT touch metal surfaces of air bag module for at least 10 minutes due to heat generated during deployment. Wear gloves and safety glasses when handling deployed air bag module. Wash hands with mild soap and water. Dispose of deployed air bag module like any other part. Repeat deployment procedure for remaining air bags and pretensioners.
7. If air bag modules or pretensioners do not deploy, carefully remove from vehicle. See **AIR BAG MODULES** and **SEAT BELT PRETENSIONERS** under REMOVAL & INSTALLATION. Temporarily store air bag module with trim facing up. Contact manufacturer for proper disposal instructions.



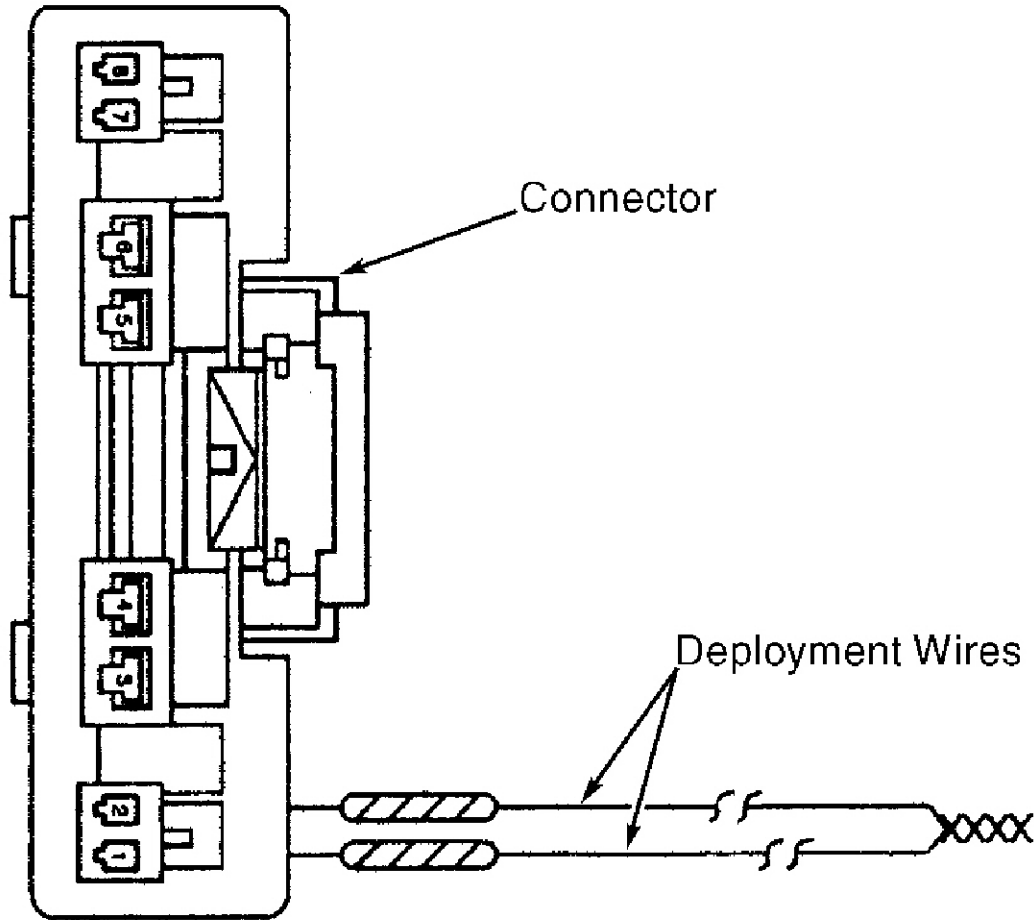
98E13908

**Fig. 2: Preparing Deployment Harness For Driver-side Air Bag On-vehicle Deployment**  
Courtesy of GENERAL MOTORS CORP.



98C13906

**Fig. 3: Preparing Deployment Harness For Passenger-side & Side Impact Air Bag On-vehicle Deployment**  
Courtesy of GENERAL MOTORS CORP.



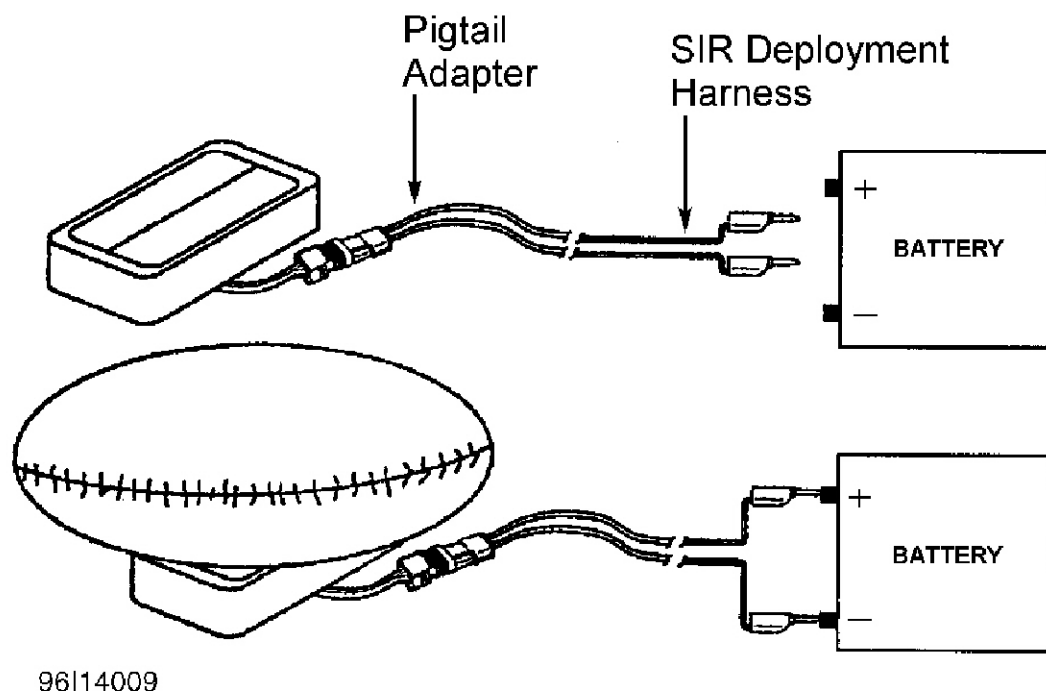
98A13904

**Fig. 4: Preparing Deployment Harness For Seat Belt Pretensioner On-vehicle Deployment**  
 Courtesy of GENERAL MOTORS CORP.

#### OFF-VEHICLE DEPLOYMENT

1. Before proceeding, see **AIR BAG SAFETY PRECAUTIONS**. Turn ignition switch off, remove key and put on safety glasses. Short 2 SIR Deployment Harness (J-38826) leads together by fully seating one banana plug into the other. Connect appropriate pigtail adapter to SIR deployment harness. See **Fig. 5**.
2. Remove driver-side air bag module. See **AIR BAG MODULES** under REMOVAL & INSTALLATION.
3. Place air bag module on ground (preferably outdoors) in center of an area at least 6 feet (1.8 m) in diameter, away from people or objects. Stretch SIR deployment harness and pigtail adapter from air bag module to its full length. Place a 12-volt battery near shorted end of SIR deployment harness.
4. Connect air bag module to pigtail adapter on SIR deployment harness. Ensure area around air bag module is clear of people and objects. Verify that air bag module is resting with trim cover facing up.
5. Separate 2 banana plugs on SIR deployment harness. Connect SIR deployment harness wires to battery. Air bag module should deploy immediately. If air bag module does not deploy, go to step 7. Disconnect SIR deployment harness from battery. Short 2 SIR deployment harness leads together. **DO NOT** touch metal surfaces of air bag module for at least 10 minutes due to heat generated during deployment. Wear gloves and safety glasses when handling deployed air bag module. Wash hands with mild soap and water after handling. Dispose of deployed air bag module like any other part. Inspect pigtail adapter and SIR deployment harness for damage after each use.
6. Using Deployment Fixture (J-39401-B), repeat deployment procedure for passenger-side air bag, side impact air bag modules and seat belt pretensioners. If any component should fail to deploy, go to next step.
7. Ensure that SIR deployment harness is disconnected from battery and that 2 banana plugs have been shorted

together. Disconnect pigtail adapter from air bag module. Temporarily store air bag modules with trim cover facing up. Contact manufacturer for proper disposal instructions.



**Fig. 5: Preparing Deployment Harness For Off-vehicle Deployment**  
Courtesy of GENERAL MOTORS CORP.

## POST-COLLISION INSPECTION

When a vehicle has been involved in a collision, certain components of the passive restraint system must be inspected or replaced. See **AIR BAG/SRS COMPONENT INSPECTION & REPLACEMENT TABLES** article in the GENERAL INFORMATION section.

## REMOVAL & INSTALLATION

**WARNING:** Accidental air bag deployment is possible. Personal injury may result. Failure to follow service precautions may result in air bag deployment and personal injury. See **AIR BAG SAFETY PRECAUTIONS** . After component replacement, check system operation. See **SYSTEM OPERATION CHECK** .

### SENSING & DIAGNOSTIC MODULE (SDM)

#### Removal

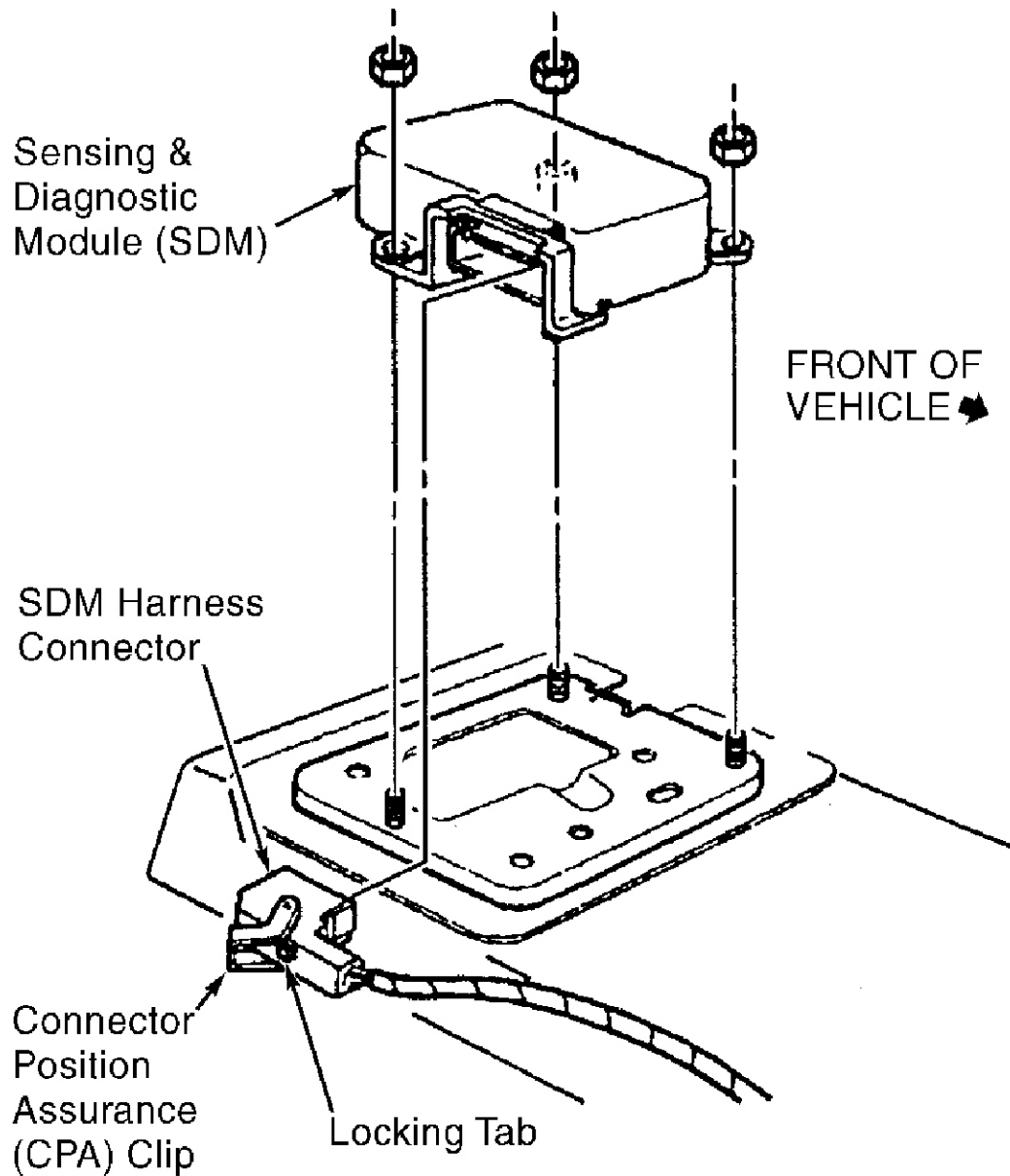
1. Before proceeding, see **AIR BAG SAFETY PRECAUTIONS** . Disable air bag system. See **DISABLING & ACTIVATING AIR BAG SYSTEM** .
2. Remove lower center console. Remove Connector Position Assurance (CPA) clip and disconnect SDM harness connector from SDM. See **Fig. 6** . Remove SDM fasteners. Remove SDM.

#### Installation

1. Mount SDM on vehicle, ensuring arrow is pointing toward front of vehicle. Install SDM fasteners. See **Fig. 6** . Tighten fasteners to specification. See **TORQUE SPECIFICATIONS** . Reconnect SDM harness connector and install CPA clip.



2. Install lower center console. Activate air bag system. See **DISABLING & ACTIVATING AIR BAG SYSTEM** . Check system for proper operation. See **SYSTEM OPERATION CHECK** .



98113902

**Fig. 6: Identifying Sensing & Diagnostic Module (SDM)**  
 Courtesy of GENERAL MOTORS CORP.

#### SIDE IMPACT SENSORS (SIS)

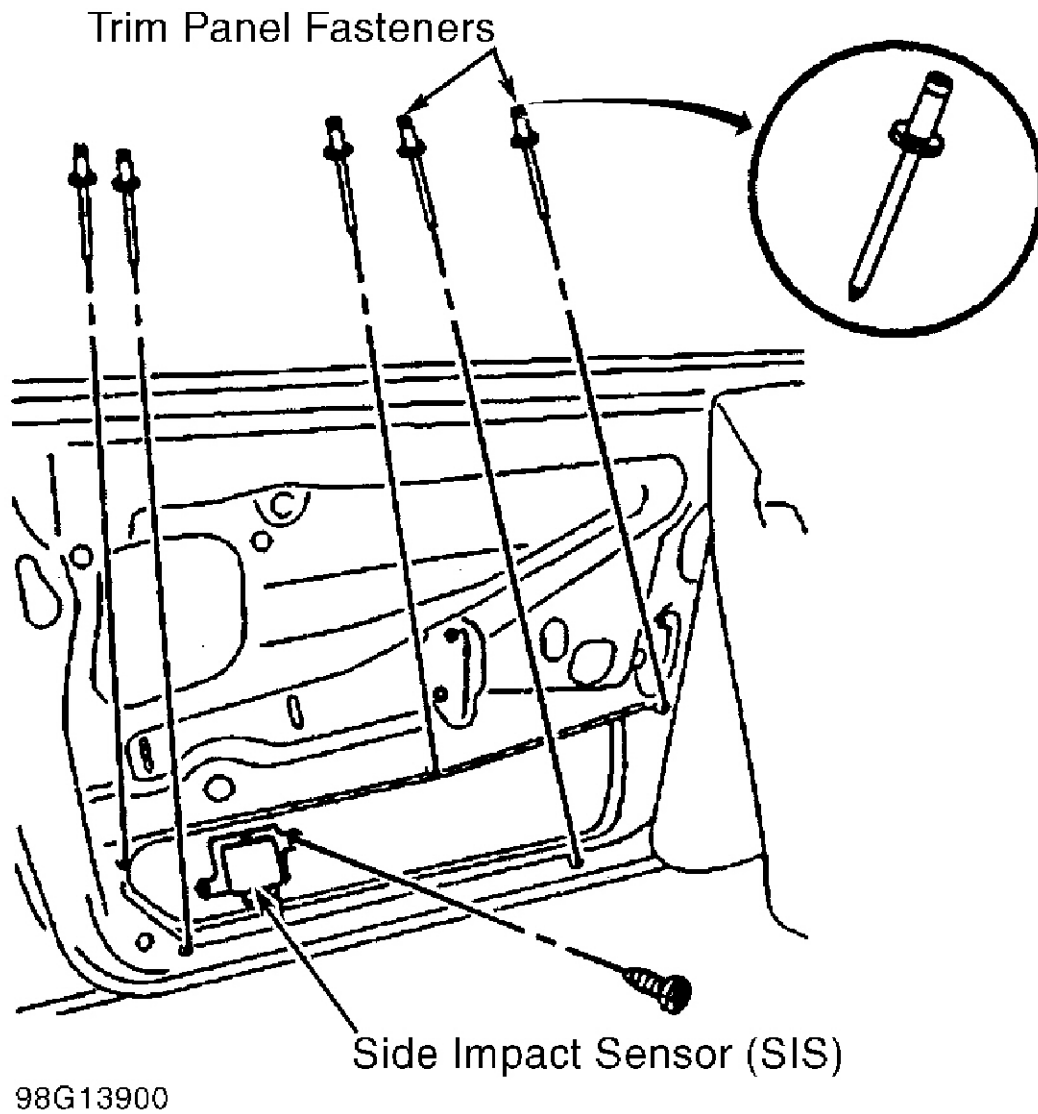
##### Removal

1. Before proceeding, see **AIR BAG SAFETY PRECAUTIONS** . Disable air bag system. See **DISABLING & ACTIVATING AIR BAG SYSTEM** .
2. Remove front door trim panel and water deflector. Disconnect SIS harness connector. Remove 2 Torx(R) screws attaching SIS to door assembly. See **Fig. 7** . Remove SIS from mounting plate.

##### Installation

To install, reverse removal procedure. Tighten SIS Torx(R) screws to specification. See **TORQUE SPECIFICATIONS** . Install trim panel using new fasteners. See **Fig. 7** . Activate air bag system. See

**DISABLING & ACTIVATING AIR BAG SYSTEM** . Check system for proper operation. See **SYSTEM OPERATION CHECK** .



**Fig. 7: Identifying Side Impact Sensor (SIS)**  
 Courtesy of GENERAL MOTORS CORP.

**STEERING WHEEL**

**Removal**

1. Before proceeding, see **AIR BAG SAFETY PRECAUTIONS** . Disable air bag system. See **DISABLING & ACTIVATING AIR BAG SYSTEM** .
2. Remove driver-side air bag module. See **AIR BAG MODULES** . Reposition locking tab on steering wheel nut. Remove steering wheel nut. Scribe a mark on steering shaft and steering wheel to ensure proper alignment during installation. Using Steering Wheel Puller (J-1859-A) and Steering Wheel Puller Legs (J-36541-A), remove steering wheel from steering shaft. Ensure wiring is not damaged during removal.

**Installation**

1. Align mark on steering shaft with mark on steering wheel. Install steering wheel onto steering shaft, while feeding wiring through steering wheel. Install steering wheel nut and tighten to specification. See **TORQUE SPECIFICATIONS** . Secure nut with locking tab. Install driver-side air bag module. See **AIR BAG MODULES** .

2. Activate air bag system. See **DISABLING & ACTIVATING AIR BAG SYSTEM** . Check system for proper operation. See **SYSTEM OPERATION CHECK** .

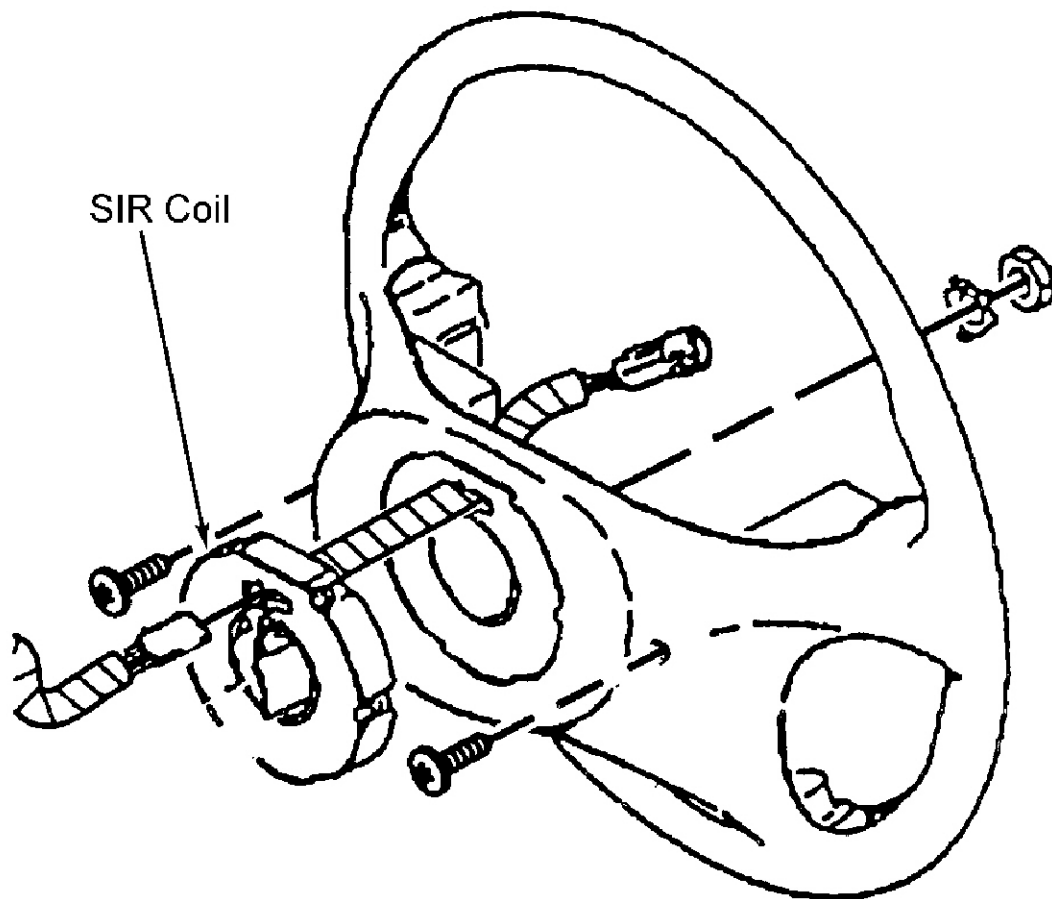
### SIR COIL ASSEMBLY

#### Removal

1. Before proceeding, see **AIR BAG SAFETY PRECAUTIONS** . Disable air bag system. See **DISABLING & ACTIVATING AIR BAG SYSTEM** .
2. Ensure front wheels face straight ahead. Remove driver-side air bag module. See **AIR BAG MODULES** . Remove steering wheel. See **STEERING WHEEL** . Remove upper and lower steering column covers. Remove steering column tilt lever. Disconnect SIR coil connector. Remove retaining rings and clips. Remove SIR coil from steering column. See **Fig. 8** .

#### Installation

1. Center SIR coil assembly if necessary. See **CENTERING COIL ASSEMBLY** under ADJUSTMENTS. Install SIR coil onto steering column. Install retaining rings and clips. Connect SIR coil connector. Install tilt lever. Install upper and lower steering column covers.
2. Install steering wheel. See **STEERING WHEEL** . Install driver-side air bag module. See **AIR BAG MODULES** . Activate air bag system. See **DISABLING & ACTIVATING AIR BAG SYSTEM** . Check system for proper operation. See **SYSTEM OPERATION CHECK** .



97H05548

**Fig. 8: Identifying SIR Coil Assembly**  
 Courtesy of GENERAL MOTORS CORP.

**Removal (Driver-side)**

1. Before proceeding, see **AIR BAG SAFETY PRECAUTIONS** . Disable air bag system. See **DISABLING & ACTIVATING AIR BAG SYSTEM** .
2. Remove 2 screws from back of steering wheel. See **Fig. 9** . Remove Connector Position Assurance (CPA) clip and disconnect SIR coil connector from air bag module. Remove air bag module from steering wheel.

**Installation**

To install, reverse removal procedure. Tighten driver-side air bag module screws to specification. See **TORQUE SPECIFICATIONS** . Activate air bag system. See **DISABLING & ACTIVATING AIR BAG SYSTEM** . Check system for proper operation. See **SYSTEM OPERATION CHECK** .

**Removal (Passenger-side)**

1. Before proceeding, see **AIR BAG SAFETY PRECAUTIONS** . Disable air bag system. See **DISABLING & ACTIVATING AIR BAG SYSTEM** .
2. Remove passenger-side air bag module trim cover. See **PASSENGER-SIDE AIR BAG MODULE TRIM COVER** . Remove Connector Position Assurance (CPA) clip and disconnect air bag module connector. Remove air bag module fasteners. Remove passenger-side air bag module from vehicle. See **Fig. 10** .

**Installation**

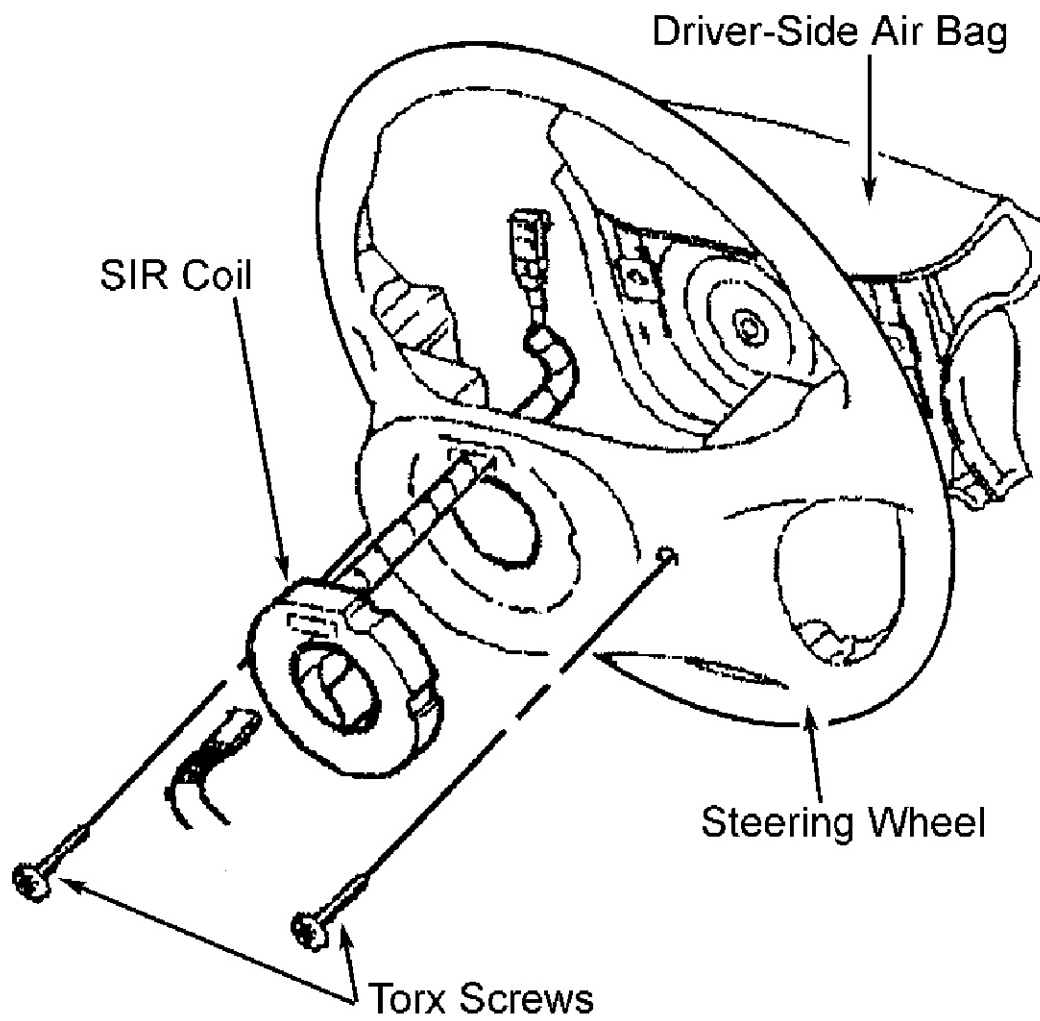
To install, reverse removal procedure. Tighten air bag module and trim cover fasteners to specification. See **TORQUE SPECIFICATIONS** . Activate air bag system. See **DISABLING & ACTIVATING AIR BAG SYSTEM** . Check system for proper operation. See **SYSTEM OPERATION CHECK** .

**Removal (Side Impact)**

1. Before proceeding, see **AIR BAG SAFETY PRECAUTIONS** . Disable air bag system. See **DISABLING & ACTIVATING AIR BAG SYSTEM** .
2. Remove applicable front seat. Remove seatback panel screws and seatback panel. Remove Connector Position Assurance (CPA) clip and disconnect air bag module connector. See **Fig. 11** . Remove 3 nuts from side impact air bag module and remove module from seatback.

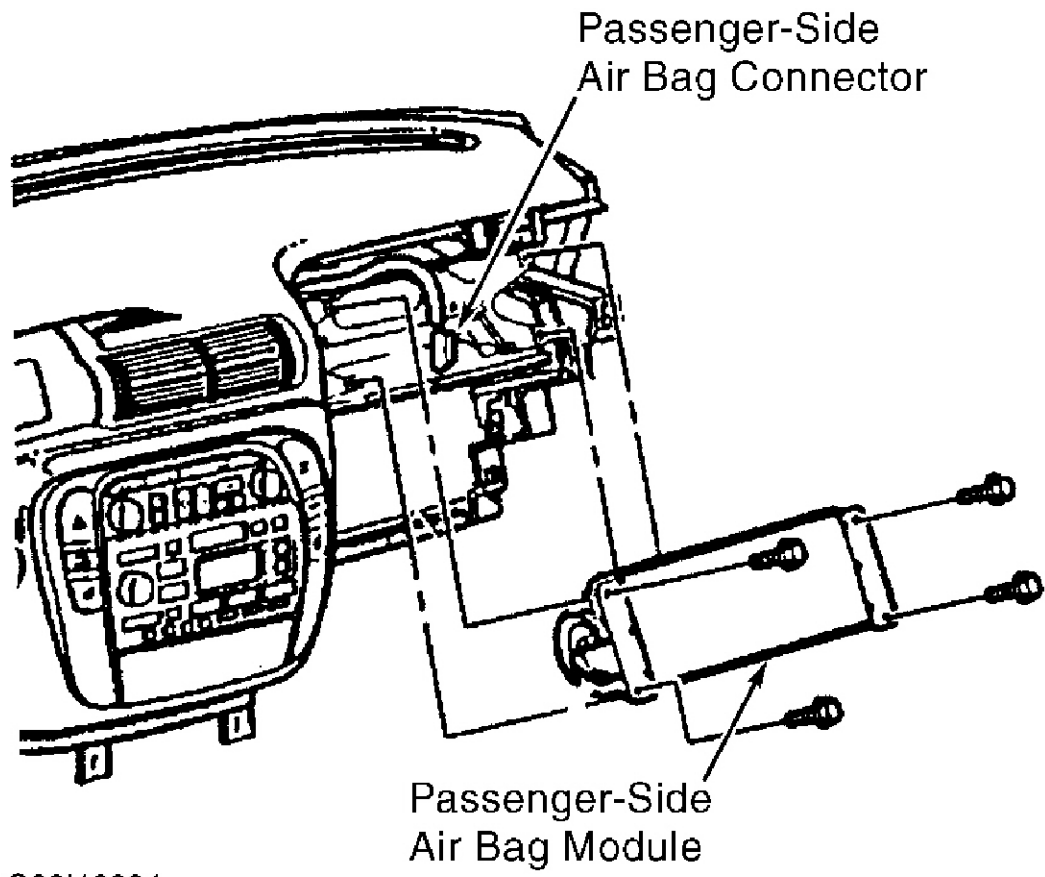
**Installation**

To install, reverse removal procedure. Tighten air bag module mounting nuts and seat anchor bolts to specification. See **TORQUE SPECIFICATIONS** . Activate air bag system. See **DISABLING & ACTIVATING AIR BAG SYSTEM** . Check system for proper operation. See **SYSTEM OPERATION CHECK** .



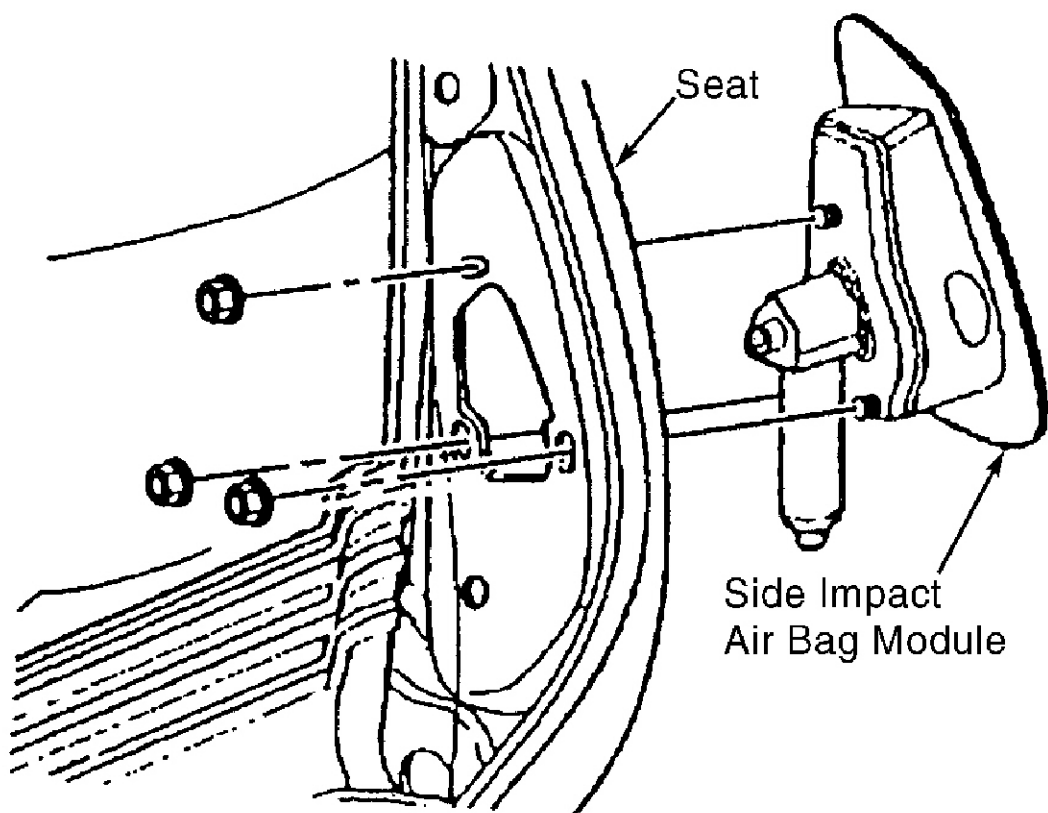
97J05549

**Fig. 9: Identifying Driver-side Air Bag Module**  
Courtesy of GENERAL MOTORS CORP.



G98I13894

**Fig. 10: Identifying Passenger-side Air Bag Module**  
Courtesy of GENERAL MOTORS CORP.



98G13892

**Fig. 11: Identifying Side Impact Air Bag Module**  
**Courtesy of GENERAL MOTORS CORP.**

**PASSENGER-SIDE AIR BAG MODULE TRIM COVER**

**Removal & Installation**

1. Before proceeding, see **AIR BAG SAFETY PRECAUTIONS** . Disable air bag system. See **DISABLING & ACTIVATING AIR BAG SYSTEM** .
2. Remove access panel, located on right end of instrument panel. Remove outer air deflector screw and remove air deflector. Remove outer air deflector bracket screws and remove air deflector bracket.
3. Open glove box. Remove air bag module trim cover lower screws and upper bolt. Remove trim cover from instrument panel.
4. To install, reverse removal procedure. Tighten trim cover screws and bolt and air deflector screws to specification. See **TORQUE SPECIFICATIONS** . Activate air bag system. See **DISABLING & ACTIVATING AIR BAG SYSTEM** . Check system for proper operation. See **SYSTEM OPERATION CHECK** .

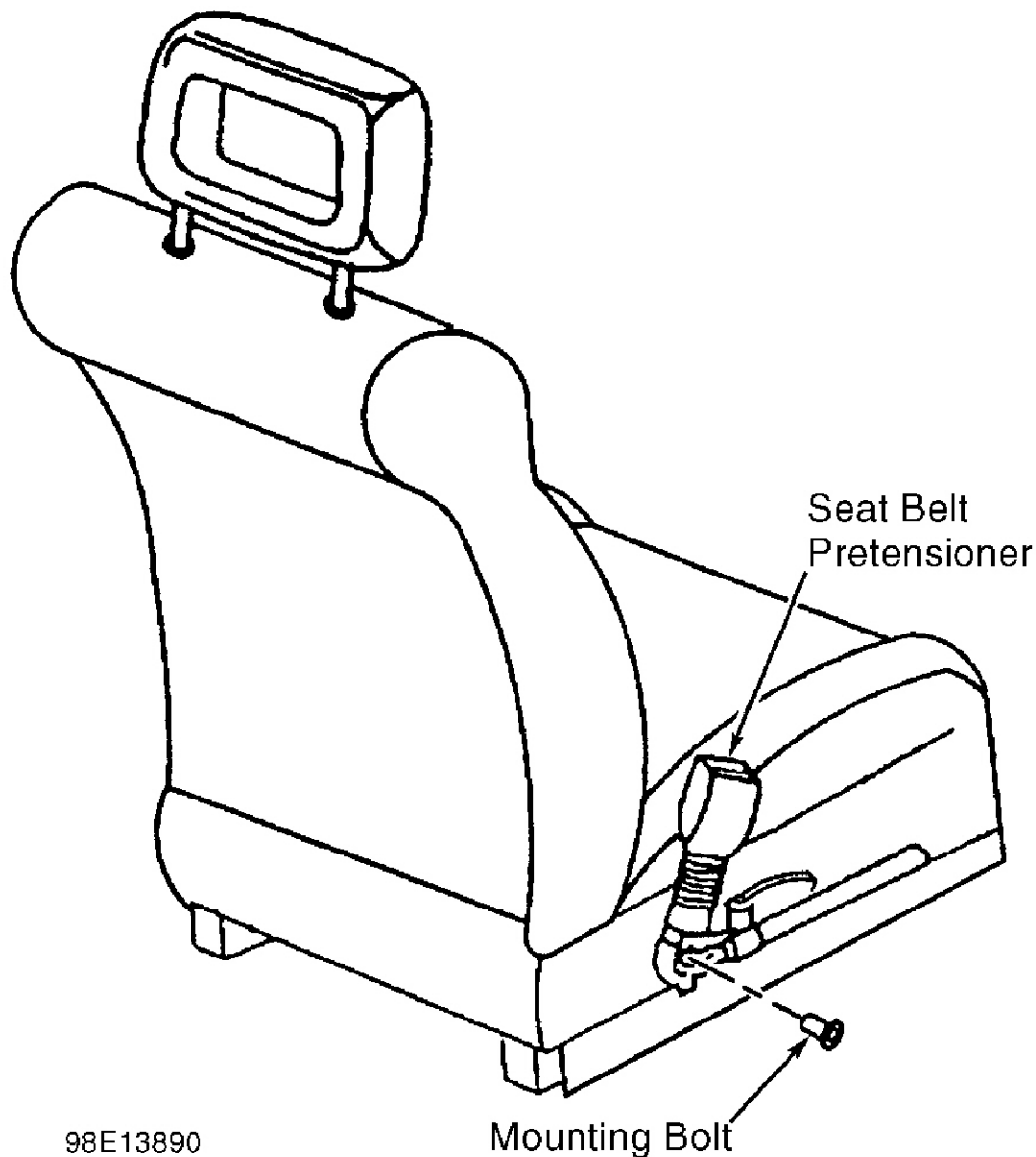
**SEAT BELT PRETENSIONERS**

**Removal**

1. Before proceeding, see **AIR BAG SAFETY PRECAUTIONS** . Disable air bag system. See **DISABLING & ACTIVATING AIR BAG SYSTEM** .
2. Remove applicable front seat. Remove pretensioner mounting bolt and remove pretensioner from seat. See **Fig. 12** .

**Installation**

To install, reverse removal procedure. Ensure seat belt pretensioner is positioned correctly on seat. Tighten pretensioner and seat anchor bolts to specification. See **TORQUE SPECIFICATIONS** . Activate air bag system. See **DISABLING & ACTIVATING AIR BAG SYSTEM** . Check system for proper operation. See **SYSTEM OPERATION CHECK** .



**Fig. 12: Identifying Seat Belt Pretensioner**  
Courtesy of GENERAL MOTORS CORP.

## DIAGNOSTICS

**WARNING:** Accidental air bag deployment is possible. Personal injury may result. Failure to follow service precautions may result in air bag deployment and personal injury. See AIR BAG SAFETY PRECAUTIONS . After component replacement, check system operation. See SYSTEM OPERATION CHECK .

### DIAGNOSTIC TROUBLE CODES (DTCs)

Sensing & Diagnostic Module (SDM) provides a record of DTCs, stored according to type. SDM performs diagnostic monitoring of SIR system electrical components and sets a DTC when a malfunction is detected. Current DTCs are stored in SDM and are erased when fault is corrected. Current DTCs can be read using a scan tool such as Tech 2.

### SCAN TOOL DIAGNOSTICS

Scan Tool (Tech 2) reads and clears current and history codes. Ensure scan tool contains correct software cartridge for SIR diagnostics. To use scan tool, connect it to Data Link Connector (DLC), located under left side of instrument panel. Plug in power source and turn ignition switch on. Follow scan tool manufacturer instructions for



## 2001 Cadillac Catera

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

communication with SIR system. Scan tool reads serial data from SDM data line output terminal No. 12 to DLC connector terminal No. 12.

### DIAGNOSTIC PROCEDURES

Diagnostic procedures are designed to find and repair SIR malfunctions. It is important to use diagnostic tests and follow sequence listed below:

#### Perform SIR System Diagnostic Check

SIR diagnostic system check should always be starting point for any SIR diagnostics. It checks for proper AIR BAG warning light operation and SIR trouble codes using both flash code and scan tool methods. See **SIR DIAGNOSTIC SYSTEM CHECK** under DIAGNOSTIC TESTS.

#### Refer To Proper Diagnostic Test

SIR diagnostic system check indicates correct test to diagnose SIR problems. Bypassing procedures may result in extended diagnostic time, incorrect diagnosis and incorrect parts replacement.

#### Repeat SIR Diagnostic System Check

Performing SIR diagnostic system check after all repair or diagnostic procedures ensures that repair has been made correctly and that no other conditions exist.

### DIAGNOSTIC TESTS

#### DIAGNOSTIC TROUBLE CODE (DTC) IDENTIFICATION

Trouble Code	Possible Cause
<u>013</u>	Driver-side air bag deployment loop short to ground
<u>014</u>	Driver seat belt pretensioner deployment loop short to ground
<u>015</u>	Driver-side air bag deployment loop short to voltage
<u>016</u>	Driver seat belt pretensioner deployment loop short to voltage
<u>023</u>	Passenger-side air bag deployment loop short to ground
<u>024</u>	Passenger seat belt pretensioner deployment loop short to ground
<u>025</u>	Passenger-side air bag deployment loop short to voltage
<u>026</u>	Passenger seat belt pretensioner deployment loop short to voltage
<u>031</u>	Driver-side air bag deployment loop resistance high
<u>032</u>	Driver-side air bag deployment loop resistance low
<u>033</u>	Passenger-side air bag deployment loop resistance high
<u>034</u>	Passenger-side air bag deployment loop resistance low
<u>035</u>	Driver seat belt pretensioner deployment loop resistance high
<u>036</u>	Diver seat belt pretensioner deployment loop resistance low
<u>037</u>	Passenger seat belt pretensioner deployment loop resistance high
<u>038</u>	Passenger seat belt pretensioner deployment loop resistance low
<u>043</u>	Warning light circuit short to voltage
<u>044</u>	Warning light circuit open or short to ground
<u>052</u>	SDM not configured
<u>053</u>	SDM configuration mismatch
<u>055</u>	Internal SDM failure
<u>056</u>	SDM not reusable
<u>065</u>	Passenger-side air bag deployment commanded

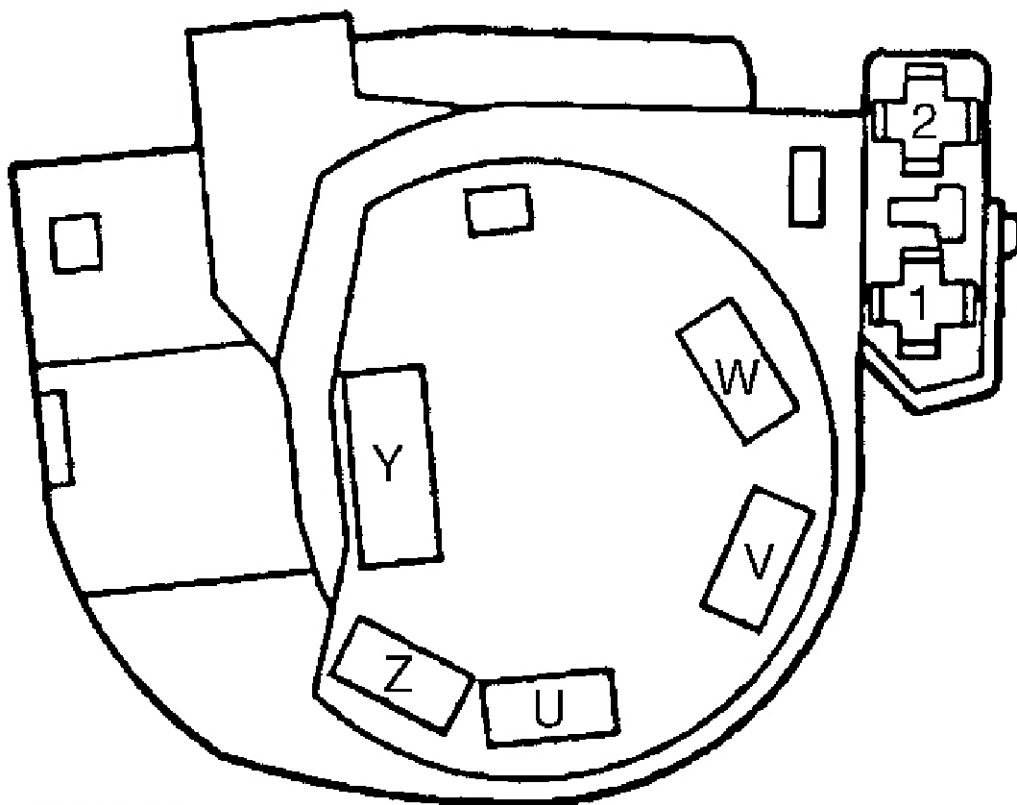
**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

<u>066</u>	Driver-side air bag deployment commanded
<u>067</u>	Pretensioner deployment commanded
<u>068</u>	Driver side impact air bag deployment commanded
<u>069</u>	Passenger side air bag deployment commanded
<u>071</u>	Driver side impact sensor communications invalid
<u>073</u>	Driver side impact sensor short to voltage
<u>074</u>	Driver side impact sensor short to ground
<u>075</u>	Driver side impact air bag short to ground
<u>076</u>	Driver side impact air bag short to voltage
<u>077</u>	Driver side impact air bag deployment loop resistance high
<u>078</u>	Driver side impact air bag deployment loop resistance low
<u>081</u>	Passenger side impact sensor communications invalid
<u>083</u>	Passenger side impact sensor short to voltage
<u>084</u>	Passenger side impact sensor short to ground
<u>085</u>	Passenger side impact air bag short to ground
<u>086</u>	Passenger side impact air bag short to voltage
<u>087</u>	Passenger side impact air bag deployment loop resistance high
<u>088</u>	Passenger side impact air bag deployment loop resistance low
<u>097</u>	ONSTAR DCO link open or short to voltage
<u>098</u>	ONSTAR DCO link short to ground

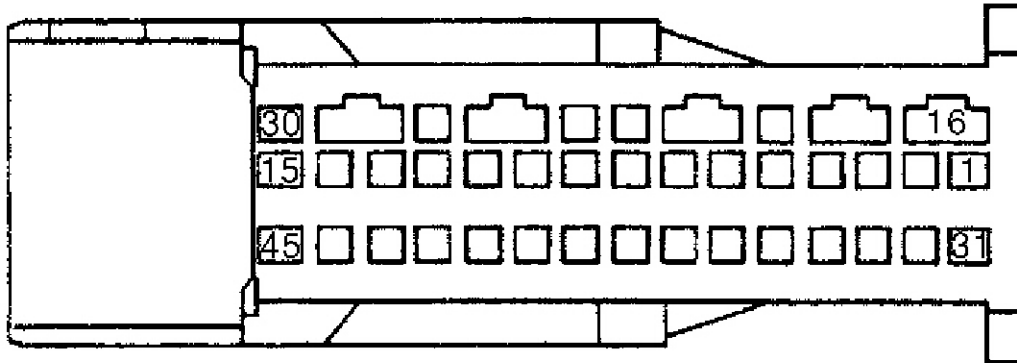
**CONNECTOR IDENTIFICATION**

**NOTE:** Refer to illustrations to identify SIR connector terminals. See Fig. 13 - Fig. 19 .



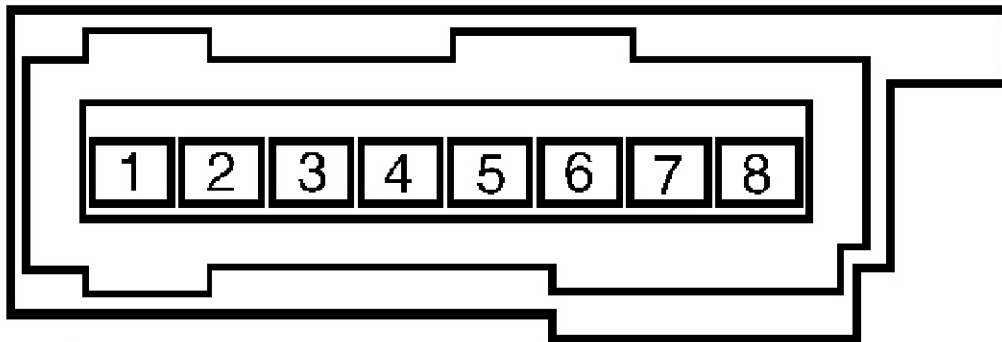
98113886

**Fig. 13: Identifying Ignition Switch Connector Terminals**  
Courtesy of GENERAL MOTORS CORP.



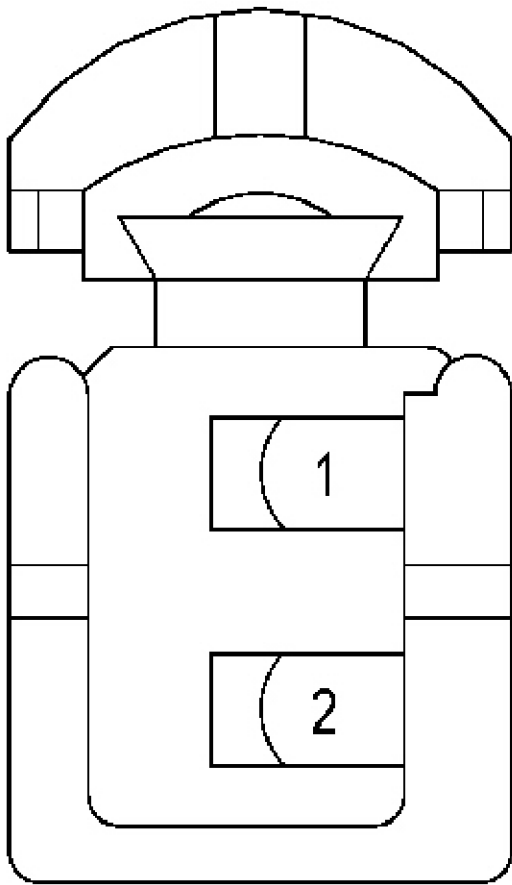
98H13471

**Fig. 14: Identifying Sensing & Diagnostic Module (SDM) Connector Terminals**  
Courtesy of GENERAL MOTORS CORP.



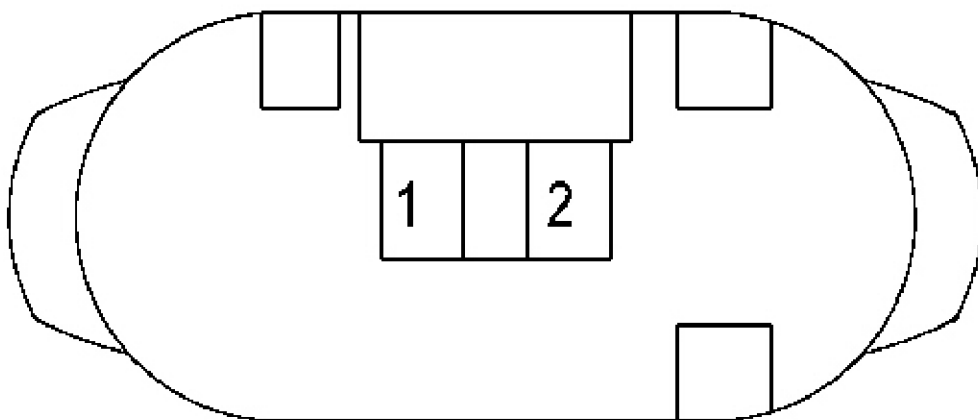
98G13884

**Fig. 15: Identifying SIR Coil Connector Terminals**  
Courtesy of GENERAL MOTORS CORP.



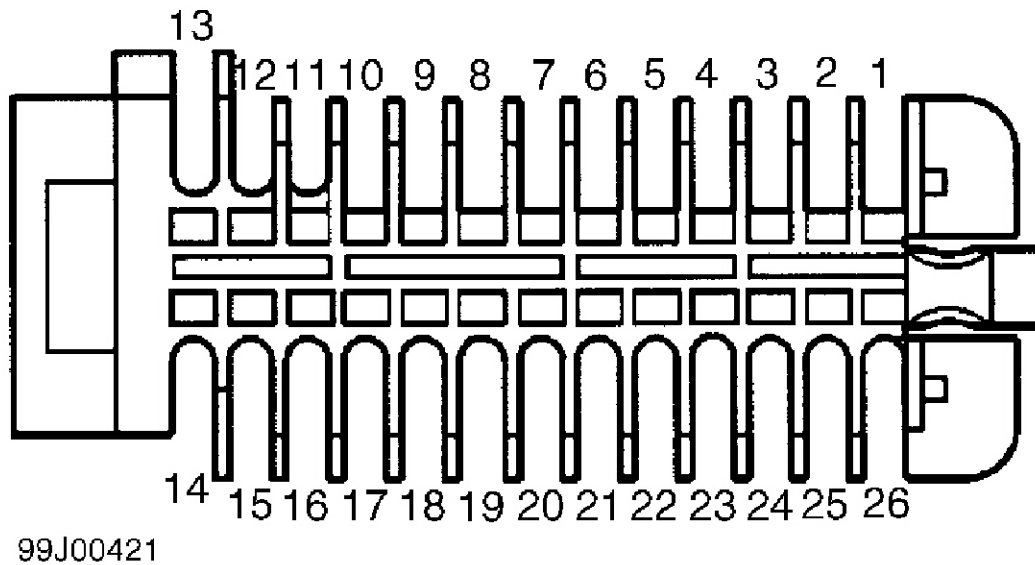
99H24007

**Fig. 16: Identifying Passenger-side Air Bag Module, Side Impact Air Bag Module & Seat Belt Pretensioner Connector Terminals**  
Courtesy of GENERAL MOTORS CORP.

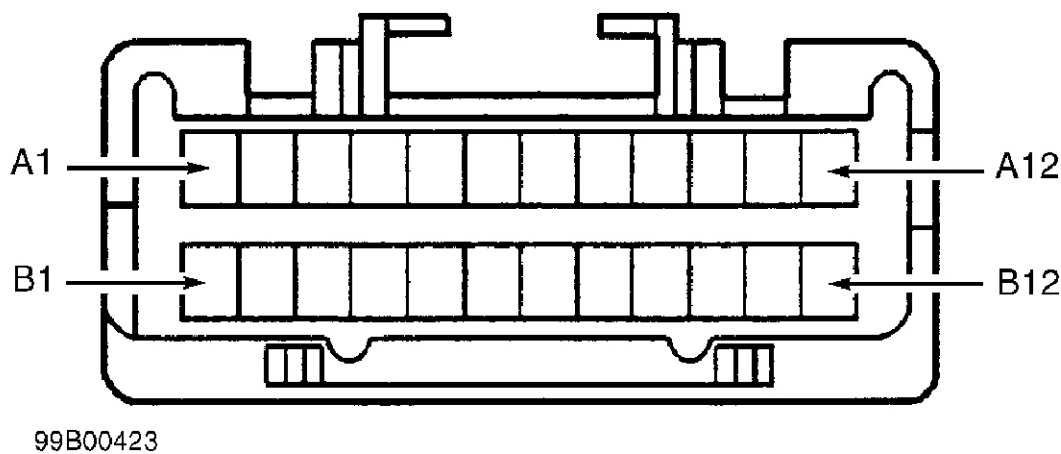


99G24006

**Fig. 17: Identifying Side Impact Sensor (SIS) Connector Terminals**  
 Courtesy of GENERAL MOTORS CORP.



**Fig. 18: Identifying Instrument Cluster Connector Terminals**  
 Courtesy of GENERAL MOTORS CORP.



**Fig. 19: Identifying BCM Connector C1 Terminals**  
 Courtesy of GENERAL MOTORS CORP.

**SIR DIAGNOSTIC SYSTEM CHECK**

**WARNING:** Accidental air bag deployment is possible. Personal injury may result. To avoid air bag deployment and injury when trouble shooting system, only use test equipment specified in diagnostic tests. Carefully follow all instructions.

**Circuit Description**

AIR BAG warning light flashes 7 times during which time SDM checks SIR system for malfunctions. If SDM determines SIR system is okay, AIR BAG warning light will go off. If SDM detects a malfunction, AIR BAG warning light will turn on.

**Diagnostic Procedure**

1. Turn ignition on and note AIR BAG warning light. If light flashes 7 times, go to next step. If light does not flash, inspect vehicle and easily accessible air bag system components for obvious damage, addition of aftermarket accessories or conditions which could cause malfunction. Diagnose air bag warning light problems. See **AIR BAG WARNING LIGHT COMES ON STEADY** or **AIR BAG WARNING LIGHT DOES NOT COME ON**.
2. Install scan tool to Data Link Connector (DLC), located below left side of instrument panel. If scan tool powers up, go to next step. If scan tool does not power up, inspect data link communication circuits.
3. If scan tool communicates with Sensing and Diagnostic Module (SDM), go to next step. If scan tool does not communicate with SDM, check keyword data line in data link communications.
4. Using scan tool, request SIR DTCs. If current or history DTCs exist, perform appropriate diagnostic test. See **DIAGNOSTIC TROUBLE CODE (DTC) IDENTIFICATION** table. If no DTCs exist, system is okay at this time.

**AIR BAG WARNING LIGHT COMES ON STEADY****Circuit Description**

AIR BAG warning light flashes 7 times during which time SDM checks SIR system for malfunctions. If SIR system is okay, AIR BAG warning light will go off. If SDM detects a malfunction, AIR BAG warning light will stay on or turn on.

**Diagnostic Aids**

AIR BAG warning light will turn on with no DTCs present if Ignition 1 (IGN1) voltage is outside normal operating range of 9-16 volts. A malfunctioning SDM connector could also cause condition.

**NOTE:** For circuit number and wire color identification, see **WIRING DIAGRAMS**.

**Diagnostic Procedure**

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to **SIR DIAGNOSTIC SYSTEM CHECK**.
2. Turn ignition off. Observe AIR BAG warning light when turning ignition on. If AIR BAG warning light remains on, go to next step. If AIR BAG warning light does not remain on, inspect for intermittent or poor connections. Go to step 15.
3. Turn ignition off. Install scan tool to Data Link Connector (DLC), located below left instrument panel. Request SIR DATA display. If ignition voltage is greater than 9 volts, go to next step. If ignition voltage is 9 volts or less, go to step 9.
4. If voltage is between 9 and 16 volts, go to next step. If voltage is more than 16 volts, inspect battery and charging system. Go to step 15.
5. Turn ignition off. Disconnect SDM harness connector. If SDM connector or shorting bars show signs of corrosion, damage or poor connections, go to step 13. If connector is okay, go to next step.
6. If SDM connector or shorting bar lifting tabs show signs of corrosion, poor connections or damage, go to step 14. If SDM connector is okay, go to next step.
7. Disconnect Instrument Panel Cluster (IPC) connector. If IPC connector shows signs of corrosion, damage or poor connections, repair condition. Go to step 15. If IPC connector is okay, go to next step.
8. Install Shorting Bar (J-42113) on SDM connector above terminals No. 6 and 7. See **Fig. 14**. Using Digital Multimeter (J-39200) with Test Adapter Kit (J-35616-A), measure resistance between ground and SDM harness connector terminal No. 6. If resistance is infinite, go to next step. If resistance is less than infinite, repair short to ground in circuit XB20. See **WIRE REPAIR**. Go to step 15.

9. Turn ignition off. Disconnect SDM connector. If SDM connector or shorting bars show signs of corrosion, poor connections or damage, go to step 13 . If SDM connector is okay, go to next step.
10. If SDM terminals or shorting bar lifting tabs show signs of corrosion, damage or poor connections, go to step 14 . If SDM terminals and lifting tabs are okay, go to next step.
11. Disconnect ignition switch connector. Inspect circuit X30 for an open or high resistance condition. Press MIN MAX on DMM. Connect leads of DMM to appropriate terminals. If low or no resistance is indicated, go to next step. If low or no resistance is not indicated, repair open or high resistance in ignition feed circuit. See **WIRE REPAIR** . Go to step 15 .
12. Measure resistance between SDM connector terminal No. 7 and ground. Press MIN MAX on DMM. Connect leads of DMM to appropriate terminals. If low or no resistance is indicated, go to next step. If low or no resistance is not indicated, repair open or high resistance in SDM ground circuit. See **WIRE REPAIR** . Go to step 15 .
13. Replace SDM harness connector. See **WIRE REPAIR** . Go to step 15 .
14. Replace SDM. See **SENSING & DIAGNOSTIC MODULE (SDM)** under REMOVAL & INSTALLATION. Go to next step.
15. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all SIR DTCs. Go to **SIR DIAGNOSTIC SYSTEM CHECK** .

#### **AIR BAG WARNING LIGHT DOES NOT COME ON**

##### **Circuit Description**

AIR BAG warning light flashes 7 times during which time SDM checks SIR system for malfunctions. If SIR system is okay, AIR BAG warning light will go off. If SDM detects a malfunction, AIR BAG warning light will turn on.

##### **Diagnostic Aids**

AIR BAG warning light will turn on with no DTCs present if Ignition 1 (IGN1) voltage is outside normal operating range of 9-16 volts. A malfunctioning SDM connector could also cause condition.

**NOTE:** For circuit number and wire color identification, see **WIRING DIAGRAMS** .

##### **Diagnostic Procedure**

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to **SIR DIAGNOSTIC SYSTEM CHECK** .
2. Turn ignition off. Observe AIR BAG warning light when turning ignition on. If AIR BAG warning light stays off, go to next step. If AIR BAG warning light does not stay off, inspect for intermittent or poor connections. Go to step 10 .
3. Set parking brake. Turn ignition on. If BRAKE indicator light comes on, go to next step. If BRAKE indicator light does not come on, go to step 6 .
4. Turn ignition off. Disconnect SDM harness connector. See **Fig. 6** . Install SIR Shorting Bar Lifting Tool (J-42113) to SDM harness connector to lift shorting bar above terminals No. 6 and 7. Turn ignition on. Using Digital Multimeter (J-39200) with Test Adapter Kit (J-35616-A), measure voltage between ground and SDM harness connector terminal No. 6. If voltage is near 12 volts, go to step 9 . If voltage is not near 12 volts, go to next step.
5. Turn ignition off. Measure continuity of circuit XB20 between SDM harness connector terminal No. 6 and Instrument Panel Cluster (IPC) connector C1 terminal No. 13. Press MIN MAX on DMM. Connect leads of DMM to appropriate terminals. If low or no resistance is indicated, go to next step. If low or no resistance is not indicated, repair open or high resistance in circuit XB20. See **WIRE REPAIR** . Go to step 10 .
6. Turn ignition off. Disconnect Instrument Panel Cluster (IPC) connector. Turn ignition on. Measure voltage between IPC connector C1 terminal No. 19 and ground. If voltage is not near 12 volts, go to next step. If

voltage is near 12 volts, go to step 8 .

7. Turn ignition off. Check AIR BAG warning light feed circuit for an open or high resistance. Press MIN MAX on DMM. Connect leads of DMM to appropriate terminals. If low or no resistance is not indicated, repair open or high resistance in AIR BAG warning light feed circuit. See **WIRE REPAIR** . Go to step 10 .
8. Replace Instrument Panel Cluster (IPC). Go to step 10 .
9. Replace SDM. See **SENSING & DIAGNOSTIC MODULE (SDM)** under DESCRIPTION & OPERATION. Go to next step.
10. Reconnect all SIR system components. Ensure that all components are properly mounted. Go to **SIR DIAGNOSTIC SYSTEM CHECK** .

### DTC 013 : DRIVER-SIDE AIR BAG DEPLOYMENT LOOP SHORT TO GROUND

#### Circuit Description

When ignition switch is turned on, Sensing and Diagnostic Module (SDM) performs continuous diagnostic tests on deployment loop to check for proper circuit continuity and for shorts to ground or voltage.

#### Conditions For Setting DTC

DTC sets when Ignition1 (IGN1) voltage is within normal voltage range and measured leakage current to ground is above specified value in driver-side air bag deployment loop.

#### Action Taken

SDM sets DTC and turns on AIR BAG warning light.

#### Conditions For Clearing DTC

Current DTC clears when condition responsible for DTC no longer exists and CLEAR CODES command is issued via scan tool. History DTC clears when 255 malfunction free ignition cycles have occurred.

#### Diagnostic Aids

Condition could be caused by a short to ground in driver-side air bag circuit short to ground in circuits BM30 and B30. A malfunctioning circuit connector or SDM could also cause condition.

**NOTE:** For circuit number and wire color identification, see **WIRING DIAGRAMS** .

#### Diagnostic Procedure

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to **SIR DIAGNOSTIC SYSTEM CHECK** .
2. Turn ignition off. Remove ignition key. Wait at least one minute. Remove driver-side air bag module. See **AIR BAG MODULES** under REMOVAL & INSTALLATION. Inspect SIR coil connector and driver-side air bag module connectors for corrosion or damage. If connectors are damaged or corroded, go to next step. If connectors are okay, go to step 4 .
3. If driver-side air bag module connector is damaged, replace driver-side air bag module. See **AIR BAG MODULES** under REMOVAL & INSTALLATION. If SIR coil side of connector is damaged, replace SIR coil assembly. See **SIR COIL ASSEMBLY** under REMOVAL & INSTALLATION. Go to step 16 .
4. Install driver-side air bag module. Ensure Connector Position Assurance (CPA) clip is installed correctly. Install scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Observe scan tool SIR DTC display. If DTC 013 is displayed, go to next step. If DTC 013 is not displayed, go to **DIAGNOSTIC AIDS** .
5. Turn ignition off. Remove ignition key. Wait at least one minute. Remove driver-side air bag module.



Connect SIR Driver-Passenger Load Tool (J-38715-A) using Load Tool Adapter (J-38715-30A) to SIR coil side of connector. Turn ignition on. If DTC 013 is not retrieved, go to next step. If DTC 013 is not retrieved, go to step 7 .

6. Replace driver-side air bag module. See **AIR BAG MODULES** under REMOVAL & INSTALLATION. Go to step 16 .
7. Turn ignition off. Remove ignition key. Remove SIR Driver-Passenger Load Tool (J-38715-A) and Load Tool Adapter (J-38715-30A) from SIR coil side of connector. Disconnect wire harness to SIR coil connector. Install SIR Driver-Passenger Load Tool (J-38715-A) using Load Tool Adapter (J-38715-40) to harness side of connector. Turn ignition on. If DTC 013 is not retrieved, go to next step. If DTC 013 is retrieved, go to step 9 .
8. Replace SIR coil assembly. See **SIR COIL ASSEMBLY** under REMOVAL & INSTALLATION. Go to step 16 .
9. Turn ignition off. Remove ignition key. Wait at least one minute. Remove SIR Driver-Passenger Load Tool (J-38715-A) and Load Tool Adapter (J-38715-40) from harness connector. Disconnect SDM connector. If SDM connector shows signs of corrosion, poor connections or damage, go to step 14 . If SDM connector is okay, go to next step.
10. Install SIR Shorting Bar Tool (J-42113) on SDM connector above terminals No. 1 and 2. See **Fig. 14** . Using Digital Multimeter (J-39200) with Test Adapter Kit (J-35616-A), measure resistance between SDM connector terminal No. 1 and ground. If resistance is less than infinite, go to next step. If resistance is infinite, go to step 12 .
11. Repair short to ground in circuit BM30. See **WIRE REPAIR** . Go to step 16 .
12. Measure resistance between SDM connector terminal No. 2 and ground. If resistance is less than infinite, go to next step. If resistance is infinite, go to step 15 .
13. Repair short to ground in circuit B30. See **WIRE REPAIR** . Go to step 16 .
14. Replace SDM connector. See **WIRE REPAIR** . Go to step 16 .
15. Replace SDM. See **SENSING & DIAGNOSTIC MODULE (SDM)** under REMOVAL & INSTALLATION. Go to next step.
16. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to **SIR DIAGNOSTIC SYSTEM CHECK** .

#### **DTC 014 : DRIVER SEAT BELT PRETENSIONER DEPLOYMENT LOOP SHORT TO GROUND**

##### **Circuit Description**

When ignition switch is turned on, Sensing and Diagnostic Module (SDM) performs continuous diagnostic tests on deployment loop to check for proper circuit continuity and for shorts to ground or voltage.

##### **Conditions For Setting DTC**

DTC sets when Ignition 1 (IGN1) voltage is within normal voltage range and measured leakage current to ground is above specified value in driver seat belt pretensioner deployment loop.

##### **Action Taken**

SDM sets DTC and turns on AIR BAG warning light.

##### **Conditions For Clearing DTC**

Current DTC clears when condition responsible for DTC no longer exists and CLEAR CODES command is issued via scan tool. History DTC clears when 255 malfunction free ignition cycles have occurred.

##### **Diagnostic Aids**

Condition could be caused by a short to ground in driver-side pretensioner circuits AM900-AM950 or XM901-XM950. A malfunctioning seat belt pretensioner, SDM or circuit connector could also cause condition.

**NOTE:** For circuit number and wire color identification, see WIRING DIAGRAMS .

#### Diagnostic Procedure

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to SIR DIAGNOSTIC SYSTEM CHECK .
2. Turn ignition off. Remove ignition key. Wait at least one minute. Disconnect driver seat belt pretensioner connector. Inspect both sides of connector for corrosion or damage. If connectors are damaged or corroded, go to next step. If connectors are okay, go to step 4 .
3. If harness side of connector is damaged, replace connector. See WIRE REPAIR . Go to step 14 . If pretensioner side of connector is damaged, replace driver seat belt pretensioner. See SEAT BELT PRETENSIONERS under REMOVAL & INSTALLATION. Go to step 14 .
4. Reconnect driver seat belt pretensioner connector. Ensure Connector Position Assurance (CPA) clip is installed correctly. Install scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Observe SIR DTC display on scan tool. If DTC 014 is displayed, go to next step. If DTC 014 is not displayed, go to DIAGNOSTIC AIDS .
5. Turn ignition off. Remove key from ignition. Wait at least one minute. Disconnect driver seat belt pretensioner connector. Install SIR Driver-Passenger Load Tool (J-38715-A) using Load Tool Adapter (J-38715-55) to pretensioner connector. Connect scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Observe scan tool SIR DTC display. If DTC 014 is displayed, go to step 7 . If DTC 014 is not displayed, go to next step.
6. Turn ignition off. Remove key from ignition. Wait at least one minute. Replace driver seat belt pretensioner. See SEAT BELT PRETENSIONERS under REMOVAL & INSTALLATION. Go to step 14 .
7. Turn ignition off. Remove key from ignition. Wait at least one minute. Remove Driver-Passenger Load Tool (J-38715-A) and Load Tool Adapter (J-38715-55). Disconnect SDM connector. See Fig. 6 . If SDM connector shows signs of corrosion, poor connections or damage, go to step 10 . If SDM connector is okay, go to next step.
8. Install SIR Shorting Bar Tool (J-42113) above SDM harness connector terminals No. 8 and 9. See Fig. 14 . Using Digital Multimeter (J-39200) with Test Adapter Kit (J-35616-A), measure resistance between SDM harness connector terminal No. 8 and ground. If resistance is less than infinite, go to next step. If resistance is infinite, go to step 10 .
9. Repair short to ground in circuit AM900-AM950. See WIRE REPAIR . Go to step 14 .
10. Measure resistance between SDM connector terminal No. 9 and ground. If resistance is less than infinite, go to next step. If resistance is infinite, go to step 13 .
11. Repair short to ground in circuit XM901-XM950. See WIRE REPAIR . Go to step 14 .
12. Replace SDM connector. See WIRE REPAIR . Go to step 14 .
13. Replace SDM. See SENSING & DIAGNOSTIC MODULE (SDM) under REMOVAL & INSTALLATION. Go to next step.
14. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to SIR DIAGNOSTIC SYSTEM CHECK .

#### DTC 015 : DRIVER-SIDE AIR BAG DEPLOYMENT LOOP SHORT TO VOLTAGE

##### Circuit Description

When ignition switch is turned on, Sensing and Diagnostic Module (SDM) performs continuous diagnostic tests on deployment loop to check for proper circuit continuity and for shorts to ground or voltage.

**Conditions For Setting DTC**

DTC sets when ignition is within normal voltage range and measured leakage current to ground is above specified value, caused by a short circuit from driver frontal air bag deployment loop to voltage.

**Action Taken**

SDM sets DTC and turns on AIR BAG warning light.

**Conditions For Clearing DTC**

Current DTC clears when condition responsible for DTC no longer exists and CLEAR CODES command is issued via scan tool. History DTC clears when 255 malfunction free ignition cycles have occurred.

**Diagnostic Aids**

Condition could be caused by a short to voltage in driver-side air bag deployment loop circuits BM30 or B30. A malfunctioning SDM or circuit connector could also cause condition.

**NOTE:** For circuit number and wire color identification, see WIRING DIAGRAMS .

**Diagnostic Procedure**

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to **SIR DIAGNOSTIC SYSTEM CHECK** .
2. Turn ignition off. Remove ignition key. Wait at least one minute. Remove driver-side air bag module. See **AIR BAG MODULES** under REMOVAL & INSTALLATION. Inspect SIR coil connector and driver-side air bag module connectors for corrosion or damage. If connectors are damaged or corroded, go to next step. If connectors are okay, go to step 4 .
3. If driver-side air bag module connector is damaged, replace driver-side air bag module. See **AIR BAG MODULES** under REMOVAL & INSTALLATION. If SIR coil side of connector is damaged, replace SIR coil assembly. See **SIR COIL ASSEMBLY** under REMOVAL & INSTALLATION. Go to step 16 .
4. Install driver-side air bag module. Ensure Connector Position Assurance (CPA) clip is installed correctly. Install scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Observe scan tool SIR DTC display. If DTC 015 is displayed, go to next step. If DTC 015 is not displayed, go to **DIAGNOSTIC AIDS** .
5. Turn ignition off. Remove ignition key. Wait at least one minute. Remove driver-side air bag module. Connect SIR Driver-Passenger Load Tool (J-38715-A) using Load Tool Adapter (J-38715-30A) to SIR coil side of connector. Turn ignition on. If DTC 015 is not retrieved, go to next step. If DTC 015 is not retrieved, go to step 7 .
6. Turn ignition off. Remove ignition key. Wait at least one minute. Replace driver-side air bag module. See **AIR BAG MODULES** under REMOVAL & INSTALLATION. Go to step 16 .
7. Turn ignition off. Remove ignition key. Wait at least one minute. Remove SIR Driver-Passenger Load Tool (J-38715-A) and Load Tool Adapter (J-38715-30A) from SIR coil side of connector. Disconnect wire harness to SIR coil connector. Install SIR Driver-Passenger Load Tool (J-38715-A) using Load Tool Adapter (J-38715-40) to harness side of connector. Turn ignition on. If DTC 015 is not retrieved, go to next step. If DTC 015 is retrieved, go to step 9 .
8. Turn ignition off. Remove ignition key. Wait at least one minute. Replace SIR coil assembly. See **SIR COIL ASSEMBLY** under REMOVAL & INSTALLATION. Go to step 16 .
9. Turn ignition off. Remove ignition key. Wait at least one minute. Remove SIR Driver-Passenger Load Tool (J-38715-A) and Load Tool Adapter (J-38715-40) from harness connector. Disconnect SDM connector. If SDM connector shows signs of corrosion, poor connections or damage, go to step 14 . If SDM connector is okay, go to next step.

10. Install SIR Shorting Bar Tool (J-42113) on SDM connector above terminals No. 1 and 2. See **Fig. 14** . Turn ignition on. Using Digital Multimeter (J-39200) with Test Adapter Kit (J-35616-A), measure voltage between SDM connector terminal No. 1 and ground. If voltage is one volt or more, go to next step. If voltage is less than one volt, go to step 12 .
11. Repair short to voltage in circuit BM30. See **WIRE REPAIR** . Go to step 16 .
12. Measure voltage between SDM connector terminal No. 2 and ground. If voltage is one volt or more, go to next step. If voltage is less than one volt, go to step 15 .
13. Repair short to ground in circuit B30. See **WIRE REPAIR** . Go to step 16 .
14. Replace SDM connector. See **WIRE REPAIR** . Go to step 16 .
15. Replace SDM. See **SENSING & DIAGNOSTIC MODULE (SDM)** under REMOVAL & INSTALLATION. Go to next step.
16. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to **SIR DIAGNOSTIC SYSTEM CHECK** .

#### **DTC 016 : DRIVER SEAT BELT PRETENSIONER DEPLOYMENT LOOP SHORT TO VOLTAGE**

##### **Circuit Description**

When ignition switch is turned on, Sensing and Diagnostic Module (SDM) performs continuous diagnostic tests on deployment loop to check for proper circuit continuity and for shorts to ground or voltage.

##### **Conditions For Setting DTC**

DTC sets when (Ignition 1) IGN 1 voltage is within normal voltage range and measured leakage current to voltage is above specified value in driver seat belt pretensioner deployment loop.

##### **Action Taken**

SDM sets DTC and turns on AIR BAG warning light.

##### **Conditions For Clearing DTC**

Current DTC clears when condition responsible for DTC no longer exists and CLEAR CODES command is issued via scan tool. History DTC clears when 255 malfunction free ignition cycles have occurred.

##### **Diagnostic Aids**

Condition could be caused by a short to voltage in driver seat belt pretensioner circuits AM900-AM950 or XM901-XM950. A malfunctioning seat belt pretensioner, SDM or circuit connector could also cause this condition.

**NOTE:** For circuit number and wire color identification, see **WIRING DIAGRAMS** .

##### **Diagnostic Procedure**

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to **SIR DIAGNOSTIC SYSTEM CHECK** .
2. Turn ignition off. Remove ignition key. Wait at least one minute. Disconnect driver seat belt pretensioner connector. Inspect both sides of connector for corrosion or damage. If connectors are damaged or corroded, go to next step. If connectors are okay, go to step 4 .
3. If harness side of connector is damaged, replace connector. See **WIRE REPAIR** . Go to step 14 . If pretensioner side of connector is damaged, replace driver seat belt pretensioner. See **SEAT BELT PRETENSIONERS** under REMOVAL & INSTALLATION. Go to step 14 .
4. Reconnect driver seat belt pretensioner connector. Ensure Connector Position Assurance (CPA) clip is

installed correctly. Install scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Observe scan tool SIR DTC display. If DTC 016 is displayed, go to next step. If DTC 016 is not displayed, go to **DIAGNOSTIC AIDS** .

5. Turn ignition off. Remove key from ignition. Wait at least one minute. Disconnect driver seat belt pretensioner connector. Install SIR Driver-Passenger Load Tool (J-38715-A) using Load Tool Adapter (J-38715-55) to pretensioner connector. Connect scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Observe scan tool SIR DTC display. If DTC 016 is displayed, go to step 7 . If DTC 016 is not displayed, go to next step.
6. Turn ignition off. Remove key from ignition. Wait at least one minute. Replace driver seat belt pretensioner. See **SEAT BELT PRETENSIONERS** under REMOVAL & INSTALLATION. Go to step 14 .
7. Turn ignition off. Remove key from ignition. Wait at least one minute. Remove Driver-Passenger Load Tool (J-38715-A) and Load Tool Adapter (J-38715-55). Disconnect SDM connector. See **Fig. 6** . If connector is shows signs of corrosion, poor connections or damage, go to step 12 . If connector is okay, go to next step.
8. Install SIR Shorting Bar Tool (J-42113) above SDM harness connector terminals No. 8 and 9. See **Fig. 14** . Turn ignition on. Using Digital Multimeter (J-39200) with Test Adapter Kit (J-35616-A), measure voltage between SDM harness connector terminal No. 8 and ground. If voltage is one volt or more, go to next step. If voltage is less than one volt, go to step 10 .
9. Repair short to voltage in circuit AM900-AM950. See **WIRE REPAIR** . Go to step 14 .
10. Measure voltage between SDM connector terminal No. 9 and ground. If voltage is one volt or more, go to next step. If voltage is less than one volt, go to step 13 .
11. Repair short to ground in circuit XM901-XM950. See **WIRE REPAIR** . Go to step 14 .
12. Replace SDM connector. See **WIRE REPAIR** . Go to step 14 .
13. Replace SDM. See **SENSING & DIAGNOSTIC MODULE (SDM)** under REMOVAL & INSTALLATION. Go to next step.
14. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to **SIR DIAGNOSTIC SYSTEM CHECK** .

### DTC 023 : PASSENGER-SIDE AIR BAG DEPLOYMENT LOOP SHORT TO GROUND

#### Circuit Description

When ignition switch is turned on, Sensing and Diagnostic Module (SDM) performs continuous diagnostic tests on deployment loop to check for proper circuit continuity and for shorts to ground or voltage.

#### Conditions For Setting DTC

DTC sets when Ignition 1 (IGN1) voltage is within normal voltage range and measured leakage current to ground is above specified value in passenger-side air bag deployment loop.

#### Action Taken

SDM sets DTC and turns on AIR BAG warning light.

#### Conditions For Clearing DTC

Current DTC clears when condition responsible for DTC no longer exists and CLEAR CODES command is issued via scan tool. History DTC clears when 255 malfunction free ignition cycles have occurred.

#### Diagnostic Aids

Condition could be caused by a short to ground in passenger-side air bag module deployment loop circuits BA10 or BP10. A malfunctioning passenger-side air bag module, SDM or circuit connector could also cause condition.

**NOTE:** For circuit number and wire color identification, see WIRING DIAGRAMS .

#### Diagnostic Procedure

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to SIR DIAGNOSTIC SYSTEM CHECK .
2. Turn ignition off. Remove key from ignition. Wait at least one minute. Disconnect passenger-side air bag connector. See **Fig. 10** . If either side of connector shows signs of corrosion, poor connections or damage, go to next step. If connectors are okay, go to step 4 .
3. If passenger-side air bag pigtail connector is damaged, replace passenger-side air bag module. See AIR BAG MODULES under REMOVAL & INSTALLATION. Go to step 12 . If harness connector is damaged or corroded, replace harness connector. See WIRE REPAIR . Go to step 12 .
4. Reconnect passenger-side air bag connector. Ensure Connector Position Assurance (CPA) clip is installed correctly. Install scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Observe scan tool SIR DTC display. If DTC 023 is displayed, go to next step. If DTC 023 is not displayed, go to DIAGNOSTIC AIDS .
5. Turn ignition off. Remove ignition key. Wait at least one minute. Disconnect passenger-side air bag module connector. Install SIR Driver-Passenger Load Tool (J-38715-A) using Load Tool Adapter (J-38715-55) to passenger-side air bag harness connector. Connect scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Observe scan tool SIR DTC display. If DTC 023 is displayed, go to step 6 . If DTC 023 is not displayed, go to next step.
6. Turn ignition off. Remove key from ignition. Wait at least one minute. Replace passenger-side air bag module. See AIR BAG MODULES under REMOVAL & INSTALLATION. Go to step 12 .
7. Turn ignition off. Remove ignition key. Wait at least one minute. Disconnect SIR Driver-Passenger Load Tool (J-38715-A) and Load Tool Adapter (J-38715-55) from passenger-side air bag harness connector. Install SIR Shorting Bar Tool (J-42113) on SDM connector above terminals No. 3 and 4. See **Fig. 14** . Using Digital Multimeter (J-39200) with Test Adapter Kit (J-35616-A), measure resistance between SDM connector terminal No. 4 and ground. If resistance is less than infinite, go to next step. If resistance is infinite, go to step 9 .
8. Repair short to ground in circuit BP10. See WIRE REPAIR . Go to step 12 .
9. Measure resistance between SDM connector terminal No. 3 and ground. If resistance is less than infinite, go to next step. If resistance is infinite, go to step 11 .
10. Repair short to ground in circuit BA10. See WIRE REPAIR . Go to step 12 .
11. Replace SDM. See SENSING & DIAGNOSTIC MODULE (SDM) under REMOVAL & INSTALLATION. Go to next step.
12. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to SIR DIAGNOSTIC SYSTEM CHECK .

#### DTC 024 : PASSENGER SEAT BELT PRETENSIONER DEPLOYMENT LOOP SHORT TO GROUND

##### Circuit Description

When ignition switch is turned on, Sensing and Diagnostic Module (SDM) performs continuous diagnostic tests on deployment loop to check for proper circuit continuity and for shorts to ground or voltage.

##### Conditions For Setting DTC

DTC sets when Ignition 1 (IGN1) voltage is within normal voltage range and measured leakage current to ground is above specified value in passenger seat belt pretensioner deployment loop.

##### Action Taken

SDM sets DTC and turns on AIR BAG warning light.

#### Conditions For Clearing DTC

Current DTC clears when condition responsible for DTC no longer exists and CLEAR CODES command is issued via scan tool. History DTC clears when 255 malfunction free ignition cycles have occurred.

#### Diagnostic Aids

Condition could be caused by a short to ground in passenger seat belt pretensioner circuits AB900-AB950 or XB901-XB950. A malfunctioning seat belt pretensioner, SDM or circuit connector could also cause condition.

**NOTE:** For circuit number and wire color identification, see WIRING DIAGRAMS .

#### Diagnostic Procedure

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to SIR DIAGNOSTIC SYSTEM CHECK .
2. Turn ignition off. Remove ignition key. Wait at least one minute. Disconnect passenger seat belt pretensioner connector. Inspect both sides of connector for corrosion or damage. If connectors are damaged or corroded, go to next step. If connectors are okay, go to step 4 .
3. If harness side of connector is damaged, replace connector. See WIRE REPAIR . Go to step 14 . If pretensioner side of connector is damaged, replace passenger seat belt pretensioner. See SEAT BELT PRETENSIONERS under REMOVAL & INSTALLATION. Go to step 14 .
4. Reconnect driver seat belt pretensioner connector. Ensure Connector Position Assurance (CPA) clip is installed correctly. Install scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Observe SIR DTC display on scan tool. If DTC 024 is displayed, go to next step. If DTC 024 is not displayed, go to DIAGNOSTIC AIDS .
5. Turn ignition off. Remove key from ignition. Wait at least one minute. Disconnect passenger seat belt pretensioner connector. Install SIR Driver-Passenger Load Tool (J-38715-A) using Load Tool Adapter (J-38715-55) to pretensioner connector. Connect scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Observe scan tool SIR DTC display. If DTC 024 is displayed, go to step 7 . If DTC 024 is not displayed, go to next step.
6. Turn ignition off. Remove key from ignition. Wait at least one minute. Replace passenger seat belt pretensioner. See SEAT BELT PRETENSIONERS under REMOVAL & INSTALLATION. Go to step 14 .
7. Turn ignition off. Remove key from ignition. Wait at least one minute. Remove Driver-Passenger Load Tool (J-38715-A) and Load Tool Adapter (J-38715-55) from harness connector. Disconnect SDM connector. See Fig. 6 . If SDM connector shows signs of corrosion, poor connections or damage, go to step 12 . If connector is okay, go to next step.
8. Install SIR Shorting Bar Tool (J-42113) above SDM harness connector terminals No. 15 and 45. See Fig. 14 . Using Digital Multimeter (J-39200) with Test Adapter Kit (J-35616-A), measure resistance between SDM harness connector terminal No. 15 and ground. If resistance is less than infinite, go to next step. If resistance is infinite, go to step 10 .
9. Repair short to ground in circuit XB901-XB950. See WIRE REPAIR . Go to step 14 .
10. Measure resistance between SDM connector terminal No. 45 and ground. If resistance is less than infinite, go to next step. If resistance is infinite, go to step 13 .
11. Repair short to ground in circuit AB900-AB950. See WIRE REPAIR . Go to step 14 .
12. Replace SDM connector. See WIRE REPAIR . Go to step 14 .
13. Replace SDM. See SENSING & DIAGNOSTIC MODULE (SDM) under REMOVAL & INSTALLATION. Go to next step.

14. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to **SIR DIAGNOSTIC SYSTEM CHECK** .

#### **DTC 025 : PASSENGER-SIDE AIR BAG DEPLOYMENT LOOP SHORT TO VOLTAGE**

##### **Circuit Description**

When ignition switch is turned on, Sensing and Diagnostic Module (SDM) performs continuous diagnostic tests on deployment loop to check for proper circuit continuity and for shorts to ground or voltage.

##### **Conditions For Setting DTC**

DTC sets when Ignition 1 (IGN1) voltage is within normal voltage range and measured leakage current to voltage is above specified value for passenger-side air bag deployment loop.

##### **Action Taken**

SDM sets DTC and turns on AIR BAG warning light.

##### **Conditions For Clearing DTC**

Current DTC clears when condition responsible for DTC no longer exists and CLEAR CODES command is issued via scan tool. History DTC clears when 255 malfunction free ignition cycles have occurred.

##### **Diagnostic Aids**

Condition could be caused by a short to voltage in passenger-side air bag module deployment loop circuits BA10 or BP10. A malfunctioning passenger-side air bag module, SDM or circuit connector could also cause condition.

**NOTE:** For circuit number and wire color identification, see **WIRING DIAGRAMS** .

##### **Diagnostic Procedure**

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to **SIR DIAGNOSTIC SYSTEM CHECK** .
2. Turn ignition off. Disconnect passenger-side air bag connector. See **Fig. 10** . Inspect passenger air bag pigtail and harness connectors for corrosion or damage. If connectors are damaged or corroded, go to next step. If connectors are okay, go to step 4 .
3. If passenger-side air bag pigtail is damaged or corroded, replace passenger-side air bag module. See **AIR BAG MODULES** under REMOVAL & INSTALLATION. Go to step 14 . If harness connector is damaged or corroded, replace harness connector. See **WIRE REPAIR** . Go to step 14 .
4. Reconnect passenger-side air bag connector. Install Connector Position Assurance (CPA) clip securely. Install scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Observe scan tool SIR DTC display. If DTC 025 is displayed, go to next step. If DTC 025 is not displayed, go to **DIAGNOSTIC AIDS** .
5. Turn ignition off. Remove key from ignition. Wait at least one minute. Disconnect passenger-side air bag connector. Install SIR Driver-Passenger Load Tool (J-38715-A) using Load Tool Adapter (J-38715-55) to passenger-side air bag harness connector. Turn ignition on. Observe scan tool SIR DTC display. If DTC 025 is displayed, go to step 7 . If DTC 025 is not displayed, go to next step.
6. Turn ignition off. Remove key from ignition. Wait at least one minute. Replace passenger-side air bag module. See **AIR BAG MODULES** under REMOVAL & INSTALLATION. Go to step 14 .
7. Turn ignition off. Remove key from ignition. Wait at least one minute. Disconnect SIR Driver-Passenger Load Tool (J-38715-A) and Load Tool Adapter (J-38715-55). Disconnect SDM connector. If connector shows signs of corrosion, poor connections or damage, go to step 12 .



8. Install SIR Shorting Bar Tool (J-42113) on SDM connector above terminals No. 3 and 4. See **Fig. 14** . Turn ignition on. Using Digital Multimeter (J-39200) with Test Adapter Kit (J-35616-A), measure voltage between SDM connector terminal No. 4 and ground. If voltage is one volt or more, go to next step. If voltage is less than one volt, go to step 10 .
9. Repair short to voltage in circuit BP10. See **WIRE REPAIR** . Go to step 14 .
10. Measure voltage between SDM connector terminal No. 3 and ground. If voltage is one volt or more, go to next step. If voltage is less than one volt, go to step 13 .
11. Repair short to voltage in circuit BA10. See **WIRE REPAIR** . Go to step 14 .
12. Replace SDM connector. See **WIRE REPAIR** . Go to step 14 .
13. Replace SDM. See **SENSING & DIAGNOSTIC MODULE (SDM)** under REMOVAL & INSTALLATION. Go to next step.
14. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to **SIR DIAGNOSTIC SYSTEM CHECK** .

#### **DTC 026 : PASSENGER SEAT BELT PRETENSIONER DEPLOYMENT LOOP SHORT TO VOLTAGE**

##### **Circuit Description**

When ignition switch is turned on, Sensing and Diagnostic Module (SDM) performs continuous diagnostic tests on deployment loop to check for proper circuit continuity and for shorts to ground or voltage.

##### **Conditions For Setting DTC**

DTC sets when Ignition 1 (IGN1) voltage is within normal voltage range and measured leakage current to voltage is above specified value for passenger seat belt pretensioner deployment loop.

##### **Action Taken**

SDM sets DTC and turns on AIR BAG warning light.

##### **Conditions For Clearing DTC**

Current DTC clears when condition responsible for DTC no longer exists and CLEAR CODES command is issued via scan tool. History DTC clears when 255 malfunction free ignition cycles have occurred.

##### **Diagnostic Aids**

Condition could be caused by a short to voltage in passenger seat belt pretensioner circuits XB901-950 or AB900-950. A malfunctioning SDM, seat belt pretensioner or circuit connector could also cause condition.

**NOTE:** For circuit number and wire color identification, see **WIRING DIAGRAMS** .

##### **Diagnostic Procedure**

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to **SIR DIAGNOSTIC SYSTEM CHECK** .
2. Turn ignition off. Remove ignition key. Wait at least one minute. Disconnect passenger seat belt pretensioner connector. Inspect both sides of connector for corrosion or damage. If connectors are damaged or corroded, go to next step. If connectors are okay, go to step 4 .
3. If harness side of connector is damaged, replace connector. See **WIRE REPAIR** . Go to step 14 . If pretensioner side of connector is damaged, replace passenger seat belt pretensioner. See **SEAT BELT PRETENSIONERS** under REMOVAL & INSTALLATION. Go to step 14 .
4. Reconnect passenger seat belt pretensioner connector. Ensure Connector Position Assurance (CPA) clip is installed correctly. Install scan tool to Data Link Connector (DLC), located under left side of instrument

panel. Turn ignition on. Observe scan tool SIR DTC display. If DTC 026 is displayed, go to next step. If DTC 026 is not displayed, go to **DIAGNOSTIC AIDS** .

5. Turn ignition off. Remove key from ignition. Wait at least one minute. Disconnect passenger seat belt pretensioner connector. Install SIR Driver-Passenger Load Tool (J-38715-A) using Load Tool Adapter (J-38715-55) to pretensioner connector. Connect scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Observe scan tool SIR DTC display. If DTC 026 is displayed, go to step 7 . If DTC 026 is not displayed, go to next step.
6. Turn ignition off. Remove key from ignition. Wait at least one minute. Replace passenger seat belt pretensioner. See **SEAT BELT PRETENSIONERS** under REMOVAL & INSTALLATION. Go to step 14 .
7. Turn ignition off. Remove key from ignition. Wait at least one minute. Remove Driver-Passenger Load Tool (J-38715-A) and Load Tool Adapter (J-38715-55). Disconnect SDM connector. See **Fig. 6** . If connector shows signs of corrosion, poor connections or damage, go to step 12 . If connector is okay, go to next step.
8. Install SIR Shorting Bar Tool (J-42113) above SDM harness connector terminals No. 15 and 45. See **Fig. 14** . Turn ignition on. Using Digital Multimeter (J-39200) with Test Adapter Kit (J-35616-A), measure voltage between SDM harness connector terminal No. 15 and ground. If voltage is one volt or more, go to next step. If voltage is less than one volt, go to step 10 .
9. Repair short to voltage in circuit XB901-XB950. See **WIRE REPAIR** . Go to step 14 .
10. Measure voltage between SDM connector terminal No. 45 and ground. If voltage is one volt or more, go to next step. If voltage is less than one volt, go to step 13 .
11. Repair short to ground in circuit AB900-AB950. See **WIRE REPAIR** . Go to step 14 .
12. Replace SDM connector. See **WIRE REPAIR** . Go to step 14 .
13. Replace SDM. See **SENSING & DIAGNOSTIC MODULE (SDM)** under REMOVAL & INSTALLATION. Go to next step.
14. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to **SIR DIAGNOSTIC SYSTEM CHECK** .

#### DTC 031 : DRIVER-SIDE AIR BAG DEPLOYMENT LOOP RESISTANCE HIGH

##### Circuit Description

When ignition switch is turned on, Sensing and Diagnostic Module (SDM) performs continuous diagnostic tests on deployment loop to check for proper circuit continuity and for shorts to ground or voltage.

##### Conditions For Setting DTC

DTC sets when resistance of driver-side air bag deployment loop is more than 2.9 ohms for 500 milliseconds.

##### Action Taken

SDM turns on AIR BAG warning light and sets a DTC.

##### Conditions For Clearing DTC

Current DTC clears when condition responsible for DTC no longer exists and CLEAR CODES command is issued via scan tool. History DTC clears when 255 malfunction free ignition cycles have occurred.

##### Diagnostic Aids

Condition could be caused by an open or high resistance in circuits BM30 or B30. A malfunctioning SDM or circuit connectors could also cause condition.

**NOTE:** For circuit number and wire color identification, see **WIRING DIAGRAMS** .

**Diagnostic Procedure**

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to **SIR DIAGNOSTIC SYSTEM CHECK** .
2. Turn ignition off. Remove ignition key. Wait at least one minute. Remove driver-side air bag module. See **AIR BAG MODULES** under REMOVAL & INSTALLATION. Inspect SIR coil connector and driver-side air bag connector for signs of corrosion, poor connections or damage. If connectors are damaged, go to next step. If connectors are okay, go to step 4 .
3. If driver-side air bag module connector is damaged, replace driver-side air bag module. See **AIR BAG MODULES** under REMOVAL & INSTALLATION. Go to step 16 . If SIR coil connector is damaged, replace SIR coil assembly. See **SIR COIL ASSEMBLY** under REMOVAL & INSTALLATION. Go to step 16 .
4. Install driver-side air bag module. Ensure Connector Position Assurance (CPA) clip is installed correctly. Install scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Observe scan tool SIR DTC display. If DTC 031 is displayed, go to next step. If DTC 031 is not displayed, go to **DIAGNOSTIC AIDS** .
5. Turn ignition off. Remove key from ignition. Wait at least one minute. Remove driver-side air bag module. See **AIR BAG MODULES** under REMOVAL & INSTALLATION. Install SIR Driver-Passenger Load Tool (J-38715-A) using Load Tool Adapter (J-38715-30A) to SIR coil connector. Turn ignition on. Observe DRIVER AIR BAG RES. in scan tool display. If resistance is 2.9 ohms or less, go to next step. If resistance is more than 2.9 ohms, go to step 7 .
6. Turn ignition off. Remove key from ignition. Wait at least one minute. Replace driver-side air bag module. See **AIR BAG MODULES** under REMOVAL & INSTALLATION. Go to step 16 .
7. Turn ignition off. Remove key from ignition. Wait at least one minute. Remove SIR Driver-Passenger Load Tool (J-38715-A) and Load Tool Adapter (J-38715-30A) from SIR coil connector. Disconnect SIR coil connector at base of steering column. Install SIR Driver-Passenger Load Tool (J-38715-A) using Load Tool Adapter (J-38715-40) to harness connector. Turn ignition on. Observe DRIVER AIR BAG RES. in scan tool display. If resistance is greater than 2.9 ohms, go to step 9 . If resistance is 2.9 ohms or less, go to next step.
8. Turn ignition off. Remove key from ignition. Wait at least one minute. Replace SIR coil assembly. See **SIR COIL ASSEMBLY** under REMOVAL & INSTALLATION. Go to step 16 .
9. Turn ignition off. Remove key from ignition. Wait at least one minute. Remove SIR Driver-Passenger Load Tool (J-38715-A) and Load Tool Adapter (J-38715-40) from harness connector. Disconnect SDM. See **Fig. 6** . If SDM harness connector shows signs of corrosion, poor connections or damage, go to next step. If SDM connector is okay, go to step 11 .
10. Replace SDM connector. See **WIRE REPAIR** . Go to step 16 .
11. Install SIR Shorting Bar Tool (J-42113) on SDM connector above terminals No. 1 and 2. See **Fig. 14** . Using Digital Multimeter (J-39200) with Test Adapter Kit (J-35616-A), measure continuity of circuit BM30. Press MIN MAX button on DMM. Connect leads of DMM to appropriate terminals. If low or no resistance is not indicated, go to next step. If low or no resistance is indicated, go to step 13 .
12. Repair open or high resistance in circuit BM30. See **WIRE REPAIR** . Go to step 16 .
13. Measure continuity of circuit B30. Press MIN MAX button on DMM. Connect leads of DMM to appropriate terminals. If low or no resistance is not indicated, go to next step. If low or no resistance is indicated, go to step 15 .
14. Repair open or high resistance in circuit B30. See **WIRE REPAIR** . Go to step 16 .
15. Replace SDM. See **SENSING & DIAGNOSTIC MODULE (SDM)** under REMOVAL & INSTALLATION. Go to next step.
16. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to **SIR DIAGNOSTIC SYSTEM CHECK** .

**Circuit Description**

When ignition switch is turned on, Sensing and Diagnostic Module (SDM) performs continuous diagnostic tests on deployment loop to check for proper circuit continuity and for shorts to ground or voltage.

**Conditions For Setting DTC**

DTC sets when resistance of driver-side air bag deployment loop is less than 2.3 ohms for 500 milliseconds.

**Action Taken**

SDM turns on AIR BAG warning light and sets a DTC.

**Conditions For Clearing DTC**

Current DTC clears when condition responsible for DTC no longer exists and CLEAR CODES command is issued via scan tool. History DTC clears when 255 malfunction free ignition cycles have occurred.

**Diagnostic Aids**

Condition could be caused by a short between circuits BM30 and B30. A malfunctioning circuit connector or SDM could also cause condition.

**NOTE:** For circuit number and wire color identification, see WIRING DIAGRAMS .

**Diagnostic Procedure**

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to **SIR DIAGNOSTIC SYSTEM CHECK** .
2. Turn ignition off. Remove ignition key. Wait at least one minute. Remove driver-side air bag module. See **AIR BAG MODULES** under REMOVAL & INSTALLATION. Inspect SIR coil connector and driver-side air bag connector for signs of corrosion or damage. If connectors are damaged, go to next step. If connectors are okay, go to step 4 .
3. If driver-side air bag module connector is damaged, replace driver-side air bag module. See **AIR BAG MODULES** under REMOVAL & INSTALLATION. Go to step 14 . If SIR coil connector is damaged, replace SIR coil assembly. See **SIR COIL ASSEMBLY** under REMOVAL & INSTALLATION. Go to step 14 .
4. Install driver-side air bag module. Ensure Connector Position Assurance (CPA) clip is installed correctly. Install scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Observe scan tool SIR DTC display. If DTC 032 is displayed, go to next step. If DTC 032 is not displayed, go to **DIAGNOSTIC AIDS** .
5. Turn ignition off. Remove key from ignition. Wait at least one minute. Remove driver-side air bag module. See **AIR BAG MODULES** under REMOVAL & INSTALLATION. Install SIR Driver-Passenger Load Tool (J-38715-A) using Load Tool Adapter (J-38715-30A) to SIR coil connector. Turn ignition on. Turn ignition on. Observe DRIVER AIR BAG RES. in scan tool display. If resistance is less than 2.3 ohms, go to step 7 . If resistance is 2.3 ohms or more, go to next step.
6. Turn ignition off. Remove key from ignition. Wait at least one minute. Replace driver-side air bag module. See **AIR BAG MODULES** under REMOVAL & INSTALLATION. Go to step 14 .
7. Turn ignition off. Remove key from ignition. Wait at least one minute. Disconnect SIR Driver-Passenger Load Tool (J-38715-A) and Load Tool Adapter (J-38715-30A) from SIR coil connector. Disconnect SIR coil connector at base of steering column. Install SIR Driver-Passenger Load Tool (J-38715-A) using Load Tool Adapter (J-38715-40) to harness connector. Turn ignition on. Observe DRIVER AIR BAG RES. in scan tool display. If resistance is less than 2.3 ohms, go to step 9 . If resistance is 2.3 ohms or more, go to next step.

8. Turn ignition off. Remove key from ignition. Wait at least one minute. Replace SIR coil assembly. See **SIR COIL ASSEMBLY** under REMOVAL & INSTALLATION. Go to step 14 .
9. Turn ignition off. Remove key from ignition. Wait at least one minute. Disconnect SDM connector. If connector shows signs of corrosion, poor connections or damage, go to step [13](#) . If connector is okay, go to next step.
10. Install SIR Shorting Bar Tool (J-42113) on SDM connector above terminals No. 1 and 2. See **Fig. 14** . Using Digital Multimeter (J-39200) with Test Adapter Kit (J-35616-A), measure resistance between SDM connector terminals No. 1 and 2. If resistance is less than infinite, go to next step. If resistance is infinite, go to step 13 .
11. Repair short between circuits BM30 and B30. See **WIRE REPAIR** . Go to step 14 .
12. Replace SDM connector. See **WIRE REPAIR** . Go to step 14 .
13. Replace SDM. See **SENSING & DIAGNOSTIC MODULE (SDM)** under REMOVAL & INSTALLATION. Go to next step.
14. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to **SIR DIAGNOSTIC SYSTEM CHECK** .

### DTC 033 : PASSENGER-SIDE AIR BAG DEPLOYMENT LOOP RESISTANCE HIGH

#### Circuit Description

When ignition switch is turned on, Sensing and Diagnostic Module (SDM) performs continuous diagnostic tests on deployment loop to check for proper circuit continuity and for shorts to ground or voltage.

#### Conditions For Setting DTC

DTC sets when passenger-side air bag deployment loop resistance is more than 2.4 ohms for 500 milliseconds.

#### Action Taken

SDM turns on AIR BAG warning light and sets DTC.

#### Conditions For Clearing DTC

Current DTC clears when condition responsible for DTC no longer exists and CLEAR CODES command is issued via scan tool. History DTC clears when 255 malfunction free ignition cycles have occurred.

#### Diagnostic Aids

Condition could be caused by poor connections in circuits BA10 or BP10. A malfunctioning circuit connector or SDM could also cause condition.

**NOTE:** For circuit number and wire color identification, see **WIRING DIAGRAMS** .

#### Diagnostic Procedure

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to **SIR DIAGNOSTIC SYSTEM CHECK** .
2. Turn ignition off. Disconnect passenger-side air bag connector. See **Fig. 10** . Inspect both sides of connector for corrosion or damage. If connectors are damaged, go to next step. If connectors are okay, go to step 4 .
3. If passenger-side air bag pigtail is damaged, replace passenger-side air bag module. See **AIR BAG MODULES** under REMOVAL & INSTALLATION. Go to step 14 . If harness connector is damaged, replace harness connector. See **WIRE REPAIR** . Go to step 14 .
4. Reconnect passenger-side air bag connector. Ensure Connector Position Assurance (CPA) clip is installed correctly. Install scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn

ignition on. Observe scan tool SIR DTC display. If DTC 033 is displayed, go to next step. If DTC 033 is not displayed, go to **DIAGNOSTIC AIDS**.

5. Turn ignition off. Remove key from ignition. Wait at least one minute. Disconnect passenger-side air bag connector. See **Fig. 10**. Install SIR Driver-Passenger Load Tool (J-38715-A) using Load Tool Adapter (J-38715-55) to passenger-side air bag module harness connector. Turn ignition on. Observe PASSENGER AIR BAG RES. in scan tool display. If resistance is more than 2.3 ohms, go to step 7. If resistance is 2.4 ohms or less, go to next step.
6. Turn ignition off. Remove key from ignition. Wait at least one minute. Replace passenger-side air bag module. See **AIR BAG MODULES** under REMOVAL & INSTALLATION. Go to step 14.
7. Turn ignition off. Remove key from ignition. Wait at least one minute. Remove SIR Driver-Passenger Load Tool (J-38715-A) and Load Tool Adapter (J-38715-55) from connector. Disconnect SDM connector. See **Fig. 6**. If SDM connector shows signs of corrosion or damage, go to step 12. If SDM connector is okay, go to next step.
8. Install SIR Shorting Bar Tool (J-42113) on SDM connector above terminals No. 3 and 4. See **Fig. 14**. Using Digital Multimeter (J-39200) with Test Adapter Kit (J-35616-A), measure continuity of circuit BA10. Press MIN MAX button on DMM. Connect leads of DMM to appropriate terminals. If low or no resistance is not indicated, go to next step. If low or no resistance is indicated, go to step 10.
9. Repair open or high resistance in circuit BA10. See **WIRE REPAIR**. Go to step 14.
10. Measure continuity of circuit BP10. Press MIN MAX button on DMM. Connect leads of DMM to appropriate terminals. If low or no resistance is not indicated, go to next step. If low or no resistance is indicated, go to step 13.
11. Repair open or high resistance in circuit BP10. See **WIRE REPAIR**. Go to step 14.
12. Replace SDM connector. See **WIRE REPAIR**. Go to step 14.
13. Replace SDM. See **SENSING & DIAGNOSTIC MODULE (SDM)** under REMOVAL & INSTALLATION. Go to next step.
14. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to **SIR DIAGNOSTIC SYSTEM CHECK**.

#### DTC 034 : PASSENGER-SIDE AIR BAG DEPLOYMENT LOOP RESISTANCE LOW

##### Circuit Description

When ignition switch is turned on, Sensing and Diagnostic Module (SDM) performs continuous diagnostic tests on deployment loop to check for proper circuit continuity and for shorts to ground or voltage.

##### Conditions For Setting DTC

DTC sets when passenger-side air bag module deployment loop resistance is less than 1.6 ohms for 500 milliseconds.

##### Action Taken

SDM turns on AIR BAG warning light and sets a DTC.

##### Conditions For Clearing DTC

Current DTC clears when condition responsible for DTC no longer exists and CLEAR CODES command is issued via scan tool. History DTC clears when 255 malfunction free ignition cycles have occurred.

##### Diagnostic Aids

Condition could be caused by a short between circuits BA10 and BP10. A malfunctioning passenger-side air bag module, SDM or circuit connector could also cause condition.

**NOTE:** For circuit number and wire color identification, see WIRING DIAGRAMS .

#### Diagnostic Procedure

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to SIR DIAGNOSTIC SYSTEM CHECK .
2. Turn ignition off. Remove ignition key. Wait at least one minute. Disconnect passenger-side air bag module connector. See AIR BAG MODULES under REMOVAL & INSTALLATION. Inspect both sides of connector for signs of corrosion or damage. If connectors are damaged, go to next step. If connectors are okay, go to step 4 .
3. If passenger-side air bag module connector is damaged, replace passenger-side air bag module. See AIR BAG MODULES under REMOVAL & INSTALLATION. Go to step 12 . If harness connector is damaged, replace harness connector. See WIRE REPAIR . Go to step 12 .
4. Connect passenger-side air bag module connector. Ensure Connector Position Assurance (CPA) clip is installed correctly. Install scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Observe scan tool SIR DTC display. If DTC 034 is displayed, go to next step. If DTC 034 is not displayed, go to DIAGNOSTIC AIDS .
5. Turn ignition off. Remove key from ignition. Wait at least one minute. Disconnect passenger-side air bag module. See AIR BAG MODULES under REMOVAL & INSTALLATION. Install SIR Driver-Passenger Load Tool (J-38715-A) using Load Tool Adapter (J-38715-55) to passenger-side air bag module harness connector. Turn ignition on. Observe PASSENGER AIR BAG RES. in scan tool display. If resistance is less than 1.6 ohms, go to step 7 . If resistance is 1.6 ohms or more, go to next step.
6. Turn ignition off. Remove key from ignition. Wait at least one minute. Replace passenger-side air bag module. See AIR BAG MODULES under REMOVAL & INSTALLATION. Go to step 12 .
7. Turn ignition off. Remove key from ignition. Wait at least one minute. Disconnect SIR Driver-Passenger Load Tool (J-38715-A) and Load Tool Adapter (J-38715-55) from harness connector. Disconnect SDM connector. If connector shows signs of corrosion, poor connections or damage, go to step 10 . If connector is okay, go to next step.
8. Install SIR Shorting Bar Tool (J-42113) on SDM connector above terminals No. 3 and 4. See **Fig. 14** . Using Digital Multimeter (J-39200) with Test Adapter Kit (J-35616-A), measure resistance between SDM connector terminals No. 3 and 4. If resistance is less than infinite, go to next step. If resistance is infinite, go to step 11 .
9. Repair short between circuits BA10 and BP10. See WIRE REPAIR . Go to step 12 .
10. Replace SDM connector. See WIRE REPAIR . Go to step 12 .
11. Replace SDM. See SENSING & DIAGNOSTIC MODULE (SDM) under REMOVAL & INSTALLATION. Go to next step.
12. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to SIR DIAGNOSTIC SYSTEM CHECK .

#### DTC 035 : DRIVER SEAT BELT PRETENSIONER DEPLOYMENT LOOP RESISTANCE HIGH

##### Circuit Description

When ignition switch is turned on, Sensing and Diagnostic Module (SDM) performs continuous diagnostic tests on deployment loop to check for proper circuit continuity and for shorts to ground or voltage.

##### Conditions For Setting DTC

DTC sets when resistance of driver side pretensioner deployment loop is more than 2.4 ohms.

##### Action Taken

SDM turns on AIR BAG warning light and sets a DTC.

#### Conditions For Clearing DTC

Current DTC clears when condition responsible for DTC no longer exists and CLEAR CODES command is issued via scan tool. History DTC clears when 255 malfunction free ignition cycles have occurred.

#### Diagnostic Aids

Condition could be caused by poor connections in circuits AM900-950 and XB901-XB950. A malfunctioning seat belt pretensioner, SDM or circuit connector could also cause condition.

**NOTE:** For circuit number and wire color identification, see WIRING DIAGRAMS .

#### Diagnostic Procedure

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to **SIR DIAGNOSTIC SYSTEM CHECK** .
2. Turn ignition off. Remove ignition key. Wait at least one minute. Disconnect driver seat belt pretensioner connector. Inspect both sides of connector for corrosion or damage. If damage is found, go to next step. If connectors are okay, go to step 4 .
3. If driver seat belt pretensioner connector is damaged or corroded, replace driver seat belt pretensioner. See **SEAT BELT PRETENSIONERS** under REMOVAL & INSTALLATION. Go to step 14 . If harness connector is damaged or corroded, replace harness connector. See **WIRE REPAIR** . Go to step 14 .
4. Reconnect driver seat belt pretensioner connector. Ensure Connector Position Assurance (CPA) clip is installed correctly. Install scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Observe scan tool SIR DTC display. If DTC 035 is displayed, go to next step. If DTC 035 is not displayed, go to **DIAGNOSTIC AIDS** .
5. Turn ignition off. Remove key from ignition. Wait at least one minute. Disconnect driver seat belt pretensioner connector. Install SIR Driver-Passenger Load Tool (J-38715-A) using Load Tool Adapter (J-38715-55) to driver seat belt pretensioner harness connector. Turn ignition on. Observe LH PRETENS. RES. in scan tool display. If resistance is greater than 2.4 ohms, go to step 7 . If resistance is less than 2.4 ohm, go to next step.
6. Turn ignition off. Remove key from ignition. Wait at least one minute. Replace driver seat belt pretensioner. See **SEAT BELT PRETENSIONERS** under REMOVAL & INSTALLATION. Go to step 14 .
7. Turn ignition off. Remove key from ignition. Wait at least one minute. Remove SIR Driver-Passenger Load Tool (J-38715-A) and Load Tool Adapter (J-38715-55) from harness connector. Disconnect SDM. See **Fig. 6** . If SDM harness connector shows signs of damage or corrosion, go to step 12 . If connector is okay, go to next step.
8. Install SIR Shorting Bar Tool (J-42113) on SDM connector above terminals No. 8 and 9. See **Fig. 14** . Using Digital Multimeter (J-39200) with Test Adapter Kit (J-35616-A), measure continuity of driver seat belt pretensioner circuit AM900-AM950. Press MIN MAX button on DMM. Connect leads of DMM to appropriate terminals. If low or no resistance is not indicated, go to next step. If low or no resistance is indicated, go to step 10 .
9. Repair open or high resistance in circuit AM950-AM950. See **WIRE REPAIR** . Go to step 14 .
10. Measure continuity of driver seat belt pretensioner circuit XM901-XM950. Press MIN MAX button on DMM. Connect leads of DMM to appropriate terminals. If low or no resistance is not indicated, go to next step. If low or no resistance is indicated, go to step 13 .
11. Repair open or high resistance in circuit XM901- XM950. See **WIRE REPAIR** . Go to step 14 .
12. Replace SDM connector. See **WIRE REPAIR** . Go to step 14 .
13. Replace SDM. See **SENSING & DIAGNOSTIC MODULE (SDM)** under REMOVAL &



INSTALLATION. Go to next step.

14. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to **SIR DIAGNOSTIC SYSTEM CHECK** .

#### **DTC 036 : DRIVER SEAT BELT PRETENSIONER DEPLOYMENT LOOP RESISTANCE LOW**

##### **Circuit Description**

When ignition switch is turned on, Sensing and Diagnostic Module (SDM) performs continuous diagnostic tests on deployment loop to check for proper circuit continuity and for shorts to ground or voltage.

##### **Conditions For Setting DTC**

DTC sets when driver seat belt pretensioner deployment loop resistance is less than 1.6 ohms for 500 milliseconds.

##### **Action Taken**

SDM turns on AIR BAG warning light and sets a DTC.

##### **Conditions For Clearing DTC**

Current DTC clears when condition responsible for DTC no longer exists and CLEAR CODES command is issued via scan tool. History DTC clears when 255 malfunction free ignition cycles have occurred.

##### **Diagnostic Aids**

Condition could be caused by a short between circuits AM900-AM950 and XM901-XM950. A malfunctioning seat belt pretensioner, SDM or circuit connector could also cause condition.

**NOTE:** For circuit number and wire color identification, see **WIRING DIAGRAMS** .

##### **Diagnostic Procedure**

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to **SIR DIAGNOSTIC SYSTEM CHECK** .
2. Turn ignition off. Disconnect driver seat belt pretensioner connector. Inspect both sides of connector for corrosion or damage. If connectors are damaged or corroded, go to next step. If connectors are okay, go to step 4 .
3. If driver seat belt pretensioner connector is damaged or corroded, replace driver seat belt pretensioner. See **SEAT BELT PRETENSIONERS** under REMOVAL & INSTALLATION. Go to step 12 . If harness connector is damaged or corroded, replace harness connector. See **WIRE REPAIR** . Go to step 12 .
4. Reconnect driver seat belt pretensioner connector. Ensure Connector Position Assurance (CPA) clip is installed correctly. Install scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Observe scan tool SIR DTC display. If DTC 036 is displayed, go to next step. If DTC 036 is not displayed, go to **DIAGNOSTIC AIDS** .
5. Turn ignition off. Remove key from ignition. Wait at least one minute. Disconnect driver seat belt pretensioner connector. Install SIR Driver-Passenger Load Tool (J-38715-A) using Load Tool Adapter (J-38715-55) to driver seat belt pretensioner harness connector. Turn ignition on. Observe LH PRETENS. RES. in scan tool display. If resistance is 1.6 ohms or more, go to next step. If resistance is less than 1.6 ohms, go to step 7 .
6. Turn ignition off. Remove key from ignition. Wait at least one minute. Replace driver seat belt pretensioner. See **SEAT BELT PRETENSIONERS** under REMOVAL & INSTALLATION. Go to step 12 .
7. Turn ignition off. Remove key from ignition. Wait at least one minute. Remove SIR Driver-Passenger Load Tool (J-38715-A) and Load Tool Adapter (J-38715-55) from harness connector. Disconnect SDM connector.

See **Fig. 6** . If connector shows signs of damage or corrosion, go to step 10 . If SDM connector is okay, go to next step.

8. Install SIR Shorting Bar Tool (J-42113) on SDM connector above terminals No. 8 and 9. See **Fig. 14** . Using Digital Multimeter (J-39200) with Test Adapter Kit (J-35616-A), measure resistance between SDM connector terminals No. 8 and 9. If resistance is less than infinite, go to next step. If resistance is infinite, go to step 11 .
9. Repair short between circuits AM900-AM950 and XM901-XM950. See **WIRE REPAIR** . Go to step 12 .
10. Replace SDM connector. See **WIRE REPAIR** . Go to step 12 .
11. Replace SDM. See **SENSING & DIAGNOSTIC MODULE (SDM)** under REMOVAL & INSTALLATION. Go to next step.
12. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to **SIR DIAGNOSTIC SYSTEM CHECK** .

### DTC 037 : PASSENGER SEAT BELT PRETENSIONER DEPLOYMENT LOOP RESISTANCE HIGH

#### Circuit Description

When ignition switch is turned on, Sensing and Diagnostic Module (SDM) performs continuous diagnostic tests on deployment loop to check for proper circuit continuity and for shorts to ground or voltage.

#### Conditions For Setting DTC

DTC sets passenger seat belt pretensioner deployment loop resistance is more than 2.4 ohms for 500 milliseconds.

#### Action Taken

SDM turns on AIR BAG warning light and sets a DTC.

#### Conditions For Clearing DTC

Current DTC clears when condition responsible for DTC no longer exists and CLEAR CODES command is issued via scan tool. History DTC clears when 255 malfunction free ignition cycles have occurred.

#### Diagnostic Aids

Condition could be caused by poor connections in circuits AB900-AB950 or XB901-XB950. A malfunctioning seat belt pretensioner, SDM or circuit connector could also cause condition.

**NOTE:** For circuit number and wire color identification, see **WIRING DIAGRAMS** .

#### Diagnostic Procedure

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to **SIR DIAGNOSTIC SYSTEM CHECK** .
2. Turn ignition off. Remove ignition key. Wait at least one minute. Disconnect passenger seat belt pretensioner connector. Inspect both sides of connector for corrosion or damage. If damage is found, go to next step. If connectors are okay, go to step 4 .
3. If passenger seat belt pretensioner connector is damaged or corroded, replace passenger seat belt pretensioner. See **SEAT BELT PRETENSIONERS** under REMOVAL & INSTALLATION. Go to step 14 . If harness connector is damaged or corroded, replace harness connector. See **WIRE REPAIR** . Go to step 14 .
4. Reconnect passenger seat belt pretensioner connector. Ensure Connector Position Assurance (CPA) clip is installed correctly. Install scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Observe scan tool SIR DTC display. If DTC 037 is displayed, go to next step. If

DTC 037 is not displayed, go to **DIAGNOSTIC AIDS** .

5. Turn ignition off. Remove key from ignition. Wait at least one minute. Disconnect passenger seat belt pretensioner connector. Install SIR Driver-Passenger Load Tool (J-38715-A) using Load Tool Adapter (J-38715-55) to passenger seat belt pretensioner harness connector. Turn ignition on. Observe RH PRETENS. RES. in scan tool display. If resistance is greater than 2.4 ohms, go to step 7 . If resistance is 2.4 ohms or less, go to next step.
6. Turn ignition off. Remove key from ignition. Wait at least one minute. Replace passenger seat belt pretensioner. See **SEAT BELT PRETENSIONERS** under REMOVAL & INSTALLATION. Go to step 14 .
7. Turn ignition off. Remove key from ignition. Wait at least one minute. Remove SIR Driver-Passenger Load Tool (J-38715-A) and Load Tool Adapter (J-38715-55) from harness connector. Disconnect SDM connector. See **Fig. 6** . If SDM harness connector shows signs of damage or corrosion, go to step 12 . If connector is okay, go to next step.
8. Install SIR Shorting Bar Tool (J-42113) on SDM connector above terminals No. 15 and 45. See **Fig. 14** . Using Digital Multimeter (J-39200) with Test Adapter Kit (J-35616-A), measure continuity of passenger seat belt pretensioner circuit AB900-AB950. Press MIN MAX button on DMM. Connect leads of DMM to appropriate terminals. If low or no resistance is not indicated, go to next step. If low or no resistance is indicated, go to step 10 .
9. Repair open or high resistance in circuit AM950-AM950. See **WIRE REPAIR** . Go to step 14 .
10. Measure continuity of passenger seat belt pretensioner circuit XB901-XB950. Press MIN MAX button on DMM. Connect leads of DMM to appropriate terminals. If low or no resistance is not indicated, go to next step. If low or no resistance is indicated, go to step 13 .
11. Repair open or high resistance in circuit XM901- XM950. See **WIRE REPAIR** . Go to step 14 .
12. Replace SDM connector. See **WIRE REPAIR** . Go to step 14 .
13. Replace SDM. See **SENSING & DIAGNOSTIC MODULE (SDM)** under REMOVAL & INSTALLATION. Go to next step.
14. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to **SIR DIAGNOSTIC SYSTEM CHECK** .

#### DTC 038 : PASSENGER SEAT BELT PRETENSIONER DEPLOYMENT LOOP RESISTANCE LOW

##### Circuit Description

When ignition switch is turned on, Sensing and Diagnostic Module (SDM) performs continuous diagnostic tests on deployment loop to check for proper circuit continuity and for shorts to ground or voltage.

##### Conditions For Setting DTC

DTC sets when resistance of passenger seat belt pretensioner deployment loop is less than 1.6 ohms.

##### Action Taken

SDM turns on AIR BAG warning light and sets DTC.

##### Conditions For Clearing DTC

Current DTC clears when condition responsible for DTC no longer exists and CLEAR CODES command is issued via scan tool. History DTC clears when 255 malfunction free ignition cycles have occurred.

##### Diagnostic Aids

Condition could be caused by a short between circuits XB901-XB950 and AB900-AB950. A malfunctioning seat belt pretensioner, SDM or circuit connector could also cause condition.

**NOTE:** For circuit number and wire color identification, see WIRING DIAGRAMS .

#### Diagnostic Procedure

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to SIR DIAGNOSTIC SYSTEM CHECK .
2. Turn ignition off. Disconnect passenger seat belt pretensioner connector. Inspect both sides of connector for corrosion or damage. If connectors are damaged or corroded, go to next step. If connectors are okay, go to step 4 .
3. If passenger seat belt pretensioner connector is damaged or corroded, replace passenger seat belt pretensioner. See SEAT BELT PRETENSIONERS under REMOVAL & INSTALLATION. Go to step 12 . If harness connector is damaged or corroded, replace harness connector. See WIRE REPAIR . Go to step 12 .
4. Reconnect passenger seat belt pretensioner connector. Ensure Connector Position Assurance (CPA) clip is installed correctly. Install scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Observe scan tool SIR DTC display. If DTC 038 is displayed, go to next step. If DTC 038 is not displayed, go to DIAGNOSTIC AIDS .
5. Turn ignition off. Remove key from ignition. Wait at least one minute. Disconnect passenger seat belt pretensioner connector. Install SIR Driver-Passenger Load Tool (J-38715-A) using Load Tool Adapter (J-38715-55) to passenger seat belt pretensioner harness connector. Turn ignition on. Observe RH PRETENS. RES. in scan tool display. If resistance is 1.6 ohms or more, go to next step. If resistance is less than 1.6 ohms or less, go to step 7 .
6. Turn ignition off. Remove key from ignition. Wait at least one minute. Replace passenger seat belt pretensioner. See SEAT BELT PRETENSIONERS under REMOVAL & INSTALLATION. Go to step 12 .
7. Turn ignition off. Remove key from ignition. Wait at least one minute. Remove SIR Driver-Passenger Load Tool (J-38715-A) using Load Tool Adapter (J-38715-55) from harness connector. Disconnect SDM connector. See Fig. 6 . If connector shows signs of damage or corrosion, go to step 10 . If SDM connector is okay, go to next step.
8. Install SIR Shorting Bar Tool (J-42113) on SDM connector above terminals No. 15 and 45. See Fig. 14 . Using Digital Multimeter (J-39200) with Test Adapter Kit (J-35616-A), measure resistance between SDM connector terminals No. 15 and 45. If resistance is less than infinite, go to next step. If resistance is infinite, go to step 11 .
9. Repair short between circuits AB900-AB950 and XB901-XB950. See WIRE REPAIR . Go to step 12 .
10. Replace SDM connector. See WIRE REPAIR . Go to step 12 .
11. Replace SDM. See SENSING & DIAGNOSTIC MODULE (SDM) under REMOVAL & INSTALLATION. Go to next step.
12. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to SIR DIAGNOSTIC SYSTEM CHECK .

#### DTC 043 : WARNING LIGHT CIRCUIT SHORT TO VOLTAGE

##### Circuit Description

When ignition first turned on, AIR BAG warning light flashes 7 times, during which time Sensing and Diagnostic Module (SDM) performs diagnostic tests on SIR system. If no malfunctions are detected, AIR BAG warning light will go off. SDM monitors AIR BAG warning light control circuit by comparing the output state of AIR BAG control circuit to microprocessor commanded state.

##### Conditions For Setting DTC

DTC sets when AIR BAG indicator control circuit does not match commanded state for 1.25 seconds.

## 2001 Cadillac Catera

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

### Action Taken

SDM attempts to turn on AIR BAG warning light and sets a DTC.

### Conditions For Clearing DTC

Current DTC clears when condition responsible for DTC no longer exists and CLEAR CODES command is issued via scan tool. History DTC clears when 255 malfunction free ignition cycles have occurred.

### Diagnostic Aids

AIR BAG warning light will be on with no DTCs set if Ignition 1 (IGN1) voltage is outside normal operating range of 9-16 volts. Condition could be caused by a short to voltage in circuit XB20, a malfunctioning Instrument Panel Cluster (IPC), SDM or circuit connector.

**NOTE:** For circuit number and wire color identification, see WIRING DIAGRAMS .

### Diagnostic Procedure

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to SIR DIAGNOSTIC SYSTEM CHECK .
2. Turn ignition off. Remove ignition key. Wait at least one minute. Disconnect Instrument Panel Cluster (IPC) connector. If IPC connector shows signs of damage or corrosion which could cause a short to voltage, repair condition and go to step 8 . If connector is okay, go to next step.
3. Inspect IPC terminals for damage or corrosion which could cause a short to voltage. If damage is found, repair condition and go to step 8 . If IPC terminals are okay, go to next step.
4. Disconnect SDM connector. If SDM connector shows signs of corrosion or damage which could cause a short to voltage, replace connector. See WIRE REPAIR . Go to step 8 . If SDM connector is okay, go to next step.
5. Inspect SDM terminals for signs of corrosion or damage which could cause a short to voltage. If damage is found, repair condition. Go to step 8 . If no damage is found, go to next step.
6. Turn ignition on. Using Digital Multimeter (J-39200) with Test Adapter Kit (J-35616-A), measure voltage between SDM connector terminal No. 6 and ground. If voltage is one volt or more, repair short to voltage in circuit XB20. See WIRE REPAIR . Go to step 8 . If voltage is less than one volt, go to next step.
7. Turn ignition off. Remove key from ignition. Wait at least one minute. Replace SDM. See SENSING & DIAGNOSTIC MODULE (SDM) under REMOVAL & INSTALLATION. Go to next step.
8. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to SIR DIAGNOSTIC SYSTEM CHECK .

### DTC 044 : WARNING LIGHT CIRCUIT OPEN OR SHORT TO GROUND

#### Circuit Description

When ignition is first turned on, AIR BAG warning light flashes 7 times, during which time Sensing and Diagnostic Module (SDM) performs diagnostic tests on SIR system. If no malfunctions are detected, AIR BAG warning light will go off. SDM monitors AIR BAG warning light control circuit by comparing the output state of AIR BAG control circuit to microprocessor commanded state.

#### Conditions For Setting DTC

DTC sets when AIR BAG indicator control circuit does not match commanded state for 1.25 seconds.

#### Action Taken

SDM attempts to turn on AIR BAG warning light and sets a DTC.

**Conditions For Clearing DTC**

Current DTC clears when condition responsible for DTC no longer exists and CLEAR CODES command is issued via scan tool. History DTC clears when 255 malfunction free ignition cycles have occurred.

**Diagnostic Aids**

AIR BAG warning light will be on with no DTCs set if Ignition 1 (IGN1) voltage is outside normal operating range of 9-16 volts. Condition could be caused by a short to ground or an open or high resistance in circuit XB20. A malfunctioning Instrument Panel Cluster (IPC), SDM or circuit connector could also cause condition.

**NOTE:** For circuit number and wire color identification, see WIRING DIAGRAMS .

**Diagnostic Procedure**

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to **SIR DIAGNOSTIC SYSTEM CHECK** .
2. Turn ignition off. Remove ignition key. Wait at least one minute. Disconnect Instrument Panel Cluster (IPC) connector. If IPC connector shows signs of damage or corrosion which could cause a short to ground or an open or high resistance, repair condition. Go to step 8 . If connector is okay, go to next step.
3. Inspect IPC terminals for damage or corrosion which could cause a short to ground, an open or high resistance. If damage is found, repair condition. Go to step 8 . If IPC terminals are okay, go to next step.
4. Disconnect SDM connector. If SDM connector shows signs of corrosion or damage which could cause a short to ground, an open or high resistance, replace connector. See WIRE REPAIR . Go to step 8 . If SDM connector is okay, go to next step.
5. Inspect SDM terminals for signs of corrosion or damage which could cause a short to ground, an open or high resistance. If damage is found, repair condition. Go to step 8 . If no damage is found, go to next step.
6. Using Digital Multimeter (J-39200) with Test Adapter Kit (J-35616-A), test circuit XB20 for a short to ground, or an open or high resistance. If short to ground, or an open or high resistance is found, repair condition. See WIRE REPAIR . Go to step 8 . If no short to ground, open or high resistance is indicated, go to next step.
7. Replace SDM. See SENSING & DIAGNOSTIC MODULE (SDM) under REMOVAL & INSTALLATION. Go to next step.
8. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to **SIR DIAGNOSTIC SYSTEM CHECK** .

**DTC 052 : SDM NOT CONFIGURED****Circuit Description**

When ignition switch is turned on, Sensing and Diagnostic Module (SDM) performs continuous diagnostic tests to check for proper circuit continuity and for shorts to ground or voltage. During one portion of testing, SDM checks to ensure it is properly configured for vehicle. If malfunction is detected, SDM will store DTC 052.

**Conditions For Setting DTC**

DTC sets when SDM is not properly configured for vehicle.

**Action Taken**

SDM attempts to turn on AIR BAG warning light and sets a DTC.

**Conditions For Clearing DTC**

Scan tool can be used to properly configure SDM. Once SDM is configured properly, DTC will clear.

**Diagnostic Procedure**

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to **SIR DIAGNOSTIC SYSTEM CHECK** .
2. Turn ignition off. Install scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Observe SIR DATA LIST display. If SDM NOT CONFIG. is displayed, go to step 4 . If SDM NOT CONFIG. is not displayed, go to next step.
3. Replace SDM. See **SENSING & DIAGNOSTIC MODULE (SDM)** under REMOVAL & INSTALLATION. Go to step 5 .
4. Select PROGRAMMING SDM function from scan tool display. Follow instructions on scan tool to properly configure SDM. Go to next step.
5. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to **SIR DIAGNOSTIC SYSTEM CHECK** .

**DTC 053 : CONFIGURATION MISMATCH****Circuit Description**

When ignition switch is turned on, Sensing and Diagnostic Module (SDM) performs continuous diagnostic tests to check for proper circuit continuity and for shorts to ground or voltage. During one portion of testing, SDM checks to ensure it is properly configured for vehicle. If malfunction is detected, SDM will store DTC 053.

**Conditions For Setting DTC**

DTC sets when SDM is not properly configured for vehicle.

**Action Taken**

SDM attempts to turn on AIR BAG warning light and sets a DTC.

**Conditions For Clearing DTC**

Scan tool can be used to properly configure SDM. Once SDM is configured properly, DTC will clear.

**Diagnostic Procedure**

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to **SIR DIAGNOSTIC SYSTEM CHECK** .
2. Turn ignition off. Install scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Observe SIR DATA LIST display. If SDM NOT CONFIG. is displayed, go to step 4 . If SDM NOT CONFIG. is not displayed, go to next step.
3. Replace SDM. See **SENSING & DIAGNOSTIC MODULE (SDM)** under REMOVAL & INSTALLATION. Go to step 5 .
4. Select PROGRAMMING SDM function from scan tool display. Follow instructions on scan tool to properly configure SDM. Go to next step.
5. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to **SIR DIAGNOSTIC SYSTEM CHECK** .

**DTC 055 : INTERNAL SDM FAILURE****Circuit Description**

DTC 55 is an indication of potential internal SDM malfunction. Internal malfunction is detected within SDM. No external circuits are involved.

**Conditions For Setting DTC**

DTC sets when either a write error malfunction or checksum memory malfunction is detected.

**Action Taken**

SDM turns on AIR BAG warning light and sets a DTC.

**Conditions For Clearing DTC**

DTC 055 is a latched DTC and cannot be cleared. Replace SDM after following instructions in diagnostic procedure.

**Diagnostic Procedure**

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to **SIR DIAGNOSTIC SYSTEM CHECK** .
2. Replace SDM. See **SENSING & DIAGNOSTIC MODULE (SDM)** under REMOVAL & INSTALLATION. Go to next step.
3. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to **SIR DIAGNOSTIC SYSTEM CHECK** .

**DTC 056 : SDM NOT REUSABLE****Circuit Description**

When ignition switch is turned on, Sensing and Diagnostic Module (SDM) performs continuous diagnostic tests to check for proper circuit continuity and for shorts to ground or voltage. If malfunction is detected, SDM will store DTC 056.

**Conditions For Setting DTC**

DTC sets when driver or passenger-side air bag deployment has been commanded, 3 seat belt pretensioner only deployments have been commanded, 3 passenger side impact air bag deployments have been commanded or 3 driver side impact air bag deployment have been commanded.

**Action Taken**

SDM turns on AIR BAG warning light and sets a DTC.

**Conditions For Clearing DTC**

DTC 056 is a latched DTC and cannot be cleared. Replace SDM after following instructions in diagnostic procedure.

**Diagnostic Procedure**

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to **SIR DIAGNOSTIC SYSTEM CHECK** .
2. Replace SDM. See **SENSING & DIAGNOSTIC MODULE (SDM)** under REMOVAL & INSTALLATION. Reconnect all SIR components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to **SIR DIAGNOSTIC SYSTEM CHECK** .

**DTC 065 : PASSENGER-SIDE AIR BAG DEPLOYMENT COMMANDED****Circuit Description**

Sensing and Diagnostic Module (SDM) contains a sensing device which converts vehicle velocity changes to an



## 2001 Cadillac Catera

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

electrical signal. SDM processes generated electrical signals and compares them to values stored in memory. When generated signals exceed signals stored in memory, SDM performs additional signal processing and compares generated signals to signals stored in memory. When 2 of generated signals exceed stored values, SDM causes current to flow through passenger-side air bag module, deploying passenger-side air bag module and causing DTC 065 to set.

### Conditions For Setting DTC

DTC sets when SDM detects front crash of sufficient force to warrant deployment of passenger-side air bag.

### Action Taken

SDM turns on AIR BAG warning light, sets a DTC and records crash data.

### Conditions For Clearing DTC

DTC 065 is a latched code and cannot be cleared. Replace SDM after following instructions in diagnostic procedure.

### Diagnostic Procedure

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to **SIR DIAGNOSTIC SYSTEM CHECK** .
2. Turn ignition off. Remove ignition key. Wait at least one minute. If passenger-side air bag module has not been deployed, go to next step. If passenger-side air bag module has deployed, go to step 5 .
3. Inspect front of vehicle and undercarriage for signs of impact or collision. If damage is not visible, go to next step. If damage is visible, go to step 5 .
4. Replace SDM. See **SENSING & DIAGNOSTIC MODULE (SDM)** under REMOVAL & INSTALLATION. Go to step 6 .
5. Install scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Observe scan tool SIR DTC display. If history DTCs exist, go to diagnostic aids for specific DTC and diagnose condition. Perform inspections and replace components as required following an accident. See **POST-COLLISION INSPECTION** . Go to next step.
6. Reconnect all SIR components. Ensure that all components are properly mounted. Go to **SIR DIAGNOSTIC SYSTEM CHECK** .

## DTC 066 : DRIVER-SIDE AIR BAG DEPLOYMENT COMMANDED

### Circuit Description

Sensing and Diagnostic Module (SDM) contains a sensing device which converts vehicle velocity changes to an electrical signal. SDM processes generated electrical signals and compares them to values stored in memory. When generated signals exceed signals stored in memory, SDM performs additional signal processing and compares generated signals to signals stored in memory. When 2 of generated signals exceed stored values, SDM causes current to flow through driver-side air bag module, deploying air bag module and causing DTC 066 to set.

### Conditions For Setting DTC

DTC sets when SDM detects front crash of sufficient force to warrant deployment driver-side air bag.

### Action Taken

SDM turns on AIR BAG warning light, sets a DTC and records Crash Data.

### Conditions For Clearing DTC

DTC clears when SDM is replaced.

#### Diagnostic Procedure

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to **SIR DIAGNOSTIC SYSTEM CHECK** .
2. Turn ignition off. Remove ignition key. Wait at least one minute. If driver-side air bag module has not been deployed, go to next step. If driver-side air bag module has deployed, go to step 5 .
3. Inspect front of vehicle and undercarriage for signs of impact or collision. If damage is not visible, go to next step. If damage is visible, go to step 5 .
4. Replace SDM. See **SENSING & DIAGNOSTIC MODULE (SDM)** under REMOVAL & INSTALLATION. Go to step 6 .
5. Install scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Observe scan tool SIR DTC display. If history DTCs exist, go to diagnostic aids for specific DTC and diagnose condition. Perform inspections and replace components as required following an accident. See **POST-COLLISION INSPECTION** . Go to next step.
6. Reconnect all SIR components. Ensure that all components are properly mounted. Go to **SIR DIAGNOSTIC SYSTEM CHECK** .

#### DTC 067 : PRETENSIONER ONLY DEPLOYMENT COMMANDED

##### Circuit Description

Sensing and Diagnostic Module (SDM) contains a sensing device which converts vehicle velocity changes to an electrical signal. SDM processes generated electrical signals and compares them to values stored in memory. When generated signals exceed signals stored in memory, SDM performs additional signal processing and compares generated signals to signals stored in memory. When 2 of generated signals exceed stored values, SDM causes current to flow through driver and passenger seat belt pretensioners, deploying pretensioners and causing DTC 067 to set.

##### Conditions For Setting DTC

DTC will set when SDM detects a frontal crash of sufficient force to warrant deployment of seat belt pretensioners.

##### Action Taken

SDM turns on AIR BAG warning light, sets a DTC and records crash data.

##### Conditions For Clearing DTC

DTC 067 is a latched code and cannot be cleared. Replace SDM after following instructions in diagnostic procedure.

#### Diagnostic Procedure

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to **SIR DIAGNOSTIC SYSTEM CHECK** .
2. Turn ignition off. Remove ignition key. Wait at least one minute. If seat belt pretensioners have not been deployed, go to next step. If seat belt pretensioners have deployed, go to step 5 .
3. Inspect front of vehicle and undercarriage for signs of impact or collision. If damage is not visible, go to next step. If damage is visible, go to step 5 .
4. Replace SDM. See **SENSING & DIAGNOSTIC MODULE (SDM)** under REMOVAL & INSTALLATION. Go to step 6 .

5. Install scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Observe scan tool SIR DTC display. If history DTCs exist, go to diagnostic aids for specific DTC and diagnose condition. Perform inspections and replace components as required following an accident. See **POST-COLLISION INSPECTION** . Go to next step.
6. Reconnect all SIR components. Ensure that all components are properly mounted. Go to **SIR DIAGNOSTIC SYSTEM CHECK** .

#### **DTC 068 : DRIVER SIDE IMPACT AIR BAG DEPLOYMENT COMMANDED**

##### **Circuit Description**

Sensing and Diagnostic Module (SDM) contains a sensing device which converts vehicle velocity changes to an electrical signal. SDM processes generated electrical signals and compares them to values stored in memory. When generated signals exceed signals stored in memory, SDM performs additional signal processing and compares generated signals to signals stored in memory. When 2 of generated signals exceed stored values, SDM causes current to flow through driver side impact air bag, causing air bag to deploy and setting DTC 068.

##### **Conditions For Setting DTC**

DTC sets when Sensing and Diagnostic Module (SDM) detects a side impact of sufficient force to warrant deployment of driver side impact air bag.

##### **Action Taken**

SDM turns on AIR BAG warning light, sets a DTC and records crash data.

##### **Conditions For Clearing DTC**

SDM has ability to command 3 side impact air bag deployments. SDM must be replaced after 3 side impact air bag deployments.

##### **Diagnostic Procedure**

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to **SIR DIAGNOSTIC SYSTEM CHECK** .
2. Turn ignition off. Remove ignition key. Wait at least one minute. If driver side impact air bag module has not been deployed, go to next step. If driver side impact air bag module has deployed, go to step 5 .
3. Inspect side of vehicle and undercarriage for signs of impact or collision. If damage is not visible, go to next step. If damage is visible, go to step 5 .
4. Replace SDM. See **SENSING & DIAGNOSTIC MODULE (SDM)** under REMOVAL & INSTALLATION. Go to step 6 .
5. Install scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Observe scan tool SIR DTC display. If history DTCs exist, go to diagnostic aids for specific DTC and diagnose condition. SDM has ability to command 3 side impact air bag deployments before replacement of SDM is required. Replace SDM only if this is third commanded deployment. Perform inspections and replace components as required following an accident. See **POST-COLLISION INSPECTION** . Go to next step.
6. Reconnect all SIR components. Ensure that all components are properly mounted. Go to **SIR DIAGNOSTIC SYSTEM CHECK** .

#### **DTC 069 : PASSENGER SIDE IMPACT AIR BAG DEPLOYMENT COMMANDED**

##### **Circuit Description**

Sensing and Diagnostic Module (SDM) contains a sensing device which converts vehicle velocity changes to an electrical signal. SDM processes generated electrical signals and compares them to values stored in memory. When

generated signals exceed signals stored in memory, SDM performs additional signal processing and compares generated signals to signals stored in memory. When 2 of generated signals exceed stored values, SDM causes current to flow through passenger side impact air bag, causing air bag to deploy and setting DTC 069.

**Conditions For Setting DTC**

DTC sets when SDM detects a side impact of sufficient force to warrant deployment of passenger side impact air bag.

**Action Taken**

SDM turns on AIR BAG warning light, sets a DTC and records crash data.

**Conditions For Clearing DTC**

SDM has ability to command 3 side impact air bag deployments. SDM must be replaced after 3 side impact air bag deployments.

**Diagnostic Procedure**

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to **SIR DIAGNOSTIC SYSTEM CHECK**.
2. Turn ignition off. Remove ignition key. Wait at least one minute. If passenger side impact air bag module has not been deployed, go to next step. If passenger side impact air bag module has deployed, go to step 5.
3. Inspect side of vehicle and undercarriage for signs of impact or collision. If damage is not visible, go to next step. If damage is visible, go to step 5.
4. Replace SDM. See **SENSING & DIAGNOSTIC MODULE (SDM)** under REMOVAL & INSTALLATION. Go to step 6.
5. Install scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Observe scan tool SIR DTC display. If history DTCs exist, go to diagnostic aids for specific DTC and diagnose condition. SDM has ability to command 3 side impact air bag deployments before replacement of SDM is required. Replace SDM only if this is third commanded deployment. Perform inspections and replace components as required following an accident. See **POST-COLLISION INSPECTION**. Go to next step.
6. Reconnect all SIR components. Ensure that all components are properly mounted. Go to **SIR DIAGNOSTIC SYSTEM CHECK**.

**DTC 071 : DRIVER SIDE IMPACT SENSOR COMMUNICATIONS INVALID****Circuit Description**

When ignition is turned on, Sensing and Diagnostic Module (SDM) performs tests to diagnose internal malfunctions. SDM then provides input power to driver Side Impact Sensor (SIS). When SIS detects input power, SIS responds by performing internal diagnostics. SIS will then send identification message to SDM. SDM considers this to be a valid identification message if response time is less than 5 seconds after SIS is powered up. SIS continually communicates a status message to SDM. SDM can reset SIS by removing and applying power to SIS.

**Conditions For Setting DTC**

DTC sets when SDM has received a Not Okay (NOK) message from SIS.

**Action Taken**

SDM sets DTC, turns on AIR BAG warning light and attempts to reset SIS.

**Conditions For Clearing DTC**

Current DTC clears when condition responsible for DTC no longer exists and CLEAR CODES command is issued via scan tool. History DTC clears when 255 malfunction free ignition cycles have occurred.

**Diagnostic Aids**

DTC 071 is an indication of an internal malfunction in SIS.

**Diagnostic Procedure**

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to **SIR DIAGNOSTIC SYSTEM CHECK**.
2. Using scan tool, observe LH SIS MESSAGE STATUS in SIR data list display. If scan tool indicates LH SIS MESSAGE STATUS parameter is okay, go to step 4. If scan tool indicates LH SIS MESSAGE STATUS is not okay, go to next step.
3. Turn ignition off. Remove ignition key. Wait at least one minute. Replace driver SIS. See **SIDE IMPACT SENSORS (SIS)** under REMOVAL & INSTALLATION. Go to step 5.
4. Replace SDM. See **SENSING & DIAGNOSTIC MODULE (SDM)** under REMOVAL & INSTALLATION. Go to next step.
5. Reconnect all SIR components. Ensure that all components are properly mounted. Clear all SIR DTCs. Go to **SIR DIAGNOSTIC SYSTEM CHECK**.

**DTC 073 : DRIVER SIDE IMPACT SENSOR SHORT TO VOLTAGE****Circuit Description**

When ignition is turned on, Sensing and Diagnostic Module (SDM) performs tests to diagnose internal malfunctions. SDM then provides input power to driver Side Impact Sensor (SIS). When SIS detects input power, SIS responds by performing internal diagnostics. SIS will then send identification message to SDM. SDM considers this to be a valid identification message if response time is less than 5 seconds after SIS is powered up. SIS continually communicates a status message to SDM. SDM can reset SIS by removing and applying power to SIS.

**Conditions For Setting DTC**

DTC sets when Ignition 1 (IGN1) voltage is within normal range and measured leakage current to voltage or resistance of driver SIS loop resistance is above a specified value caused by a short to voltage, open or high resistance.

**Action Taken**

SDM sets DTC, turns on AIR BAG warning light and attempts to reset SIS.

**Conditions For Clearing DTC**

Current DTC clears when condition responsible for DTC no longer exists and CLEAR CODES command is issued via scan tool. History DTC clears when 255 malfunction free ignition cycles have occurred.

**Diagnostic Aids**

Condition could be caused by a short to voltage, an open or high resistance in XB42 or B41-B42. A malfunctioning SIS, SDM or circuit connector could also cause condition.

**NOTE:** For circuit number and wire color identification, see **WIRING DIAGRAMS**.

**Diagnostic Procedure**

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to **SIR DIAGNOSTIC SYSTEM CHECK** .
2. Turn ignition off. Remove ignition key. Wait at least one minute. Disconnect driver Side Impact Sensor (SIS) connector. See **Fig. 7** . If SIS connector terminals are damaged or corroded, replace connector. See **WIRE REPAIR** . Go to step 16 . If SIS connector terminals are okay, go to next step.
3. Inspect driver SIS terminals. If terminals are damaged or corroded, replace driver SIS. See **SIDE IMPACT SENSORS (SIS)** under REMOVAL & INSTALLATION. Go to step 16 . If SIS terminals are okay, go to next step.
4. Disconnect SDM connector. If SDM connector shows signs of corrosion, poor connections or damage, replace connector. See **WIRE REPAIR** . Go to step 16 . If SDM connector is okay, go to next step.
5. Inspect SDM terminals for signs of damage or corrosion. If SDM terminals are damaged or corroded, go to step 15 . If SDM terminals are okay, go to next step.
6. Using Digital Multimeter (J-39200) with Test Adapter Kit (J-35616-A), measure continuity of driver SIS circuit AB42. Press MIN MAX button on DMM. Connect leads of DMM to appropriate terminals. If low or no resistance is not indicated, go to next step. If low or no resistance is indicated, go to step 8 .
7. Repair open or high resistance in circuit XB42. See **WIRE REPAIR** . Go to step 16 .
8. Measure continuity of driver SIS signal circuit B41-B42. Press MIN MAX button on DMM. Connect leads of DMM to appropriate terminals. If low or no resistance is not indicated, go to next step. If low or no resistance is indicated, go to step 10 .
9. Repair open or high resistance in circuit B41-B42. See **WIRE REPAIR** . Go to step 16 .
10. Turn ignition on. Measure voltage between SDM connector terminal No. 41 and ground. See **Fig. 14** . If voltage is greater than one volt, go to next step. If voltage is one volt or less, go to step 12 .
11. Repair short to voltage in circuit B41- B42. Go to step 16 .
12. Measure voltage between SDM connector terminal No. 42 and ground. If voltage is greater than one volt, go to next step. If voltage is one volt or less, go to step 14 .
13. Repair short to voltage in circuit XB42. See **WIRE REPAIR** . Go to step 16 .
14. Turn ignition off. Remove ignition key. Wait at least one minute. Replace driver SIS. See **SIDE IMPACT SENSORS (SIS)** under REMOVAL & INSTALLATION. Go to step 16 .
15. Turn ignition off. Remove ignition key. Wait at least one minute. Replace SDM. See **SENSING & DIAGNOSTIC MODULE (SDM)** under REMOVAL & INSTALLATION. Go to next step.
16. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to **SIR DIAGNOSTIC SYSTEM CHECK** .

#### DTC 074 : DRIVER SIDE IMPACT SENSOR SHORT TO GROUND

##### Circuit Description

When ignition is turned on, Sensing and Diagnostic Module (SDM) performs tests to diagnose internal malfunctions. SDM then provides input power to driver Side Impact Sensor (SIS). When SIS detects input power, SIS responds by performing internal diagnostics. SIS will then send identification message to SDM. SDM considers this to be a valid identification message if response time is less than 5 seconds after SIS is powered up. SIS continually communicates a status message to SDM. SDM can reset SIS by removing and applying power to SIS.

##### Conditions For Setting DTC

DTC sets when Ignition 1 (IGN1) voltage is within normal range and measured leakage current to ground or resistance of driver SIS loop resistance is above a specified value caused by a short to ground or a short between circuit XB42 and B41-B42.

##### Action Taken

SDM sets DTC and turns on AIR BAG warning light.

#### Conditions For Clearing DTC

Current DTC clears when condition responsible for DTC no longer exists and CLEAR CODES command is issued via scan tool. History DTC clears when 255 malfunction free ignition cycles have occurred.

#### Diagnostic Aids

Condition could be caused by a short to ground in driver SIS circuit XB42 or B41-B42. A short between circuits XB42 and B41-B42, a malfunctioning SIS, SDM or circuit connector could also cause condition.

**NOTE:** For circuit number and wire color identification, see WIRING DIAGRAMS .

#### Diagnostic Procedure

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to **SIR DIAGNOSTIC SYSTEM CHECK** .
2. Turn ignition off. Remove ignition key. Wait at least one minute. Disconnect driver Side Impact Sensor (SIS) connector. See **Fig. 7** . If connector shows signs of damage or corrosion which could cause malfunction, repair condition. See **WIRE REPAIR** . Go to step 15 . If connector is okay, go to next step.
3. Inspect SIS terminals for damage or corrosion which could cause malfunction. If SIS terminals show signs of damage or corrosion, go to step 13 . If SIS terminals are okay, go to next step.
4. Disconnect SDM connector. If SDM connector shows signs of corrosion, poor connections or damage, go to step 12 . If SDM connector is okay, go to next step.
5. Inspect SDM terminals for signs of damage or corrosion. If SDM terminals show signs of damage or corrosion, go to step 14 . If SDM terminals are okay, go to next step.
6. Using Digital Multimeter (J-39200) with Test Adapter Kit (J-35616-A), measure resistance between driver SIS circuit XB42 and ground. If resistance is less than infinite, go to next step. If resistance is infinite, go to step 8 .
7. Repair short to ground in circuit XB42. See **WIRE REPAIR** . Go to step 15 .
8. Measure resistance between driver SIS signal circuit B41-B42 and ground. If resistance is less than infinite, go to next step. If resistance is infinite, go to step 10 .
9. Repair short to ground in circuit B41-B42. See **WIRE REPAIR** . Go to step 15 .
10. Measure resistance between SDM connector terminals No. 41 and 42. See **Fig. 14** . If resistance is less than infinite, go to next step. If resistance is infinite, go to step 13 .
11. Repair short between circuits XB42 and B41-B42. See **WIRE REPAIR** . Go to step 15 .
12. Replace SDM connector. See **WIRE REPAIR** . Go to step 15 .
13. Replace SIS. See **SIDE IMPACT SENSORS (SIS)** under REMOVAL & INSTALLATION. Go to step 15 .
14. Replace SDM. See **SENSING & DIAGNOSTIC MODULE (SDM)** under REMOVAL & INSTALLATION. Go to next step.
15. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to **SIR DIAGNOSTIC SYSTEM CHECK** .

#### DTC 075 : DRIVER SIDE IMPACT AIR BAG SHORT TO GROUND

##### Circuit Description

When ignition switch is turned on, Sensing and Diagnostic Module (SDM) performs continuous diagnostic tests on deployment loop to check for proper circuit continuity and for shorts to ground or voltage.

**Conditions For Setting DTC**

DTC sets when Ignition 1 (IGN1) voltage is within normal range and measured leakage current to ground is above a specified value of deployment loop.

**Action Taken**

SDM sets DTC and turns on AIR BAG warning light.

**Conditions For Clearing DTC**

Current DTC clears when condition responsible for DTC no longer exists and CLEAR CODES command is issued via scan tool. History DTC clears when 255 malfunction free ignition cycles have occurred.

**Diagnostic Aids**

Condition could be caused by a short to ground in circuits XB100 or AB11. A malfunctioning side impact air bag module, SDM or circuit connectors could also cause condition.

**NOTE:** For circuit number and wire color identification, see WIRING DIAGRAMS .

**Diagnostic Procedure**

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to SIR DIAGNOSTIC SYSTEM CHECK .
2. Turn ignition off. Remove ignition key. Wait at least one minute. Disconnect driver side impact air bag connector. See **Fig. 11** . If either side of side impact air bag connector show signs of damage or corrosion, go to next step. If connector is okay, go to step 4 .
3. If harness side of connector is damaged, replace connector. See WIRE REPAIR . Go to step 14 . If air bag module side of connector is damaged, replace side impact air bag. See AIR BAG MODULES under REMOVAL & INSTALLATION. Go to step 14 .
4. Reconnect side impact air bag connector. Ensure Connector Position Assurance (CPA) clip is installed correctly. Install scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Observe scan tool SIR DTC display. If DTC 075 is displayed, go to next step. If DTC 075 is not displayed, go to DIAGNOSTIC AIDS .
5. Turn ignition off. Remove ignition key. Wait at least one minute. Disconnect side impact air bag connector. Install SIR Driver-Passenger Load Tool (J-38715-A) using Load Tool Adapter (J-38715-55) to side impact air bag harness connector. Turn ignition on. Observe SIR DTC display. If DTC 075 is not current, go to next step. If DTC 075 is current, go to step 7 .
6. Turn ignition off. Remove ignition key. Wait at least one minute. Replace driver side impact air bag module. See AIR BAG MODULES under REMOVAL & INSTALLATION. Go to step 14 .
7. Turn ignition off. Remove ignition key. Wait at least one minute. Remove SIR Driver-Passenger Load Tool (J-38715-A) and Load Tool Adapter (J-38715-55) from side impact air bag harness connector. Disconnect SDM connector. If SDM connector shows signs of corrosion or damage which could cause a short to ground, go to step 12 . If SDM connector is okay, go to next step.
8. Turn ignition off. Remove key from ignition. Wait at least one minute. Install SIR Shorting Bar Tool (J-42113) on SDM connector above terminals No. 10 and 11. See **Fig. 14** . Using Digital Multimeter (J-39200) with Test Adapter Kit (J-35616-A), measure resistance between SDM connector terminal No. 11 and ground. If resistance is less than infinite, go to next step. If resistance is infinite, go to step 10 .
9. Repair short to ground in circuit AB11. See WIRE REPAIR . Go to step 14 .
10. Measure resistance between SDM connector terminal No. 10 and ground. If resistance is less than infinite, go to next step. If resistance is infinite, go to step 13 .
11. Repair short to ground in circuit XB100. See WIRE REPAIR . Go to step 14 .



12. Replace SDM connector. See **WIRE REPAIR** . Go to step 14 .
13. Replace SDM. See **SENSING & DIAGNOSTIC MODULE (SDM)** under REMOVAL & INSTALLATION. Go to next step.
14. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to **SIR DIAGNOSTIC SYSTEM CHECK** .

#### **DTC 076 : DRIVER SIDE IMPACT AIR BAG SHORT TO VOLTAGE**

##### **Circuit Description**

When ignition switch is turned on, Sensing and Diagnostic Module (SDM) performs continuous diagnostic tests on deployment loop to check for proper circuit continuity and for shorts to ground or voltage.

##### **Conditions For Setting DTC**

DTC sets when Ignition 1 (IGN1) voltage is within normal range and measured leakage current to voltage is above a specified value of deployment loop.

##### **Action Taken**

SDM sets DTC and turns on AIR BAG warning light.

##### **Conditions For Clearing DTC**

Current DTC clears when condition responsible for DTC no longer exists and CLEAR CODES command is issued via scan tool. History DTC clears when 255 malfunction free ignition cycles have occurred.

##### **Diagnostic Aids**

Condition could be caused by a short to voltage in circuits XB100 or AB11. A malfunctioning side impact air bag module, SDM or circuit connectors could also cause condition.

**NOTE:** For circuit number and wire color identification, see **WIRING DIAGRAMS** .

##### **Diagnostic Procedure**

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to **SIR DIAGNOSTIC SYSTEM CHECK** .
2. Turn ignition off. Remove ignition key. Wait at least one minute. Disconnect driver side impact air bag connector. See **Fig. 11** . If either side of side impact air bag connector show signs of damage or corrosion, go to next step. If connector is okay, go to step 4 .
3. If harness side of connector is damaged, replace connector. See **WIRE REPAIR** . Go to step 14 . If air bag module side of connector is damaged, replace side impact air bag. See **AIR BAG MODULES** under REMOVAL & INSTALLATION. Go to step 14 .
4. Reconnect side impact air bag connector. Ensure Connector Position Assurance (CPA) clip is installed correctly. Install scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Observe scan tool SIR DTC display. If DTC 076 is displayed, go to next step. If DTC 076 is not displayed, go to **DIAGNOSTIC AIDS** .
5. Turn ignition off. Remove ignition key. Wait at least one minute. Disconnect side impact air bag connector. Install SIR Driver-Passenger Load Tool (J-38715-A) using Load Tool Adapter (J-38715-55) to side impact air bag harness connector. Turn ignition on. Observe SIR DTC display. If DTC 076 is not current, go to next step. If DTC 076 is current, go to step 7 .
6. Turn ignition off. Remove ignition key. Wait at least one minute. Replace driver side impact air bag module. See **AIR BAG MODULES** under REMOVAL & INSTALLATION. Go to step 14 .

7. Turn ignition off. Remove ignition key. Wait at least one minute. Remove SIR Driver-Passenger Load Tool (J-38715-A) and Load Tool Adapter (J-38715-55) from side impact air bag harness connector. Disconnect SDM connector. If SDM connector shows signs of corrosion or damage which could cause a short to voltage, go to step 12 . If SDM connector is okay, go to next step.
8. Turn ignition off. Remove key from ignition. Wait at least one minute. Install SIR Shorting Bar Tool (J-42113) on SDM connector above terminals No. 10 and 11. See **Fig. 14** . Turn ignition on. Using Digital Multimeter (J-39200) with Test Adapter Kit (J-35616-A), measure voltage between SDM connector terminal No. 11 and ground. If voltage is one volt or more, go to next step. If voltage is less than one volt, go to step 10 .
9. Repair short to voltage in circuit AB11. See **WIRE REPAIR** . Go to step 14 .
10. Measure voltage between SDM connector terminal No. 10 and ground. If voltage is one volt or more, go to next step. If voltage is less than one volt, go to step 13 .
11. Repair short to voltage in circuit XB100. See **WIRE REPAIR** . Go to step 14 .
12. Replace SDM connector. See **WIRE REPAIR** . Go to step 14 .
13. Replace SDM. See **SENSING & DIAGNOSTIC MODULE (SDM)** under REMOVAL & INSTALLATION. Go to next step.
14. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to **SIR DIAGNOSTIC SYSTEM CHECK** .

#### **DTC 077 : DRIVER SIDE IMPACT AIR BAG DEPLOYMENT LOOP RESISTANCE HIGH**

##### **Circuit Description**

When ignition switch is turned on, Sensing and Diagnostic Module (SDM) performs continuous diagnostic tests on deployment loop to check for proper circuit continuity and for shorts to ground or voltage.

##### **Conditions For Setting DTC**

DTC sets when driver side impact deployment loop resistance is greater than 2.4 ohms for 500 milliseconds.

##### **Action Taken**

SDM sets DTC and turns on AIR BAG warning light.

##### **Conditions For Clearing DTC**

Current DTC clears when condition responsible for DTC no longer exists and CLEAR CODES command is issued via scan tool. History DTC clears when 255 malfunction free ignition cycles have occurred.

##### **Diagnostic Aids**

Condition could be caused by an open or high resistance in circuits XB100 or AB11. A malfunctioning side impact air bag module, SDM or circuit connector could also cause condition.

**NOTE:** For circuit number and wire color identification, see **WIRING DIAGRAMS** .

##### **Diagnostic Procedure**

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to **SIR DIAGNOSTIC SYSTEM CHECK** .
2. Turn ignition off. Remove ignition key. Wait at least one minute. Disconnect driver side impact air bag connector. See **Fig. 11** . If either side of side impact air bag connector show signs of damage or corrosion, go to next step. If connector is okay, go to step 4 .
3. If harness side of connector is damaged, replace connector. See **WIRE REPAIR** . Go to step 14 . If air bag

module side of connector is damaged, replace side impact air bag. See **AIR BAG MODULES** under REMOVAL & INSTALLATION. Go to step 14 .

4. Reconnect side impact air bag connector. Ensure Connector Position Assurance (CPA) clip is installed correctly. Install scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Observe scan tool SIR DTC display. If DTC 077 is displayed, go to next step. If DTC 077 is not displayed, go to **DIAGNOSTIC AIDS** .
5. Turn ignition off. Remove ignition key. Wait at least one minute. Disconnect side impact air bag connector. Install SIR Driver-Passenger Load Tool (J-38715-A) using Load Tool Adapter (J-38715-55) to side impact air bag harness connector. Turn ignition on. Observe LH SIDE AIR BAG parameter in SIR DTC display. If LH SIDE AIR BAG resistance is more than 2.4 ohms, go to step 7 . If resistance is 2.4 ohms or less, go to next step.
6. Turn ignition off. Remove ignition key. Wait at least one minute. Replace driver side impact air bag module. See **AIR BAG MODULES** under REMOVAL & INSTALLATION. Go to step 14 .
7. Turn ignition off. Remove ignition key. Wait at least one minute. Remove SIR Driver-Passenger Load Tool (J-38715-A) and Load Tool Adapter (J-38715-55) from side impact air bag harness connector. Disconnect SDM connector. If SDM connector shows signs of corrosion or damage which could cause an open or high resistance, go to step 12 . If SDM connector is okay, go to next step.
8. Install SIR Shorting Bar Tool (J-42113) on SDM connector above terminals No. 10 and 11. See **Fig. 14** . Using Digital Multimeter (J-39200) with Test Adapter Kit (J-35616-A), measure continuity of driver side impact air bag circuit AB11. Press MIN MAX button on DMM. Connect leads of DMM to appropriate terminals. If low or no resistance is not indicated, go to next step. If low or no resistance is indicated, go to step 10 .
9. Repair open or high resistance in circuit AB11. See **WIRE REPAIR** . Go to step 14 .
10. Measure continuity of driver side impact air bag circuit XB100. Press MIN MAX button on DMM. Connect leads of DMM to appropriate terminals. If low or no resistance is not indicated, go to next step. If low or no resistance is indicated, go to step 13 .
11. Repair open or high resistance in circuit XB100. See **WIRE REPAIR** . Go to step 14 .
12. Replace SDM connector. See **WIRE REPAIR** . Go to step 14 .
13. Replace SDM. See **SENSING & DIAGNOSTIC MODULE (SDM)** under REMOVAL & INSTALLATION. Go to next step.
14. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to **SIR DIAGNOSTIC SYSTEM CHECK** .

#### **DTC 078 : DRIVER SIDE IMPACT AIR BAG DEPLOYMENT LOOP RESISTANCE LOW**

##### **Circuit Description**

When ignition switch is turned on, Sensing and Diagnostic Module (SDM) performs continuous diagnostic tests on deployment loop to check for proper circuit continuity and for shorts to ground or voltage.

##### **Conditions For Setting DTC**

DTC sets when driver side impact air bag deployment loop resistance is less than 1.6 ohms for 500 milliseconds.

##### **Action Taken**

SDM sets DTC and turns on AIR BAG warning light.

##### **Conditions For Clearing DTC**

Current DTC clears when condition responsible for DTC no longer exists and CLEAR CODES command is issued via scan tool. History DTC clears when 255 malfunction free ignition cycles have occurred.

**Diagnostic Aids**

Condition could be caused by a short between circuits XB100 and AB11. A malfunctioning side impact air bag module, SDM or circuit connector could also cause condition.

**NOTE:** For circuit number and wire color identification, see WIRING DIAGRAMS .

**Diagnostic Procedure**

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to SIR DIAGNOSTIC SYSTEM CHECK .
2. Turn ignition off. Remove ignition key. Wait at least one minute. Disconnect driver side impact air bag connector. See **Fig. 11** . If either side of side impact air bag connector show signs of damage or corrosion, go to next step. If connector is okay, go to step 4 .
3. If harness side of connector is damaged, replace connector. See WIRE REPAIR . Go to step 12 . If air bag module side of connector is damaged, replace side impact air bag. See AIR BAG MODULES under REMOVAL & INSTALLATION. Go to step 12 .
4. Reconnect side impact air bag connector. Ensure Connector Position Assurance (CPA) clip is installed correctly. Install scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Observe scan tool SIR DTC display. If DTC 078 is displayed, go to next step. If DTC 078 is not displayed, go to DIAGNOSTIC AIDS .
5. Turn ignition off. Remove ignition key. Wait at least one minute. Disconnect side impact air bag connector. Install SIR Driver-Passenger Load Tool (J-38715-A) using Load Tool Adapter (J-38715-55) to side impact air bag harness connector. Turn ignition on. Observe LH SIDE AIR BAG RES. parameter in SIR DTC display. If LH SIDE AIR BAG RES. is less than 1.6 ohms, go to step 7 . If resistance is 1.6 ohms or more, go to next step.
6. Turn ignition off. Remove ignition key. Wait at least one minute. Replace driver side impact air bag module. See AIR BAG MODULES under REMOVAL & INSTALLATION. Go to step 12 .
7. Turn ignition off. Remove ignition key. Wait at least one minute. Remove SIR Driver-Passenger Load Tool (J-38715-A) and Load Tool Adapter (J-38715-55) from side impact air bag harness connector. Disconnect SDM connector. If SDM connector shows signs of corrosion or damage which could cause an open or high resistance, go to step 10 . If SDM connector is okay, go to next step.
8. Install SIR Shorting Bar Tool (J-42113) on SDM connector above terminals No. 10 and 11. See **Fig. 14** . Using Digital Multimeter (J-39200) with Test Adapter Kit (J-35616-A), measure resistance between SDM connector terminals No. 10 and 11. If resistance is less than infinite, go to next step. If resistance is infinite, go to step 11 .
9. Repair short between circuits AB11 and XB100. See WIRE REPAIR . Go to step 12 .
10. Replace SDM connector. See WIRE REPAIR . Go to step 12 .
11. Replace SDM. See SENSING & DIAGNOSTIC MODULE (SDM) under REMOVAL & INSTALLATION. Go to next step.
12. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to SIR DIAGNOSTIC SYSTEM CHECK .

**DTC 081 : PASSENGER SIDE IMPACT SENSOR COMMUNICATIONS INVALID****Circuit Description**

When ignition is turned on, Sensing and Diagnostic Module (SDM) performs tests to diagnose internal malfunctions. SDM then provides input power to passenger Side Impact Sensor (SIS). When SIS detects input power, SIS responds by performing internal diagnostics. SIS will then send identification message to SDM. SDM considers this to be a valid identification message if response time is less than 5 seconds after SIS is powered up. SIS continually communicates a status message to SDM. SDM can reset SIS by removing and applying power to

SIS.

**Conditions For Setting DTC**

DTC sets when SDM has received a Not Okay (NOK) message from SIS.

**Action Taken**

SDM sets DTC, turns on AIR BAG warning light and attempts to reset SIS.

**Conditions For Clearing DTC**

Current DTC clears when condition responsible for DTC no longer exists and CLEAR CODES command is issued via scan tool. History DTC clears when 255 malfunction free ignition cycles have occurred.

**Diagnostic Aids**

DTC 081 is an indication of an internal malfunction in SIS.

**NOTE:** For circuit number and wire color identification, see WIRING DIAGRAMS .

**Diagnostic Procedure**

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to **SIR DIAGNOSTIC SYSTEM CHECK** .
2. Using scan tool, observe RH SIS MESSAGE STATUS in SIR data list display. If scan tool indicates RH SIS MESSAGE STATUS parameter is okay, go to step 4 . If scan tool indicates RH SIS MESSAGE STATUS is not okay, go to next step.
3. Turn ignition off. Remove ignition key. Wait at least one minute. Replace passenger SIS. See **SIDE IMPACT SENSORS (SIS)** under REMOVAL & INSTALLATION. Go to step 5 .
4. Replace SDM. See **SENSING & DIAGNOSTIC MODULE (SDM)** under REMOVAL & INSTALLATION. Go to next step.
5. Reconnect all SIR components. Ensure that all components are properly mounted. Clear all SIR DTCs. Go to **SIR DIAGNOSTIC SYSTEM CHECK** .

**DTC 083 : PASSENGER SIDE IMPACT SENSOR SHORT TO VOLTAGE****Circuit Description**

When ignition is turned on, Sensing and Diagnostic Module (SDM) performs tests to diagnose internal malfunctions. SDM then provides input power to passenger Side Impact Sensor (SIS). When SIS detects input power, SIS responds by performing internal diagnostics. SIS will then send identification message to SDM. SDM considers this to be a valid identification message if response time is less than 5 seconds after SIS is powered up. SIS continually communicates a status message to SDM. SDM can reset SIS by removing and applying power to SIS

**Conditions For Setting DTC**

DTC sets when Ignition 1 (IGN1) voltage is within normal range and measured leakage current to voltage or resistance of passenger SIS loop resistance is above a specified value caused by a short to voltage, open or high resistance.

**Action Taken**

SDM sets DTC, turns on AIR BAG warning light and attempts to reset SIS.

**Conditions For Clearing DTC**

Current DTC clears when condition responsible for DTC no longer exists and CLEAR CODES command is issued via scan tool. History DTC clears when 255 malfunction free ignition cycles have occurred.

**Diagnostic Aids**

Condition could be caused by a short to voltage, an open or high resistance in circuits M42-M44 or XM42-B430. A malfunctioning SIS, SDM or circuit connector could also cause condition.

**NOTE:** For circuit number and wire color identification, see WIRING DIAGRAMS .

**Diagnostic Procedure**

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to SIR DIAGNOSTIC SYSTEM CHECK .
2. Turn ignition off. Remove ignition key. Wait at least one minute. Disconnect passenger Side Impact Sensor (SIS) connector. See Fig. 7 . If SIS connector terminals are damaged or corroded, replace connector. See WIRE REPAIR . Go to step 16 . If SIS connector terminals are okay, go to next step.
3. Inspect passenger SIS terminals. If terminals are damaged or corroded, replace passenger SIS. See SIDE IMPACT SENSORS (SIS) under REMOVAL & INSTALLATION. Go to step 16 . If SIS terminals are okay, go to next step.
4. Disconnect SDM connector. If SDM connector shows signs of corrosion, poor connections or damage, replace connector. See WIRE REPAIR . Go to step 16 . If SDM connector is okay, go to next step.
5. Inspect SDM terminals for signs of damage or corrosion. If SDM terminals are damaged or corroded, go to step 15 . If SDM terminals are okay, go to next step.
6. Using Digital Multimeter (J-39200) with Test Adapter Kit (J-35616-A), measure continuity of passenger SIS circuit M42-M44. Press MIN MAX button on DMM. Connect leads of DMM to appropriate terminals. If low or no resistance is not indicated, go to next step. If low or no resistance is indicated, go to step 8 .
7. Repair open or high resistance in circuit M42-M44. See WIRE REPAIR . Go to step 16 .
8. Measure continuity of passenger SIS signal circuit XM42-XM430. Press MIN MAX button on DMM. Connect leads of DMM to appropriate terminals. If low or no resistance is not indicated, go to next step. If low or no resistance is indicated, go to step 10 .
9. Repair open or high resistance in circuit XM42-XM430. See WIRE REPAIR . Go to step 16 .
10. Turn ignition on. Measure voltage between SDM connector terminal No. 44 and ground. See Fig. 14 . If voltage is greater than one volt, go to next step. If voltage is one volt or less, go to step 12 .
11. Repair short to voltage in circuit M42-M44. Go to step 16 .
12. Measure voltage between SDM connector terminal No. 43 and ground. If voltage is greater than one volt, go to next step. If voltage is one volt or less, go to step 14 .
13. Repair short to voltage in circuit XM42-XM430. See WIRE REPAIR . Go to step 16 .
14. Replace passenger SIS. See SIDE IMPACT SENSORS (SIS) under REMOVAL & INSTALLATION. Go to step 16 .
15. Replace SDM. See SENSING & DIAGNOSTIC MODULE (SDM) under REMOVAL & INSTALLATION. Go to next step.
16. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to SIR DIAGNOSTIC SYSTEM CHECK .

**DTC 084 : PASSENGER SIDE IMPACT SENSOR SHORT TO GROUND****Circuit Description**

When ignition is turned on, Sensing and Diagnostic Module (SDM) performs tests to diagnose internal malfunctions. SDM then provides input power to passenger Side Impact Sensor (SIS). When SIS detects input power, SIS responds by performing internal diagnostics. SIS will then send identification message to SDM. SDM considers this to be a valid identification message if response time is less than 5 seconds after SIS is powered up. SIS continually communicates a status message to SDM. SDM can reset SIS by removing and applying power to SIS.

#### Conditions For Setting DTC

DTC sets when Ignition 1 (IGN1) voltage is within normal range and measured leakage current to ground or resistance of passenger SIS loop resistance is above a specified value caused by a short to ground or a short between circuit M42-M44 and XM42-XM430.

#### Action Taken

SDM sets DTC and turns on AIR BAG warning light.

#### Conditions For Clearing DTC

Current DTC clears when condition responsible for DTC no longer exists and CLEAR CODES command is issued via scan tool. History DTC clears when 255 malfunction free ignition cycles have occurred.

#### Diagnostic Aids

Condition could be caused by a short to ground in passenger SIS circuit M42-M44 or XM42-XM430. A short between circuits M42-M44 and XM42-XM430, a malfunctioning SIS, SDM or circuit connector could also cause condition.

**NOTE:** For circuit number and wire color identification, see WIRING DIAGRAMS.

#### Diagnostic Procedure

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to **SIR DIAGNOSTIC SYSTEM CHECK**.
2. Turn ignition off. Remove ignition key. Wait at least one minute. Disconnect passenger Side Impact Sensor (SIS) connector. See **Fig. 7**. If connector shows signs of damage or corrosion which could cause malfunction, repair condition. See **WIRE REPAIR**. Go to step 15. If connector is okay, go to next step.
3. Inspect SIS terminals for damage or corrosion which could cause malfunction. If SIS terminals show signs of damage or corrosion, go to step 13. If SIS terminals are okay, go to next step.
4. Disconnect SDM connector. If SDM connector shows signs of corrosion, poor connections or damage, go to step 12. If SDM connector is okay, go to next step.
5. Inspect SDM terminals for signs of damage or corrosion. If SDM terminals show signs of damage or corrosion, go to step 14. If SDM terminals are okay, go to next step.
6. Using Digital Multimeter (J-39200) with Test Adapter Kit (J-35616-A), measure resistance between passenger SIS circuit XM42-XM430 and ground. If resistance is less than infinite, go to next step. If resistance is infinite, go to step 8.
7. Repair short to ground in circuit XM42-XM430. See **WIRE REPAIR**. Go to step 15.
8. Measure resistance between passenger SIS signal circuit M42-M44 and ground. If resistance is less than infinite, go to next step. If resistance is infinite, go to step 10.
9. Repair short to ground in circuit M42-M44. See **WIRE REPAIR**. Go to step 15.
10. Measure resistance between SDM connector terminals No. 43 and 44. See **Fig. 14**. If resistance is less than infinite, go to next step. If resistance is infinite, go to step 13.
11. Repair short between circuits M42-M44 and XM42-XM430. See **WIRE REPAIR**. Go to step 15.

12. Replace SDM connector. See **WIRE REPAIR** . Go to step 15 .
13. Replace SIS. See **SIDE IMPACT SENSORS (SIS)** under REMOVAL & INSTALLATION. Go to step 15 .
14. Replace SDM. See **SENSING & DIAGNOSTIC MODULE (SDM)** under REMOVAL & INSTALLATION. Go to next step.
15. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to **SIR DIAGNOSTIC SYSTEM CHECK** .

#### **DTC 085 : PASSENGER SIDE IMPACT AIR BAG SHORT TO GROUND**

##### **Circuit Description**

When ignition switch is turned on, Sensing and Diagnostic Module (SDM) performs continuous diagnostic tests on deployment loop to check for proper circuit continuity and for shorts to ground or voltage.

##### **Conditions For Setting DTC**

DTC sets when Ignition 1 (IGN1) voltage is within normal range and measured leakage current to ground is above a specified value of deployment loop.

##### **Action Taken**

SDM sets DTC and turns on AIR BAG warning light.

##### **Conditions For Clearing DTC**

Current DTC clears when condition responsible for DTC no longer exists and CLEAR CODES command is issued via scan tool. History DTC clears when 255 malfunction free ignition cycles have occurred.

##### **Diagnostic Aids**

Condition could be caused by a short to ground in circuits XM14 or AM13. A malfunctioning side impact air bag module, SDM or circuit connectors could also cause condition.

**NOTE:** For circuit number and wire color identification, see **WIRING DIAGRAMS** .

##### **Diagnostic Procedure**

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to **SIR DIAGNOSTIC SYSTEM CHECK** .
2. Turn ignition off. Remove ignition key. Wait at least one minute. Disconnect passenger side impact air bag connector. See **Fig. 11** . If either side of side impact air bag connector show signs of damage or corrosion, go to next step. If connector is okay, go to step 4 .
3. If harness side of connector is damaged, replace connector. See **WIRE REPAIR** . Go to step 14 . If air bag module side of connector is damaged, replace side impact air bag. See **AIR BAG MODULES** under REMOVAL & INSTALLATION. Go to step 14 .
4. Reconnect side impact air bag connector. Ensure Connector Position Assurance (CPA) clip is installed correctly. Install scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Observe scan tool SIR DTC display. If DTC 085 is displayed, go to next step. If DTC 085 is not displayed, go to **DIAGNOSTIC AIDS** .
5. Turn ignition off. Remove ignition key. Wait at least one minute. Disconnect side impact air bag connector. Install SIR Driver-Passenger Load Tool (J-38715-A) using Load Tool Adapter (J-38715-55) to side impact air bag harness connector. Turn ignition on. Observe SIR DTC display. If DTC 085 is not current, go to next step. If DTC 085 is current, go to step 7 .



6. Turn ignition off. Remove ignition key. Wait at least one minute. Replace passenger side impact air bag module. See **AIR BAG MODULES** under REMOVAL & INSTALLATION. Go to step 14 .
7. Turn ignition off. Remove ignition key. Wait at least one minute. Remove SIR Driver-Passenger Load Tool (J-38715-A) and Load Tool Adapter (J-38715-55) from side impact air bag harness connector. Disconnect SDM connector. If SDM connector shows signs of corrosion or damage which could cause a short to ground, go to step 12 . If SDM connector is okay, go to next step.
8. Turn ignition off. Remove key from ignition. Wait at least one minute. Install SIR Shorting Bar Tool (J-42113) on SDM connector above terminals No. 13 and 14. See **Fig. 14** . Using Digital Multimeter (J-39200) with Test Adapter Kit (J-35616-A), measure resistance between SDM connector terminal No. 13 and ground. If resistance is less than infinite, go to next step. If resistance is infinite, go to step 10 .
9. Repair short to ground in circuit AM13. See **WIRE REPAIR** . Go to step 14 .
10. Measure resistance between SDM connector terminal No. 14 and ground. If resistance is less than infinite, go to next step. If resistance is infinite, go to step 13 .
11. Repair short to ground in circuit XM14. See **WIRE REPAIR** . Go to step 14 .
12. Replace SDM connector. See **WIRE REPAIR** . Go to step 14 .
13. Replace SDM. See **SENSING & DIAGNOSTIC MODULE (SDM)** under REMOVAL & INSTALLATION. Go to next step.
14. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to **SIR DIAGNOSTIC SYSTEM CHECK** .

#### DTC 086 : PASSENGER SIDE IMPACT AIR BAG SHORT TO VOLTAGE

##### Circuit Description

When ignition switch is turned on, Sensing and Diagnostic Module (SDM) performs continuous diagnostic tests on deployment loop to check for proper circuit continuity and for shorts to ground or voltage.

##### Conditions For Setting DTC

DTC sets when Ignition 1 (IGN1) voltage is within normal operating range and measured leakage current to voltage is above specified value of deployment loop.

##### Action Taken

SDM sets DTC and turns on AIR BAG warning light.

##### Conditions For Clearing DTC

Current DTC clears when condition responsible for DTC no longer exists and CLEAR CODES command is issued via scan tool. History DTC clears when 255 malfunction free ignition cycles have occurred.

##### Diagnostic Aids

Condition could be caused by a short to voltage in circuits XM14 or AM13. A malfunctioning side impact air bag module, SDM or circuit connector could also cause condition.

**NOTE:** For circuit number and wire color identification, see **WIRING DIAGRAMS** .

##### Diagnostic Procedure

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to **SIR DIAGNOSTIC SYSTEM CHECK** .
2. Turn ignition off. Remove ignition key. Wait at least one minute. Disconnect passenger side impact air bag connector. See **Fig. 11** . If either side of side impact air bag connector show signs of damage or corrosion, go

to next step. If connector is okay, go to step 4 .

3. If harness side of connector is damaged, replace connector. See **WIRE REPAIR** . Go to step 14 . If air bag module side of connector is damaged, replace side impact air bag module. See **AIR BAG MODULES** under REMOVAL & INSTALLATION. Go to step 14 .
4. Reconnect side impact air bag connector. Ensure Connector Position Assurance (CPA) clip is installed correctly. Install scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Observe scan tool SIR DTC display. If DTC 086 is displayed, go to next step. If DTC 086 is not displayed, go to **DIAGNOSTIC AIDS** .
5. Turn ignition off. Remove ignition key. Wait at least one minute. Disconnect side impact air bag connector. Install SIR Driver-Passenger Load Tool (J-38715-A) using Load Tool Adapter (J-38715-55) to side impact air bag harness connector. Turn ignition on. Observe SIR DTC display. If DTC 086 is not current, go to next step. If DTC 086 is current, go to step 7 .
6. Turn ignition off. Remove ignition key. Wait at least one minute. Replace passenger side impact air bag module. See **AIR BAG MODULES** under REMOVAL & INSTALLATION. Go to step 14 .
7. Turn ignition off. Remove ignition key. Wait at least one minute. Remove SIR Driver-Passenger Load Tool (J-38715-A) and Load Tool Adapter (J-38715-55) from side impact air bag harness connector. Disconnect SDM connector. If SDM connector shows signs of corrosion or damage which could cause a short to voltage, go to step 12 . If SDM connector is okay, go to next step.
8. Turn ignition off. Remove key from ignition. Wait at least one minute. Install SIR Shorting Bar Tool (J-42113) on SDM connector above terminals No. 13 and 14. See **Fig. 14** . Turn ignition on. Using Digital Multimeter (J-39200) with Test Adapter Kit (J-35616-A), measure voltage between SDM connector terminal No. 13 and ground. If voltage is one volt or more, go to next step. If voltage is less than one volt, go to step 10 .
9. Repair short to voltage in circuit AM13. See **WIRE REPAIR** . Go to step 14 .
10. Measure voltage between SDM connector terminal No. 14 and ground. If voltage is one volt or more, go to next step. If voltage is less than one volt, go to step 13 .
11. Repair short to voltage in circuit XM14. See **WIRE REPAIR** . Go to step 14 .
12. Replace SDM connector. See **WIRE REPAIR** . Go to step 14 .
13. Replace SDM. See **SENSING & DIAGNOSTIC MODULE (SDM)** under REMOVAL & INSTALLATION. Go to next step.
14. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to **SIR DIAGNOSTIC SYSTEM CHECK** .

#### **DTC 087 : PASSENGER SIDE IMPACT AIR BAG DEPLOYMENT LOOP RESISTANCE HIGH**

##### **Circuit Description**

When ignition switch is turned on, Sensing and Diagnostic Module (SDM) performs continuous diagnostic tests on deployment loop to check for proper circuit continuity and for shorts to ground or voltage.

##### **Conditions For Setting DTC**

DTC sets when passenger side impact deployment loop resistance is greater than 2.4 ohms for 500 milliseconds

##### **Action Taken**

SDM sets DTC and turns on AIR BAG warning light.

##### **Conditions For Clearing DTC**

Current DTC clears when condition responsible for DTC no longer exists and CLEAR CODES command is issued via scan tool. History DTC clears when 255 malfunction free ignition cycles have occurred.

**Diagnostic Aids**

Condition could be caused by an open or high resistance in circuits AM13 or XM14. A malfunctioning side impact air bag module, SDM or circuit connector could also cause condition.

**NOTE:** For circuit number and wire color identification, see WIRING DIAGRAMS .

**Diagnostic Procedure**

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to SIR DIAGNOSTIC SYSTEM CHECK .
2. Turn ignition off. Remove ignition key. Wait at least one minute. Disconnect passenger side impact air bag connector. See **Fig. 11** . If either side of side impact air bag connector show signs of damage or corrosion, go to next step. If connector is okay, go to step 4 .
3. If harness side of connector is damaged, replace connector. See WIRE REPAIR . Go to step 14 . If air bag module side of connector is damaged, replace side impact air bag. See AIR BAG MODULES under REMOVAL & INSTALLATION. Go to step 14 .
4. Reconnect side impact air bag connector. Ensure Connector Position Assurance (CPA) clip is installed correctly. Install scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Observe scan tool SIR DTC display. If DTC 087 is displayed, go to next step. If DTC 087 is not displayed, go to DIAGNOSTIC AIDS .
5. Turn ignition off. Remove ignition key. Wait at least one minute. Disconnect side impact air bag connector. Install SIR Driver-Passenger Load Tool (J-38715-A) using Load Tool Adapter (J-38715-55) to side impact air bag harness connector. Turn ignition on. Observe RH SIDE AIR BAG parameter in SIR DTC display. If RH SIDE AIR BAG resistance is more than 2.4 ohms, go to step 7 . If resistance is 2.4 ohms or less, go to next step.
6. Turn ignition off. Remove ignition key. Wait at least one minute. Replace passenger side impact air bag module. See AIR BAG MODULES under REMOVAL & INSTALLATION. Go to step 14 .
7. Turn ignition off. Remove ignition key. Wait at least one minute. Remove SIR Driver-Passenger Load Tool (J-38715-A) and Load Tool Adapter (J-38715-55) from side impact air bag harness connector. Disconnect SDM connector. If SDM connector shows signs of corrosion or damage which could cause an open or high resistance, go to step 12 . If SDM connector is okay, go to next step.
8. Install SIR Shorting Bar Tool (J-42113) on SDM connector above terminals No. 13 and 14. See **Fig. 14** . Using Digital Multimeter (J-39200) with Test Adapter Kit (J-35616-A), measure continuity of passenger side impact air bag circuit AM13. Press MIN MAX button on DMM. Connect leads of DMM to appropriate terminals. If low or no resistance is not indicated, go to next step. If low or no resistance is indicated, go to step 10 .
9. Repair open or high resistance in circuit AM13. See WIRE REPAIR . Go to step 14 .
10. Measure continuity of driver side impact air bag circuit XM14. Press MIN MAX button on DMM. Connect leads of DMM to appropriate terminals. If low or no resistance is not indicated, go to next step. If low or no resistance is indicated, go to step 13 .
11. Repair open or high resistance in circuit XM14. See WIRE REPAIR . Go to step 14 .
12. Replace SDM connector. See WIRE REPAIR . Go to step 14 .
13. Replace SDM. See SENSING & DIAGNOSTIC MODULE (SDM) under REMOVAL & INSTALLATION. Go to next step.
14. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to SIR DIAGNOSTIC SYSTEM CHECK .

**DTC 088 : PASSENGER SIDE IMPACT SEAT AIR BAG DEPLOYMENT LOOP RESISTANCE LOW****Circuit Description**

When ignition switch is turned on, Sensing and Diagnostic Module (SDM) performs continuous diagnostic tests on deployment loop to check for proper circuit continuity and for shorts to ground or voltage.

#### Conditions For Setting DTC

DTC sets when passenger side impact air bag deployment loop resistance is less than 1.6 ohms for 500 milliseconds.

#### Action Taken

SDM sets DTC and turns on AIR BAG warning light.

#### Conditions For Clearing DTC

Current DTC clears when condition responsible for DTC no longer exists and CLEAR CODES command is issued via scan tool. History DTC clears when 255 malfunction free ignition cycles have occurred.

#### Diagnostic Aids

Condition could be caused by a short between circuits XM14 and AM13. A malfunctioning side impact air bag module, SDM or circuit connector could also cause condition.

**NOTE:** For circuit number and wire color identification, see WIRING DIAGRAMS.

#### Diagnostic Procedure

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to **SIR DIAGNOSTIC SYSTEM CHECK**.
2. Turn ignition off. Remove ignition key. Wait at least one minute. Disconnect passenger side impact air bag connector. See **Fig. 11**. If either side of side impact air bag connector show signs of damage or corrosion, go to next step. If connector is okay, go to step 4.
3. If harness side of connector is damaged, replace connector. See **WIRE REPAIR**. Go to step 12. If air bag module side of connector is damaged, replace side impact air bag. See **AIR BAG MODULES** under REMOVAL & INSTALLATION. Go to step 12.
4. Reconnect side impact air bag connector. Ensure Connector Position Assurance (CPA) clip is installed correctly. Install scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Observe scan tool SIR DTC display. If DTC 088 is displayed, go to next step. If DTC 088 is not displayed, go to **DIAGNOSTIC AIDS**.
5. Turn ignition off. Remove ignition key. Wait at least one minute. Disconnect side impact air bag connector. Install SIR Driver-Passenger Load Tool (J-38715-A) using Load Tool Adapter (J-38715-55) to side impact air bag harness connector. Turn ignition on. Observe RH SIDE AIR BAG RES. parameter in SIR DTC display. If RH SIDE AIR BAG RES. is less than 1.6 ohms, go to step 7. If resistance is 1.6 ohms or more, go to next step.
6. Turn ignition off. Remove ignition key. Wait at least one minute. Replace passenger side impact air bag module. See **AIR BAG MODULES** under REMOVAL & INSTALLATION. Go to step 12.
7. Turn ignition off. Remove ignition key. Wait at least one minute. Remove SIR Driver-Passenger Load Tool (J-38715-A) and Load Tool Adapter (J-38715-55) from side impact air bag harness connector. Disconnect SDM connector. If SDM connector shows signs of corrosion or damage which could cause an open or high resistance, go to step 10. If SDM connector is okay, go to next step.
8. Install SIR Shorting Bar Tool (J-42113) on SDM connector above terminals No. 13 and 14. See **Fig. 14**. Using Digital Multimeter (J-39200) with Test Adapter Kit (J-35616-A), measure resistance between SDM connector terminals No. 13 and 14. If resistance is less than infinite, go to next step. If resistance is infinite, go to step 11.

9. Repair short between circuits AM13 and XM14. See **WIRE REPAIR** . Go to step 12 .
10. Replace SDM connector. See **WIRE REPAIR** . Go to step 12 .
11. Replace SDM. See **SENSING & DIAGNOSTIC MODULE (SDM)** under REMOVAL & INSTALLATION. Go to next step.
12. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to **SIR DIAGNOSTIC SYSTEM CHECK** .

#### **DTC 097 : ONSTAR DCO LINK OPEN OR SHORT TO VOLTAGE**

##### **Circuit Description**

When ignition is first turned on, Sensing and Diagnostic Module (SDM) performs tests to diagnose critical internal malfunctions. SDM is hard-wired to Body Control Module (BCM) through Deployment Commanded Output (DCO) circuit XY999. SDM sends fixed frequency pulses during normal operation to BCM. In the event of a collision involving air bag or seat belt pretensioner deployment, SDM sends a higher frequency to BCM, which in turn sends a message to ONSTAR module via Class 2 data circuit. ONSTAR module then sends a Deployment Commanded Output (DCO) signal to the service center through vehicles cellular telephone.

##### **Conditions For Setting DTC**

DTC sets when voltage or resistance of DCO circuit is above a specified value caused by a short to voltage or an open or high resistance.

##### **Action Taken**

SDM sets DTC and turns on AIR BAG warning light.

##### **Conditions For Clearing DTC**

Current DTC clears when condition responsible for DTC no longer exists and CLEAR CODES command is issued via scan tool. History DTC clears when 255 malfunction free ignition cycles have occurred.

##### **Diagnostic Aids**

Condition could be caused by a short to voltage or an open or high resistance in DCO circuit XY999. A malfunctioning SDM, BCM or circuit connector could also cause condition.

**NOTE:** For circuit number and wire color identification, see **WIRING DIAGRAMS** .

##### **Diagnostic Procedure**

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to **SIR DIAGNOSTIC SYSTEM CHECK** .
2. Disconnect SDM connector. See **Fig. 6** . Inspect SDM harness connector for signs of corrosion or damage which could cause condition. If connector is damaged or corroded, go to next step. If connector is okay, go to step 4 .
3. Replace SDM harness connector. Go to step 13 .
4. Disconnect Body Control Module (BCM) connector, located behind passenger-side kick panel. Inspect BCM harness connector C1 for signs of corrosion or damage which could cause condition. If connector is damaged or corroded, go to next step. If connector is okay, go to step 6 .
5. Replace BCM harness connector. Go to step 13 .
6. Using Digital Multimeter (J-39200) with Test Adapter Kit (J-35616-A), measure continuity of circuit XY999. Press MIN MAX button on DMM. Connect leads of DMM to appropriate terminals. If low or no resistance is not indicated, go to next step. If low or no resistance is indicated, go to step 8 .

7. Repair open or high resistance in circuit XY999. See **WIRE REPAIR** . Go to step 13 .
8. Turn ignition on. Measure voltage between BCM connector C1 terminal A05 and ground. If voltage is one volt or more, go to next step. If voltage is one volt or less, go to step [10](#) .
9. Repair short to voltage in circuit XY999. See **WIRE REPAIR** . Go to step 13 .
10. Turn ignition off. Reconnect SDM and BCM connectors. Install scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Using scan tool, observe communication status of ONSTAR TEST FLAG and ONSTAR SIGNAL in BCM data list display. If ONSTAR TEST FLAG value is SET and ONSTAR SIGNAL value is OK, go to step 12 . If not, go to next step.
11. Replace BCM. Go to step 13 .
12. Replace SDM. See **SENSING & DIAGNOSTIC MODULE (SDM)** under REMOVAL & INSTALLATION. Go to next step.
13. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to **SIR DIAGNOSTIC SYSTEM CHECK** .

#### DTC 098 : ONSTAR DCO LINK SHORT TO GROUND

##### Circuit Description

When ignition is first turned on, Sensing and Diagnostic Module (SDM) performs tests to diagnose critical internal malfunctions. SDM is hard-wired to Body Control Module (BCM) through Deployment Commanded Output (DCO) circuit XY999. SDM sends fixed frequency pulses during normal operation to BCM. In the event of a collision involving air bag or seat belt pretensioner deployment, SDM sends a higher frequency to BCM, which in turn sends a message to ONSTAR module via Class 2 data circuit. ONSTAR module then sends a Deployment Commanded Output (DCO) signal to the service center through vehicles cellular telephone.

##### Conditions For Setting DTC

DTC sets when measured leakage current to ground is above a specified value in DCO circuit XY999 caused by a short to ground in circuit XY999.

##### Action Taken

SDM sets DTC and turns on AIR BAG warning light.

##### Conditions For Clearing DTC

Current DTC clears when condition responsible for DTC no longer exists and CLEAR CODES command is issued via scan tool. History DTC clears when 255 malfunction free ignition cycles have occurred.

##### Diagnostic Aids

Condition could be caused by a short to ground in DCO circuit XY999. A malfunctioning SDM, BCM or circuit connector could also cause condition.

**NOTE:** For circuit number and wire color identification, see **WIRING DIAGRAMS** .

##### Diagnostic Procedure

1. If SIR Diagnostic System Check has been performed, go to next step. If SIR Diagnostic System Check has not been performed, go to **SIR DIAGNOSTIC SYSTEM CHECK** .
2. Disconnect SDM connector. See **Fig. 6** . Inspect SDM harness connector for signs of corrosion or damage which could cause condition. If connector is damaged or corroded, go to next step. If connector is okay, go to step 4 .
3. Replace SDM harness connector. Go to step 11 .

## 2001 Cadillac Catera

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

4. Disconnect Body Control Module (BCM) connector, located behind passenger-side kick panel. Inspect BCM harness connector C1 for signs of corrosion or damage which could cause condition. If connector is damaged or corroded, go to next step. If connector is okay, go to step 6 .
5. Replace BCM harness connector. Go to step 11 .
6. Using Digital Multimeter (J-39200) with Test Adapter Kit (J-35616-A), measure resistance between BCM connector C1 terminal No. A05 and ground. If resistance is less than infinite, go to next step. If resistance is infinite, go to step 8 .
7. Repair short to ground in circuit XY999. See **WIRE REPAIR** . Go to step 11 .
8. Reconnect SDM and BCM connectors. Install scan tool to Data Link Connector (DLC), located under left side of instrument panel. Turn ignition on. Using scan tool, observe communication status of ONSTAR TEST FLAG and ONSTAR SIGNAL in BCM data list display. If ONSTAR TEST FLAG value is SET and ONSTAR SIGNAL value is OK, go to step 10 . If not, go to next step.
9. Replace BCM. Go to step 11 .
10. Replace SDM. See **SENSING & DIAGNOSTIC MODULE (SDM)** under REMOVAL & INSTALLATION. Go to next step.
11. Reconnect all SIR system components. Ensure that all components are properly mounted. Using scan tool, clear all DTCs. Go to **SIR DIAGNOSTIC SYSTEM CHECK** .

### WIRE REPAIR

SIR system requires special wiring repair procedures due to sensitive nature of circuitry. Wire Repair Kit (J-38125-B) contains special sealed splices for use in repairing SIR wiring. Splices use a heat shrink sleeve with sealing adhesive to produce a sealed splice and a cross-hatched core crimp to produce a positive contact for low energy circuits.

Repair damaged SIR wire harness connectors and terminals (except pigtailed) using connector repair assembly packs and splice crimping tool provided. Terminals in SIR system are manufactured from a special metal to provide necessary contact integrity for sensitive, low-energy circuits. These terminals are only available in connector repair assembly packs, and no other terminal should be substituted.

If individual terminals on SDM harness connector are damaged, SDM harness connector must be replaced using SDM harness connector pigtail assembly or SDM harness connector replacement kit. If individual terminals on any other SIR connector are damaged, entire connector must be replaced. Use appropriate connector repair assembly pack. Replace entire SIR wire harness, if necessary to maintain SIR circuit integrity.

Do not make wiring, connector or terminal repairs on components with wiring pigtailed. If a wiring pigtail is damaged, entire component (including pigtail) should be replaced.

Any wiring other than a pigtail can be repaired by splicing in a new section of wire of same gauge. Sealed splices and crimping tool must be used for these splices. Open wire harness by removing tape as necessary, using a sewing seam ripper. Refer to instructions in kit for wiring repair procedure.

### TORQUE SPECIFICATIONS

#### TORQUE SPECIFICATIONS

Application	Ft. Lbs (N.m)
Seat anchor bolts	19 (26)
Seat belt pretensioner bolts	26 (35)
Steering wheel nut	21 (29)
	INCH Lbs. (N.m)
Air deflector bracket & screws	18 (2)

**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

Driver-side air bag module screws	72 (8)
Passenger-side air module trim cover	
bolt	27 (3)
screws	72 (8)
Side Impact Sensor (SIS) Torx(R) screws	45 (5)
Side impact air bag module nuts	44 (5)
Passenger-side air bag module fasteners	72 (8)
Sensing & Diagnostic Module (SDM) fasteners	89 (10)

**WIRING DIAGRAMS****Fig. 20: SIR System Wiring Diagram (Catera)**



**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

**Courtesy of GENERAL MOTORS CORP.**

**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems



**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems



**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems



**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems



**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems

**2001 Cadillac Catera**

2001 ACCESSORIES/SAFETY EQUIPMENT General Motors Corp. - Air Bag Restraint Systems