

AIR BAG RESTRAINT SYSTEM

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2000 Chevrolet Camaro

ARTICLE BEGINNING

2000 ACCESSORIES/SAFETY EQUIPMENT
General Motors Corp. - Air Bag Restraint Systems

Chevrolet; Camaro
Pontiac; Firebird

DESCRIPTION & OPERATION

WARNING: To avoid injury from accidental air bag deployment, read and carefully follow all WARNINGS and AIR BAG SAFETY PRECAUTIONS.

SUPPLEMENTAL INFLATABLE RESTRAINT (SIR) SYSTEM

Supplemental Inflatable Restraint (SIR) system is designed to supplement protection provided by driver and passenger-side seat belts. A frontal crash of sufficient force up to 30 degrees off center line of vehicle will deploy driver and passenger-side air bags. Steering column and knee bolsters below instrument panel also absorb crash energy.

SIR system consists of Sensing and Diagnostic Module (SDM), driver and passenger-side air bag modules, SIR coil assembly and AIR BAG warning light in instrument cluster.

SENSING & DIAGNOSTIC MODULE (SDM)

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 causes enough current flow through air bag modules to deploy air bags. SDM also maintains a 23 Volt Loop Reserve (23 VLR) energy supply to provide deployment energy for up to 10 seconds after loss of voltage.

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

AIR BAG WARNING LIGHT

Ignition switch applies battery voltage to AIR BAG warning light. SDM controls light by providing ground with a light driver. When ignition switch is first turned ON, AIR BAG warning light verifies system operation by flashing 7 times and turning off. During vehicle operation, AIR BAG warning light warns driver of malfunctions which could potentially affect SIR system operation.

SIR COIL ASSEMBLY

SIR coil assembly consists of 2 or more current-carrying

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coils. Coils are attached to steering column and allow rotation of steering wheel, while maintaining continuous (directly wired) contact of deployment loop through driver-side air bag module.

AIR BAG MODULES

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

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

Component	Location
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Clockspring	Steering column
Driver-side air bag	Steering wheel
Passenger-side air bag	Passenger side dashboard
Sensing & diagnostic module	Under front console

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.

SIR system faults are usually due to a disconnected or loose electrical connector caused by previous service on vehicle. Always check SIR coil connector at base of steering column for loose or damaged wiring.

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 10 seconds after ignition switch is turned OFF, battery is disconnected, or fuse powering SDM is removed. In order to begin servicing immediately,

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- inflator modules must be removed from deployment loop. See DISABLING & ACTIVATING AIR BAG SYSTEM.
- * 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 SDMs should not be subjected to temperatures greater than 150 F (65 C).
 - * Air bag modules or SDMs should not be used if they have been dropped from a height of 3 feet 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 chart 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 SDM, SIR coil assembly or air bag modules. If defective, these parts 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 charts 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. See SPECIAL TOOLS.
 - * 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.

SPECIAL TOOLS

To avoid accidental deployment when working on SIR system,

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use only electrical test equipment specified by manufacturer. See RECOMMENDED TOOLS table.

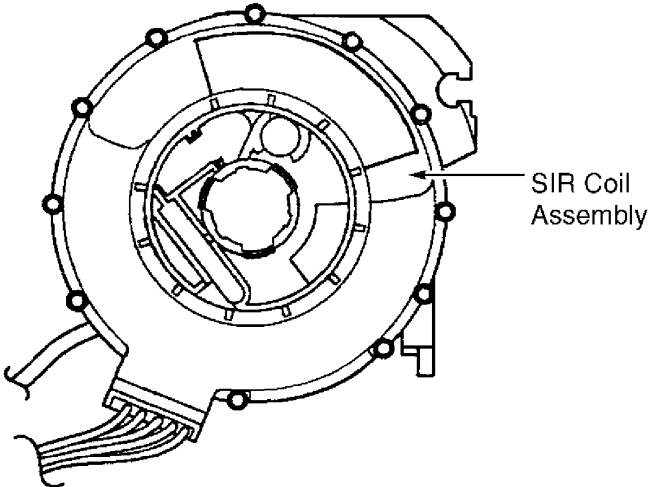
RECOMMENDED TOOLS

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Tool Name	Tool Number
Connector test adapter kit	J-35616-A
Digital volt-ohmmeter	J-39200
SIR deployment fixture	J-39401-B
SIR deployment harness	J-38826
SIR driver-passenger load tool	J-38715-A
Wire repair kit	J-38125-B
AA	

ADJUSTMENTS

CENTERING COIL ASSEMBLY

- 1) If coil assembly has been removed from steering column and is being reinstalled, go to next step. New coil assemblies are pre-centered and include a centering tab that is removed once coil is installed.
- 2) Hold coil assembly with clear bottom upward to see coil bottom. While holding coil assembly housing, depress spring lock and rotate hub in direction of arrow until it stops. Coil ribbon should now be wound up snugly against center hub. Rotate coil hub in opposite direction approximately 2 1/2 turns. Release spring lock between locking tabs. See Fig. 1.



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Fig. 1: Centering SIR Coil Assembly
Courtesy of General Motors Corp.

DISABLING & ACTIVATING AIR BAG SYSTEM

CAUTION: When battery is disconnected, vehicle computer and memory systems may lose memory data. Driveability problems may exist

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until computer systems have completed a relearn cycle. Record customer radio stations, as memory will be lost. See Computer Relearn Procedures in the Reference Information section. Code equipped radios may also lock. Obtain code from customer.

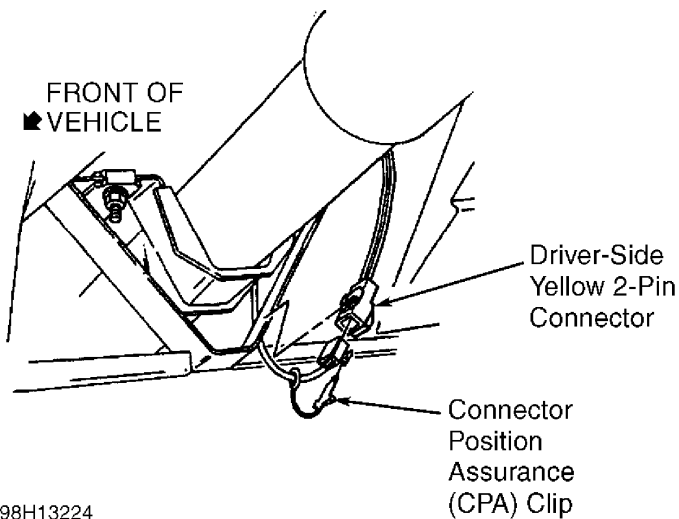
DISABLING SYSTEM

WARNING: The SDM maintains sufficient voltage to cause air bag deployment for up to 10 seconds after ignition is turned OFF, battery is disconnected, or fuse powering SDM is removed. In order to begin servicing immediately, inflator modules must be removed from the deployment loop. See DISABLING SYSTEM.

NOTE: When AIR BAG fuse is removed and ignition switch is in RUN position, AIR BAG warning light will be on. This does not indicate a system malfunction.

1) Turn steering wheel to place vehicle wheels in straight-ahead position. Turn ignition switch OFF and remove key.

2) Remove instrument panel fuse block access door. Remove AIR BAG fuse (15-amp) from instrument panel fuse block. Remove driver-side sound insulator panel. Remove Connector Position Assurance (CPA) clip and disconnect driver-side air bag Yellow 2-pin connector at base of steering column. See Fig. 2. Remove passenger-side sound insulator panel. Remove CPA clip and disconnect passenger-side air bag Yellow 2-pin connector behind glove box. See Fig. 3.



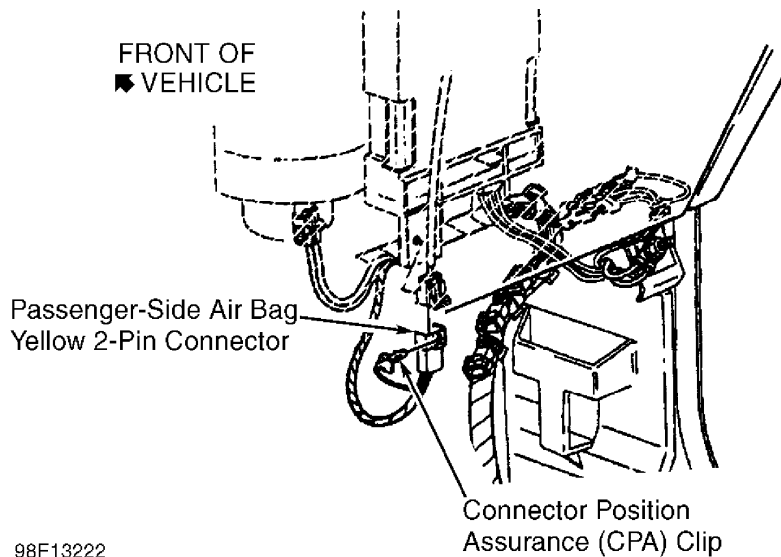
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Fig. 2: Locating Driver-side Air Bag Yellow 2-pin Connector
Courtesy of General Motors Corp.

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Fig. 3: Locating Passenger-side Air Bag Yellow 2-pin Connector
Courtesy of General Motors Corp.

ACTIVATING SYSTEM

Remove key from ignition switch. Connect driver-side air bag Yellow 2-pin connector at base of steering column, and passenger-side air bag Yellow 2-pin connector behind glove box. See Figs. 2 & 3. Install CPA clips. Reinstall driver and passenger-side sound insulator panels and AIR BAG fuse. Check system for proper operation. See SYSTEM OPERATION CHECK.

DISPOSAL PROCEDURES

WARNING: 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. Disconnect driver and passenger-side air bag module connectors. See Figs. 2 & 3. Cut air bag module harness connector from vehicle leaving at least 6" of wire at connector.

2) Strip 1-2" (13 mm) of insulation from each connector wire lead. Cut 2 15-foot deployment wires from 18-gauge multi-strand wire. Strip 1-2" (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

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each deployment wire. See Fig. 4. 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 1) through 4) for passenger-side air bag module. 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 passenger-side air bag.

7) If air bag modules do not deploy, carefully remove from vehicle. See AIR BAG MODULES under REMOVAL & INSTALLATION. Temporarily store module with trim facing up. Contact manufacturer for proper disposal instructions.

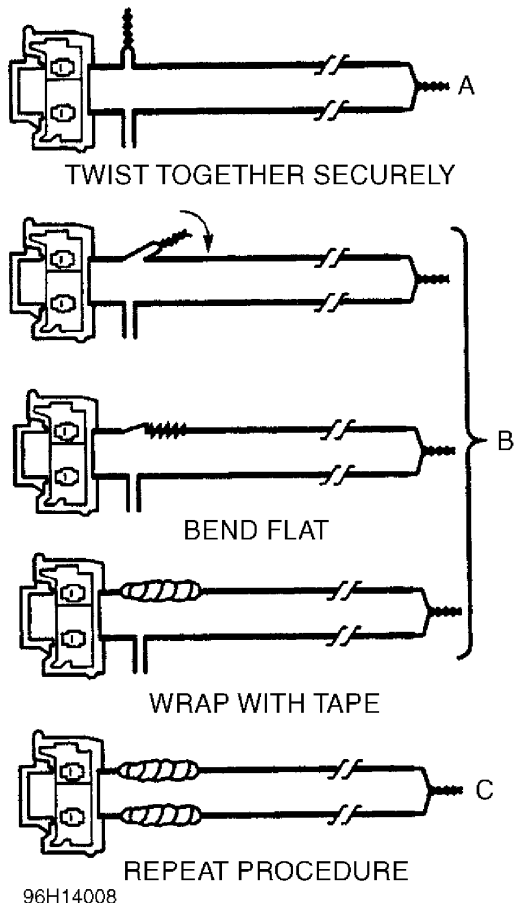


Fig. 4: Preparing Deployment Harness For On-vehicle Deployment
Courtesy of General Motors Corp.

OFF-VEHICLE DEPLOYMENT

1) Before proceeding, See AIR BAG SAFETY PRECAUTIONS. Turn

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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) at least 6 feet away from any 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. See Fig. 5. 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. See Fig. 5. Air bag module should deploy immediately. If air bag module does not deploy, go to next step. 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. Repeat deployment procedure for passenger-side air bag module. See Fig. 5.

6) 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 module with trim cover facing up. Contact manufacturer for proper disposal instructions.

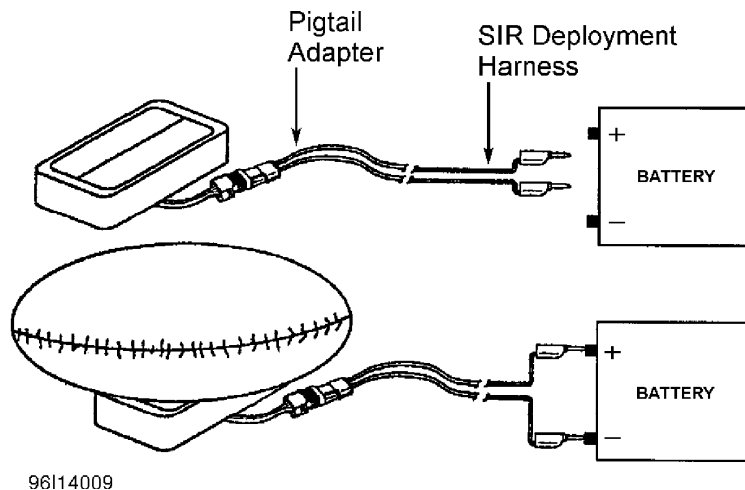


Fig. 5: Preparing Deployment Harness For Off-vehicle Deployment
On-vehicle Deployment
Courtesy of General Motors Corp.

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 PASSIVE RESTRAINT SYSTEM INSPECTION article in the GENERAL INFORMATION section for post-collision inspection information.

REMOVAL & INSTALLATION

WARNING: 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 front floor console assembly. Remove connector position assurance (CPA) clip and disconnect SDM harness connector. Remove SDM fasteners and SDM. See Fig. 6.

Installation

1) Mount SDM on vehicle, ensuring arrow is pointing toward front of vehicle. Install SDM fasteners and tighten to 71 INCH lbs. (8 N.m). Reconnect SDM harness connector and CPA clip.

2) Install front floor console assembly. Activate air bag system. See DISABLING & ACTIVATING AIR BAG SYSTEM. Check system for proper operation. See SYSTEM OPERATION CHECK.

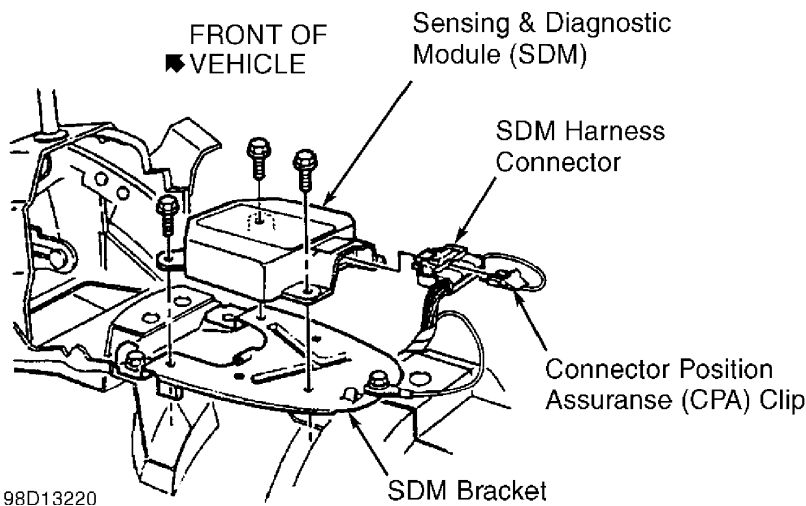


Fig. 6: Removing Sensing & Diagnostic Module (SDM)
Courtesy of General Motors Corp.

STEERING WHEEL

Removal

1) Before proceeding, See AIR BAG SAFETY PRECAUTIONS. Disable air bag system. See DISABLING & ACTIVATING AIR BAG SYSTEM.

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2) Remove air bag module. See AIR BAG MODULES. Remove steering wheel nut. Disconnect horn lead. Using steering wheel puller (J-1859-A and J-38720), remove steering wheel. Disconnect steering wheel horn switch.

Installation

1) To install steering wheel, route SIR coil electrical connector through steering wheel. Connect steering wheel horn switch. Align block tooth on steering wheel with block tooth on shaft. Connect horn lead. Install steering wheel nut and tighten to 32 ft. lbs. (43 N.m). 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 coil assembly retaining ring. Let coil hang freely.

3) Remove wave washer. Using Lock Plate Compressor (J-23653-SIR), push down shaft lock. Remove shaft lock bearing retainer and shaft lock. Remove turn signal canceling cam assembly. Remove upper bearing spring, inner race seat and inner race. Turn signal to RIGHT TURN position (up). Remove multi-function lever and hazard knob assembly. See Fig. 7.

4) Remove screw and signal switch arm. Remove turn signal switch screws. Disconnect turn signal switch connector from wire harness. Remove wiring protector. Gently pull wire harness through column and remove turn signal switch assembly.

5) Remove wiring protector from SIR coil assembly wire harness. Attach mechanic's wire to terminal connectors to aid reassembly. Gently pull wire through column.

Installation

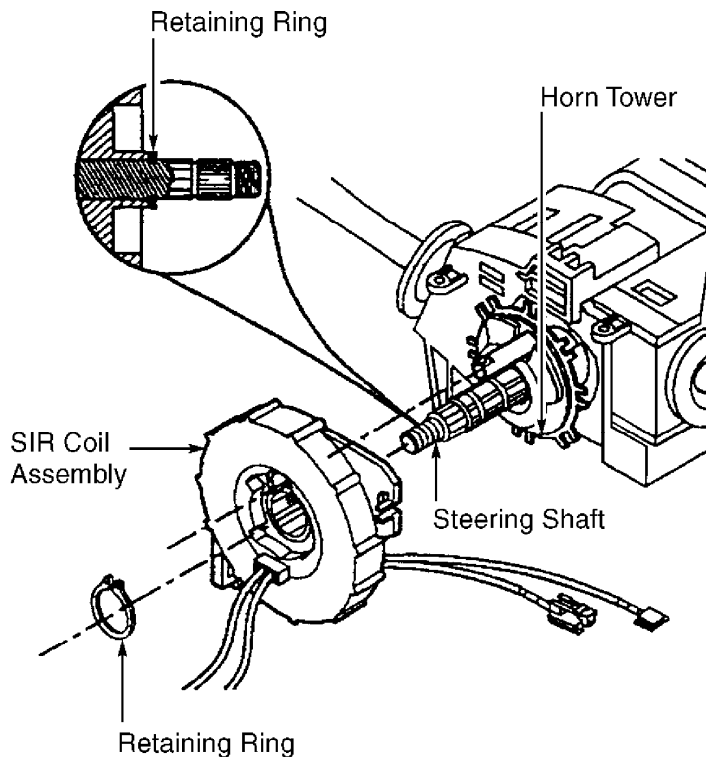
1) Feed coil assembly wire harness through steering column. Allow coil assembly to hang freely. Install turn signal switch assembly and tighten screws to 31 INCH lbs. (3.5 N.m). Install signal switch arm. Tighten screw to 22 INCH lbs. (2.5 N.m).

2) Install hazard knob assembly and multifunction lever. Install inner race, upper bearing inner race seat and spring. Install turn signal canceling cam assembly and shaft lock. Using Lock Plate Compressor (J-23653-C), depress shaft lock and install new shaft lock bearing retainer. Install wave washer.

3) Ensure SIR coil assembly hub is centered. Install coil assembly, pulling wires tight while positioning coil on steering shaft. Align opening in coil with horn tower and projection between two tabs on housing cover. Seat coil on steering column and install coil assembly retaining ring. Install wiring protector.

4) 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.



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Fig. 7: Removing SIR Coil Assembly
Courtesy of General Motors Corp.

AIR BAG MODULES

Removal Driver-side

- 1) Before proceeding, See AIR BAG SAFETY PRECAUTIONS. Disable air bag system. See DISABLING & ACTIVATING AIR BAG SYSTEM.
- 2) Remove Torx bolts from back of steering wheel. Disconnect driver-side air bag module connector and CPA clip. Disconnect radio control switch connector, if equipped. Disconnect horn lead from steering column. See Fig. 8. Remove air bag module.

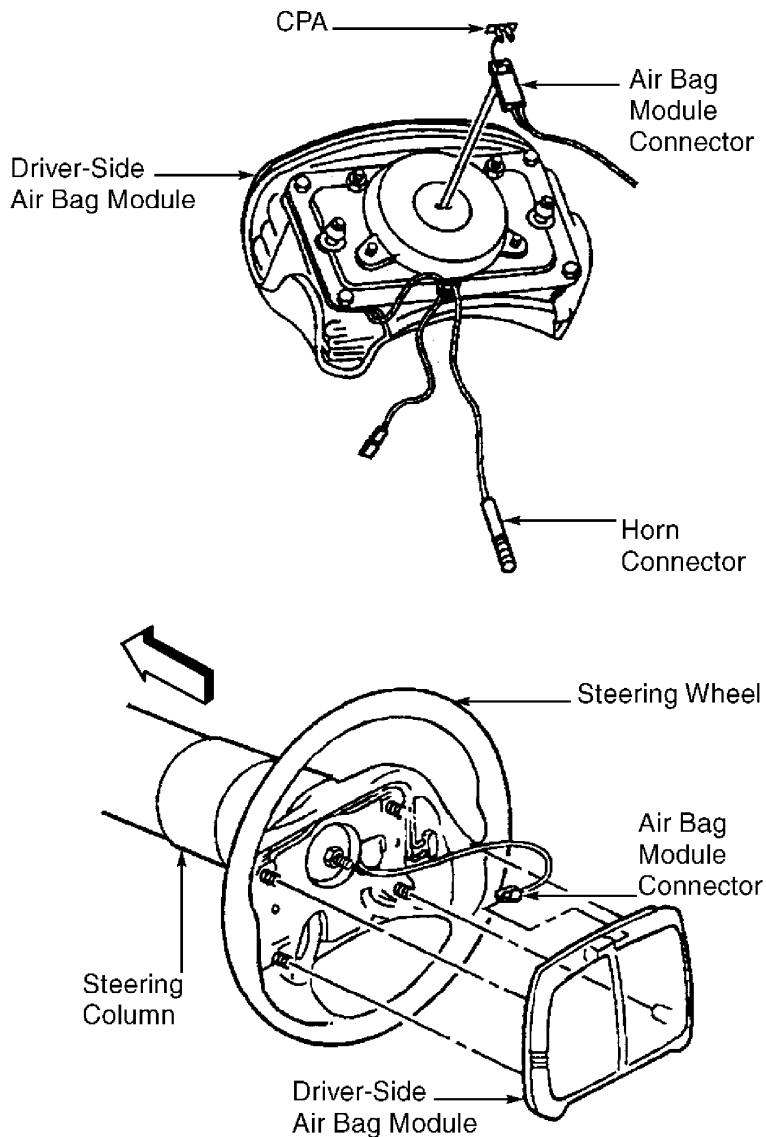
Installation

- 1) Connect horn lead to column, radio control switch connector, driver-side air bag module connector and CPA clip. Secure air bag module connector to retainer on steering wheel. Install air bag module to steering wheel. Ensure no wiring is pinched. Tighten air bag module screws through back of steering wheel to 25 INCH lbs. (2.8 N.m).
- 2) Activate air bag system. See DISABLING & ACTIVATING AIR BAG SYSTEM. Check system for proper operation. See SYSTEM OPERATION CHECK.

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Fig. 8: Removing Driver-side Air Bag Module
Courtesy of General Motors Corp.

Removal Passenger-side

1) Before proceeding, See AIR BAG SAFETY PRECAUTIONS. Disable air bag system. See DISABLING & ACTIVATING AIR BAG SYSTEM.

2) Remove instrument panel carrier. Remove CPA clip and disconnect passenger-side air bag module connector from SIR wiring harness. Remove passenger-side air bag module bracket upper and lower mounting fasteners. Remove bracket assembly from instrument panel carrier. Remove fasteners from air bag module and remove module from bracket. See Fig. 9.

Installation

1) Install air bag module to bracket and install fasteners. Tighten fasteners to 28 INCH lbs. (3.2 N.m). Install air bag bracket assembly to instrument panel carrier. Tighten upper fasteners to 53 INCH lbs. (6 N.m) and lower fasteners to 25 INCH lbs. (2.8 N.m).

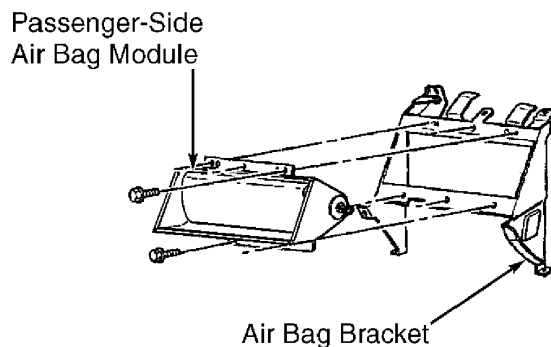
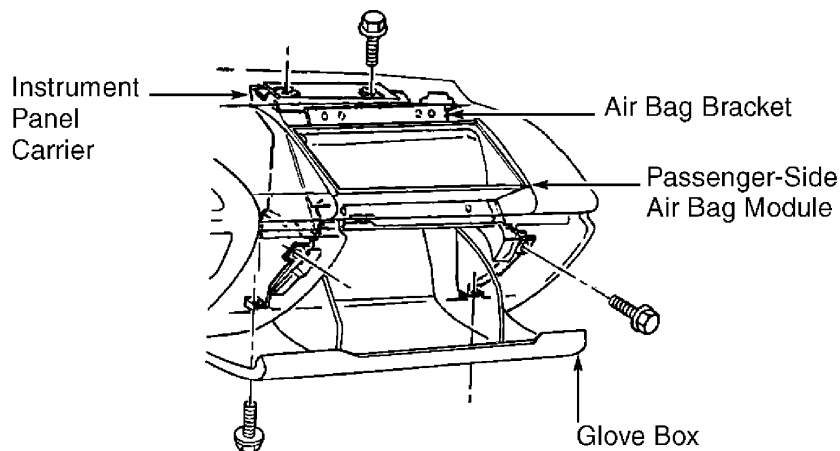
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Connect passenger-side air bag module connector and install CPA clip. Reinstall instrument panel carrier.

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



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Fig. 9: Removing Passenger-side Air Bag Module
Courtesy of General Motors Corp.

DIAGNOSTICS

WARNING: 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 diagnostic trouble code (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

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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 DLC connector, plug in power source and turn ignition switch to RUN position. Follow scan tool manufacturer instructions for communication with SIR system. Scan tester reads serial data from SDM data link output terminal No. 4 to DLC connector terminal No. 9.

DIAGNOSTIC PROCEDURES

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

Perform SIR System Diagnostic Check

SIR System Diagnostic 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.

Refer To Proper Diagnostic Chart

SIR Diagnostic System Check indicates correct chart 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.

NOTE: AIR BAG warning light will also set if serial data communication is shorted to ground or voltage. AIR BAG warning light will set if communication is lost between SDM and instrument cluster.

DIAGNOSTIC TESTS

DIAGNOSTIC TROUBLE CODE (DTC) CHART

Trouble Code	Possible Cause
B0016	Passenger deployment loop resistance low
B0017	Passenger deployment loop open
B0018	Passenger deployment loop Voltage out of range
B0022	Driver deployment loop resistance low
B0024	Driver deployment loop Voltage out of range
B0026	Driver deployment loop open
B0051	Deployment commanded
B0053	Deployment commanded with loop malfunction
B0670	AIR BAG warning light malfunction
B1000	Internal SDM malfunction
B1001	Option configuration error

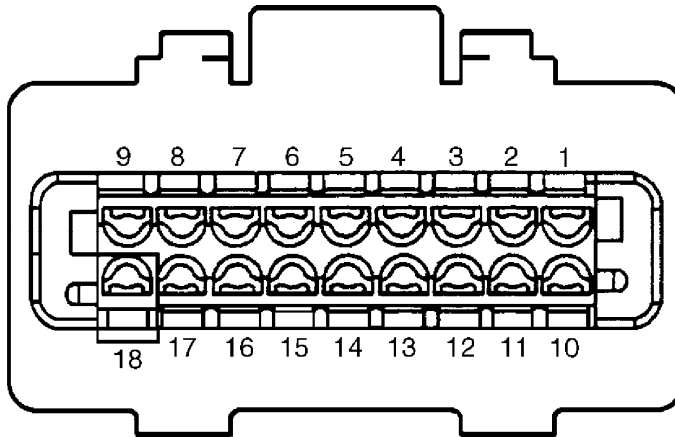
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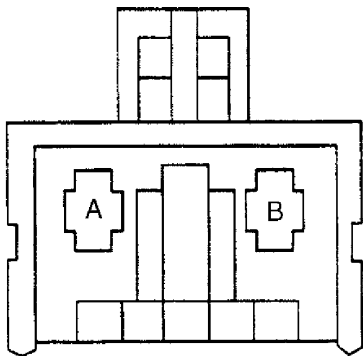
CONNECTOR IDENTIFICATION

NOTE: Refer to illustration to identify SIR connector terminals. See Figs. 10 & 11.



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Fig. 10: Identifying SDM Connector Terminals
Courtesy of General Motors Corp.



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Fig. 11: Identifying Air Bag Connector Terminals
Courtesy of General Motors Corp.

SIR DIAGNOSTIC SYSTEM CHECK

WARNING: To avoid air bag deployment and injury when trouble shooting system, only use test equipment specified in diagnostic charts. Carefully follow all instructions.

Circuit Description

Ignition switch supplies IGNITION POSITIVE VOLTAGE to SDM at terminal No. 1 using AIR BAG fuse. When ignition switch is turned to RUN position, SDM responds by performing tests on SIR system and then flashing AIR BAG warning light 7 times. If not DTCs exist, AIR BAG warning light should then turn off.

Diagnostic Procedure

- 1) Observe AIR BAG warning light while turning ignition

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switch to RUN position. If AIR BAG warning light flashes 7 times, go to next step. If AIR BAG warning light does not flash 7 times, go to AIR BAG WARNING LIGHT CIRCUIT MALFUNCTION.

2) Connect scan tool to DLC. Turn ignition on. If scan tool powers up, go to next step. If scan tool does not power up, check power and ground circuits to DLC. Repair as necessary.

3) Check scan tool communication with SDM. If scan tool communicates with SDM, go to next step. If scan tool does not communicate with SDM, check appropriate class 2 communication diagnostic trouble code.

4) Record displayed DTCs. If only history DTCs exist, refer to Diagnostic Aids for specific DTC. A history DTC indicates malfunction has been repaired or is intermittent. If no DTCs exist, system is okay at this time. If any DTCs exist, go to next step.

5) Using scan tool, retrieve any "U" DTCs. If scan tool retrieves any "U" DTCs, repair "U" DTCs as necessary. If scan tool does not retrieve any "U" DTCs, go to next step.

6) Turn ignition off. Read DTCs. If DTC B1000 is set, see DTC B1000: INTERNAL SDM FAILURE. For all other DTCs, refer to Diagnostic Aids for specific DTC. A history DTC indicates malfunction has been repaired or is intermittent.

AIR BAG WARNING LIGHT CIRCUIT MALFUNCTION

Circuit Description

When ignition switch is turned to RUN position, AIR BAG fuse applies battery voltage to IGNITION POSITIVE VOLTAGE input, terminal No. 1. SDM applies battery voltage to AIR BAG warning light through serial data line at terminal No. 4. SDM responds by flashing AIR BAG warning light 7 times. If IGNITION POSITIVE VOLTAGE is outside normal operating range (9-16 volts), AIR BAG warning light will come ON steady with no DTCs set.

Diagnostic Aids

A loss of serial data communication between SDM and instrument cluster will cause AIR BAG warning light to turn on.

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) Check instrument cluster for correct operation. If instrument cluster operates properly, go to next step. If instrument cluster does not operate properly, replace cluster and recheck cluster operation.

3) Turn ignition off. Check AIR BAG warning light for correct operation. See SYSTEM OPERATION CHECK. If AIR BAG warning light flashes 7 times, go to step 5). If AIR BAG warning light does not flash 7 times, go to next step.

4) Replace instrument cluster and then go to step 18).

5) Install scan tool to DLC. Ensure communication between

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scan tool and instrument cluster exists. Using scan tool, retrieve instrument cluster DTC display list. If DTC U1088 does not exist, go to next step. If DTC U1088 exists, a malfunction exists in data link communications circuit. Repair and replace appropriate components in communications system.

6) Using scan tool, retrieve instrument cluster DTC display list. If AIR BAG warning light is being commanded on, go to next step. If AIR BAG warning light is not being commanded on, go to step 4).

7) Using scan tool, retrieve SIR DTC display list. If ignition voltage displayed on scan tool is less than 9 volts, go to next step. If ignition voltage displayed on scan tool is 9-16 volts, go to step 9).

8) If ignition voltage displayed on scan tool is 9-16 volts, go to step 17). If ignition voltage displayed on scan tool is not 9-16 volts, check battery and charging system for correct operation.

9) Turn ignition off. Disconnect SDM connector. See Fig. 6. Check SDM connector terminals for damage or corrosion. If terminals are okay, go to step 11). If terminals are damaged or corroded, go to next step.

10) Replace SDM connector. Go to step 18).

11) Remove AIR BAG fuse. Disconnect driver and passenger-side air bag Yellow 2-pin connectors located at base of steering column and above right-side sound insulator. See Figs. 2 & 3. Using Digital Multimeter (J-39200), measure resistance between AIR BAG fuse holder terminal and SDM harness connector terminal No. 1. See Fig. 10. If resistance is 0-2 ohms, go to step 13). If resistance is not 0-2 ohms, go to next step.

12) Repair open or high resistance in circuit 1139. Go to step 18).

13) Turn ignition on. Using Digital Multimeter (J-39200), measure voltage between AIR BAG fuse holder terminal and ground. If battery voltage exists, go to step 15). If battery voltage does not exist, go to next step.

14) Repair open or high resistance in power feed circuit to AIR BAG fuse. Go to step 1).

15) Turn ignition off. Measure resistance between SDM harness connector terminal No. 18 and ground. If resistance is less than 2 ohms, go to step 17). If resistance is 2 ohms or more, go to next step.

16) Repair open or high resistance in circuit 1751. Go to step 18).

17) Replace SDM. See SENSING & DIAGNOSTIC MODULE (SDM) under REMOVAL & INSTALLATION. Go to next step.

18) Reconnect all SIR system components. Ensure that all components are properly mounted. Go to SIR DIAGNOSTIC SYSTEM CHECK.

DTC B0016: PASSENGER DEPLOYMENT LOOP RESISTANCE LOW

Circuit Description

When ignition switch is turned to RUN position, SDM performs tests to diagnose critical internal malfunctions. DEPLOYMENT LOOP VOLTAGE test is performed to ensure voltage is within normal range. If voltage test does not detect out of range condition (due to short to voltage), SDM then performs DEPLOYMENT LOOP RESISTANCE test.

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Resistance test will not be performed if voltage test detects out of range, due to short to voltage.

Conditions For Setting DTC

DTC will set if DEPLOYMENT LOOP VOLTAGE and DEPLOYMENT LOOP RESISTANCE tests are within the following ranges:

- * IGNITION POSITIVE VOLTAGE is within normal operating range.
- * Deployment loop is not shorted to voltage.
- * Deployment loop is not open.
- * Deployment loop is not shorted to ground.
- * Deployment loop resistance is at least 1.3 ohms for 300 milliseconds.

Action Taken

SDM turns on AIR BAG warning light and sets DTC.

Conditions For Clearing DTC

Current DTC clears when ignition switch is cycled and resistance is greater than 1.3 ohms for 300 milliseconds. History DTC clears when scan tool CLEAR CODES is received or when 255 malfunction-free ignition cycles have occurred. If CLEAR CODES is received, and DTC still exists, DTC will not reappear until next ignition cycle.

Diagnostic Aids

An intermittent condition is likely to be caused by a short between circuit 1403 and circuit 1404, or a malfunctioning shorting bar on passenger-side air bag 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. Disconnect passenger-side air bag Yellow 2-pin connector located above right-side sound insulator. See Fig. 3. If harness connector is damaged or corroded, go to next step. If harness connector is okay, go to step 4).

3) Replace passenger-side air bag Yellow 2-pin connector. See WIRE REPAIR. Go to step 10).

4) Reconnect passenger-side air bag Yellow 2-pin connector. Ensure CPA clip is installed correctly. Turn ignition on. Using scan tool, check for SIR DTCs. If DTC B0016 is retrieved, go to next step. If DTC B0016 is not retrieved, go to step 3).

5) Turn ignition off. Disconnect driver and passenger-side air bag Yellow 2-pin connectors located at base of steering column and above right-side sound insulator. See Figs. 2 & 3. Install SIR Driver-Passenger Load Tool (J-38715-A) to harness connectors. Turn ignition on. Using scan tool, check for SIR DTCs. If DTC B0016 is retrieved, go to step 7). If DTC B0016 is not retrieved, go to next step.

6) Turn ignition off. Replace passenger-side air bag. See

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AIR BAG MODULES under REMOVAL & INSTALLATION. Go to step 10).

7) Turn ignition off. Remove SIR Driver-Passenger Load Tool (J-38715-A) from harness connectors. Disconnect SDM harness connector. Using Digital Multimeter (J-39200), measure resistance between SDM harness connector terminals No. 3 and 8. See Fig. 10. If resistance is infinite, go to next step. If resistance is not infinite, go to step 9).

8) Repair short between circuit 1403 and circuit 1404. Go to step 10).

9) Replace SDM. See SENSING & DIAGNOSTIC MODULE (SDM) under REMOVAL & INSTALLATION. Go to next step.

10) Reconnect all SIR components. Ensure that all components are properly mounted. Clear all SIR DTCs. Go to SIR DIAGNOSTIC SYSTEM CHECK.

DTC B0017: PASSENGER DEPLOYMENT LOOP OPEN

Circuit Description

When ignition switch is turned to RUN position, SDM performs tests to diagnose critical internal malfunctions. DEPLOYMENT LOOP VOLTAGE test is performed to ensure voltage is within normal range. If voltage test does not detect out of range condition (due to short to voltage), SDM then performs DEPLOYMENT LOOP RESISTANCE test. Resistance test will not be performed if voltage test detects out of range, due to short to voltage.

Conditions For Setting DTC

DTC will set if DEPLOYMENT LOOP VOLTAGE test is within the following ranges:

- * IGNITION POSITIVE VOLTAGE is within normal operating range.
- * Deployment loop is not shorted to voltage.
- * PASSENGER HIGH voltage is less than 2 volts.
- * Deployment loop resistance is at least 6 ohms for 300 milliseconds.

DTC will set if DEPLOYMENT LOOP RESISTANCE test is within the following ranges:

- * IGNITION POSITIVE VOLTAGE is within normal operating range.
- * Deployment loop is not shorted to voltage.
- * Deployment loop is not shorted to ground.
- * Deployment loop resistance is greater than 3.7 ohms for 300 milliseconds.

Action Taken

SDM turns on AIR BAG warning light and sets DTC.

Conditions For Clearing DTC

Current DTC clears when voltage at PASSENGER HIGH terminal No. 3 is more than 2 volts and passenger frontal deployment loop resistance is less than 6 ohms for 300 milliseconds. Current DTC also will clear if DEPLOYMENT LOOP RESISTANCE test is more than 3.7 ohms

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for 300 milliseconds. History DTC may be cleared by issuing a CLEAR CODES command or once 255 malfunction free ignition cycles have occurred.

Diagnostic Aids

An intermittent condition is likely to be caused by a poor connection at passenger-side air bag connector terminals "A" or "B", SDM terminals No. 3 or 8, or an open in circuits 1403 or 1404.

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 driver and passenger-side air bag Yellow 2-pin connectors located at base of steering column and above right-side sound insulator. See Figs. 2 & 3. Check for proper connection at terminals "A" and "B" on harness side of passenger-side air bag Yellow 2-pin connector. See Fig. 11. If terminals are damaged or corroded, go to next step. If terminals are okay, go to step 4).

3) Replace passenger-side air bag harness Yellow 2-pin connector. Go to step 14).

4) Reconnect passenger-side air bag Yellow 2-pin connector. Ensure CPA clip is installed correctly. Turn ignition on. Using scan tool, check for SIR DTCs. If DTC B0017 is retrieved, go to next step. If DTC B0017 is not retrieved, go to step 3).

5) Turn ignition off. Disconnect passenger-side air bag Yellow 2-pin connector above right-side sound insulator. See Fig. 3. Install SIR Driver-Passenger Load Tool (J-38715-A) to harness connectors. Turn ignition on. Using scan tool, check for SIR DTCs. If DTC B0017 is retrieved, go to step 7). If DTC B0017 is not retrieved, go to next step.

6) Turn ignition off. Replace passenger-side air bag. See AIR BAG MODULES under REMOVAL & INSTALLATION. Go to step 14).

7) Turn ignition off. Remove SIR Driver-Passenger Load Tool (J-38715-A) from harness connectors. Disconnect SDM harness connector. Inspect for proper connection at SDM harness connector terminals No. 3 and 8. See Fig. 10. If terminals are damaged or corroded, go to next step. If terminals are okay, go to step 9).

8) Replace SDM harness connector. Go to step 14).

9) Using Digital Multimeter (J-39200), measure resistance between passenger-side harness connector terminal "A" and SDM connector terminal No. 3. See Figs. 10 & 11. If resistance is 0-0.5 ohms, go to step 11). If resistance is greater than 0.5 ohms, go to next step.

10) Repair open or high resistance in circuit 1403. Go to step 14).

11) Measure resistance between passenger-side harness connector terminal "B" and SDM connector terminal No. 8. See Figs. 10 & 11. If resistance is 0-0.5 ohms, go to step 13). If resistance is greater than 0.5 ohms, go to next step.

12) Repair open or high resistance in circuit 1404. Go to

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step 14).

13) Replace SDM. See SENSING & DIAGNOSTIC MODULE (SDM) under REMOVAL & INSTALLATION. Go to next step.

14) Reconnect all SIR components. Ensure that all components are properly mounted. Clear all SIR DTCs. Go to SIR DIAGNOSTIC SYSTEM CHECK.

DTC B0018: PASSENGER DEPLOYMENT LOOP VOLTAGE OUT OF RANGE

Circuit Description

When ignition switch is turned to RUN position, SDM performs tests to diagnose critical internal malfunctions. DEPLOYMENT LOOP VOLTAGE test is performed to ensure voltage is within normal range. If voltage test does not detect out of range condition (due to short to voltage), SDM then performs DEPLOYMENT LOOP RESISTANCE test. Resistance test will not be performed if voltage test detects out of range, due to short to voltage.

Conditions For Setting DTC

DTC will set if DEPLOYMENT LOOP VOLTAGE test is within the following ranges:

- * IGNITION POSITIVE VOLTAGE is within normal operating range.
- * PASSENGER HIGH voltage is greater than 6 volts for 300 milliseconds.

DTC will set if DEPLOYMENT LOOP RESISTANCE test is within the following ranges:

- * IGNITION POSITIVE VOLTAGE is within normal operating range.
- * Deployment loop is not shorted to voltage.
- * PASSENGER HIGH voltage is less than 2 volts and deployment loop resistance is less than 6 ohms for 300 milliseconds.

Action Taken

SDM turns on AIR BAG warning light and sets DTC.

Conditions For Clearing DTC

Current DTC clears when DEPLOYMENT LOOP VOLTAGE test determines PASSENGER HIGH terminal No. 3 is 6 volts or less. Current DTC also will clear if DEPLOYMENT LOOP RESISTANCE test determines PASSENGER HIGH terminal No. 3 is less than 2 volts and passenger frontal deployment loop resistance is less than 6 ohms for 300 milliseconds. History DTC may be cleared by issuing a CLEAR CODES command or once 255 malfunction free ignition cycles have occurred.

Diagnostic Aids

An intermittent condition is likely to be caused by a short to voltage or ground in passenger-side air bag module circuit. Inspect circuits 1403 and 1404 carefully for cutting or chafing. If wiring pigtail of passenger-side air bag module is damaged, component must be replaced.

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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 Yellow 2-pin connector located above right-side sound insulator. See Fig. 3. If harness connector is damaged or corroded, go to next step. If harness connector is okay, go to step 4).

3) Replace passenger-side air bag Yellow 2-pin connector. See WIRE REPAIR. Go to step 16).

4) Reconnect passenger-side air bag Yellow 2-pin connector. Ensure CPA clip is installed correctly. Turn ignition on. Using scan tool, check for SIR DTCs. If DTC B0018 is retrieved, go to next step. If DTC B0018 is not retrieved, go to step 3).

5) Turn ignition off. Disconnect driver and passenger-side air bag Yellow 2-pin connectors located at base of steering column and above right-side sound insulator. See Figs. 2 & 3. Install SIR Driver-Passenger Load Tool (J-38715-A) to harness connectors. Turn ignition on. Using scan tool, check for SIR DTCs. If DTC B0018 is retrieved, go to step 7). If DTC B0018 is not retrieved, go to next step.

6) Turn ignition off. Replace passenger-side air bag. See AIR BAG MODULES under REMOVAL & INSTALLATION. Go to step 16).

7) Turn ignition off. Remove SIR Driver-Passenger Load Tool (J-38715-A) from harness connectors. Disconnect SDM harness connector. Using Digital Multimeter (J-39200), measure resistance between ground and SDM harness connector terminal No. 3. See Fig. 10. If resistance is not infinite, go to next step. If resistance is infinite, go to step 9).

8) Repair short to ground in circuit 1403. Go to step 16).

9) Using Digital Multimeter (J-39200), measure resistance between ground and SDM harness connector terminal No. 8. See Fig. 10. If resistance is not infinite, go to next step. If resistance is infinite, go to step 11).

10) Repair short to ground in circuit 1404. Go to step 16).

11) Turn ignition on. Measure voltage between ground and SDM connector terminal No. 3. See Fig. 10. If voltage is one volt or greater, go to next step. If voltage is less than one volt, go to step 13).

12) Repair short to voltage in circuit 1403. Go to step 16).

13) Measure voltage between ground and SDM connector terminal No. 8. See Fig. 10. If voltage is one volt or greater, go to next step. If voltage is less than one volt, go to step 15).

14) Repair short to voltage in circuit 1404. Go to step 16).

15) Replace SDM. See SENSING & DIAGNOSTIC MODULE (SDM) under REMOVAL & INSTALLATION. Go to next step.

16) Reconnect all SIR components. Ensure that all components are properly mounted. Clear all SIR DTCs. Go to SIR DIAGNOSTIC SYSTEM CHECK.

DTC B0022: DRIVER DEPLOYMENT LOOP RESISTANCE LOW

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Circuit Description

When ignition switch is turned to RUN position, SDM performs tests to diagnose critical internal malfunctions. DEPLOYMENT LOOP VOLTAGE test is performed to ensure voltage is within normal range. If voltage test does not detect out of range condition (due to short to voltage), SDM then performs DEPLOYMENT LOOP RESISTANCE test. Resistance test will not be performed if voltage test detects out of range, due to short to voltage.

Conditions For Setting DTC

DTC will set if DEPLOYMENT LOOP VOLTAGE and DEPLOYMENT LOOP RESISTANCE tests are within the following ranges:

- * IGNITION POSITIVE VOLTAGE is within normal operating range.
- * Deployment loop is not shorted to voltage.
- * Deployment loop is not open.
- * Deployment loop is not shorted to ground.
- * Deployment loop resistance is at less 1.3 ohms for 300 milliseconds.

Action Taken

SDM turns on AIR BAG warning light and sets DTC.

Conditions For Clearing DTC

Current DTC clears when driver deployment loop resistance is greater than 1.3 ohms for 300 milliseconds. History DTC clears when scan tool CLEAR CODES is received or 255 malfunction-free ignition cycles have occurred. When scan tool CLEAR CODES is received and fault still exists, DTC will not reappear until next ignition cycle.

Diagnostic Aids

An intermittent condition is likely to be caused by a short between circuit 347 and circuit 348, or a malfunctioning shorting bar on driver-side air bag connector or SIR coil connector. Note and compare value of driver deployment loop resistance over multiple ignition cycles to determine intermittent 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-side air bag Yellow 2-pin connector located at base of steering column. See Fig. 2. If harness connector is damaged or corroded, go to next step. If harness connector is okay, go to step 4).
- 3) Replace driver-side air bag harness Yellow 2-pin connector. See WIRE REPAIR. Go to step 12).
- 4) Reconnect driver-side air bag Yellow 2-pin connector. Ensure CPA clip is installed correctly. Turn ignition on. Using scan

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tool, check for SIR DTCs. If DTC B0022 is retrieved, go to next step. If DTC B0022 is not retrieved, go to step 3).

5) Turn ignition off. Disconnect passenger-side air bag Yellow 2-pin connector located above right-side sound insulator. See Fig. 3. Install SIR Driver-Passenger Load Tool (J-38715-A) to harness connectors. Turn ignition on. Using scan tool, check for SIR DTCs. If DTC B0022 is retrieved, go to step 9). If DTC B0022 is not retrieved, go to next step.

6) Turn ignition off. Remove SIR Driver-Passenger Load Tool (J-38715-A) from harness connectors. Reconnect driver-side air bag Yellow 2-pin connector. Connect SIR Driver-Passenger Load Tool (J-38715-A) to SIR coil-to-air bag module connector. Turn ignition on. Using scan tool, check for SIR DTCs. If DTC B0022 is retrieved, go to step 8). If DTC B0022 is not retrieved, go to next step.

7) Turn ignition off. Replace driver-side air bag. See AIR BAG MODULES under REMOVAL & INSTALLATION. Go to step 12).

8) Turn ignition off. Replace SIR coil. See SIR COIL ASSEMBLY under REMOVAL & INSTALLATION. Go to step 12).

9) Turn ignition off. Disconnect SDM connector. Disconnect SIR Driver-Passenger Load Tool. Using Digital Multimeter (J-39200), measure resistance between SDM harness connector terminals No. 6 and 7. See Fig. 10. If resistance is not infinite, go to next step. If resistance is infinite, go to step 11).

10) Repair short between circuit 347 and circuit 348. Go to step 12).

11) Replace SDM. See SENSING & DIAGNOSTIC MODULE (SDM) under REMOVAL & INSTALLATION. Go to next step.

12) Reconnect all SIR components. Ensure that all components are properly mounted. Clear all SIR DTCs. Go to SIR DIAGNOSTIC SYSTEM CHECK.

DTC B0024: DRIVER DEPLOYMENT LOOP VOLTAGE OUT OF RANGE

Circuit Description

When ignition switch is turned to RUN position, SDM performs tests to diagnose critical internal malfunctions. DEPLOYMENT LOOP VOLTAGE test is performed to ensure voltage is within normal range. If voltage test does not detect out of range condition (due to short to voltage), SDM then performs DEPLOYMENT LOOP RESISTANCE test. Resistance test will not be performed if voltage test detects out of range, due to short to voltage.

Conditions For Setting DTC

DTC will set if DEPLOYMENT LOOP VOLTAGE test is within the following ranges:

- * IGNITION POSITIVE VOLTAGE is within normal operating range.
- * DRIVER HIGH voltage is greater than 6 volts for 300 milliseconds.

DTC will set if DEPLOYMENT LOOP RESISTANCE test is within the following ranges:

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- * IGNITION POSITIVE VOLTAGE is within normal operating range.
- * Deployment loop is not shorted to voltage.
- * DRIVER HIGH voltage is less than 2 volts and deployment loop resistance is less than 6 ohms for 300 milliseconds.

Action Taken

SDM turns on AIR BAG warning light and sets DTC.

Conditions For Clearing DTC

Current DTC clears when DEPLOYMENT LOOP VOLTAGE test determines DRIVER HIGH terminal No. 6 is 6 volts or less. Current DTC also will clear if DEPLOYMENT LOOP RESISTANCE test determines DRIVER HIGH terminal No. 6 is less than 2 volts and driver frontal deployment loop resistance is less than 6 ohms for 300 milliseconds. History DTC may be cleared by issuing a CLEAR CODES command or once 255 malfunction free ignition cycles have occurred.

Diagnostic Aids

An intermittent condition is likely to be caused by a short to ground in driver-side air bag module circuit. Inspect circuits 347 and 348 carefully for cutting or chafing. Careful inspection of circuits and components indicated on DTC B1024 chart is essential to ensure that replacement SDM is not damaged.

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-side air bag Yellow 2-pin connector located at base of steering column. See Fig. 2. If harness connector is damaged or corroded, go to next step. If harness connector is okay, go to step 4).

3) Replace driver-side air bag harness Yellow 2-pin connector. See WIRE REPAIR. Go to step 18).

4) Reconnect driver-side air bag Yellow 2-pin connector. Ensure CPA clip is installed correctly. Turn ignition on. Using scan tool, check for SIR DTCs. If DTC B0024 is retrieved, go to next step. If DTC B0024 is not retrieved, go to step 3).

5) Turn ignition off. Disconnect passenger-side air bag Yellow 2-pin connector located above right-side sound insulator. See Fig. 3. Install SIR Driver-Passenger Load Tool (J-38715-A) to harness connectors. Turn ignition on. Using scan tool, check for SIR DTCs. If DTC B0024 is retrieved, go to step 9). If DTC B0024 is not retrieved, go to next step.

6) Turn ignition off. Remove SIR Driver-Passenger Load Tool (J-38715-A) from harness connectors. Reconnect driver-side air bag Yellow 2-pin connector. Connect SIR Driver-Passenger Load Tool (J-38715-A) to SIR coil-to-air bag module connector. Turn ignition on. Using scan tool, check for SIR DTCs. If DTC B0024 is retrieved, go to step 8). If DTC B0024 is not retrieved, go to next step.

7) Turn ignition off. Replace driver-side air bag. See

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AIR BAG MODULES under REMOVAL & INSTALLATION. Go to step 18).

8) Turn ignition off. Replace SIR coil. See SIR COIL ASSEMBLY under REMOVAL & INSTALLATION. Go to step 18).

9) Turn ignition off. Disconnect SDM connector. Disconnect SIR Driver-Passenger Load Tool. Using Digital Multimeter (J-39200), measure resistance between ground and SDM harness connector terminal No. 6. See Fig. 10. If resistance is not infinite, go to next step. If resistance is infinite, go to step 11).

10) Repair short to ground in circuit 347. Go to step 18).

11) Using Digital Multimeter (J-39200), measure resistance between ground and SDM harness connector terminal No. 7. See Fig. 10. If resistance is not infinite, go to next step. If resistance is infinite, go to step 13).

12) Repair short to ground in circuit 348. Go to step 18).

13) Turn ignition on. Measure voltage between ground and SDM connector terminal No. 6. See Fig. 10. If voltage is one volt or greater, go to next step. If voltage is less than one volt, go to step 15).

14) Repair short to voltage in circuit 347. Go to step 18).

15) Measure voltage between ground and SDM connector terminal No. 7. See Fig. 10. If voltage is one volt or greater, go to next step. If voltage is less than one volt, go to step 17).

16) Repair short to voltage in circuit 348. Go to step 18).

17) Replace SDM. See SENSING & DIAGNOSTIC MODULE (SDM) under REMOVAL & INSTALLATION. Go to next step.

18) Reconnect all SIR components. Ensure that all components are properly mounted. Clear all SIR DTCs. Go to SIR DIAGNOSTIC SYSTEM CHECK.

DTC B0026: DRIVER DEPLOYMENT LOOP OPEN

Circuit Description

When ignition switch is turned to RUN position, SDM performs tests to diagnose critical internal malfunctions. DEPLOYMENT LOOP VOLTAGE test is performed to ensure voltage is within normal range. If voltage test does not detect out of range condition (due to short to voltage), SDM then performs DEPLOYMENT LOOP RESISTANCE test. Resistance test will not be performed if voltage test detects out of range, due to short to voltage.

Conditions For Setting DTC

DTC will set if DEPLOYMENT LOOP VOLTAGE test is within the following ranges:

- * IGNITION POSITIVE VOLTAGE is within normal operating range.
- * Deployment loop is not shorted to voltage.
- * DRIVER HIGH voltage is less than 2 volts.
- * Deployment loop resistance is at least 6 ohms for 300 milliseconds.

DTC will set if DEPLOYMENT LOOP RESISTANCE test is within the following ranges:

- * IGNITION POSITIVE VOLTAGE is within normal operating

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range.

- * Deployment loop is not shorted to voltage.
- * Deployment loop is not shorted to ground.
- * Deployment loop resistance is greater than 4.8 ohms for 300 milliseconds.

Action Taken

SDM turns on AIR BAG warning light and sets DTC.

Conditions For Clearing DTC

Current DTC clears when voltage at DRIVER HIGH terminal No. 6 is more than 2 volts and driver frontal deployment loop resistance is less than 6 ohms for 300 milliseconds. Current DTC also will clear if DEPLOYMENT LOOP RESISTANCE test is 4.8 ohms or less for 300 milliseconds. History DTC may be cleared by issuing a CLEAR CODES command or once 255 malfunction free ignition cycles have occurred.

Diagnostic Aids

An intermittent condition is likely to be caused by a poor connection at driver-side air bag connector terminals "A" or "B", SDM terminals No. 6 or 7, or an open in circuits 347 or 348.

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 driver-side air bag Yellow 2-pin connector located at base of steering column. See Fig. 2. Check for proper connection driver-side air bag Yellow 2-pin connector. If terminals are damaged or corroded, go to next step. If terminals are okay, go to step 4).

3) Replace driver-side air bag harness Yellow 2-pin connector. Go to step 16).

4) Reconnect driver-side air bag Yellow 2-pin connector. Ensure CPA clip is installed correctly. Turn ignition on. Using scan tool, check for SIR DTCs. If DTC B0026 is retrieved, go to next step. If DTC B0026 is not retrieved, go to step 3).

5) Turn ignition off. Disconnect driver and passenger-side air bag Yellow 2-pin connectors located at base of steering column and above right-side sound insulator. See Figs. 2 & 3. Install SIR Driver-Passenger Load Tool (J-38715-A) to harness connectors. Turn ignition on. Using scan tool, check for SIR DTCs. If DTC B0026 is retrieved, go to step 9). If DTC B0026 is not retrieved, go to next step.

6) Turn ignition off. Remove SIR Driver-Passenger Load Tool (J-38715-A) from harness connectors. Reconnect driver-side air bag Yellow 2-pin connector. Connect SIR Driver-Passenger Load Tool (J-38715-A) to SIR coil-to-air bag module connector. Turn ignition on. Using scan tool, check for SIR DTCs. If DTC B0024 is retrieved, go to step 8). If DTC B0024 is not retrieved, go to next step.

7) Turn ignition off. Replace driver-side air bag. See AIR BAG MODULES under REMOVAL & INSTALLATION. Go to step 16).

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8) Turn ignition off. Replace SIR coil. See SIR COIL ASSEMBLY under REMOVAL & INSTALLATION. Go to step 16).

9) Turn ignition off. Remove SIR Driver-Passenger Load Tool (J-38715-A) from harness connectors. Disconnect SDM harness connector. Inspect for proper connection at SDM harness connector terminals No. 6 and 7. See Fig. 10. If terminals are damaged or corroded, go to next step. If terminals are okay, go to step 11).

10) Replace SDM harness connector. Go to step 16).

11) Using Digital Multimeter (J-39200), measure resistance between driver-side harness connector terminal "B" and SDM connector terminal No. 6. See Figs. 11 & 12. If resistance is 0-0.5 ohms, go to step 13). If resistance is greater than 0.5 ohms, go to next step.

12) Repair open or high resistance in circuit 347. Go to step 16).

13) Measure resistance between driver-side harness connector terminal "A" and SDM connector terminal No. 7. See Figs. 10 & 11. If resistance is 0-0.5 ohms, go to step 15). If resistance is greater than 0.5 ohms, go to next step.

14) Repair open or high resistance in circuit 348. Go to step 16).

15) Replace SDM. See SENSING & DIAGNOSTIC MODULE (SDM) under REMOVAL & INSTALLATION. Go to next step.

16) Reconnect all SIR components. Ensure that all components are properly mounted. Clear all SIR DTCs. Go to SIR DIAGNOSTIC SYSTEM CHECK.

DTC B0051: DEPLOYMENT COMMANDED

Circuit Description

SDM contains a sensing device which converts vehicle velocity changes to an electrical signal. Electrical signal is processed by SDM and compared to a value stored in memory. When signal exceeds stored value, additional signal processing is performed and signals are compared to values stored in memory. When 2 signals exceed stored values, SDM causes current to flow through air bag modules, deploying air bags and causing DTC B0051 to set.

Conditions For Setting DTC

DTC sets when SDM detects a frontal crash, up to 30 degrees off centerline of vehicle, of sufficient force to warrant deployment of air bags.

Action Taken

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

Conditions For Clearing DTC

DTC clears when malfunction no longer occurs (has been repaired) and SDM has been replaced. DTC B0051 is a latched code and cannot be cleared.

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

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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. If air bags have deployed, go to step 5). If air bags have not deployed, go to next step.

3) Inspect front of vehicle and undercarriage for signs of impact. If impact has occurred, go to step 5). If no impact has occurred, go to next step.

4) Replace SDM. See SENSING & DIAGNOSTIC MODULE (SDM) under REMOVAL & INSTALLATION. Go to step 6).

5) Replace components and perform inspections as required following an accident. See POST-COLLISION INSPECTION.

6) Reconnect all SIR components. Ensure that all components are properly mounted. Go to SIR DIAGNOSTIC SYSTEM CHECK.

DTC B0053: DEPLOYMENT COMMANDED WITH LOOP MALFUNCTION

Circuit Description

SDM contains a sensing device which converts vehicle velocity changes to an electrical signal. Electrical signal is processed by SDM and compared to a value stored in memory. When signal exceeds stored value, additional signal processing is performed and signals are compared to values stored in memory. When 2 signals exceed stored values, SDM will cause current to flow through air bag modules, deploying air bags. DTC B0053 and B0051 will set when a deployment occurs while an inflator circuit fault exists that could result in a non-deployment situation in one or both air bag modules.

Conditions For Setting DTC

DTC sets when SDM detects a frontal crash, up to 30 degrees off centerline of vehicle, of sufficient force to warrant deployment of air bags.

Action Taken

SDM sets DTC B0053 and B0051, turns on AIR BAG warning light, and records crash data.

Conditions For Clearing DTC

DTC clears when malfunction no longer occurs (has been repaired) and SDM has been replaced. DTC B0053 is a latched code and cannot be cleared.

Diagnostic Aids

DTC B0053 will be accompanied by another DTC (other than DTC B1000). Repair malfunction causing other DTCs before installing new SDM.

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

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to SIR DIAGNOSTIC SYSTEM CHECK.

2) Turn ignition off. If air bags have deployed, go to step 5). If air bags have not deployed, go to next step.

3) Inspect front of vehicle and undercarriage for signs of impact. If impact has occurred, go to step 5). If no impact has occurred, go to next step.

4) Replace SDM. See SENSING & DIAGNOSTIC MODULE (SDM) under REMOVAL & INSTALLATION. Go to step 6).

5) Replace components and perform inspections as required following an accident. See POST-COLLISION INSPECTION.

6) Reconnect all SIR components. Ensure that all components are properly mounted. Go to SIR DIAGNOSTIC SYSTEM CHECK.

DTC B0670: AIR BAG WARNING LIGHT MALFUNCTION

Circuit Description

Instrument cluster internally monitors AIR BAG warning light when power is supplied to instrument cluster. Instrument cluster flashes AIR BAG warning light 7 times then turns off to check light circuit operation.

Conditions For Setting DTC

DTC sets when instrument cluster detects a malfunction AIR BAG warning light during bulb test. Only an open in the AIR BAG warning light will be detected.

Action Taken

Instrument cluster stores DTC and turns SERVICE VEHICLE SOON warning light on.

Conditions For Clearing DTC

DTC clears when malfunction no longer occurs for 100 consecutive ignition cycles or is cleared by scan tool.

Diagnostic Aids

DTC B0670 is an internal malfunction of instrument cluster. Before replacing instrument cluster, attempt to clear DTC using scan tool. If DTC is still present, replace instrument cluster.

Diagnostic Procedure

Before replacing instrument cluster, attempt to clear DTC using scan tool. If DTC is still present, replace instrument cluster. Go to SIR DIAGNOSTIC SYSTEM CHECK.

DTC B1000: INTERNAL SDM FAILURE

Circuit Description

DTC B1000 indicates potential internal SDM malfunction.

Conditions For Setting DTC

DTC sets when an internal memory (write or checksum error) malfunction is detected by SDM.

Action Taken

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SDM sets DTC and turns on AIR BAG warning light.

Diagnostic Aids

When scan tool CLEAR CODES is received, some malfunctions only allow AIR BAG warning light to go out briefly then come back on.

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

Diagnostic Procedure

- 1) IR 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. Go to SIR DIAGNOSTIC SYSTEM CHECK.

DTC B1001: OPTION CONFIGURATION ERROR

Circuit Description

When ignition is turned on, IPC and SDM send identification information to each other. SDM sends information containing the last 4 digits of the SDM part number. IPC sends information containing a partial VIN. SDM and IPC compare this information to numbers stored in memory.

Conditions For Setting DTC

DTC sets when IGNITION POSITIVE voltage is within normal operating range and one or both messages do not match stored information.

Action Taken

SDM sets DTC, turns on AIR BAG warning light, and disables air bag deployment.

Conditions For Clearing DTC

DTC clears when information SDM receives from PCM and IPC match stored information.

Diagnostic Aids

If IPC or PCM is replaced, it will need to be reprogrammed to match SDM identifier information. DTC 1001 may also be an indication that an incorrect SDM has been installed.

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) Install scan tool to DLC. Using scan tool, verify PCM VIN matches vehicle VIN. If VIN numbers match, go to step 4). If VIN numbers do not match, go to next step.
- 3) Using scan tool, reprogram PCM to match vehicle VIN. Go to step 9).
- 4) If IPC was replaced, go to next step. If IPC was not replaced, go to step 6).
- 5) Using scan tool, compare IPC and SDM VIN IDs in data list

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display. If IPC and SDM VIN IDs do not match, follow scan tool instructions and reprogram IPC.

6) Compare IPC VIN to vehicle VIN. If IPC VIN and vehicle VIN match, go to step 8). If IPC VIN and vehicle VIN do not match, go to next step.

7) Using scan tool, reprogram IPC. Go to step 9).

8) Turn ignition off. Replace SDM. See SENSING & DIAGNOSTIC MODULE (SDM) under REMOVAL & INSTALLATION. Go to next step.

9) Reconnect all SIR components. Ensure that all components are properly mounted. 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 pigtails) 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 pigtails. 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

AA
Application Ft-lbs N.m

Steering wheel nut 32 (43)

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Inch-Ibs N.m

Driver-side air bag module screws	25 (2.8)
Passenger-side air bag module-to-bracket fasteners	28 (3.2)
Passenger-side air bag module	
Upper bracket-to-instrument panel fasteners	53 (6)
Lower bracket-to-instrument panel fasteners	25 (2.8)
Sensing & Diagnostic Module (SDM) fasteners	71 (8)
Turn signal switch arm screw	22 (2.5)
Turn signal switch assembly screws	31 (3.5)
AA	

WIRING DIAGRAMS

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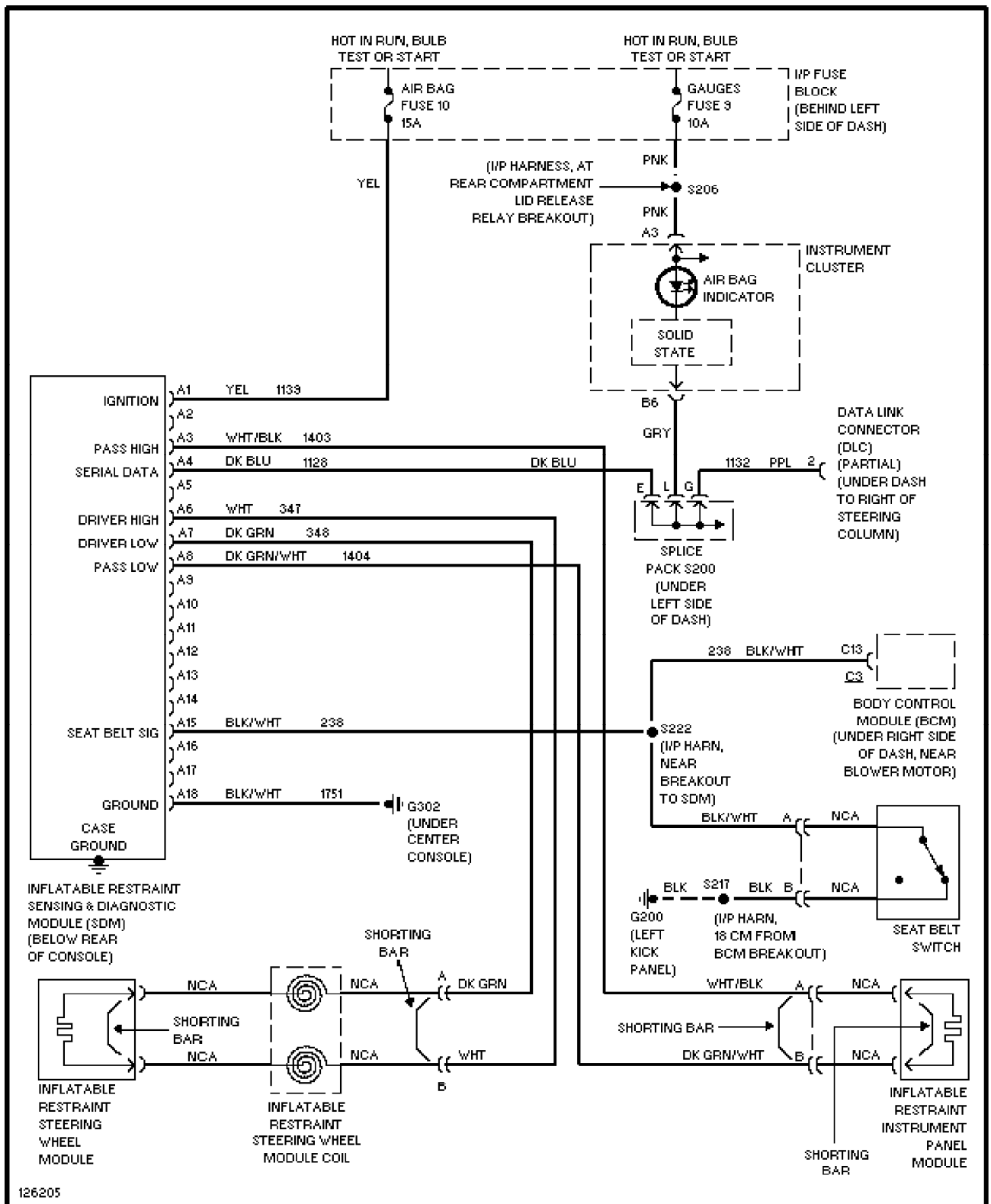


Fig. 12: SIR System Wiring Diagrams (Camaro & Firebird)

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