SECTION 8B

SUPPLEMENTAL INFLATABLE RESTRAINTS (SIR)

CAUTION: Disconnect the negative battery cable before removing or installing any electrical unit or when a tool or equipment could easily come in contact with exposed electrical terminals. Disconnecting this cable will help prevent personal injury and damage to the vehicle. The ignition must also be in LOCK unless otherwise noted.

TABLE OF CONTENTS

SPECIFICATIONS

FASTENER TIGHTENING SPECIFICATIONS

Application	N•m	LbFt	Lbin
Clock Spring Mounting Screws	1.25	-	11
Driver Airbag Module Mounting Bolts	4.6	-	41
Passenger Airbag Mounting Bolts	10	-	89
Sensing and Diagnostic Module Mounting Bolts	10	-	89

SPECIAL TOOLS

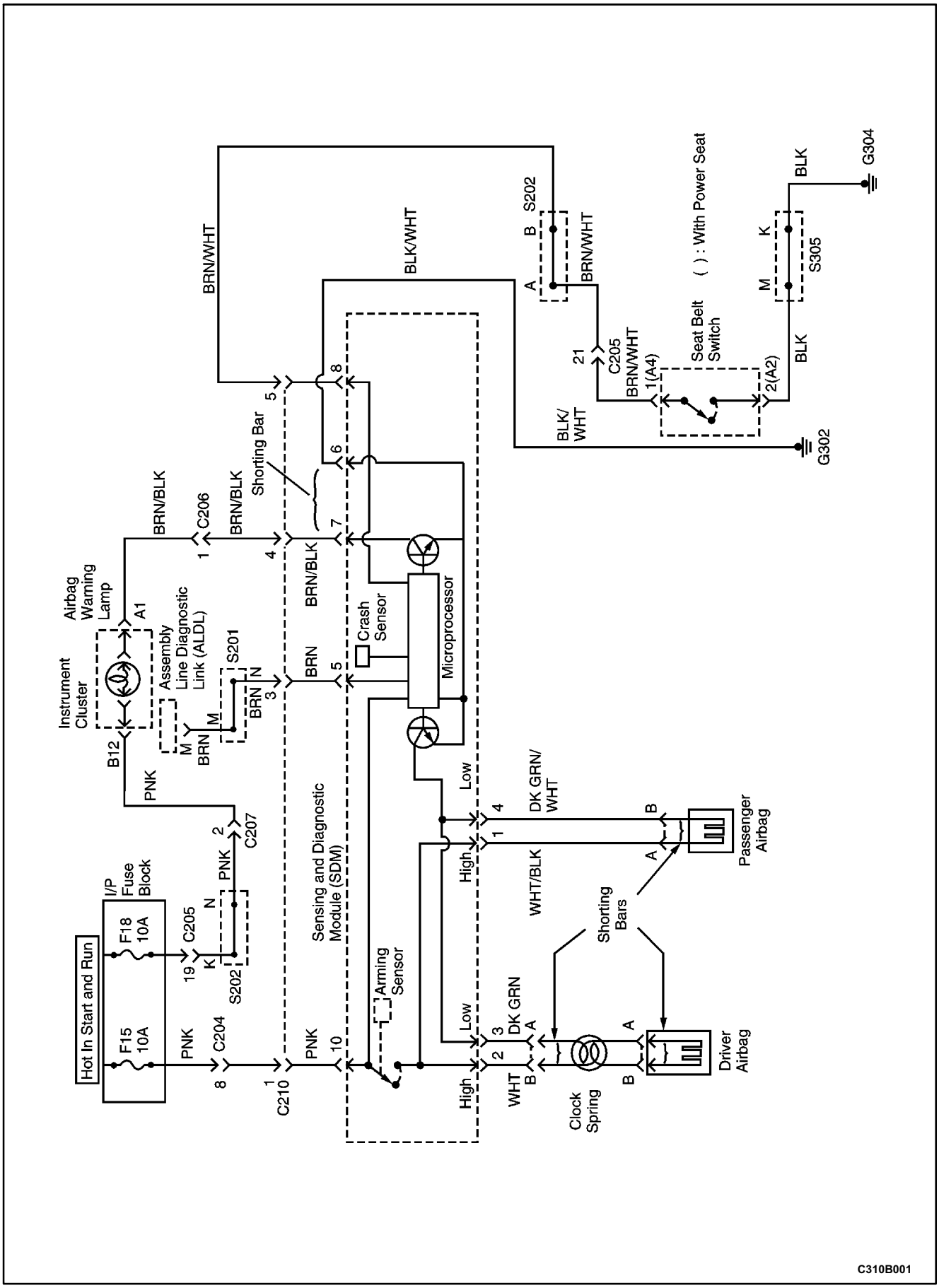
SPECIAL TOOLS TABLE

00000000	**Deployment Tool**
00000000	**Scan Tool**

00000000	**Wiring Harness Checker**

SCHEMATIC AND ROUTING DIAGRAMS

SUPPLEMENTAL INFLATABLE RESTRAINT SYSTEM



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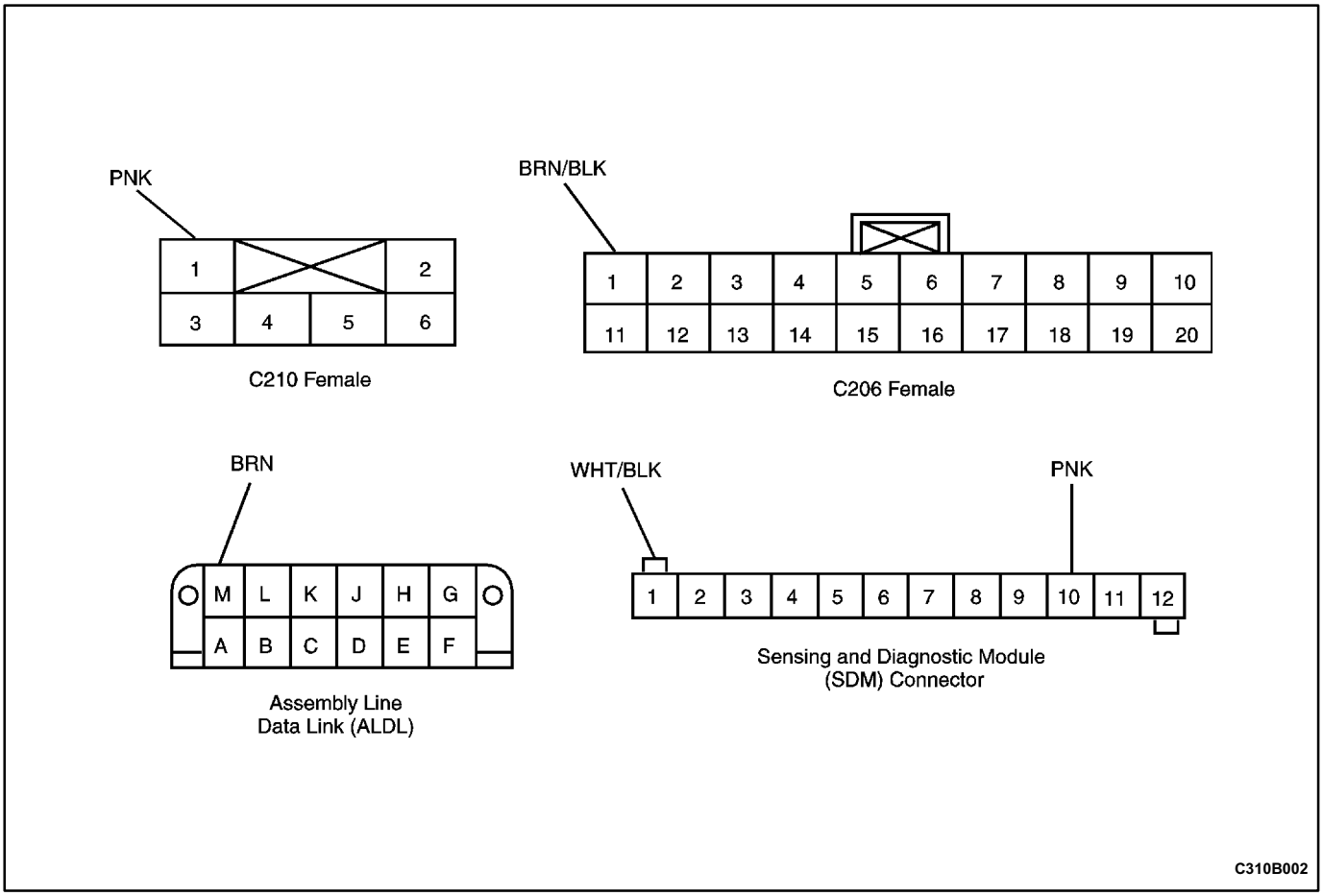
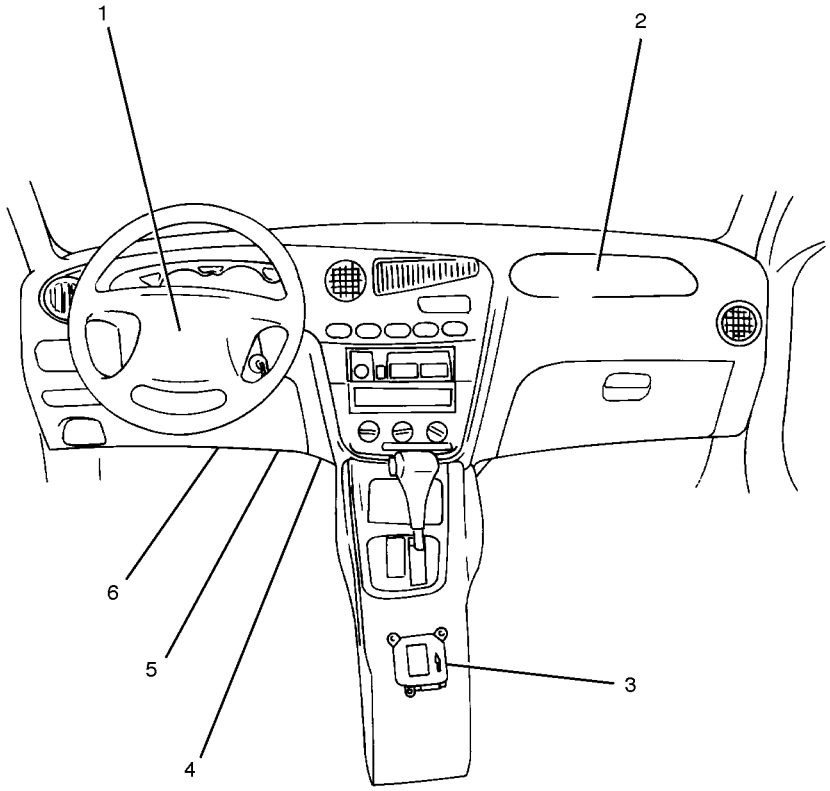
CONNECTOR END VIEWS



COMPONENT LOCATOR

SIR COMPONENT LOCATION VIEW

(Left-Hand Drive Shown, Right-Hand Drive Similar)



C110B003

1 Driver Airbag
2 Passenger Airbag
3 Sensing and Diagnostic Module (SDM)
4 Assembly Line Data Link (ALDL) Connector or Data Link Connector (DLC)
5 Connector C209
6 Clock Spring Connector

DIAGNOSIS

DIAGNOSTIC TROUBLE CODES (DTC)

The supplemental inflatable restraint (SIR) Diagnostic System Check must always be the starting point for any SIR system diagnosis. The Diagnostic System Check reveals diagnostic trouble codes through the use of a scan tool, and it also checks for proper AIRBAG warning indicator operation.

Two types of diagnostic trouble codes may be recorded:

1. Current diagnostic trouble codes represent malfunctions that are presently being detected. Current diagnostic trouble codes are stored in random access memory.
2. History diagnostic trouble codes represent all malfunctions that were detected since the last time that history memory was cleared. History diagnostic trouble codes are stored in the electronically erasable programmable read only memory (EEPROM).

SCAN TOOL DIAGNOSTICS

A scan tool can read serial data from terminal M of the assembly line diagnostic link (ALDL). A specific replaceable cartridge must be attached to the scan tool before the scan tool can communicate with the sensing and diagnostic module (SDM) for the purpose of diagnostics. The scan tool is used to read diagnostic trouble codes, and to clear some diagnostic trouble codes after a repair is completed. By design, certain codes cannot be cleared. To use the scan tool, turn the ignition OFF, connect the scan tool to the ALDL, and turn the ignition switch to ON. Follow the instructions in the scan tool manual. The SDM sends serial data from terminal 5 of the SDM to terminal M of the ALDL.

USE OF SPECIAL TOOLS

A digital multimeter is used to measure voltage and resistance. A scan tool is used to read and clear diagnostic trouble codes. A wiring harness checker and deployment tool are under development, and service bulletins will be issued if these tools become operational.

SIR DIAGNOSTIC SYSTEM CHECK

Notice: If the vehicle interior has been exposed to extensive water intrusion such as water leaks, driving through high water, flooding, or other causes, the sensing and diagnostic module (SDM) and the SDM connector may need to be replaced. With the ignition OFF, inspect the area around the SDM, including the carpet. If any significant soaking or evidence of previous soaking is detected, the water must be removed, water damage repaired, and the SDM and SDM connector must be replaced. Before attempting any of these repairs, the supplemental inflatable restraint (SIR) system must be disabled. Refer to „Disabling the SIR System" and „Sensing and Diagnostic Module (SDM)" in this section for instructions on how to disable the SIR system and replace the SDM.

The diagnostic procedures used in this section are designed to find and repair SIR system conditions. To get the best results, it is important to use the diagnostic charts and follow the sequence listed below.

1. Perform the SIR Diagnostic System Check. The SIR Diagnostic System Check must be the starting point of any SIR diagnostics. The SIR Diagnostic System Check reveals diagnostic trouble codes through the use of a scan tool, and it also checks for proper AIRBAG indicator operation.
2. Refer to the proper diagnostic chart as directed by the SIR Diagnostic System Check. The SIR Diagnostic System Check will lead you to the correct chart to diagnose any SIR system malfunctions. Bypassing these procedures may result in extended diagnostic time, incorrect diagnosis, and incorrect parts placement.
3. Repeat the SIR Diagnostic System Check after any repair or diagnostic procedures have been performed. Performing the SIR Diagnostic System Check after all repair or diagnostic procedures will ensure that the repair has been made correctly and that no other malfunctions exist.

Circuit Description

When the ignition switch is first turned to ON, Ignition 1 voltage is applied from the airbag fuse to the sensing and diagnostic module (SDM) at input terminal 10. The SDM responds by flashing the AIRBAG indicator seven times and then turning it off while the SDM performs tests on the SIR system.

Diagnostic Aids

The order in which diagnostic trouble codes are diagnosed is very important. Failure to diagnose the DTCs in the order specified may result in extended diagnostic time, incorrect diagnosis and incorrect parts replacement.

Test Description

The number(s) below refer to step(s) on the diagnostic table.

3. This test will identify the stored diagnostic trouble codes and whether they are current or history. A history DTC indicates that the malfunction has been repaired or is intermittent.
6. This test differentiates between an indicator that will not come on and an indicator that stays on when it should be off.
7. See the first caution below.
9. See the cautions below.
10. This test will determine whether history diagnostic trouble codes are stored and will identify them.
11. A history DTC indicates that the malfunction has been repaired or is intermittent.

SIR Diagnostic System Check

Caution: The SDM can maintain sufficient voltage to deploy the airbags for 10 minutes after the ignition is OFF and the fuse has been removed. If the airbags are not disconnected, service cannot begin until 10 minutes have passed after disconnecting power to the SDM.

Caution: During service procedures, be very careful when handling the SDM. Never strike or jar the SDM. Never power up the SIR system when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened, and the SDM arrow must be pointing toward the front of the vehicle to ensure proper operation of the SIR system. The SDM could be activated if it is powered when it is not rigidly attached to the vehicle, resulting in unexpected deployment and possible injury.

Step	Action	Value(s)	Yes	No
1	1. Turn the ignition switch to ON. 2. Observe the AIRBAG indicator as the ignition is being turned ON. Does the indicator flash seven times?	-	Go to *Step 2*	Go to *Step 6*
2	Observe the AIRBAG indicator after it flashed seven times. Does the indicator turn OFF?	-	Go to *Step 10*	Go to *Step 3*
3	1. Turn the ignition to LOCK and remove the key. 2. Connect the scan tool to the assembly line diagnostic link (ALDL). Follow the directions given in the scan tool manual. 3. Turn the ignition ON. 4. Request the SIR DTC display with the scan tool. 5. Record all DTCs, indicating each as either a current or a history DTC. Are only history DTCs shown?	-	Refer to the DTC chart for any DTC that was set, and refer to the Diagnostic Aids for that specific DTC	Go to *Step 4*
4	Check the recorded DTCs. Are current DTCs 18, 24, or 51 set?	-	Go to the DTC chart indicated by any of these three codes	Go to Step 5
5	Check the recorded DTCs. Are there any other current DTCs shown?	-	Diagnose the remaining current DTCs from lowest number to highest	Refer to the DTC chart for any history DTC that was set, and refer to „Diagnostic Aids" for that specific DTC
6	Observe the AIRBAG indicator after the ignition has been turned ON. Does the AIRBAG indicator stay on?	-	Go to „AIRBAG Warning Lamp Stays on with Ignition Switch ON"	Go to *Step 7*
7	1. Turn the ignition to LOCK and remove the key. 2. Temporarily disconnect the passenger airbag and the yellow clock spring connector on the steering column. 3. Check the AIRBAG indicator bulb and circuit. Are the bulb and the bulb circuit in good condition?	-	Go to *Step 9*	Go to *Step 8*

SIR Diagnostic System Check (Cont'd)

Step	Action	Value(s)	Yes	No
8	1. Replace the bulb or repair the bulb circuit. 2. Connect all SIR system components, and ensure that all components are properly mounted. Is the repair complete?	-	Go to *Step 1*	-
9	1. Turn the ignition to LOCK and remove the key. 2. Disconnect the passenger airbag and the yellow clock spring connector on the steering column. 3. Replace the SDM. The arrow must be pointing toward the front of the vehicle. 4. Reconnect all SIR system components, and ensure that all components are properly mounted. Is the repair complete?	-	Go to *Step 1*	-
10	1. Turn the ignition to LOCK and remove the key. 2. Connect the scan tool to the assembly line diagnostic link (ALDL) connector. Follow the directions given in the scan tool manual. 3. Turn the ignition to ON. 4. Request the SIR DTC display with the scan tool. 5. Record all history DTCs. Are any SIR DTCs displayed?	-	Go to *Step 11*	System OK
11	Turn the ignition to OFF. Is DTC 71 set?	-	Go to „DTC 71 Internal SDM Failure”	Refer to the DTC chart for any history DTC that was set, and refer to „Diagnostic Aids” for that specific DTC

SENSING AND DIAGNOSTIC MODULE (SDM) INTEGRITY CHECK

The following diagnostic chart must be followed when all circuitry outside the SDM has been found to operate properly, as indicated by following the appropriate diagnostic trouble code (DTC) chart or symptom chart. This chart verifies the need for SDM replacement.

Circuit Description

When the SDM recognizes Ignition 1 voltage greater than 8.2 volts at terminal 10 of the SDM, the AIRBAG indicator is flashed seven times to verify operation. At this time the SDM performs turn-on tests followed by resistance measurement tests and continuous monitoring tests. When a malfunction is detected, the SDM sets a current DTC and illuminates the AIRBAG indicator. When the malfunction is no longer detected and/or the ignition switch is cycled, the SDM will clear current DTCs and move them to a history file, except for DTCs 18, 24, 51, 53, and sometimes 71. DTCs 18, 24, 51, and 53 will not clear using a scan tool because these codes require replacement of the SDM. The SDM must be replaced only after the malfunction that set the DTC has been repaired.

Test Description

The number(s) below refer to step(s) on the diagnostic table.

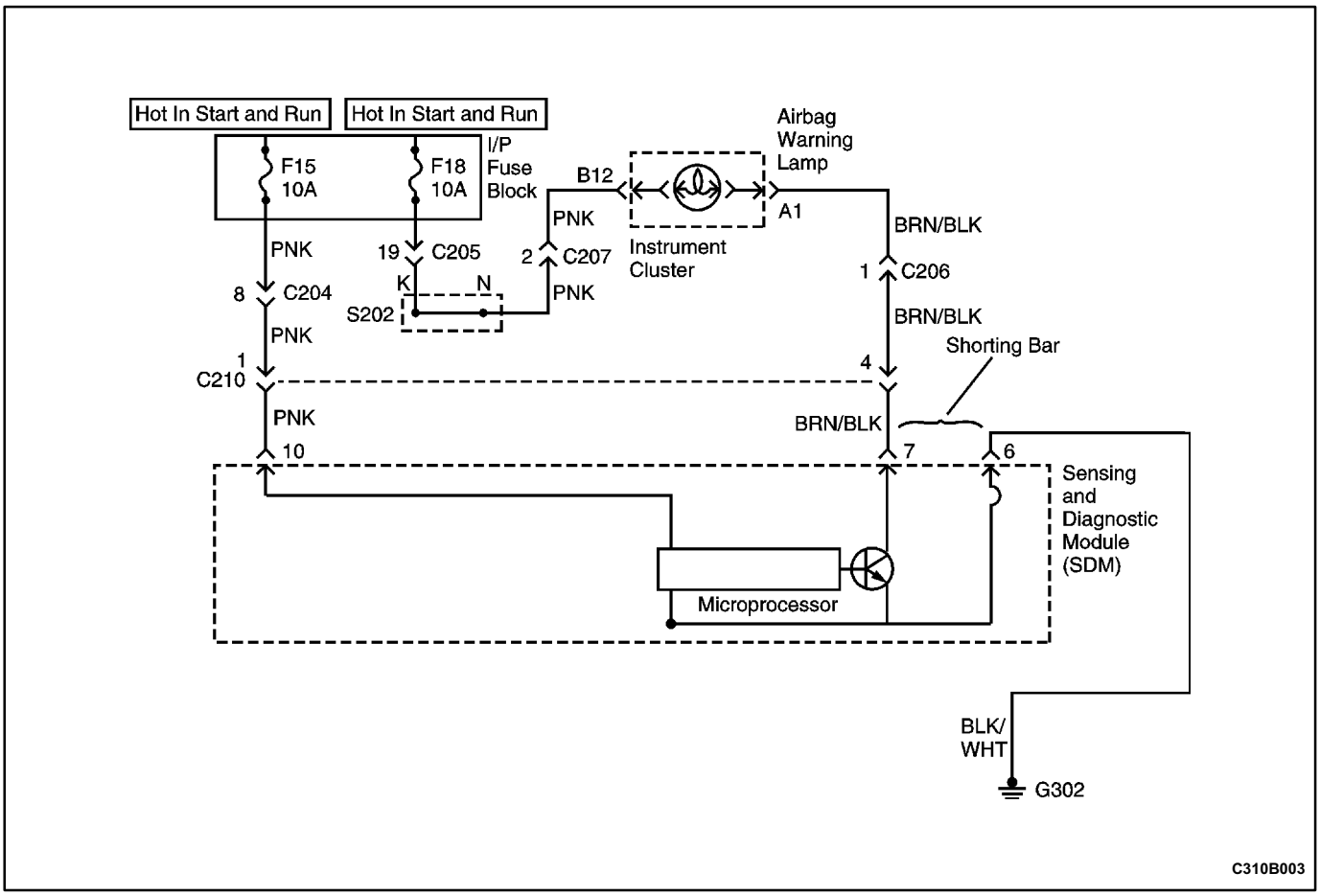
1. This test confirms a current malfunction. If no current malfunction is occurring (history DTC set), refer to „Diagnostic Aids” for the appropriate DTC. The SDM should not be replaced for a history DTC except when directed.
2. This test checks for a malfunction introduced into the supplemental inflatable restraint (SIR) system during the diagnostic process. It is extremely unlikely that a malfunctioning SDM would cause a new malfunction to occur during the diagnostic process.
4. See the cautions below.

Sensing and Diagnostic Module (SDM) Integrity Check

Caution: The SDM can maintain sufficient voltage to deploy the airbags for 10 minutes after the ignition is OFF and the fuse has been removed. If the airbags are not disconnected, service cannot begin until 10 minutes have passed after disconnecting power to the SDM.

Caution: During service procedures, be very careful when handling the SDM. Never strike or jar the SDM. Never power up the SIR system when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened, and the SDM arrow must be pointing toward the front of the vehicle to ensure proper operation of the SIR system. The SDM could be activated if it is powered when it is not rigidly attached to the vehicle, resulting in unexpected deployment and possible injury.

Step	Action	Value(s)	Yes	No
1	1. Turn the ignition to LOCK and remove the key. 2. Connect all SIR system components, and ensure that all components are properly mounted. 3. Ensure that the ignition switch has been OFF for at least 30 seconds. 4. Observe the AIRBAG indicator as the ignition is turned ON. Does the indicator lamp flash seven times and then turn off?	-	Clear the SIR system DTCs and go to „Diagnostic System Check”	Go to *Step 2*
2	Using a scan tool, request the DTC display. Is the same DTC displayed that was previously occurring when the SIR Diagnostic System Check was previously performed?	-	Go to *Step 3*	Go to the table for the DTC indicated
3	1. Clear the SIR DTCs. 2. Turn the ignition OFF for at least 30 seconds. 3. Observe the AIRBAG indicator as the ignition is turned ON. Does the AIRBAG indicator flash seven times and then turn off?	-	System OK	Go to *Step 4*
4	1. Turn the ignition to LOCK and remove the key. 2. Disconnect the passenger airbag and the yellow clock spring connector on the steering column. 3. Replace the SDM. The arrow must be pointing toward the front of the vehicle. 4. Connect all SIR system components, and ensure that all components are properly mounted. Is the repair complete?	-	Go to „Diagnostic System Check”	-



AIRBAG WARNING LAMP STAYS ON WITH IGNITION SWITCH ON

Circuit Description

The AIRBAG indicator will stay on if the sensing and diagnostic module (SDM) connector is not securely attached to the SDM. There is a shorting bar in the SDM connector which completes the circuit between the indicator lamp circuit and ground. The shorting bar is disengaged when the connector is properly attached.

When the ignition switch is first turned to ON, Ignition 1 voltage is applied to the instrument fuse for the indicator lamp and also to the AIRBAG fuse for the SDM input terminal 10. If Ignition 1 is outside the range of 8.2-16 volts, the AIRBAG indicator will come on and stay on with no DTCs set.

A short to ground between the SDM and the indicator lamp could also cause the AIRBAG indicator to stay on.

Test Description

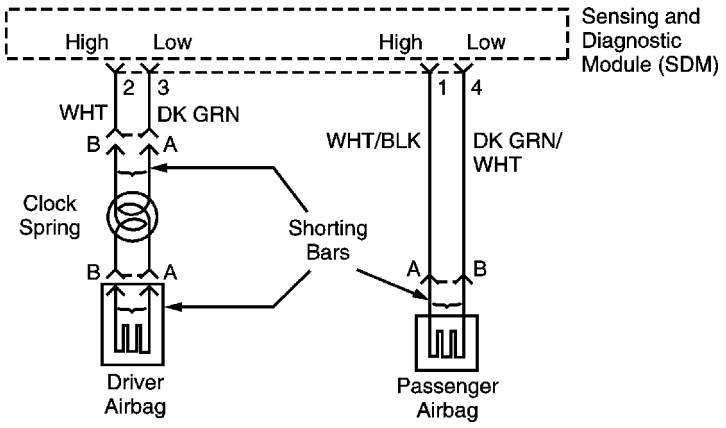
The number(s) below refer to step(s) on the diagnostic table.

8. See the caution below.

AIRBAG Warning Lamp Stays on with Ignition Switch ON

Caution: The SDM can maintain sufficient voltage to deploy the airbags for 10 minutes after the ignition is OFF and the fuse has been removed. If the airbags are not disconnected, service cannot begin until 10 minutes have passed after disconnecting power to the SDM.

Step	Action	Value(s)	Yes	No
1	Check the SDM connector to verify that it is properly connected to the SDM. Is the SDM connector properly connected?	-	Go to *Step 3*	Go to *Step 2*
2	Connect the SDM connector. Is the repair complete?	-	System OK	-
3	1. Turn the ignition OFF. 2. Disconnect the SDM connector. 3. Turn the ignition ON. 4. Check the voltage at the SDM connector terminal 10. Is the ignition voltage greater than the specified value?	8.2 V	Go to „SDM Integrity Check”	Go to *Step 4*
4	1. Turn the ignition ON. 2. Check the voltage supply to the AIRBAG fuse F15. Is the voltage within the specified value?	8.2-16 V	Go to *Step 6*	Go to *Step 5*
5	Repair the power supply to the AIRBAG fuse. Is the repair complete?	-	System OK	-
6	Check the AIRBAG fuse. Is the fuse in good condition?	-	Go to *Step 8*	Go to *Step 7*
7	Replace the AIRBAG fuse. Is the repair complete?	-	System OK	-
8	1. Turn the ignition to LOCK and remove the key. 2. Temporarily disconnect the passenger airbag and the yellow clock spring connector on the steering column. 3. Check for an open circuit between terminal 10 of the SDM and the AIRBAG fuse F15. Is there an open circuit?	-	Go to *Step 9*	Go to *Step 10*
9	Repair the open circuit between the SDM and the AIRBAG fuse F15. Is the repair complete?	-	System OK	-
10	Repair the short circuit to ground between the AIRBAG indicator lamp and terminal 7 of the SDM. Is the repair complete?	-	System OK	-



DIAGNOSTIC TROUBLE CODE (DTC) 15
PASSENGER DEPLOYMENT LOOP RESISTANCE HIGH

Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform tests to diagnose critical malfunctions within itself. Upon passing these tests, Ignition 1 and deployment loop voltages are measured to ensure that they are within their respective normal voltage ranges. The SDM then proceeds with the resistance measurement test. Passenger low terminal 4 is grounded through a current sink, and the passenger current source is connected to the passenger high terminal to allow a known amount of current to flow. By monitoring the voltage difference between passenger high and passenger low, the SDM calculates the combined resistance of the passenger inflator module, harness wiring, and connector terminal contacts.

DTC 15 Will Set When

The combined resistance of the passenger deployment loop is above a specified value. The test is run once each ignition cycle during the resistance measurement test when

- No higher priority faults are detected when the ignition is turned ON.
- Ignition 1 voltage is above a specified value.

Action Taken

The SDM will turn on the AIRBAG indicator and set diagnostic trouble code (DTC) 15.

DTC 15 Will Clear When

The ignition switch is turned OFF or the scan tool CLEAR CODES command is received.

Test Description

The number(s) below refer to step(s) on the diagnostic table.

2. See the first caution below.

8. See the cautions below.

Diagnostic Aids

An intermittent condition is likely to be caused by a poor connection at the passenger inflator module harness connector terminals, SDM terminals 1 or 4, or poor wire-to-terminal connections in that circuit. The test for this DTC is run only while the AIRBAG indicator is performing the bulb test. When a scan tool CLEAR CODES command is issued and the malfunction is still present, the DTC will not reappear until the next ignition cycle.

DTC 15 - Passenger Deployment Loop Resistance High

Caution: The SDM can maintain sufficient voltage to deploy the airbags for 10 minutes after the ignition is OFF and the fuse has been removed. If the airbags are not disconnected, service cannot begin until 10 minutes have passed after disconnecting power to the SDM.

Caution: Never measure the resistance of an inflator module with an ohmmeter. The ohmmeter battery could unexpectedly deploy the airbag which would created the possibility of severe injury and would require the replacement of otherwise useable components.

Caution: During service procedures, be very careful when handling the SDM. Never strike or jar the SDM. Never power up the SIR system when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened, and the SDM arrow must be pointing toward the front of the vehicle to ensure proper operation of the SIR system. The SDM could be activated if it is powered when it is not rigidly attached to the vehicle, resulting in unexpected deployment and possible injury.

Step	Action	Value(s)	Yes	No
1	Perform the SIR Diagnostic System Check. Is the SIR Diagnostic System Check complete?	-	Go to *Step 2*	-
2	1. Turn the ignition to LOCK and remove the key. 2. Disconnect the passenger airbag module yellow two-way connector located at the rear of the glove box. 3. Inspect the passenger airbag module connector for damage or loose terminals or wires. Is a faulty connector, terminal, or wire detected?	-	Go to *Step 3*	Go to *Step 4*
3	1. Replace the faulty connector, component, terminal, or wire. 2. Connect all SIR system components. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-
4	Check the SDM connector terminals 1 and 4 for loose terminals. Is a problem found?	-	Go to *Step 5*	Go to *Step 6*
5	1. Replace the loose terminals or wires. 2. Connect all SIR system components. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-
6	1. Disconnect the passenger airbag. 2. Using an ohmmeter, check for an open circuit between the SDM terminals 1 and 4 and the passenger airbag connector. ● Refer to „Diagnostic Illustration 1” in this section. Does the ohmmeter show the specified value?	∞	Go to *Step 7*	Go to *Step 8*
7	1. Replace the open wires. 2. Connect all SIR system components. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-
8	1. Replace the SDM. The arrow must be pointing toward the front of the vehicle. 2. Connect all SIR system components, and ensure that all components are properly mounted. 3. Connect the scan tool. 4. Turn the ignition ON. 5. Using the scan tool, request the DTCs. Is a current DTC 15 indicated?	-	Go to *Step 9*	Go to „SIR Diagnostic System Check”

DTC 15 - Passenger Deployment Loop Resistance High (Cont'd)

Step	Action	Value(s)	Yes	No
9	1. Turn the ignition to LOCK and remove the key. 2. Disconnect the passenger airbag electrical connector. 3. Replace the passenger airbag module. 4. Connect all SIR system components. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-

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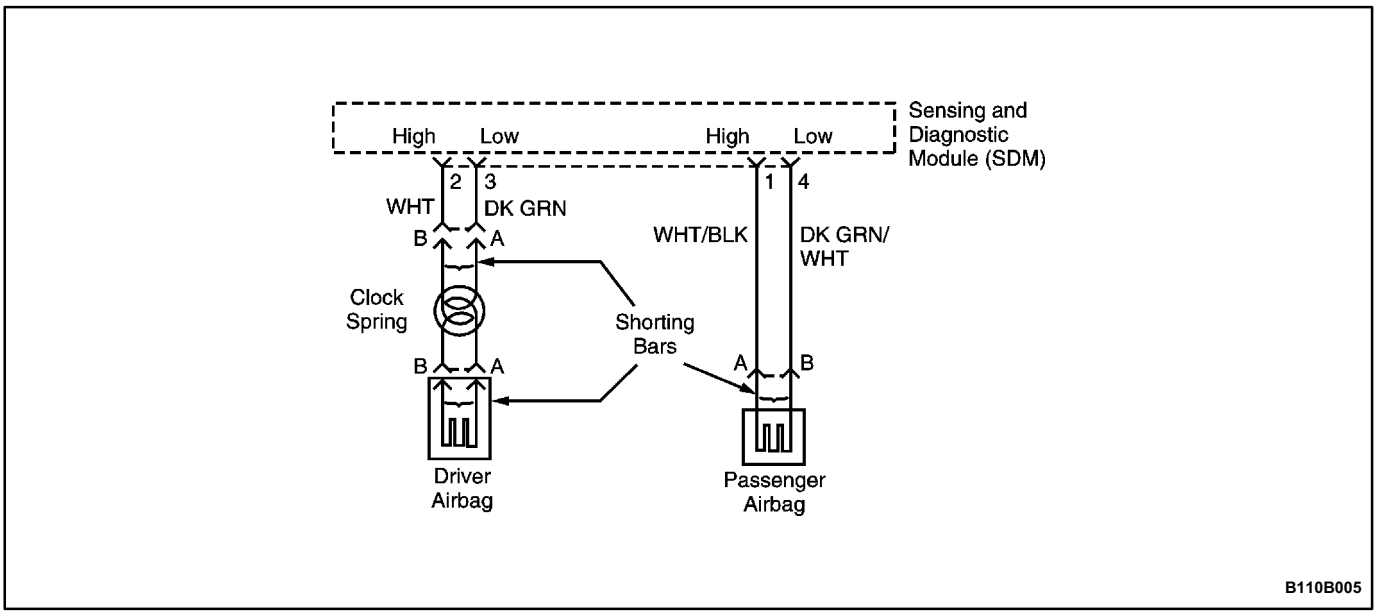

DIAGNOSTIC TROUBLE CODE (DTC) 16
PASSENGER DEPLOYMENT LOOP RESISTANCE LOW

Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform tests to diagnose critical malfunctions within itself. Upon passing these tests, Ignition 1 and deployment loop voltages are measured to ensure that they are within their respective normal voltage ranges. The SDM then proceeds with the resistance measurement test. Passenger low terminal 4 is grounded through a current sink, and the passenger current source is connected to the passenger high terminal to allow a known amount of current to flow. By monitoring the voltage difference between the passenger high and passenger low terminals, the SDM calculates the combined resistance of the passenger inflator module, harness wiring, and connector terminal contacts.

DTC 16 Will Set When

The resistance of the passenger deployment loop is below a specified value. The test is run once each ignition cycle during the resistance measurement test when

- No higher priority faults are detected when the ignition is turned ON.
- Ignition 1 voltage is above a specified value.

Action Taken

The SDM will turn ON the AIRBAG indicator and set a diagnostic trouble code (DTC) 16.

DTC 16 Will Clear When

The ignition switch is turned OFF or the scan tool CLEAR CODES command is received.

Test Description

The number(s) below refer to step(s) on the diagnostic table.

3. See the first caution below.
6. See the first caution below.
10. See the cautions below.

Diagnostic Aids

An intermittent condition is likely to be caused by a short between the passenger high and low circuits, a short between the passenger high circuit and the driver high circuit, or a short between the passenger high circuit and the driver low circuit. The problem could also be a malfunctioning shorting bar in the passenger airbag connector, which would require replacement of the passenger airbag module. The test for this DTC is run only while the AIRBAG indicator is performing the turn-on test. When a scan tool CLEAR CODES command is issued while the malfunction is still present, the DTC will not reappear until the next ignition cycle.

DTC 16 - Passenger Deployment Loop Resistance Low

Caution: The SDM can maintain sufficient voltage to deploy the airbags for 10 minutes after the ignition is OFF and the fuse has been removed. If the airbags are not disconnected, service cannot begin until 10 minutes have passed after disconnecting power to the SDM.

Caution: Never measure the resistance of an inflator module with an ohmmeter. The ohmmeter battery could unexpectedly deploy the airbag which would created the possibility of severe injury and would require the replacement of otherwise useable components.

Caution: During service procedures, be very careful when handling the SDM. Never strike or jar the SDM. Never power up the SIR system when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened, and the SDM arrow must be pointing toward the front of the vehicle to ensure proper operation of the SIR system. The SDM could be activated if it is powered when it is not rigidly attached to the vehicle, resulting in unexpected deployment and possible injury.

Step	Action	Value(s)	Yes	No
1	Perform the SIR Diagnostic System Check. Is the SIR Diagnostic System Check complete?	-	Go to *Step 2*	-
2	1. Turn the ignition to LOCK and remove the key. 2. Connect the scan tool to the assembly line diagnostic link (ALDL) connector. 3. Turn the ignition ON. Is DTC 22 also current?	-	Go to *Step 3*	Go to *Step 4*
3	1. Turn the ignition to LOCK and remove the key. 2. Disconnect the yellow airbag connectors at the steering column and at the passenger airbag. 3. Repair the short between the driver airbag high circuit and the passenger airbag high circuit. 4. Make sure all SIR system components are reconnected and all components are properly mounted. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-
4	1. Turn the ignition to LOCK and remove the key. 2. Make sure the passenger airbag module yellow two-way connector is seated properly. Is the yellow two-way passenger airbag connector seated properly?	-	Go to *Step 6*	Go to *Step 5*
5	1. Seat the passenger airbag yellow two-way connector. 2. Make sure all SIR system components are reconnected and all components are properly mounted. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-
6	1. Turn the ignition to LOCK and remove the key. 2. Temporarily disconnect the passenger airbag and the yellow clock spring connector on the steering column. 3. Check for a short between the passenger high and passenger low circuits (SDM terminals 1 and 4). ● Refer to „Diagnostic Illustration 2” in this section. Is there a short between the passenger high and low circuits?	-	Go to *Step 7*	Go to *Step 8*

DTC 16 - Passenger Deployment Loop Resistance Low (Cont'd)

Step	Action	Value(s)	Yes	No
7	1. Repair the short between the passenger high circuit and the passenger low circuit. 2. Make sure all SIR system components are reconnected and all components are properly mounted. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-
8	Check for a short between the passenger high and driver low circuits. • Refer to „Diagnostic Illustration 3” in this section. Is there a short between the passenger high and driver low circuits (SDM terminals 1 and 3)?	-	Go to *Step 9*	Go to *Step 10*
9	1. Repair the short between the passenger high circuit and the driver low circuit. 2. Make sure all SIR system components are reconnected and all components are properly mounted. 3. Command CLEAR CODES with the scan tool. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-
10	1. Replace the SDM. The arrow must be pointing toward the front of the vehicle. 2. Connect all SIR system components, and ensure that all components are properly mounted. 3. Perform the SIR Diagnostic System Check. Is DTC 16 still current?	-	Go to *Step 11*	System OK
11	1. Disconnect the passenger airbag electrical connector. 2. Replace the passenger airbag module. 3. Make sure all SIR system components are reconnected and all components are properly mounted. 4. Command CLEAR CODES with the scan tool. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-

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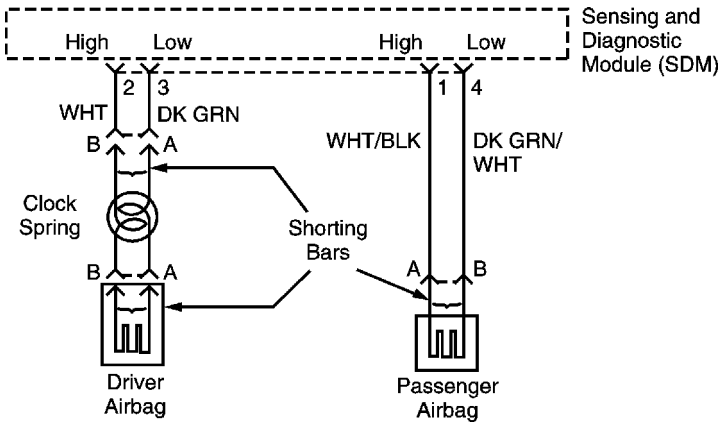

DIAGNOSTIC TROUBLE CODE (DTC) 17
PASSENGER DEPLOYMENT LOOP OPEN

Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform tests to diagnose critical malfunctions within itself. After passing these tests, Ignition 1 and deployment loop voltages are measured to ensure that they are within their respective normal voltage ranges. The SDM then proceeds with the resistance measurement test. Passenger low terminal 4 is grounded through a current sink, and the passenger current source is connected to the passenger high terminal to allow a known amount of current to flow. By monitoring the voltage difference between passenger high and passenger low, the SDM calculates the combined resistance of the passenger inflator module, the harness wiring, and the connector terminal contacts.

DTC 17 Will Set When

The resistance of the passenger deployment loop is above a specified value for 500 milliseconds. The resistance is monitored during the deployment loop continuity test and during continuous monitoring.

Action Taken

The SDM will turn on the AIRBAG indicator and set a diagnostic trouble code (DTC) 17.

DTC 17 Will Clear When

The resistance of the passenger deployment loop is below a specified value for 500 milliseconds during continuous monitoring.

Test Description

The number(s) below refer to step(s) on the diagnostic table.

3. See the first caution below.

8. See the cautions below.

Diagnostic Aids

An intermittent condition is likely to be caused by a poor connection, either at the passenger airbag connector or at terminals 1 and 4 of the SDM. An open wire in the passenger deployment loop will also set DTC 17.

DTC 17 - Passenger Deployment Loop Open

Caution: The SDM can maintain sufficient voltage to deploy the airbags for 10 minutes after the ignition is OFF and the fuse has been removed. If the airbags are not disconnected, service cannot begin until 10 minutes have passed after disconnecting power to the SDM.

Caution: Never measure the resistance of an inflator module with an ohmmeter. The ohmmeter battery could unexpectedly deploy the airbag which would created the possibility of severe injury and would require the replacement of otherwise useable components.

Caution: During service procedures, be very careful when handling the SDM. Never strike or jar the SDM. Never power up the SIR system when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened, and the SDM arrow must be pointing toward the front of the vehicle to ensure proper operation of the SIR system. The SDM could be activated if it is powered when it is not rigidly attached to the vehicle, resulting in unexpected deployment and possible injury.

Step	Action	Value(s)	Yes	No
1	Perform the SIR Diagnostic System Check. Is the SIR Diagnostic System Check complete?	-	Go to *Step 2*	-
2	1. Turn the ignition to LOCK and remove the key. 2. Disconnect the passenger airbag connector. 3. Inspect the terminals for damage or improper connection. 4. Repair any damaged pins or terminals on the wiring harness side of the connector. If the pigtail or airbag side of the connector is damaged, the passenger airbag must be replaced. 5. If no damage was found, reconnect the passenger airbag yellow twoway connector and make sure it is seated properly. 6. Turn the ignition ON. Is DTC still current?	-	Go to *Step 3*	System OK
3	1. Turn the ignition to LOCK and remove the key. 2. Temporarily disconnect the two yellow SIR connectors at the passenger airbag and on the steering column. 3. Check terminals 1 and 4 at the SDM. Are there any loose wires or damaged pins or terminals?	-	Go to *Step 4*	Go to *Step 5*
4	1. Repair any loose or damaged pins or SDM terminals. 2. Make sure all SIR system components are reconnected and all components are properly mounted. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-
5	Check for an open circuit between the SDM and the passenger airbag connector. ● Refer to „Diagnostic Illustration 1” in this section. Is there an open circuit?	-	Go to *Step 6*	Go to *Step 7*
6	1. Repair the open circuit between the SDM and the passenger inflator module. 2. Make sure all SIR system components are reconnected and all components are properly mounted. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-

DTC 17 - Passenger Deployment Loop Open (Cont'd)

Step	Action	Value(s)	Yes	No
7	1. Replace the SDM. The arrow must be pointing toward the front of the vehicle. 2. Connect all SIR system components, and ensure that all components are properly mounted. 3. Perform the SIR Diagnostic System Check. Is DTC 17 still current?	-	Go to *Step 8*	System OK
8	1. Turn the ignition to LOCK and remove the key. 2. Disconnect the yellow SIR connector at the passenger airbag. 3. Replace the passenger airbag module. 4. Make sure all SIR system components are reconnected and all components are properly mounted. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-

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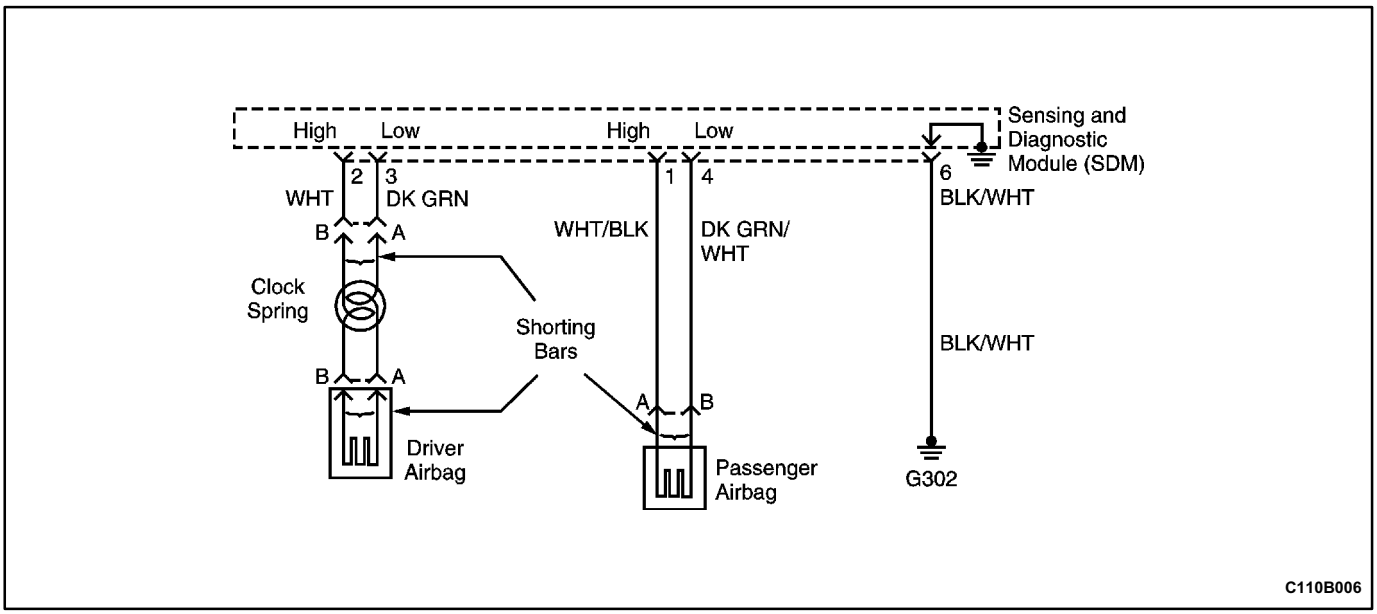

DIAGNOSTIC TROUBLE CODE (DTC) 18 PASSENGER DEPLOYMENT LOOP SHORT TO GROUND

Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform tests to diagnose critical malfunctions within itself. Upon passing these tests, Ignition 1 and deployment loop voltages are measured to ensure that they are within their respective normal voltage ranges. The SDM monitors the voltages at the driver low terminal (terminal 3) and the passenger low terminal (terminal 4) to detect shorts to ground in the deployment loops.

DTC 18 Will Set When

Diagnostic trouble code (DTC) 18 will be set if the voltage at the passenger low terminal falls below a specified value and Ignition 1 is within the normal operating voltage range.

This test is run during turn-on tests and every 100 milliseconds during continuous monitoring.

Action Taken

The SDM will turn on the AIRBAG indicator and set a DTC 18 and also a DTC 71.

DTC 18 Will Clear When

The malfunction is no longer occurring (has been repaired) and the SDM has been replaced. DTC 18 cannot be cleared with the scan tool.

Diagnostic Aids

Carefully inspect the wires in the passenger loop for cutting or chafing. If the wiring pigtail of the passenger airbag is damaged, the passenger airbag must be replaced.

Test Description

The number(s) below refer to step(s) on the diagnostic table.

3. See the first caution below.
4. See the first caution below.
5. See the third caution below.

DTC 18 - Passenger Deployment Loop Short to Ground

Caution: The SDM can maintain sufficient voltage to deploy the airbags for 10 minutes after the ignition is OFF and the fuse has been removed. If the airbags are not disconnected, service cannot begin until 10 minutes have passed after disconnecting power to the SDM.

Caution: Never measure the resistance of an inflator module with an ohmmeter. The ohmmeter battery could unexpectedly deploy the airbag which would created the possibility of severe injury and would require the replacement of otherwise useable components.

Caution: During service procedures, be very careful when handling the SDM. Never strike or jar the SDM. Never power up the SIR system when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened, and the SDM arrow must be pointing toward the front of the vehicle to ensure proper operation of the SIR system. The SDM could be activated if it is powered when it is not rigidly attached to the vehicle, resulting in unexpected deployment and possible injury.

Important: A careful inspection of the circuits and components indicated on the DTC 18 chart is essential to ensure that the replacement SDM will not be damaged. When DTC 18 has been set, it is necessary to replace the SDM.

Step	Action	Value(s)	Yes	No
1	Perform the SIR Diagnostic System Check. Is the SIR Diagnostic System Check complete?	-	Go to *Step 2*	-
2	Visually inspect the wires to the passenger airbag, including the pigtail to the passenger airbag. Is there any evidence of rubbing, damage, or chafing?	-	Go to *Step 3*	Go to *Step 4*
3	1. Turn the ignition to LOCK and remove the key. 2. Temporarily disconnect the passenger airbag and the yellow clock spring connector on the steering column. 3. Replace any damaged wiring, terminals, or harnesses. The passenger airbag will require replacement if the pigtail wire harness has been damaged. 4. Replace the SDM. The arrow must be pointing to the front of the vehicle. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-
4	1. Turn the ignition OFF. 2. Disconnect the passenger airbag and the yellow clock spring connector on the steering column. 3. Disconnect the SDM. 4. Using a digital multimeter, measure resistance at the SDM harness connector between terminal 1 and terminal 6 (ground). ● Refer to „Diagnostic Illustration 4” in this section. Is the resistance equal to the specified value?	∞	Go to *Step 6*	Go to *Step 5*
5	1. Repair the short to ground between the passenger high circuit and ground. 2. Replace the SDM. The arrow must be pointing to the front of the vehicle. Is the repair complete?	-	Go to *Step 6*	-
6	1. Disconnect the SDM. 2. Measure the resistance at the SDM connector between terminal 4 and terminal 6 (ground). ● Refer to „Diagnostic Illustration 5” in this section. Is the resistance equal to the specified value?	∞	Go to *Step 8*	Go to *Step 7*

DTC 18 - Passenger Deployment Loop Short to Ground (Cont'd)

Step	Action	Value(s)	Yes	No
7	1. Repair the short to ground between the passenger low circuit and ground. 2. Replace the SDM. The arrow must be pointing to the front of the vehicle. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-
8	1. Replace the passenger airbag. 2. Replace the SDM. The arrow must be pointing to the front of the vehicle. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-

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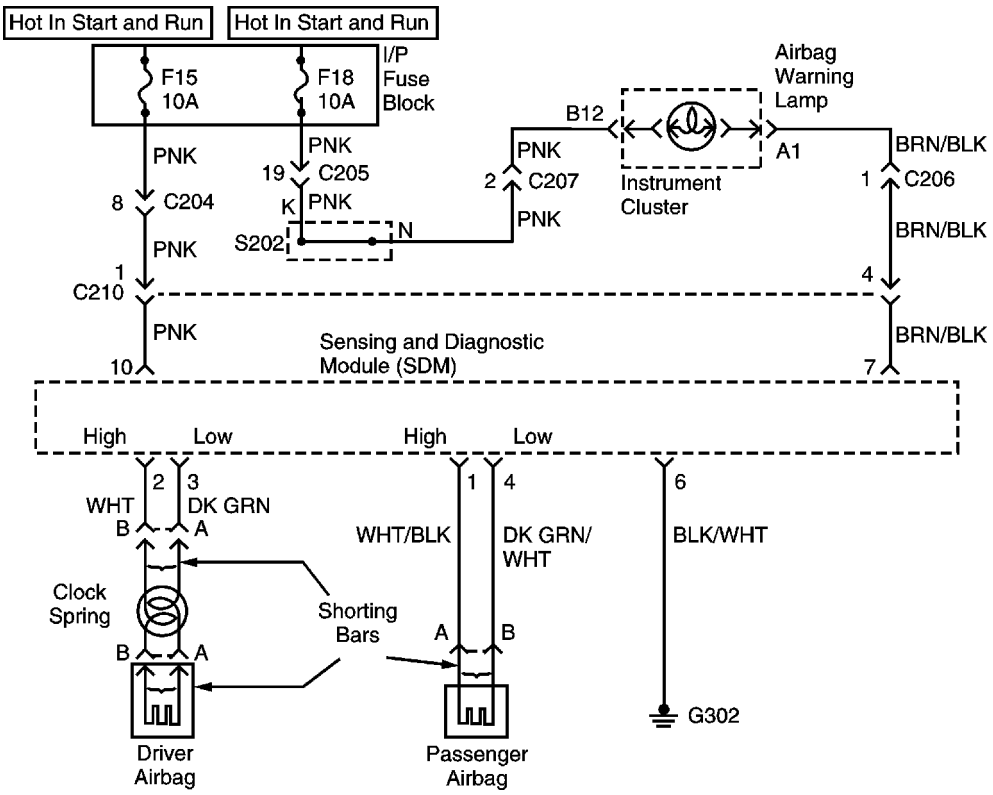

DIAGNOSTIC TROUBLE CODE (DTC) 19
PASSENGER DEPLOYMENT LOOP SHORT TO VOLTAGE

Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform tests to diagnose critical malfunctions within itself. Upon passing these tests, Ignition 1 and deployment loop voltages are measured to ensure that they are within their respective normal voltage ranges. The SDM monitors the voltages at the driver low terminal (terminal 3) and the passenger low terminal (terminal 4) to detect shorts to voltage in the deployment loops.

DTC 19 Will Set When

Diagnostic trouble code 19 will be set if the voltage at the passenger low terminal rises above a specified value while the driver low terminal is below that value and Ignition 1 is within the normal operating voltage range. This test is run during turn-on tests and every 100 milliseconds during continuous monitoring.

Action Taken

The SDM will turn on the AIRBAG indicator and set a DTC 19.

DTC 19 Will Clear When

The voltage measured at the passenger low terminal is below a specified value for 500 milliseconds.

Diagnostic Aids

An intermittent condition is likely to be caused by a short to voltage in the passenger deployment loop. Carefully inspect the wires in the passenger loop for cutting or chafing. If the wiring pigtail of the passenger airbag is damaged, the passenger airbag must be replaced.

Test Description

The number(s) below refer to step(s) on the diagnostic table.

3. See the first caution below.
4. See the first caution and the important below.
8. See the cautions below.

DTC 19 - Passenger Deployment Loop Short to Voltage

Caution: The SDM can maintain sufficient voltage to deploy the airbags for 10 minutes after the ignition is OFF and the fuse has been removed. If the airbags are not disconnected, service cannot begin until 10 minutes have passed after disconnecting power to the SDM.

Caution: Never measure the resistance of an inflator module with an ohmmeter. The ohmmeter battery could unexpectedly deploy the airbag which would created the possibility of severe injury and would require the replacement of otherwise useable components.

Caution: During service procedures, be very careful when handling the SDM. Never strike or jar the SDM. Never power up the SIR system when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened, and the SDM arrow must be pointing toward the front of the vehicle to ensure proper operation of the SIR system. The SDM could be activated if it is powered when it is not rigidly attached to the vehicle, resulting in unexpected deployment and possible injury.

Important: Replace any damaged SIR wires. Do not try to repair the wires because a high resistance connection could make the airbags inoperative and set another DTC.

Step	Action	Value(s)	Yes	No
1	Perform the SIR Diagnostic System Check. Is the SIR Diagnostic System Check complete?	-	Go to *Step 2*	Go to „SIR Diagnostic System Check”
2	Visually inspect the wires to the passenger airbag, including the pigtail to the passenger airbag. Is there any evidence of rubbing, damage, or chafing?	-	Go to *Step 3*	Go to *Step 4*
3	1. Turn the ignition to LOCK and remove the key. 2. Disconnect the driver and passenger airbag modules. 3. Replace any damaged wiring, terminals, harnesses, or components. 4. Connect all SIR components and ensure all components are properly mounted. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-
4	1. Turn the ignition to LOCK and remove the key. 2. Disconnect the passenger airbag and the yellow clock spring connector on the steering column. 3. Disconnect the SDM. 4. Turn the ignition ON. 5. Using a digital multimeter, measure voltage at the SDM harness connector between terminal 1 and terminal 6 (ground). ● Refer to „Diagnostic Illustration 6” in this section. Is the voltage below the specified value?	1.0 V	Go to *Step 6*	Go to *Step 5*
5	1. Repair the short between the passenger high circuit and voltage. 2. Connect all SIR components, and ensure all components are properly mounted. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-
6	1. Disconnect the SDM. 2. Turn the ignition ON. 3. Use a digital multimeter to measure the voltage at the SDM connector between terminal 4 and terminal 6 (ground). ● Refer to „Diagnostic Illustration 7” in this section. Is the voltage above the specified value?	1.0 V	Go to *Step 7*	Go to *Step 8*

DTC 19 - Passenger Deployment Loop Short to Voltage (Cont'd)

Step	Action	Value(s)	Yes	No
7	Repair the short between the passenger low circuit and voltage. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-
8	Replace the SDM. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-

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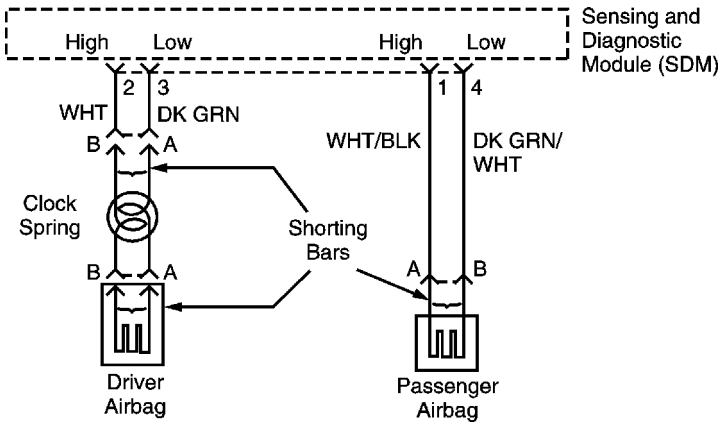

DIAGNOSTIC TROUBLE CODE (DTC) 21
DRIVER DEPLOYMENT LOOP RESISTANCE HIGH

Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform tests to diagnose critical malfunctions within itself. Upon passing these tests, Ignition 1 and deployment loop voltages are measured to ensure that they are within their respective normal voltage ranges. The SDM then proceeds with the resistance measurement test. Driver low terminal 3 is grounded through a current sink, and the driver current source is connected to the driver high terminal 2 to allow a known amount of current to flow. By monitoring the voltage difference between driver high and driver low, the SDM calculates the combined resistance of the driver inflator module, the clock spring, the harness wiring, and the connector terminal contacts.

DTC 21 Will Set When

The resistance of the driver deployment loop is above a specified value. The test is run once each ignition cycle during the resistance measurement test when

- No higher priority faults are detected when the ignition is turned ON.
- Ignition 1 voltage is above a specified value.

Action Taken

The SDM will turn on the AIRBAG indicator and set a Diagnostic Trouble Code (DTC) 21.

DTC 21 Will Clear When

The ignition switch is turned OFF or the scan tool CLEAR CODES command is received.

Diagnostic Aids

An intermittent condition is likely to be caused by a poor connection from the driver airbag to the clock spring, clock spring to steering column connector, or SDM terminals 2 or 3. The test for this DTC is run only while the AIRBAG indicator is performing the turn-on test. When a scan tool CLEAR CODES command is issued and the malfunction is still present, the DTC will not reappear until the next ignition cycle.

Test Description

The number(s) below refer to step(s) on the diagnostic table.

2. See the first caution below.

11. See the third caution below.

DTC 21 - Driver Deployment Loop Resistance High

Caution: The SDM can maintain sufficient voltage to deploy the airbags for 10 minutes after the ignition is OFF and the fuse has been removed. If the airbags are not disconnected, service cannot begin until 10 minutes have passed after disconnecting power to the SDM.

Caution: Never measure the resistance of an inflator module with an ohmmeter. The ohmmeter battery could unexpectedly deploy the airbag which would created the possibility of severe injury and would require the replacement of otherwise useable components.

Caution: During service procedures, be very careful when handling the SDM. Never strike or jar the SDM. Never power up the SIR system when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened, and the SDM arrow must be pointing toward the front of the vehicle to ensure proper operation of the SIR system. The SDM could be activated if it is powered when it is not rigidly attached to the vehicle, resulting in unexpected deployment and possible injury.

Important: Be careful not to spread or deform the terminals of the clock spring connector.

Step	Action	Value(s)	Yes	No
1	Perform the SIR Diagnostic System Check. Is the SIR Diagnostic System Check complete?	-	Go to *Step 2*	-
2	1. Turn the ignition to LOCK and remove the key. 2. Disconnect the clock spring yellow connector located on the steering column. 3. Inspect the connector for damage or loose terminals or wires. Is a faulty component, connector, terminal, or wire detected?	-	Go to *Step 3*	Go to *Step 4*
3	1. Replace the faulty connector, component, terminal, or wire. 2. Connect all SIR system components. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-
4	Disconnect the SDM connector and check terminals 2 and 3 for loose terminals or wires. Is a problem found?	-	Go to *Step 5*	Go to *Step 6*
5	1. Replace the loose terminals or wires. 2. Connect all SIR system components. 3. Command CLEAR CODES with the scan tool. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-
6	1. Reconnect the SDM, but leave the yellow clock spring connector disconnected. 2. On the SDM side of the clock spring connector, connect a jumper between the two terminals. ● Refer to „Diagnostic Illustration 8” in this section. 3. Turn the ignition ON. Is DTC still present?	-	Go to *Step 7*	Go to *Step 8*
7	1. Turn the ignition to LOCK and remove the key. 2. Disconnect the yellow clock spring connector on the steering column. 3. Disconnect the SDM connector. 4. Repair the open circuit between the SDM terminals 2 or 3 and the clock spring connector on the steering column. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-

DTC 21 - Driver Deployment Loop Resistance High (Cont'd)

Step	Action	Value(s)	Yes	No
8	1. Turn the ignition to LOCK and remove the key. 2. Connect the clock spring connector on the steering column. 3. Disconnect the driver airbag connector. 4. Connect a jumper between the two terminals of the clock springtoairbag connector. ● Refer to „Diagnostic Illustration 9" in this section. 5. Turn the ignition ON. Is DTC 21 still present?	-	Go to *Step 9*	Go to *Step 10*
9	1. Turn the ignition to LOCK and remove the key. 2. Turn the steering wheel to the straightahead position. 3. Disconnect the yellow clock spring connector on the steering column. 4. Replace the clock spring. 5. Connect all SIR system components. Is the repair complete?	-	Go to „SIR Diagnostic System Check"	-
10	1. Turn the ignition to LOCK and remove the key. 2. Disconnect the yellow clock spring connector on the steering column. 3. Replace the driver airbag. 4. Connect all SIR system components. 5. Turn the ignition ON. Is DTC 21 still present?	-	Go to *Step 11*	System OK
11	1. Turn the ignition to LOCK and remove the key. 2. Disconnect the the yellow clock spring connector on the steering column. 3. Replace the SDM. The arrow must be pointing toward the front of the vehicle. 4. Connect all SIR system components, and ensure that all components are properly mounted. Is the repair complete?	-	Go to „SIR Diagnostic System Check"	-

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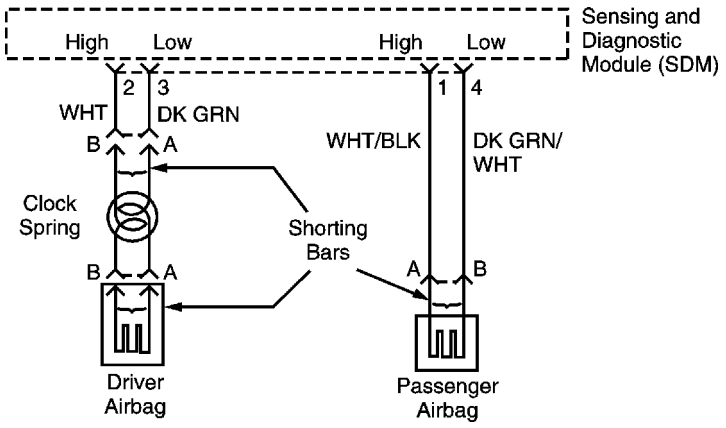

DIAGNOSTIC TROUBLE CODE (DTC) 22
DRIVER DEPLOYMENT LOOP RESISTANCE LOW

Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform tests to diagnose critical malfunctions within itself. Upon passing these tests, Ignition 1 and deployment loop voltages are measured to ensure that they are within their respective normal voltage ranges. The SDM then proceeds with the resistance measurement test. Driver low terminal 3 is grounded through a current sink, and the driver current source is connected to the driver high terminal 2 to allow a known amount of current to flow. By monitoring the voltage difference between driver high and driver low, the SDM calculates the combined resistance of the driver inflator module, the clock spring, the harness wiring, and the connector terminal contacts.

DTC 22 Will Set When

The resistance of the driver deployment loop is below a specified value. The test is run once each ignition cycle during the resistance measurement test when

- No higher priority faults are detected when the ignition is turned ON.
- Ignition 1 voltage is below a specified value.

Action Taken

The SDM will turn on the AIRBAG indicator and set a diagnostic trouble code (DTC) 22.

DTC 22 Will Clear When

The ignition switch is turned OFF or the scan tool CLEAR CODES command is received.

Diagnostic Aids

An intermittent condition is likely to be caused by a short between driver high and driver low or between driver high and passenger low. This condition could also be caused by a faulty clock spring or a faulty shorting bar in the clock spring steering column connector. The test for this DTC is run only while the AIRBAG indicator is performing the turn-on test. When a scan tool CLEAR CODES command is issued and the malfunction is still present, the DTC will not reappear until the next ignition cycle.

Test Description

The number(s) below refer to step(s) on the diagnostic table.

3. See the first caution below.

15. See the third caution below.

DTC 22 - Driver Deployment Loop Resistance Low

Caution: The SDM can maintain sufficient voltage to deploy the airbags for 10 minutes after the ignition is OFF and the fuse has been removed. If the airbags are not disconnected, service cannot begin until 10 minutes have passed after disconnecting power to the SDM.

Caution: Never measure the resistance of an inflator module with an ohmmeter. The ohmmeter battery could unexpectedly deploy the airbag which would created the possibility of severe injury and would require the replacement of otherwise useable components.

Caution: During service procedures, be very careful when handling the SDM. Never strike or jar the SDM. Never power up the SIR system when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened, and the SDM arrow must be pointing toward the front of the vehicle to ensure proper operation of the SIR system. The SDM could be activated if it is powered when it is not rigidly attached to the vehicle, resulting in unexpected deployment and possible injury.

Step	Action	Value(s)	Yes	No
1	Perform the SIR Diagnostic System Check. Is the SIR Diagnostic System Check complete?	-	Go to *Step 2*	-
2	Check for additional current DTCs. Is DTC 16 also current?	-	Go to *Step 3*	Go to *Step 4*
3	1. Turn the ignition to LOCK and remove the key. 2. Disconnect the passenger airbag and the yellow clock spring connector on the steering column. 3. Repair the short from driver high to passenger high. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-
4	1. Disconnect the clock spring yellow two way connector located on the steering column. 2. Inspect the connector for damage. Is a faulty component, connector, terminal, or wire detected?	-	Go to *Step 5*	Go to *Step 6*
5	1. Replace the faulty connector, component, terminal or wire. 2. Connect all SIR system components. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-
6	Visually check the SDM connector terminals 2 and 3 for shorted terminals or wires. Is a problem found?	-	Go to *Step 7*	Go to *Step 8*
7	1. Replace the shorted terminals or wires. 2. Connect all SIR system components. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-
8	With the SDM disconnected, use an ohmmeter to check the SDM harness connector for a short between terminal 2 (driver high) and terminal 4 (passenger low). • Refer to „Diagnostic Illustration 10” in this section. Is there a short between driver high and passenger low?	0 Ω	Go to *Step 9*	Go to *Step 10*
9	1. Repair the short circuit. 2. Connect all SIR system components. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-

DTC 22 - Driver Deployment Loop Resistance Low (Cont'd)

Step	Action	Value(s)	Yes	No
10	1. Remove the driver airbag. 2. Reconnect the yellow clock spring connector on the steering column. 3. At the SDM connector, use an ohmmeter to check for a short between the driver high (terminal 2) and driver low (terminal 3). ● Refer to „Diagnostic Illustration 11" in this section. Is there a short circuit between the driver high and driver low circuits?	0 Ω	Go to *Step 12*	Go to *Step 11*
11	1. Replace the driver airbag. 2. Connect all SIR system components. 3. Perform the Diagnostic System Check. Is DTC 22 still current?	-	Go to *Step 15*	System OK
12	1. Disconnect the yellow clock spring connector on the steering column. 2. At the SDM connector, use an ohmmeter to check for a short between the driver high (terminal 2) and driver low (terminal 3). ● Refer to „Diagnostic Illustration 11" in this section. Is there a short circuit between the driver high and driver low circuits?	0 Ω	Go to *Step 14*	Go to *Step 13*
13	1. Turn the steering wheel to the straight ahead position. 2. Disconnect the passenger airbag and the yellow clock spring connector on the steering column. 3. Replace the clock spring. 4. Connect all SIR system components. Is the repair complete?	-	Go to „SIR Diagnostic System Check"	-
14	Repair the shorted driver high and driver low wires between the SDM and the clock spring. Is the repair complete?	-	Go to „SIR Diagnostic System Check"	-
15	1. Replace the SDM. The arrow must be pointing toward the front of the vehicle. 2. Connect all SIR system components, and ensure that all components are properly mounted. Is the repair complete?	-	Go to „SIR Diagnostic System Check"	-

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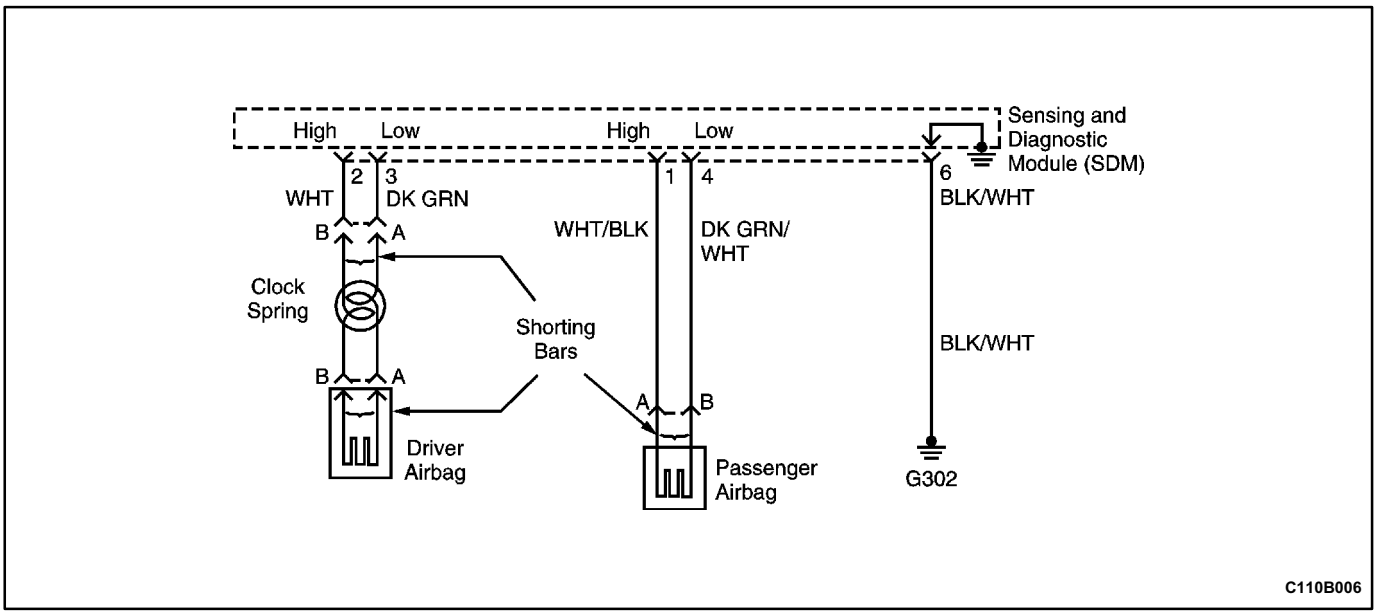

DIAGNOSTIC TROUBLE CODE (DTC) 24
DRIVER DEPLOYMENT LOOP SHORT TO GROUND

Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform tests to diagnose critical malfunctions within itself. Upon passing these tests, Ignition 1 and deployment loop voltages are measured to ensure that they are within their respective normal voltage ranges. The SDM monitors the voltages at the driver low (terminal 3) and passenger low (terminal 4) to detect shorts to ground in the deployment loops.

DTC 24 Will Set When

DTC 24 will be set if the voltage at driver low falls below a specified value, and Ignition 1 is within the normal operating voltage range.

This test is run during turn-on tests and every 100 milliseconds during continuous monitoring.

Action Taken

The SDM will turn on the AIRBAG indicator and set a diagnostic trouble code 24. DTC 71 will also set.

DTC 24 Will Clear When

The malfunction is no longer occurring (has been repaired) and the SDM has been replaced. DTC 24 cannot be cleared with the scan tool.

Diagnostic Aids

Carefully inspect the wires in the driver loop for cutting or chafing.

Test Description

The number(s) below refer to step(s) on the diagnostic table.

2. See the first caution below.

11. See the third caution below.

DTC 24 - Driver Deployment Loop Short to Ground

Caution: The SDM can maintain sufficient voltage to deploy the airbags for 10 minutes after the ignition is OFF and the fuse has been removed. If the airbags are not disconnected, service cannot begin until 10 minutes have passed after disconnecting power to the SDM.

Caution: Never measure the resistance of an inflator module with an ohmmeter. The ohmmeter battery could unexpectedly deploy the airbag which would created the possibility of severe injury and would require the replacement of otherwise useable components.

Caution: During service procedures, be very careful when handling the SDM. Never strike or jar the SDM.

Never power up the SIR system when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened, and the SDM arrow must be pointing toward the front of the vehicle to ensure proper operation of the SIR System. The SDM could be activated if it is powered when it is not rigidly attached to the vehicle, resulting in unexpected deployment and possible injury.

Important: A careful inspection of the circuits and components indicated on the DTC 24 chart is essential to ensure that the replacement SDM will not be damaged. When DTC 24 has been set, it is necessary to replace the SDM.

Step	Action	Value(s)	Yes	No
1	Perform the SIR Diagnostic System Check. Is the SIR Diagnostic System Check complete?	-	Go to *Step 2*	-
2	1. Turn the ignition to LOCK and remove the key. 2. Disconnect the driver and passenger airbags, or wait 10 minutes before proceeding. 3. Visually inspect the driver airbag circuit and connectors, especially at the SDM. Is there any evidence of rubbing, damage, or chafing?	-	Go to *Step 3*	Go to *Step 4*
3	1. Repair the damaged wires or connectors. 2. Replace the SDM. The arrow must be pointing toward the front of the vehicle. 3. Connect all SIR system components. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-
4	1. Disconnect the yellow clock spring connector on the steering column if it was not previously disconnected. 2. At the SDM connector, use an ohmmeter to check for a short between the driver high (terminal 2) and terminal 6 (ground). • Refer to „Diagnostic Illustration 12” in this section. Is the resistance equal to the specified value?	∞	Go to *Step 6*	Go to *Step 5*
5	1. Repair the short to ground in the driver high circuit between the clock spring connector and the SDM. 2. Replace the SDM. The arrow must be pointing toward the front of the vehicle. 3. Connect all SIR system components. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-
6	Measure the resistance at the SDM connector between terminal 3 and terminal 6 (ground). • Refer to „Diagnostic Illustration 13” in this section. Is the resistance equal to the specified value?	∞	Go to *Step 8*	Go to *Step 7*

DTC 24 - Driver Deployment Loop Short to Ground (Cont'd)

Step	Action	Value(s)	Yes	No
7	1. Repair the short to ground in the driver low circuit between the SDM and the clock spring connector. 2. Replace the SDM. The arrow must be pointing toward the front of the vehicle. 3. Connect all SIR system components. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-
8	1. Temporarily remove the driver airbag. 2. Reconnect the yellow clock spring connector on the steering column. 3. At the SDM connector, use an ohmmeter to check for a short between the driver high (terminal 2) and terminal 6 (ground). ● Refer to „Diagnostic Illustration 12” in this section. Is the resistance equal to the specified value?	∞	Go to *Step 10*	Go to *Step 9*
9	1. Turn the ignition to LOCK and remove the key. 2. Turn the steering wheel to the straightahead position. 3. Disconnect the yellow clock spring connector on the steering column. 4. Replace the clock spring. 5. Replace the SDM. The arrow must be pointing toward the front of the vehicle. 6. Connect all SIR system components. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-
10	Measure the resistance at the SDM connector between terminal 3 and terminal 6 (ground). ● Refer to „Diagnostic Illustration 13” in this section. Is the resistance equal to the specified value?	∞	Go to *Step 11*	Go to *Step 9*
11	1. Disconnect the yellow clock spring connector on the steering column. 2. Replace the driver airbag. 3. Replace the SDM. The arrow must be pointing toward the front of the vehicle. 4. Connect all SIR system components. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-

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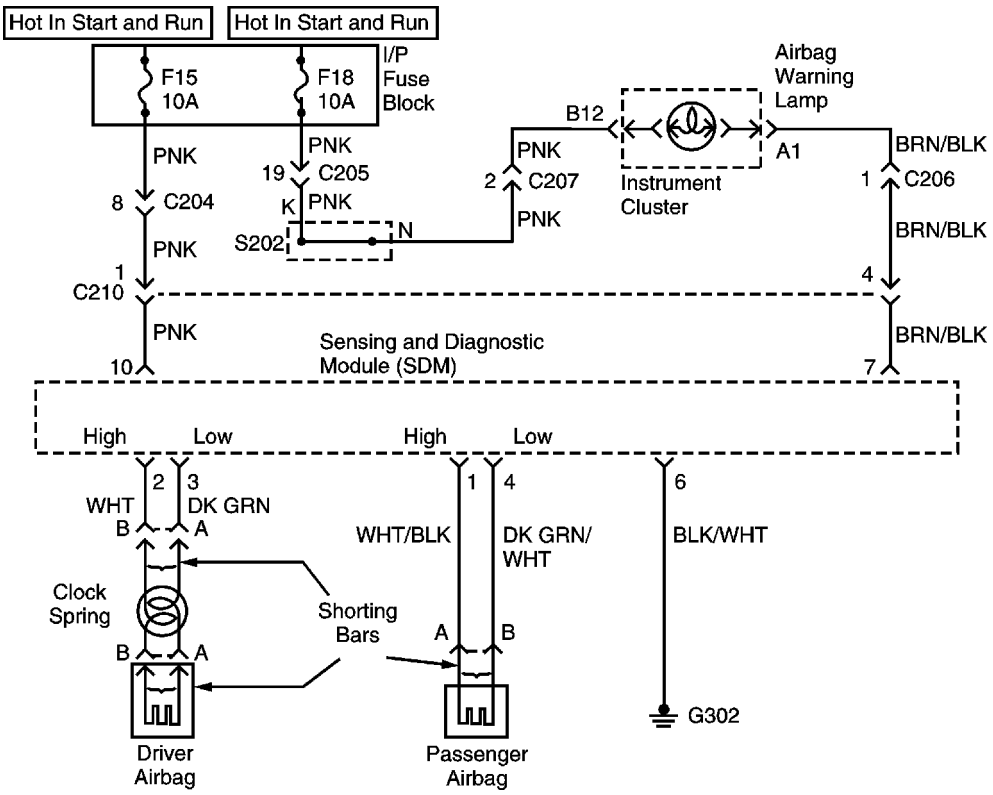

DIAGNOSTIC TROUBLE CODE (DTC) 25
DRIVER DEPLOYMENT LOOP SHORT TO VOLTAGE

Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module will perform tests to diagnose critical malfunctions within itself. Upon passing these tests, Ignition 1 and deployment loop voltages are measured to ensure that they are within their respective normal voltage ranges. The SDM monitors the voltages at the driver low (terminal 3) and passenger low (terminal 4) to detect shorts to voltage in the deployment loops.

DTC 25 Will Set When

DTC 25 will be set if the driver low is above 5 volts for 500 milliseconds while the passenger low is below 5 volts, and Ignition 1 is within the normal operating voltage range. This test is run during turn-on tests and every 100 milliseconds during continuous monitoring.

Action Taken

The SDM will turn on the AIRBAG indicator and set a diagnostic trouble code (DTC) 25.

DTC 25 Will Clear When

The voltage measured at driver low is below 4 volts for 500 milliseconds or the ignition is turned OFF.

Diagnostic Aids

Carefully inspect the wires in the driver loop for cutting or chafing.

Test Description

The number(s) below refer to step(s) on the diagnostic table.

2. See the first caution below.

11. See the third caution below.

DTC 25 - Driver Deployment Loop Short to Voltage

Caution: The SDM can maintain sufficient voltage to deploy the airbags for 10 minutes after the ignition is OFF and the fuse has been removed. If the airbags are not disconnected, service cannot begin until 10 minutes have passed after disconnecting power to the SDM.

Caution: Never measure the resistance of an inflator module with an ohmmeter. The ohmmeter battery could unexpectedly deploy the airbag which would created the possibility of severe injury and would require the replacement of otherwise useable components.

Caution: During service procedures, be very careful when handling the SDM. Never strike or jar the SDM. Never power up the SIR system when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened, and the SDM arrow must be pointing toward the front of the vehicle to ensure proper operation of the SIR system. The SDM could be activated if it is powered when it is not rigidly attached to the vehicle, resulting in unexpected deployment and possible injury.

Step	Action	Value(s)	Yes	No
1	Perform the SIR Diagnostic System Check. Is the SIR Diagnostic System Check complete?	-	Go to *Step 2*	-
2	1. Turn the ignition to LOCK and remove the key. 2. Disconnect the driver and passenger airbags, or wait 10 minutes before proceeding. 3. Visually inspect the driver airbag circuit and connectors, especially at the SDM. Is there any evidence of rubbing, damage, or chafing?	-	Go to *Step 3*	Go to *Step 4*
3	1. Repair the damaged wires or connectors. 2. Connect all SIR system components. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-
4	1. Disconnect the yellow clock spring connector on the steering column if it was not previously disconnected. 2. At the SDM connector, use an multimeter to check voltage between the driver high (terminal 2) and terminal 6 (ground). ● Refer to „Diagnostic Illustration 14” in this section. Is the voltage greater than the specified value?	5 V	Go to *Step 5*	Go to *Step 6*
5	1. Repair the short to voltage in the driver high circuit between the clock spring connector and the SDM. 2. Connect all SIR system components. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-
6	Measure the voltage at the SDM connector between terminal 3 and terminal 6 (ground). ● Refer to „Diagnostic Illustration 15” in this section. Is the voltage greater than the specified value?	5 V	Go to *Step 7*	Go to *Step 8*
7	1. Repair the short to voltage in the driver low circuit between the SDM and the clock spring connector. 2. Connect all SIR system components. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-

DTC 25 - Driver Deployment Loop Short to Voltage (Cont'd)

Step	Action	Value(s)	Yes	No
8	1. Temporarily remove the driver airbag. 2. Reconnect the yellow clock spring connector on the steering column. 3. At the SDM connector, use a multimeter to check voltage between the driver high (terminal 2) and terminal 6 (ground). ● Refer to „Diagnostic Illustration 14” in this section. Is the voltage greater than the specified value?	5 V	Go to *Step 9*	Go to *Step 10*
9	1. Turn the ignition to LOCK and remove the key. 2. Turn the steering wheel to the straight ahead position. 3. Disconnect the yellow clock spring connector on the steering column. 4. Replace the clock spring. 5. Connect all SIR system components. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-
10	Measure the voltage at the SDM connector between terminal 3 and terminal 6 (ground). ● Refer to „Diagnostic Illustration 15” in this section. Is the voltage greater than the specified value?	5 V	Go to *Step 9*	Go to *Step 11*
11	1. Disconnect the yellow clock spring connector on the steering column. 2. Replace the SDM. The arrow must be pointing toward the front of the vehicle. 3. Connect all SIR system components. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-

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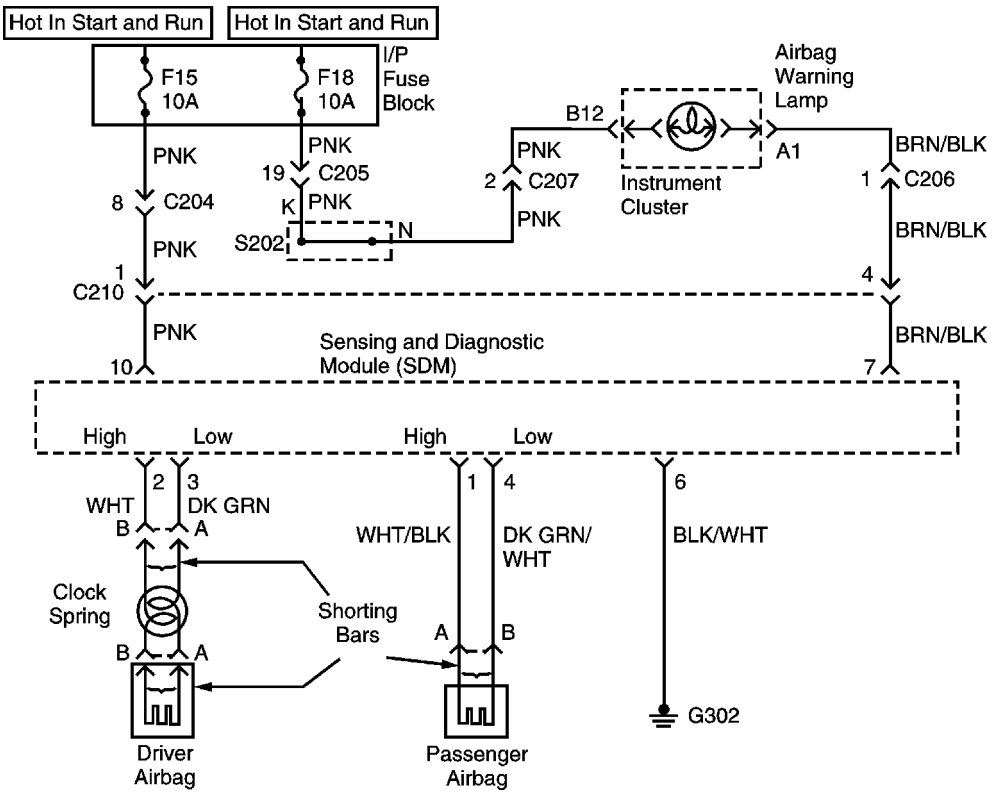

DIAGNOSTIC TROUBLE CODE (DTC) 26
DRIVER DEPLOYMENT LOOP OPEN

Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform tests to diagnose critical malfunctions within itself. Upon passing these tests, Ignition 1 and deployment loop voltages are measured to ensure that they are within their respective normal voltage ranges. The SDM then proceeds with the resistance measurement test. Driver low terminal 4 is grounded through a current sink, and the driver current source is connected to the driver high terminal to allow a known amount of current to flow. By monitoring the voltage difference between driver high and driver low, the SDM calculates the combined resistance of the driver inflator module, the harness wiring, and the connector terminal contacts.

DTC 26 Will Set When

The resistance of the driver deployment loop is above a specified value for 500 milliseconds. The resistance is monitored during the deployment loop continuity test and continuous monitoring.

Action Taken

The SDM will turn on the AIRBAG indicator and set a diagnostic trouble code (DTC) 26.

DTC 26 Will Clear When

The voltage measured at driver low is below a specified value for 500 milliseconds or the ignition is turned OFF.

Diagnostic Aids

An intermittent condition is likely to be caused by a poor connection, either at the driver airbag or clock spring connectors or SDM terminals 2 and 3. An open wire in the driver deployment loop will also set DTC 26. To test for a faulty SIR clock spring, clear the DTCs, then turn the steering wheel back and forth with the ignition switch ON. If the AIRBAG indicator comes on and DTC 26 has set again, it is likely that the clock spring is faulty.

Test Description

The number(s) below refer to step(s) on the diagnostic table.

4. This test establishes that the problem is either in the clock spring or the driver airbag.
7. See the important below.
10. See the first caution below.
14. See the third caution below.

DTC 26 - Driver Deployment Loop Open

Caution: The SDM can maintain sufficient voltage to deploy the airbags for 10 minutes after the ignition is OFF and the fuse has been removed. If the airbags are not disconnected, service cannot begin until 10 minutes have passed after disconnecting power to the SDM.

Caution: Never measure the resistance of an inflator module with an ohmmeter. The ohmmeter battery could unexpectedly deploy the airbag which would created the possibility of severe injury and would require the replacement of otherwise useable components.

Caution: During service procedures, be very careful when handling the SDM. Never strike or jar the SDM. Never power up the SIR system when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened, and the SDM arrow must be pointing toward the front of the vehicle to ensure proper operation of the SIR system. The SDM could be activated if it is powered when it is not rigidly attached to the vehicle, resulting in unexpected deployment and possible injury.

Important: Avoid deforming the terminals of the clock spring to airbag connector.

Step	Action	Value(s)	Yes	No
1	Perform the SIR Diagnostic System Check. Is the SIR Diagnostic System Check complete?	-	Go to *Step 2*	-
2	1. Turn the ignition to LOCK and remove the key. 2. Make sure the clock spring yellow two-way connector (located on the steering column) is seated properly. Is the yellow clock spring connector seated properly?	-	Go to *Step 4*	Go to *Step 3*
3	1. Seat the clock spring yellow two-way connector. 2. Make sure all SIR system components are reconnected and all components are properly mounted. 3. Turn the ignition ON. Is DTC 26 still current?	-	Go to *Step 4*	Go to „SIR Diagnostic System Check”
4	1. Turn the ignition to LOCK and remove the key. 2. Disconnect the yellow clock spring connector on the steering column. 3. Connect a jumper between the terminals on the SDM side of the clock spring connector. ● Refer to „Diagnostic Illustration 8” in this section. 4. Turn the ignition ON. Is DTC 26 still current?	-	Go to *Step 9*	Go to *Step 5*
5	1. Turn the ignition to LOCK and remove the key. 2. Examine the connection at the driver airbag. Is the driver airbag connector seated properly?	-	Go to *Step 7*	Go to *Step 6*
6	1. Properly seat the connector to the driver airbag. 2. Reconnect the yellow clock spring connector on the lower steering column. 3. Turn the ignition ON. Is DTC 26 still current?	-	Go to *Step 7*	Go to „SIR Diagnostic System Check”
7	1. Turn the ignition to LOCK and remove the key. 2. Temporarily remove the driver airbag. 3. Connect a jumper between the terminals of the clock spring to driver airbag connector. ● Refer to „Diagnostic Illustration 9” in this section. 4. Turn the ignition ON. 5. Move the steering wheel back and forth while watching the AIRBAG indicator. Did the AIRBAG indicator turn on with DTC 26 still current?	-	Go to *Step 9*	Go to *Step 8*

DTC 26 - Driver Deployment Loop Open (Cont'd)

Step	Action	Value(s)	Yes	No
8	1. Turn the ignition to LOCK and remove the key. 2. Disconnect the yellow clock spring connector on the steering column. 3. Replace the driver airbag. 4. Connect all SIR system components and the scan tool. 5. Turn the ignition ON. Is DTC 26 still current?	-	Go to *Step 1*	Go to „SIR Diagnostic System Check”
9	1. Turn the ignition to LOCK and remove the key. 2. Turn the steering wheel to the straight-ahead position. 3. Disconnect the yellow clock spring connector on the steering column. 4. Replace the clock spring. 5. Connect all SIR system components and the scan tool. 6. Turn the ignition ON. Is DTC 26 still current?	-	Go to *Step 1*	Go to *Step 10*
10	1. Turn the ignition to LOCK and remove the key. 2. Disconnect the passenger airbag and the yellow clock spring connector on the steering column. 3. Disconnect the SDM connector. 4. Examine the pins and terminals at the SDM terminals 2 and 3. Are there any loose wires or backed out terminals?	-	Go to *Step 11*	Go to *Step 12*
11	1. Repair any loose wires or damaged pins or terminals. 2. Connect all SIR system components and the scan tool. 3. Turn the ignition ON. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-
12	Use an ohmmeter to check both driver deployment wires for an open circuit between the SDM connector (terminals 2 and 3) and the clock spring connector. • Refer to „Diagnostic Illustration 16” in this section. Does the ohmmeter show the specified value?	∞	Go to *Step 13*	Go to *Step 14*
13	1. Replace any open wires between the SDM and the clock spring. 2. Connect all SIR system components and the scan tool. 3. Turn the ignition ON. Is DTC 26 still current?	-	Go to *Step 14*	-
14	1. Turn the ignition to LOCK and remove the key. 2. Disconnect the passenger airbag and the yellow clock spring connector on the steering column. 3. Replace the SDM. The arrow must be pointing toward the front of the vehicle. 4. Connect all SIR system components, and ensure that all components are properly mounted. 5. Command CLEAR CODES with the scan tool. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-

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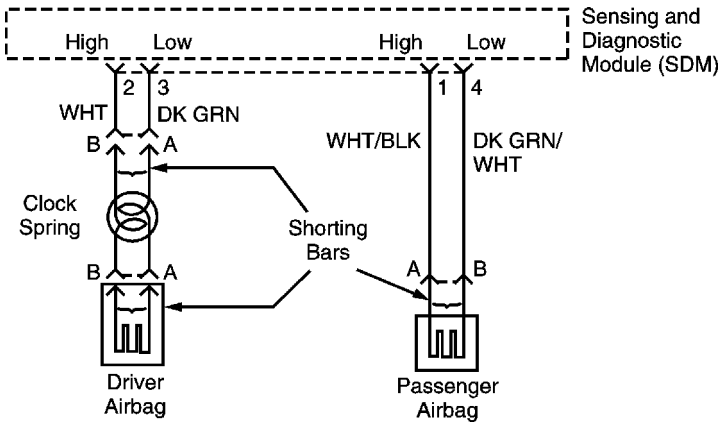


DIAGNOSTIC TROUBLE CODE (DTC) 51
DEPLOYMENT COMMANDED

Circuit Description

The sensing and diagnostic module (SDM) contains a sensing device which converts vehicle velocity changes to an electrical signal. The electrical signal generated is processed by the SDM and then compared to a value stored in memory. When the generated signal exceeds the stored value, additional signal processing is performed and the generated signals are compared to signals stored in memory. When two of the generated signals exceed the stored values, the SDM will cause sufficient current to flow through the inflator modules to deploy the air bags and cause DTC 51 to be set.

DTC 51 Will Set When

The SDM detects a frontal crash within 30 degrees of the centerline of the vehicle, of sufficient force to warrant deployment of the air bags.

Action Taken

The SDM turns on the AIRBAG indicator, records crash data, and sets a DTC 51.

DTC 51 Will Clear When

The SDM is replaced. This code cannot be cleared with a scan tool.

Test Description

The number(s) below refer to step(s) on the diagnostic table.

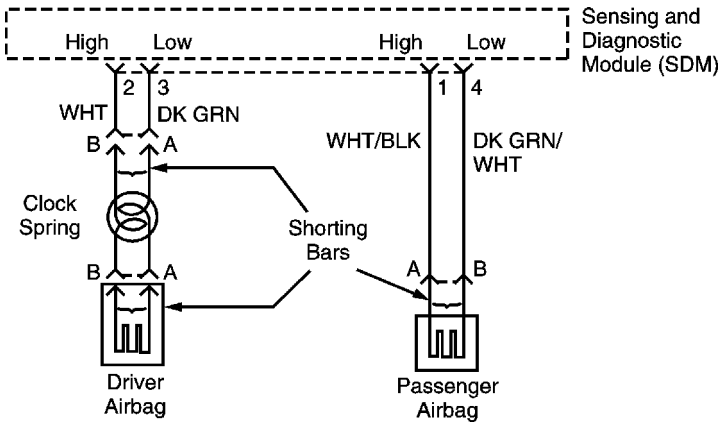
2. If there is no evidence of impact, DTC may have been set falsely.
5. See the cautions below.

DTC 51 - Deployment Commanded

Caution: The SDM can maintain sufficient voltage to deploy the airbags for 10 minutes after the ignition is OFF and the fuse has been removed. If the airbags are not disconnected, service cannot begin until 10 minutes have passed after disconnecting power to the SDM.

Caution: During service procedures, be very careful when handling the SDM. Never strike or jar the SDM. Never power up the SIR system when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened, and the SDM arrow must be pointing toward the front of the vehicle to ensure proper operation of the SIR system. The SDM could be activated if it is powered when if is not rigidly attached to the vehicle, resulting in unexpected deployment and possible injury.

Step	Action	Value(s)	Yes	No
1	Perform the SIR Diagnostic System Check. Is the SIR Diagnostic System Check complete?	-	Go to *Step 2*	-
2	1. Turn the ignition to LOCK and remove the key. 2. Check for deployed airbags. Have the airbags deployed?	-	Go to *Step 3*	Go to *Step 4*
3	1. Remove the airbag fuse. 2. Turn the steering wheel to the straightāhead position. 3. Perform inspections and replace components as directed in „Repairs and Inspections Required After An Accident” in this section. 4. Replace the SDM. The arrow must be pointing toward the front of the vehicle. 5. Connect all SIR system components, and ensure that all components are properly mounted. 6. Reinstall the airbag fuse. 7. Use a scan tool to clear SIR trouble codes. Are the repairs complete?	-	Go to „SIR Diagnostic System Check”	-
4	Inspect the front of the vehicle and undercarriage for signs of impact. Are there any signs of impact?	-	Go to *Step 3*	Go to *Step 5*
5	1. Turn the ignition to LOCK and remove the key. 2. Disconnect the passenger airbag and the yellow clock spring connector on the steering column. 3. Replace the SDM. The arrow must be pointing toward the front of the vehicle. 4. Connect all SIR system components, and ensure that all components are properly mounted. Are the repairs complete?	-	Go to „SIR Diagnostic System Check”	-



DIAGNOSTIC TROUBLE CODE (DTC) 53
DEPLOYMENT COMMANDED WITH LOOP FAULTS PRESENT

Circuit Description

The sensing and diagnostic module (SDM) contains a sensing device which converts vehicle velocity changes to an electrical signal. The electrical signal generated is processed by the SDM and then compared to a value stored in memory. When the generated signal exceeds the stored value, additional signal processing is performed and the generated signals are compared to signals stored in memory. When two of the generated signals exceed the stored values, the SDM will cause sufficient current to flow through the inflator modules to deploy the air bags. DTC 53 is set instead of DTC 51 when a deployment occurs while an inflator circuit fault is present that could possibly result in a no deployment situation in one or both inflator modules.

DTC 53 Will Set When

- The SDM detects a frontal crash within to 30 degrees from the centerline of the vehicle, of sufficient force to warrant deployment of the air bags.
- An inflator circuit fault is present.

Action Taken

The SDM turns ON the AIRBAG indicator, records crash data, and sets a DTC 53.

DTC 53 Will Clear When

The SDM is replaced. This code cannot be cleared with a scan tool.

Test Description

The number(s) below refer to step(s) on the diagnostic table.

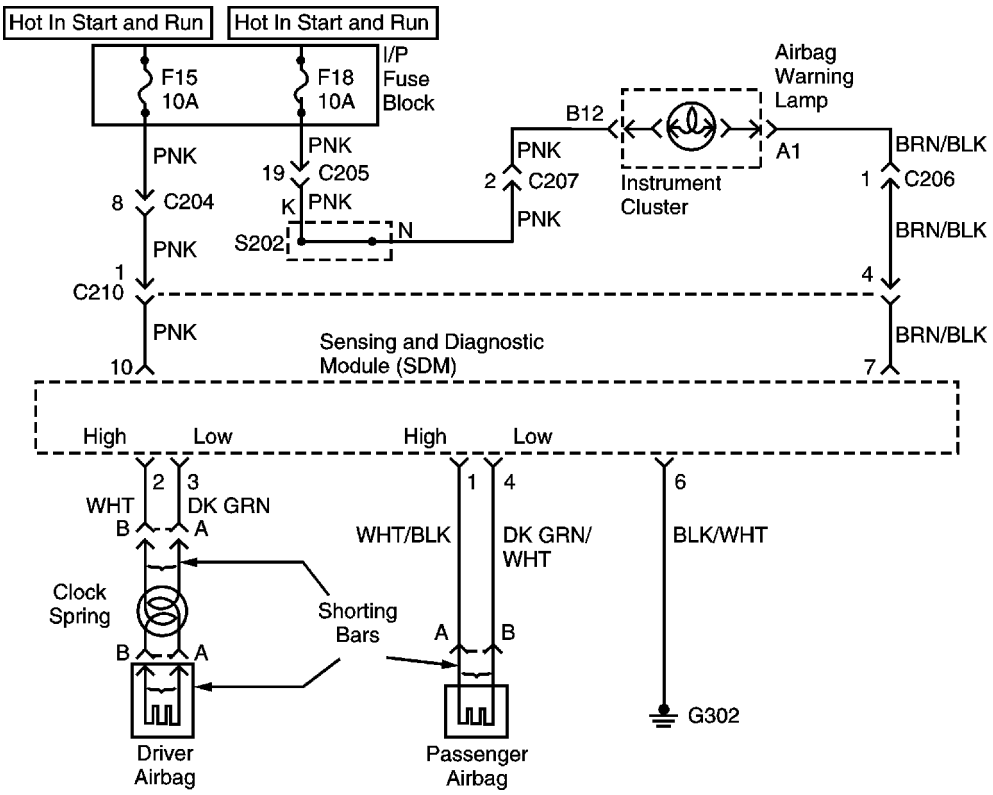
2. If there is no evidence of impact, DTC may have been set falsely.
5. See the cautions below.

DTC 53 Deployment Commanded With Loop Faults Present

Caution: The SDM can maintain sufficient voltage to deploy the airbags for 10 minutes after the ignition is OFF and the fuse has been removed. If the airbags are not disconnected, service cannot begin until 10 minutes have passed after disconnecting power to the SDM.

Caution: During service procedures, be very careful when handling the SDM. Never strike or jar the SDM. Never power up the SIR system when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened, and the SDM arrow must be pointing toward the front of the vehicle to ensure proper operation of the SIR system. The SDM could be activated if it is powered when it is not rigidly attached to the vehicle, resulting in unexpected deployment and possible injury.

Step	Action	Value(s)	Yes	No
1	Perform the SIR Diagnostic System Check. Is the SIR Diagnostic System Check complete?	-	Go to *Step 2*	-
2	1. Turn the ignition to LOCK and remove the key. 2. Check for deployed airbags. Have the airbags deployed?	-	Go to *Step 3*	Go to *Step 4*
3	1. Remove the airbag fuse. 2. Turn the steering wheel to the straightāhead position. 3. Perform inspections and replace components as directed in „Repairs and Inspections Required After an Accident" in this section. 4. Replace the SDM. The arrow must be pointing toward the front of the vehicle. 5. Connect all SIR system components, and ensure that all components are properly mounted. 6. Reinstall the airbag fuse. 7. Use a scan tool to clear SIR trouble codes. Are the repairs complete?	-	Go to „SIR Diagnostic System Check"	-
4	Inspect the front of the vehicle and undercarriage for signs of impact. Are there any signs of impact?	-	Go to *Step 3*	Go to *Step 5*
5	1. Turn the ignition to LOCK and remove the key. 2. Disconnect the passenger airbag and the yellow clock spring connector on the steering column. 3. Replace the SDM. The arrow must be pointing toward the front of the vehicle. 4. Connect all SIR system components, and ensure that all components are properly mounted. Are the repairs complete?	-	Go to „SIR Diagnostic System Check"	-



DIAGNOSTIC TROUBLE CODE (DTC) 61
AIRBAG WARNING LAMP CIRCUIT OPEN

Circuit Description

When the ignition switch is first turned ON, Ignition 1 voltage is applied to the indicator lamp and also to the sensing and diagnostic module (SDM) input terminal 10. The SDM responds by flashing the instrument cluster AIRBAG indicator seven times. If the SDM cannot detect voltage on the indicator circuit, a DTC 61 will be set. The SDM also attempts to turn on the AIRBAG indicator, but the indicator will not turn on if inputs have been correctly processed.

DTC 61 Will Set When

Either during the turn on test or during continuous monitoring, the SDM fails to detect voltage at terminal 7, the input terminal for the AIRBAG indicator.

Action Taken

The SDM attempts to turn on the AIRBAG indicator, and it sets a DTC 61.

DTC 61 Will Clear When

The ignition switch is turned OFF or the problem is repaired.

Test Description

The number(s) below refer to step(s) on the diagnostic table.

12. See the first caution below.
14. See the cautions below.

DTC 61 - AIRBAG Warning Lamp Circuit Open

Caution: The SDM can maintain sufficient voltage to deploy the airbags for 10 minutes after the ignition is OFF and the fuse has been removed. If the airbags are not disconnected, service cannot begin until 10 minutes have passed after disconnecting power to the SDM.

Caution: During service procedures, be very careful when handling the SDM. Never strike or jar the SDM. Never power up the SIR system when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened, and the SDM arrow must be pointing toward the front of the vehicle to ensure proper operation of the SIR system. The SDM could be activated if it is powered when it is not rigidly attached to the vehicle, resulting in unexpected deployment and possible injury.

Step	Action	Value(s)	Yes	No
1	Perform the SIR Diagnostic System Check. Is the SIR Diagnostic System Check complete?	-	Go to *Step 2*	-
2	Check the instrument panel fuse F18. Is fuse F18 blown?	-	Go to *Step 3*	Go to *Step 4*
3	1. Check for a short circuit and repair if necessary. 2. Replace the fuse. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-
4	1. Turn the ignition ON. 2. Check the power supply to fuse F18. Is the voltage equal to the specified value?	11-14 V	Go to *Step 6*	Go to *Step 5*
5	Repair the power supply to fuse F18. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-
6	1. Remove the instrument cluster. 2. Check the AIRBAG indicator bulb. Is the bulb in good condition?	-	Go to *Step 8*	Go to *Step 7*
7	Replace the AIRBAG indicator bulb. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-
8	1. Turn the ignition ON. 2. Check the voltage at instrument cluster connector B12. Is the voltage at B12 equal to the specified value?	11-14 V	Go to *Step 10*	Go to *Step 9*
9	Repair the open circuit between the instrument panel fuse F18 and instrument cluster connector B6. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-
10	Test the instrument cluster printed circuit for conti□ nuity between connectors B12 and A1. Is there continuity between B12 and A1 on the printed circuit?	-	Go to *Step 12*	Go to *Step 11*
11	Replace the instrument cluster. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-
12	1. Turn the ignition to LOCK and remove the key. 2. Disconnect the passenger airbag and the yellow clock spring connector on the steering column. 3. Disconnect the SDM electrical connector. 4. Turn the ignition ON. 5. Check the voltage at terminal 7 of the SDM connector. Is the voltage equal to the specified value?	11-14 V	Go to *Step 14*	Go to *Step 13*

DTC 61 - AIRBAG Warning Lamp Circuit Open (Cont'd)

Step	Action	Value(s)	Yes	No
13	Repair the open circuit between the instrument cluster and the SDM connector terminal 7. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-
14	1. Turn the ignition to LOCK and remove the key. 2. Disconnect the passenger airbag and the yellow clock spring connector on the steering column. 3. Replace the SDM. The arrow must be pointing toward the front of the vehicle. 4. Connect all SIR system components, and ensure that all components are properly mounted. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-

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DIAGNOSTIC TROUBLE CODE (DTC) 71
INTERNAL SENSING AND DIAGNOSTIC MODULE (SDM) FAILURE

Circuit Description

DTC 71 is an indication of a potential internal SDM malfunction and will set if any of the following conditions is detected:

- Reserve voltage discharge time has failed for three consecutive ignition cycles.
- The calculated checksum for internal memory does not match the stored value.
- The temporary memory storage area is malfunctioning.
- The permanent memory storage area is malfunctioning.
- The voltage measured at driver low and passenger low are too high.
- The voltage measured at driver low and passenger low are too low.
- The accelerometer inside the SDM is malfunctioning.
- The driver current source and/or passenger current source is malfunctioning.
- The SDM is unable to read from or write to electronically erasable programmable read only memory (EEPROM).
- The arming sensor inside the SDM is not closed during a deployment event.

DTC 71 Will Set When

Any of the indicated malfunctions is detected by the SDM. The malfunctions are detected at various times:

- Turn on.
- Continuous monitoring.
- Resistance measurement test.

Action Taken

The SDM turns on the AIRBAG indicator and sets a DTC 71.

DTC 71 Will Clear When

A scan tool CLEAR CODES command is received by the SDM. Some of the malfunctions will allow the AIRBAG indicator to turn off only briefly and then turn on again.

Test Description

The number(s) below refer to step(s) on the diagnostic table.

3. See the cautions below.

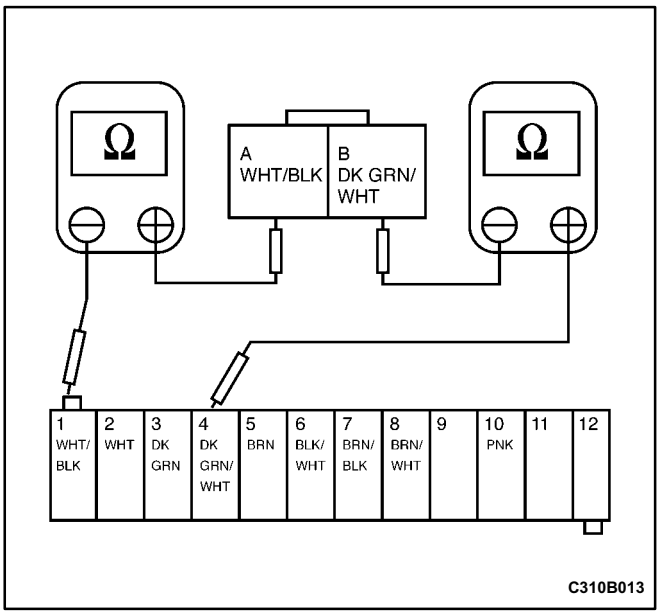
DTC 71 - Internal Sensing and Diagnostic Module (SDM) Failure

Caution: The SDM can maintain sufficient voltage to deploy the airbags for 10 minutes after the ignition is OFF and the fuse has been removed. If the airbags are not disconnected, service cannot begin until 10 minutes have passed after disconnecting power to the SDM.

Caution: During service procedures, be very careful when handling the SDM. Never strike or jar the SDM. Never power up the SIR system when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened, and the SDM arrow must be pointing toward the front of the vehicle to ensure proper operation of the SIR system. The SDM could be activated if it is powered when it is not rigidly attached to the vehicle, resulting in unexpected deployment and possible injury.

Important: Codes 18, 24, and 71 cannot be reset if there has been a short to ground in the deployment loops. When DTC 18 or 24 has been set, it is necessary to replace the SDM. To avoid damaging the replacement SDM, ensure that the short to ground is repaired prior to installing a replacement SDM.

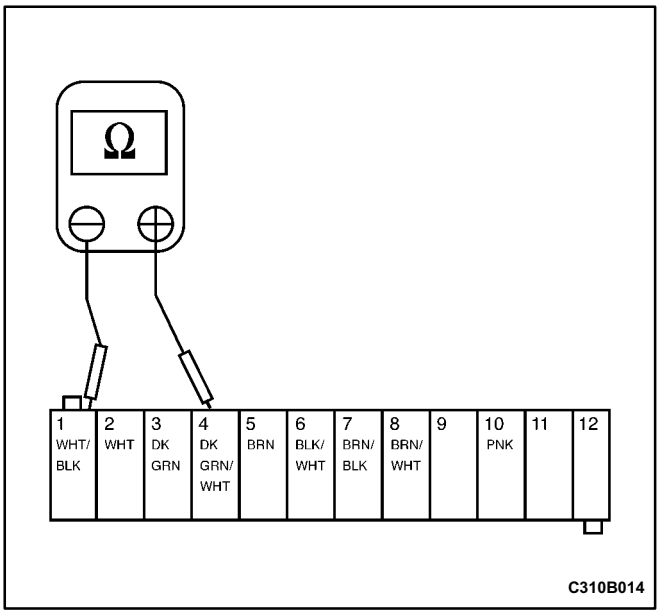
Step	Action	Value(s)	Yes	No
1	Perform the SIR Diagnostic System Check. Is the SIR Diagnostic System Check complete?	-	Go to *Step 2*	-
2	Check for current or history DTCs. Is either DTC 18 or DTC 24 also set as a current or a history DTC?	-	Go the diagnostic table for DTC 18 or DTC 24	Go to *Step 3*
3	1. Turn the ignition to LOCK and remove the key. 2. Disconnect the passenger airbag and the yellow clock spring connector on the steering column. 3. Replace the SDM. The arrow must be pointing toward the front of the vehicle. 4. Connect all SIR system components, and ensure that all components are properly mounted. Is the repair complete?	-	Go to „SIR Diagnostic System Check”	-



Caution: Do not use these illustrations to troubleshoot without consulting the diagnostic trouble code (DTC) charts. The DTC charts give additional safety precautions and detailed instructions for each test. Failure to follow the proper precautions can result in injury from unintended airbag deployment.

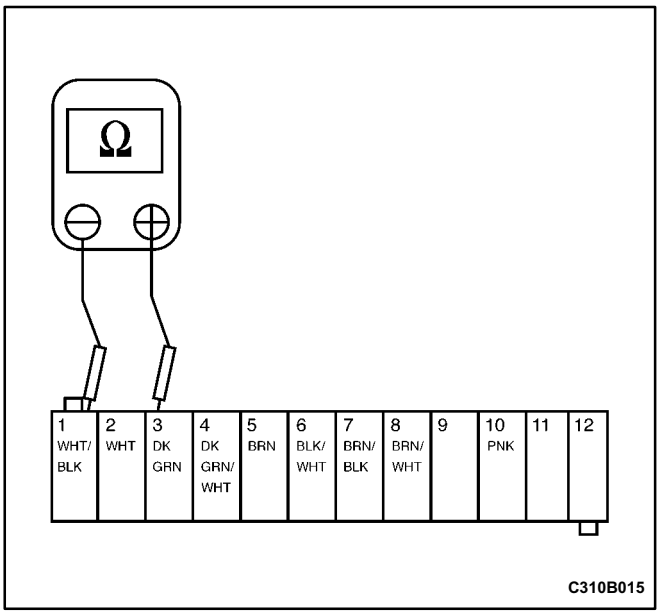
DIAGNOSTIC ILLUSTRATION 1

Checking the continuity between the passenger airbag and the sensing and diagnostic module (SDM).



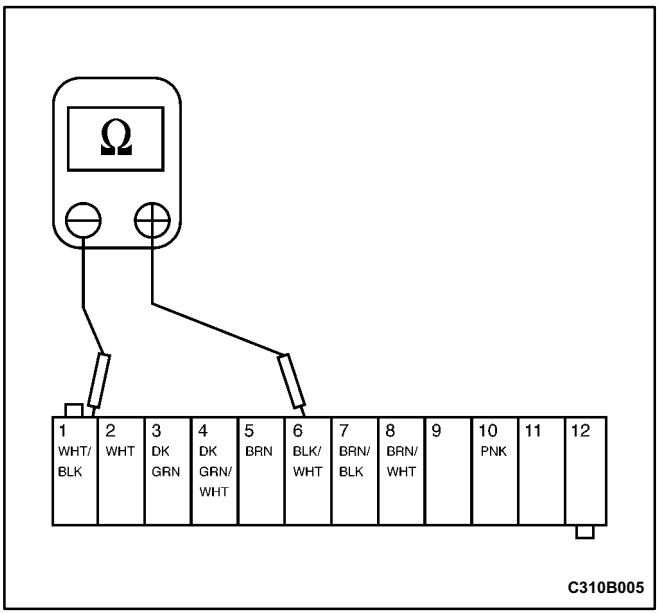
DIAGNOSTIC ILLUSTRATION 2

Checking for a short circuit between the passenger high and low circuits.



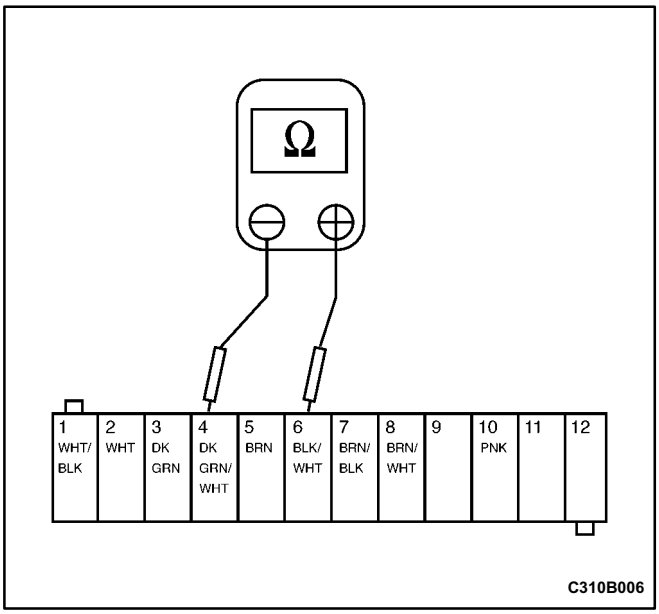
DIAGNOSTIC ILLUSTRATION 3

Checking for a short circuit between the passenger high and driver low circuits.



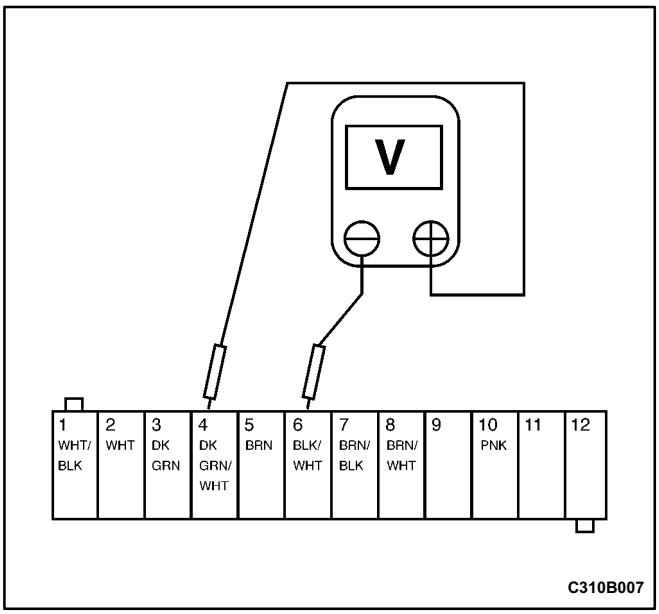
DIAGNOSTIC ILLUSTRATION 4

Checking for a short circuit between the passenger high circuit and ground.



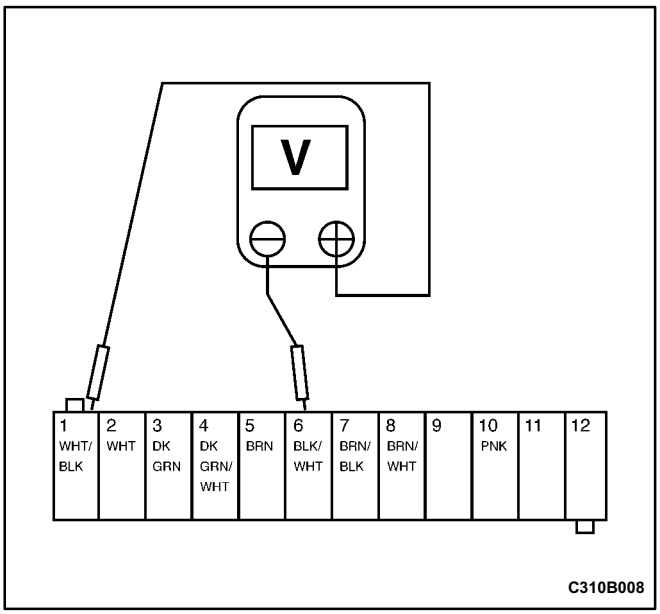
DIAGNOSTIC ILLUSTRATION 5

Checking for a short circuit between the passenger low circuit and ground.



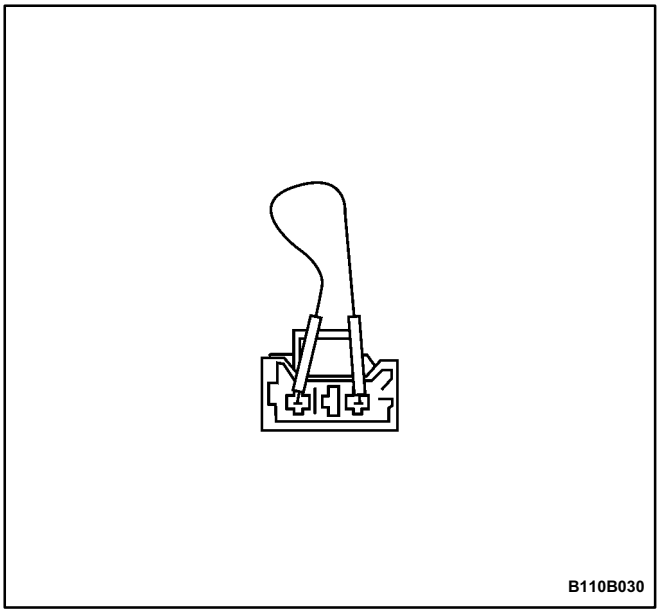
DIAGNOSTIC ILLUSTRATION 6

Checking for a short circuit between the passenger high circuit and voltage.



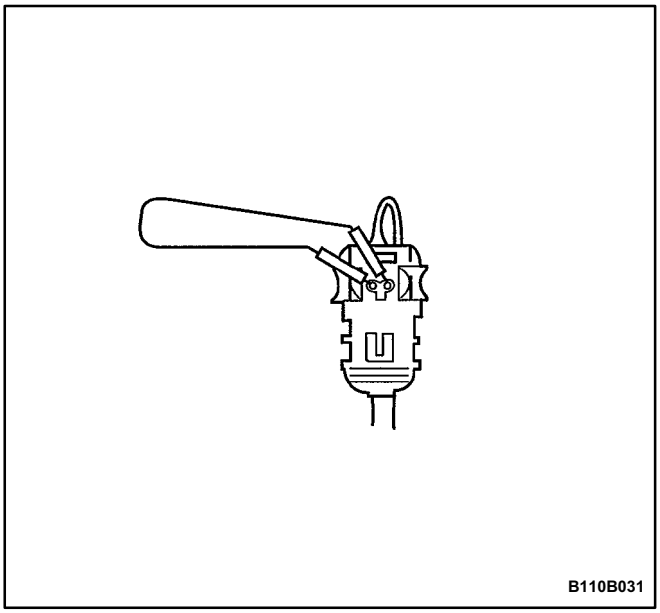
DIAGNOSTIC ILLUSTRATION 7

Checking for a short circuit between the passenger low circuit and voltage.



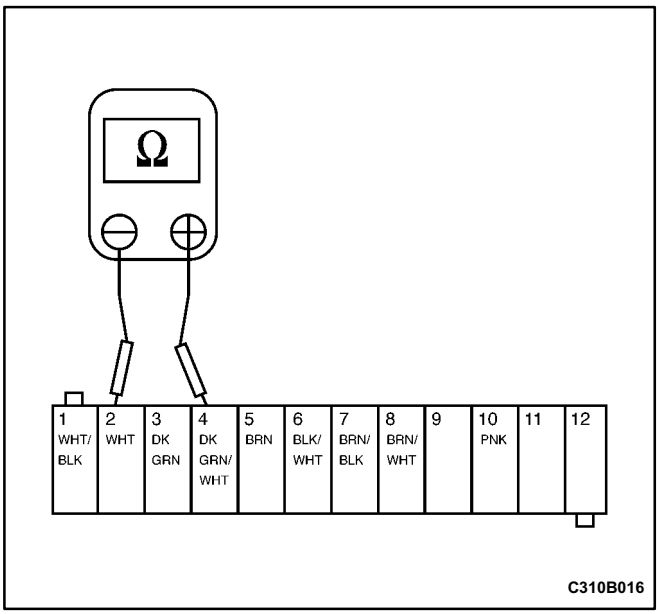
DIAGNOSTIC ILLUSTRATION 8

Placing a jumper on the SDM side of the yellow clock spring connector.



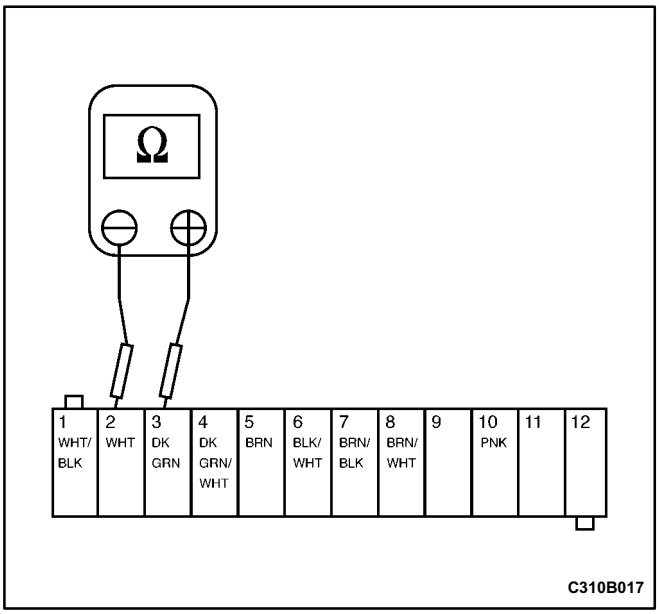
DIAGNOSTIC ILLUSTRATION 9

Placing a jumper on the clock spring to airbag connector.



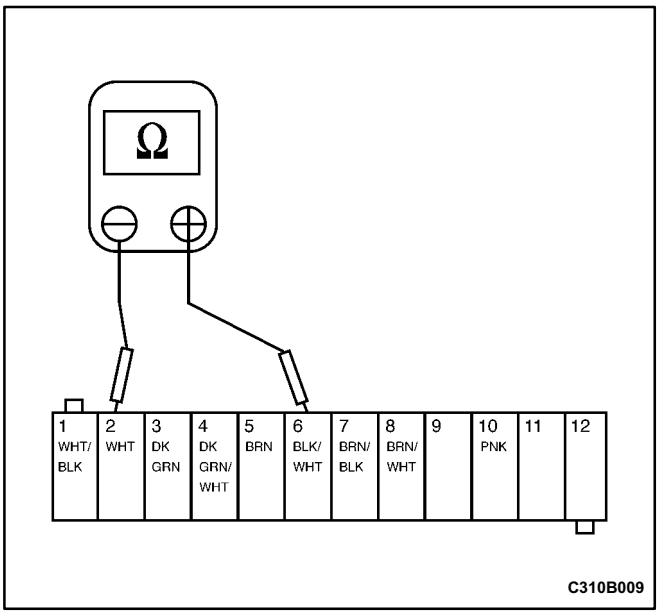
DIAGNOSTIC ILLUSTRATION 10

Checking for a short circuit between the driver high and passenger low circuits.



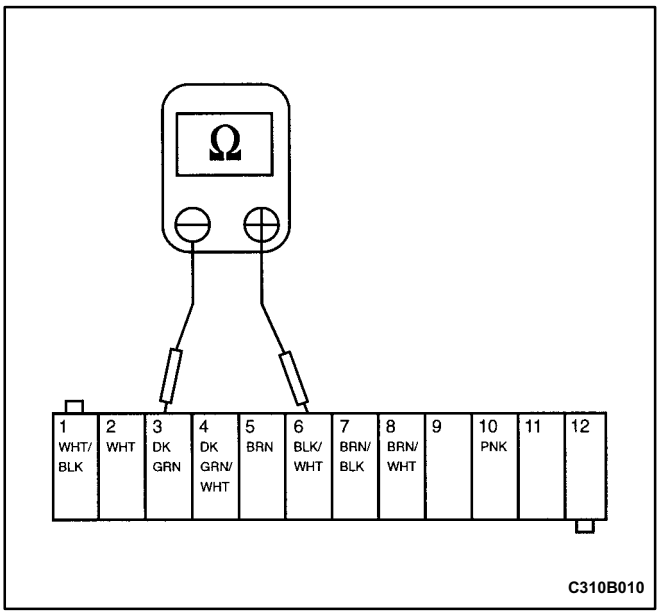
DIAGNOSTIC ILLUSTRATION 11

Checking for a short circuit between the driver high and driver low circuits.



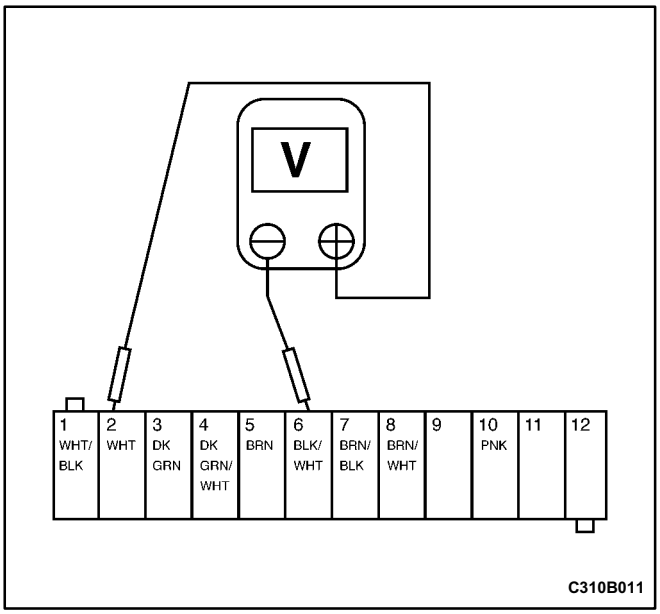
DIAGNOSTIC ILLUSTRATION 12

Checking for a short circuit between the driver high circuit and ground.



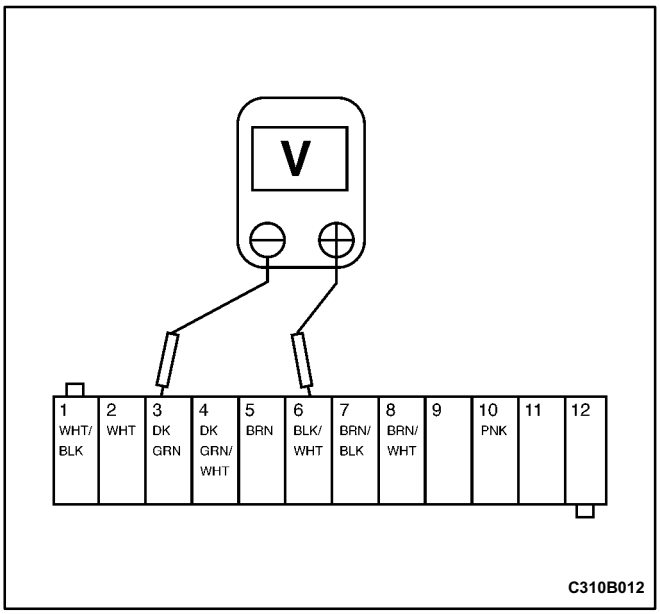
DIAGNOSTIC ILLUSTRATION 13

Checking for a short circuit between the driver low circuit and ground.



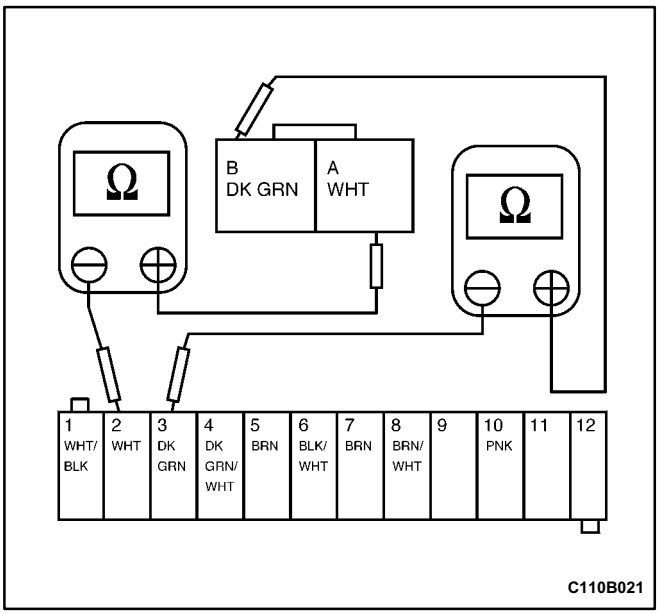
DIAGNOSTIC ILLUSTRATION 14

Checking for a short circuit between the driver high circuit and voltage.



DIAGNOSTIC ILLUSTRATION 15

Checking for a short circuit between the driver low circuit and voltage.



DIAGNOSTIC ILLUSTRATION 16

Checking for an open circuit between the sensing and diagnostic module (SDM) and the clock spring.

MAINTENANCE AND REPAIR

ON-VEHICLE SERVICE

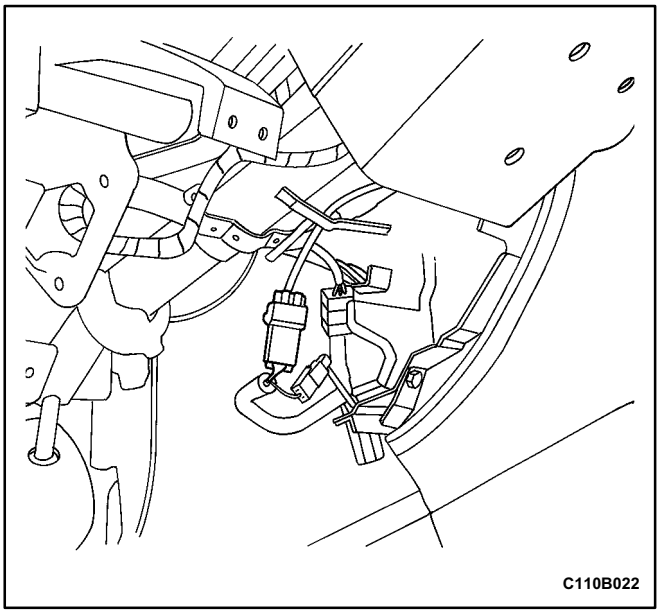
SERVICE PRECAUTIONS

Caution: The SDM can maintain sufficient voltage to deploy the airbags for 10 minutes after the ignition is OFF and the AIRBAG fuse has been removed. If the airbags are not disconnected, service cannot begin until 10 minutes have passed after disconnecting power to the SDM. If the airbags are disconnected, service can begin immediately without waiting for the 10 minute time period to expire. Failure to temporarily disable the SIR system during servicing can result in unexpected deployment, personal injury, and otherwise unneeded SIR system repairs.

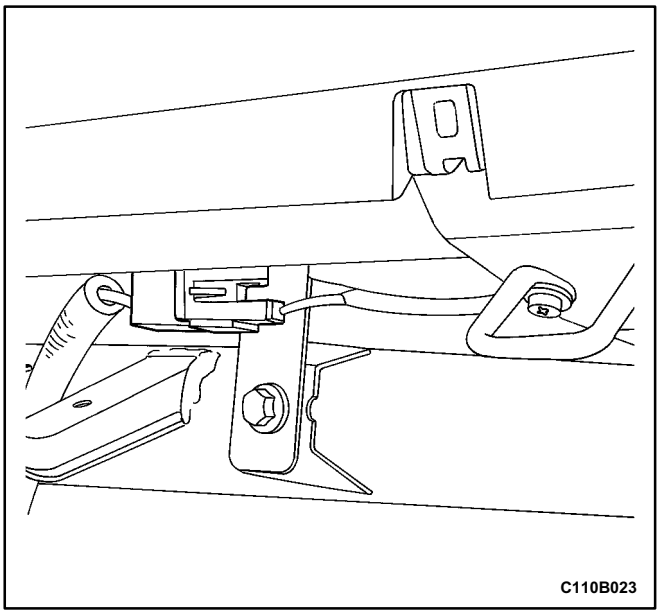
Caution: Do not measure the resistance of an airbag module with an ohmmeter. An ohmmeter checks resistance by sending current through a component, and the current from the ohmmeter's battery could cause unexpected deployment, personal injury, and otherwise unneeded SIR system repairs.

DISABLING THE SIR SYSTEM

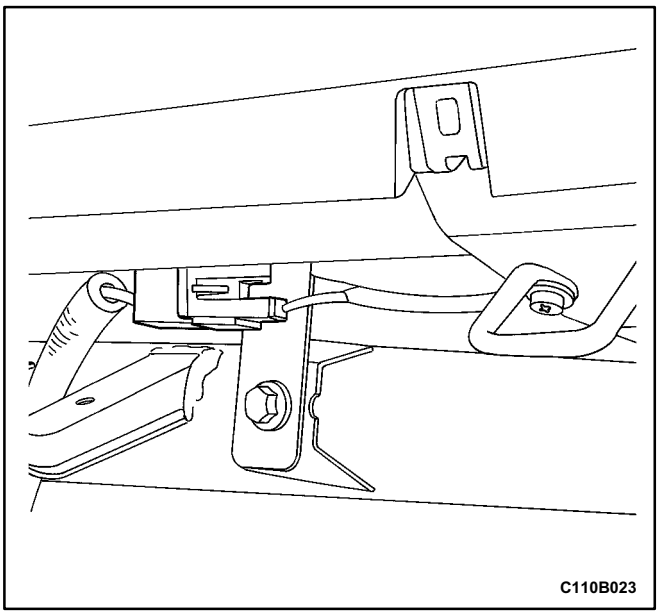
(Left-Hand Drive Shown, Right-Hand Drive Similar)


C110B022

1. Turn the steering wheel to the straightāhead position.
2. Turn the ignition switch to LOCK and remove the key.
3. Remove the driver side knee bolster. Refer to *Section 9G, Interior Trim*.
4. Disconnect the yellow clock spring connector on the lower steering column.

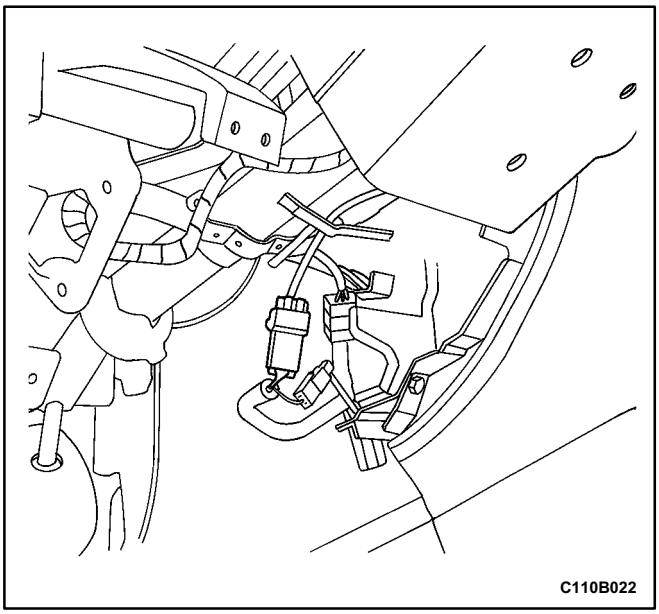

C110B023

5. Remove the glove box. Refer to *Section 9E, Instrumentation/Driver Information*.
6. Disconnect the passenger airbag connector.



ENABLING THE SIR SYSTEM

1. Turn the ignition switch to LOCK and remove the key.
2. Connect the yellow connector at the passenger airbag.



3. Install the glove box. Refer to *Section 9E, Instrumentation/Driver Information*.
4. Connect the yellow connector at the lower steering column.
5. Install the driver side knee bolster. Refer to *Section 9G, Interior Trim*.
6. Replace the AIRBAG fuse if it was previously removed.
7. Staying well away from the inflator modules, turn the ignition switch to ON, and verify that the AIRBAG indicator flashes seven times and then turns OFF. If it does not operate as described, perform the SIR Diagnostic System Check.

HANDLING, INSTALLATION, AND DIAGNOSIS

- Airbag modules should not be subjected to temperatures above 65°C (150°F).
- An airbag module or a sensing and diagnostic module (SDM) should not be used if it has been dropped from a height of 0.9 meters (3 feet) or greater.
- When a SDM is replaced, it must be oriented with the arrow on the sensor pointing toward the front of the vehicle.
- It is very important for the SDM to be installed flat on the mounting surface, parallel to the vehicle's longitudinal axis.
- To avoid setting diagnostic trouble codes (DTCs), do not apply power to the SIR system unless all components are connected or a diagnostic chart requests it.
- The SIR Diagnostic System Check must be the starting point of any SIR diagnostics. The SIR Diagnostic System Check will verify proper AIRBAG indicator operation and will lead you to the correct chart to diagnose any SIR malfunctions. Bypassing these procedures may result in extended diagnostic time and incorrect parts replacements.

REPAIRS AND INSPECTIONS REQUIRED AFTER AN ACCIDENT

Caution: Any repairs to the vehicle's structure must return it to the original production configuration. Deployment requires replacement of the SDM, the inflator modules, and a dimensional inspection of the steering column.

- If any SIR system components are damaged, they must be replaced. If SIR component mounting points are damaged, they must be repaired or replaced.
- Never use SIR parts from another vehicle. This does not include remanufactured parts purchased from an authorized source.
- Do not attempt to service the SDM, the clock spring, or the airbag modules. These items must be replaced if they are defective.
- Verify the part number of replacement airbag modules. Some inflator modules look identical but contain different internal components.

ACCIDENT WITH DEPLOYMENT - COMPONENT REPLACEMENT AND INSPECTIONS

Certain SIR components must be replaced or inspected for damage after a frontal crash involving airbag deployment. Replace the following SIR components:

- The SDM.
- Inflator modules.

Inspect the clock spring and replace it if necessary. Inspect the wiring and the connector for any signs of scorching, melting, or damage due to excessive heat.

ACCIDENT WITH OR WITHOUT DEPLOYMENT - COMPONENT INSPECTIONS

Certain inspections must be performed after any crash, whether the airbag has deployed or not:

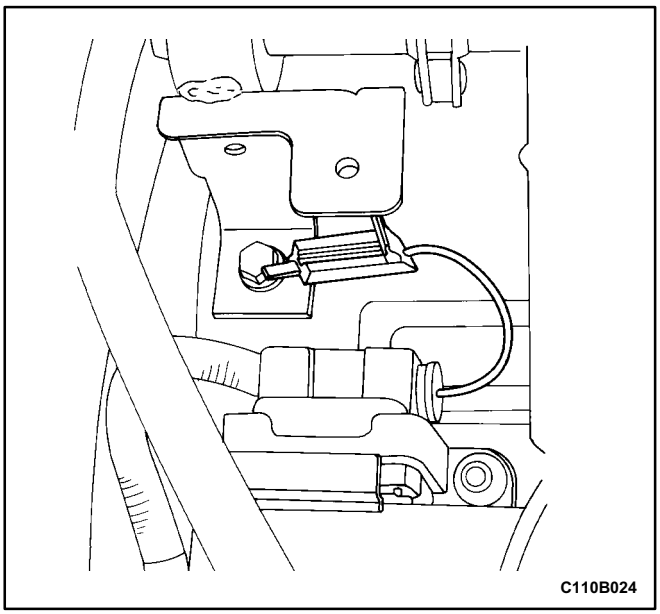
- The steering column must be dimensionally inspected.
- Inspect the knee bolsters and mounting points for distortion, bending, cracking, or other damage.
- Inspect the instrument panel (I/P) steering column reinforcement plate for distortion, bending, cracking, or other damage.
- Inspect the I/P braces for for distortion, bending, cracking, or other damage.
- Inspect seat belts and mounting points. Refer to *Section 10A, Seat Belts*.

SENSING AND DIAGNOSTIC MODULE (SDM)

(Left-Hand Drive Shown, Right-Hand Drive Similar)

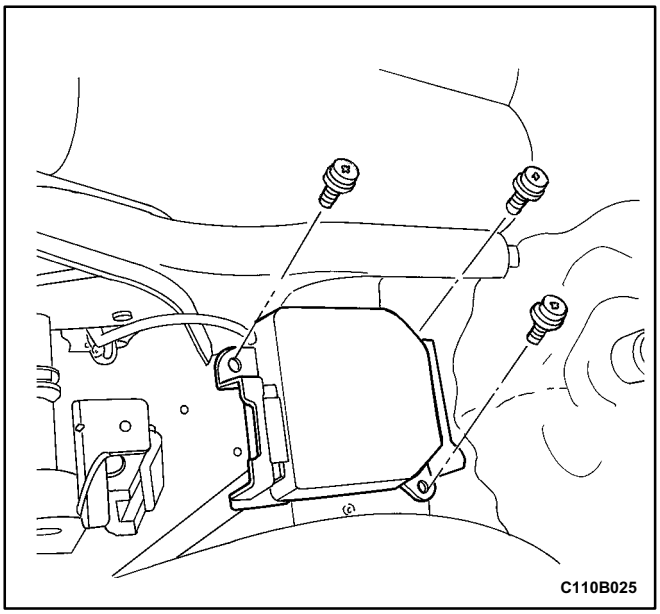
Caution: During service procedures, be very careful when handling the SDM. Never strike or jar the SDM. Never power up the SIR system when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened, and the SDM arrow must be pointing toward the front of the vehicle to ensure proper operation of the SIR system. The SDM could be activated if it is powered while not rigidly attached to the vehicle, resulting in unexpected deployment and possible injury.

Important: If the vehicle interior has been exposed to extensive water intrusion such as water leaks, driving through high water, flooding, or other causes, the sensing and diagnostic module (SDM) and the SDM connector may need to be replaced. With the ignition OFF, inspect the area around the SDM, including the carpet. If any significant soaking or evidence of previous soaking is detected, the water must be removed, the water damage repaired, and the SDM and SDM connector must be replaced. Before attempting any of these repairs, the supplemental inflatable restraint (SIR) system must be disabled. Refer to „Disabling the SIR System” in this section.

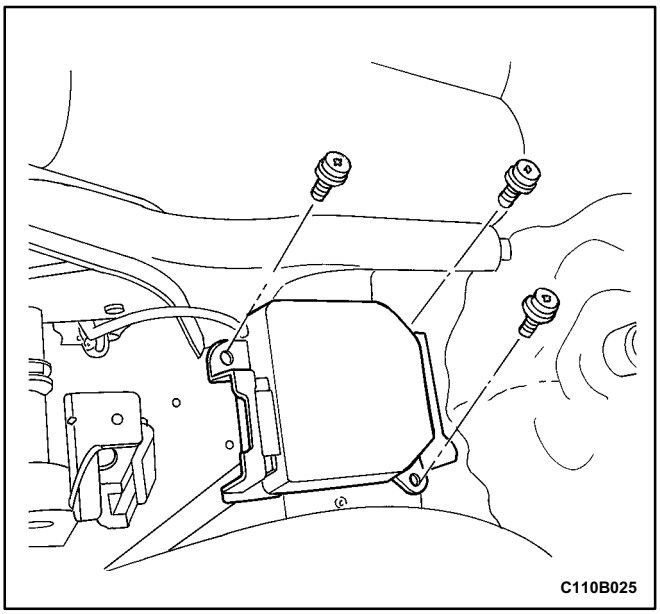

C110B024

Removal Procedure

1. Disable the SIR system. Refer to „Disabling the SIR System" in this section.
2. Remove the floor console. Refer to *Section 9G, Interior Trim.*
3. Remove the connector position assurance lock, which is tethered to the SDM connector.


C110B025

4. Disconnect the SDM electrical connector.
5. Remove the SDM mounting bolts.
6. Remove the SDM.

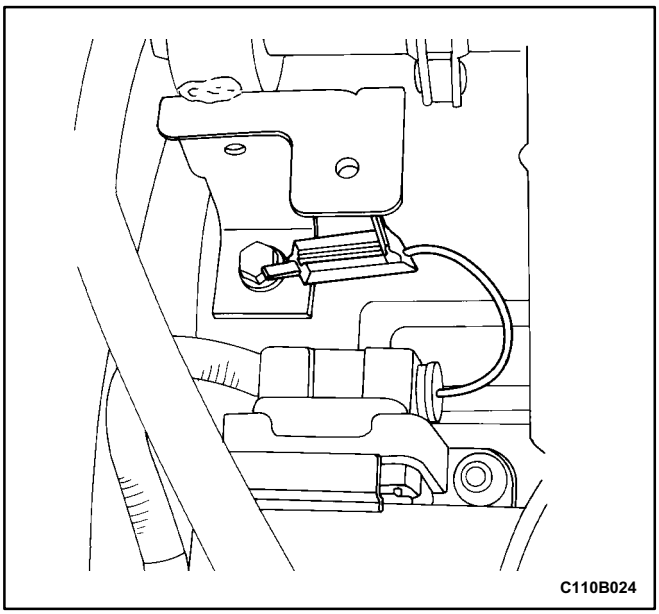

C110B025

Installation Procedure

1. Install the SDM with the arrow pointing toward the front of the vehicle.
2. Install the SDM mounting bolts.

Tighten

Tighten the SDM mounting bolts to 10 N•m (89 lb•in).



3. Connect the SDM electrical connector.
4. Install the connector position assurance lock.
5. Install the floor console. Refer to *Section 9G, Interior Trim*.
6. Enable the SIR system. Refer to „Enabling the SIR System" in this section.

DRIVER AIRBAG MODULE

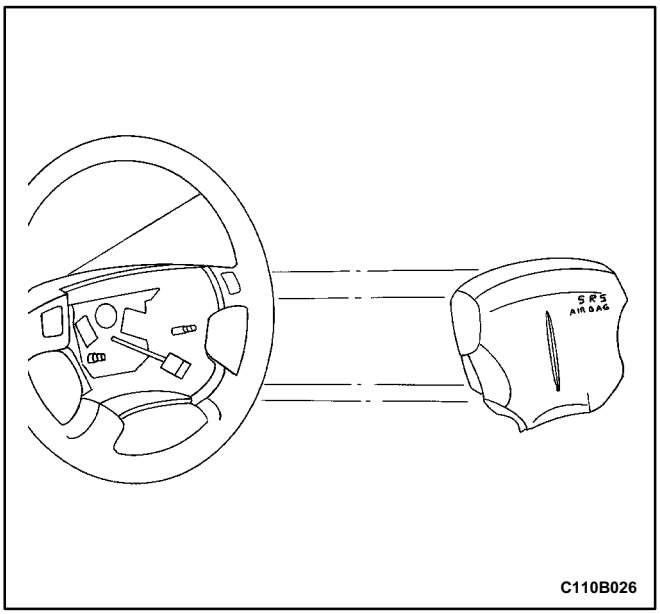
After deployment, a powdery residue may be on the surface of the airbag. The powder consists primarily of cornstarch (used to lubricate the bag as it inflates) and byproducts of the chemical reaction. Sodium hydroxide dust (similar to lye soap) is produced as a byproduct of the deployment reaction. The sodium hydroxide then quickly reacts with atmospheric moisture and is converted to sodium carbonate and sodium bicarbonate (also known as baking soda). Therefore, it is unlikely that sodium hydroxide will be present after deployment. Wear gloves and safety glasses during the disposal procedure. Refer to „Deployed Airbag Module Disposal Procedure" in this section.

Removal Procedure

1. Disconnect the negative battery cable.

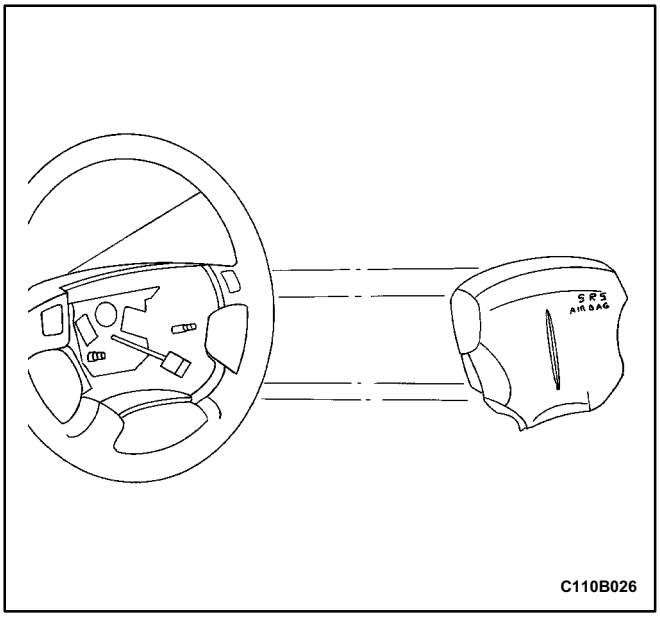
Caution: The SDM can maintain sufficient voltage to deploy the airbags for 10 minutes after the ignition is OFF and the AIRBAG fuse has been removed. If the airbags are not disconnected, service cannot begin until 10 minutes have passed after disconnecting power to the SDM. If the airbags are disconnected, service can begin immediately without waiting for the 10 minute time period to expire. Failure to temporarily disable the SIR system during servicing can result in unexpected deployment, personal injury, and otherwise unneeded SIR system repairs.

2. If the airbag has not been deployed, remove the knee bolster and disconnect the yellow clock spring connector on the lower steering column. Refer to „Disabling the SIR System" in this section.
3. Position the steering wheel straight ahead.
4. Remove the driver airbag module mounting bolts.



Caution: When handling an airbag module, always keep the top of the unit facing upward. This leaves room for the airbag to expand if the module unexpectedly deploys. Without room for expansion, a module suddenly propelled toward a person or object can cause injury or vehicle damage.

5. Remove the connectors from the horn terminal and the driver airbag module.
6. Remove the driver airbag module.



Installation Procedure

Caution: When removing an airbag module or handling a new airbag module, always keep the top of the unit facing upward. This leaves room for the airbag to expand if the module unexpectedly deploys. Without room for expansion, a module suddenly propelled toward a person or object can cause injury or vehicle damage.

1. Install the connectors to the horn terminal and the driver airbag module.
2. Install the driver airbag module.
3. Install the driver airbag module mounting bolts.

   ### Tighten

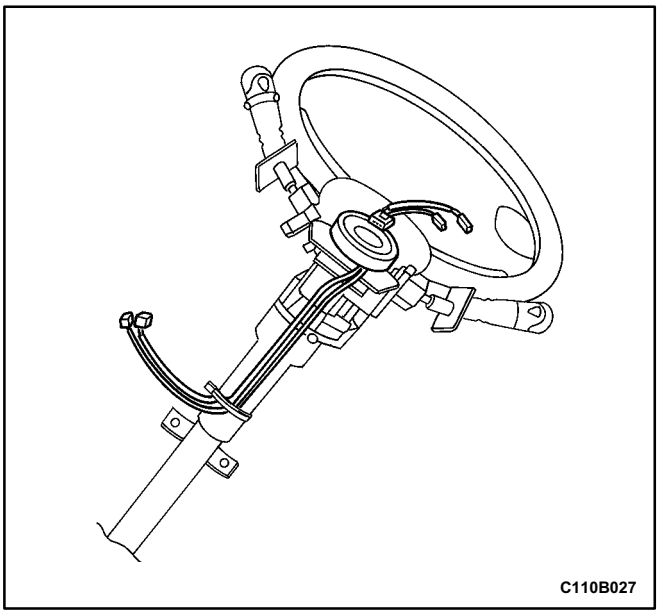
   Tighten the driver airbag module mounting bolts to 4.6 N•m (41 lb•in).
4. If the yellow clock spring connector was previously disconnected, connect the clock spring connector on the lower steering column and replace the knee bolster.
5. Connect the negative battery cable.

CLOCK SPRING

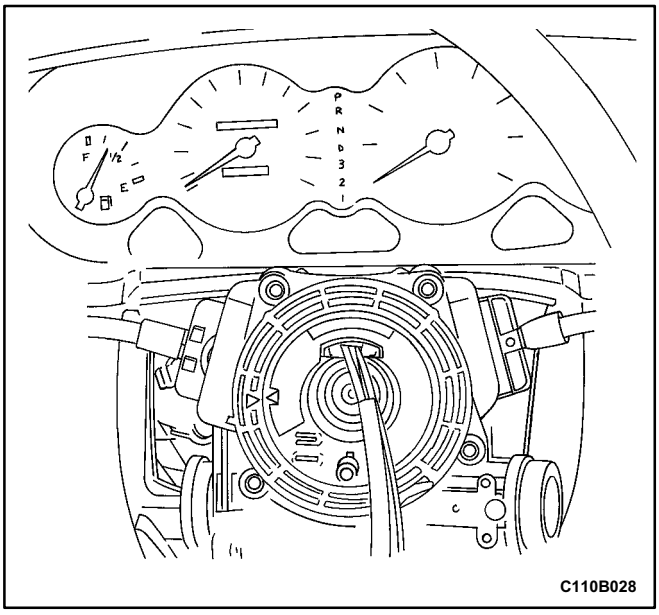
Removal Procedure

Caution: The SDM can maintain sufficient voltage to deploy the airbags for 10 minutes after the ignition is OFF and the AIRBAG fuse has been removed. If the airbags are not disconnected, service cannot begin until 10 minutes have passed after disconnecting power to the SDM. If the airbags are disconnected, service can begin immediately without waiting for the 10 minute time period to expire. Failure to temporarily disable the SIR system during servicing can result in unexpected deployment, personal injury, and otherwise unneeded SIR system repairs.

1. Disconnect the negative battery cable.
2. Turn the front wheels straight ahead.

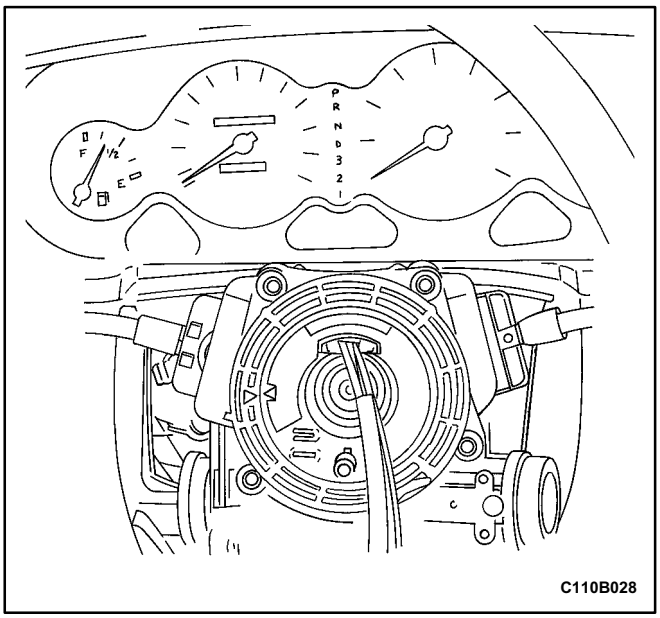

C110B027

3. Remove the driver side airbag module. Refer to „Driver Airbag Module" in this section.
4. Remove the steering wheel. Refer to *Section 6E, Steering Wheel and Column*.
5. Remove the driver side knee bolster by carefully pulling until it snaps away from its mounting clips.
6. Disconnect the connectors at the lower steering column.



C110B028

7. Remove the screws and the clock spring from the steering shaft.



Installation Procedure

Caution: If the clock spring is not properly aligned, the steering wheel may not be able to rotate completely during a turn. Restricted turning ability can cause the vehicle to crash. Improper alignment of the clock spring also may make the supplemental inflatable restraints (SIR) system inoperative, preventing the airbags from deploying during a crash. Both of these outcomes can result in injury.

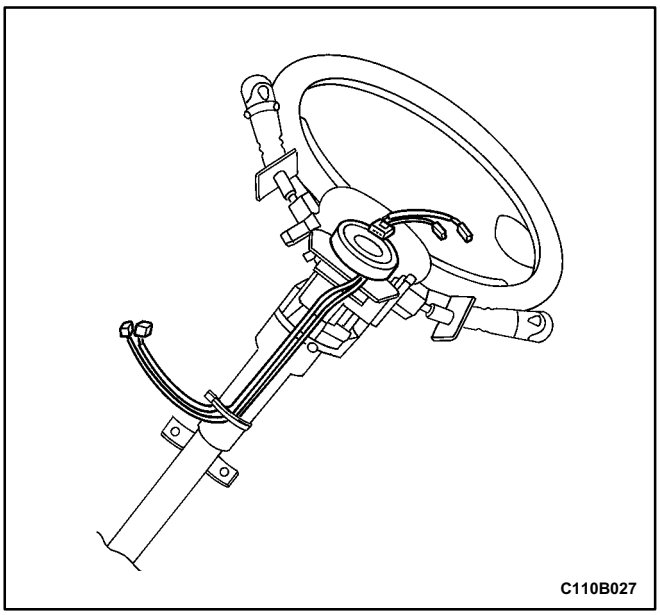
Notice: Turning the clock spring more than three turns clockwise or more than three turns counterclockwise can damage the spring.

1. Turn the front wheels straight ahead.
2. Install the clock spring with the screws.

Tighten

Tighten the clock spring mounting screws to 1.25 N•m (11 lb•in).

Important: The clock spring may come packed in material used to prevent damage to the spring during shipping or storage. Avoid installing any of the packing material with the clock spring.



3. Turn the lobe of the clock spring clockwise to lock.
4. Turn the lobe of the clock spring counterclockwise approximately three turns to the neutral position, with the front wheels straight ahead.
5. Properly align the pointed marks on the components of the clock spring.
6. Connect the electrical connectors on the lower steering column.
7. Install the driver side knee bolster.
8. Install the steering wheel. Refer to *Section 6E, Steering Wheel and Column*.
9. Connect the driver side airbag module and the horn connectors.
10. Install the driver side airbag module. Refer to „Driver Side Airbag Module” in this section.
11. Connect the negative battery cable.

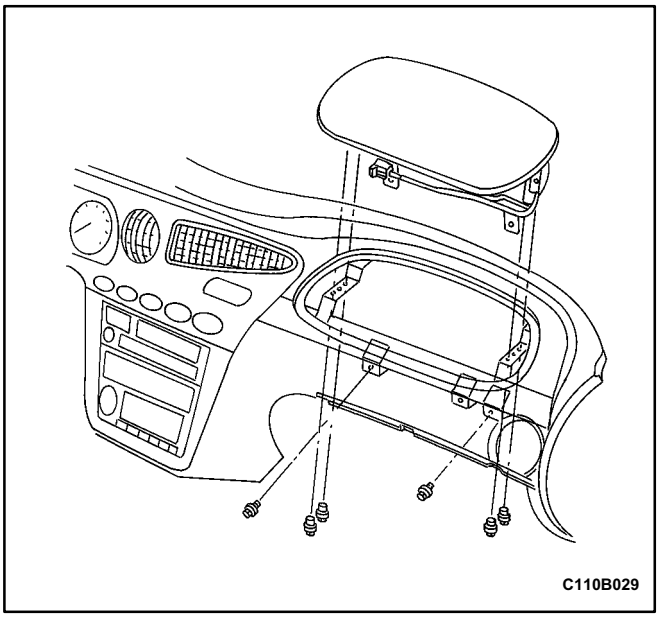
PASSENGER AIRBAG MODULE

(Left-Hand Drive Shown, Right-Hand Drive Similar)

After deployment, a powdery residue may be on the surface of the airbag. The powder consists primarily of cornstarch (used to lubricate the bag as it inflates) and by products of the chemical reaction. Sodium hydroxide dust (similar to lye soap) is produced as a by product of the deployment reaction. The sodium hydroxide then quickly reacts with atmospheric moisture and is converted to sodium carbonate and sodium bicarbonate (also known as baking soda). Therefore, it is unlikely that sodium hydroxide will be present after deployment. Wear gloves and safety glasses during the disposal procedure. Refer to „Deployed Airbag Module Disposal Procedure" in this section.

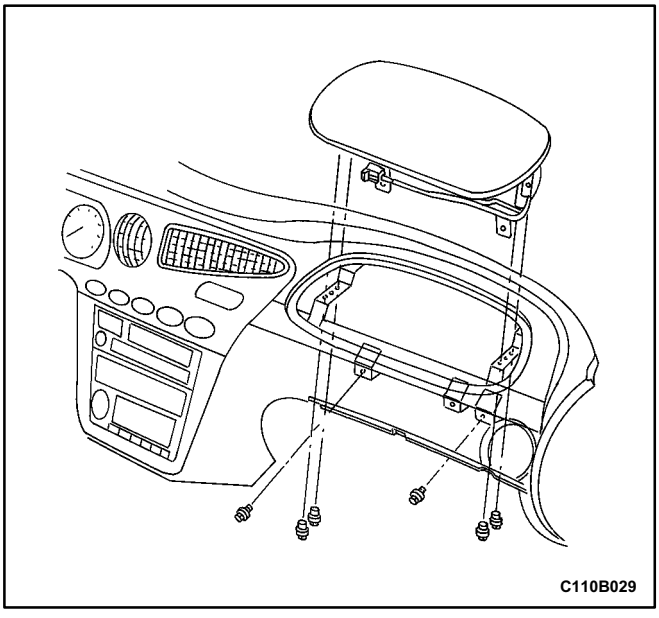
Removal Procedure

Caution: The SDM can maintain sufficient voltage to deploy the airbags for 10 minutes after the ignition if OFF or the AIRBAG fuse has been removed.



1. Turn the ignition switch to LOCK and remove the key.
2. Remove the glove box. Refer to *Section 9E, Instrumentation/Driver Information*.
3. Disconnect the passenger airbag yellow electrical connector.
4. Remove the passenger airbag mounting bolts.
5. Remove the passenger airbag module from the instrument panel.

Installation Procedure



1. Install the passenger airbag module in the instrument panel.
2. Install the passenger airbag mounting bolts.

Tighten

Tighten the passenger airbag mounting bolts to 10 N•m (89 lb•in).

3. Connect the passenger airbag electrical connector.
4. Install the glove box. Refer to *Section 9E, Instrumentation/Driver Information*.
5. Perform the SIR Diagnostic System Check in this section.

AIRBAG MODULE DEPLOYMENT (IN VEHICLE)

Deploy airbags before disposing of them. If a vehicle to be scrapped, the airbags may be deployed inside the vehicle.

Caution: Before deploying the airbags, remove all loose objects from the airbag's expansion area.

Caution: Deploy the airbags with the vehicle doors closed and the side windows open.

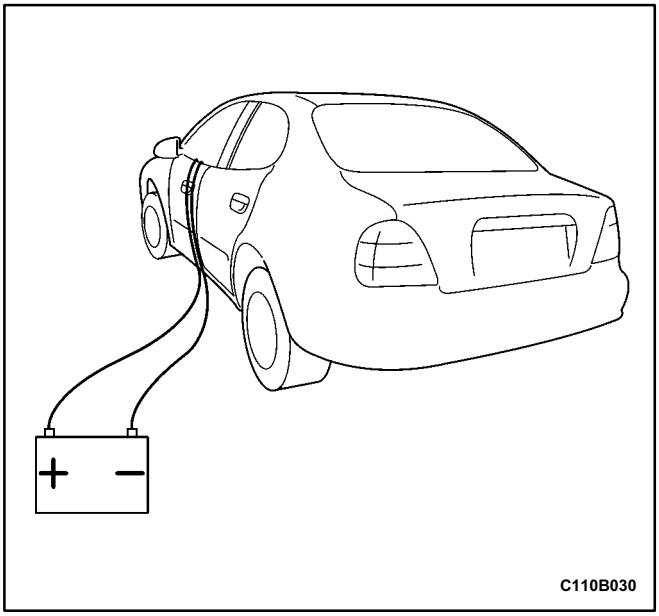
Caution: Deploy the airbags only in an evacuated area. Service personnel who must be present during the deployment should be at least 10 meters (33 feet) in front of the vehicle.

Caution: Do not connect the voltage source until after having completed all other preparations for the deployment of the airbags.

Caution: Allow a deployed airbag module to cool for at least 30 minutes before handling.

Caution: Wear gloves and eye protection during the disposal process.

Caution: If the deployment fails, disconnect the voltage source and wait 5 minutes before approaching the vehicle.

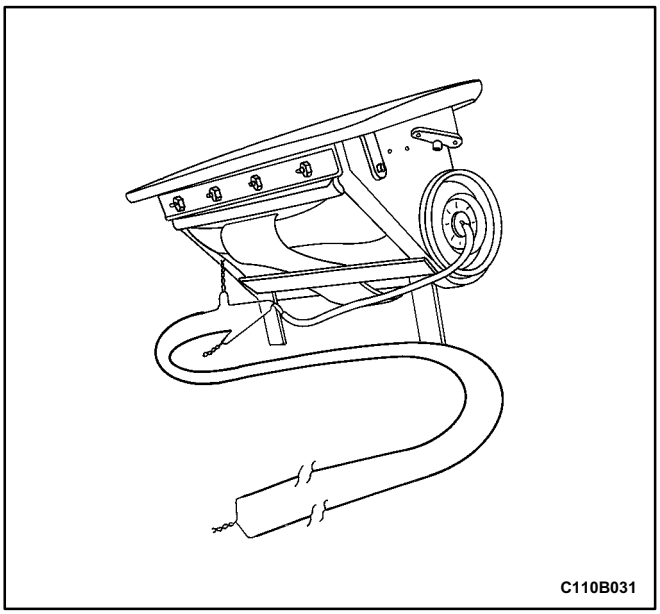


Deployment Procedure

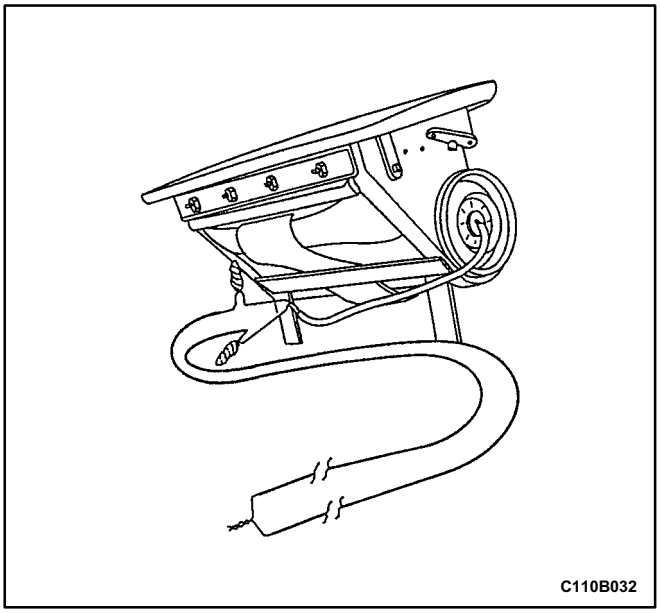
1. Disconnect both battery cables and place the battery at least 10 meters (33 feet) from the vehicle.

Caution: The SDM can maintain sufficient voltage to deploy the airbags for 10 minutes after the ignition is OFF and the AIRBAG fuse has been removed. If the airbags are not disconnected, service cannot begin until 10 minutes have passed after disconnecting power to the SDM. If the airbags are disconnected, service can begin immediately without waiting for the 10 minute time period to expire. Failure to temporarily disable the SIR system during servicing can result in unexpected deployment, personal injury, and otherwise unneeded SIR system repairs.

2. Remove the knee bolster from the steering column. Refer to *Section 9G, Interior Trim*.
3. At the lower steering column, cut the two wires leading from the supplemental inflatable restraint (SIR) harness to the clock spring.
4. Strip 13 mm (0.5 inch) of insulation from the ends of the wires leading to the clock spring.
5. Use two additional wires, each at least 10 meters (33 feet) long, to reach from the deployment battery to the inflator module.
6. Strip 13 mm (0.5 inch) of insulation from the ends of these two additional wires.
7. Twist the two wires together at one end.
8. Place the twisted ends of the two wires near the deployment battery. Do not connect the wires to the battery at this time.
9. Using the free ends of the 10 meter (33 foot) wires leading to the clock spring, make two splices, one at each wire from the airbag module.
10. Wrap the splices with insulating tape.
11. Now that the free ends of the 10 meter (33 foot) wires are spliced to the airbag module wires, and the ends that are twisted together are near the deployment battery, clear the area.
12. Untwist the wires that are near the deployment battery.
13. Touch one wire to the positive battery terminal and touch the other wire to the negative battery terminal. The airbag will deploy.


C110B031

14. Repeat the procedure for the passenger airbag, cutting the wires to the passenger airbag module instead of the wires leading to the clock spring.
15. Strip 13 mm (0.5 inch) of insulation from the ends of the wires leading to the passenger airbag module.
16. Use two additional wires, each at least 10 meters (33 feet) long, to reach from the deployment battery to the passenger airbag module.
17. Strip 13 mm (0.5 inch) of insulation from the ends of these two additional wires.
18. Twist the two wires together at one end.
19. Place the twisted ends of the two wires near the deployment battery. Do not connect the wires to the battery at this time.
20. Using the free ends of the 10 meter (33 foot) wires to the passenger airbag module, make two splices, one at each wire from the airbag module.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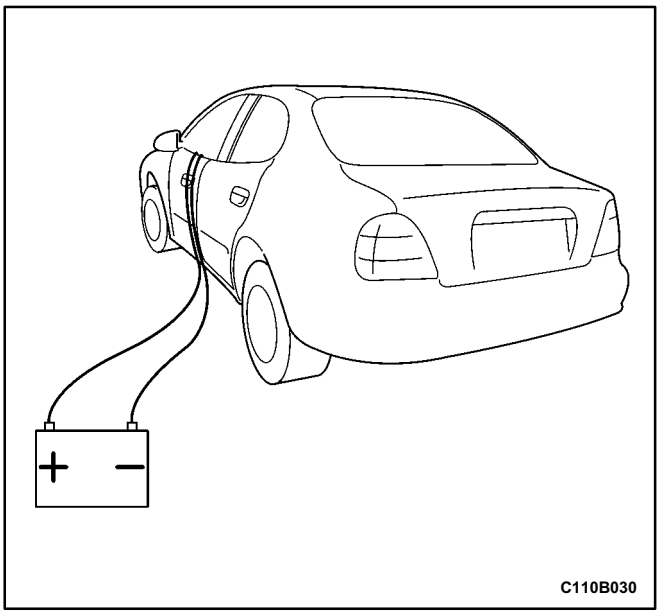
21. Wrap the splices with insulating tape.



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22. Now that the free ends of the 10 meter (33 foot) wires are spliced to the passenger airbag module wires, and the ends that are twisted together are near the deployment battery, clear the area.
23. Untwist the wires that are near the deployment battery.
24. Touch one wire to the positive battery terminal and touch the other wire to the negative battery terminal. The passenger airbag will deploy.
25. Using the proper precautions, dispose of the deployed airbag. Refer to „Deployed Airbag Module Disposal Procedure” in this section.

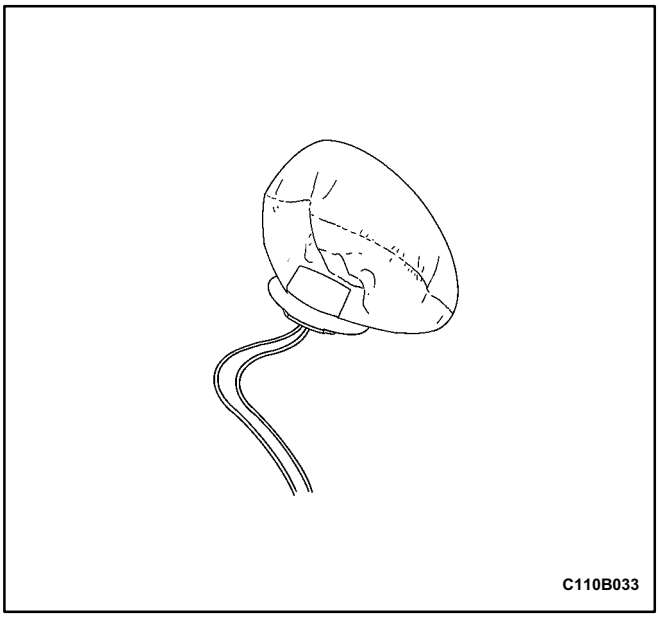
AIRBAG MODULE DEPLOYMENT (OUTSIDE OF VEHICLE)

If the vehicle is within the warranty period, contact the Daewoo regional service manager for approval or special instructions before deploying the airbag modules. Deploy airbag modules in the following situations:

- If a vehicle is to be scrapped. Refer to „Airbag Module Deployment (Inside of Vehicle)" in this section.
- If an airbag module is damaged during transit, storage, or service.

Caution: Deploy the airbags only in an evacuated area. Service personnel who must be present during the deployment should be at least 10 meters (33 feet) in front of the vehicle.

Caution: Do not connect the voltage source until completing all other preparations for the deployment of the airbags.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Caution: Allow a deployed airbag module to cool for at least 30 minutes before removing it from the vehicle.

Caution: Wear gloves and eye protection during the disposal process.

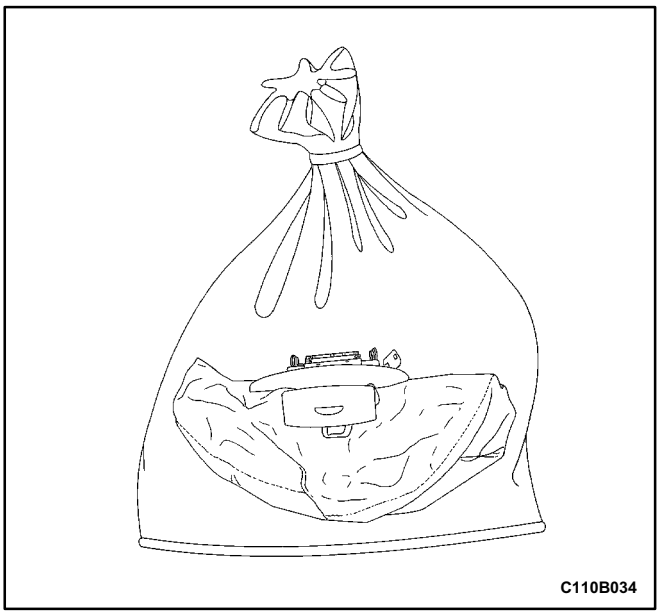
Caution: If the deployment fails, disconnect the voltage source and wait 5 minutes before approaching the vehicle.

1. Position the airbag module face up, on flat ground outdoors, at least 10 meters (33 feet) from any obstacles or people.
2. Place a vehicle battery at least 10 meters (33 feet) away from the airbag module.
3. Deploy the airbag module using the deployment tool.
4. Using the proper precautions, dispose of the deployed airbag. Refer to „Deployed Airbag Module Disposal Procedure" in this section.

DEPLOYED AIRBAG MODULE DISPOSAL PROCEDURE

After deployment, a powdery residue may be on the surface of the airbag. The powder consists primarily of cornstarch (used to lubricate the bag as it inflates) and by products of the chemical reaction. Sodium hydroxide dust (similar to lye soap) is produced as a by product of the deployment reaction. The sodium hydroxide then quickly reacts with atmospheric moisture and is converted to sodium carbonate and sodium bicarbonate (also known as baking soda). Therefore, it is unlikely that sodium hydroxide will be present after deployment.

Caution: Wear gloves and safety glasses during the disposal procedure.



Caution: After deployment, the metal surfaces of the airbag module will be hot. In order to avoid the risk of an injury or a fire, do not place the deployed airbag modules near any flammable objects, and allow the airbag modules to cool for 30 minutes before handling them.

Deploy an airbag before disposing of it. This includes those in a whole vehicle being scrapped. If the vehicle is still within the warranty period, contact the Daewoo regional service manager for approval or special instructions before deploying an airbag module. Deployed airbag modules should be disposed of in the same manner as any other scrap parts, with the addition of the following steps:

1. Place the deployed airbag in a sturdy plastic bag.
2. Seal the plastic bag securely.
3. Wash your hands and rinse them with water after handling a deployed airbag.

SIR WIRING REPAIR

Connector Repair

Caution: Before attempting any repairs, the SIR system must be disabled. Refer to „Disabling the SIR System" in this section for instructions on how to disable the SIR system.

The terminals in the SIR system are made of a special metal to provide necessary contact integrity for the sensitive, low energy circuits. These terminals are available only in the connector repair assembly packs. Do not substitute any other terminals for those in the assembly packs.

Wire Repair

Caution: Before attempting any repairs, the SIR system must be disabled. Refer to „Disabling the SIR System" in this section for instructions on how to disable the SIR system.

Do not repair wires or connectors attached to the passenger airbag module or the clock spring. If the wires or connectors on the clock spring or passenger airbag are damaged, the clock spring or passenger airbag must be replaced. If any other wire is damaged, the wire should be repaired by splicing in a new section of wire of the same gauge. To protect the repair, spliced wires must be sealed with heat shrink tubing. If the splices are not made correctly, the result will be a high resistance connection, and the AIRBAG indicator will turn on.

GENERAL DESCRIPTION AND SYSTEM OPERATION

SIR SYSTEM

(Left–Hand Drive Shown, Right–Hand Drive Similar)

The supplemental inflatable restraints (SIR) system is a safety device used in conjunction with the seat belts.

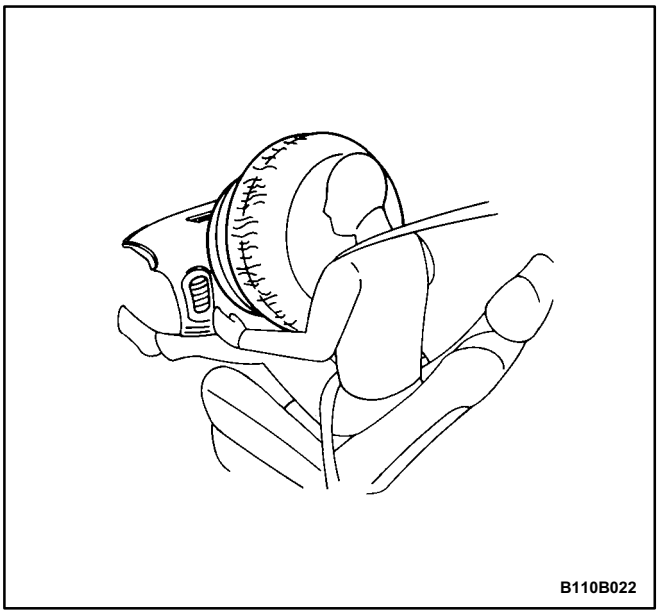
The airbag does not replace the function of the seat belt. The driver and the passengers must always fasten their seat belts and adjust them for a proper fit.

The SIR is designed to protect the driver and the front seat passenger in the event of a significant frontal impact to the vehicle. The airbags deploy if the force is applied from a direction within 30 degrees of the vehicle's centerline.

The SIR system consists of a

- Driver side airbag module.
- Passenger side airbag module.
- Sensing and diagnostic module (SDM).
- Clock spring.
- Wire harness and connectors.
- AIRBAG indicator on the instrument cluster.

There are two separate deployment loops in the SIR system. The term „loop" is used because current leaves the SDM and returns to the SDM during deployment or testing. One loop is the circuit from the SDM to the driver airbag and back to the SDM. The other loop is the circuit from the SDM to the passenger airbag and back to the SDM.



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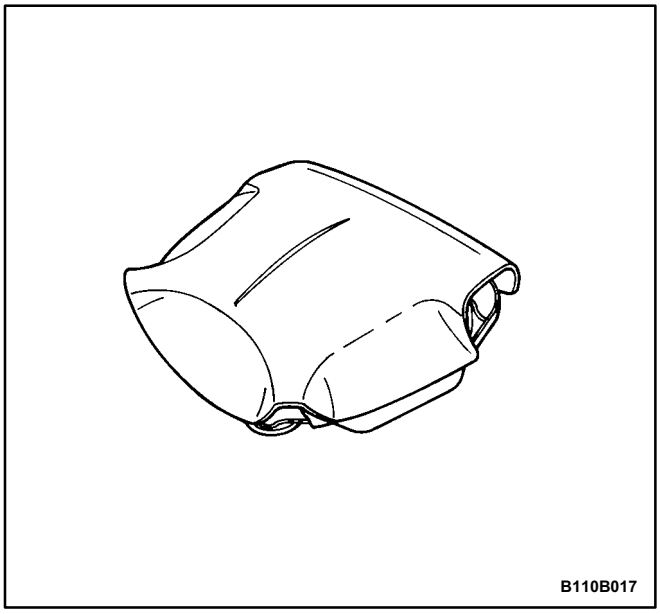
AIRBAG MODULES

Driver Airbag Module

Caution: Tampering with the driver side airbag module creates the risk of an injury from an unexpected deployment. Therefore, the driver side airbag module should never be disassembled.

The driver airbag module is under the center pad of the steering wheel.

The driver airbag module contains an ignition charge and a gas generator to inflate the folded airbag.



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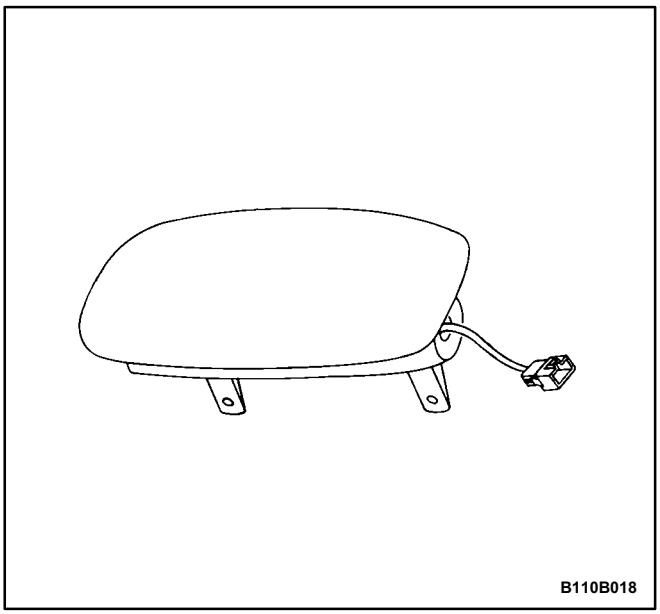
Passenger Airbag Module

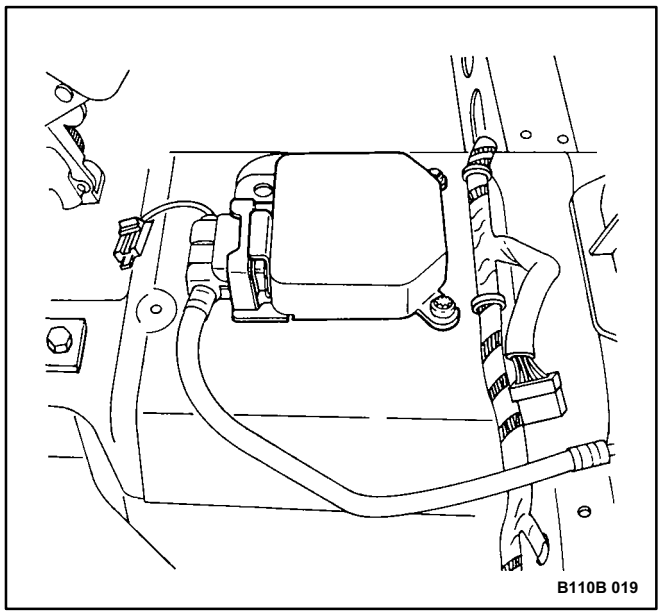
Caution: Tampering with the passenger side airbag module creates the risk of an injury from an unexpected deployment. Therefore, the passenger side airbag module should never be disassembled.

The passenger airbag module is on the passenger side of the instrument panel.

The passenger airbag module contains an ignitor charge and a gas generator to inflate the folded airbag.

The passenger airbag also includes wiring and a connector. The airbag side of the yellow connector contains a shorting bar which short circuits the passenger high circuit to the passenger low circuit when the connector is disconnected. The shorting bar prevents current from traveling through the passenger airbag module during servicing. The shorting bar is disengaged when the connector is connected. If the wiring or connector on the passenger airbag is damaged, the passenger airbag must be replaced.





SENSING AND DIAGNOSTIC MODULE (SDM)

Caution: During service procedures, be careful when handling the SDM. Never shake or jar the SDM. Never apply power to the SIR system when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be fully tightened. The arrow on the SDM must point toward the front of the vehicle. Failure to follow these precautions could cause deployment and result in personal injury.

The SDM is located on the floor beneath the floor console assembly. The SDM performs the following functions:

- Monitors the supplemental inflatable restraint (SIR) system electrical components and sets a diagnostic trouble code (DTC) when a malfunction is detected.
- Records any faults that are discovered.
- Displays SIR diagnostic trouble codes and system status information when connected to a scan tool.
- Illuminates the AIRBAG indicator to alert the driver to any faults.
- Provides a reserve power source to deploy the airbags if an accident has disabled the normal power source.
- Monitors vehicle velocity changes to detect frontal impacts which are severe enough to warrant deployment.
- Causes current to flow through the airbag modules to cause deployment if a frontal impact of sufficient force is detected.

The SDM contains no user serviceable parts.

AIRBAG WARNING LAMP

The instrument cluster contains an AIRBAG warning indicator. To verify the operation of the AIRBAG indicator and the sensing and diagnostic module (SDM), the SDM performs a turn-on test when the ignition is turned ON. The SDM flashes the AIRBAG indicator seven times by supplying an intermittent ground to the indicator lamp circuit. After flashing seven times, the AIRBAG indicator will turn off if no malfunctions have been detected.

The AIRBAG indicator stays on if the SDM has detected malfunctions in the internal or external circuits which could potentially affect the operation of the supplemental inflatable restraint (SIR) system. Some malfunctions could result in nondeployment when necessary or deployment under conditions which would not normally result in deployment.

When the SDM is not properly attached to its connector, the AIRBAG circuit is shorted to ground because there is a shorting bar within the SDM electrical connector. The shorting bar is disengaged when a proper connection is made, but if a poor connection exists the SDM connector supplies a ground to the AIRBAG indicator independently of the SDM, and the AIRBAG indicator turns on.

CLOCK SPRING

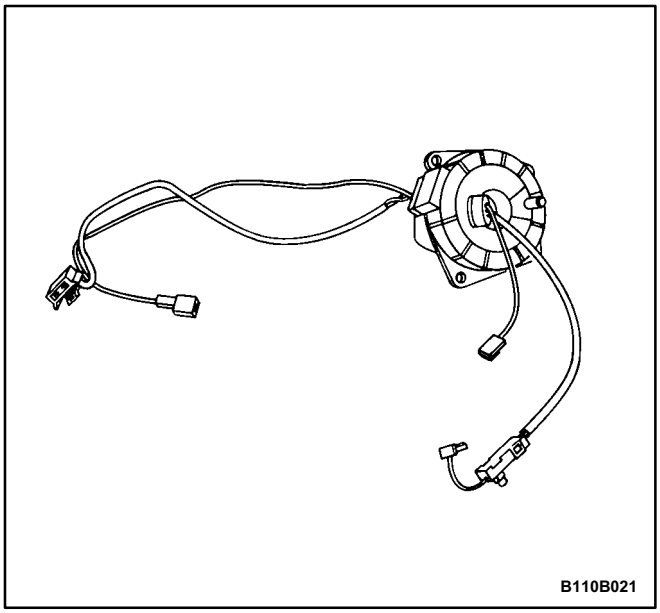
Caution: Disassembling the clock spring can cause injury or cause the clock spring to malfunction.

Caution: Over rotating the clock spring without the steering wheel in position could damage the clock spring and result in an inoperative driver airbag.

There is a coil assembly in the steering which is referred to as a clock spring because of its internal resemblance to the type of spring used in a mechanical clock. The clock spring should never be disassembled, and there is no timekeeping function. The clock spring contains current carrying coils. Two of the current carrying coils maintain continuous contact within the driver deployment loop while the steering wheel is rotated. The clock spring also contains a coil that maintains continuous contact for the horn circuit.

Turning the steering wheel in one direction tightens the coil, and turning the steering wheel in the opposite direction loosens the coil. Do not turn rotate the clock spring when the steering wheel is not attached. Refer to „Clock Spring" in this section for proper installation of the clock spring.

The clock spring also includes the wiring and the connectors for the horn circuit and the driver airbag circuit. A yellow two-way connector on the lower steering column is attached to the clock spring wiring. The airbag side of the yellow connector contains a shorting bar which connects the driver high circuit to the driver low circuit when the connector is disconnected. The shorting bar prevents current from traveling through the driver airbag module during servicing. The shorting bar is disengaged when the clock spring connector is connected.



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