

## 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 be also be in LOCK unless otherwise noted*

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## 8B – 2 SUPPLEMENTAL INFLATABLE RESTRAINTS (SIR)

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# SPECIFICATIONS

## GENERAL SPECIFICATIONS


Application	Description
Airbag System Deployment Time	<20ms
Detection Time	<5ms
Operating Temperature	-40 °C~+85 °C
Storage Temperature	-40 °C~+90 °C
Voltage Range	9~16 V
Current consumption	5ms after ignition switch ON <1A 5ms – 5sec<300Ma, after 5sec.<100Ma
Acceleration Range	+/- 50g
Maximum Acceleration	+/- 600g pulse
Voltage Ramp	0.2~2.0 V/s
Energy Reservation	150ms after battery disconnection
Inflator Ignition Energy	4.3mj
Squib Resistance	2.15 +/- 0.35Ω
Airbag Warning Lamp ON Time(When Ignition ON)	6sec

## FASTENER TIGHTENING SPECIFICATIONS

Application	N·m	Lb-Ft	Lb-In
Clock Spring Retaining Screws	3	–	27
Driver Airbag Module Mounting Bolts	11	–	97
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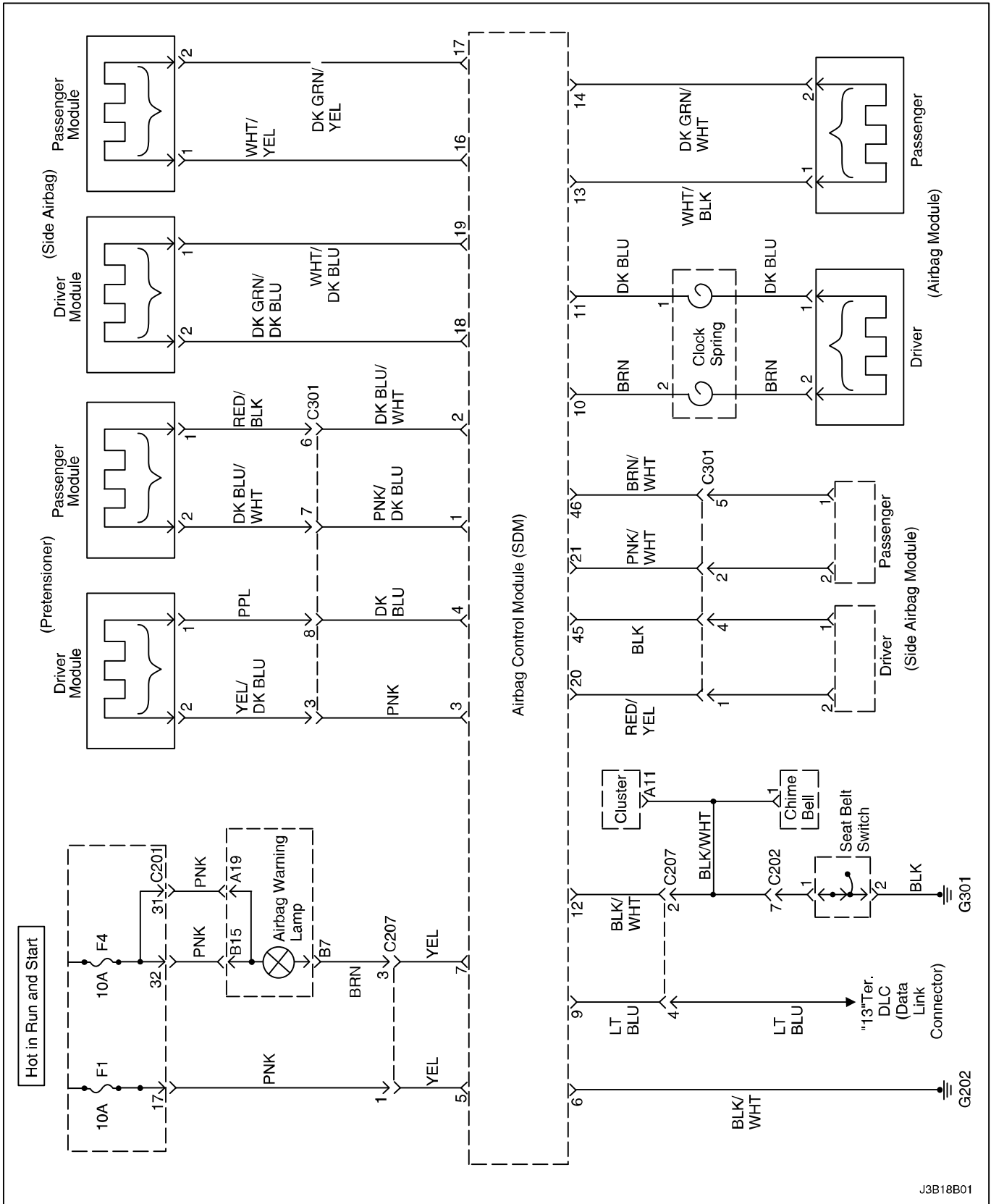
## SPECIAL TOOLS

### SPECIAL TOOLS TABLE

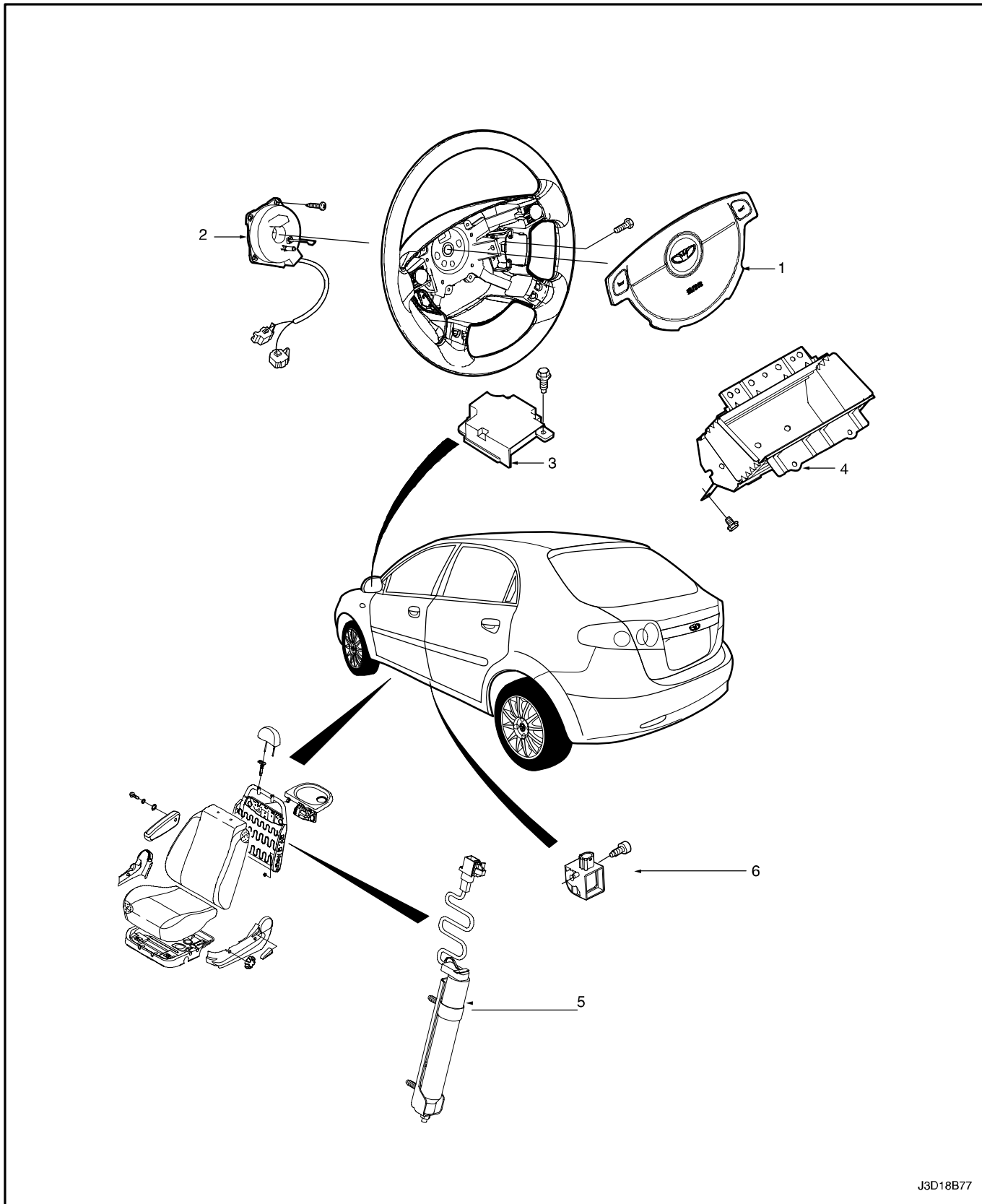
 <p>SCAN TOOL</p>	<p>Scan Tool</p>
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# SCHEMATIC AND ROUTING DIAGRAMS

## SUPPLEMENTAL INFLATABLE RESTRAINTS(SIR) ELECTRONICAL SCHEMATIC



## SIR COMPONENT LOCATOR



J3D18B77

1. Driver Airbag Module
2. Clock Spring
3. Sensing And Diagnostic Module(SDM)

4. Passenger Airbag Module
5. Side Airbag Module
6. Side Airbag Sensor

## DIAGNOSIS

### DIAGNOSTIC TROUBLE CODE (DTC)

When the sensing and diagnostic module (SDM) detects any problem it illuminates the airbag warning indicator and stores the diagnostic trouble codes (DTCs).

The supplemental inflatable restraints (SIR) diagnostic system check must be always the starting point for any SIR diagnosis. The diagnostic system check reveals diagnostic trouble codes (DTCs) through the use of scan tool. It also checks for proper airbag warning lamp operation.

The two types of DTCs that may be recorded are as follows :

lows :

1. Active DTCs represent malfunction being detected during the current ignition cycle. Active DTCs are stored in random access memory (RAM).
2. Historic DTCs represent malfunctions detected since the last time the historic memory was cleared. Historic DTCs are stored in the electrically erasable programmable read-only memory (EPROM).

**Diagnostic Trouble Code Table**

DTC	Description
1	Driver Airbag Deployment Loop Resistance Is High
2	Driver Airbag Deployment Loop Resistance Is Low
3	Driver Airbag Deployment Loop Is Shorted To Ground
4	Driver Airbag Deployment Loop Is Shorted To Power
5	Passenger Airbag Deployment Loop Resistance Is High
6	Passenger Airbag Deployment Loop Resistance Is Low
7	Passenger Airbag Deployment Loop Is Shorted To Ground
8	Passenger Airbag Deployment Loop Is Shorted To Power
9	Driver Belt Pretensioner Deployment Loop Resistance Is High
10	Driver Belt Pretensioner Deployment Loop Resistance Is Low
11	Driver Belt Pretensioner Deployment Loop Is Shorted To Ground
12	Driver Belt Pretensioner Deployment Loop Is Shorted To Power
13	Passenger Belt Pretensioner Deployment Loop Resistance Is High
14	Passenger Belt Pretensioner Deployment Loop Resistance Is Low
15	Passenger Belt Pretensioner Deployment Loop Is Shorted To Ground
16	Passenger Belt Pretensioner Deployment Loop Is Shorted To Power
23	Battery Voltage High
24	Battery Voltage Low
25	Airbag Warning Lamp Failure
31	Internal Sensing Diagnostic Module(SDM) Failure
32	Airbag Inflation Record By Frontal Collision
33	Driver Side Airbag Inflation Record By Side Impact
34	Passenger Side Airbag Inflation Record By Side Impact
35	Belt Pretensioner Explosion Record
38	Side Airbag And Belt Pretensioner Explosion Count Over 5
52	Driver Side Airbag Deployment Loop Resistance Is High
53	Driver Side Airbag Deployment Loop Resistance Is Low
54	Driver Side Airbag Deployment Loop Is Shorted To Ground
55	Driver Side Airbag Deployment Loop Is Shorted To Power
56	Passenger Side Airbag Deployment Loop Resistance Is High

<b>DTC</b>	<b>Description</b>
57	Passenger Side Airbag Deployment Loop Resistance Is Low
58	Passenger Side Airbag Deployment Loop Is Shorted To Ground
59	Passenger Airbag Deployment Loop Is Shorted To Power
80	Driver Side Airbag Sensor Loop Is Shorted To Power
81	Driver Side Airbag Sensor Loop Is Shorted To Ground
82	Driver Side Airbag Sensor Communication Error
83	Driver Side Airbag Sensor Failure
84	Passenger Side Airbag Sensor Loop Is Shorted To Power
85	Passenger Side Airbag Sensor Loop Is Shorted To Ground
86	Passenger Side Airbag Sensor Communication Error
87	Passenger Side Airbag Sensor Failure

## SCAN TOOL DIAGNOSTICS

A scan tool can read serial data from terminal 13 of the data link connector(DLC). The scan tool is used to read diagnostic trouble codes(DTCs), and to clear some DTCs after a repair is completed. By design, DTC 51 can not be

cleared. And the DTC 61 can not be cleared for the ignition cycle once the DTC has been detected by the SDM.

To use the scan tool, turn the ignition OFF, connect the scan tool to the DLC, and turn the ignition switch to ON.

Follow the instructions in the scan tool manual. The SDM sends serial data from terminal 9 of the SDM to terminal 13 of the DLC.

## 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 SDM connector may need to be replaced. With 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 the SDM connector must be replaced. Before attempting any of these repairs, the supplemental inflatable restraints(SIR) must be disabled. Refer to "Disabling the SIR" and "Sensing and Diagnostic Module(SDM)" in this section for instructions on how to disable the SIR and replace the SDM.

The SIR Diagnostic System Check must always be the starting point for any SIR diagnosis. The Diagnostic System Check reveals diagnostic trouble codes(DTCs) through the use of scan tool. The diagnostic procedures used in this section are designed to find any repair SIR 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, which reveal diagnostic trouble codes(DTCs) through the

use of scan tool.. It also checks for proper airbag indicator operation.

2. Refer to the proper diagnostic chart as directed by SIR Diagnostic System Check. Bypassing these procedures may result in extended diagnostic time, incorrect diagnosis, and incorrect parts replacement.
3. Repeat the SIR Diagnostic System Check after any repair or diagnostic procedures have been performed to ensure that the repair has been made correctly and that no other malfunction exists.

### Circuit Description

When the ignition switch is first turned to ON, ignition voltage is supplied from airbag fuse to find the SDM at input terminal A1. The SDM responds by flashing the airbag indicator seven times and then turning it off while the SDM performs tests on the SIR.

### Diagnostic Aids

The order in which DTCs 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.

### SIR Diagnostic System Check

**CAUTION :** *The sensing and the diagnosis module (SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has been passed after disconnecting power to the SDM. Otherwise, injury could result.*

**CAUTION :** *During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.*

**Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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 ON. 2. Observe the airbag indicator as the ignition is being turned ON. Does the indicator flash seven times?	–	System OK	Go to Step 2
2	1. Turn the ignition to LOCK and remove the key. 2. Connect the scan tool to the data link connector(DLC). Follow the directions given in the scan tool manual. 3. Are any DTCs displayed on the scan tool?	–	Go to the DTC check procedure	Go to Step 3
3	Check the fuse F1 in the interior fuse box. Is the fuse F1 blown?	–	Go to Step 4	Go to Step 5
4	Replace the fuse F1.	–	–	–
5	1. Disconnect the connector C207. 2. Check the wiring shortage between the fuse F1 and the terminal 1 of the connector C207. 3. Is the wiring shorted? Then, repair the wiring.	–	–	Go to Step 6

<b>Step</b>	<b>Action</b>	<b>Value(s)</b>	<b>Yes</b>	<b>No</b>
6	<ol style="list-style-type: none"> <li>1. Disconnect the connector from the SDM.2. Check the wiring shortage between the terminal5 of the SDM connector and the terminal 1 of the connector C207.</li> <li>2. Is the wiring shorted? Then, replace the airbag wiring.</li> </ol>	–	–	Go to <i>Step 7</i>
7	<ol style="list-style-type: none"> <li>1. Check the wiring shortage between the terminal 13, 5 of the DLC and the ground G202.</li> <li>2. Is the wiring shorted? Then, repair the wiring.</li> </ol>	–	–	Go to <i>Step 8</i>
8	<ol style="list-style-type: none"> <li>1. Confirm the ignition switch ON.</li> <li>2. Check the voltage from the cigar lighter socket. Is the voltage in the range of 11~14 voltages?</li> </ol>	–	Go to <i>Step 10</i>	–
9	<ol style="list-style-type: none"> <li>1. Repair the wiring of cigar lighter socket.</li> </ol>	–	–	–
10	<ol style="list-style-type: none"> <li>1. Check the wiring shortage or loop open between the terminal4 of the connector C207 and the terminal 13 of the data link connector(DLC).</li> <li>2. Is the wiring opened or shorted?</li> </ol>	–	Go to <i>Step 11</i>	Go to <i>Step 12</i>
11	Repair the wiring.	–	–	–
12	<ol style="list-style-type: none"> <li>1. Check the wiring shortage or loop open between the terminal4 of the connector C207 and the terminal 9 of the SDM wiring connector.</li> <li>2. Is the wiring opened or shorted?</li> </ol>	–	Replace the airbag wiring.	Replace the SDM.

## SENSING AND DIAGNOSTIC MODULE (SDM) INTEGRITY CHECK

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

### Circuit Description

When the SDM recognizes ignition voltage greater than 9 volts at terminal A1 of the SDM, the airbag indicator flashes seven times to verify operation. At this time the SDM performs turn-on tests followed by resistance mea-

surement tests and continuous monitoring tests.

When malfunction is detected, the SDM sets 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 the DTCs 51 and sometimes 71. DTCs 51 will not be cleared by scan tool because these codes require replacement of SDM. The SDM must be replaced only after the malfunction that set the DTC has been repaired.

### Sensing and Diagnostic Module (SDM) Integrity Check

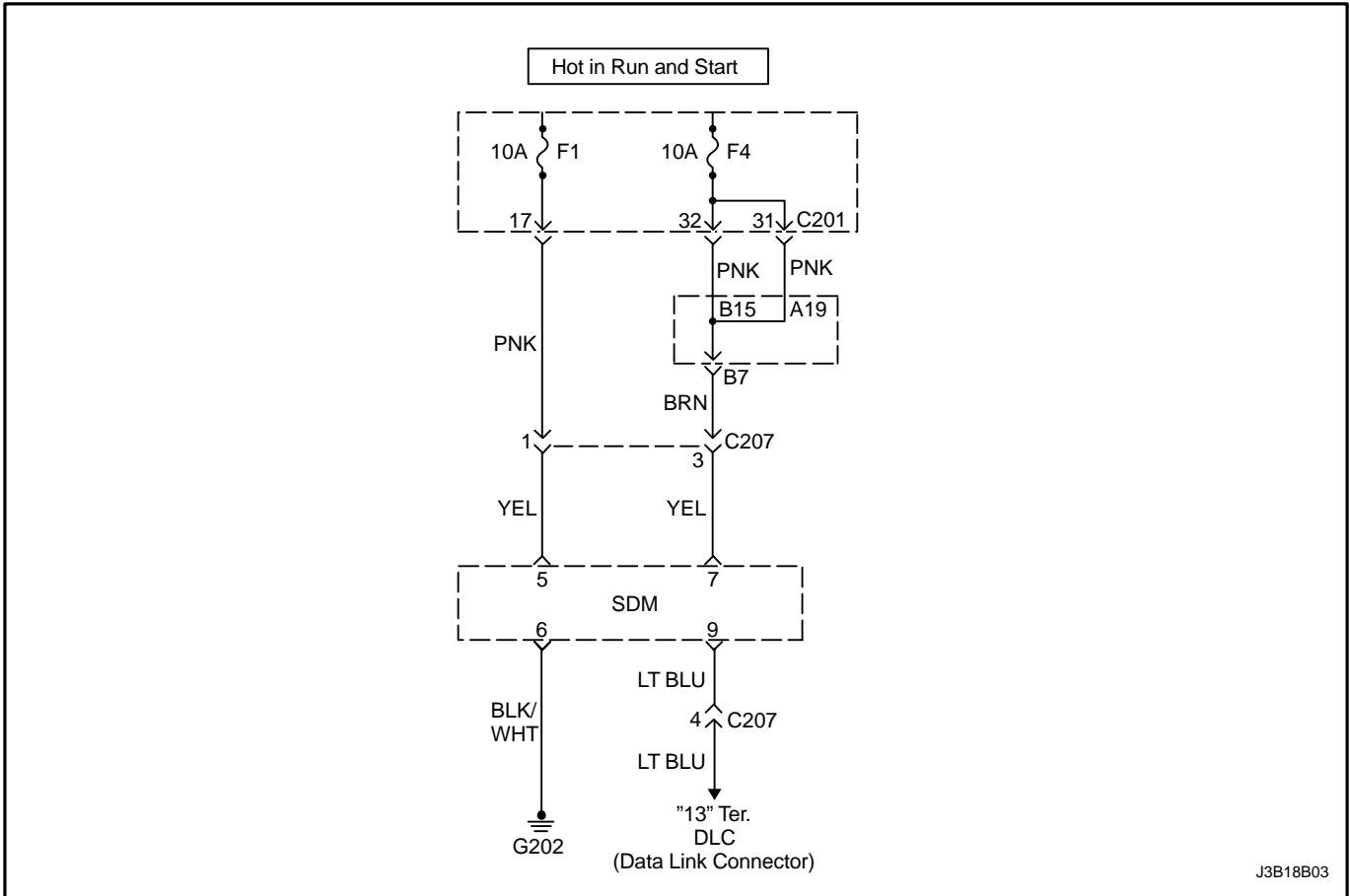
**CAUTION :** *The sensing and diagnostic module (SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting the power to the SDM. Otherwise, injury could result.*

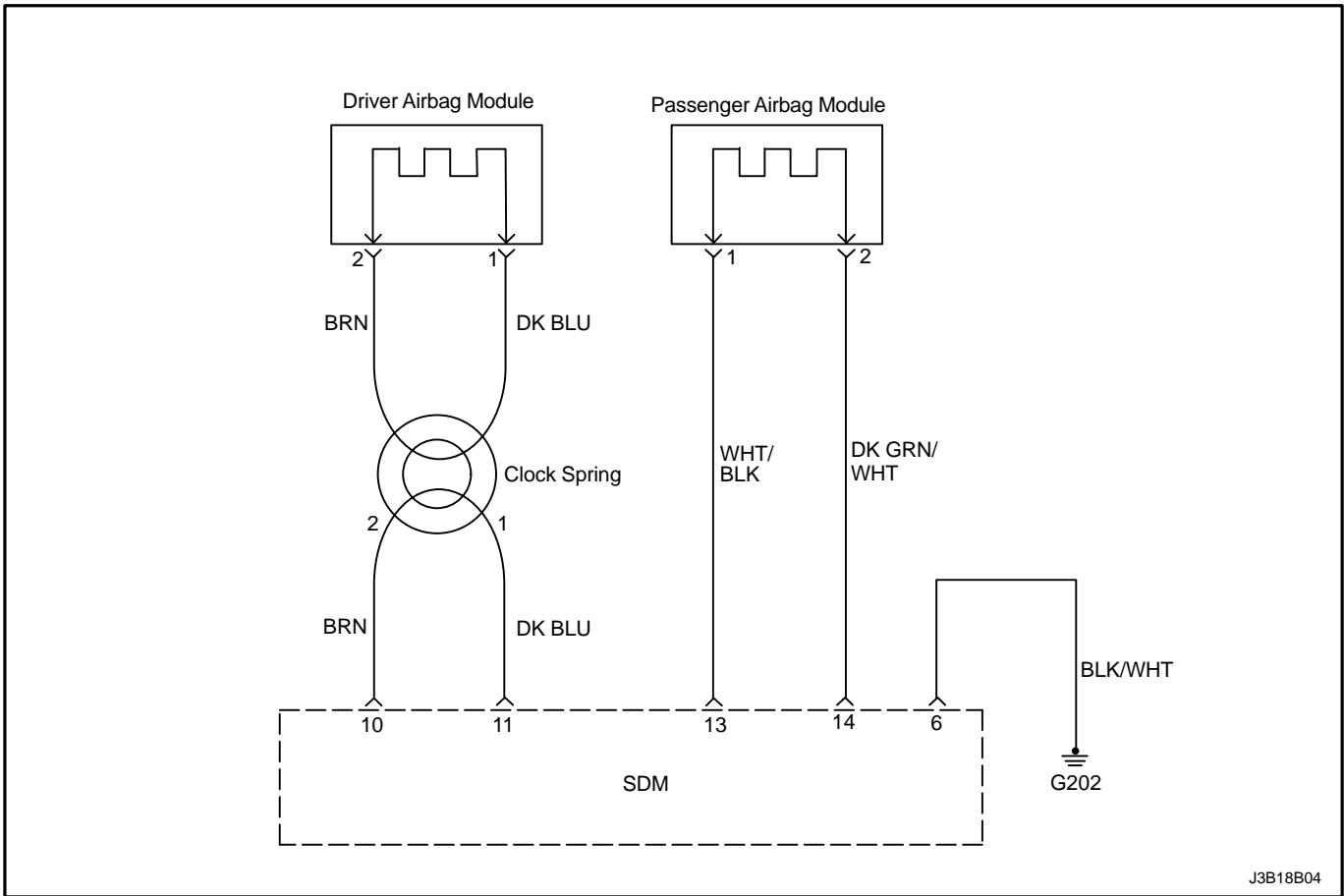
**CAUTION :** *During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.*

*Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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	<ol style="list-style-type: none"> <li>1. Turn the ignition to LOCK and remove the key</li> <li>2. Connect all SIR components and ensure that all the components are properly mounted.</li> <li>3. Ensure that the ignition switch has been OFF for at least 30 seconds.</li> <li>4. Observe the airbag indicator as the ignition is turned ON. Does the indicator lamp flashes seven times ?</li> </ol>	–	Clear the SIR DTCs and go to "Diagnostic System Check"	Go to <i>Step 2</i>
2	<ol style="list-style-type: none"> <li>1. Turn the ignition to LOCK and remove the key.</li> <li>2. Connect the scan tool to DLC. Follow the directions given in the scan tool manual.</li> <li>3. Turn the ignition to ON.</li> <li>4. Request SIR DTC display with the scan tool. Is the same DTC displayed that was previous occurred when the SIR Diagnostic System Check was previously performed?</li> </ol>	–	Go to <i>Step 3</i> .	Go to the table for the DTC indicated.
3	<ol style="list-style-type: none"> <li>1. Clear SIR DTCs.</li> <li>2. Turn the ignition OFF for at least 30 seconds.</li> <li>3. Observe the airbag indicator as the ignition is turned ON. Does the indicator lamp flashes seven times ?</li> </ol>	–	System OK	Go to <i>Step4</i>
4	<ol style="list-style-type: none"> <li>1. Turn the ignition to LOCK and remove the key.</li> <li>2. Disconnect the SDM connector.</li> <li>3. Replace the SDM.</li> <li>4. Connect the SDM connector and ensure that all components are properly mounted. Is the repair complete?</li> </ol>	–	Go to "Diagnostic System Check"	–

Hot In Run and Start





J3B18B04

## DIAGNOSTIC TIC TROUBLE CODE (DTC) 1 DRIVER AIRBAG DEPLOYMENT LOOP RESISTANCE IS HIGH

### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

Upon passing these test ignition and deployment loop volt-

ages are measured to ensure that they are within their normal voltage ranges. The SDM monitors the voltages at the driver low and the passenger low to detect shorts to ground or voltage in the deploy loops.

### DTC 1 Will Set When

- The resistance of driver airbag deployment loop is higher than 4.7 ohms.

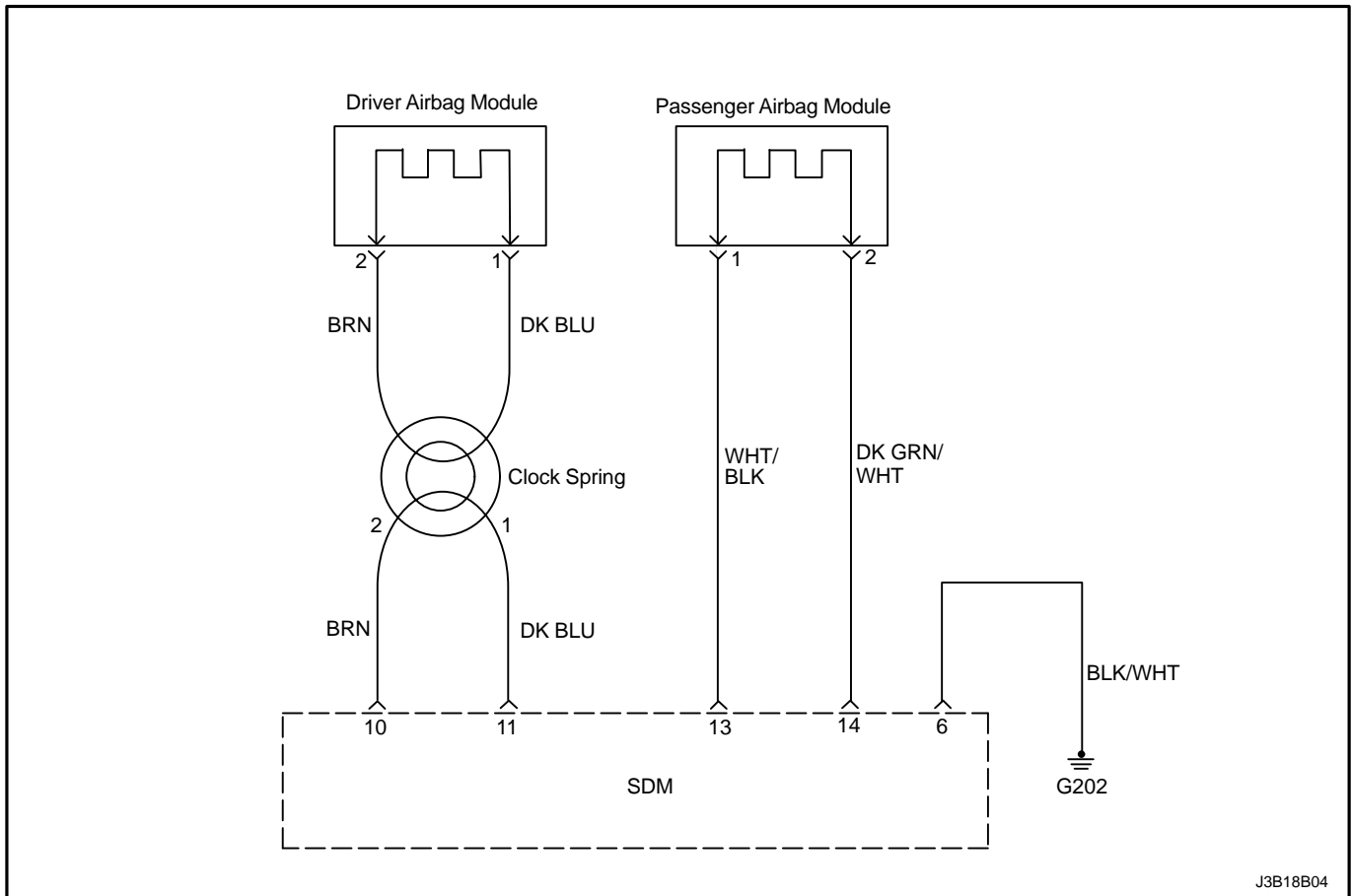
### DTC 1 – Driver Airbag Deployment Loop Resistance Is High

**CAUTION :** The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.

**CAUTION :** During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.

*Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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 completed?	–	Go to Step 2	–
2	Visually inspect the connector and the wiring of driver airbag. Is the connector disconnected?	–	Connect the connector and go to Step 1	Go to Step 3
3	1. Confirm the ignition switch "OFF". 2. Remove the driver airbag module. 3. Disconnect the connector of SDM wiring. 4. Check the resistance between the terminal 10,11 of SDM and the terminal 1,2 of driver airbag module. Is the resistance about 0(zero) ?	$\approx 0 \Omega$	Go to Step 4	Go to Step 5
4	1. Replace the SDM. 2. Confirm the ignition switch "ON". 3. Erase the DTC using scan tool. 4. Perform the SIR Diagnostic System Check. 5. If the DTC is not removable, then replace the driver airbag module.	–	–	–
5	1. Remove the connector from the clock spring wiring. 2. Check the resistance between the terminal 10,11 of SDM and the terminal 1,2 of clock spring. Is the resistance about 0(zero) ?	$\approx 0 \Omega$	Go to Step 6	Go to Step 7
6	1. Replace the clock spring	–	–	–
7	1. Replace the airbag wiring.	–	–	–



J3B18B04

## DIAGNOSTIC TROUBLE CODE (DTC) 2 DRIVER AIRBAG DEPLOYMENT LOOP RESISTANCE IS LOW

### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

Upon passing these test ignition and deployment loop voltages are measured to ensure that they are within their nor-

mal voltage ranges. The SDM monitors the voltages at the driver low and the passenger low to detect shorts to ground or voltage in the deploy loops.

### DTC 2 Will Set When

- The resistance of driver airbag deployment loop is lower than 1.8 ohms.
- The shorting bar is damaged and then the SDM must be replaced .

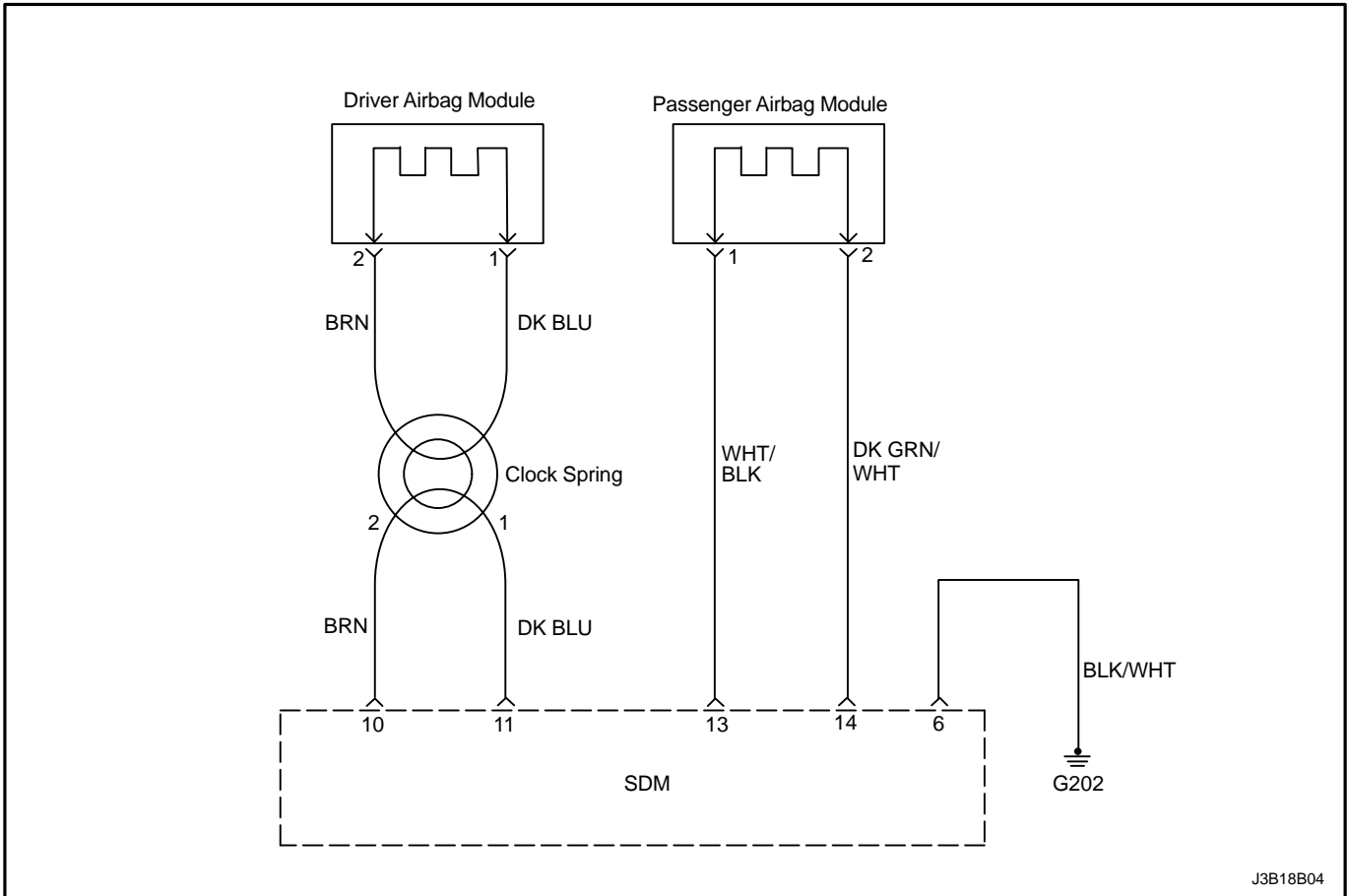
**DTC 2 – Driver Airbag Deployment Loop Resistance Is Low**

**CAUTION :** *The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.*

**CAUTION :** *During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.*

*Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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. Confirm the ignition switch "OFF". 2. Wait for a minute to discharge the SDM charger.	–	Go to Step 2	–
2	Visually inspect the connector and the wiring of driver airbag. Is the airbag wiring damaged?	–	Replace the airbag wiring.	Go to Step 5
3	1. Confirm the ignition switch "OFF". 2. Remove the driver airbag module. 3. Check the resistance between the terminal 1 and 2 of driver airbag module. Is the resistance in the specification range? 4. Erase the current DTCs with the scan tool.	–	Go to Step 4	Go to Step 5
4	1. Replace the SDM. 2. Confirm the ignition switch "ON". 3. Erase the DTC using scan tool. 4. Perform the SIR Diagnostic System Check. 5. If the DTC is not removable, then replace the driver airbag module.	–	–	–
5	1. Remove the connector from the clock spring wiring. 2. Check the resistance between the terminal 1 and 2 of clock spring. Is the resistance $\infty$ ?	$\infty$	Replace the airbag wiring.	Replace the clock spring.



### DIAGNOSTIC TROUBLE CODE (DTC) 3 DRIVER AIRBAG DEPLOYMENT LOOP IS SHORTED TO GROUND

**Circuit Description**

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

Upon passing these test ignition and deployment loop voltages are measured to ensure that they are within their normal voltage ranges. The SDM monitors the voltages at the driver low and the passenger low to detect shorts to ground or voltage in the deploy loops.

If the resistance is in the 2 kilo ohms between 10 kilo ohms, the defect may occur depending upon SDM. The normal resistance is over 10 kilo ohms.

**DTC 3 Will Set When**

- The airbag wiring of driver's high is shorted to ground.
- The airbag wiring of driver's low is shorted to ground.

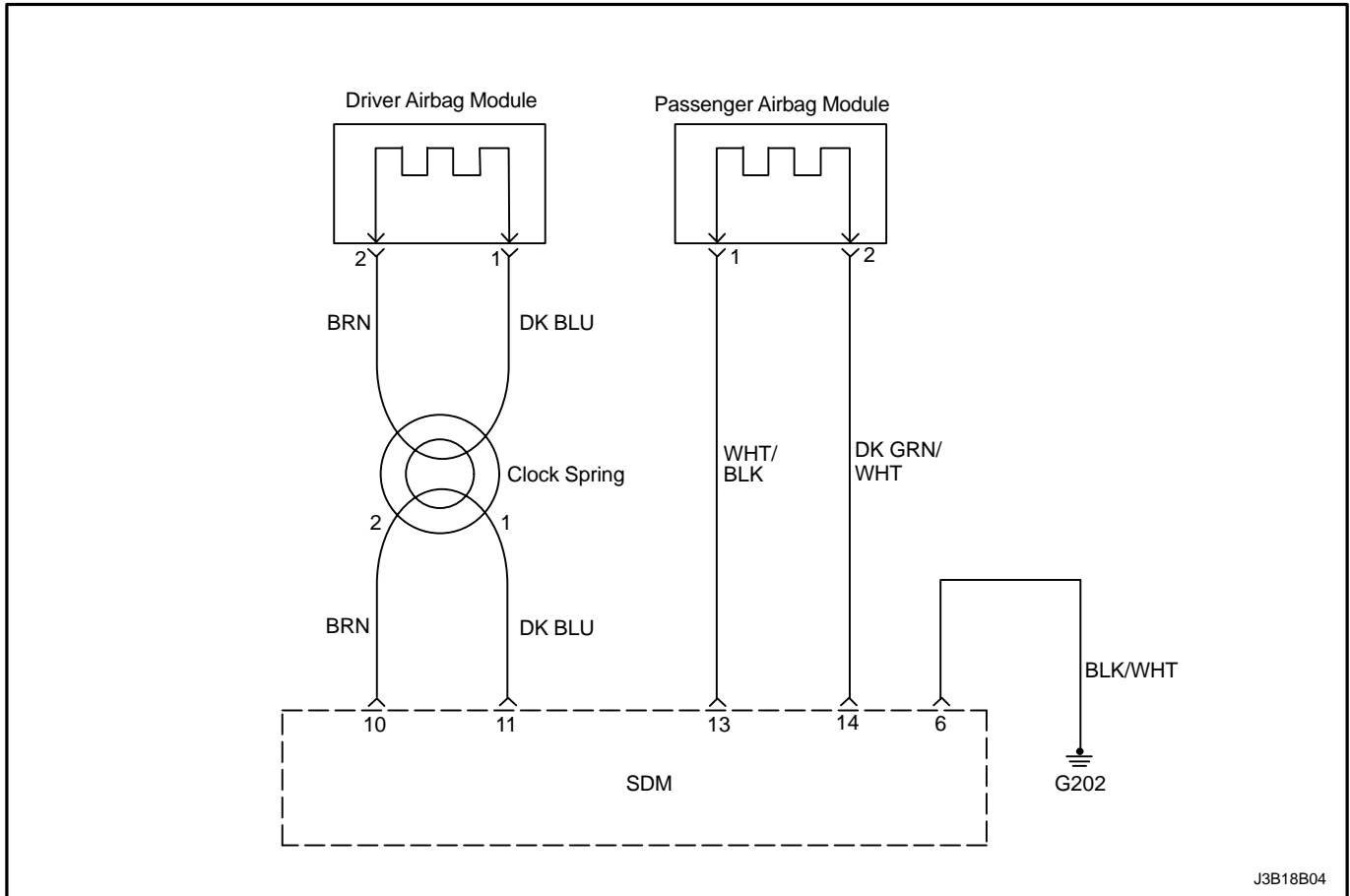
**DTC 3 – Driver Airbag Deployment Loop Is Shorted To Ground**

**CAUTION :** *The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.*

**CAUTION :** *During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.*

*Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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. Confirm the ignition switch "OFF". 2. Wait for a minute to discharge the SDM charger.	–	Go to Step 2	–
2	Visually inspect the connector and the wiring of driver airbag. Is the airbag wiring damaged?	–	Replace the airbag wiring.	Go to Step 3
3	1. Confirm the ignition switch "OFF". 2. Remove the driver airbag module. 3. Disconnect the connector of SDM wiring. 4. Check the resistance between the high, low wiring of driver airbag module and the ground. Is the resistance 10KΩ?	10 KΩ	Go to Step 4	Go to Step 5
4	1. Replace the SDM. 2. Confirm the ignition switch "ON". 3. Erase the DTC using scan tool. 4. Perform the SIR Diagnostic System Check. 5. If the DTC is not removable, then replace the driver airbag module.	–	–	–
5	1. Remove the connector from the clock spring wiring. 2. Check the resistance between the high, low wiring of clock spring and the ground. Is the resistance in the specification.?	–	Replace the clock spring.	Replace the airbag wiring.



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## DIAGNOSTIC TROUBLE CODE (DTC) 4 DRIVER AIRBAG DEPLOYMENT LOOP IS SHORTED TO POWER

### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

Upon passing these test ignition and deployment loop voltages are measured to ensure that they are within their nor-

mal voltage ranges. The SDM monitors the voltages at the driver low and the passenger low to detect shorts to ground or voltage in the deploy loops.

### DTC 4 Will Set When

- The airbag wiring of driver's high is shorted to battery wiring.
- The airbag wiring of driver's low is shorted to battery wiring.

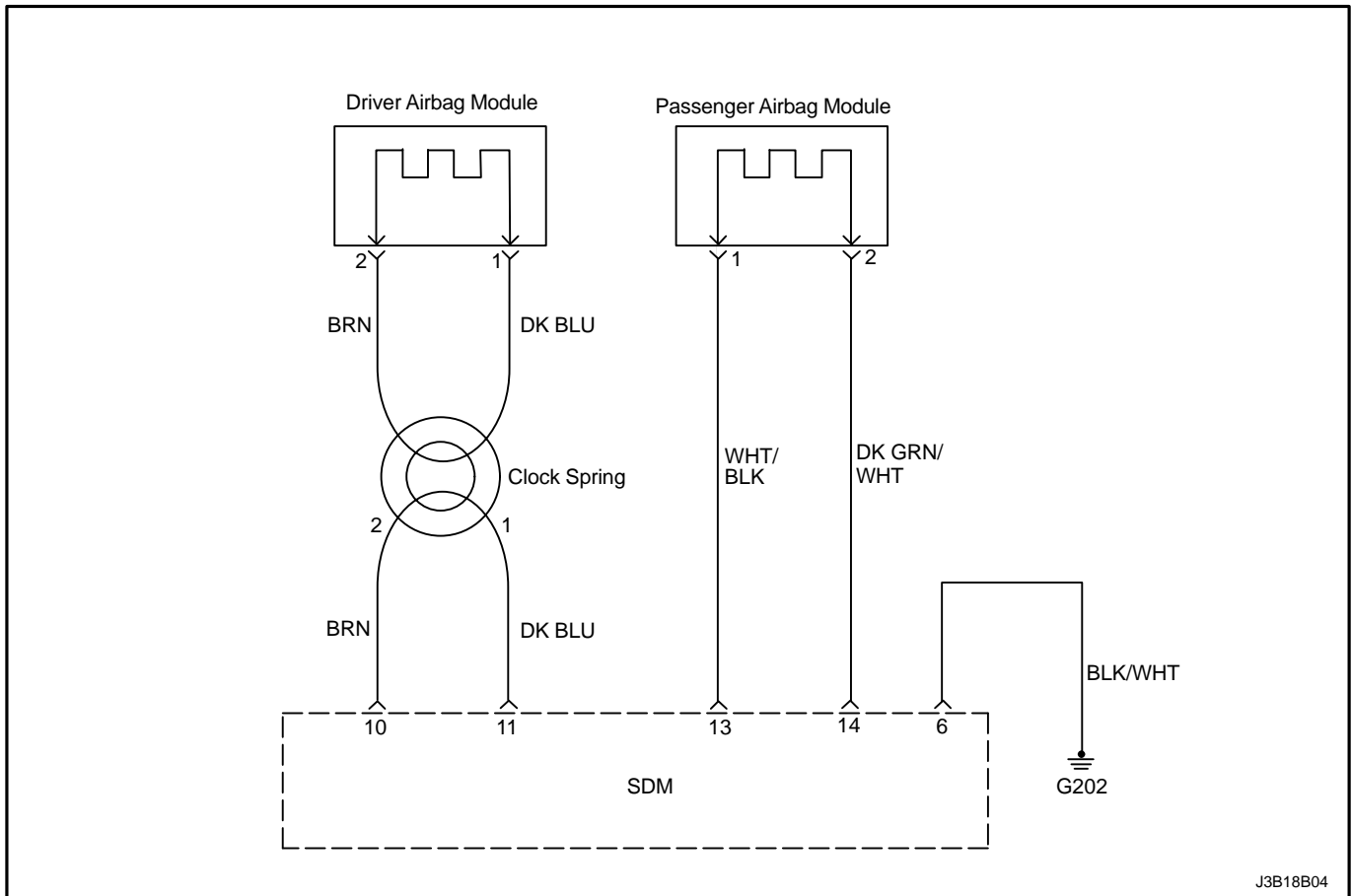
**DTC 4 – Driver Airbag Deployment Loop Is Shorted To Power**

**CAUTION :** *The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.*

**CAUTION :** *During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.*

*Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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. Confirm the ignition switch "OFF". 2. Wait for a minute to discharge the SDM charger.	–	Go to Step 2	–
2	Visually inspect the connector and the wiring of driver airbag. Is the airbag wiring damaged?	–	Replace the airbag wiring.	Go to Step 3
3	1. Confirm the ignition switch "OFF". 2. Remove the driver airbag module. 3. Disconnect the connector of SDM wiring. 4. Check the resistance between the high, low wiring of driver airbag module and the battery. Is the resistance 10KΩ?	10 KΩ	Go to Step 4	Go to Step 5
4	1. Replace the SDM. 2. Confirm the ignition switch "ON". 3. Erase the DTC using scan tool. 4. Perform the SIR Diagnostic System Check. 5. If the DTC is not removable, then replace the driver airbag module.	–	–	–
5	1. Remove the connector from the clock spring wiring. 2. Check the resistance between the high, low wiring of clock spring and the battery. Is the resistance 10KΩ?	10 KΩ	Replace the clock spring.	Replace the airbag wiring.



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## DIAGNOSTIC TROUBLE CODE (DTC) 5 PASSENGER AIRBAG DEPLOYMENT LOOP RESISTANCE IS HIGH

### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform a turn-on test to diagnose critical malfunctions within the SDM itself.

Upon passing these tests, ignition and deployment loop voltages are measured to ensure they are within their normal voltage ranges. The SDM monitors the voltages at the

driver low and the passenger low to detect shorts to ground or voltage in the deployment loops.

The SDM checks the wiring connection to the passenger airbag module by letting an infinitesimal current flow through the internal circuit and verifying the resistance.

### DTC 5 Will Set When

- The resistance of the passenger airbag deployment loop is over 2.8 ohms.

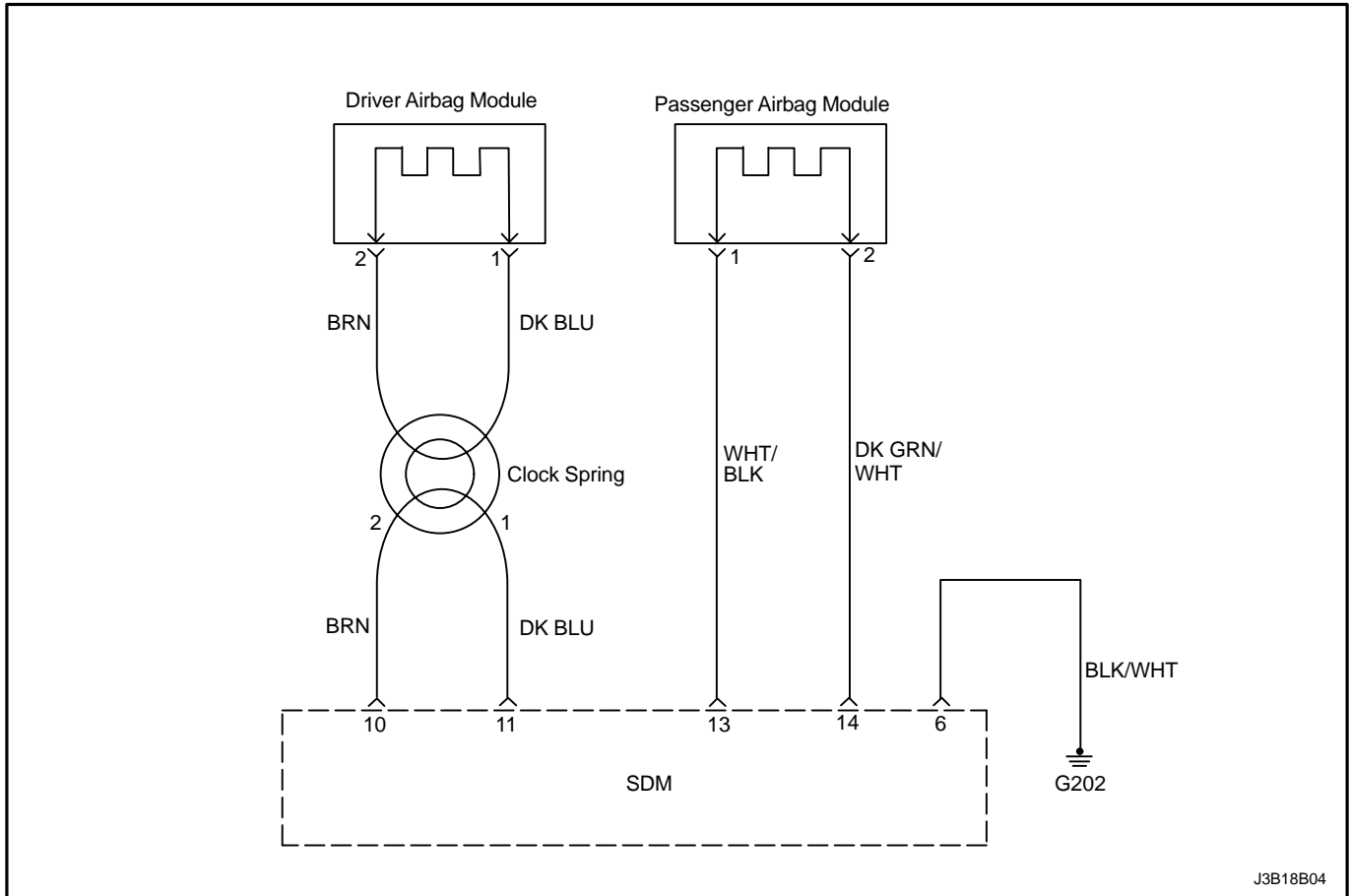
### DTC 5 – Passenger Airbag Deployment Loop Resistance Is High

**CAUTION :** The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.

**CAUTION :** During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.

Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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 SRS Diagnostic System Check. Is the SRS Diagnostic System Check completed?	–	Go to Step 2	–
2	Visually inspect the connector and the wiring of passenger airbag. Is the connector disconnected?	–	Connect the connector and go to Step 1	Go to Step 3
3	1. Confirm the ignition switch "OFF". 2. Remove the driver airbag module. 3. Disconnect the connector of SDM wiring. 4. Check the resistance between the terminal 13,14 of SDM and the terminal 1,2 of passenger airbag module. Is the resistance about 0(zero)?	≈ 0KΩ	Go to Step 4	Replace the airbag wiring.
4	1. Replace the SDM. 2. Confirm the ignition switch "ON" 3. Erase the DTC using scan tool. 4. Perform the SIR diagnostic system check. Is the DTC removed?	–	The System is OK.	Go to Step 5
5	1. Replace the passenger air bag module. 2. Perform the SIR Diagnostic System Check. Is the DTC removed?	–	The System is OK.	–



## DIAGNOSTIC TROUBLE CODE (DTC) 6 PASSENGER AIRBAG DEPLOYMENT LOOP RESISTANCE IS LOW

### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

Upon passing these test ignition and deployment loop voltages are measured to ensure that they are within their normal voltage ranges. The SDM monitors the voltages at the driver low and the passenger low to detect shorts to ground or voltage in the deployment loops.

The SDM checks the wiring connection to the passenger airbag module by letting the infinitesimal current flow through the internal circuit and verify the resistance.

### DTC 6 Will Set When

- The resistance of driver airbag deployment loop is lower than 1.4 ohms.
- The shunting bar is damaged and then the SDM must be replaced .

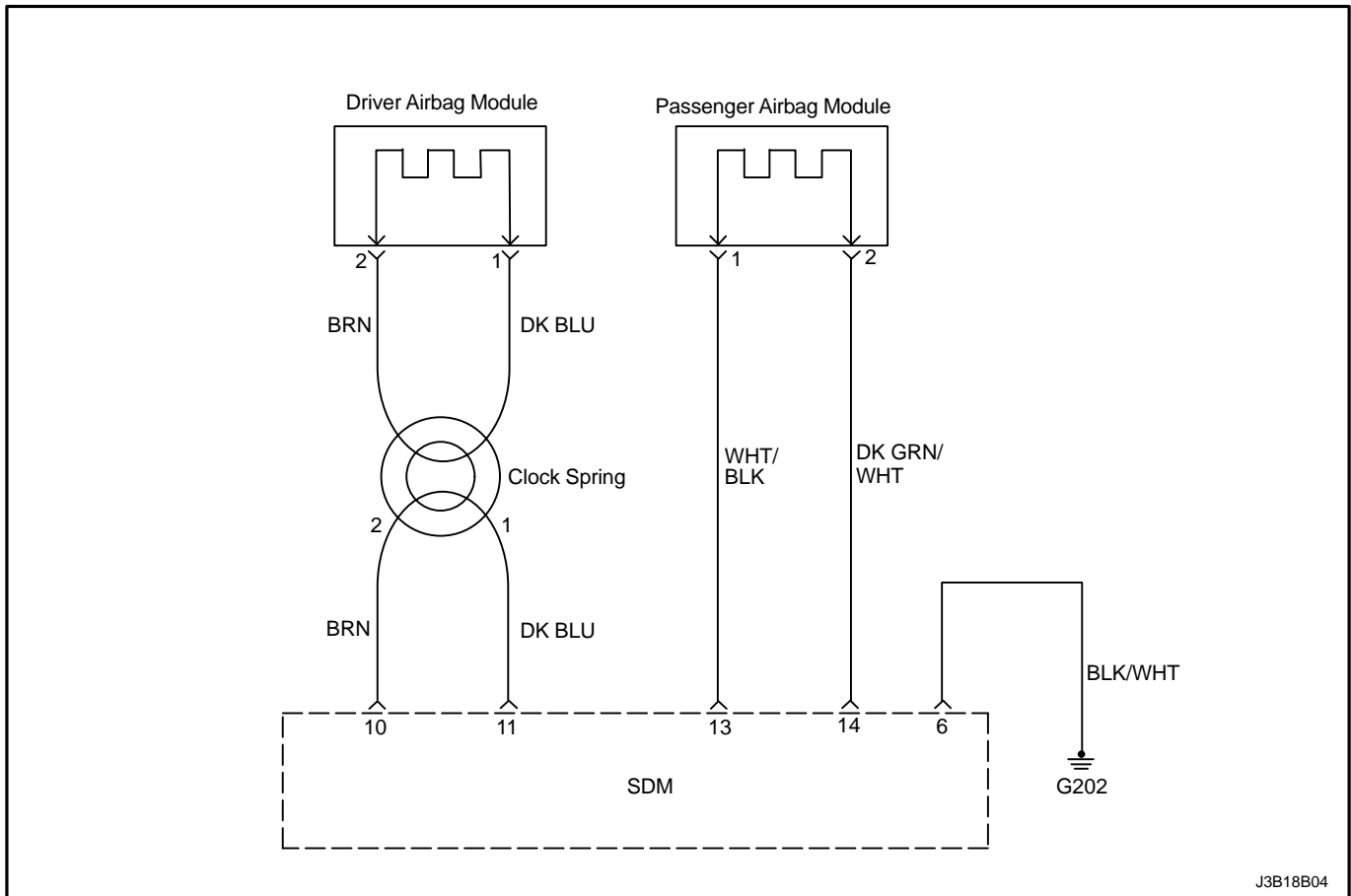
**DTC 6 – Passenger Airbag Deployment Loop Resistance Is Low**

**CAUTION :** *The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.*

**CAUTION :** *During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.*

*Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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. Confirm the ignition switch "OFF". 2. Wait for a minute to discharge the SDM charger.	–	Go to Step 2	–
2	Visually inspect the connector and the wiring of driver belt pretensioner. Is the wiring damaged?	–	Replace the wiring.	Go to Step 3
3	1. Confirm the ignition switch "OFF". 2. Disconnect the connector of driver belt pretensioner. 3. Disconnect the connector of SDM wiring. 4. Check the resistance between the terminal 1 and 2 of driver belt pretensioner. Is the resistance $\infty$ ?	$\infty \Omega$	Go to Step 4	Go to Step 5
4	1. Replace the SDM. 2. Confirm the ignition switch "ON". 3. Erase the DTC using scan tool. 4. Perform the SIR Diagnostic System Check. 5. If the DTC is not removable, then replace the passenger airbag module.	–	–	–
5	Replace the airbag wiring.	–	–	–



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## DIAGNOSTIC TROUBLE CODE (DTC) 7 PASSENGER AIRBAG DEPLOYMENT LOOP IS SHORTED TO GROUND

### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform a turn-on test to diagnose critical malfunctions within the SDM itself.

Upon passing these test ignition and deployment loop voltages are measured to ensure that they are within their normal voltage ranges. The SDM monitors the voltages at the driver low and the passenger low to detect shorts to ground or voltage in the deployment loops.

The SDM checks the wiring connection to the passenger airbag module by letting an infinitesimal current flow through the internal circuit and verifying the resistance. If the resistance is in the 2 kilo ohms between 10 kilo ohms, the defect may occur depending upon the SDM. The normal resistance is over 10 kilo ohms.

### DTC 7 Will Set When

- The airbag wiring of the passenger's high is shorted to ground.
- The airbag wiring of the passenger's low is shorted to ground.

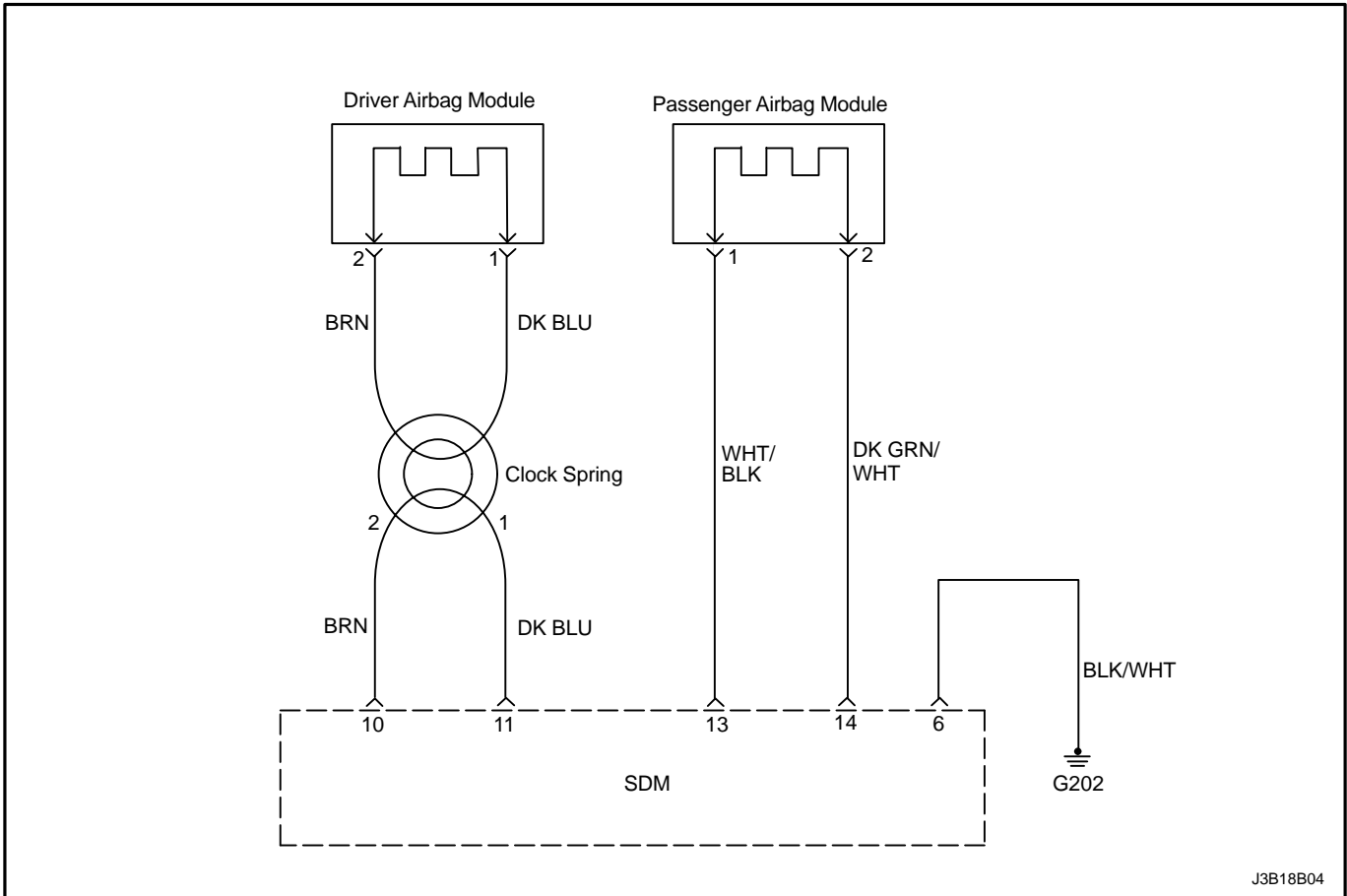
### DTC 7 – Passenger Airbag Deployment Loop Is Shorted To Ground

**CAUTION :** *The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.*

**CAUTION :** *During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.*

*Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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. Confirm the ignition switch "OFF". 2. Wait for a minute to discharge the SDM charger.	–	Go to Step 2	–
2	Visually inspect the connector and the wiring of passenger airbag. Is the airbag wiring damaged?	–	Replace the airbag wiring.	Go to Step 3
3	1. Confirm the ignition switch "OFF". 2. Remove the passenger airbag module. 3. Disconnect the connector of SDM wiring. 4. Check the resistance between the SDM and the high, low wiring of passenger airbag module and the ground. Is the resistance 10KΩ?	10 KΩ	Go to Step 4	Replace the airbag wiring.
4	1. Replace the SDM. 2. Confirm the ignition switch "ON". 3. Erase the DTC using scan tool. 4. Perform the SIR Diagnostic System Check. 5. If the DTC is not removable, then replace the passenger airbag.	–	–	–



## DIAGNOSTIC TROUBLE CODE (DTC) 8 PASSENGER AIRBAG DEPLOYMENT LOOP IS SHORTED TO POWER

### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform a turn-on test to diagnose critical malfunctions within the SDM itself.

Upon passing these tests, ignition and deployment loop voltages are measured to ensure they are within their normal voltage ranges. The SDM monitors the voltages at the driver low and the passenger low to detect shorts to ground or voltage in the deployment loops.

The SDM checks the wiring connection to the passenger airbag module by letting an infinitesimal current flow through the internal circuit and verifying the resistance. If the resistance is between 2 kilo ohms and 10 kilo ohms, the defect may occur depending upon the SDM. The normal resistance is over 10 kilo ohms.

### DTC 8 Will Set When

- The airbag wiring of the passenger's high is shorted to battery wiring.
- The airbag wiring of the passenger's low is shorted to battery wiring.

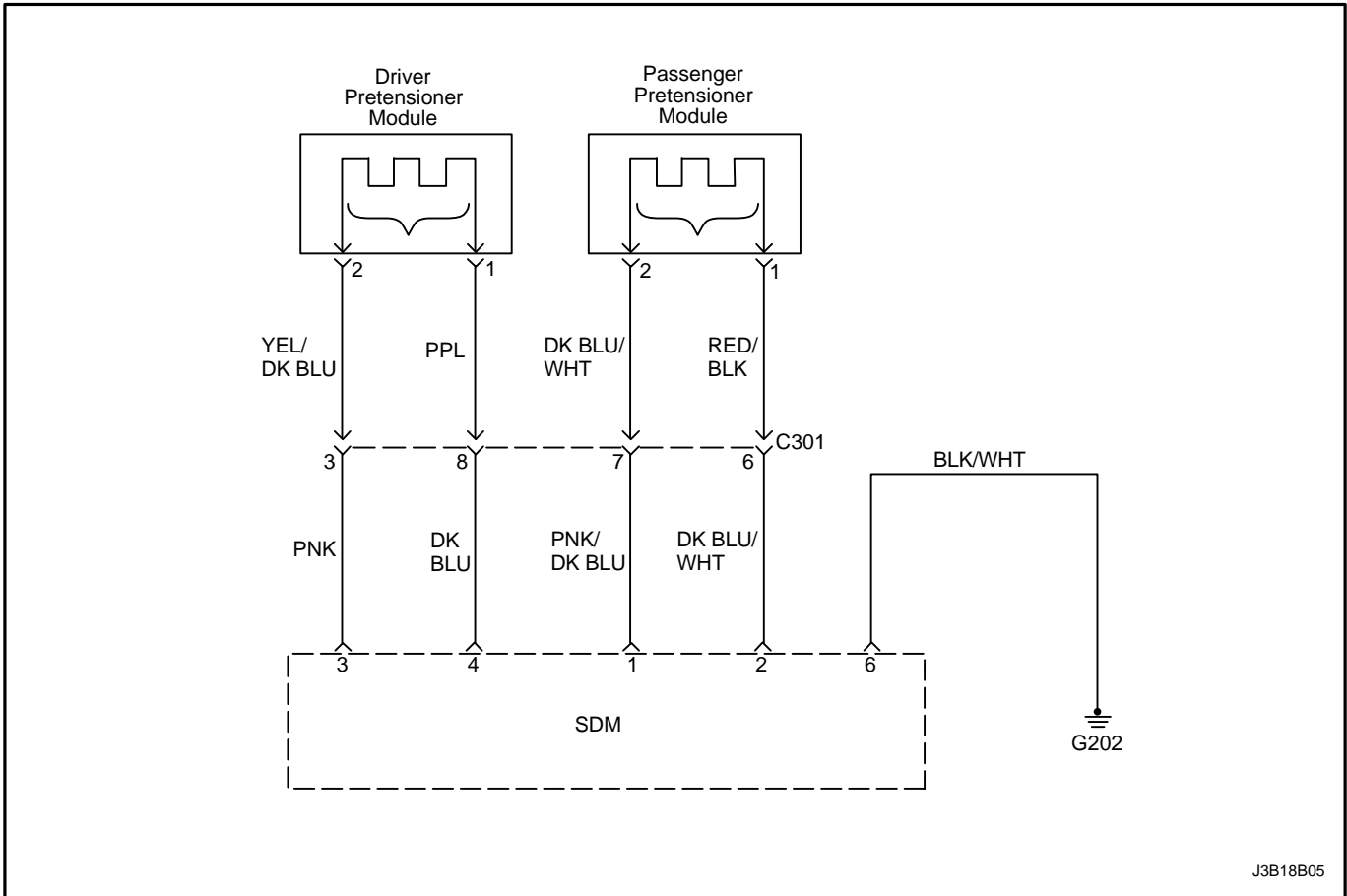
**DTC 8 – Passenger Airbag Deployment Loop Is Shorted To Power**

**CAUTION :** *The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.*

**CAUTION :** *During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.*

*Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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. Confirm the ignition switch "OFF". 2. Wait for a minute to discharge the SDM charger.	–	Go to Step 2	–
2	Visually inspect the connector and the wiring of passenger airbag. Is the airbag wiring damaged?	–	Replace the airbag wiring.	Go to Step 3
3	1. Confirm the ignition switch "OFF". 2. Remove the passenger airbag module. 3. Disconnect the connector of SDM wiring. 4. Check the resistance between the SDM and the high, low wiring of passenger airbag module and the battery. Is the resistance 10KΩ?	10 KΩ	Go to Step 4	Replace the airbag wiring.
4	1. Replace the SDM. 2. Confirm the ignition switch "ON". 3. Erase the DTC using scan tool. 4. Perform the SIR Diagnostic System Check. 5. If the DTC is not removable, then replace the passenger airbag module.	–	–	–



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## DIAGNOSTIC TROUBLE CODE (DTC) 9 DRIVER BELT PRETENSIONER DEPLOYMENT LOOP RESISTANCE IS HIGH

### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

Upon passing these test ignition and deployment loop voltages are measured to ensure that they are within their normal voltage ranges. The SDM monitors the voltages at the

driver low and the passenger low to detect shorts to ground or voltage in the deploy loops.

The SDM checks the wiring connection to the passenger airbag module by letting the infinitesimal current flow through the internal circuit and verify the resistance.

### DTC 9 Will Set When

- The resistance of driver belt pretensioner deploy loop is over 3.1 ohms.

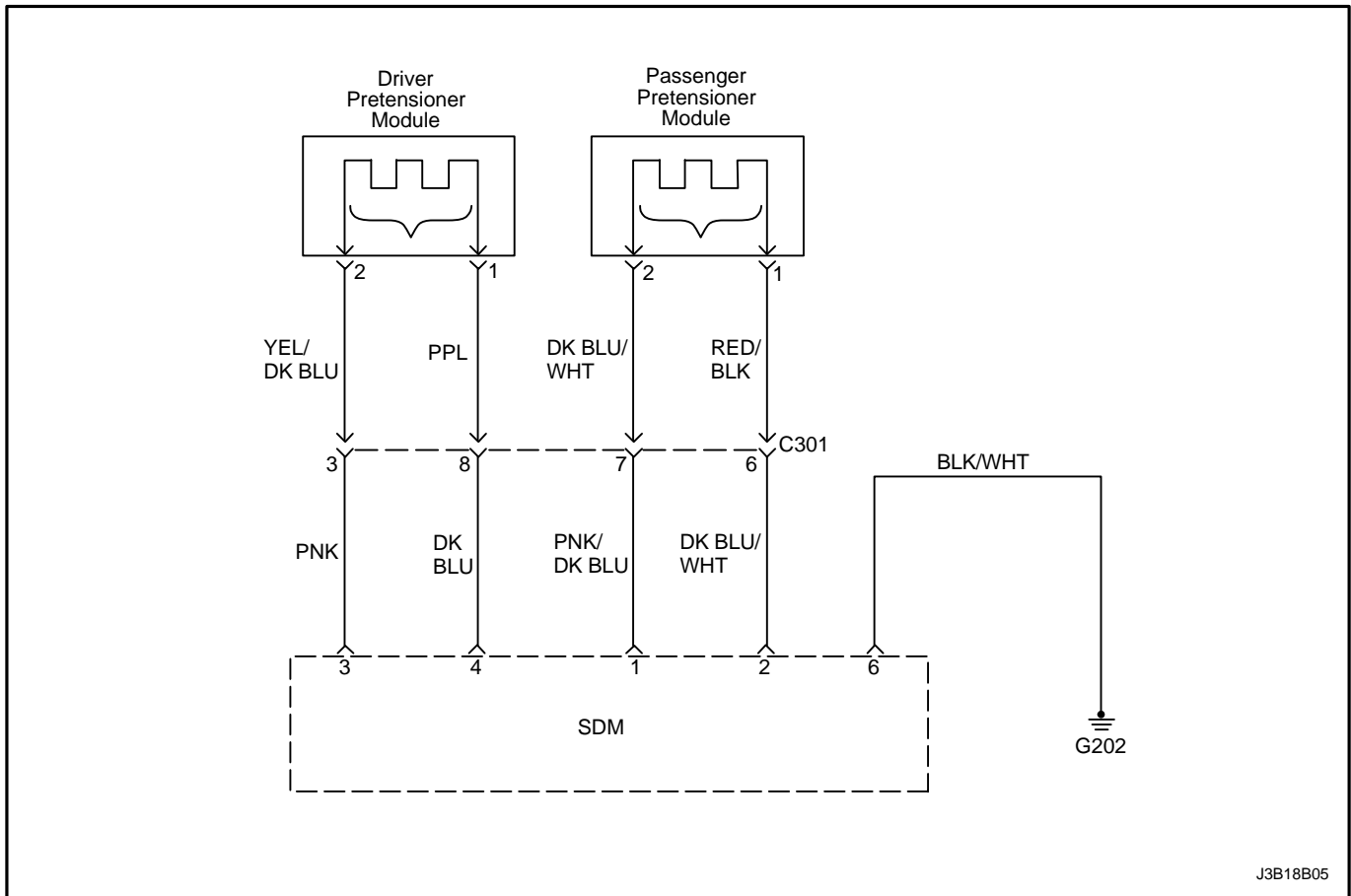
### DTC 9 – Driver Belt Pretensioner Deployment Loop Resistance Is High

**CAUTION :** *The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.*

**CAUTION :** *During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.*

*Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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	Visually inspect the connector and the wiring of passenger belt pretensioner. Is the connector disconnected?	–	Connect the connector.	Go to <i>Step 2</i>
2	<ol style="list-style-type: none"> <li>1. Confirm the ignition switch "OFF".</li> <li>2. Disconnect the connector of the passenger belt pretensioner.</li> <li>3. Disconnect the connector of SDM wiring.</li> <li>4. Check the resistance between the terminal 1,2 of SDM and the terminal 1,2 of passenger belt pretensioner. Is the resistance 10KΩ?</li> </ol>	10K Ω	Go to <i>Step 3</i>	Replace the airbag wiring.
3	<ol style="list-style-type: none"> <li>1. Replace the SDM.</li> <li>2. Confirm the ignition switch "ON".</li> <li>3. Erase the DTC using scan tool.</li> <li>4. Perform the SIR Diagnostic System Check.</li> <li>5. If the DTC is not removable, then replace the driver belt pretensioner.</li> </ol>	–	–	–



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## DIAGNOSTIC TROUBLE CODE (DTC) 10 DRIVER BELT PRETENSIONER DEPLOYMENT LOOP RESISTANCE IS LOW

### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

Upon passing these test ignition and deployment loop voltages are measured to ensure that they are within their normal voltage ranges. The SDM monitors the voltages at the driver low and the passenger low to detect shorts to ground or voltage in the deploy loops.

The SDM checks the wiring connection to the passenger airbag module by letting the infinitesimal current flow through the internal circuit and verify the resistance.

### DTC 10 Will Set When

- The resistance of driver belt pretensioner deploy loop is lower than 1.5 ohms.
- The shorting bar is damaged and then the SDM must be replaced .

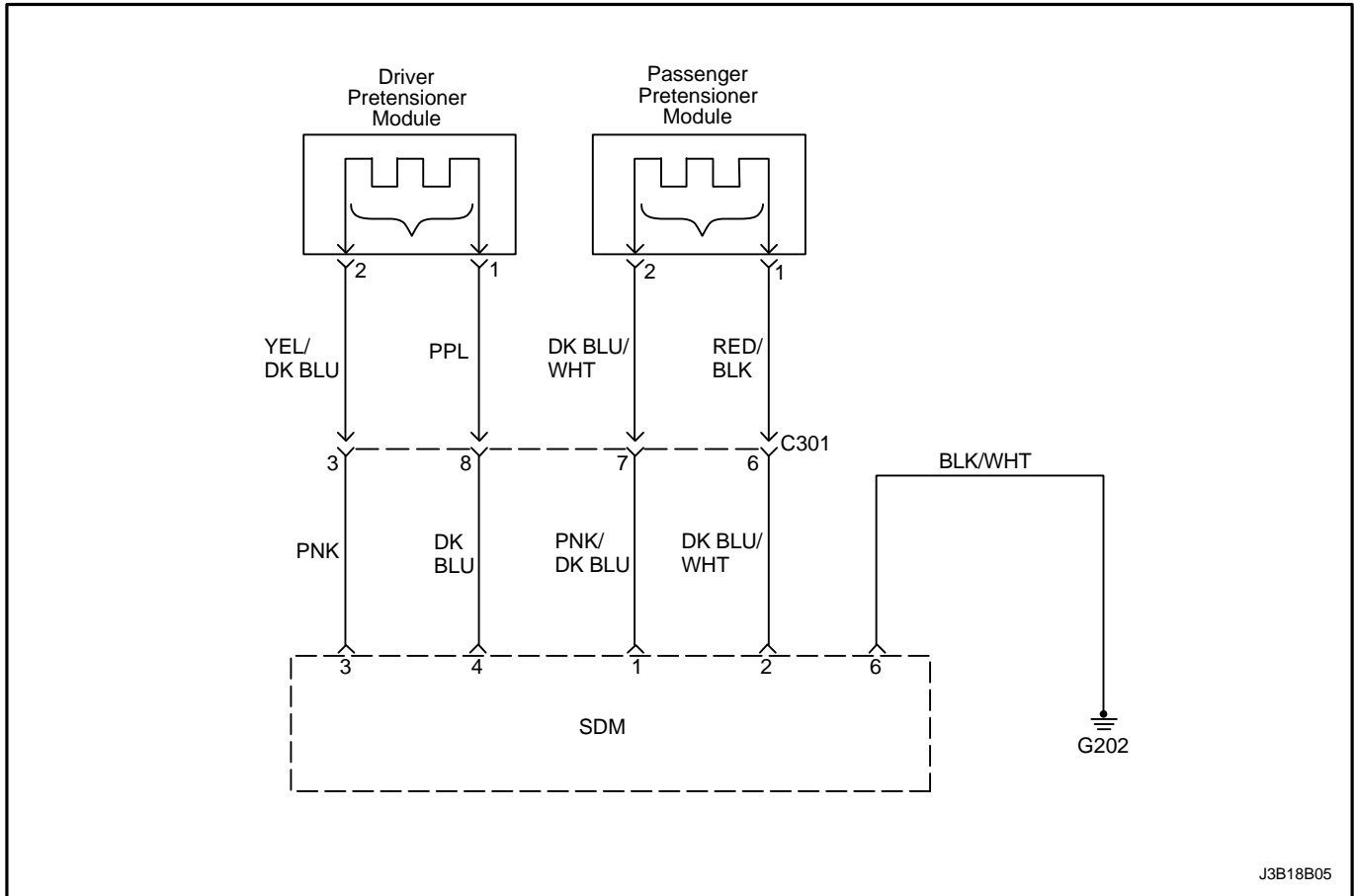
**DTC 10 – Driver Belt Pretensioner Deployment Loop Resistance Is Low**

**CAUTION :** The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.

**CAUTION :** During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.

Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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. Confirm the ignition switch "OFF". 2. Wait for a minute to discharge the SDM charger.	–	Go to Step 2	–
2	Visually inspect the connector and the wiring of driver belt pretensioner. Is the wiring damaged?	–	Replace the wiring.	Go to Step 3
3	1. Confirm the ignition switch "OFF". 2. Disconnect the connector of driver belt pretensioner. 3. Disconnect the connector of SDM wiring. 4. Check the resistance between the terminal 1 and 2 of driver belt pretensioner. Is the resistance $\infty$ ?	$\infty \Omega$	Go to Step 4	Replace the airbag wiring.
4	1. Replace the SDM. 2. Confirm the ignition switch "ON". 3. Erase the DTC using scan tool. 4. Perform the SIR Diagnostic System Check. If the DTC is not removable, then replace the driver belt pretensioner.	–	–	–



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## DIAGNOSTIC TROUBLE CODE (DTC) 11

### DRIVER BELT PRETENSIONER DEPLOYMENT LOOP IS SHORTED TO GROUND

#### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform a turn-on test to diagnose critical malfunctions within the SDM itself.

Upon passing these test ignition and deployment loop voltages are measured to ensure that they are within their normal voltage ranges. The SDM monitors the voltages at the driver low and the passenger low to detect shorts to ground or voltage in the deployment loops.

The SDM checks the wiring connection to the passenger airbag module by letting an infinitesimal current flow through the internal circuit and verify the resistance. If the resistance is in the 2 kilo ohms between 10 kilo ohms, the defect may occur depending upon the SDM. The normal resistance is over 10 kilo ohms.

#### DTC 11 Will Set When

- The belt pretensioner wiring of the driver's high is shorted to ground.
- The belt pretensioner wiring of the driver's low is shorted to ground.

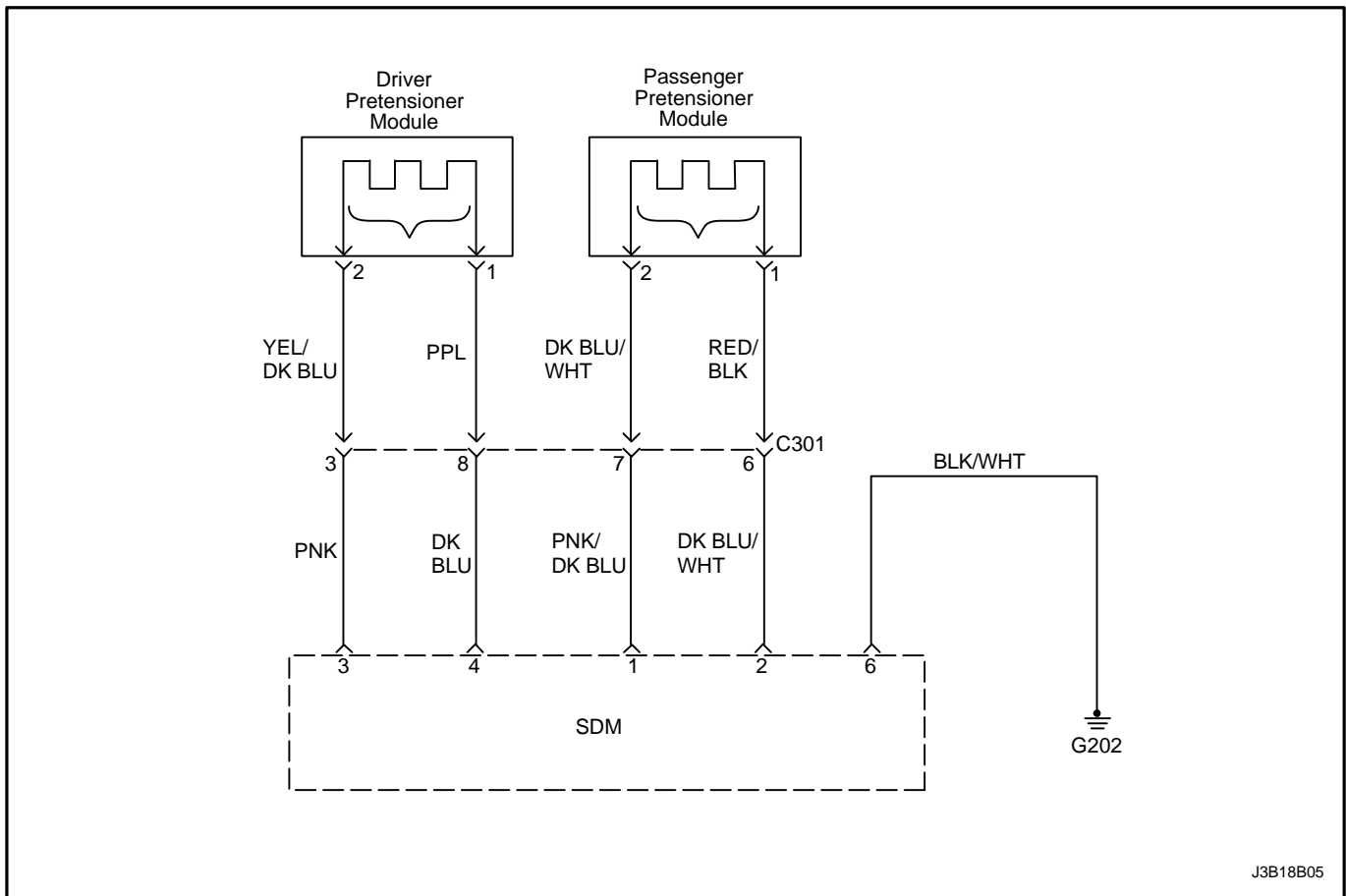
### DTC 11 – Driver Belt Pretensioner Deployment Loop Is Shorted To Ground

**CAUTION :** *The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.*

**CAUTION :** *During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.*

*Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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. Confirm the ignition switch "OFF". 2. Wait for a minute to discharge the SDM charger.	–	Go to Step 2	–
2	Visually inspect the connector and the wiring of airbag. Is the airbag wiring damaged?	–	Go to Step 3	Go to Step 4
3	1. Replace the airbag wiring	–	–	–
4	Check the resistance between the SDM and the high, low wiring of driver belt pretensioner and the ground. Is the resistance 10KΩ?	≈ 10K Ω	Go to Step 5	Replace the airbag wiring.
5	1. Replace the SDM. 2. Confirm the ignition switch "ON". 3. Erase the DTC using scan tool. 4. Perform the SIR Diagnostic System Check. 5. If the DTC is not removable, then replace the driver belt pretensioner.	–	–	–



## DIAGNOSTIC TROUBLE CODE (DTC) 12 DRIVER BELT PRETENSIONER DEPLOYMENT LOOP IS SHORTED TO POWER

### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

Upon passing these test ignition and deployment loop voltages are measured to ensure that they are within their normal voltage ranges. The SDM monitors the voltages at the driver low and the passenger low to detect shorts to ground or voltage in the deployment loops.

The SDM checks the wiring connection to the passenger airbag module by letting the infinitesimal current flow through the internal circuit and verify the resistance. If the resistance is in the 2 kilo ohms between 10 kilo ohms, the defect may occur depending upon SDM. The normal resistance is over 10 kilo ohms.

### DTC 12 Will Set When

- The belt pretensioner wiring of driver's high is shorted to battery wiring.
- The belt pretensioner wiring of driver's low is shorted to battery wiring.

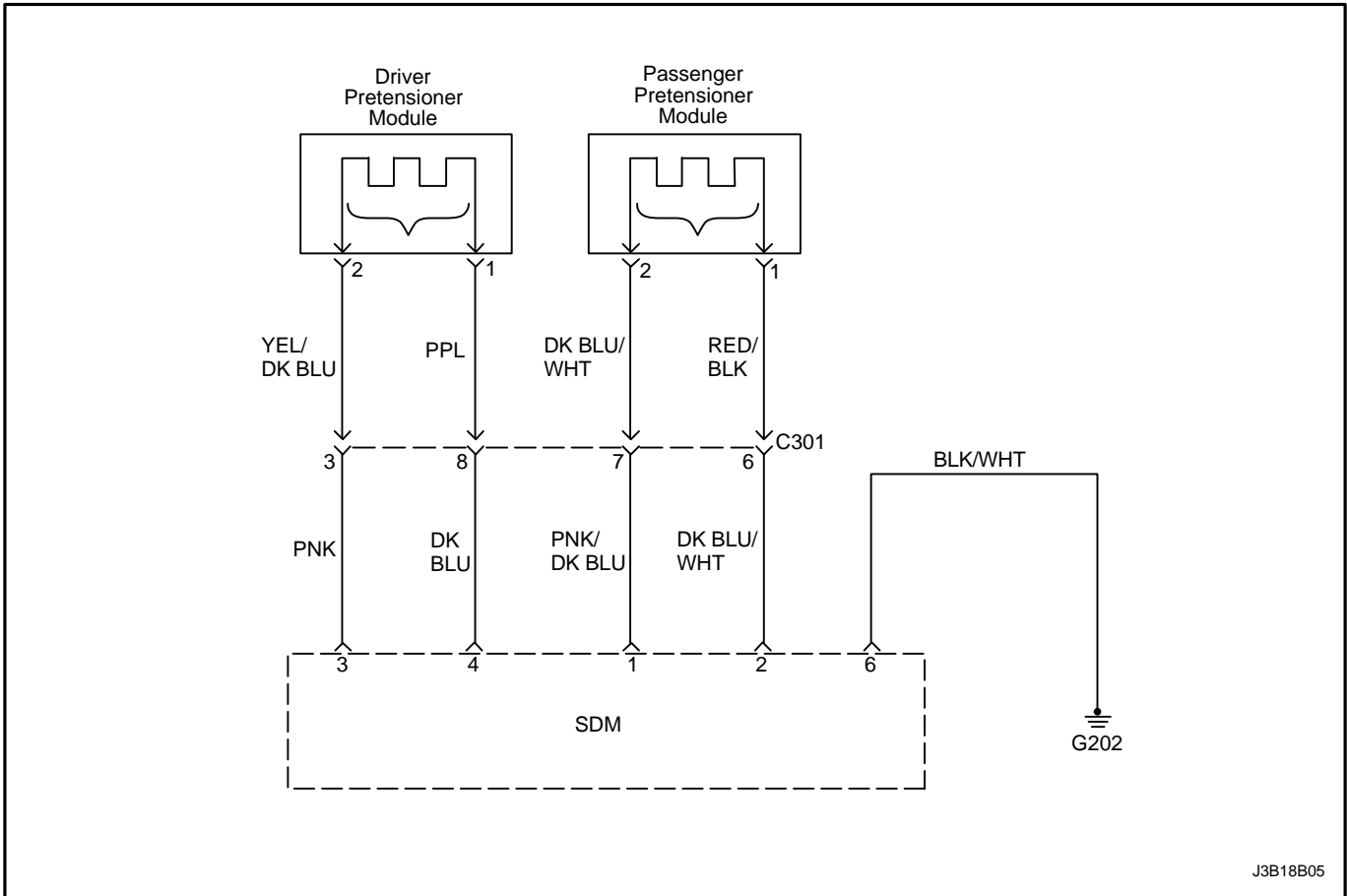
**DTC 12 – Driver Belt Pretensioner Deployment Loop Is Shorted To Power**

**CAUTION :** *The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.*

**CAUTION :** *During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.*

*Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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. Confirm the ignition switch "OFF". 2. Wait for a minute to discharge the SDM charger.	–	Go to Step 2	–
2	Visually inspect the connector and the wiring of airbag. Is the airbag wiring damaged?	–	Replace the airbag wiring.	Go to Step 3
3	Check the resistance between the SDM and the high, low wiring of driver belt pretensioner and the battery. Is the resistance 10KΩ?	≈ 10K Ω	Go to Step 4	Replace the airbag wiring.
4	1. Replace the SDM. 2. Confirm the ignition switch "ON". 3. Erase the DTC using scan tool. 4. Perform the SIR Diagnostic System Check. 5. If the DTC is not removable, then replace the driver belt pretensioner.	–	–	–



## DIAGNOSTIC TROUBLE CODE (DTC) 13 PASSENGER BELT PRETENSIONER DEPLOYMENT LOOP RESISTANCE IS HIGH

### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform a turn-on test to diagnose critical malfunctions within the SDM itself.

Upon passing these tests, ignition and deployment loop voltages are measured to ensure they are within their normal voltage ranges. The SDM monitors the voltages at the

driver low and the passenger low to detect shorts to ground or voltage in the deployment loops.

The SDM checks the wiring connection to the passenger airbag module by letting an infinitesimal current flow through the internal circuit and verifying the resistance.

### DTC 13 Will Set When

- The resistance of the passenger belt pretensioner deployment loop is over 3.1 ohms.

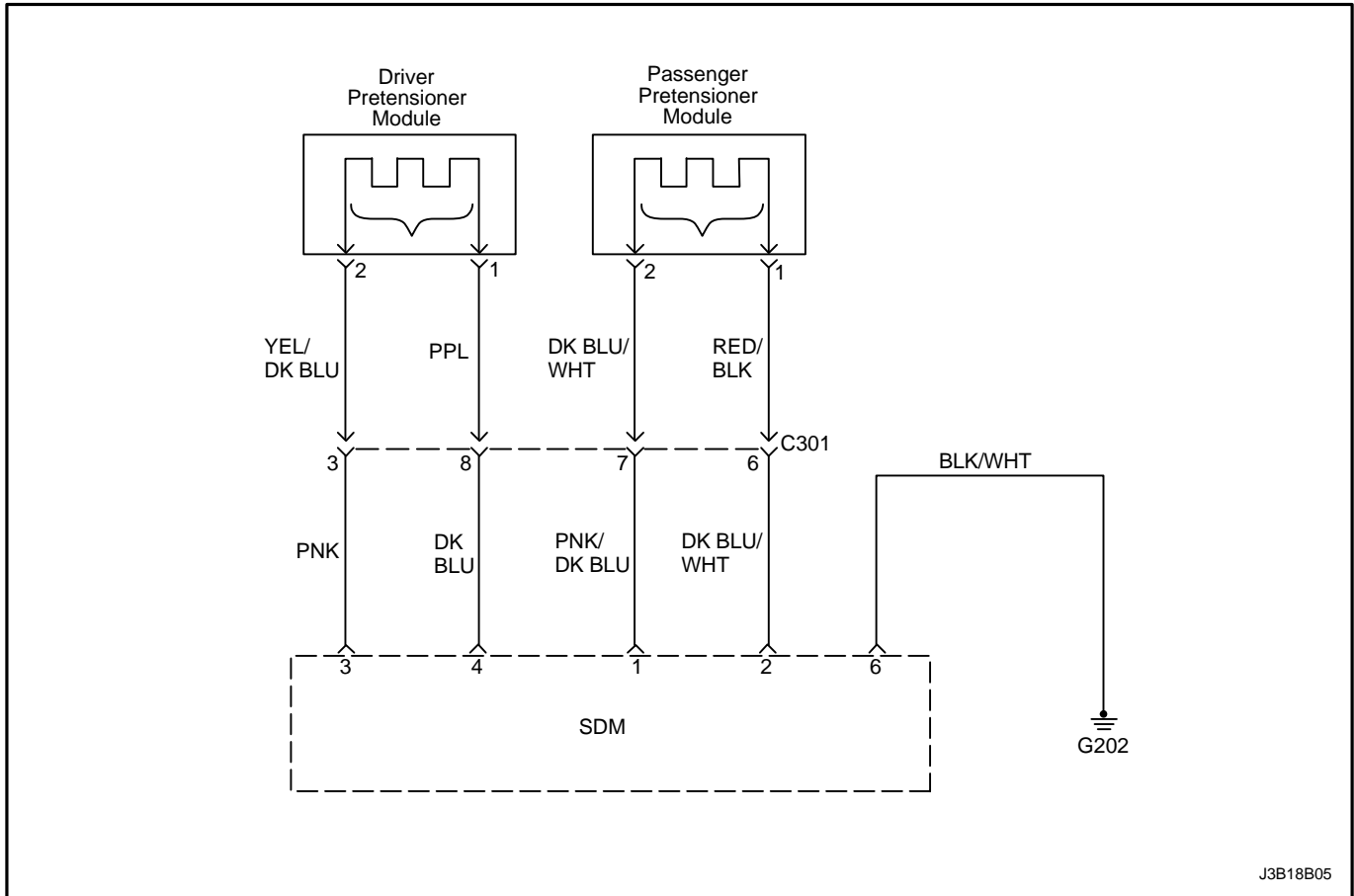
**DTC 13 – Passenger Belt Pretensioner Deployment Loop  
Resistance Is High**

**CAUTION :** *The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.*

**CAUTION :** *During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.*

*Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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	Visually inspect the connector and the wiring of passenger belt pretensioner. Is the connector disconnected?	–	Connect the connector.	Go to <i>Step 2</i>
2	<ol style="list-style-type: none"> <li>1. Confirm the ignition switch "OFF".</li> <li>2. Disconnect the connector of the passenger belt pretensioner.</li> <li>3. Disconnect the connector of SDM wiring.</li> <li>4. Check the resistance between the terminal 1,2 of SDM and the terminal 1,2 of passenger belt pretensioner. Is the resistance 10KΩ?</li> </ol>	≈ 10K Ω	Go to <i>Step 3</i>	Replace the airbag wiring.
3	<ol style="list-style-type: none"> <li>1. Replace the SDM.</li> <li>2. Confirm the ignition switch "ON".</li> <li>3. Erase the DTC using scan tool.</li> <li>4. Perform the SIR Diagnostic System Check.</li> </ol> Does the DTC still exist?	–	Go to <i>Step 4</i>	System is OK.
4	Replace the passenger belt pretensioner.	–	–	–



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## DIAGNOSTIC TROUBLE CODE (DTC) 14 PASSENGER BELT PRETENSIONER DEPLOYMENT LOOP RESISTANCE IS LOW

### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

Upon passing these test ignition and deployment loop voltages are measured to ensure that they are within their normal voltage ranges. The SDM monitors the voltages at the driver low and the passenger low to detect shorts to ground or voltage in the deploy loops.

The SDM checks the wiring connection to the passenger airbag module by letting the infinitesimal current flow through the internal circuit and verify the resistance.

### DTC 14 Will Set When

- The resistance of passenger belt pretensioner deploy loop is lower than 1.5 ohms.
- The shorting bar is damaged and then the SDM must be replaced .

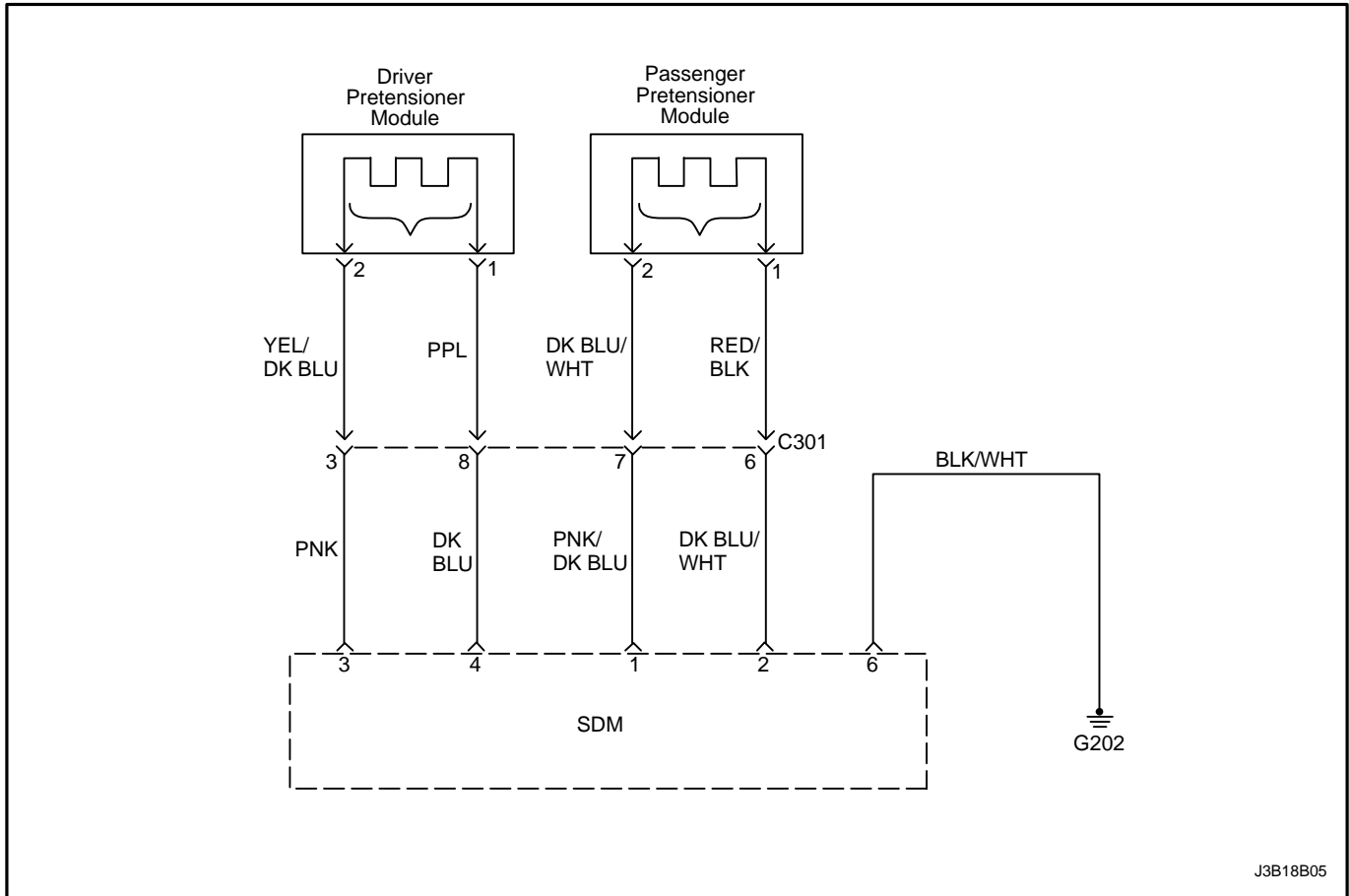
**DTC 14 – Passenger Belt Pretensioner Deployment Loop  
Resistance Is Low**

**CAUTION :** The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.

**CAUTION :** During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.

Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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	Visually inspect the connector and the wiring of passenger belt pretensioner. Is the connector disconnected?	–	Connect the connector.	Go to Step 2
2	1. Confirm the ignition switch "OFF". 2. Disconnect the connector of the passenger belt pretensioner. 3. Disconnect the connector of SDM wiring. 4. Check the resistance between the terminal 1 and 2 of passenger belt pretensioner. Is the resistance $\infty$ ?	$\infty$	Go to Step 3	Replace the airbag wiring.
3	1. Replace the SDM. 2. Confirm the ignition switch "ON". 3. Erase the DTC using scan tool. 4. Perform the SIR Diagnostic System Check. Does the DTC still exist?	–	Go to Sep 4	System is OK.
4	Replace the passenger belt pretensioner.	–	–	–



J3B18B05

## DIAGNOSTIC TROUBLE CODE (DTC) 15 PASSENGER BELT PRETENSIONER DEPLOYMENT LOOP IS SHORTED TO GROUND

### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

Upon passing these test ignition and deployment loop voltages are measured to ensure that they are within their normal voltage ranges. The SDM monitors the voltages at the driver low and the passenger low to detect shorts to ground or voltage in the deploy loops.

The SDM checks the wiring connection to the passenger airbag module by letting the infinitesimal current flow through the internal circuit and verify the resistance.

### DTC 15 Will Set When

- The belt pretensioner wiring of passenger's high is shorted to ground.
- The belt pretensioner wiring of passenger's low is shorted to ground.

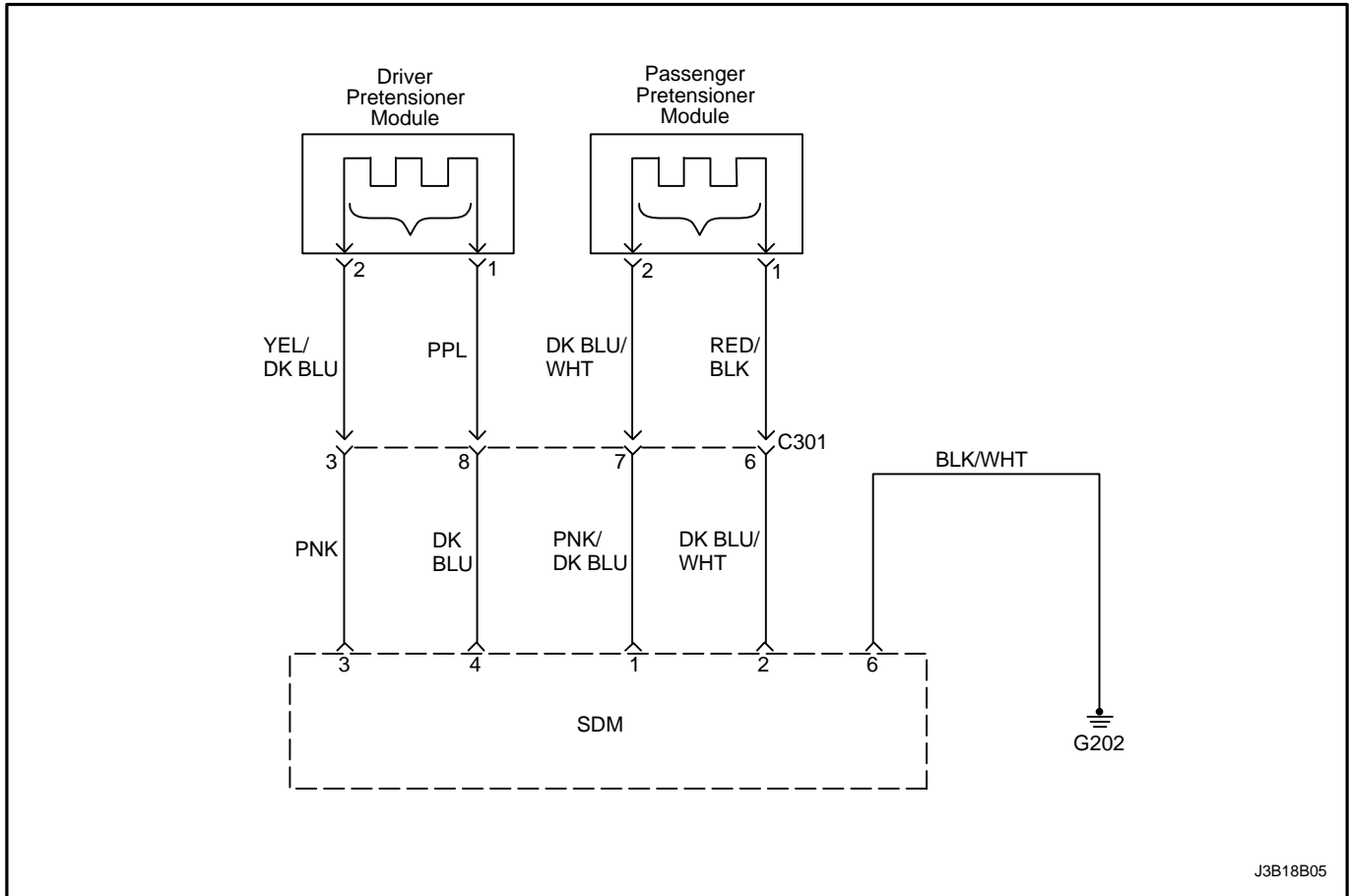
**DTC 15 – Passenger Belt Pretensioner Deployment Loop Is Shorted To Ground**

**CAUTION :** The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.

**CAUTION :** During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.

Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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. Confirm the ignition switch "OFF". 2. Wait for a minute to discharge the SDM charger. 3. Visually inspect the connector and the air wiring. Is the connector disconnected?	–	Connect the connector.	Go to Step 2
2	1. Check the resistance between the SDM and the high, low wiring of passenger belt pretensioner and the ground.. Is the resistance 10KΩ?	≈ 10K Ω	Go to Step 3	Replace the airbag wiring.
3	1. Replace the SDM. 2. Confirm the ignition switch "ON". 3. Erase the DTC using scan tool. 4. Perform the SIR Diagnostic System Check. Does the DTC still exist?	–	Go to Step 4	System is OK.
4	Replace the passenger belt pretensioner.	–	–	–



J3B18B05

## DIAGNOSTIC TROUBLE CODE (DTC) 16 PASSENGER BELT PRETENSIONER DEPLOYMENT LOOP IS SHORTED TO POWER

### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

Upon passing these test ignition and deployment loop voltages are measured to ensure that they are within their normal voltage ranges. The SDM monitors the voltages at the driver low and the passenger low to detect shorts to ground or voltage in the deploy loops.

The SDM checks the wiring connection to the passenger airbag module by letting the infinitesimal current flow through the internal circuit and verify the resistance.

### DTC 16 Will Set When

- The belt pretensioner wiring of passenger's high is shorted to battery wiring.
- The belt pretensioner wiring of passenger's low is shorted to battery wiring.

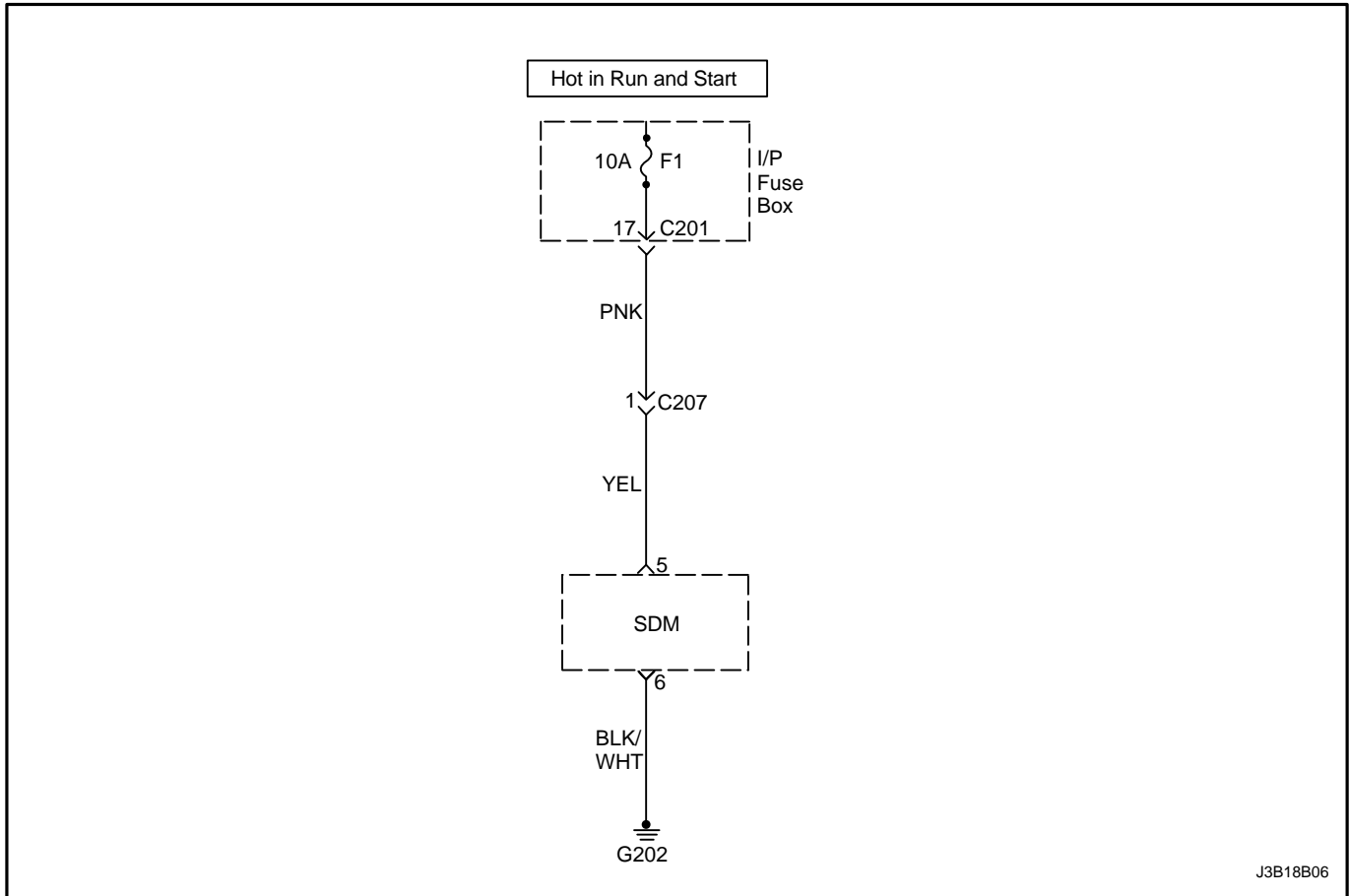
**DTC 16 – Passenger Belt Pretensioner Deployment Loop Is Shorted Power**

**CAUTION :** The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.

**CAUTION :** During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.

Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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. Confirm the ignition switch "OFF". 2. Wait for a minute to discharge the SDM charger. 3. Visually inspect the connector and the air wiring. Is the connector disconnected?	–	Connect the connector.	Go to Step 2
2	1. Check the resistance between the SDM and the high, low wiring of passenger belt pretensioner and the battery. Is the resistance 10KΩ?	≈ 10K Ω	Go to Step 3	Replace the airbag wiring.
3	1. Replace the SDM. 2. Confirm the ignition switch "ON". 3. Erase the DTC using scan tool. 4. Perform the SIR Diagnostic System Check. Does the DTC still exist?	–	Go to Step 4	System is OK.
4	Replace the passenger belt pretensioner.	–	–	–



## DIAGNOSTIC TROUBLE CODE (DTC) 23 BATTERY VOLTAGE HIGH

### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

Upon passing these test ignition and deployment loop voltages are measured to ensure that they are within their normal voltage ranges. The SDM monitors the voltages at the driver low and the passenger low to detect shorts to ground or voltage in the deploy loops.

The SDM checks the wiring connection to the passenger airbag module by letting the infinitesimal current flow through the internal circuit and verify the resistance. But if the voltage is out of range, SDM is unable to check the airbag system properly.

### DTC 23 Will Set When

- The voltage supplied from the battery is over 16.5 volts.

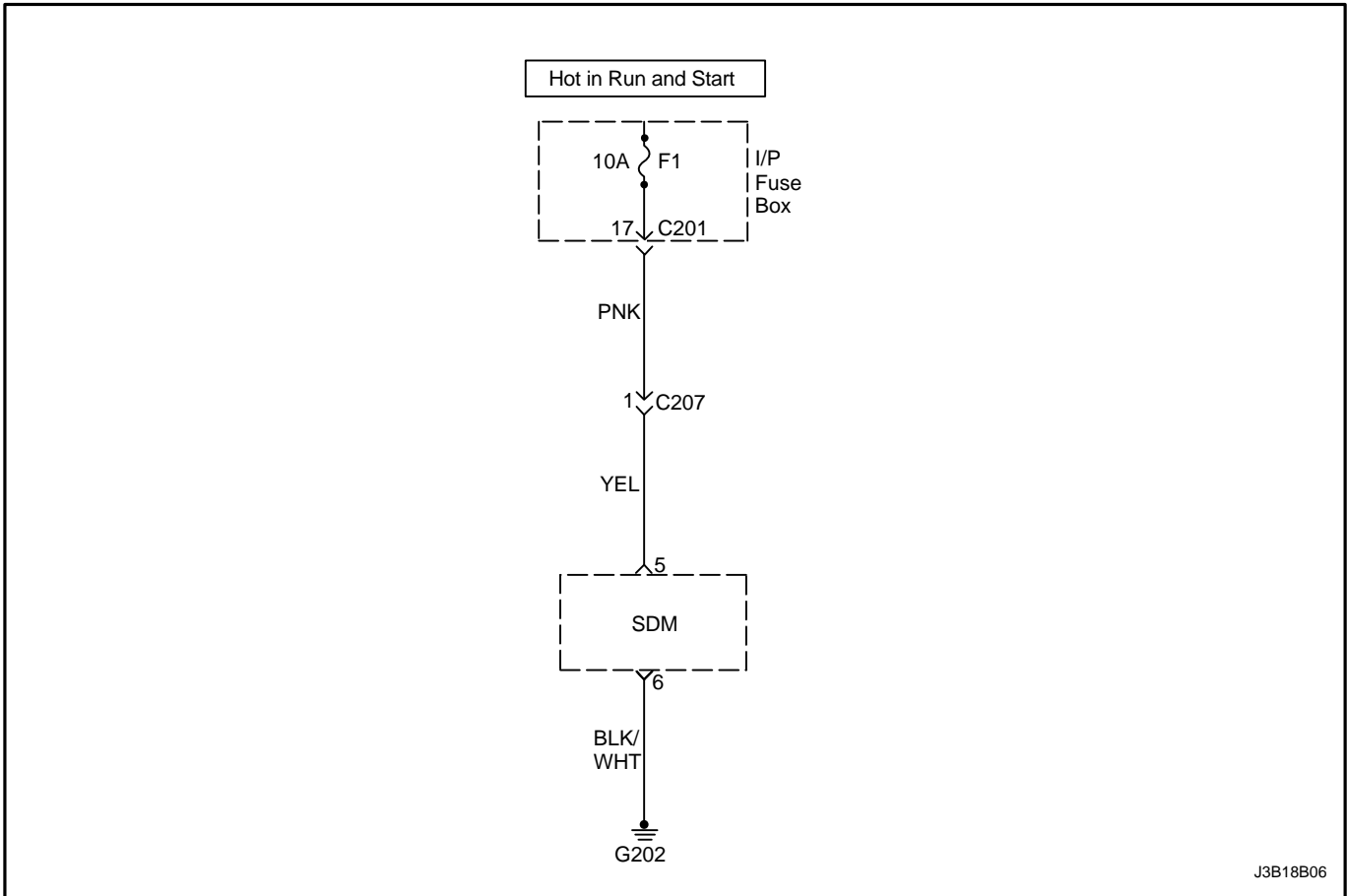
### DTC 23 – Battery Voltage High

**CAUTION :** *The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.*

**CAUTION :** *During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.*

*Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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	Check the vehicle's charging system including alternator. Refer to <i>Section 1E, Engine Electrical</i> . Is the charging system OK?	–	Go to <i>Step 3</i>	Go to <i>Step 2</i>
2	Repair the charging system. Is the repair completed?	–	Check the system again.	–
3	1. Disconnect the negative battery cable. 2. Replace the SDM. Is the repair completed?	–	Check the system again.	–



## DIAGNOSTIC TROUBLE CODE (DTC) 24

### BATTERY VOLTAGE HIGE

#### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

Upon passing these test ignition and deployment loop voltages are measured to ensure that they are within their normal voltage ranges. The SDM monitors the voltages at the driver low and the passenger low to detect shorts to ground or voltage in the deploy loops.

The SDM checks the wiring connection to the passenger airbag module by letting the infinitesimal current flow through the internal circuit and verify the resistance. But if the voltage is out of range, SDM is unable to check the airbag system properly.

#### DTC 24 Will Set When

- The voltage supplied from the battery is lower than 10.6 volts.

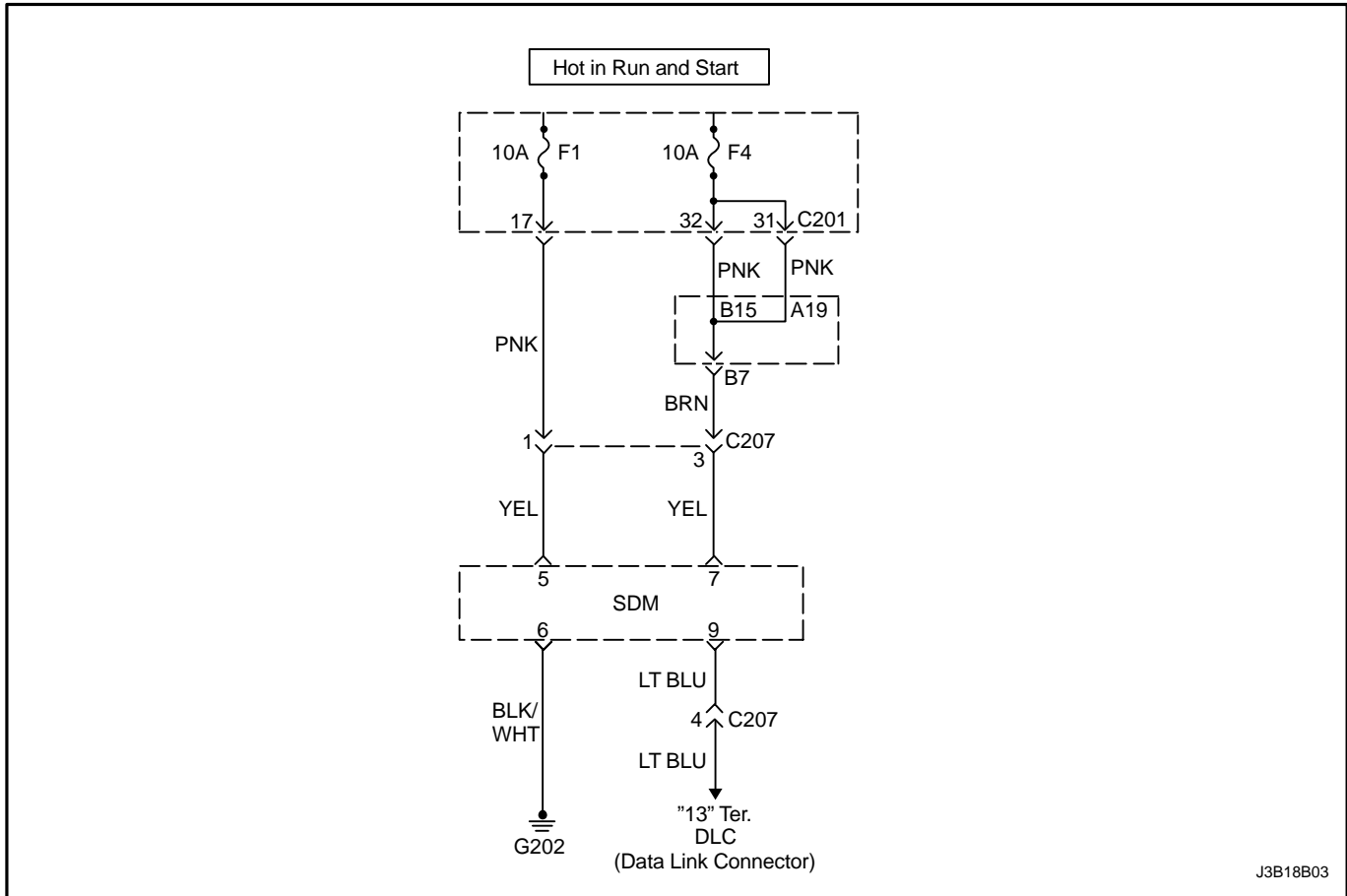
### DTC 24 – Battery Voltage Low

**CAUTION :** *The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.*

**CAUTION :** *During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.*

*Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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	Check the fuse F1. Is the fuse blown?	–	Replace the fuse F1.	Go to Step 2
2	1. Confirm the ignition switch "ON". 2. Check the voltage from the fuse F1. Is the voltage 10.6V?	≈ 10.6V	Go to Step 4	Go to Step 3
3	1. Repair the power supply and the wiring to the fuse F1.	–	–	–
4	1. Confirm the ignition switch "OFF". 2. Disconnect the connector of clock spring. 3. Disconnect the connector of passenger airbag module. 4. Disconnect the connector of SDM. 5. Confirm the ignition switch "ON". 6. Check the voltage between the terminal 5 of SDM connector and the ground. Is the voltage 10.6V?	≈ 10.6V	Go to Step 7	Go to Step 5
5	1. Disconnect the C207. 2. Confirm the ignition switch "ON". 3. Check the voltage from the terminal 3 of C207. Is the voltage 10.6V?	≈ 10.6V	Go to Step 4	Go to Step 3
6	Repair the wire between the fuse F1 and the terminal 1 of connector C207.	–	–	–
7	Replace the SDM.	–	–	–



## DIAGNOSTIC TROUBLE CODE (DTC) 25

### AIRBAG WARNING LAMP FAILURE

#### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

Upon passing these test ignition and deployment loop voltages are measured to ensure that they are within their normal voltage ranges. The SDM monitors the voltages at the driver low and the passenger low to detect shorts to ground or voltage in the deploy loops.

The SDM checks the wiring connection to the passenger airbag module by letting the infinitesimal current flow through the internal circuit and verify the resistance. If the

warning lamp operates properly "ON" and "OFF", SDM checks the voltage continuously from the warning lamp terminal.

#### DTC 25 Will Set When

- The warning lamp does not blinking properly "ON" and "OFF".

#### Reference

When the ignition switch is turned ON, in case of normal, the warning lamp blinking 7 times during 7 seconds.

But in case, the warning lamp stays "ON" or blinking a second after above normal blinking (7 times during 7 seconds), then it is regarded as a defect (old or current) presents. Please check the defect with scan tool.

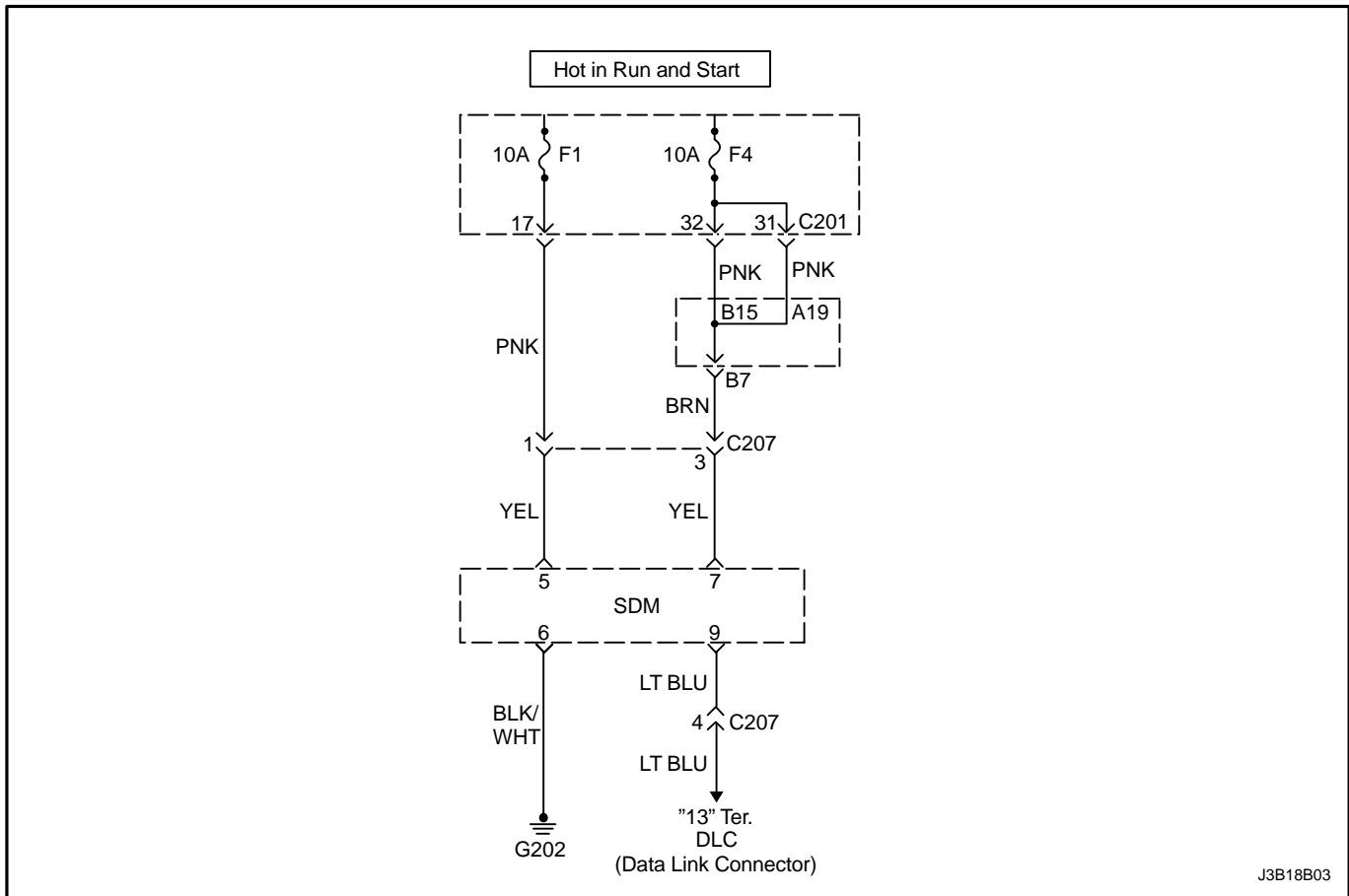
**DTC 25 – Airbag Warning Lamp Failure**

**CAUTION :** *The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.*

**CAUTION :** *During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.*

*Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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. Confirm the ignition switch "OFF". 2. Wait for a minute the SDM charger to be discharged. 3. Visually check any damage for the airbag wiring. Is the airbag wiring damaged?	–	Replace the airbag wiring.	Go to Step 2
2	1. Check the resistance between the SDM and the high, low terminal of driver side airbag module and ground. Is the resistance 10KΩ	–	Go to Step 4	Go to Step 3
3	Repair the power supply and the wiring to the fuse F4.	–	–	–
4	1. Confirm the ignition switch "OFF". 2. Remove the instrument cluster (or clock for with tachometer). 3. Check the bulb of airbag warning lamp. Is the bulb OK?	–	Go to Step 6	Go to Step 5
5	Replace the bulb of airbag warning lamp.	–	–	–
6	1. Confirm the ignition switch "ON". 2. Check the voltage from the terminal B15 from the wiring connector of cluster.(or the terminal A19 from the wiring connector of cluster). Is the voltage in the range of 11~14V?	≈ 11~14V	Go to Step 8	Go to Step 7
7	Repair the wire between the fuse F4 and the terminal B15 from the wiring connector of cluster.(or the terminal A19 from the wiring connector of cluster).	–	–	–
8	1. Check the connection between the terminal B15 and B7 from the cluster(or the terminal A19 and B7 from the cluster). Is the connection OK?	–	Go to Step 10	Go to Step 9
9	1. Replace the instrument cluster.	–	–	–
10	1. Confirm the ignition switch "OFF". 2. Remove the connector of passenger airbag module and the connector of clock spring. 3. Remove the connector of SDM. 4. Confirm the ignition switch "OFF". 5. Check the voltage from the terminal 7 of SDM. Is the voltage in the range of 11~14V?	–	Replace the SDM.	Go to Step 11
11	Repair the wiring between the terminal 7 of SDM and the instrument cluster.	–	–	–



## DIAGNOSTIC TROUBLE CODE (DTC) 31 INTERNAL SENSING DIAGNOSTIC MODULE (SDM) FAILURE

### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

### DTC 31 Will Set When

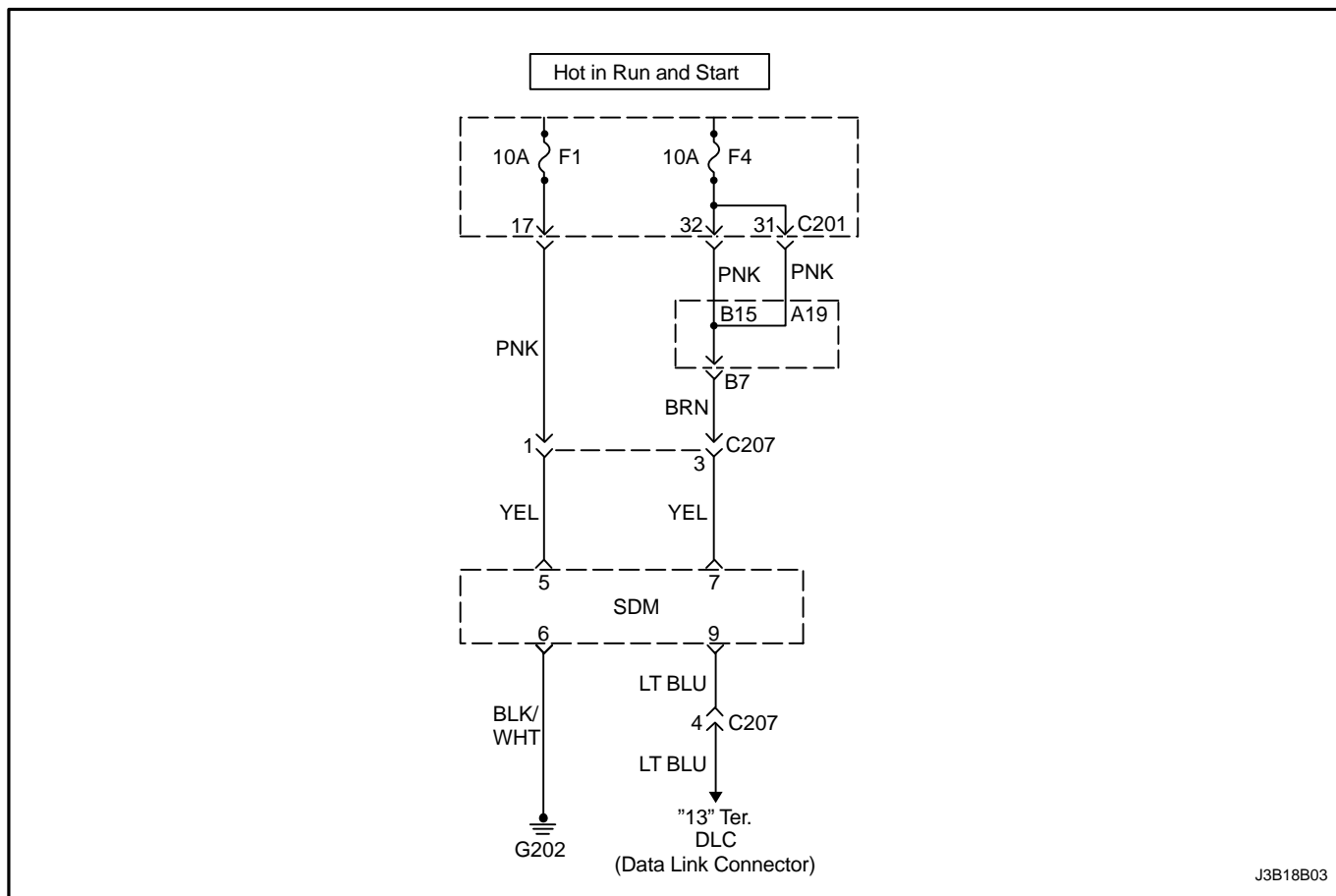
- The SDM does not implement diagnostic operation. In case of above, the wiring harness of SDM should be checked before replacing the SDM.

### DTC 31 – Internal Sensing Diagnostic Module (SDM) Failure

**CAUTION :** The sensing and diagnostic module (SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.

**CAUTION :** During service procedure, be very careful

*when handling the SDM. Never strike or jar the SDM. Never power the supplemental inflatable restraints (SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened, and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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.*



## DIAGNOSTIC TROUBLE CODE (DTC) 32

### AIRBAG INFLATION RECORD BY FRONTAL COLLISION

#### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

In case of airbag inflation by a vehicle collision, the SDM

maintains warning lamp "ON" and then all the airbag system including SDM, Airbag Module and wiring should be replaced.

#### DTC 32 Will Set When

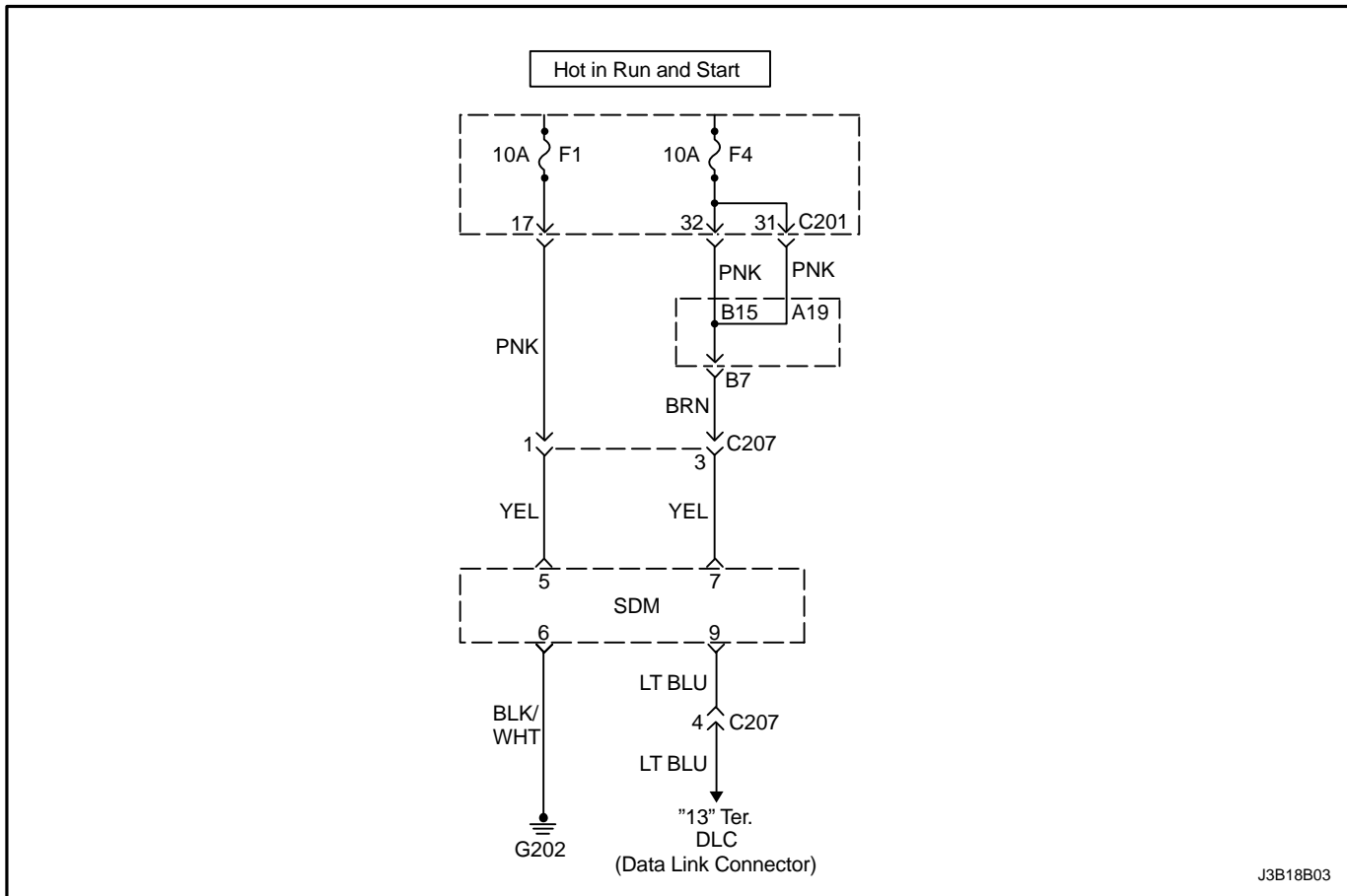
- The history of airbag inflation or belt pretensioner explosion is in the SDM.

#### DTC 32 – Airbag Inflation Record By Frontal Collision

**CAUTION :** The sensing and diagnostic module (SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.

**CAUTION :** During service procedure, be very careful

**when handling the SDM. Never strike or jar the SDM. Never power the supplemental inflatable restraints (SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened, and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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.**



## DIAGNOSTIC TROUBLE CODE (DTC) 33

### DRIVER SIDE AIRBAG INFLATION RECORD BY SIDE IMPACT

#### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

In case of driver side airbag inflation by side impact, the SDM maintains warning lamp "ON" and then all the airbag system should be checked including pretensioners and

also side airbag sensor, wiring should be replaced. In case, the driver side airbag inflation by side impact counts over 5, the SDM should also be replaced.

#### DTC 33 Will Set When

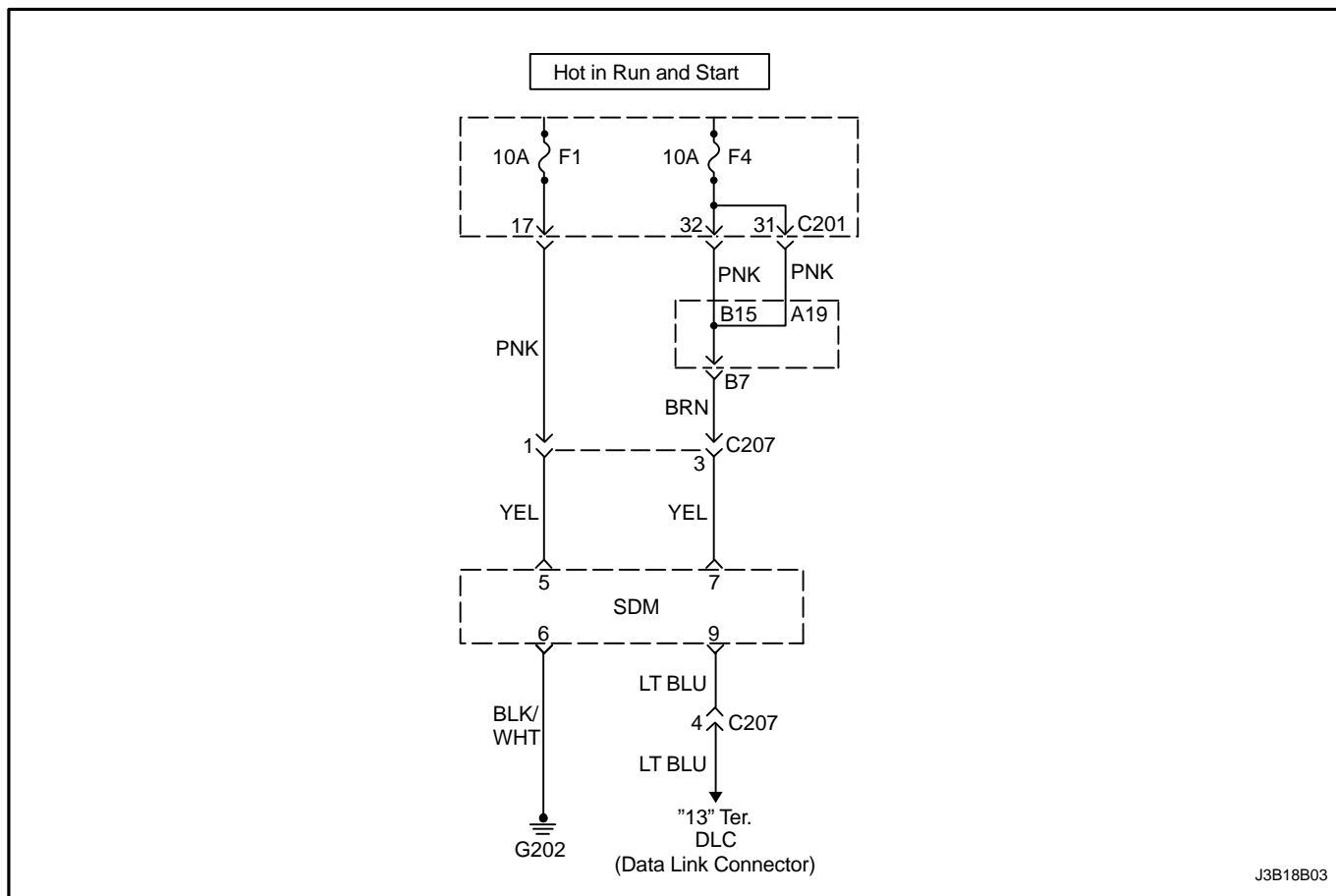
- The history of airbag inflation or belt pretensioner explosion is in the SDM.

#### DTC 33 – Driver Side Airbag Inflation Record By Side Impact

**CAUTION :** The sensing and diagnostic module (SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.

**CAUTION :** During service procedure, be very careful

*when handling the SDM. Never strike or jar the SDM. Never power the supplemental inflatable restraints (SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened, and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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.*



J3B18B03

## DIAGNOSTIC TROUBLE CODE (DTC) 34 PASSENGER SIDE AIRBAG INFLATION RECORD BY SIDE IMPACT

### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

In case of passenger side airbag inflation by side impact, the SDM maintains warning lamp "ON" and then all the airbag system should be checked including pretensioners

and also side airbag sensor, wiring should be replaced. In case, the passenger side airbag inflation by side impact counts over 5, the SDM should also be replaced.

### DTC 34 Will Set When

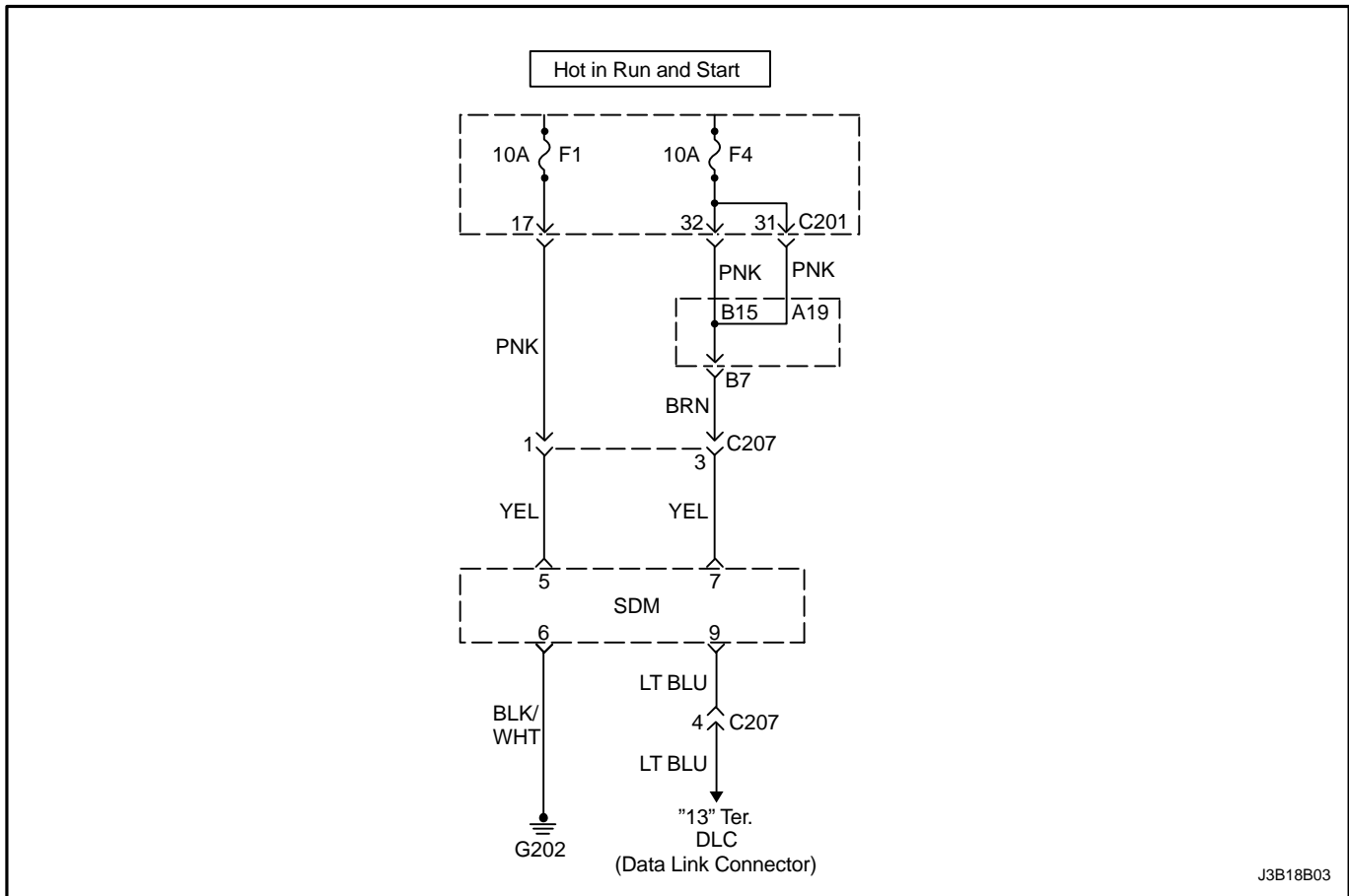
- The history of passenger side airbag inflation or belt pretensioner explosion is in the SDM.

### DTC 34 – Passenger Side Airbag Inflation Record By Side Impact

**CAUTION :** The sensing and diagnostic module (SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.

**CAUTION :** During service procedure, be very careful

*when handling the SDM. Never strike or jar the SDM. Never power the supplemental inflatable restraints (SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened, and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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.*



## DIAGNOSTIC TROUBLE CODE (DTC) 35 BELT PRETENSIONER EXPLOSION RECORD

### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

In case of belt pretensioner explosion without front airbag

**CAUTION :** The sensing and diagnostic module (SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.

**CAUTION :** During service procedure, be very careful

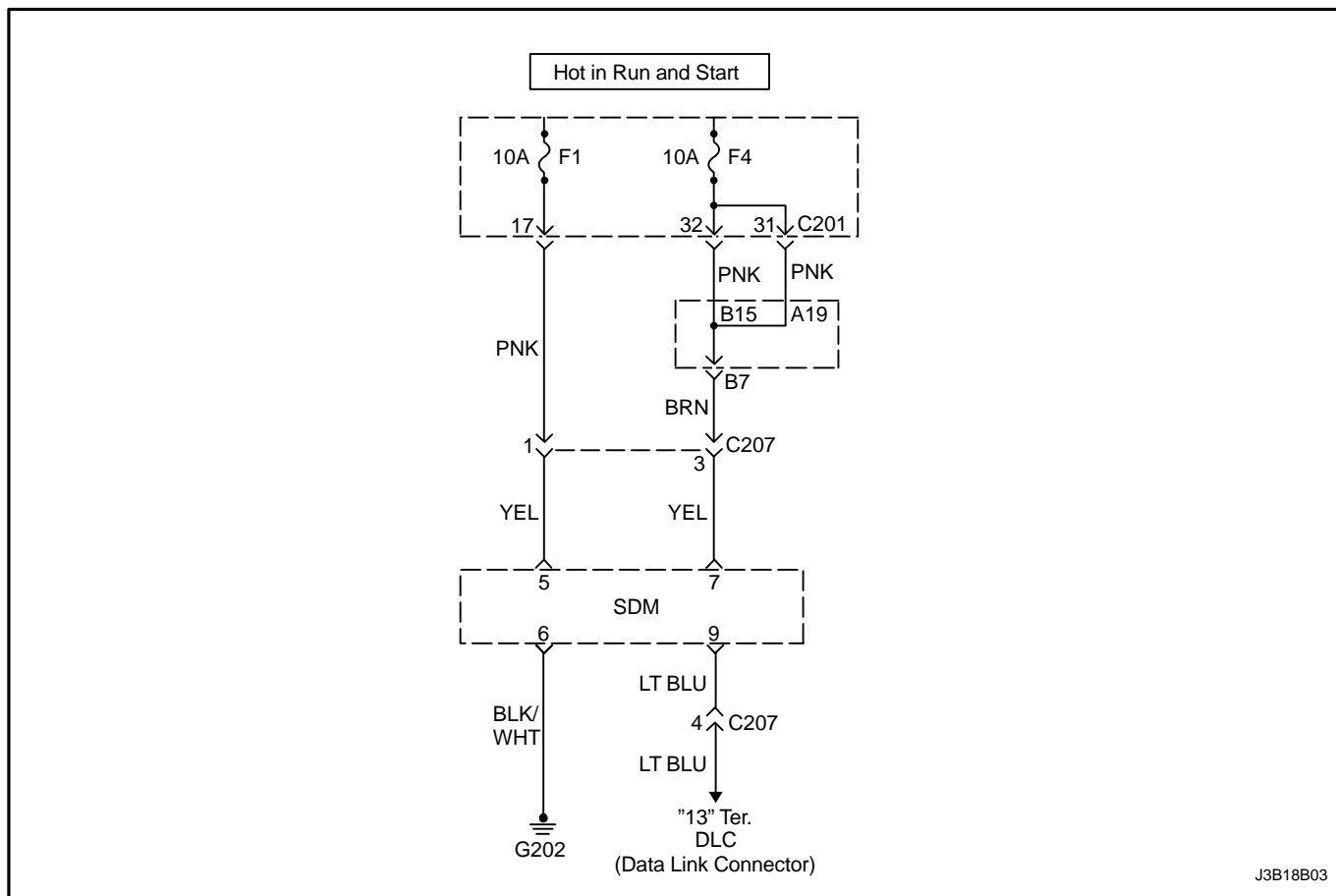
inflation due to insufficient impact, replace the exploded belt pretensioner and remove the defect code using scan tool. In case, the belt pretensioner explosion counts over 5, then the SDM should also be replaced.

### DTC 35 Will Set When

- The history of belt pretensioner explosion is in the SDM.

### DTC 35 – Belt Pretensioner Explosion Record

*when handling the SDM. Never strike or jar the SDM. Never power the supplemental inflatable restraints (SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened, and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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.*



J3B18B03

## DIAGNOSTIC TROUBLE CODE (DTC) 38 SIDE AIRBAG AND BELT PRETENSIONER EXPLOSION COUNT OVER 5

### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

In case of the SDM has been used 5 times for 5 explosions

of belt pretensioners or side airbags, the SDM should also be replaced.

### DTC 38 Will Set When

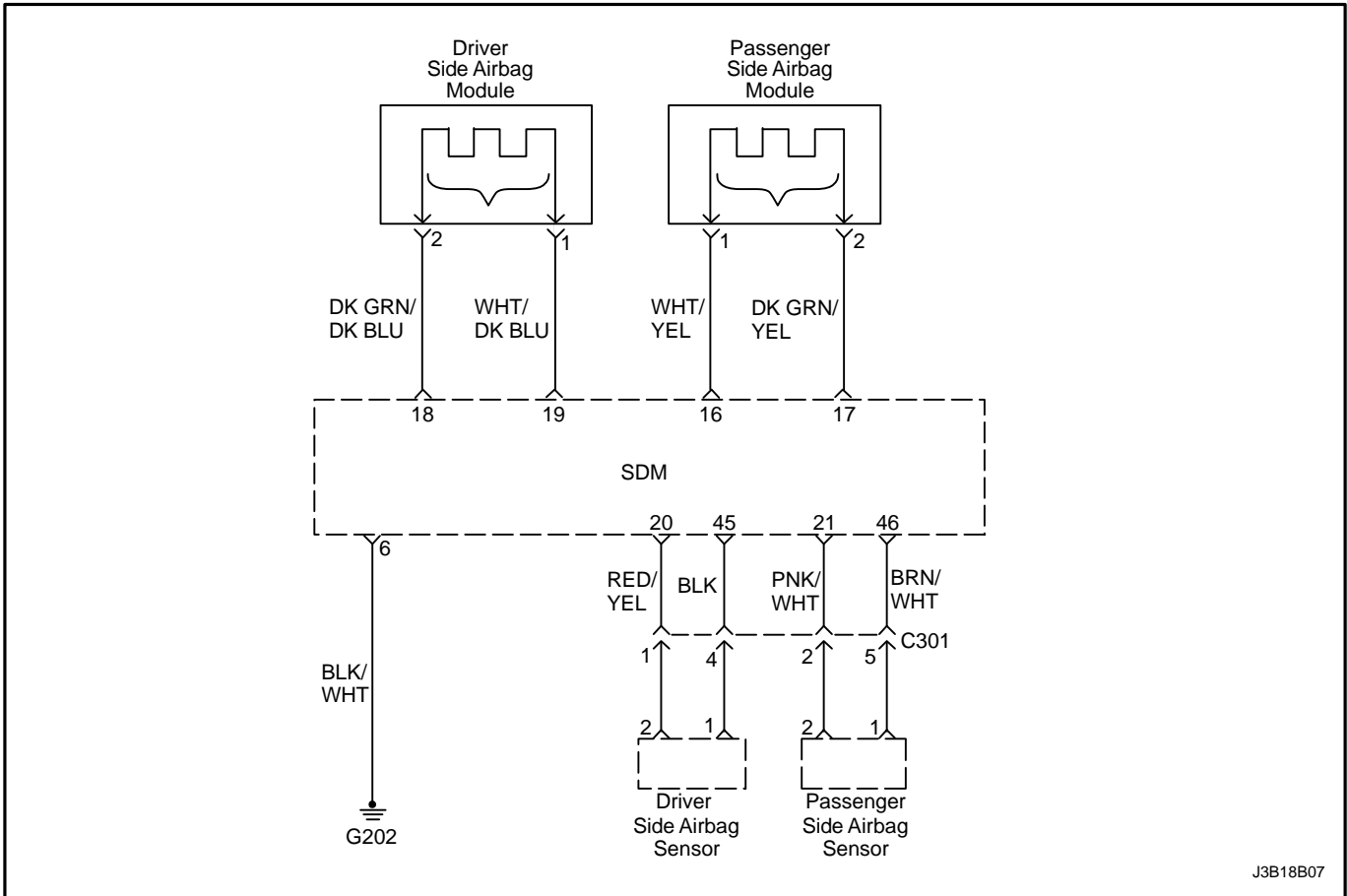
- The count of belt pretensioner and side airbag explosion is over 5 in the SDM.

### DTC 38 – Side Airbag And Belt Pretensioner Explosion Count Over 5

**CAUTION :** The sensing and diagnostic module (SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.

**CAUTION :** During service procedure, be very careful

when handling the SDM. Never strike or jar the SDM. Never power the supplemental inflatable restraints (SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened, and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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.



## DIAGNOSTIC TROUBLE CODE (DTC) 52 DRIVER SIDE AIRBAG DEPLOYMENT LOOP RESISTANCE IS HIGH

### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

Upon passing these test ignition and deployment loop volt-

ages are measured to ensure that they are within their normal voltage ranges. The SDM monitors the voltages at the driver low and the passenger low to detect shorts to ground or voltage in the deploy loops.

### DTC 52 Will Set When

- The resistance of driver side airbag deployment loop is higher than 2.7 ohms.

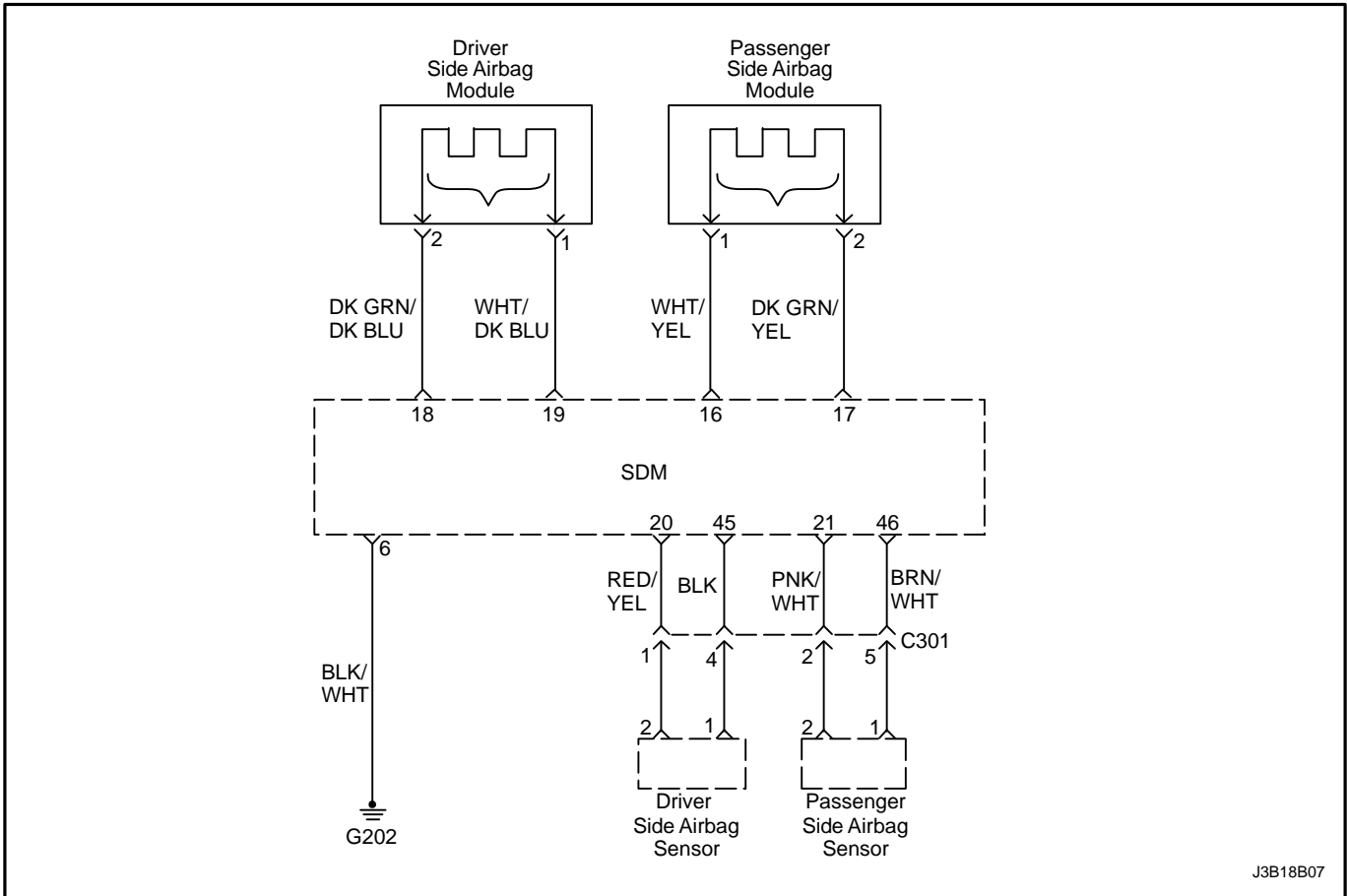
**DTC 52 – Driver Side Airbag Deployment Loop Resistance Is High**

**CAUTION :** *The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the irabags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.*

**CAUTION :** *During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.*

*Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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	Visually inspect the connector and the wiring of driver side airbag. Is the connector disconnected?	–	Go to Step 2	Go to Step 3
2	Connect the connector and perform the SIR Diagnostic System Check.	–	–	–
3	<ol style="list-style-type: none"> <li>1. Confirm the ignition switch "OFF".</li> <li>2. Disconnect the connector of the driver side airbag module.</li> <li>3. Disconnect the connector of SDM wiring.</li> <li>4. Check the resistance between the terminal 18,19 of SDM and the terminal 1,2 of driver side airbag module. Is the resistance about 0(zero) ?</li> </ol>	$\approx 0 \Omega$	Go to Step 5	Go to Step 4
4	Replace the airbag wiring.	–	–	–
5	<ol style="list-style-type: none"> <li>1. Replace the SDM.</li> <li>2. Confirm the ignition switch "ON".</li> <li>3. Erase the DTC using scan tool.</li> <li>4. Perform the SIR Diagnostic System Check. Is the DTC removed?</li> </ol>	–	The System is OK	Go to Step 6
6	Replace the driver side airbag module.	–	–	–



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## DIAGNOSTIC TROUBLE CODE (DTC) 53 DRIVER SIDE AIRBAG DEPLOYMENT LOOP RESISTANCE IS LOW

### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

Upon passing these test ignition and deployment loop voltages are measured to ensure that they are within their nor-

mal voltage ranges. The SDM monitors the voltages at the driver low and the passenger low to detect shorts to ground or voltage in the deploy loops.

### DTC 53 Will Set When

- The resistance of driver airbag deployment loop is lower than 1.4 ohms.
- The shorting bar is damaged and then the SDM must be replaced .

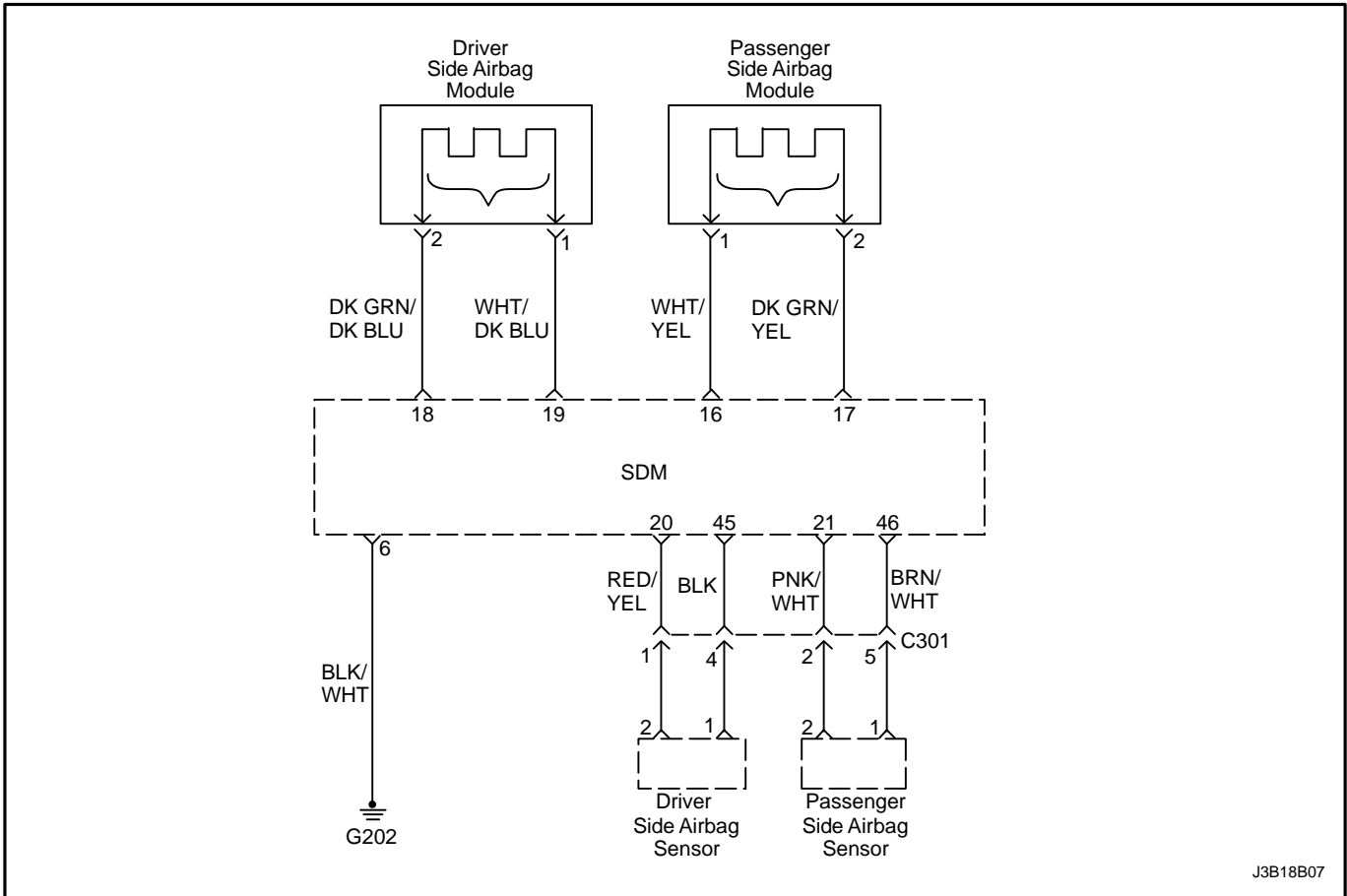
**DTC 53 – Driver Side Airbag Deployment Loop Resistance Is Low**

**CAUTION :** *The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.*

**CAUTION :** *During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.*

*Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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. Confirm the ignition switch "OFF". 2. Disconnect the connector of the driver side airbag module. 3. Disconnect the connector of SDM wiring. 4. Check the resistance between the terminal 1,2 of driver side airbag module. Is the resistance $\infty$ ?	$\infty$	Go to Step 2	Replace the airbag wiring.
2	1. Replace the SDM. 2. Confirm the ignition switch "ON". 3. Erase the DTC using scan tool. 4. Perform the SIR Diagnostic System Check. Is the DTC removed?	–	The System is OK.	Go to Step 3
3	Replace the driver side airbag module.	–	–	–



## DIAGNOSTIC TROUBLE CODE (DTC) 54 DRIVER SIDE AIRBAG DEPLOYMENT LOOP IS SHORTED TO GROUND

### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

Upon passing these test ignition and deployment loop voltages are measured to ensure that they are within their nor-

mal voltage ranges. The SDM monitors the voltages at the driver low and the passenger low to detect shorts to ground or voltage in the deployment loops.

### DTC 54 Will Set When

- The side airbag wiring of driver's high is shorted to ground.
- The side airbag wiring of driver's low is shorted to ground.

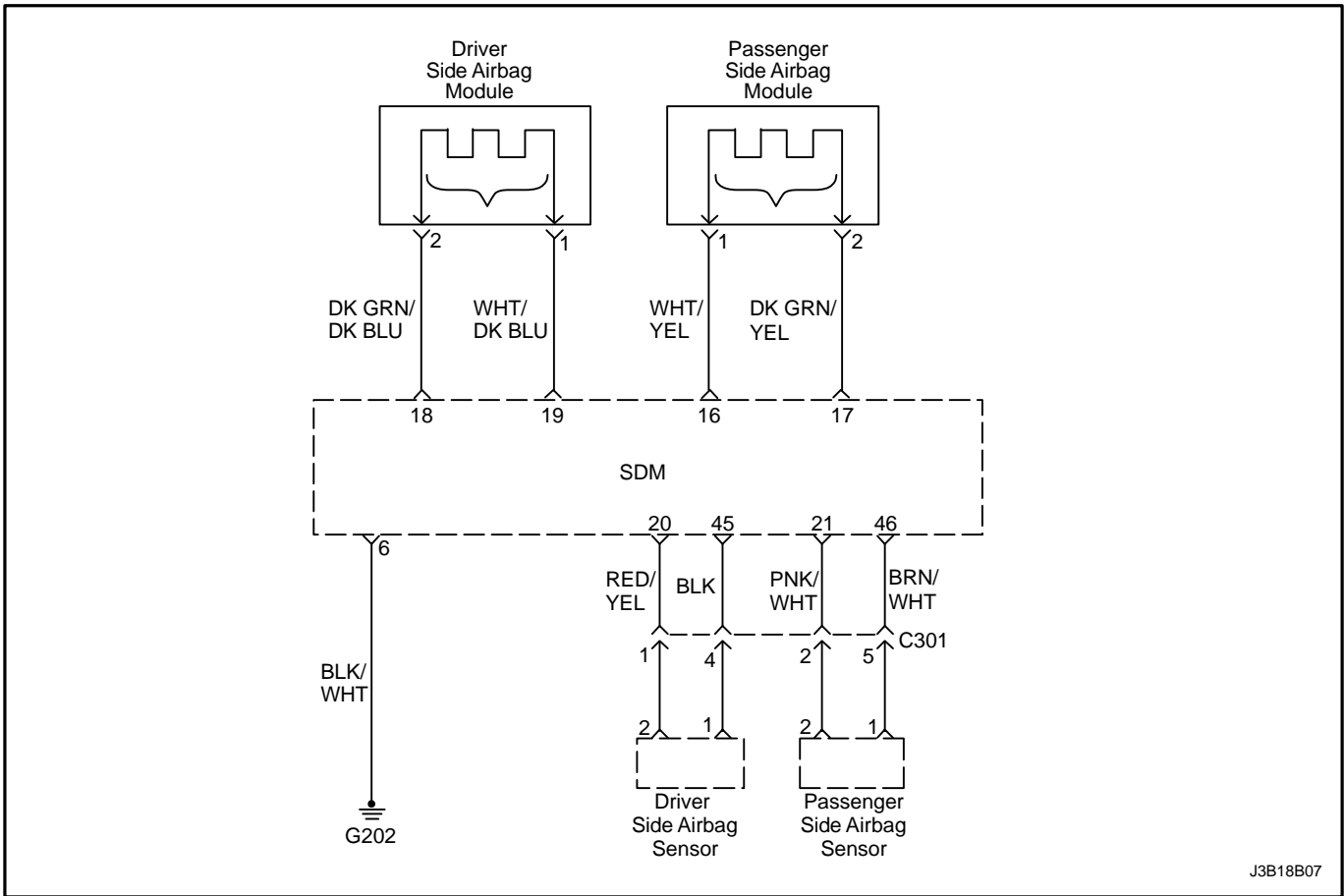
### DTC 54 – Driver Side Airbag Deployment Loop Is Shorted To Ground

**CAUTION :** *The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.*

**CAUTION :** *During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.*

*Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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. Confirm the ignition switch "OFF". 2. Wait for a minute the SDM charger to be discharged. 3. Visually check any damage for the airbag wiring. Is the airbag wiring damaged?	–	Go to Step 3	Go to Step 2
2	1. Check the resistance between the SDM and the high, low terminal of driver side airbag module and the ground. Is the resistance 10KΩ?	≈ 10K Ω	Go to Step 4	Go to Step 3
3	Replace the airbag wiring.	–	–	–
4	1. Replace the SDM. 2. Confirm the ignition switch "ON". 3. Remove the DTC with scan tool. 4. Check the circuit. Does the DTC still exist?	–	Go to Step 5	The system is OK.
5	Replace the driver side airbag module.	–	–	–



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## DIAGNOSTIC TROUBLE CODE (DTC) 55

### DRIVER SIDE AIRBAG DEPLOYMENT LOOP IS SHORTED TO POWER

#### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

Upon passing these test ignition and deployment loop voltages are measured to ensure that they are within their nor-

mal voltage ranges. The SDM monitors the voltages at the driver low and the passenger low to detect shorts to ground or voltage in the deploy loops.

#### DTC 55 Will Set When

- The side airbag wiring of driver's high is shorted to battery wiring.
- The side airbag wiring of driver's low is shorted to battery wiring.

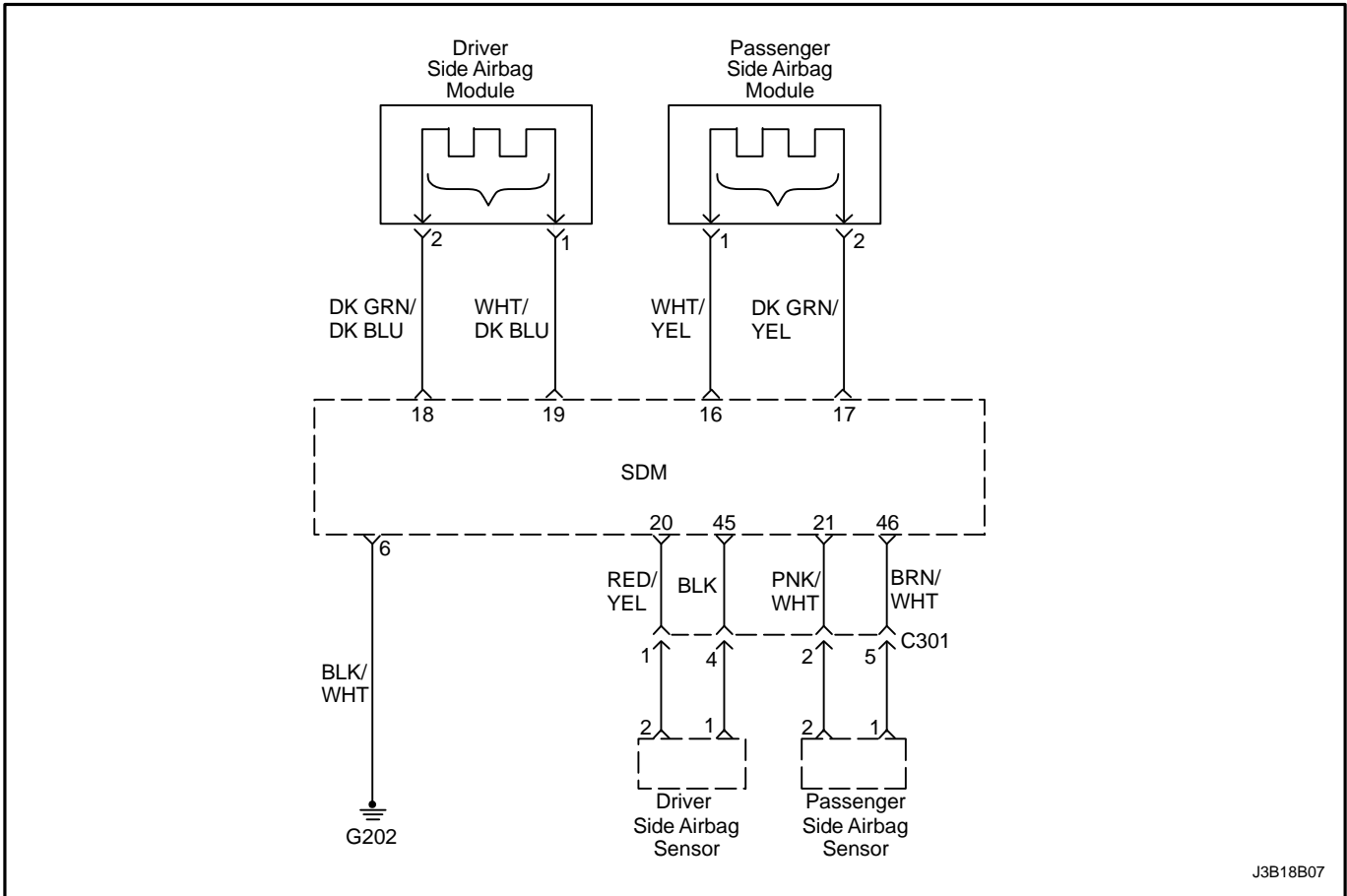
**DTC 55 – Driver Side Airbag Deployment Loop Is Shorted To Power**

**CAUTION :** *The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.*

**CAUTION :** *During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.*

*Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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. Confirm the ignition switch "OFF". 2. Wait for a minute the SDM charger to be discharged. 3. Visually check any damage for the airbag wiring. Is the airbag wiring damaged?	–	Go to Step 3	Go to Step 2
2	1. Check the resistance between the SDM and the high, low terminal of driver side airbag module and the battery. Is the resistance 10KΩ?	≈ 10K Ω	Go to Step 4	Go to Step 3
3	Replace the airbag wiring.	–	–	–
4	1. Replace the SDM. 2. Confirm the ignition switch "ON". 3. Remove the DTC with scan tool. 4. Check the circuit. Does the DTC still exist?	–	Go to Step 5	The system is OK.
5	Replace the driver side airbag module.	–	–	–



## DIAGNOSTIC TROUBLE CODE (DTC) 56 PASSENGER SIDE AIRBAG DEPLOYMENT LOOP RESISTANCE IS HIGH

### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

Upon passing these test ignition and deployment loop voltages are measured to ensure that they are within their normal voltage ranges. The SDM monitors the voltages at the

driver low and the passenger low to detect shorts to ground or voltage in the deploy loops. The SDM checks the wiring connection to the passenger airbag module by letting the infinitesimal current flow through the internal circuit and verify the resistance.

### DTC 56 Will Set When

- The resistance of passenger side airbag deployment loop is over 2.8 ohms.

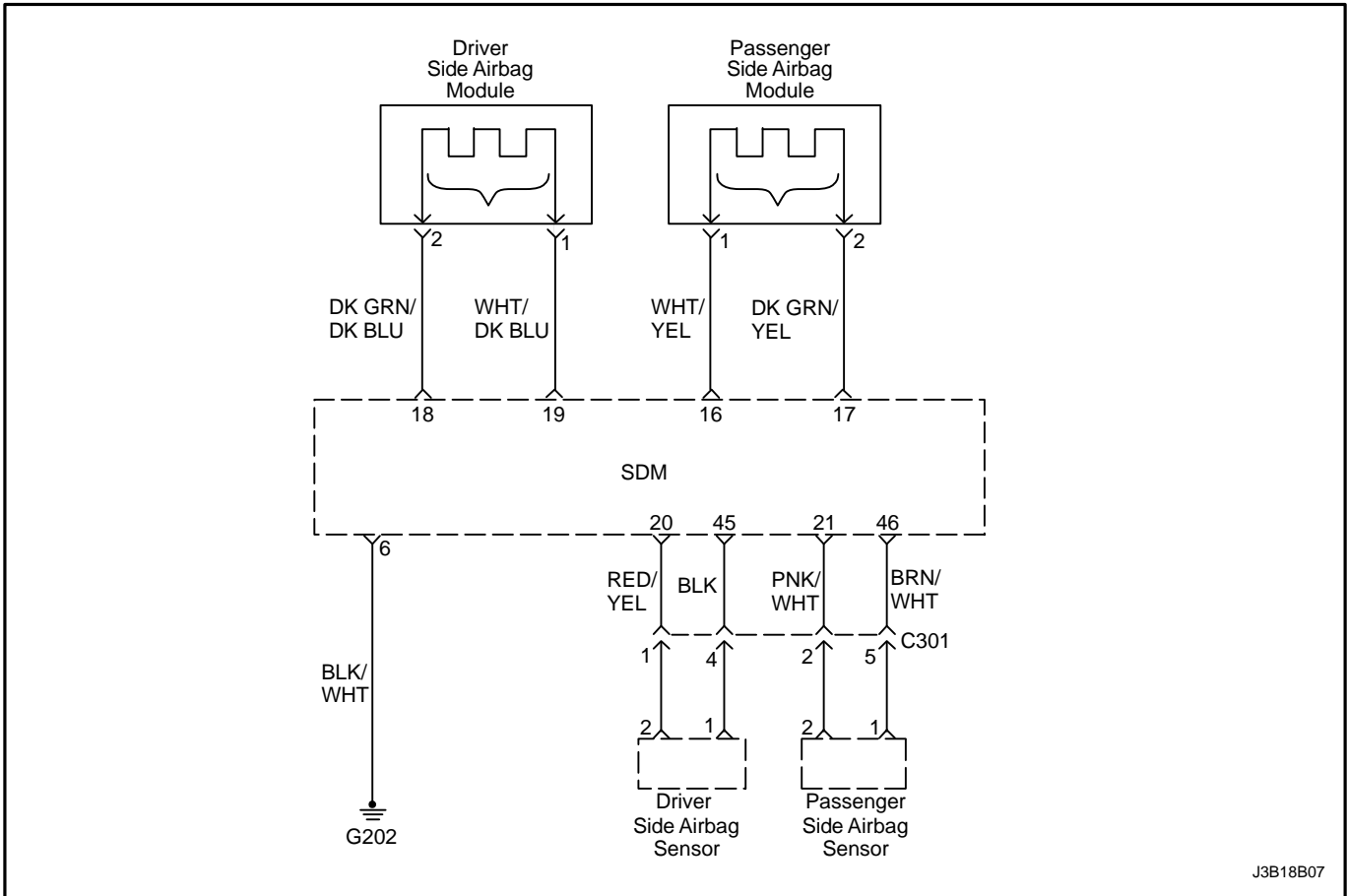
### DTC 56 – Passenger Side Airbag Deployment Loop Resistance Is High

**CAUTION :** The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.

**CAUTION :** During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.

Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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. Visually check any damage for the passenger side airbag wiring and connector. Is the airbag wiring damaged or the connector disconnected?	–	Go to Step 2	Go to step 3
2	Repair the wiring damage or connect the connector. Check the system again.	–	–	–
3	1. Confirm the ignition switch "OFF". 2. Disconnect the connector of passenger side airbag module. 3. Remove the connector of SDM. 4. Check the resistance between the terminal 1,2 of passenger side airbag module and the terminal 16,17 of SDM. Is the resistance 10KΩ?	≈ 10K Ω	Go to Step 4	Replace the airbag wiring.
4	1. Replace the SDM. 2. Confirm the ignition switch "ON". 3. Remove the DTC with scan tool. 4. Check the circuit. Does the DTC still exist?	–	Go to Step 5	The system is OK.
5	Replace the passenger side airbag module.	–	–	–



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## DIAGNOSTIC TROUBLE CODE (DTC) 57 PASSENGER SIDE AIRBAG DEPLOYMENT LOOP RESISTANCE IS LOW

### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

Upon passing these test ignition and deployment loop voltages are measured to ensure that they are within their normal voltage ranges. The SDM monitors the voltages at the driver low and the passenger low to detect shorts to ground or voltage in the deployment loops.

The SDM checks the wiring connection to the passenger side airbag module by letting the infinitesimal current flow through the internal circuit and verify the resistance.

### DTC 57 Will Set When

- The resistance of driver side airbag deployment loop is lower than 1.4 ohms.
- The shorting bar is damaged and then the SDM must be replaced .

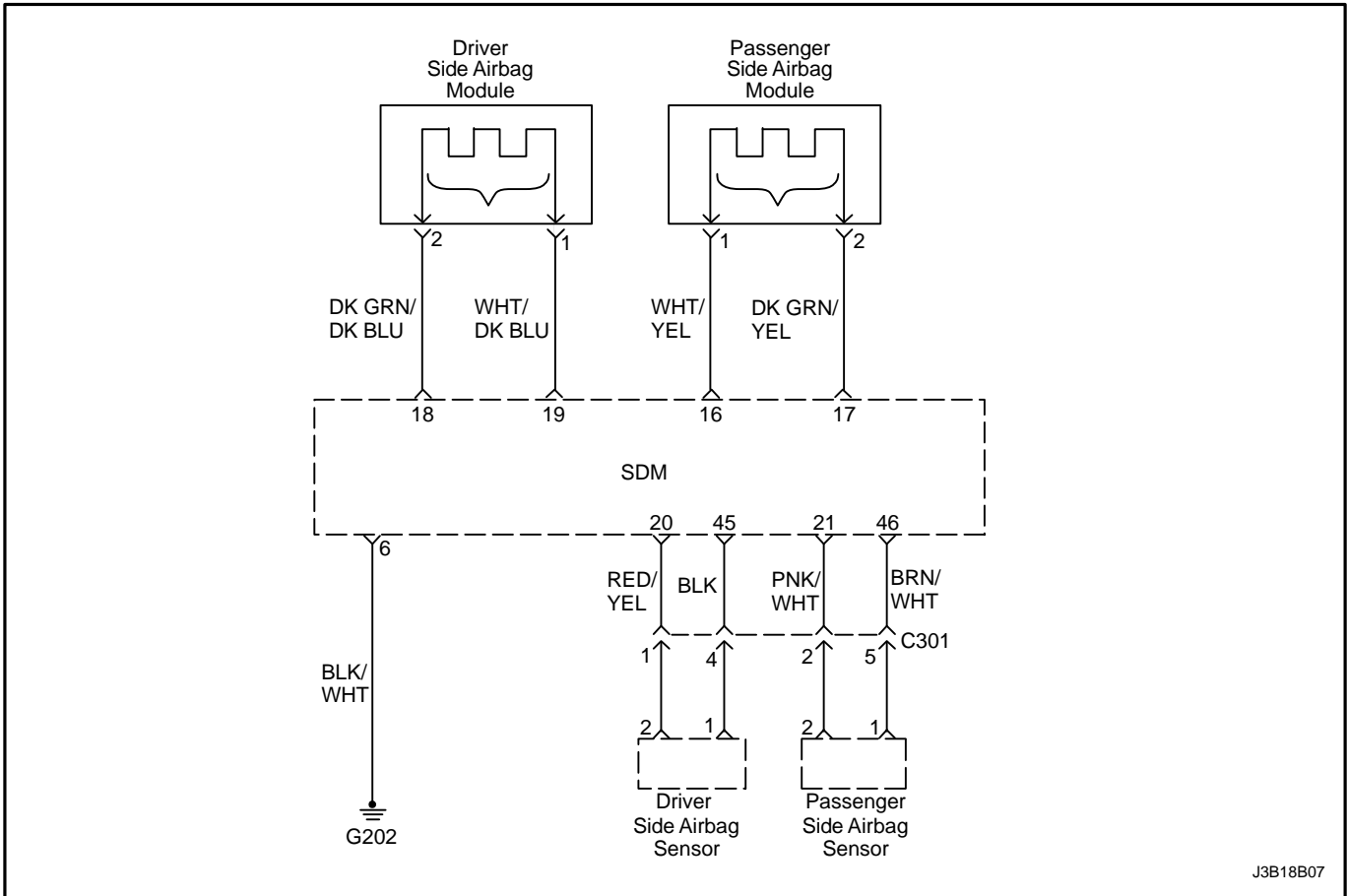
**DTC 57 – Passenger Side Airbag Deployment Loop Resistance Is Low**

**CAUTION :** *The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.*

**CAUTION :** *During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.*

*Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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	<ol style="list-style-type: none"> <li>1. Confirm the ignition switch "OFF".</li> <li>2. Disconnect the connector of passenger side airbag module.</li> <li>3. Remove the connector of SDM.</li> <li>4. Check the resistance between the terminal 1,2 of passenger side airbag module. Is the resistance <math>\infty</math>?</li> </ol>	$\infty$	Go to Step 3	Go to Step 2
2	Replace the airbag wiring.	–	–	–
3	<ol style="list-style-type: none"> <li>1. Replace the SDM.</li> <li>2. Confirm the ignition switch "ON".</li> <li>3. Remove the DTC with scan tool.</li> <li>4. Check the circuit. Does the DTC still exist?</li> </ol>	–	Go to Step 4	The system is OK.
4	Replace the passenger side airbag module.	–	–	–



## DIAGNOSTIC TROUBLE CODE (DTC) 58 PASSENGER SIDE AIRBAG DEPLOYMENT LOOP IS SHORTED TO GROUND

### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

Upon passing these test ignition and deployment loop voltages are measured to ensure that they are within their normal voltage ranges. The SDM monitors the voltages at the driver low and the passenger low to detect shorts to ground or voltage in the deploy loops.

The SDM checks the wiring connection to the passenger side airbag module by letting the infinitesimal current flow through the internal circuit and verify the resistance.

### DTC 58 Will Set When

- The side airbag wiring of passenger's high is shorted to ground.
- The side airbag wiring of passenger's low is shorted to ground.

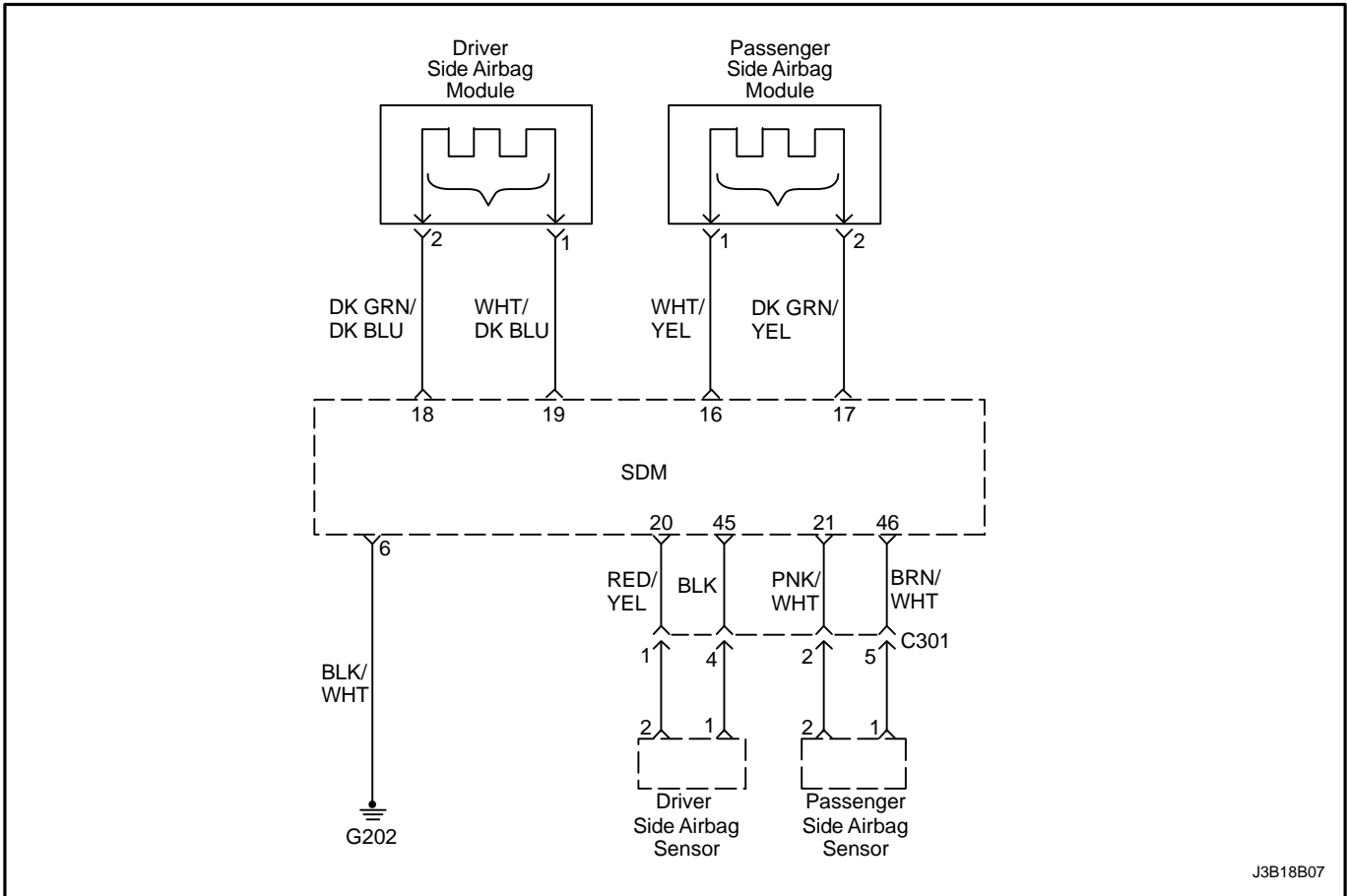
### DTC 58 – Passenger Side Airbag Deployment Loop Is Shorted To Ground

**CAUTION :** The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.

**CAUTION :** During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.

*Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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	<ol style="list-style-type: none"> <li>1. Confirm the ignition switch "OFF".</li> <li>2. Wait for a minute the SDM charger to be discharged.</li> <li>3. Visually check any damage for the airbag wiring. Is the airbag wiring damaged?</li> </ol>	–	Go to Step 3	Go to Step 2
2	<ol style="list-style-type: none"> <li>1. Check the resistance between the SDM and the high, low terminal of passenger side airbag module and the ground. Is the resistance 10KΩ?</li> </ol>	≈ 10K Ω	Go to Step 4	Go to Step 3
3	Replace the airbag wiring.	–	–	–
4	<ol style="list-style-type: none"> <li>1. Replace the SDM.</li> <li>2. Confirm the ignition switch "ON".</li> <li>3. Remove the DTC with scan tool.</li> <li>4. Check the circuit. Does the DTC still exist?</li> </ol>	–	Go to Step 5	The System is OK.
5	Replace the passenger side airbag module.	–	–	–



## DIAGNOSTIC TROUBLE CODE (DTC) 59 PASSENGER SIDE AIRBAG DEPLOYMENT LOOP IS SHORTED TO POWER

### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

Upon passing these test ignition and deployment loop voltages are measured to ensure that they are within their normal voltage ranges. The SDM monitors the voltages at the driver low and the passenger low to detect shorts to ground or voltage in the deploy loops.

The SDM checks the wiring connection to the passenger airbag module by letting the infinitesimal current flow through the internal circuit and verify the resistance.

### DTC 59 Will Set When

- The side airbag wiring of passenger's high is shorted to battery wiring.
- The side airbag wiring of passenger's low is shorted to battery wiring.

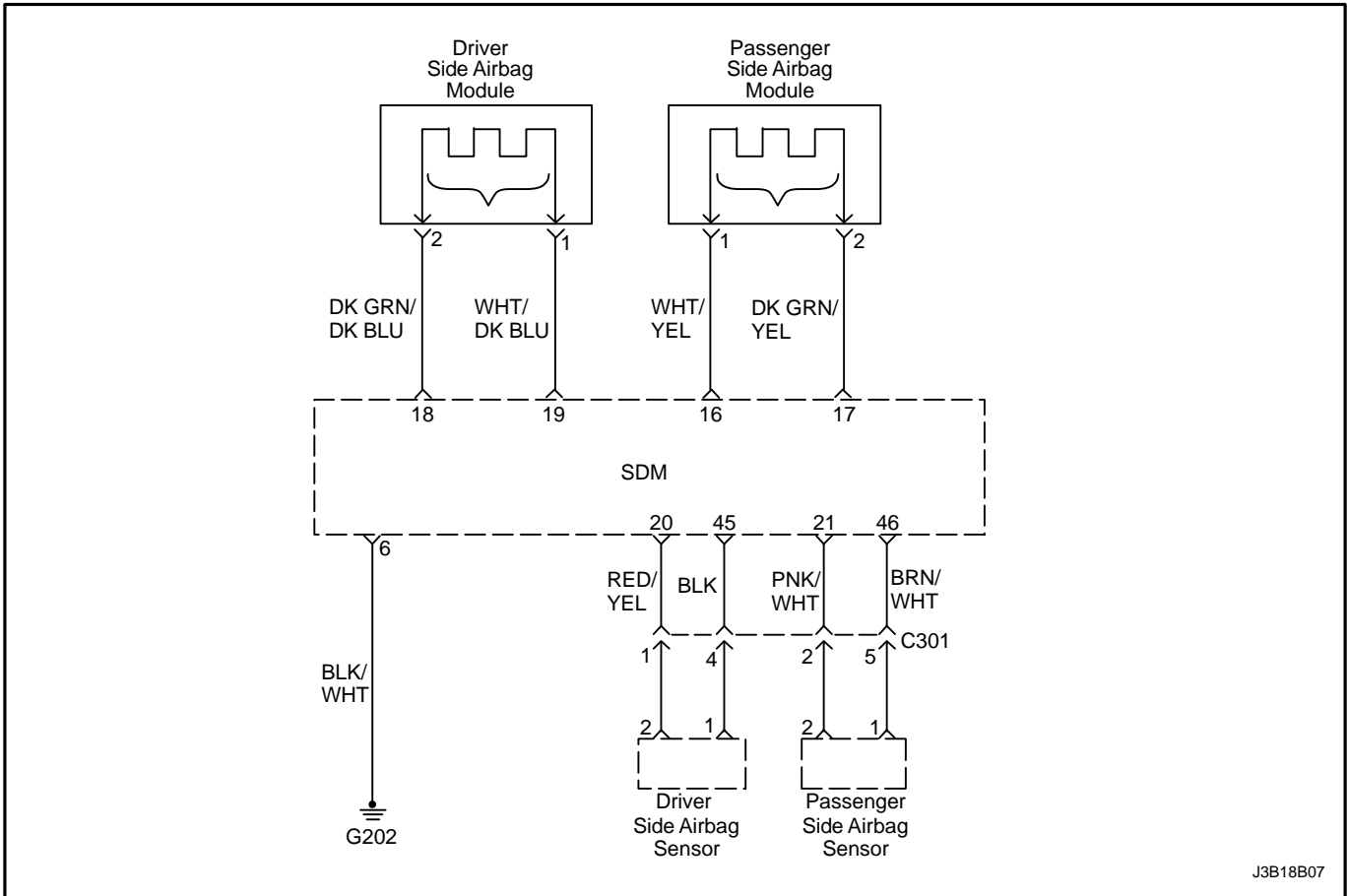
**DTC 59 – Passenger Airbag Deployment Loop Is Shorted To Power**

**CAUTION :** *The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.*

**CAUTION :** *During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.*

*Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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	<ol style="list-style-type: none"> <li>1. Confirm the ignition switch "OFF".</li> <li>2. Wait for a minute the SDM charger to be discharged.</li> <li>3. Visually check any damage for the airbag wiring. Is the airbag wiring damaged?</li> </ol>	–	Go to Sep 3	Go to Step 2
2	<ol style="list-style-type: none"> <li>1. Check the resistance between the SDM and the high, low terminal of passenger side airbag module and the battery. Is the resistance 10KΩ?</li> </ol>	≈ 10K Ω	Go to Step 4	Go to Step 3
3	Replace the airbag wiring.	–	–	–
4	<ol style="list-style-type: none"> <li>1. Replace the SDM.</li> <li>2. Confirm the ignition switch "ON".</li> <li>3. Remove the DTC with scan tool.</li> <li>4. Check the circuit. Does the DTC still exist?</li> </ol>	–	Go to Sep 5	The system is OK.
5	Replace the passenger side airbag module.	–	–	–



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## DIAGNOSTIC TROUBLE CODE (DTC) 80 DRIVER SIDE AIRBAG SENSOR LOOP IS SHORTED TO POWER

### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

Upon passing these test ignition and deployment loop voltages are measured to ensure that they are within their nor-

mal voltage ranges. The SDM monitors the voltages at the driver low and the passenger low to detect shorts to ground or voltage in the deploy loops.

### DTC 80 Will Set When

- The side airbag sensor wiring of driver's high is shorted to battery wiring.
- The side airbag sensor wiring of driver's low is shorted to battery wiring.

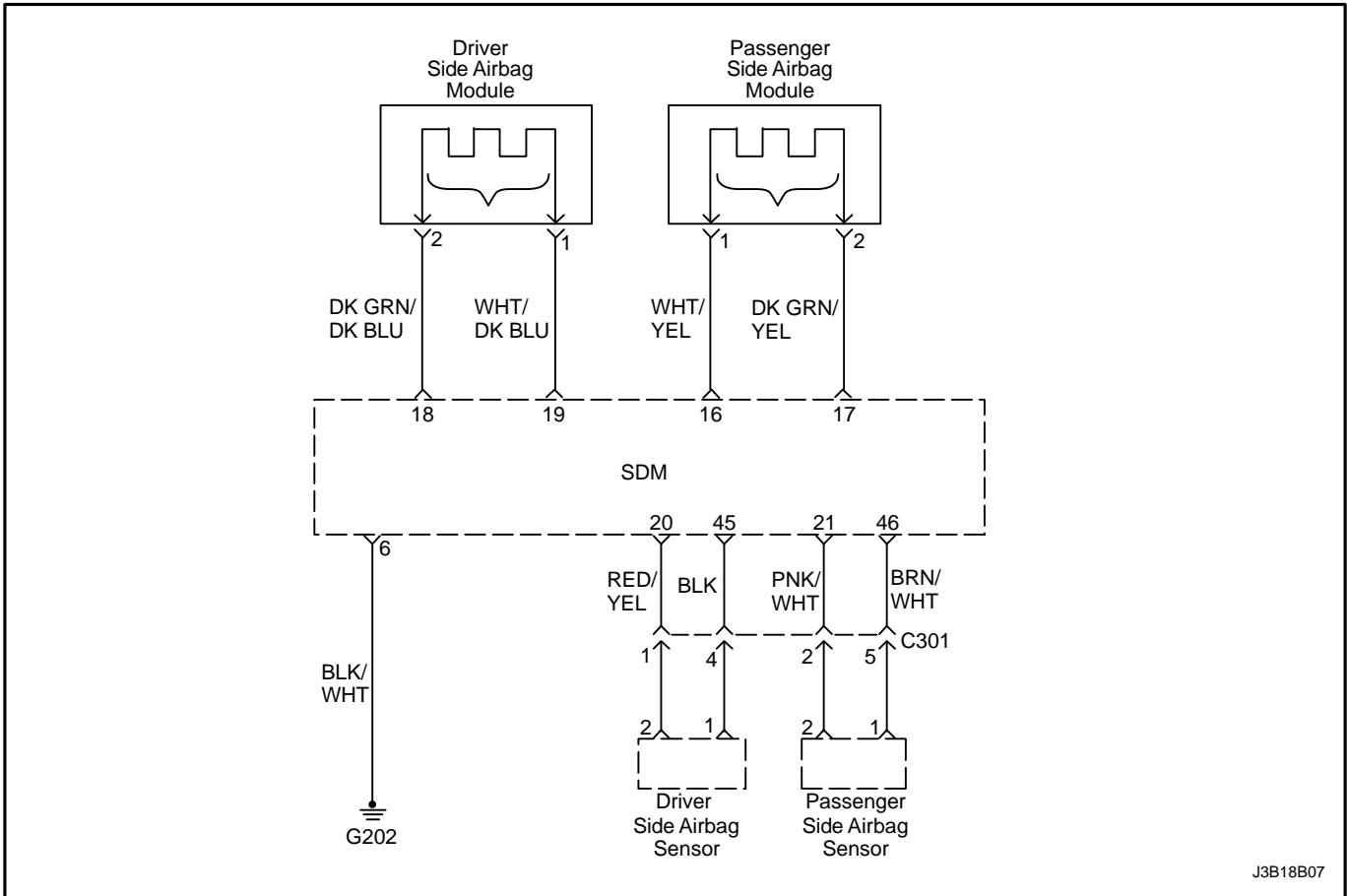
**DTC 80 – Driver Side Airbag Sensor Loop Is Shorted To Power**

**CAUTION :** *The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.*

**CAUTION :** *During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.*

*Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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	<ol style="list-style-type: none"> <li>1. Confirm the ignition switch "OFF".</li> <li>2. Wait for a minute the SDM charger to be discharged.</li> <li>3. Visually check any damage for the driver side airbag sensor wiring and the connector. Are the airbag wiring and connector OK?</li> </ol>	–	Go to Step 3	Go to Step 2
2	<ol style="list-style-type: none"> <li>1. Connect the wiring or repair the damage. Check the system again.</li> </ol>	–	–	–
3	<ol style="list-style-type: none"> <li>1. Check the resistance between the SDM and the high, low terminal of driver side airbag sensor and the battery. Is the resistance 10KΩ?</li> </ol>	≈ 10K Ω	Go to Step 4	Go to Step 6
4	<ol style="list-style-type: none"> <li>1. Replace the SDM.</li> <li>2. Confirm the ignition switch "ON".</li> <li>3. Remove the DTC with scan tool.</li> <li>4. Check the circuit. Does the DTC still exist?</li> </ol>	–	Go to Step 5	The system is OK.
5	<ol style="list-style-type: none"> <li>1. Replace the driver side airbag sensor.</li> </ol>	–	–	–
6	<ol style="list-style-type: none"> <li>1. Replace the airbag wiring.</li> </ol>	–	–	–



## DIAGNOSTIC TROUBLE CODE (DTC) 81 DRIVER SIDE AIRBAG SENSOR LOOP IS SHORTED TO GROUND

### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

Upon passing these test ignition and deployment loop voltages are measured to ensure that they are within their nor-

mal voltage ranges. The SDM monitors the voltages at the driver low and the passenger low to detect shorts to ground or voltage in the deploy loops.

### DTC 81 Will Set When

- The side airbag sensor wiring of driver's high is shorted to ground.
- The side airbag sensor wiring of driver's low is shorted to ground.

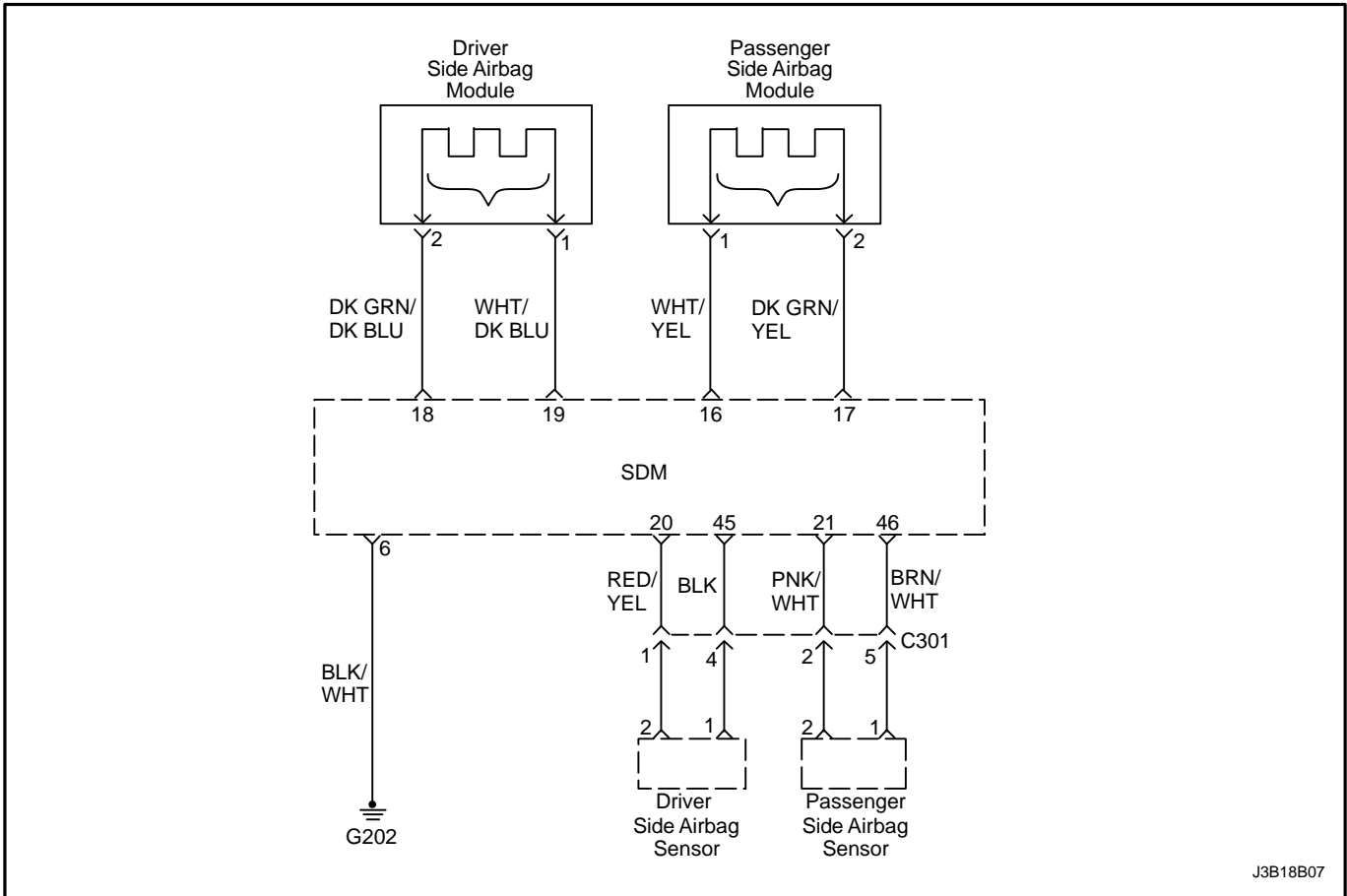
**DTC 81 – Driver Side Airbag Sensor Loop Is Shorted To Ground**

**CAUTION :** *The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.*

**CAUTION :** *During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.*

*Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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	<ol style="list-style-type: none"> <li>1. Confirm the ignition switch "OFF".</li> <li>2. Wait for a minute the SDM charger to be discharged.</li> <li>3. Visually check any damage for the driver side airbag sensor wiring and the connector. Are the airbag wiring and connector OK?</li> </ol>	–	Go to Step 3	Go to Step 2
2	Repair and reconnect the circuit. Check the circuit again.	–	–	–
3	<ol style="list-style-type: none"> <li>1. Check the resistance between the SDM and the high, low terminal of driver side airbag sensor and the ground. Is the resistance 10KΩ?</li> </ol>	≈ 10K Ω	Go to Step 5	Go to Step 4
4	Replace the airbag wiring.	–	–	–
5	<ol style="list-style-type: none"> <li>1. Replace the SDM.</li> <li>2. Confirm the ignition switch "ON".</li> <li>3. Remove the DTC with scan tool.</li> <li>4. Check the circuit. Is the DTC still exist?</li> </ol>	–	Go to Step 5	The system is OK.
6	Replace the driver side airbag sensor.	–	–	–



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## DIAGNOSTIC TROUBLE CODE (DTC) 82 DRIVER SIDE AIRBAG SENSOR COMMUNICATION ERROR

### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

Upon passing these test ignition and deployment loop volt-

ages are measured to ensure that they are within their normal voltage ranges. The SDM monitors the voltages at the driver low and the passenger low to detect shorts to ground or voltage in the deploy loops.

### DTC 82 Will Set When

- a communication error occurs between the SDM AND the driver side airbag sensor.

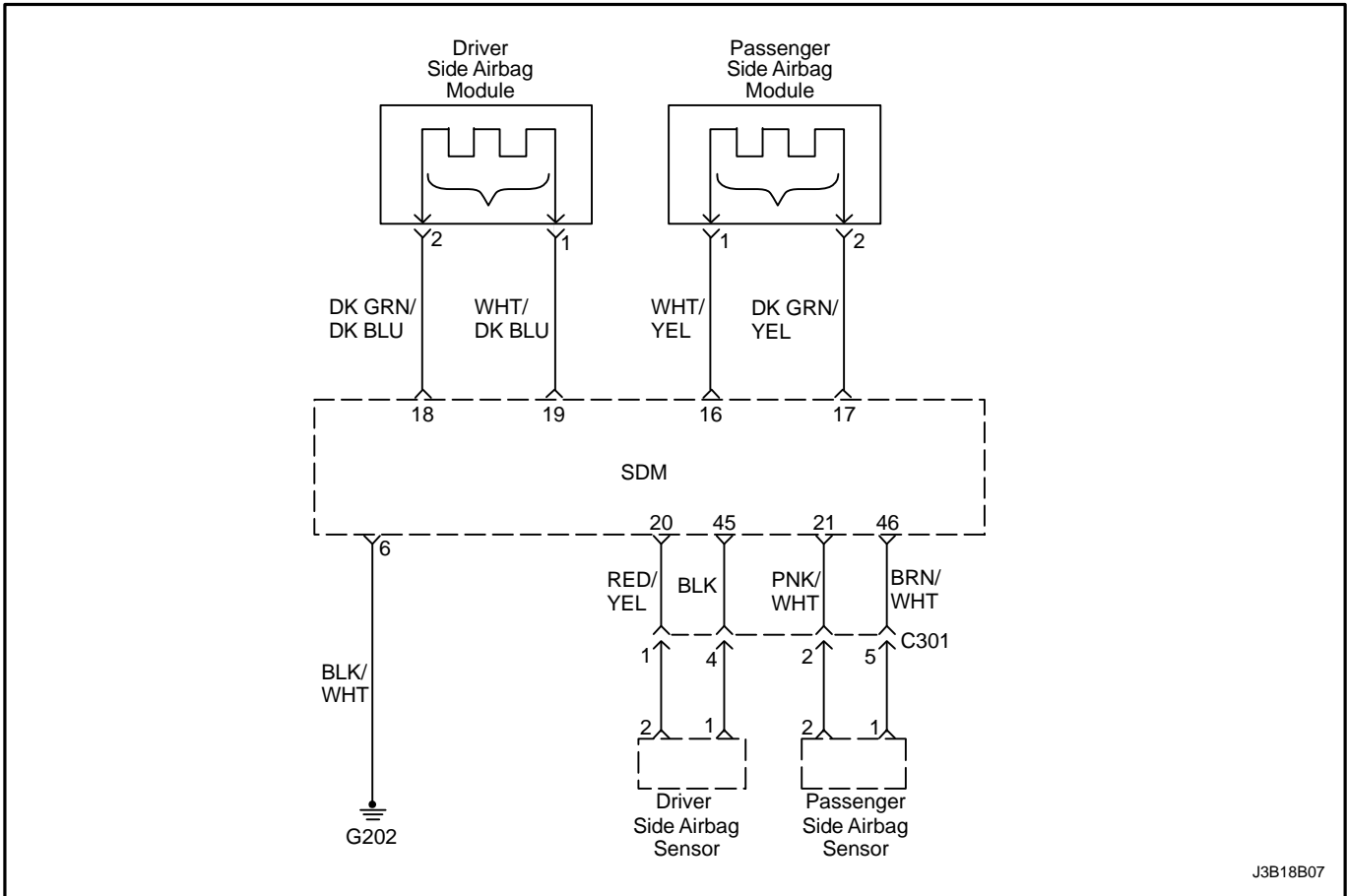
**DTC 82 – Driver Side Airbag Sensor Communication Error**

**CAUTION :** *The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.*

**CAUTION :** *During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.*

*Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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	<ol style="list-style-type: none"> <li>1. Confirm the ignition switch "OFF".</li> <li>2. Wait for a minute the SDM charger to be discharged.</li> <li>3. Visually check any damage for the driver side airbag sensor wiring and the connector. Are the airbag wiring and connector OK?</li> </ol>	–	Go to Step 3	Go to Step 2
2	Replace the airbag wiring.	–	–	–
3	<ol style="list-style-type: none"> <li>1. Replace the driver side airbag sensor.</li> <li>2. Confirm the ignition switch "ON".</li> <li>3. Remove the DTC with scan tool.</li> <li>4. Check the circuit. Is the DTC still exist?</li> </ol>	–	Go to Step 4	The system is OK.
4	Replace the SDM.	–	–	–



## DIAGNOSTIC TROUBLE CODE (DTC) 83 DRIVER SIDE AIRBAG SENSOR FAILURE

### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

Upon passing these test ignition and deployment loop volt-

ages are measured to ensure that they are within their normal voltage ranges. The SDM monitors the voltages at the driver low and the passenger low to detect shorts to ground or voltage in the deploy loops.

### DTC 83 Will Set When

- The driver side airbag sensor is inoperative.

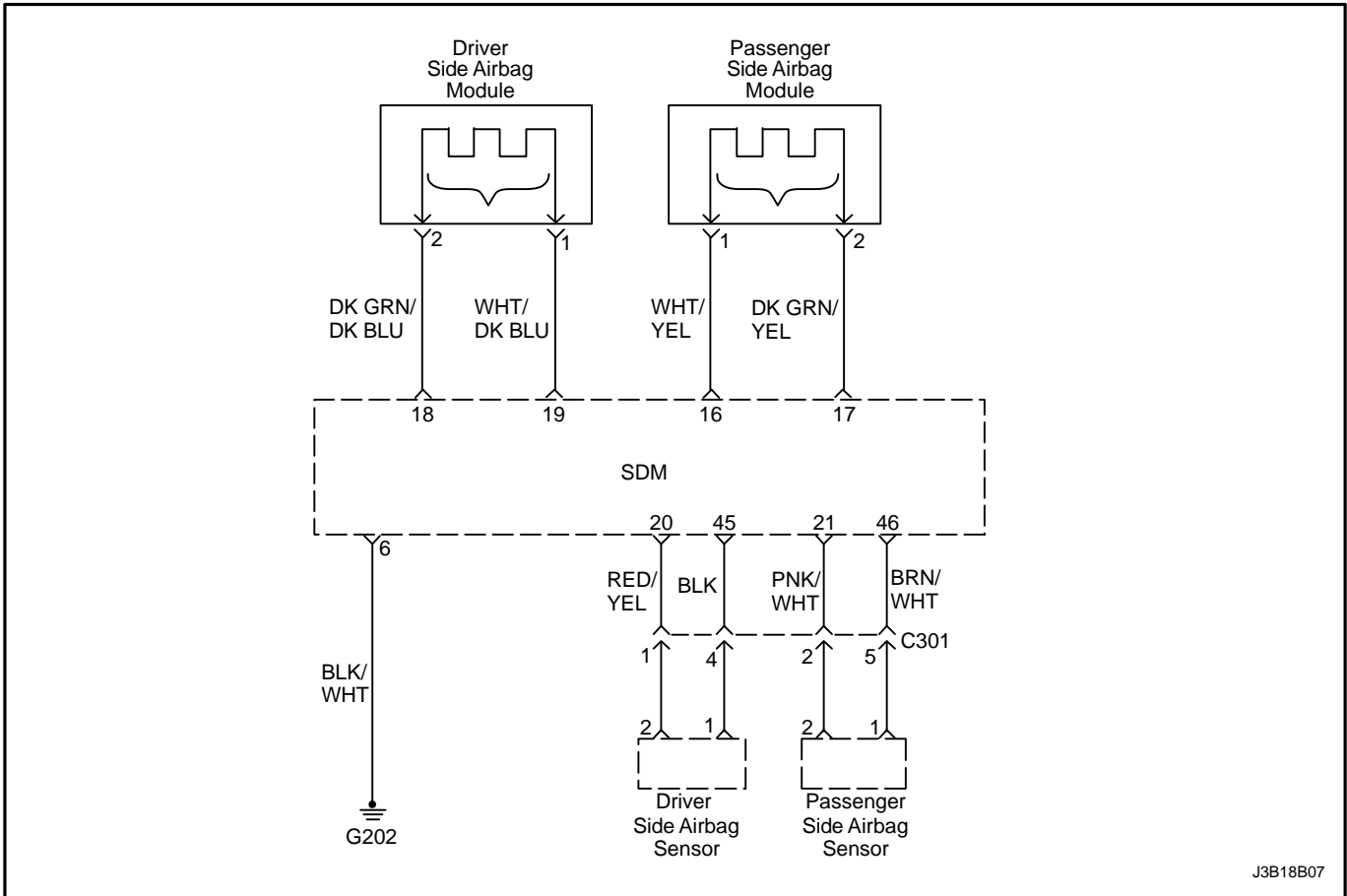
**DTC 83 – Driver Side Airbag Sensor Failure**

**CAUTION :** *The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.*

**CAUTION :** *During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.*

*Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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. Confirm the ignition switch "OFF". 2. Wait for a minute the SDM charger to be discharged. 3. Visually check any damage for the driver side airbag sensor wiring and the connector. Are the airbag wiring and connector damaged?	–	Go to Step 2	Go to Step 3
2	Replace the wiring of airbag sensor.	–	–	–
3	Replace the driver side airbag sensor.	–	–	–



J3B18B07

## DIAGNOSTIC TROUBLE CODE (DTC) 84 PASSENGER SIDE AIRBAG SENSOR LOOP IS SHORTED TO POWER

### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

Upon passing these test ignition and deployment loop voltages are measured to ensure that they are within their nor-

mal voltage ranges. The SDM monitors the voltages at the driver low and the passenger low to detect shorts to ground or voltage in the deploy loops.

### DTC 84 Will Set When

- The side airbag sensor wiring of passenger's high is shorted to battery wiring.
- The side airbag sensor wiring of passenger's low is shorted to battery wiring.

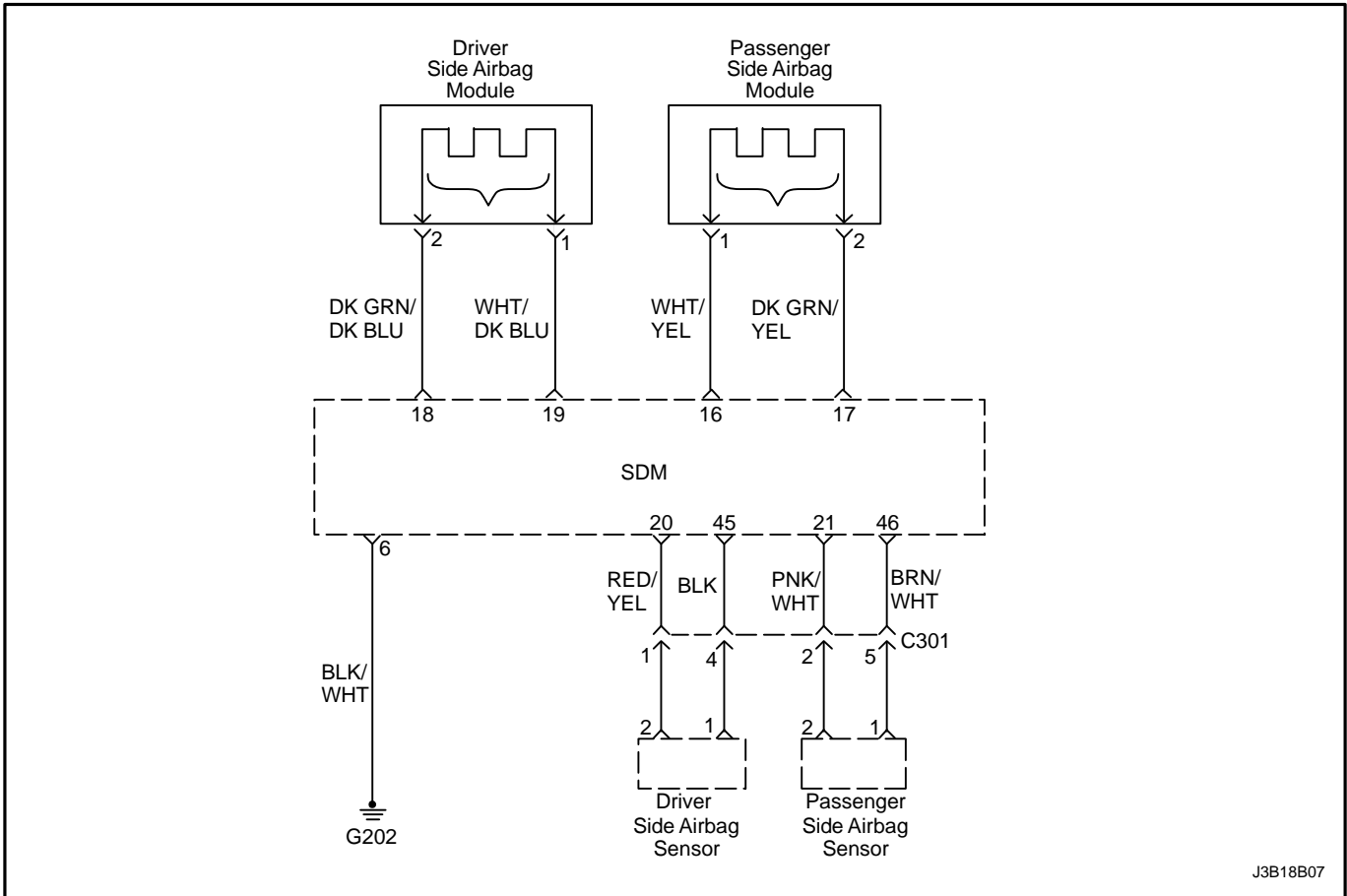
**DTC 84 – Passenger Side Airbag Sensor Loop Is Shorted To Power**

**CAUTION :** *The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.*

**CAUTION :** *During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.*

*Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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. Confirm the ignition switch "OFF". 2. Wait for a minute the SDM charger to be discharged. 3. Visually check any damage for the passenger side airbag sensor wiring and the connector. Are the airbag wiring and connector damaged?	–	Go to Step 3	Go to Step 2
2	Repair and reconnect the circuit. Check the circuit again.	–	–	–
3	Check the resistance between the SDM and the high, low terminal of passenger side airbag sensor and the battery. Is the resistance 10KΩ?	≈ 10K Ω	Go to Step 5	Go to Step 4
4	Replace the airbag wiring.	–	–	–
5	1. Replace the SDM. 2. Confirm the ignition switch "ON". 3. Remove the DTC with scan tool. 4. Check the circuit. Is the DTC still exist?	–	Go to Step 6	The system is OK.
6	Replace the passenger side airbag sensor.	–	–	–



J3B18B07

## DIAGNOSTIC TROUBLE CODE (DTC) 85 PASSENGER SIDE AIRBAG SENSOR LOOP IS SHORTED TO GROUND

### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

Upon passing these test ignition and deployment loop voltages are measured to ensure that they are within their nor-

mal voltage ranges. The SDM monitors the voltages at the driver low and the passenger low to detect shorts to ground or voltage in the deploy loops.

### DTC 84 Will Set When

- The side airbag sensor wiring of passenger's high is shorted to ground.
- The side airbag sensor wiring of passenger's low is shorted to ground.

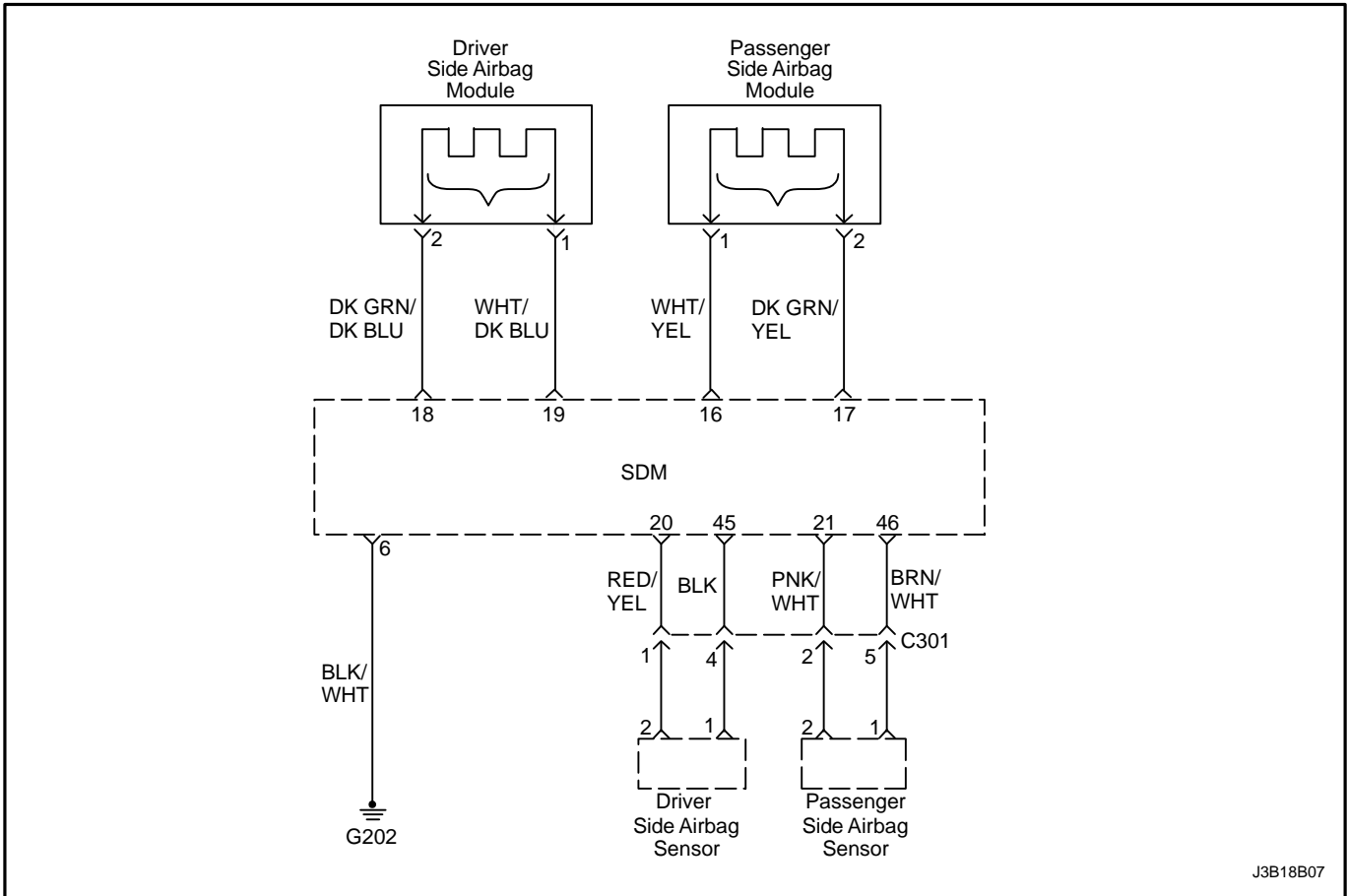
### DTC 85 – Passenger Side Airbag Sensor Loop Is Shorted To Ground

**CAUTION :** *The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.*

**CAUTION :** *During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.*

*Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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. Confirm the ignition switch "OFF". 2. Wait for a minute the SDM charger to be discharged. 3. Visually check any damage for the passenger side airbag sensor wiring and the connector. Are the airbag wiring and connector damaged OK?	–	Go to Step 3	Go to Step 2
2	Replace the airbag wiring and connect the connector.	–	–	–
3	Check the resistance between the SDM and the high, low terminal of passenger side airbag sensor and the ground. Is the resistance 10KΩ?	≈ 10K Ω	Go to Step 4	Go to Step 6
4	1. Replace the SDM. 2. Confirm the ignition switch "ON". 3. Remove the DTC with scan tool. 4. Check the circuit. Is the DTC still exist?	–	Go to Step 5	The system is OK.
5	Replace the passenger side airbag sensor.	–	–	–
6	Replace the airbag wiring.	–	–	–



J3B18B07

## DIAGNOSTIC TROUBLE CODE (DTC) 86 PASSENGER SIDE AIRBAG SENSOR COMMUNICATION ERROR

### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

Upon passing these test ignition and deployment loop volt-

ages are measured to ensure that they are within their normal voltage ranges. The SDM monitors the voltages at the driver low and the passenger low to detect shorts to ground or voltage in the deploy loops.

### DTC 86 Will Set When

- a communication error occurs between the SDM and the passenger side airbag sensor.

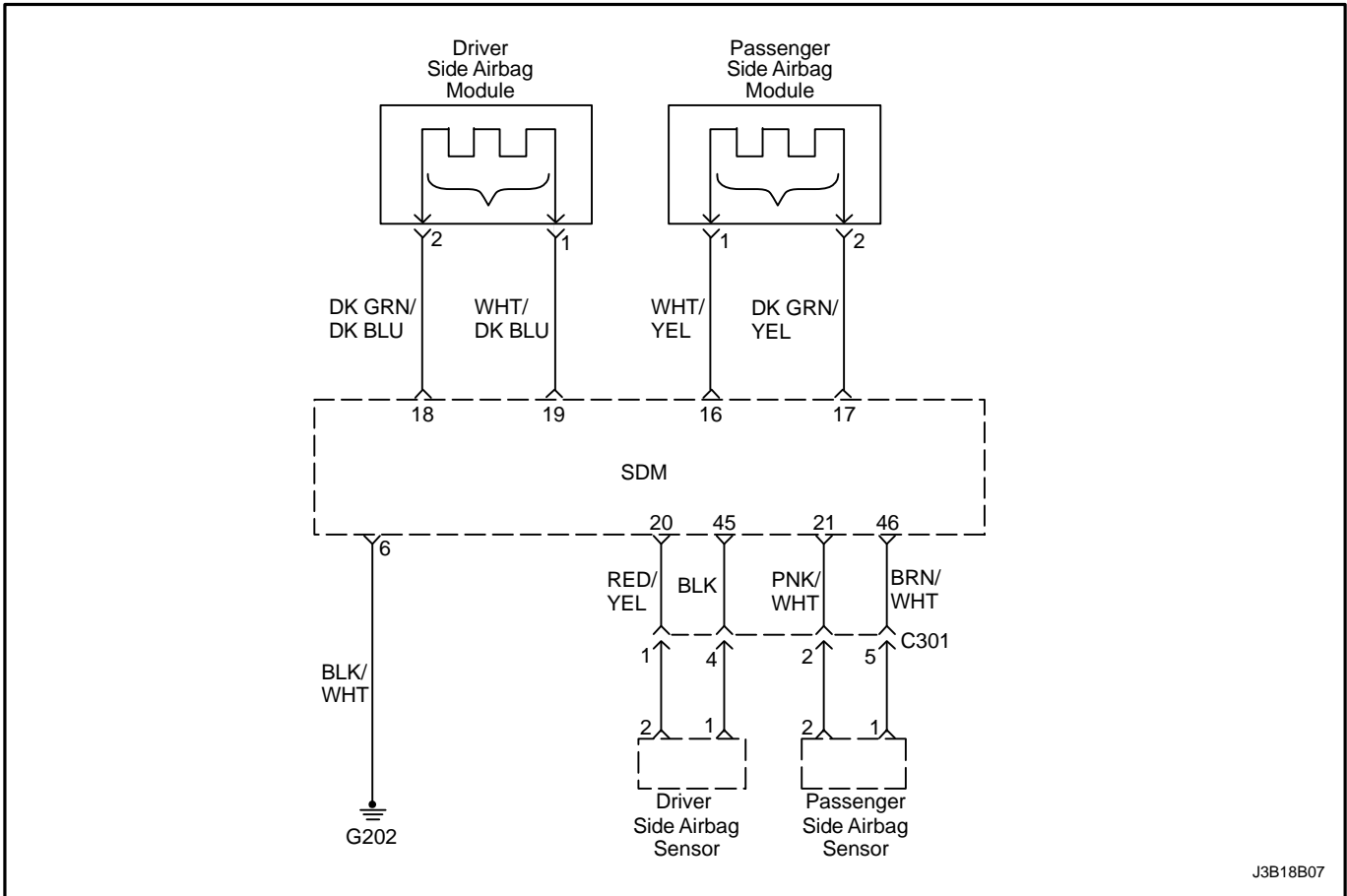
**DTC 86 – Passenger Side Airbag Sensor Communication Error**

**CAUTION :** *The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.*

**CAUTION :** *During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.*

*Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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. Confirm the ignition switch "OFF". 2. Wait for a minute the SDM charger to be discharged. 3. Visually check any damage for the passenger side airbag sensor wiring and the connector. Are the airbag wiring and connector OK?	–	Go to Step 3	Go to Step 2
2	Replace the airbag wiring and connect the connector.	–	–	–
3	1. Replace the passenger side airbag sensor. 2. Confirm the ignition switch "ON". 3. Remove the DTC with scan tool. 4. Check the circuit. Is the DTC still exist?	–	Go to Step 4	The system is OK.
4	Replace the SDM.	–	–	–



## DIAGNOSTIC TROUBLE CODE (DTC) 87 PASSENGER SIDE AIRBAG SENSOR FAILURE

### Circuit Description

When the ignition switch is turned to ON, the sensing and diagnostic module (SDM) will perform turn-on test to diagnose critical malfunctions within SDM itself.

Upon passing these test ignition and deployment loop volt-

ages are measured to ensure that they are within their normal voltage ranges. The SDM monitors the voltages at the driver low and the passenger low to detect shorts to ground or voltage in the deploy loops.

### DTC 87 Will Set When

- The passenger side airbag sensor is inoperative.

**DTC 87 – Passenger Side Airbag Sensor Failure**

**CAUTION :** *The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. Otherwise, injury could result.*

**CAUTION :** *During service procedure, be very careful when handling the SDM. Never strike or jar the SDM.*

*Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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. Confirm the ignition switch "OFF". 2. Wait for a minute the SDM charger to be discharged. 3. Visually check any damage for the passenger side airbag sensor wiring and the connector. Are the airbag wiring and connector OK?	–	Go to Step 3	Go to Step 2
2	Replace the airbag wiring and connect the connector.	–	–	–
3	Replace the passenger side airbag sensor.	–	–	–

## MAINTENANCE AND REPAIR

### ON-VEHICLE SERVICE

#### SERVICE PRECAUTION

**CAUTION :** *The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. If the airbags are disconnected, service can be executed immediately without waiting for one-minute time period to expire. Failure to temporarily disable the SIR during service can result in unexpected deployment, personal injury and unnecessary SIR repairs.*

#### DISABLING THE SUPPLEMENTAL INFLATABLE RESTRAINTS(SIR)

1. Turn the steering wheel to the straight-ahead position.
2. Turn the ignition switch to LOCK and remove the key.
3. Remove the airbag fuse F1 in the I/P fuse block and wait more than one minute for SIR capacitor to discharge.

#### ENABLING THE SUPPLEMENTAL INFLATABLE RESTRAINTS(SIR)

1. Insert the airbag fuse F8 in the I/P fuse block.
2. Turn the ignition switch to ON and verify that the airbag indicator flashes seven times and turns OFF. If it does not operate as described, perform the "SIR Diagnostic System Check" referring in this section.

**CAUTION :** *While turning the ignition switch, staying well away from the inflator modules, or personal injury can be occurred.*

## HANDLING, INSTALLATION AND DIAGNOSIS

- Airbag modules should not be subjected to temperature above 65 degrees Celsius(149 degrees Fahrenheit).
- An airbag and SDM should not be used if it has been dropped from height of 0.9 meters(3 feet) or greater.
- When an SDM is replaced, it must be oriented with the arrow on the SDM 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 unless all components are connected or a diagnostic chart request 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 correct chart to diagnose any SIR malfunctions. Bypassing these procedures may result in extended diagnostic time incorrect parts replacement.

## 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 SDM, the inflator modules and a dimensional inspection of the steering column.***

- If any SIR components are damaged, they must be replaced. If SIR components 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 other airbag modules, these items must be replaced if they are defective.
- Verify the part number of replaced airbag modules. Some inflator modules look identical but contain different internal components.

## ACCIDENT WITH DEPLOYMENT COMPONENTS REPLACEMENTS

All SIR components must be replaced after frontal crash involving airbag deployment. 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. The sodium hydroxide then quickly reacts with atmospheric moisture and is converted to sodium bicarbonate(also known as baking soda). Therefore, it is unlikely that sodium hydroxide will be present after deployment. Replace the following SIR components.

**CAUTION : Wear gloves and safety glasses during the disposal procedure. Refer to "Deployed airbag module disposal procedure" in this section.**

- The SDM
- Airbag modules and pretensioners
- SIR wiring
- Clock spring

## ACCIDENT WITHOUT DEPLOYMENT COMPONENT INSPECTION

Certain inspection 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 and cracking or other damages.
- Inspect the instrument panel(I/P) and steering column reinforcement plate for distortion, bending and cracking or other damage.
- Inspect the I/P braces for distortion, bending and cracking or other damage.
- Inspect the seat belt and mounting points. Refer to *Section 8A, Seat Belts*.

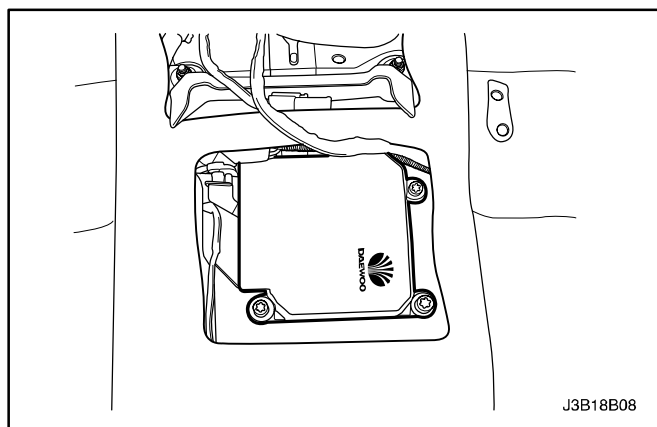
## SENSING AND DIAGNOSTIC MODULE (SDM)

**CAUTION : During service procedure, be very careful when handling the SDM. Never strike or jar the SDM. Never power the supplemental inflatable restraints(SIR) when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts must be carefully tightened , and the arrow on the SDM must be point toward the front of the vehicle to ensure proper operation of the SIR. 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 :** If the vehicle interior has been exposed to extensive water intrusion such as water leaks, driving through high water, flooding or other causes, then the SDM and SDM connector may need to be replaced. With the ignition OFF, inspect the area of 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 SRS must be disabled. Refer to "Disabling the SIR" in this section.

### Removal and Installation Procedure

1. Disable the supplemental inflatable restraints(SIR). Refer to "Disabling the SIR" 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 SDM connector.
4. Disconnect the SDM electrical connector.
5. Remove the SDM mounting bolts.
6. Remove the SDM.
7. Install the removed parts in the reverse order.

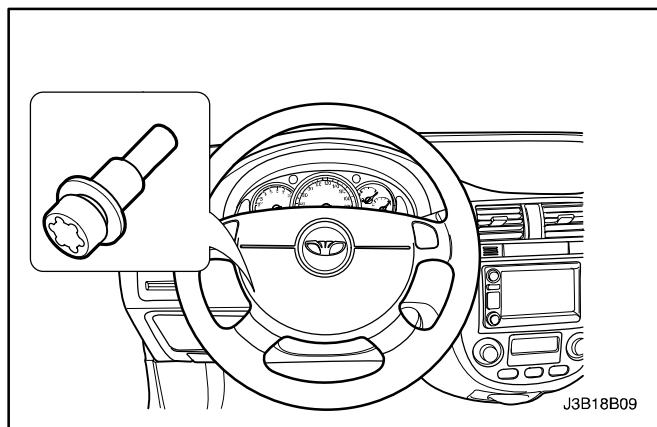


### Installation Notice

Tightening torque of SDM mounting bolts is 10 N•m (89 lb–in).

Enable the SIR. Refer to "Enabling the SIR" in this section.

**CAUTION :** All SDM mounting bolts must be carefully tightened and the arrow on the SDM must be pointing toward the front of the vehicle to ensure proper operation of the SIR. The SDM could be activated if it is powered while not rigidly attached to the vehicle, resulting in unexpected deployment and possible injury.



## DRIVER AIRBAG MODULE

### Removal and Installation Procedure

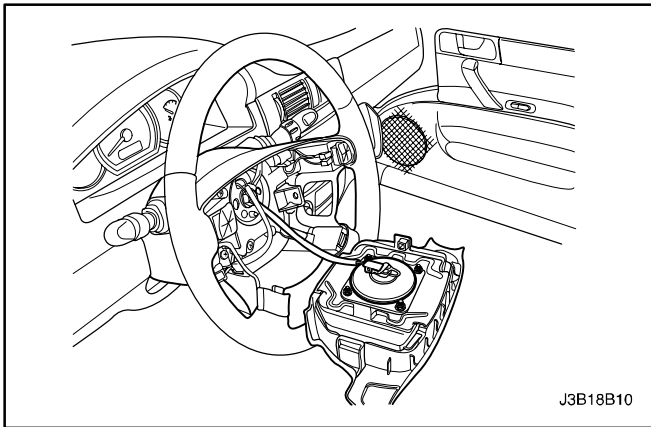
1. Disconnect the negative battery cable.
 

**CAUTION :** The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. If the airbags are disconnected, service can be excuted immediately without waiting for one-minute time period to expire. Failure to temporarily disable the SIR during service can result in unexpected deployment, personal injury and unnecessary SIR repairs.
2. Remove two driver airbag module mounting bolts and discard them.

3. Remove the connector from the driver airbag module.
4. Remove the driver airbag module.

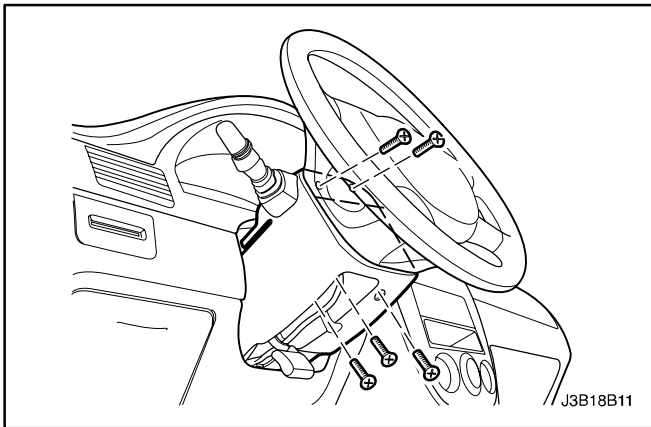
**CAUTION :** *When handling an airbag module, always keep the top the unit facing upward. This leaves room for the airbag to expand if the module unexpectedly deploys. Without room for expansion, a module suddenly propelled toward a person or object can cause injury or vehicle damage.*

5. Installation should follow the removal procedure in the reverse order.



### Installation Notice

Tightening torque of the driver airbag module mounting bolt is 8 N•m (71 lb-in).



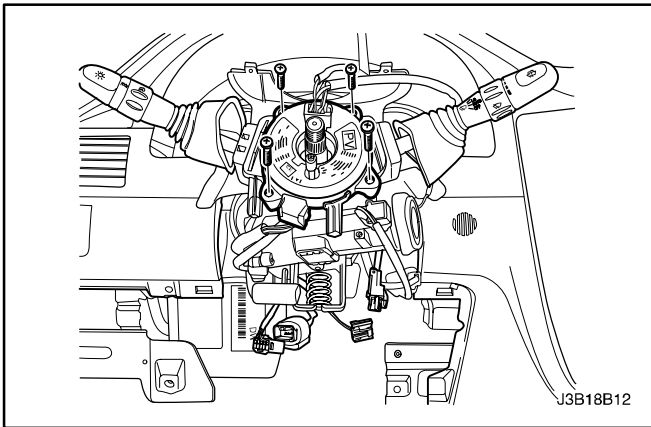
### CLOCK SPRING

#### Removal and Installation Procedure

**CAUTION :** *The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. If the airbags are disconnected, service can be excuted immediately without waiting for one-minute time period to expire. Failure to temporarily disable the SIR during service can result in unexpected deployment, personal injury and unnecessary SIR repairs.*

1. Disconnect the negative battery cable.
2. Remove the driver airbag module. Refer to "Driver airbag module" in this section.
3. Remove the steering wheel. Refer to Section 6E, Steering Wheel and Column.
4. Remove the screws from the upper and lower steering column covers. And remove the covers.

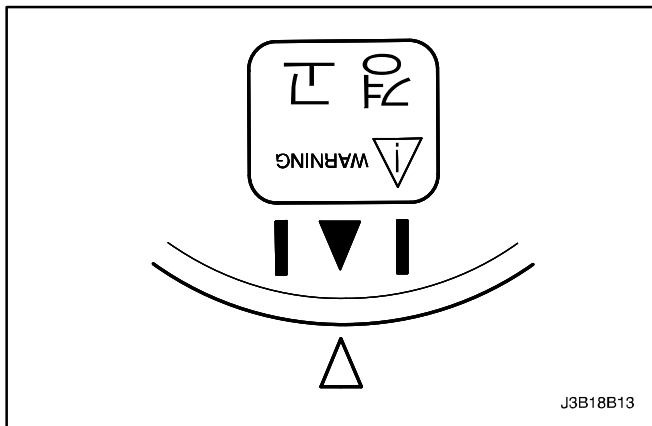
5. Remove the driver side knee bolster or instrument panel lower cover.
6. Disconnect the driver airbag, horn and connectors from the lower steering column.
7. Remove the screws and discard them.
8. Remove the clock spring from the steering shaft.



9. Installation should follow the removal procedure in the reverse order. Refer to "Clock Spring Alignment" in this section for alignment.

Tightening torque of the clock spring screw is 3 N•m (27 lb-in).

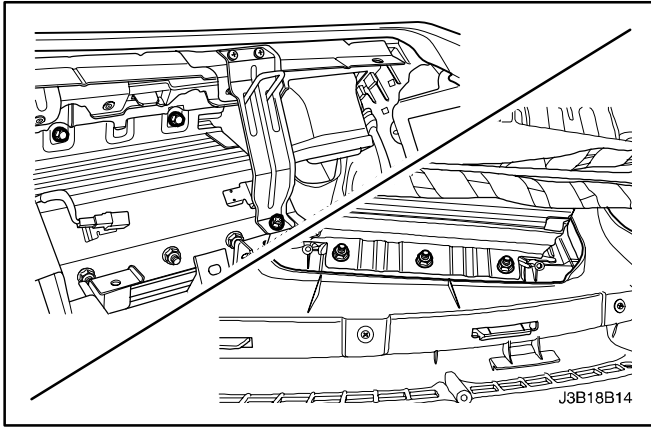
**CAUTION :** *If the clock spring is not properly aligned, the steering wheel may not be able to rotate completely during a turn. Restricted turning ability can cause the vehicle to crash. Improper alignment of the clock spring also may make the SIR inoperative, preventing the airbag from deploying during crash. Both of the out comes can result in injury.*



## CLOCK SPRING ALIGNMENT

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

1. Turn the front wheels straight ahead.
2. Turn the lobe of clock spring clockwise to lock (Do not force).
3. Then turn the lobe of clock spring counterclockwise approximately three turns to the neutral position, with the front of the wheels straight ahead.
4. Properly align the pointed marks on the components of the clock spring.



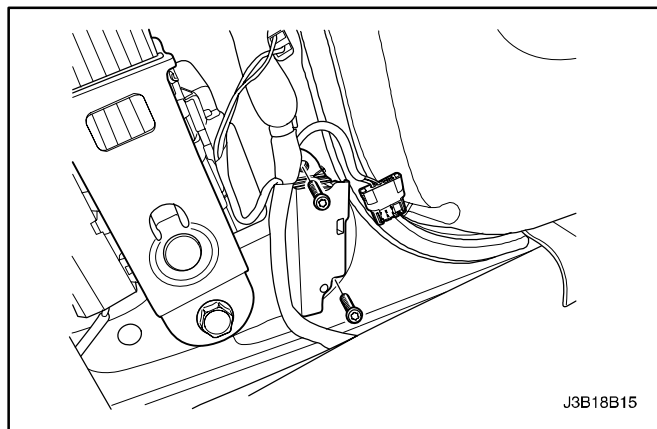
## PASSENGER AIRBAG MODULE

### Removal and Installation Procedure

**CAUTION :** *The sensing and diagnostic module (SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. If the airbags are disconnected, service can be executed immediately without waiting for one-minute time period to expire. Failure to temporarily disable the SIR during service can result in unexpected deployment, personal injury and unnecessary SIR repairs.*

1. Disconnect the negative battery cable.
2. Remove the glove box. Refer to 9E, *Instrumentation/Driver Information*.
3. Disconnect the passenger airbag yellow electrical connector. Remove the Instrument panel.
4. Remove the passenger airbag module by removing the mounting bolts from the airbag bracket.
5. Installation should follow the removal procedure in the reverse order.

Tightening torque of the passenger airbag module mounting bolt is 11 N•m (97 lb-in).



## SIDE AIRBAG SENSOR

### Removal and Installation Procedure

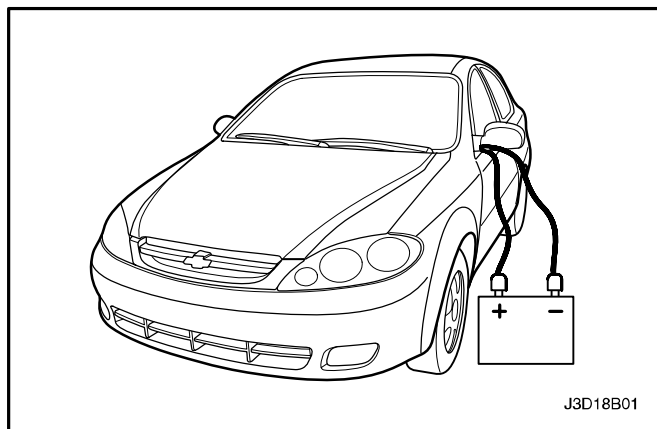
**CAUTION :** The sensing and diagnostic module (SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. If the airbags are disconnected, service can be executed immediately without waiting for one-minute time period to expire. Failure to temporarily disable the SIR during service can result in unexpected deployment, personal injury and unnecessary SIR repairs.

1. Disconnect the negative battery cable.
2. Remove the trim from B pillar.
3. Remove the side airbag sensor mounting bolts.
4. Remove the side airbag sensor.
5. Installation should follow the removal procedure in the reverse order.

Tightening torque of the side airbag sensor mounting bolts is 8 N•m (71 lb-in).

## FRONT SEAT BELT PRETENSIONER

For removal and installation, refer to Section 8A, Seat Belts.



## AIRBAG MODULE DEPLOYMENT (INSIDE OF VEHICLE)

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

**CAUTION :** To avoid injury while deploying an airbag or a pretensioner in the vehicle, observe the following precaution :

- Before deploying the airbags, remove all loose objects from the airbag's expansion area.
- Deploy the airbags with the vehicle doors closed and the side windows open.
- 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.
- Do not connect the voltage source until after having completed all other preparations for the deployment of airbags.
- Allow a deployed airbag module or pretensioner cool for 30 minutes before handling.
- Wear gloves and eye protection during the disposal procedure.
- If the deployment fails, disconnect the voltage source and wait 5 minutes before approaching the vehicle.

## Deployment Procedure

**CAUTION : The sensing and diagnostic module(SDM) can maintain sufficient voltage to deploy the airbags and pretensioners for 1 minute after the ignition is OFF and the fuse has been removed. If the airbags and pretensioners are not disconnected, do not begin service until one minute has passed after disconnecting power to SDM. If the airbags are disconnected, service can be executed immediately without waiting for one-minute time period to expire. Failure to temporarily disable the SIR during service can result in unexpected deployment, personal injury and unnecessary SIR repairs.**

1. Disconnect both battery cables and place the battery at least 10 meters (33 feet) from the vehicle.
2. Remove the driver side knee bolster or instrument panel lower cover 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 restraints(SIR) harness to the clock spring.
4. Strip 13mm(0.5 inch) of the insulation from the end 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 13mm(0.5 inch) of the insulation from the end 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 meters(33 feet) wires leading to the clock spring, make two splices, one at each wires from the airbag modules.
10. Wrap the wires with insulation tape.
11. Now that the free ends of the 10 meters(33 feet) 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 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.
14. Repeat this procedure for the passenger airbag, side airbags and pretensioners.
15. Using proper precautions, dispose of the deployed airbags/pretensioners. Refer to "Deployed Airbag Module Disposal Procedure" in this section.

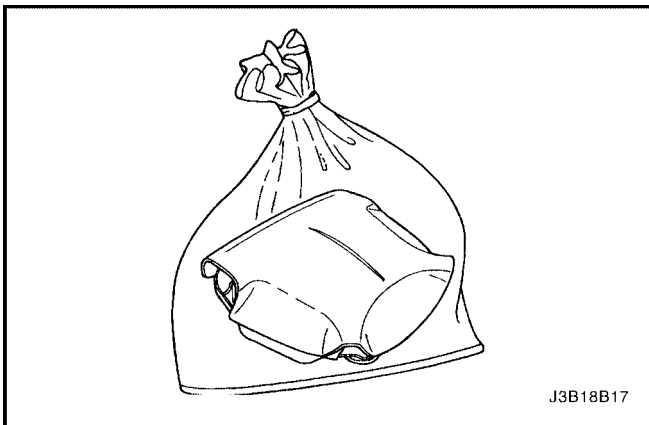
## AIRBAG MODULE DEPLOYMENT (OUTSIDE OF VEHICLE)

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 following situations :

- If the vehicle is to be strapped. Refer to "Airbag Module Deployment(Inside of Vehicle" in this section.
  - If an airbag module is damaged during transit, storage or service.
- CAUTION : To avoid injury while deploying an airbag or a pretensioner outside the vehicle, observe the following precaution :**
- 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.
  - Do not connect the voltage source until after having completed all other preparations for the deployment of airbags.
  - Allow a deployed airbag module or pretensioner cool for 30 minutes before handling.
  - Wear gloves and eye protection during the disposal procedure.
  - 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 the 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.
  4. Please follow detailed Airbag Module deployment procedure as below.
  5. Cut the yellow wires to the airbag module/pretensioner.
  6. Strip 13mm(0.5 inch) of the insulation from the end of the wires leading to the airbag module/pretensioner.
  7. Use two additional wires, each at least 10 meters(33 feet) long, to reach from the deployment battery to the airbag module/pretensioner.
  8. Strip 13mm(0.5 inch) of the insulation from the ends of these two additional wires.
  9. Twist the two wires together at one end.
  10. Place the twisted ends of the two wires near the deployment battery. Do not connect the wires to the battery at this time.

11. Using the free ends of the 10 meters(33 feet) wires leading to the airbag module/pretensioner, make two splices, one at each wires from the airbag module/pretensioner.
12. Wrap the splices with insulating tape.
13. Now that the free ends of the 10 meters(33 feet) wires are spliced to the airbag module/pretensioner wires, and the ends that are twisted together are near the deployment battery, clear the area.
14. Untwist the wires that near the deployment battery.
15. Touch one wire to the positive battery terminal and touch the other wire to the negative battery terminal. The airbag will deploy.
16. Using proper precautions, dispose of the deployed airbags/pretensioners. Refer to "Deployed Airbag Module Disposal Procedure" in this section.



## DEPLOYED AIRBAG MODULE DISPOSAL PROCEDURE

**CAUTION :** *After deployment, a powdery residue may be on the surface of the airbag. The powder primarily consists of cornstarch(used to lubricate the bag as it inflates) and by-products of the chemical 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 presents after deployment.*

**CAUTION :** *Be sure to wear gloves and eye protection 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 module near any flammable objects, and allow the airbag module to cool 30 minutes before handling.*

Deploy an airbag or pretensioner 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 or a pretensioner. Deployed airbag module or pretensioner should be disposed of in the same manner as other scrap parts, with the addition of the following steps :

1. Place the deployed airbag or pretensioner 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 must be disabled. Refer to "Disabling the SIR" in this section for instructions on how to disable the SIR.***

The terminals in the SIR are made of special metal to provide necessary contact integrity for the sensitive, low energy circuits. These terminals are available only in 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 must be disabled. Refer to "Disabling the SIR" in this section for instructions on how to disable the SIR.***

Do not repair any wires of supplemental inflatable restraints(SIR). Replace any damaged wires with new one.

## GENERAL DESCRIPTION AND SYSTEM OPERATION

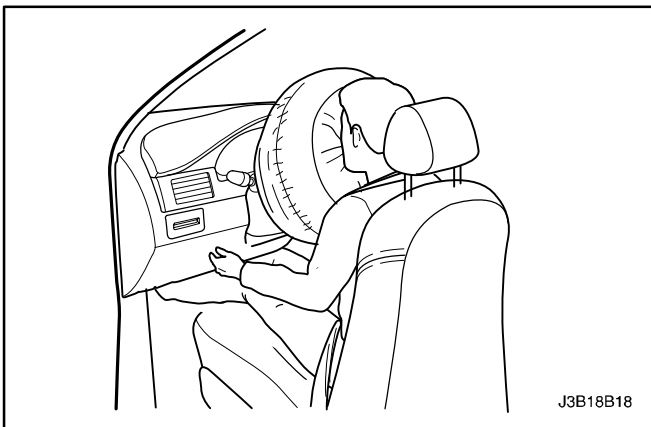
### SUPPLEMENTAL INFLATABLE RESTRAINTS(SIR)

The supplemental inflatable restraints(SIR) is a safety device used in conjunction with the seat belt. The air bag does not replace the function of the seatbelt. 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 center line.

The SIR system consists of a

- Driver airbag module
- Driver side airbag module
- Passenger airbag module
- Passenger side airbag module
- Driver's and front passenger's seat belt pretensioners (and load limiter for some model).
- Sensing and diagnostic module(SDM)
- Clock spring.
- Wire harness and connectors.
- AIRBAG indicator on the instrument cluster.
- Side airbag sensor



### AIRBAG MODULES

#### Driver Airbag Module

**CAUTION : Tempering with driver airbag module creates the risk of an injury from unexpected deployments. Therefore, the driver airbag module should never be disassembled.**

The driver airbag module is under the center pad of the steering wheel. The driver airbag module contained an igniter charge and a gas generator to inflate the folded airbag.

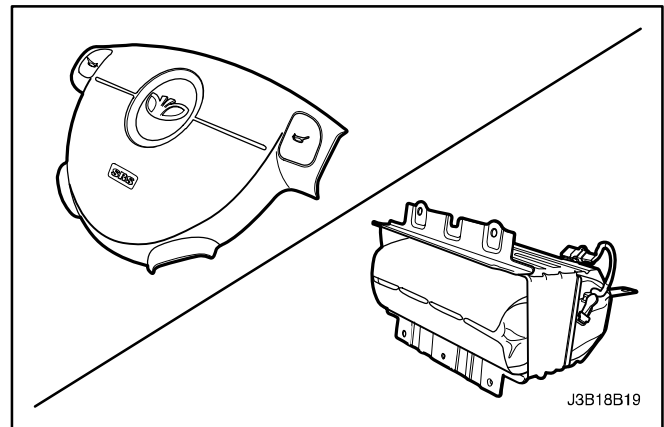
The airbag connector contains a shorting bar, which makes the circuit shorted when the connector is disconnected. The shorting bar prevents current from travelling through the driver airbag module during servicing. The shorting bar is disengaged when the connector is connected.

#### Passenger Airbag Module

**CAUTION : Tempering with passenger airbag module creates the risk of an injury from unexpected deployment. Therefore, the passenger airbag module should never be disassembled. The passenger airbag module is on the passenger part of the instrument panel. The passenger airbag module contains an igniter charge and a gas generator to inflate the folded airbag .**

The passenger airbag module is on the passenger part of the instrument panel. The passenger airbag module contains an igniter charge and a gas generator to inflate the folded airbag .

The airbag connector contains a shorting bar, which makes the circuit shorted when the connector is disconnected. The shorting bar prevents current from travelling through the passenger airbag module during servicing. The shorting bar is disengaged when the connector is connected.

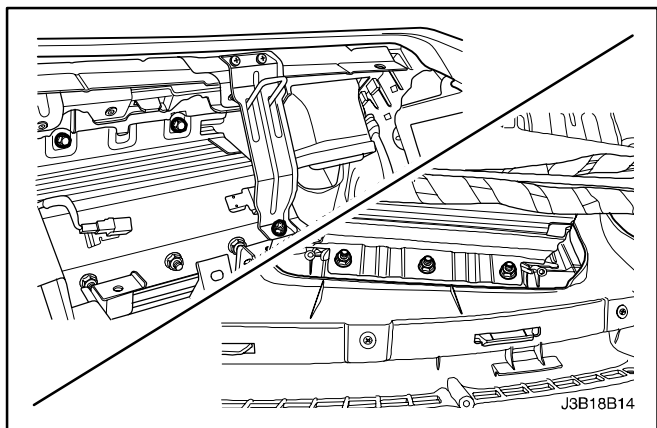


#### Side Airbag Module

**CAUTION : Tempering with side airbag module creates the risk of an injury from unexpected deployments. Therefore, the driver airbag module should never be disassembled.**

The side airbag modules are in the driver's and passenger's seats. The side airbag module contains an igniter charge and a gas generator to inflate the folded airbag .

The airbag connector contains a shorting bar, which makes the circuit shorted when the connector is disconnected. The shorting bar prevents current from travelling through the side airbag module during servicing. The shorting bar is disengaged when the connector is connected.



## FRONT SEAT BELT PRETENSIONERS

**CAUTION :** *Tempering with seat belt pretensioner creates the risk of an injury from unexpected deployment. Therefore, the driver airbag module should never be disassembled.*

The seat belt pretensioners (with load limiter for some vehicles) are assembled with each front seat belt retractors to retract the seat belt webbing when accounted frontal collision. The seat belt pretensioners are controlled by sensing and diagnostic module (SDM). The seat belt pretensioner contains an igniter charge and a gas generator to pull the seat belt webbing. The seat belt pretensioner must be replaced after an accident that causes its activation.

The seat belt pretensioner also contains a shorting bar to prevent current from travelling through the seat belt pretensioner during servicing. The shorting bar is disengaged when the connector is connected.

## SENSING AND DIAGNOSTIC MODULE (SDM)

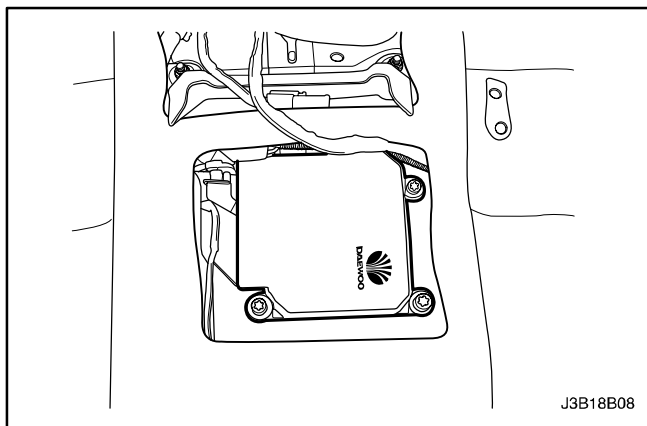
**CAUTION :** *During the service procedures, be careful when handling the SDM. Never shake or jar the SDM. Never apply power to SIR when the SDM is not rigidly attached to the vehicle. All SDM mounting bolts and grounding nuts must be fully tightened. Failure to follow these precautions could cause 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 restraints (SIR) electrical components and sets a diagnostic trouble code (DTC) when 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 fault.

- Provides a reserve power source to deploy the airbags and pretensioners 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 and pretensioner 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 and 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 more malfunctions have been detected.

If the SDM has detected malfunctions in the internal and external circuits, which could potentially affect the operation of the supplemental inflatable restraints (SIR), the airbag indicator stays on. Some malfunctions could result in non-deployment 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 in the SDM electrical connector. The shorting bar is disengaged when proper connection is made, but if a poor connection exists the SDM connector supplied 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 (over 3 and one quarter turns to one direction) without the steering wheel in position could damage the clock spring and result in an inoperative driver airbag.*

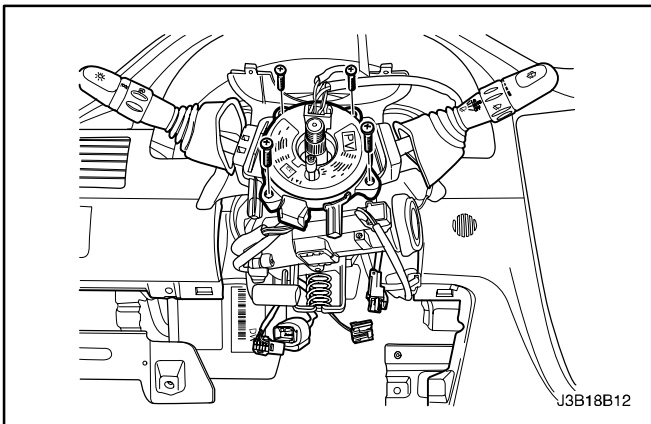
There is a coil assembly in the steering which is referred to as a clock spring because of its internal resemblance to the type of spring used in a mechanical clock. The coil

spring should never be disassembled, and there is no timekeeping function. The clock spring contains two or three current-carrying coils. One of the current-carrying coils maintains continuous contact within the driver deployment loop while the steering wheel is rotated. The clock spring also contains coils that maintain continuous contact for horn and remote audio control switch 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 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 yellow connector to the airbag contains a shorting bar which connects the driver high circuit to driver low circuit when the connector is disconnected.

The shorting bar prevents current from travelling through the driver airbag module during servicing. The shorting bar is disengaged when the clock spring connector is connected.



## WIRING HARNESS CONNECTORS

If the sensing and diagnostic module (SDM) electrical connector is not attached properly, a built in shorting bar will connect the wire from airbag warning lamp with the SDM ground wire. This turns on the airbag indicator . To prevent deployment during servicing, additional shorting bars are located in following locations :

- The clock spring electrical connector at the lower steering column.
- The passenger airbag module.
- The driver airbag module.
- The seat belt pretensioners.

The shorting bar is only a backup safety device. Always disable the supplemental inflatable restraints(SIR) before beginning any service procedure.