
SECTION 8B

RESTRAINTS

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GENERAL DESCRIPTION AND OPERATION

GENERAL PRECAUTIONS

When the ignition is switched ON, the supplemental inflatable restraints (SIR) warning lamp must blink at seven times for 7 seconds and then turn off.

There is a fault in the airbag system if the warning lamp does not turn OFF or the warning lamp illuminates while the vehicle is in operation. If the warning lamp indicates there is a fault in the airbag system, assume that the SIR system may not be functional.

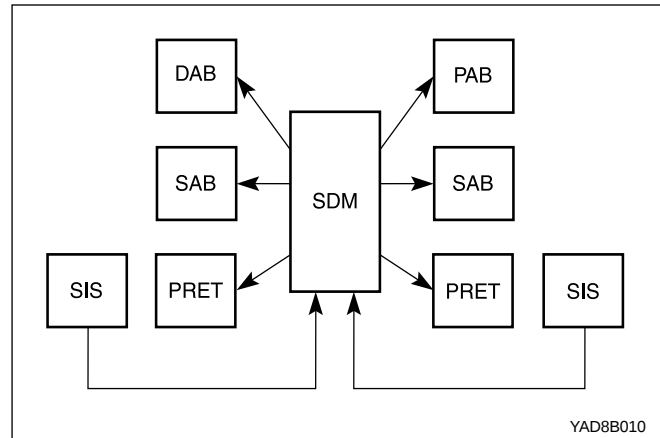
Notice: Failure to follow all service procedures in the correct sequence can cause the airbag system to deploy unexpectedly and possibly cause a serious injury.

- Only trained personnel at franchised SsangYong dealers and authorized SsangYong service dealerships may service the airbag system.
- Never attempt to disassemble, repair or reuse the following component;
 - Airbag modules
 - Clock spring
 - Sensing and diagnostic module
 - Wiring harness
- When repairing SIR component, follow the service notice;
 - Inspect any SIR part before it is installed.
 - Use only new parts.
 - Do not install used SIR parts from other vehicles.
 - Do not install any part that has been dropped or that has dents, cracks or other defects.
- Before testing, disconnect the negative battery cable. Wait one minute for the SDM capacitor to discharge. The capacitor supplies reserve power to deploy the airbags, even if the battery is disconnected. Unintentional deployment of the airbags can cause injury.

SIR SYSTEM

SIR system consists of 6-Loop (DAB, PAB, 2*SAB, 2*PRET) fully and the block diagram is as shown below.

On this diagram, SDM sends the output signal to DAB, PAB, 2*SAB, 2*PRET and receives the input of side impact from 2*SIS (Side Impact Sensor).

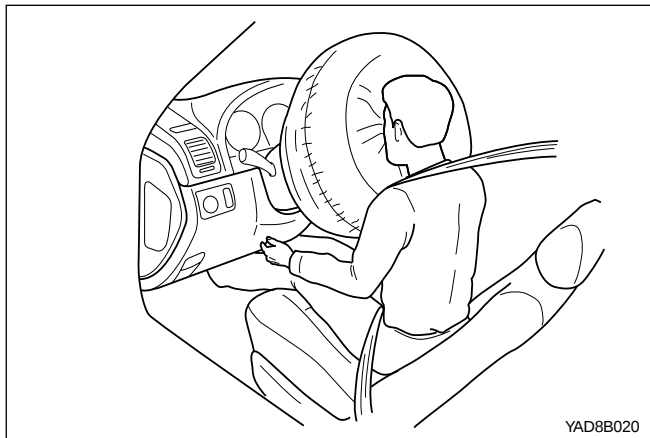


Abbreviation

1	SDM	Sensing and Diagnostic Module (SDM)
2	DAB	Driver-side Airbag Module
3	PAB	Passenger-side Airbag Module
4	SAB	Side Airbag Module (Driver, Passenger)
5	PRET	Seatbelt Pretensioner (Driver, Passenger)
6	SIS	Side Impact Sensor (Driver, passenger)

SIR SYSTEM OPERATION

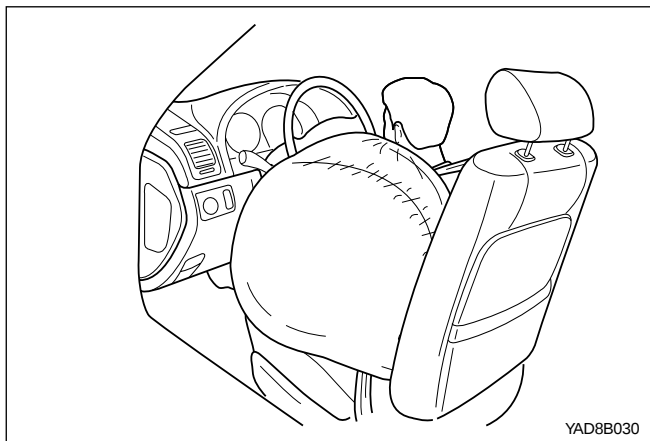
The supplemental inflatable restraints (SIR) system is a safety device used in conjunction with the seat belts. The airbag does not replace the function of the seat belt. The driver and the passengers must always fasten their seat belts and adjust them for a proper fit.



Deployment Condition

Airbag is designed to protect the driver and the front seat passenger in the event of a significant frontal impact to the vehicle. The airbags deploy if the force is applied from a direction within 30 degrees of the vehicle's centerline and above 25 km/h (15 mph) speed. In case of the 0 degree frontal concrete barrier, airbag may deploy above 25 km/h (15 mph) speed.

The side airbag deploys if the side impact is applied above 30 km/h.



Condition That Deployment may not be Occurred

- Rear Impact
- Slight impact or partial impact
- Incline impact
- Overturn and fall accident
- Impact on the material that may be possible to absorb a lot of impact energy (styrofoam, empty drum can, etc.)

AIRBAG MODULE DISCARD

Airbag Module Deployment (Inside Vehicle)

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

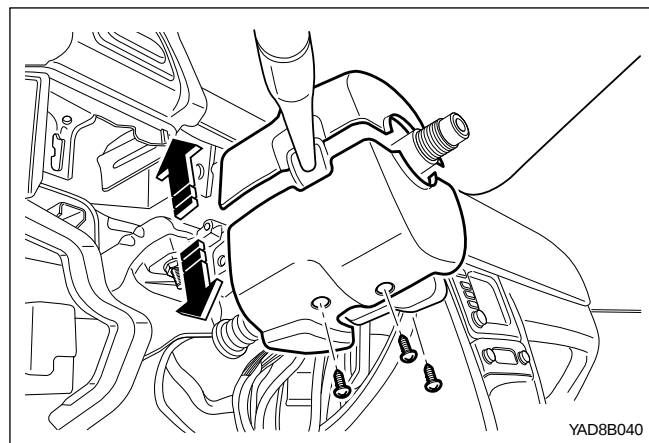
- Before deploying the airbags, remove all loose objects from the airbag's expansion area.
- Deploy the airbags with the vehicle doors closed and the side windows open.
- Deploy the airbags only in an evacuated area. Service personnel who must be present during the deployment should be at least 10 meters (33 feet) in front of the vehicle.
- Do not connect the voltage source until after having completed all other preparations for the deployment of the airbags.
- Allow a deployed airbag module or pretensioner to cool for at least 30 minutes before handling.
- If the deployment fails, disconnect the voltage source and wait 5 minutes before approaching the vehicle.

Airbag Module Discard (Driver)

1. Disconnect the battery cable and place the vehicle battery at least 10 meters (33 feet) away from the airbag module.

Notice: If the airbags are not disconnected, service cannot begin until one minute has passed after disconnecting power to the SDM. If the airbags are disconnected, service can begin immediately without waiting for one-minute time period to expire. Failure to temporarily disable the SRS during service result in unexpected deployment, personal injury and otherwise unneeded SRS repair.

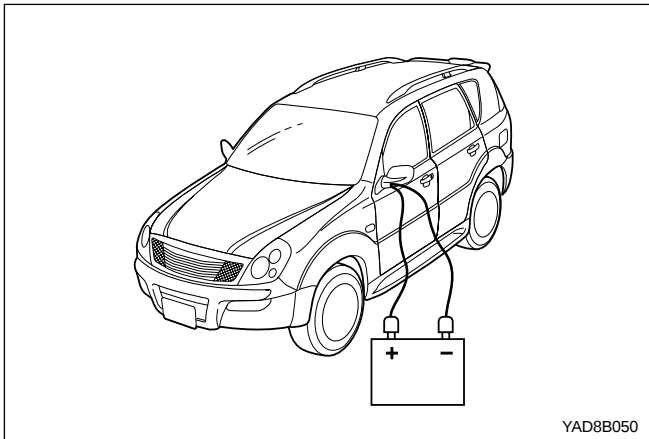
2. Remove the lower cover of the steering column.



3. Cut two wires between the airbag and the contact coil.
4. Strip 13 mm (0.5 inch) of the insulation from the end of the wires leading to the contact coil.

8B-4 RESTRAINTS

5. Use two additional wires, each at least 10 meters (33 feet) long, to reach from the deployment battery to the airbag module.
6. Strip 13 mm (0.5 inch) of the insulation from the ends of these two additional wires.
7. Twist the two wires together at one end.
8. Place the twisted ends of the two wires near the deployment battery. Do not connect the wires to the battery at this time.
9. Using the free ends of the 10 meters (33 feet) wires leading to the airbag module, make two splices, one at each wire from the airbag module.
10. Wrap the splices with insulating tape.
11. Now that the free ends of the 10 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 module will deploy.
14. Refer to "DEPLOYED AIRBAG MODULE DISPOSAL PROCEDURE" in this section.

Airbag Module Discard (Passenger)

The passenger airbag deployment is the same procedure of the driver's. Remove the glove box instead of the contact coil and cut two passenger airbag wires.

Refer to "AIRBAG MODULE DISCARD (DRIVER)" in this section for more information.

Airbag Module Deployment (Outside Vehicle)

Deploy airbag modules in following situations:

- If the airbag module is removed in the discarded vehicle.
- If the airbag module is replaced due to any fault.
- If an airbag module is damaged during transfer, storage or servicing.

Observe following precaution if the airbag is deployed:

- Deploy the airbags only in an evacuated area. Service mechanics should be at least 10 meters (33 feet).
- Do not connect the voltage source until after having completed all other preparations for the deployment of the airbags.
- Allow a deployed airbag module or pretensioner to cool for at least 30 minutes before handling.
- If the deployment fails, disconnect the voltage source and wait 5 minutes before approaching the vehicle.
 1. Position the airbag module face up, on flat ground outdoors, at least 10 meters (33 feet) from any obstacle or people.
 2. Place a vehicle battery at least 10 meters (33 feet) away from the airbag module.
 3. Deploy the airbag module using the deployment tool. If you do not have deployment tool, cut the two additional wires to the airbag module and strip 13 mm (0.5 inch) of the insulation from the end of the wires leading to the airbag module.
 4. Refer to "DEPLOYED AIRBAG MODULE DISPOSAL PROCEDURE" in this section.

Deployed Airbag Module Disposal Procedure

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

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 for 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 SsangYong regional service manager for approval or special instructions before deploying an airbag module or pretensioner.

COMPONENT FUNCTION

Back (Cushion)

- The airbag system performance is influenced on the cushion size, shape and position.
- The cushion strength is a important parameter on the impact absorb effect.
- Therefore, the control of the airbag performance depends on cushion size, shape, inflator characteristic and vent hole size for the gas discharge.
- The cushion's material and folding function to control the cushion deployment direction and the performance to protect passenger's face.

Module Cover/Housing

- It is a type of a container that includes the cushion and the inflator.
- The module housing functions to deliver the reaction force between the body structure and the airbag (The airbag reaction is absorbed generally to the steering wheel or instrument panel).
- The module cover must be considered in a viewpoint of protection between exterior, internal units and cushion. Also the module cover should be designed not to cause any personal injury for deployment.

Inflator

- The inflator is a type of the direct gas generated device.
- The inflator with initial low pressure provides negative restraint effect regarding passengers moving and time.
On the contrary, the inflator with initial high pressure allows other components of the airbag to make a excessive impact resulting in any personal injury. Thus, the inflator output must be optimized according to the characteristic of the vehicle and passenger moving.
- The discharge gas has no toxicity or inflammability and also it is the important parameter to control the high temperature for gas firing.

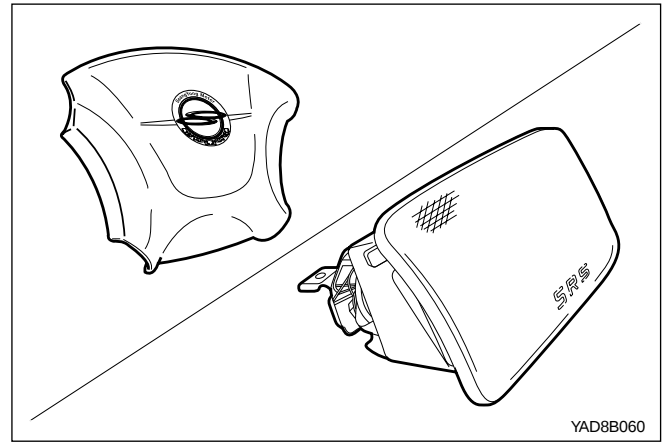
Airbag Module

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

The passenger airbag module is installed in the instrument panel at passenger side.

The driver and passenger side airbag is inside each seat.

Notice: Do not disassemble the airbag module because unintentional deployment of the airbags resulting from any damage or interference of the module can cause injury.



SDM (Sensing and Diagnostic Module)

1. The airbag system consists of the module section (driver, passenger and side), seat belt section and SDM.
2. The SDM has no user-serviceable parts and monitors the system components continuously. The SDM also records any faults which are discovered.
3. The SDM allows the fault codes to be retrieved with a scan tool and illuminates a warning lamp that alerts the driver to any faults.

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

- Impact decision processor function.
Determine the airbag deployment through the impact signal of the accelerometer sensor and the safety sensor.
- Malfunction detection and recording any faults that are detected.
Monitor the supplemental restrain system electrical components and set a diagnostic trouble code when malfunction is detected.
- Display airbag fault codes
Display airbag fault codes and system status information when connected to a scan tool.
- Self-diagnosis function
Illuminate the AIRBAG indicator to alert the driver to any fault.
- Power supply function
Provide a reserve power source to deploy the airbags and pretensioners if an accident has disabled the normal power source.

Accelerometer Sensor

The accelerometer sensor electronically represents the acceleration or deceleration of the vehicle during a frontal impact.

In this electronic representation, the electrical signal is proportional to the acceleration or deceleration of the vehicle.

Safety Sensor

The safety sensor is safety device made up of a dual-contact, electro-mechanical switch that:

1. Acts independently of the electronic components.
2. Connects the acceleration sensor in series in order to make up for the weak points in the current electronic sensor.

Micro Controller

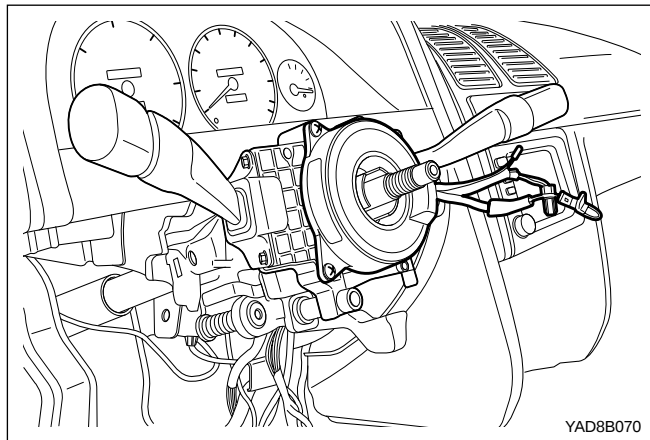
This device receives the impact signal from the sensor for vehicle impact and identifies whether the current condition is necessary for airbag deployment or not. And then the controller sends the specified currents to the airbag ignition circuit as needed.

This device always monitors the airbag system in conduction with the diagnostic circuit. When it is detected any problem, it illuminates the airbag warning indicator to inform driver of the fault and stores the fault information.

Contact Coil

The contact coil is installed between the steering wheel and the steering column and contains a coil that enables to contact electrically between the airbag wiring harness, the driver airbag module and the horn switch.

Notice: Turning the steering wheel more than three and one-quarter turns may damage the clock spring. The contact coil should never be disassembled and must be replaced if the airbag have been deployed.



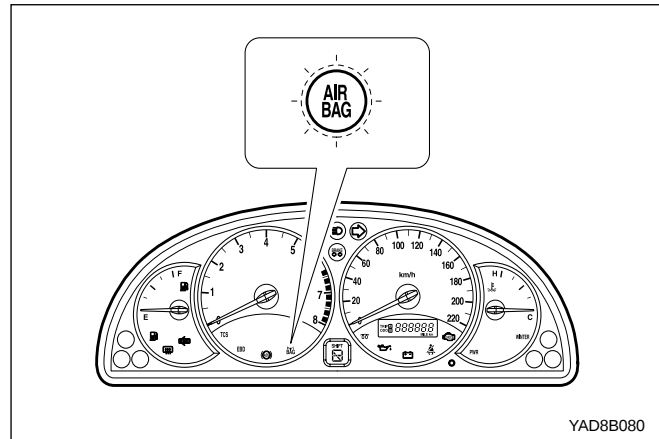
Notice: Turn the label of the clock spring clockwise to lock and turn the label of the clock spring counterclockwise approximately 2.9 ± 0.2 turns to the neutral positions with the front wheels ahead.

Align the pointed marks “▶ ◀”.

Airbag Warning Lamp

The instrument cluster contains an airbag warning indicator bulb to verify the operation of the AIRBAG 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.



Warning lamp status	Fault contents
Flash at seven times for 7 seconds and then turn off	System OK
Warning lamp stays ON	System fault Internal SDM fault
No turn on	Power supply circuit open and fuse open Warning lamp circuit open SDM fault

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:

- Driver airbag module connector
- Passenger airbag module connector
- Driver and passenger side airbag module connector
- SDM wiring harness connector
- Contact coil connector to airbag wiring harness

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

Belt Pretensioner

The belt pretensioner enables to retract the driver and the passenger seat belt webbing to reduce any personal impact when accounted a frontal collision.

FRONT AIRBAG

General Description

- The frontal airbag system is a safety device used in conjunction with the seat belts.

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

The front seat airbag is designed to protect the driver and the front seat passenger in the event of a significant frontal impact to the vehicle.

- The driver airbag is installed on the steering wheel and the passenger airbag is in the instrument panel.

Airbag Component

Cover

It is a part of the airbag steering section and is made by injection molding.

Door Assembly

It is a part of the airbag steering and is made by vacuum bubble, PSM, injection.

Cushion

- Cushion is made mainly of nylon 66 material.
- It is made by assembling various panel pieces and sometimes, some surfaces of these panel pieces handled by coating. The coating material is used as silicon rubber generally.

Inflator

- The inflator generates gas to fill the cushion with it. There are two type of ALL-PYRO TECHNIC TYPE and HYBRID TYPE according to gas generated type.
- Now, the driver airbag uses the “all-pyro technic type” and the passenger airbag uses both “all-pyro technic type” and “hybrid type”.
- The inflator has the ignitor at one side of the inflator. The ignitor receives a electrical signal from the sensor and ignites powders continuously.

Housing

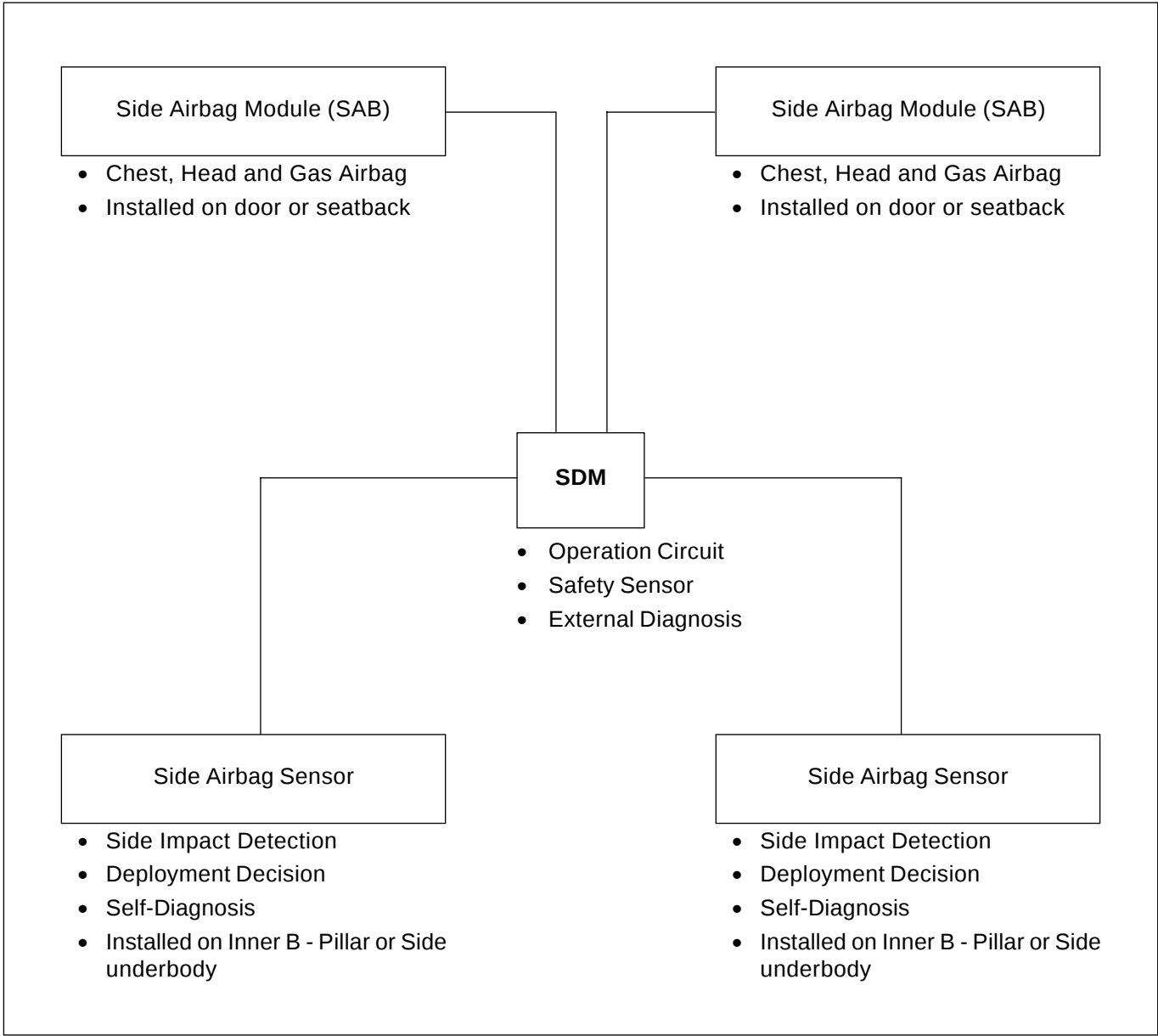
It is a part of airbag steel plate structure.

SIDE AIRBAG

The side airbag receives each of the side airbag sensor signal to deploy the airbag when the vehicle crashes at side impact. The side airbag module is installed inside the seat. When the airbag is deployed, replace the deployed front seat assembly.

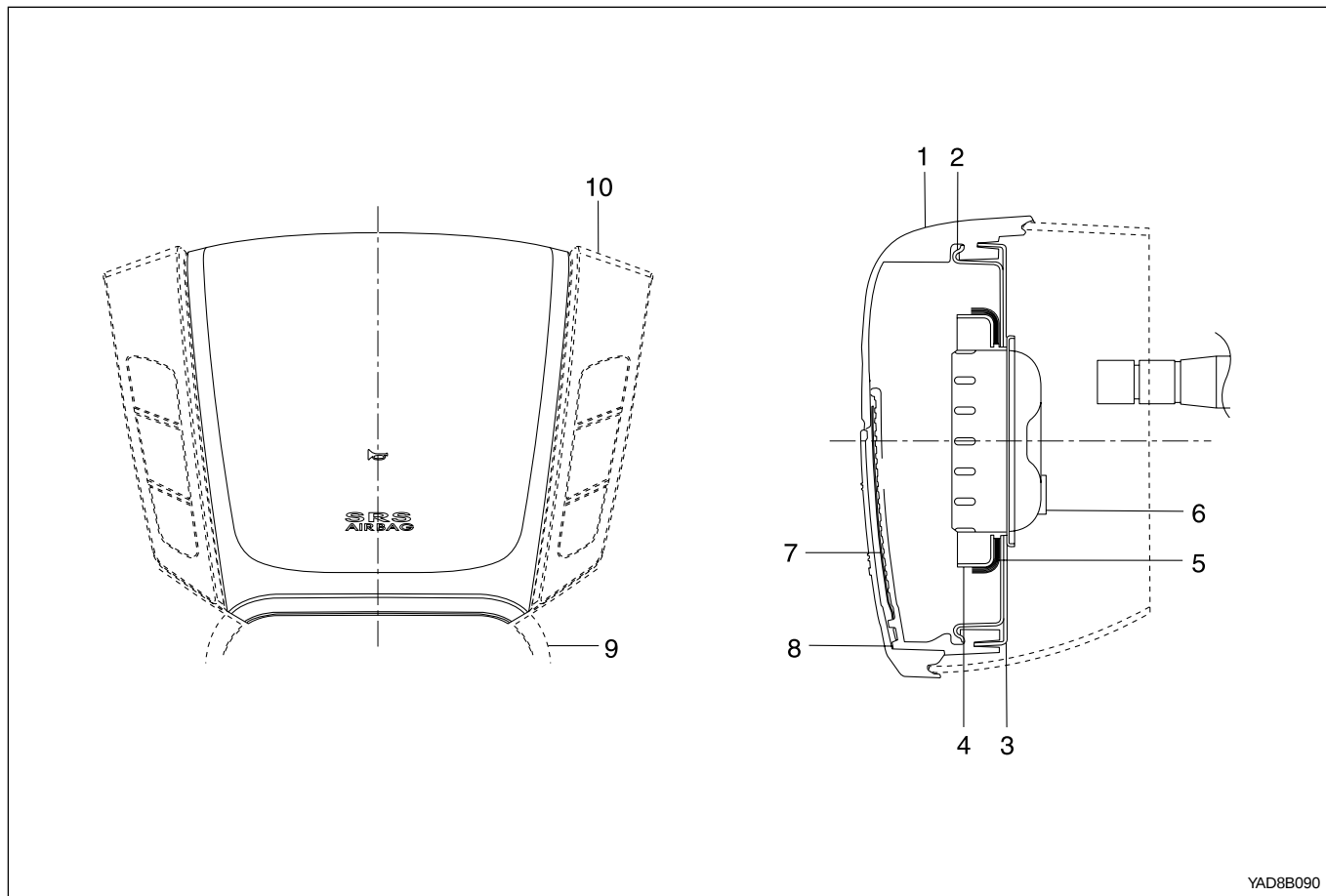
System Structure

Related System	Component
1 Vehicle Structure and B/W	1 Side Airbag Module (LH/RH)
2 Seat System	2 Side Airbag Sensor (LH/RH)
3 Seat Belt System	3 SDM (Common use the SDM for frontal airbag)
4 Door Trim and Door Structure	
5 B - Pillar Trim and Structure	
6 Airbag Wiring Harness	



FRONTAL AIRBAG CROSS SECTIONAL VIEW

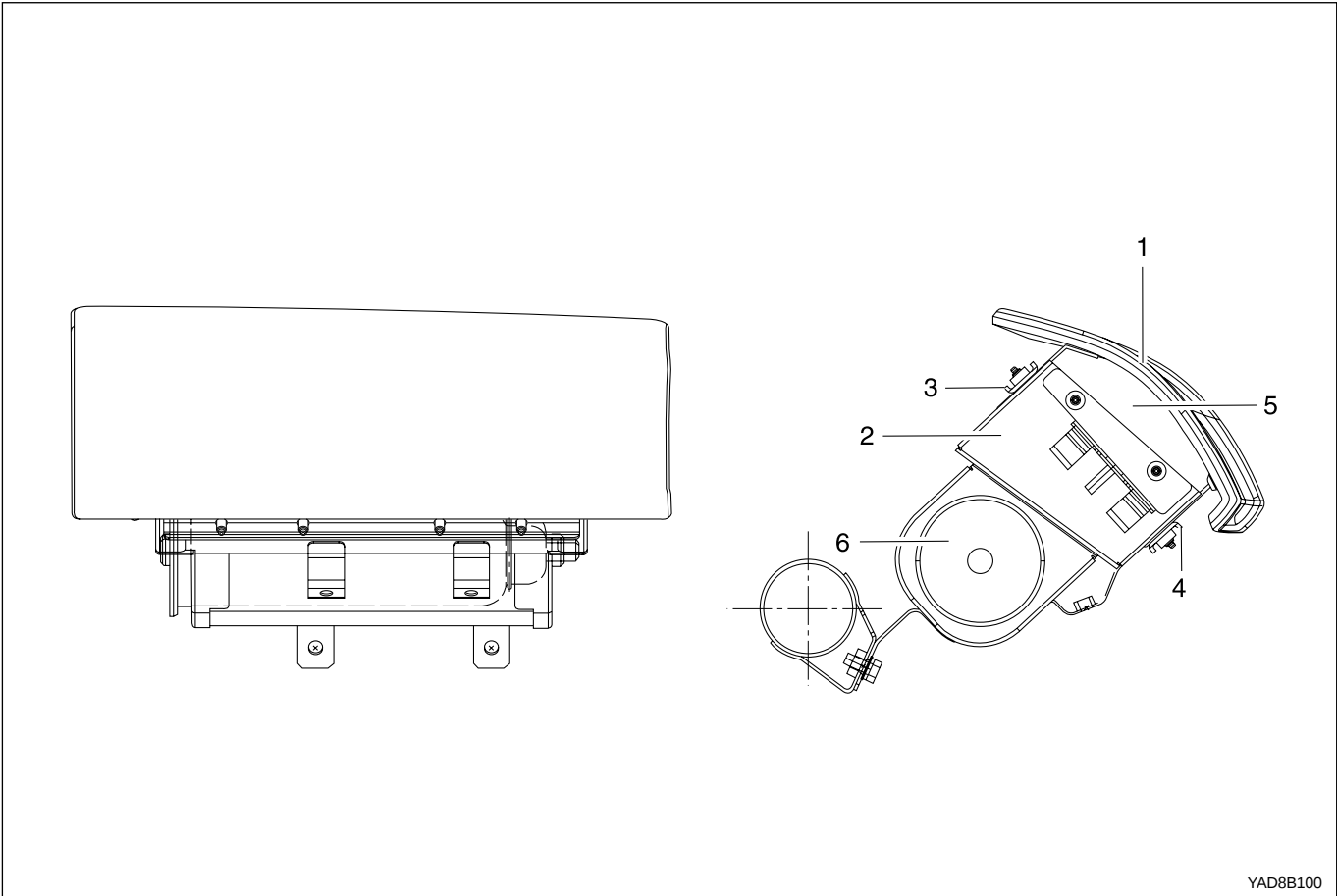
DRIVER AIRBAG ASSEMBLY



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- | | |
|-----------------------------|----------------------------|
| 1 Cover | 6 Inflator assembly |
| 2 Carrier | 7 Membrane switch assembly |
| 3 Retainer cover assembly | 8 Reaction plate |
| 4 Retainer cushion assembly | 9 Steering wheel |
| 5 Cushion assembly | 10 Remote control switch |

PASSENGER AIRBAG ASSEMBLY



- | | |
|-----------------------|-----------------------|
| 1 Cover assembly | 4 Lower Door Retainer |
| 2 Housing assembly | 5 Cushion assembly |
| 3 Upper Door Retainer | 6 Inflator assembly |

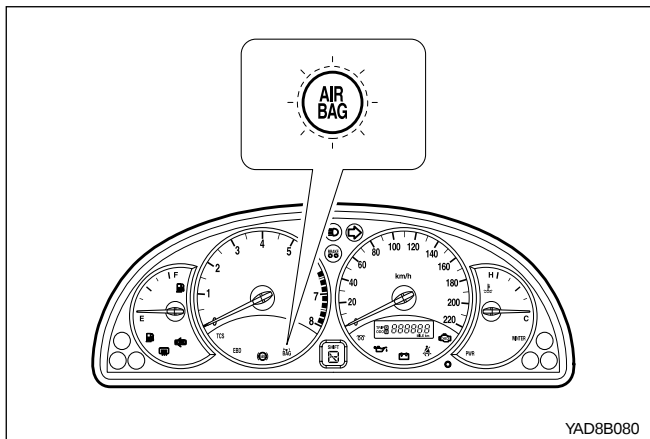
DIAGNOSTIC INFORMATION AND PROCEDURES

GENERAL DIAGNOSIS

Warning Lamp Check

As soon as the opening voltage is applied to the sensing and diagnostic module (SDM) ignition input, the SDM activates the warning lamp for a bulb check. The SDM allows the lamp to blink at seven times for 7 seconds and then turn off.

During the bulb check, the SDM is not ready to detect a crash or deploy the supplemental inflatable restraints.



Fault Indication

The sensing and diagnostic module records the system's faults in two categories:

- **Active Fault**
Current detected faults and the "C" appears the first digit of the fault code on the scan tool display (example: "C16").
- **History Fault**
These faults that were detected in the past, but are no longer active. The "H" appears the first digit of the fault code on the scan tool display (example: "H17").

Diagnosis by Using Warning Lamp

- The warning lamp flashes for 7 seconds at seven times and turn off : Normal Status - There is not any history or current fault code.
- The indicator turns on for 7 seconds and then turn off : Normal Status - A fault has been detected previously but now there is not any more of the same detected fault. Clear the fault using the scan tool.
- The indicator turns on for 7 seconds and turns off for 1 second and then turn on again: Abnormal Status - It has detected a current fault or has been occurred same fault more than five times, or has been occurred more than five types of faults. Perform the diagnosis using the scan tool.

- Warning lamp stays ON : Connection fault between the SDM wiring harness connector and the SDM connector, or the airbag wiring harness fault.
- No the indicator turn ON : Power supply malfunction, indicator circuit open, bulb fault, SDM internal defect.

Diagnosis by Using Scan Tool

- Check the fault code by connecting the diagnostic (ALDL) connector.
- Receive serial data from terminal 9 of the ALDL connector.
- Receive the ground signal from terminal 4 or 5 of the ALDL connector.

Clearing Fault Codes

When the sensing and diagnostic module (SDM) receives the "CODE ERASE" command from the scan tool, the SDM:

- Clears the entire fault memory.
- Turns OFF the warning lamp.
- When it is removed the scan tool after clearing the fault code, the SDM rechecks the airbag system to detect the SDM's fault.

External Fault

Service personnel can reset the SDM and turn OFF the warning lamp if the fault is an external fault.

Internal Fault

An internal fault of the SDM or a CRASH RECORDED fault code cannot be reset.

In the case of an internal fault of the SDM or a CRASH RECORDED fault code, the SDM must be replaced.

Microprocessor-Independent Lamp Activation

If the sensing and diagnostic module (SDM) electrical connector is not properly attached, the SDM cannot function and cannot control the warning lamp.

If this fault is present, the warning lamp will operate independently from the SDM through the use of shorting bars that are built into the SDM connector.

Notice: Do not measure the resistance of the airbag module because the multimeter's battery may deploy the air bag causing any personal injury.

DIAGNOSIS

Possible Cause		Action	
Ignition "ON" Check warning lamp on I/P	Does the warning lamp blink at seven times for 7 seconds and then turn off?	Yes	System OK
		No	Connect the scan tool to diagnostic connector (ALDL). Select the fault code display menu and clear code menu.
	Does the fault code display on the scan tool display?	Yes	Perform "Diagnostic System Check".
		No	Check any fuse open.
	Is there any open in fuse?	Yes	Replace fuse.
		No	Disconnect wiring connector. Check any wiring short between fuse and wiring connector.
	Is there any short in fuse?	Yes	Repair wiring.
		No	Disconnect SDM wiring connector. Check wiring short between connector terminal and SDM connector terminal.
	Is there any short in wiring?	Yes	Replace airbag wiring.
		No	Check any open between ALDL connector No.4, No.5 terminal and ground.
	Is there any open in wiring?	Yes	Repair wiring
		No	Ignition "ON" Measure voltage at the cigar lighter socket.
	Does the voltage indicate 11~14V?	Yes	Check any open or short between ALDL connector terminal and wiring connector terminal.
		No	Repair the wiring of the cigar lighter socket.
	Is there any open or short in wiring?	Yes	Repair wiring
		No	Check any open or short between SDM connector terminal and wiring connector terminal.
	Is there any open or short in wiring?	Yes	Replace the airbag wiring.
		No	Replace the SDM.

DIAGNOSTIC TROUBLE CODES

Code	Fault Contents	Check
01h	Driver airbag circuit, resistance too high	Check the connection of the driver airbag connector. Check the wiring condition of the driver airbag. (including clock spring) Check the bending of the airbag terminal.
02h	Driver airbag circuit, resistance too low	Check the connection of the driver airbag connector. Check the wiring condition of the driver airbag. (including clock spring) Check the bending of the airbag terminal.
03h	Driver airbag circuit, short to ground	Check the connection of the driver airbag connector. Check the wiring condition of the driver airbag. (including clock spring) Check the bending of the airbag terminal.
04h	Driver airbag circuit, short to battery voltage	Check the connection of the driver airbag connector. Check the wiring condition of the driver airbag. (including clock spring) Check the bending of the airbag terminal.
05h	Passenger airbag circuit, resistance too high	Check the connection of the passenger airbag connector. Check the wiring condition of the passenger airbag. Check the bending of the airbag terminal.
06h	Passenger airbag circuit, resistance too low	Check the connection of the passenger airbag connector. Check the wiring condition of the passenger airbag. Check the bending of the airbag terminal.
07h	Passenger airbag circuit, short to ground	Check the connection of the passenger airbag connector. Check the wiring condition of the passenger airbag. Check the bending of the airbag terminal.
08h	Passenger airbag circuit, short to battery voltage	Check the connection of the passenger airbag connector. Check the wiring condition of the passenger airbag. Check the bending of the airbag terminal.
09h	Driver pretensioner circuit, resistance too high	Check the connection of the driver pretensioner connector. Check the wiring condition of the driver pretensioner. Check the bending of the airbag terminal.
0Ah	Driver pretensioner circuit, resistance too low	Check the connection of the driver pretensioner connector. Check the wiring condition of the driver pretensioner. Check the bending of the airbag terminal.
0Bh	Driver pretensioner circuit, short to ground	Check the connection of the driver pretensioner connector. Check the wiring condition of the driver pretensioner. Check the bending of the airbag terminal.
0Ch	Driver pretensioner circuit, short to battery voltage	Check the connection of the driver pretensioner connector. Check the wiring condition of the driver pretensioner. Check the bending of the airbag terminal.

8B-14 RESTRAINTS

Code	Fault Contents	Check
0Dh	Passenger pretensioner circuit, resistance too high	Check the connection of the passenger pretensioner connector. Check the wiring condition of the passenger pretensioner. Check the bending of the airbag terminal.
0Eh	Passenger pretensioner circuit, resistance too low	Check the connection of the passenger pretensioner connector. Check the wiring condition of the passenger pretensioner. Check the bending of the airbag terminal.
0Fh	Passenger pretensioner circuit, short to ground	Check the connection of the passenger pretensioner connector. Check the wiring condition of the passenger pretensioner. Check the bending of the airbag terminal.
10h	Passenger pretensioner circuit, short to battery voltage	Check the connection of the passenger pretensioner connector. Check the wiring condition of the passenger pretensioner. Check the bending of the airbag terminal.
34h	Driver side airbag circuit, resistance too high	Check the connection of the driver side airbag connector. Check the wiring condition of the driver side airbag. Check the bending of the airbag terminal.
35h	Driver side airbag circuit, resistance too low	Check the connection of the driver side airbag connector. Check the wiring condition of the driver side airbag. Check the bending of the airbag terminal.
36h	Driver side airbag circuit, short to ground	Check the connection of the driver side airbag connector. Check the wiring condition of the driver side airbag. Check the bending of the airbag terminal.
37h	Driver side airbag circuit, short to battery voltage	Check the connection of the driver side airbag connector. Check the wiring condition of the driver side airbag. Check the bending of the airbag terminal.
38h	Passenger side airbag circuit, resistance too high	Check the connection of the passenger side airbag connector. Check the wiring condition of the passenger side airbag. Check the bending of the airbag terminal.
39h	Passenger side airbag circuit, resistance too low	Check the connection of the passenger side airbag connector. Check the wiring condition of the passenger side airbag. Check the bending of the airbag terminal.
3Ah	Passenger side airbag circuit, short to ground	Check the connection of the passenger side airbag connector. Check the wiring condition of the passenger side airbag. Check the bending of the airbag terminal.
3Bh	Passenger side airbag circuit, short to battery voltage	Check the connection of the passenger side airbag connector. Check the wiring condition of the passenger side airbag. Check the bending of the airbag terminal.
50h	Driver side airbag sensor, open/ short to battery voltage	Check the connection of the driver side airbag sensor connector. Check the wiring condition of the driver side airbag sensor. Check the bending of the airbag terminal.

Code	Fault Contents	Check
51h	Passenger side airbag circuit, short to ground	Check the connection of the driver side airbag sensor connector. Check the wiring condition of the driver side airbag sensor. Check the bending of the airbag terminal.
52h	Communication malfunction of the driver side airbag	Check the connection of the driver side airbag sensor connector. Check the wiring condition of the driver side airbag sensor. Check the bending of the airbag terminal.
53h	Internal fault of the driver side airbag sensor	Check the connection of the driver side airbag sensor connector. Check the wiring condition of the driver side airbag sensor. Check the bending of the airbag terminal.
54h	Passenger side airbag sensor, open/short to battery voltage	Check the connection of the passenger side airbag sensor connector. Check the wiring condition of the passenger side airbag sensor. Check the bending of the airbag terminal.
55h	Passenger side airbag sensor, short to ground	Check the connection of the passenger side airbag sensor connector. Check the wiring condition of the passenger side airbag sensor. Check the bending of the airbag terminal.
56h	Communication malfunction of the passenger side airbag	Check the connection of the passenger side airbag sensor connector. Check the wiring condition of the passenger side airbag sensor. Check the bending of the airbag terminal.
57h	Internal fault of the passenger side airbag sensor	Check the connection of the passenger side airbag sensor connector. Check the wiring condition of the passenger side airbag sensor. Check the bending of the airbag terminal.
17h	Battery voltage too high	Check generator output voltage. Check the battery voltage. Check the bending of the airbag terminal.
18h	Battery voltage too low	Check generator output voltage. Check the battery voltage. Check the bending of the airbag terminal.
1Eh	SDM internal fault (Initialization fault)	Replace the SDM.
1Fh	SDM internal fault	Replace the SDM.

Caution:

- **Use only the scan tool to check the airbag module and the sensing and diagnostic module (SDM). Never measure the resistance of an airbag module with an ohmmeter. An ohmmeter's battery can deploy the airbag and cause injury.**
- **Before testing, disconnect the negative battery cable. Wait 1 minute for the SDM capacitor to discharge. The capacitor supplies reserve power to deploy the airbags, even if the battery is disconnected. Unintentional deployment of the airbags can cause injury.**
- **Do not attempt to repair the supplemental inflatable restraints (SIR) wiring harness. An SIR repair can create a high-resistance connection which can keep the airbags from deploying when needed, resulting in injury.**

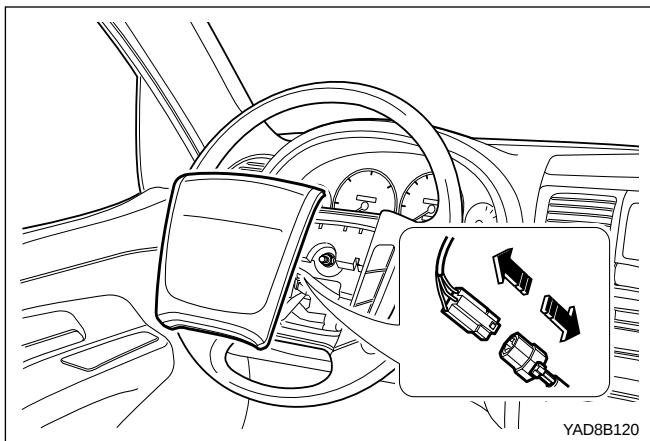
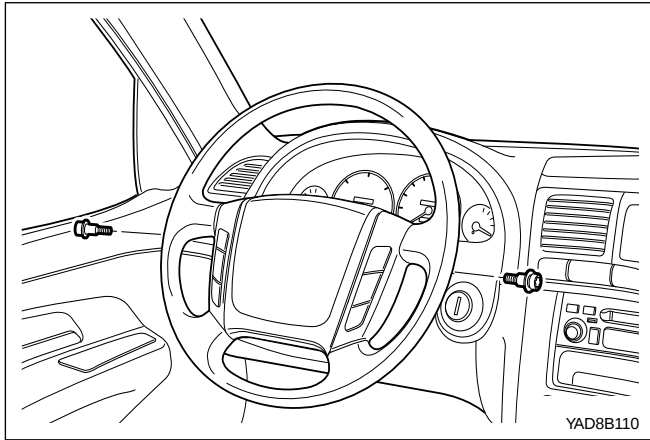
MAINTENANCE AND REPAIR

ON-VEHICLE SERVICE

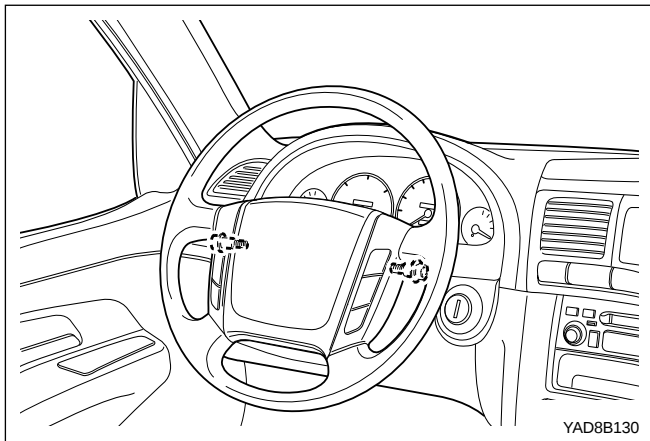
AIRBAG MODULE (DRIVER)

Removal and Installation Procedure

1. Disconnect the negative battery cable.
2. Place the steering wheel at the straight driving direction.
3. Remove the screw of the airbag module.

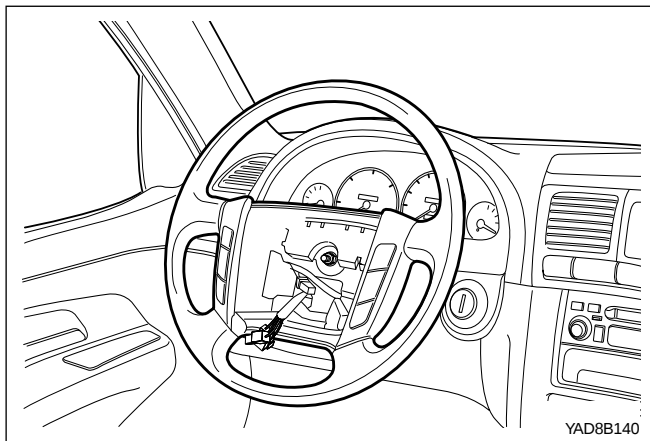


4. Disconnect the airbag module connector, the horn connector and then remove the airbag module.



5. Verify to tighten all of the module and each connector.

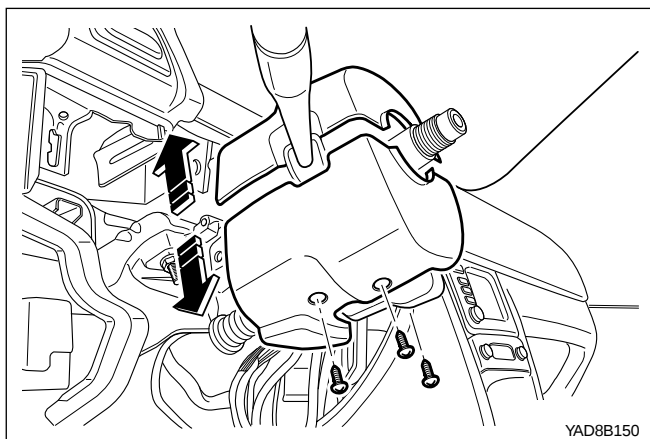
Installation should follow the removal procedure in the reverse order.



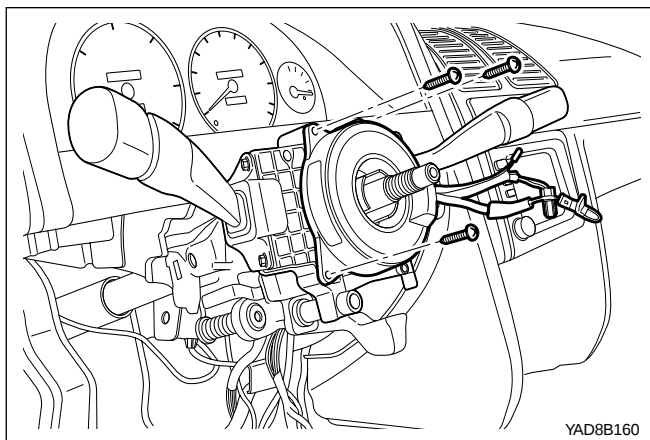
CONTACT COIL

Removal and Installation Procedure

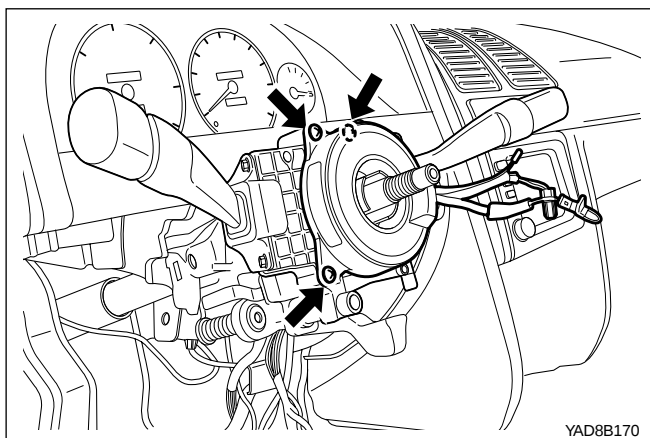
1. Remove the steering wheel, the lower panel at the driver side.



2. Remove the upper and lower cover of the steering column.



3. Disconnect the contact coil connector and remove the contact coil mounting screw. Remove the contact coil assembly.

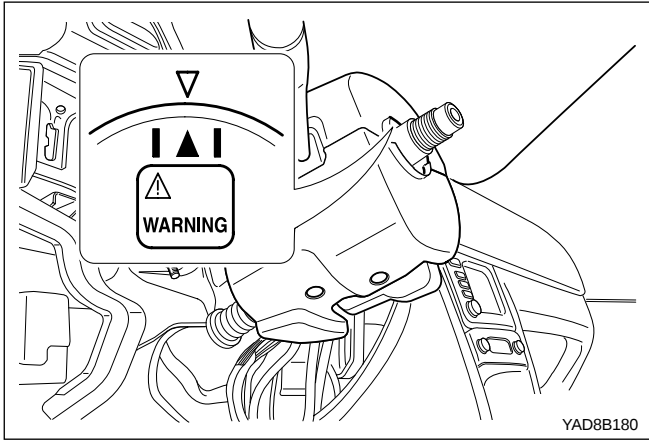


4. Tighten the contact coil mounting screw as the specified torque.

Installation should follow the removal procedure in the reverse order.

Installation Notice

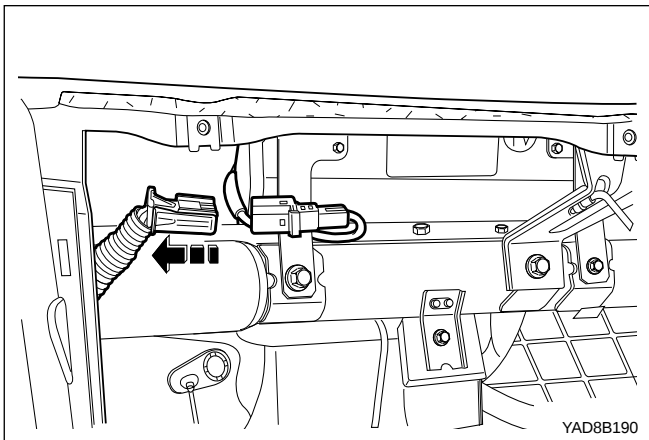
Tightening Torque	3 N•m (27 lb-in)
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5. Fix the contact coil to the center position.

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

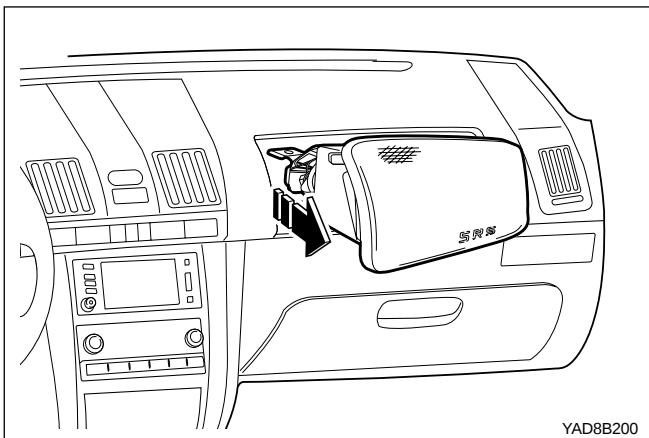
Notice: Turn the label of the clock spring clockwise to lock and turn the label of the clock spring counterclockwise approximately 2.9 ± 0.2 turns to the neutral positions with the front wheels ahead. And also Align the pointed marks “▶ ◀”.



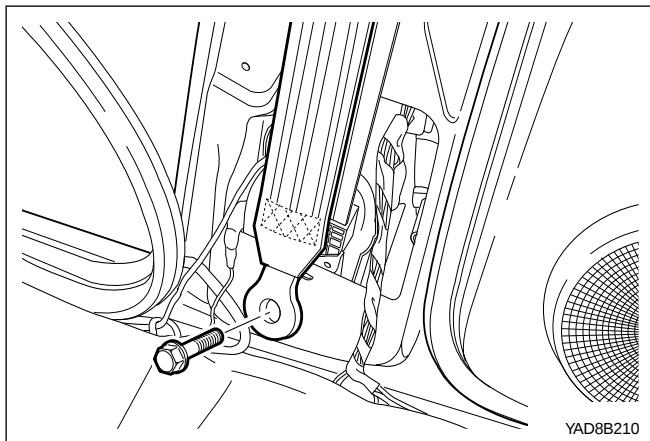
AIRBAG MODULE (PASSENGER)

Removal and Installation Procedure

1. Disconnect the negative battery cable.
2. Remove the glove box.
3. Disconnect the airbag module connector.



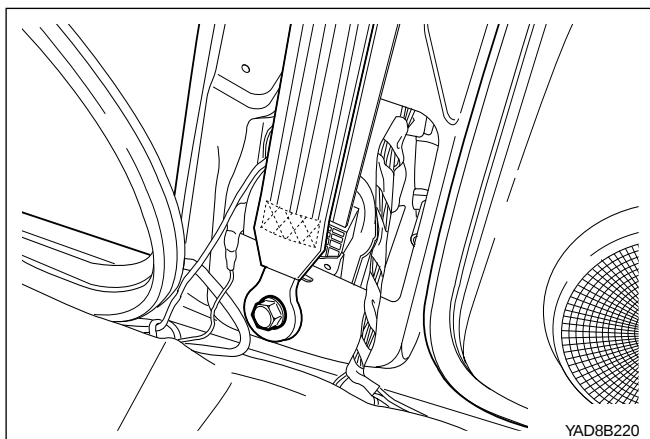
4. Remove the airbag module.
5. Installation should follow the removal procedure in the reverse order.



BELT PRETENSIONER

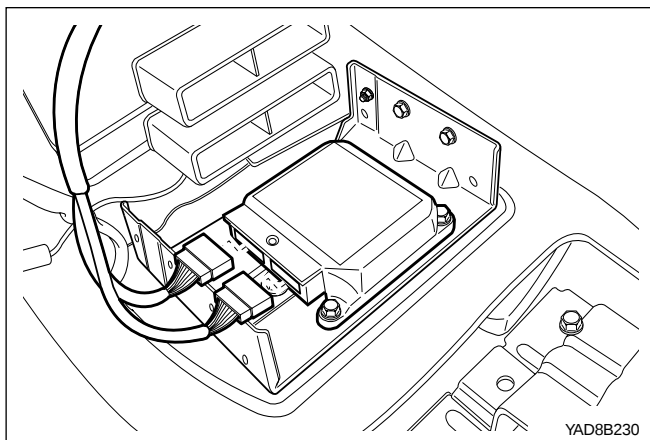
Removal and Installation Procedure

1. Disconnect the negative battery cable.
2. Remove the upper belt bolt and disconnect the panel.
3. Disconnect the airbag wiring connector.
4. Remove the mounting bolt of the belt pretensioner and remove the belt assembly.



5. Tighten the pretensioner mounting bolt as the specified torque.

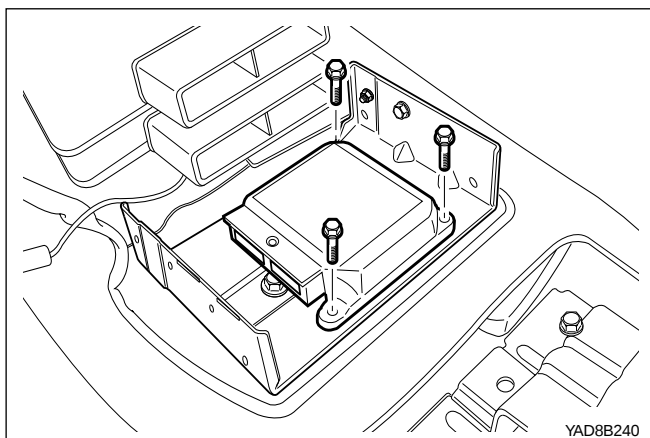
Installation should follow the removal procedure in the reverse order.



SENSING AND DIAGNOSTIC MODULE (SDM)

Removal and Installation Procedure

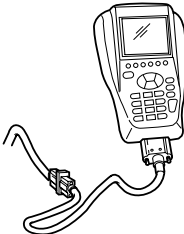
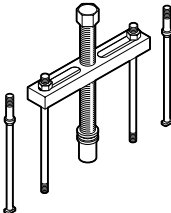
1. Disconnect the negative battery cable.
2. Remove the I/P center panel and the console panel.
3. Remove the SDM connector.



4. Remove the SDM mounting bolt and remove the SDM assembly.
5. Installation should follow the removal procedure in the reverse order.

SPECIAL TOOLS AND EQUIPMENT

SPECIAL TOOLS TABLE

 YAD8B250	Scan Tool	 YAD8B260	Wheel Wrench
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