

## General

The supplemental restraint system (SRS) is designed to supplement the seat belt to help reduce the risk or severity of injury to the driver and passenger by activating and deploying the driver, passenger, side airbag and belt pretensioner in certain frontal or side collisions.

The SRS (Airbag) consists of ; a driver side airbag module located in the center of the steering wheel, which contains the folded cushion and an inflator unit ; a passenger side airbag module located in the passenger side crash pad contains the folded cushion assembled with inflator unit ; side airbag modules located in the front seat contain the folded cushion and an inflator unit ; curtain airbag modules located inside of the headliner which contains folded cushions and inflator units. The impact sensing function of the SRSCM is carried out by electronic accelerometer that continuously measure the vehicle's acceleration and delivers a corresponding signal through amplifying and filtering circuitry to the microprocessor.

### SRSCM (SRS Control Module)

SRSCM will detect front impact with front impact sensor, and side impact with side impact sensor, and determine airbag module deployment.

1. DC/DC converter: DC/DC converter in power supply unit includes up/down transformer converter, and provide ignition voltage for 2 front airbag ignition circuits and the internal operation voltage of the SRSCM. If the internal operation voltage is below critical value setting, it will perform resetting.
2. Back up power supply: SRSCM has separate back up power supply, that will supply deployment energy instantly in low voltage condition or upon power failure by front crash.
3. Self diagnosis: SRSCM will constantly monitor current SRS operation status and detect system failure while vehicle power supply is on, system failure may be checked with trouble codes using scan tool. (Hi- Scan)
4. Airbag warning lamp on: Upon detecting error, the module will transmit signal to SRSCM indicator lamp located at cluster. MIL lamp will indicate driver SRS error. Upon ignition key on, SRS lamp will turn on for about six seconds.
5. Trouble code registration: Upon error occurrence in system, SRSCM will store DTC corresponding to the error. DTC can be cleared only by Hi-Scan. However, if an internal fault code is logged or if a crash is recorded the fault clearing should not happen.
6. Self diagnostic connector: Data stored in SRSCM memory will be output to Hi-Scan or other external output devices through connector located below driver side crash pad.
7. Once airbag is deployed, SRSCM should not be used again but replaced.

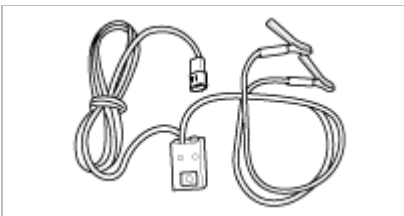
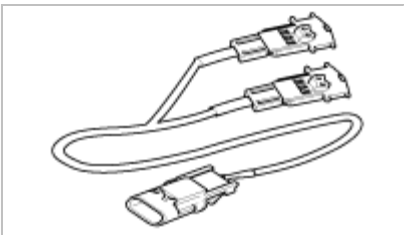
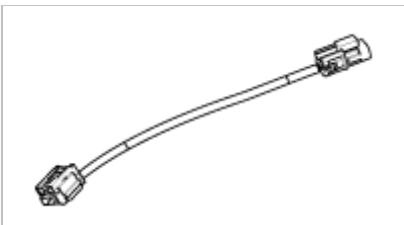
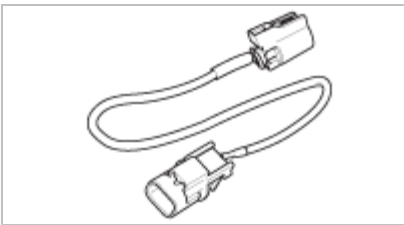
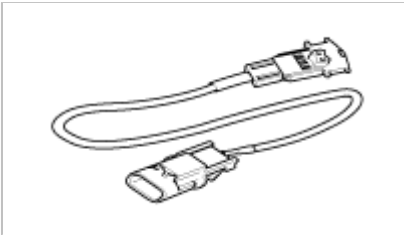
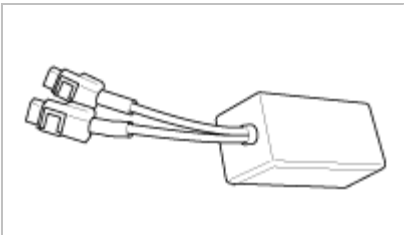
## Specification

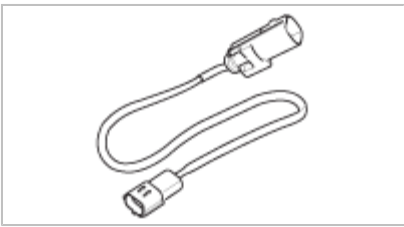

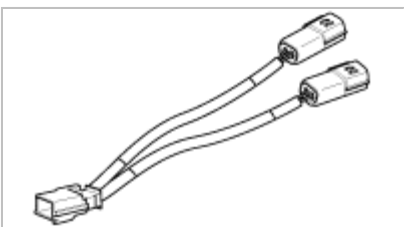
Item	Resistance (Ω)
Driver Airbag (DAB)	1.5 ~ 5.7
Passenger Airbag (PAB)	1.5 ~ 5.7
Side Airbag (SAB)	1.5 ~ 5.7
Curtain Airbag (CAB)	1.5 ~ 5.7
Seat Belt Retractor Pretensioner (BPT)	1.5 ~ 5.7

## Tightening Torques

Item	Nm	kgf.m	lb-ft
Driver Airbag (DAB)	7.8 ~ 10.8	0.8 ~ 1.1	5.8 ~ 8.0
Passenger Airbag (PAB)	6.9 ~ 10.8 3.9 ~ 6.9	Bolt : 0.7 ~ 1.1 Nut : 0.4 ~ 0.7	5.1 ~ 8.0 2.9 ~ 5.0
Curtain Airbag (CAB)	18.6 ~ 26.5	1.9 ~ 2.7	13.7 ~ 19.5
Side Airbag (SAB)	5.9 ~ 7.8	0.6 ~ 0.8	4.3 ~ 5.8
Seat Belt Anchor Bolt (BPT)	39.2 ~ 53.9	4.0 ~ 5.5	28.9 ~ 39.8
SRSCM	6.9 ~ 8.8	0.7 ~ 0.9	5.1 ~ 6.5
Front Impact Sensor (FIS) Mounting nut	6.9 ~ 8.8	0.7 ~ 0.9	5.1 ~ 6.5
Side Impact Sensor (SIS) Mounting Bolt	6.9 ~ 8.8	0.7 ~ 0.9	5.1 ~ 6.5

## Special Service Tools

Tool(Number and Name)	Illustration	Use
Deployment tool 0957A-34100A		Airbag deployment tool
Deployment adapter 0957A-38510		Use with deployment tool. (DAB)
Deployment adapter 0957A-2E110		Use with deployment tool. (PAB)
Deployment adapter 0957A-3F100		Use with deployment tool. (SAB)
Deployment adapter 0957A-38500		Use with deployment tool. (CAB, BPT)
Dummy 0957A-38200		Simulator to check the resistance of each wiring harness
Dummy adapter 0957A-3F000		Use with dummy (SAB)

		
Dummy adapter 0957A-2G000		Use with dummy (DAB, CAB, BPT)
Dummy adapter 0957A-2E100		Use with dummy (PAB)

DAB : Driver Airbag

PAB : Passenger Airbag

SAB : Side Airbag

CAB : Curtain Airbag

BPT : Seat Belt Retractor Pretensioner

## Precautions

### General Precautions

Please read the following precautions carefully before performing the airbag system service.

Observe the instructions described in this manual, or the airbags could accidentally deploy and cause damage or injuries.

- Except when performing electrical inspections, always turn the ignition switch OFF and disconnect the negative cable from the battery, and wait at least three minutes before beginning work.

#### NOTE

The contents in the memory are not erased even if the ignition switch is turned OFF or the battery cables are disconnected from the battery.

- Use the replacement parts which are manufactured to the same standards as the original parts and quality. Do not install used SRS parts from another vehicle. Use only new parts when making SRS repairs.
- Carefully inspect any SRS part before you install it. Do not install any part that shows signs of being dropped or improperly handled, such as dents, cracks or deformation.



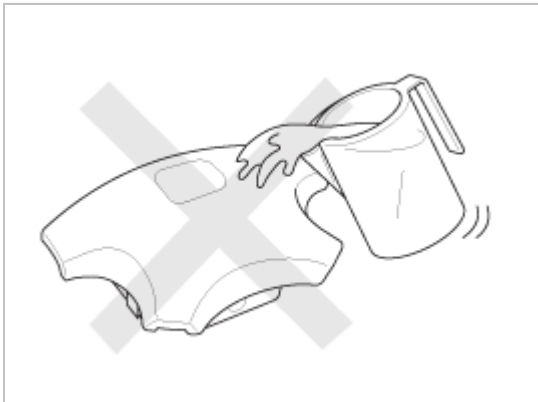
- Before removing any of the SRS parts (including the disconnection of the connectors), always disconnect the SRS connector.

### Airbag Handling and Storage

Do not disassemble the airbags; it has no serviceable parts. Once an airbag has been deployed, it cannot be repaired or reused.

For temporary storage of the air bag during service, please observe the following precautions.

- Store the removed airbag with the pad surface up.
- Keep free from any oil, grease, detergent, or water to prevent damage to the airbag assembly.



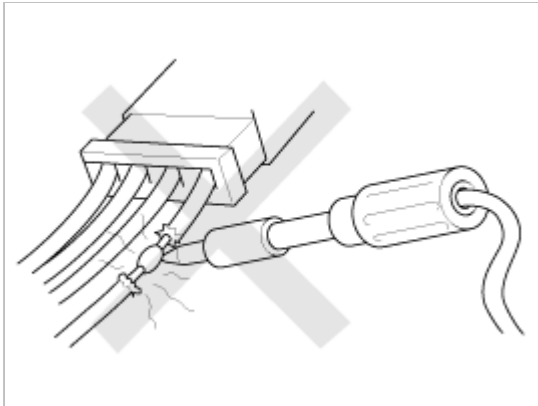
- Store the removed airbag on secure, flat surface away from any high heat source (exceeding 85 C/185 F).
- Never perform electrical inspections to the airbags, such as measuring resistance.

- Do not position yourself in front of the airbag assembly during removal, inspection, or replacement.
- Refer to the scrapping procedures for disposal of the damaged airbag.
- Be careful not to bump or impact the SRS unit or the side impact sensors or front impact sensors whenever the ignition switch is ON, wait at least three minutes after the ignition switch is turned OFF before begin work.
- During installation or replacement, be careful not to bump (by impact wrench, hammer, etc.) the area around the SRS unit and the side impact sensor and the front impact sensors. The airbags could accidentally deploy and cause damage or injury.
- Replace the front airbag module, SRSCM, FIS when deploying the front airbag. Replace the airbag wiring when the airbag wiring get damaged. Replace the side airbag module, the curtain airbag module, SRSCM, SIS when deploying the side airbag. Replace the airbag when the airbag wiring get damaged.
- After a collision in which the airbags or the side air bags did not deploy, inspect for any damage or any deformation on the SRS unit and the side impact sensors. If there is any damage, replace the SRS unit, the front impact sensor and/or the side impact sensors.
- Do not disassemble the SRS unit, the front impact sensor or the side impact sensors.
- Turn the ignition switch OFF, disconnect the battery negative cable and wait at least three minutes before beginning installation or replacement of the SRS unit.
- Be sure the SRS unit, the front impact sensor and side impact sensors are installed securely with the mounting bolts.
- Do not spill water or oil on the SRS unit, or the front impact sensor or the side impact sensors and keep them away from dust.
- Store the SRS unit, the front impact sensor and the side impact sensors in a cool (15 ~ 25 C/ 59 ~ 77 F) and dry (30 ~ 80% relative humidity, no moisture) area.

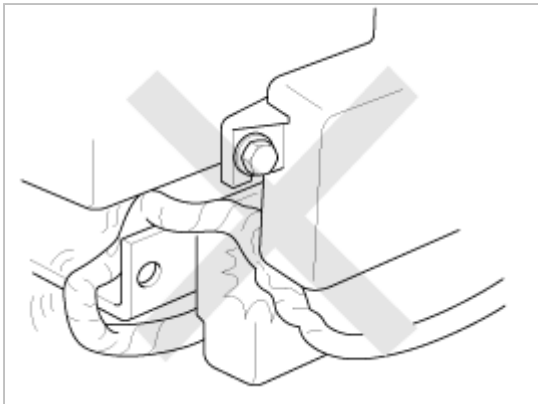
## Wiring Precautions

SRS wiring can be identified by special yellow outer covering. Observe the instructions described in this section.

- Never attempt to modify, splice, or repair SRS wiring. If there is an open or damage in SRS wiring, replace the harness.



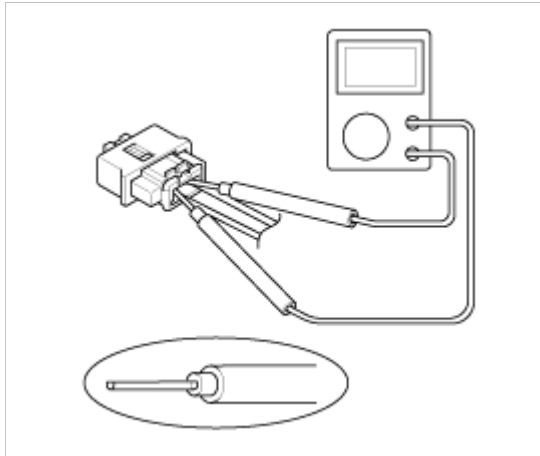
- Be sure to install the harness wires so that they are not pinched, or interfere with other parts.



- Make sure all SRS ground locations are clean, and grounds are securely fastened for optimum metal-to-metal contact. Poor grounding can cause intermittent problems that are difficult to diagnose.

## Precautions for Electrical Inspections

- When using electrical test equipment, insert the probe of the tester into the wire side of the connector.  
Do not insert the probe of the tester into the terminal side of the connector, and do not tamper with the connector.



- Use a u-shaped probe. Do not insert the probe forcibly.
  - Use specified service connectors for troubleshooting.
- Using improper tools could cause an error in inspection due to poor metal contact.

## Spring-laded Lock Connector

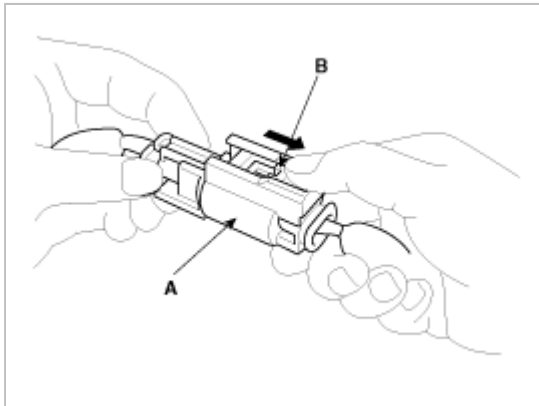
Some SRS system connectors have a spring-loaded lock.

### Airbag Connector

#### Disconnecting

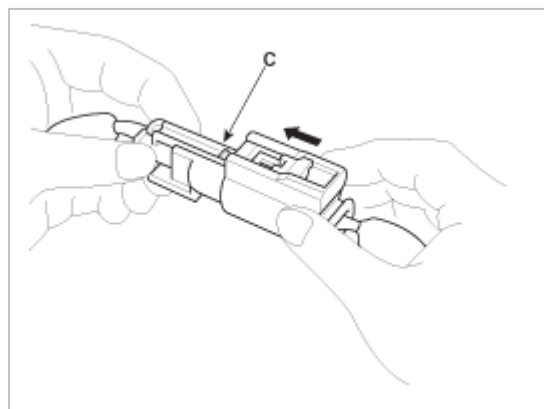
To release the lock, pull the spring-loaded sleeve (A) and the slider (B), while holding the opposite half of the connector.

Pull the connector halves apart. Be sure to pull on the sleeve and not on the connector half.



#### Connecting

Hold both connector halves and press firmly until the projection (C) of the sleeve-side connector clicks to lock.





## Warning Lamp Activation

### Warning lamp behavior after ignition ON

As soon as the operating voltage is applied to the SRSCM ignition input, the SRSCM activates the warning lamp for a bulb check.

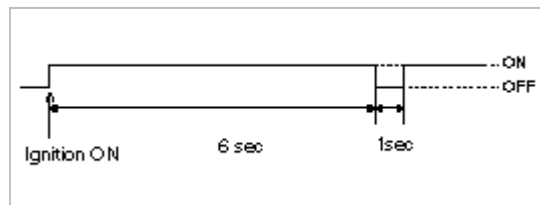
The lamp shall turn on for 6 seconds during the initialization phase and be turned off afterward.

However, in order to indicate the driver, the warning lamp shall turn on for 6 seconds and off for one second then on continuously after the operating voltage is applied if any active fault exists.

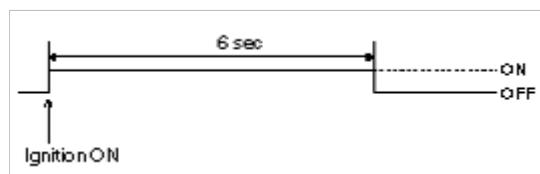
If the variant coding is not performed, the airbag warning lamp is turned on for 4 seconds and the is blinking after IG ON.

If the variant coding is normally performed, the airbag warning lamp normally operates.

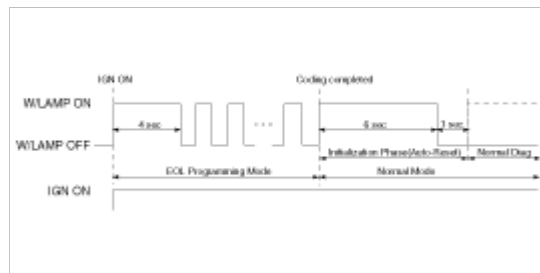
1. Active fault or historical fault counter is greater or equal to 10



2. Normal or historical fault counter is less than 10.



3. SRSCM Variant Coding not performed.



## SRSCM Independent warning lamp activation

There are certain fault conditions in which the SRSCM cannot function and thus cannot control the operation of the standard warning lamp. In these cases, the standard warning lamp is directly activated by appropriate circuitry that operates independently of the SRSCM. These cases are:

1. Loss of battery supply to the SRSCM : warning lamp turned on continuously.
2. Loss of internal operating voltage : warning lamp turned on continuously.
3. Loss of Microprocessor operation : warning lamp turned on continuously.
4. SRSCM not connected : warning lamp turned on continuously through the shorting bar.

## Telltale Lamp Activation

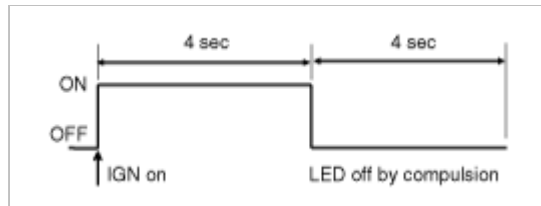
The Telltale Lamp indicates the Passenger Airbag(PAB) enabled and disabled status based on occupant status of passenger seat. If the passenger seat is empty or occupied with child (or child seat), the Passenger Airbag is disabled and the Telltale Lamp is turned ON to inform the driver that the PAB is disabled. As soon as operating voltage is applied to the SRSCM ignition input, the SRSCM activates telltale lamp prove out. OCS will send an defect status to the SRSCM as a default setting for passenger airbag deployment during the prove out period. Occupant status information and telltale status are as below table.

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Occupant Status	Telltale Lamp	PAB
Empty	ON	Disabled
Child (Small Occupant)	ON	Disabled
Adult (Large Occupant)	OFF	Enabled
Defect	OFF	Enabled

After ignition on, telltale lamp will turn on for 4 seconds and turn off for 4 seconds during the initialization phase and be turned off afterward until receipt of first valid suppression message from OCS system.

It is possible to turn off the telltale lamp when the larger child than 6 years old sits on the passenger side seat.



## Component Replacement after Deployment

### NOTE

Before doing any SRS repairs, use the Hi-Scan Pro to check for DTCs. Refer to the Diagnostic Trouble Code list for repairing of the related DTCs.

When the front airbag(s) deployed after a collision, replace the following items.

- SRSCM
- Deployed airbag(s)
- Seat belt pretensioner(s)
- Front impact sensors
- SRS wiring harnesses
- Inspect the clock spring for heat damage.  
If any damage found, replace the clock spring.

If any damage found, or problem to occupant detection, replace the Passenger seat with PODS system.

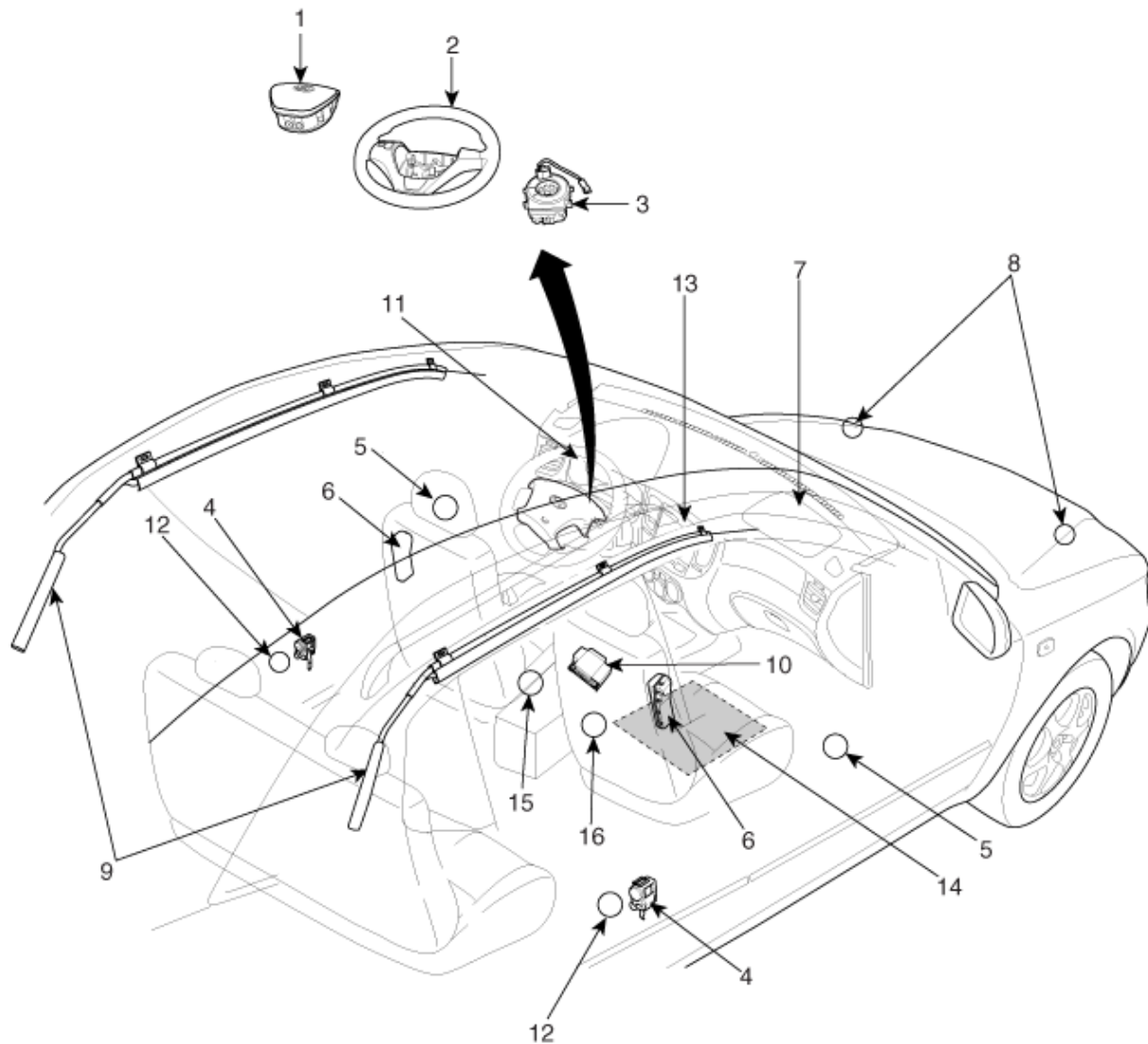
When the side/curtain airbag(s) deployed after a collision, replace the following items.

- SRSCM
- Deployed airbag(s)
- Side impact sensor(s) for the deployed side(s)
- SRS wiring harnesses

After the vehicle is completely repaired, confirm the SRS airbag system is OK.

- Turn the ignition switch ON, the SRS indicator should come on for about 6 seconds and then go off.

## Components



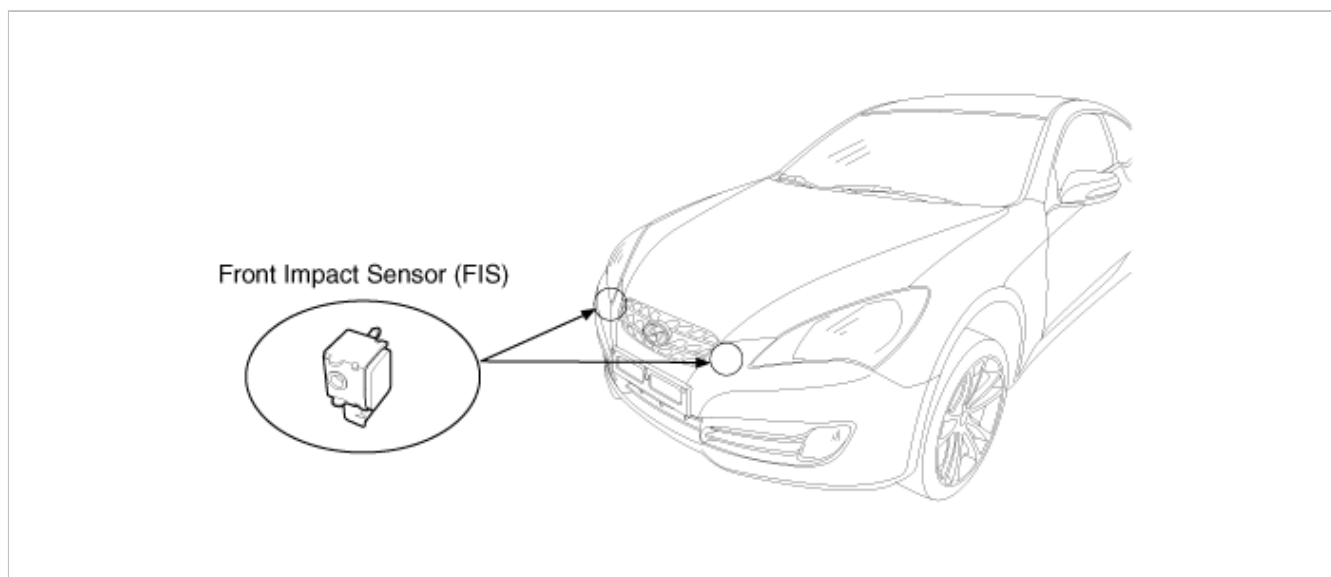
- |                                 |  |
|---------------------------------|--|
| 1. Driver Airbag (DAB)          | 9. Curtain Airbag (CAB)                                  |
| 2. Steering Wheel               | 10. Supplemental Restraint System Control Module (SRSCM) |
| 3. Clock Spring                 | 11. Airbag Warning Lamp                                  |
| 4. Seat Belt Pretensioner (BPT) | 12. Side Impact Sensor (SIS)                             |
| 5. Side Pressure Sensor (P-SIS) | 13. Telltale Lamp  |
| 6. Side Airbag (SAB)            | 14. Passenger Occupant Detecting System (PODS)           |
| 7. Passenger Airbag (PAB)       | 15. Seat Belt Buckle Switch                              |
| 8. Front Impact Sensor (FIS)    | 16. Seat Belt Buckle switch & Belt tension sensor        |

## Components Location

### Supplemental Restraint System Control Module (SRSCM)



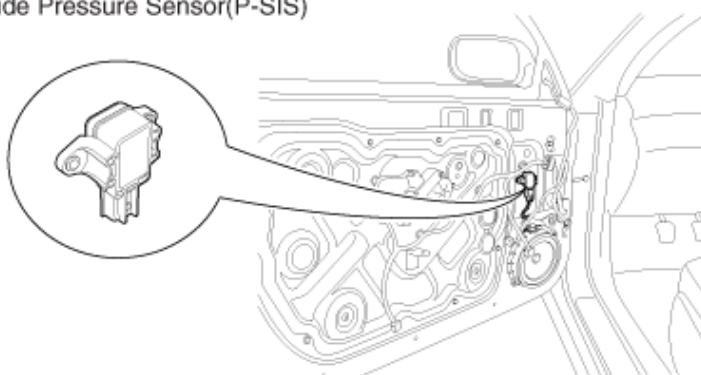
**Front Impact Sensor (FIS)**



**Side Impact Sensor (SIS)**

[Front]

Side Pressure Sensor(P-SIS)



[Rear]

Side Impact Sensor (SIS)

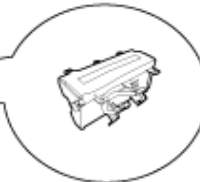


### Driver Airbag (DAB) / Passenger Airbag (PAB)

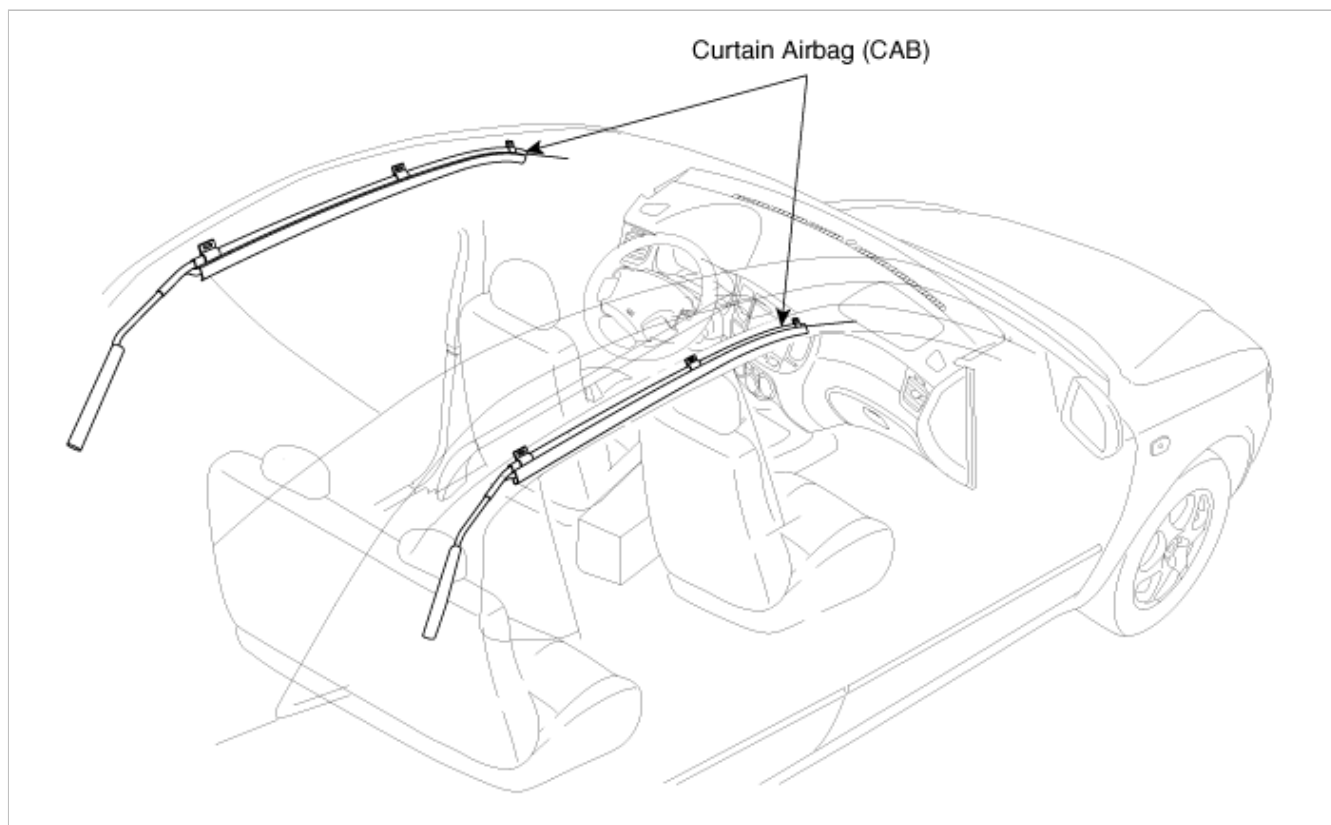
Driver Airbag(DAB)



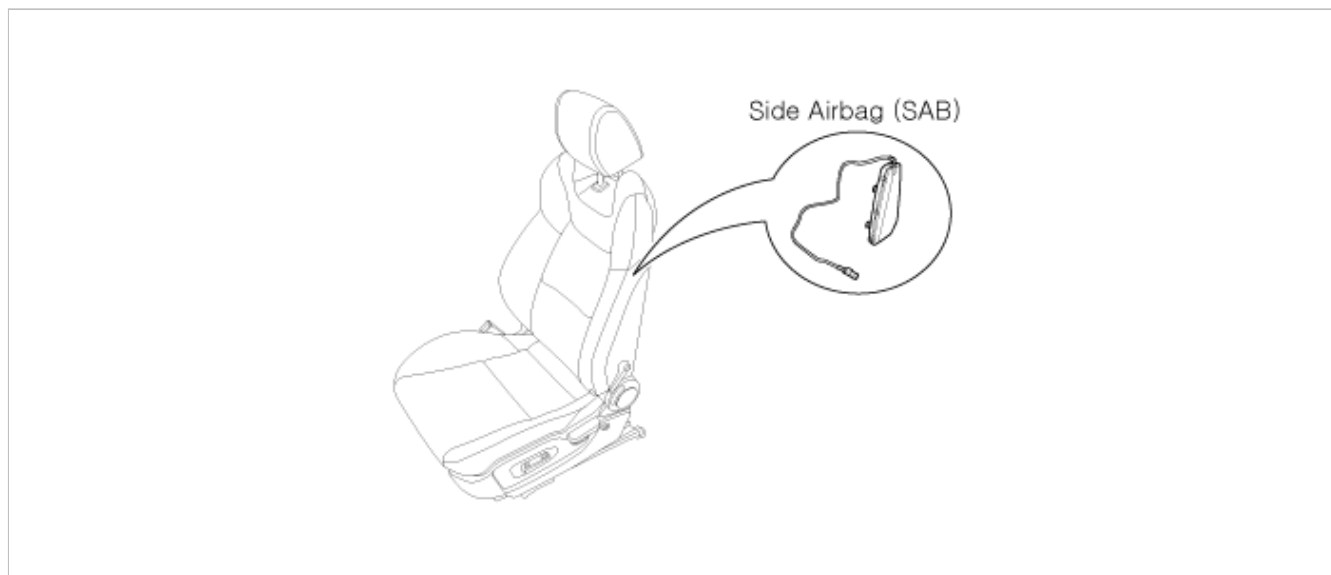
Passenger Airbag(PAB)



### Curtain Airbag (CAB)



**Side Airbag (SAB)**



**Seat Belt Pretensioner (BPT)**

Seat Belt Pretensioner (BPT)

