Safety Precaution

Precautions to take before servicing high voltage system

DANGER

- Since hybrid vehicles contain a high voltage battery, if the high voltage system or vehicles are handled incorrectly, this might lead to a serious accidents like electric shock and electric leakage.

WARNING

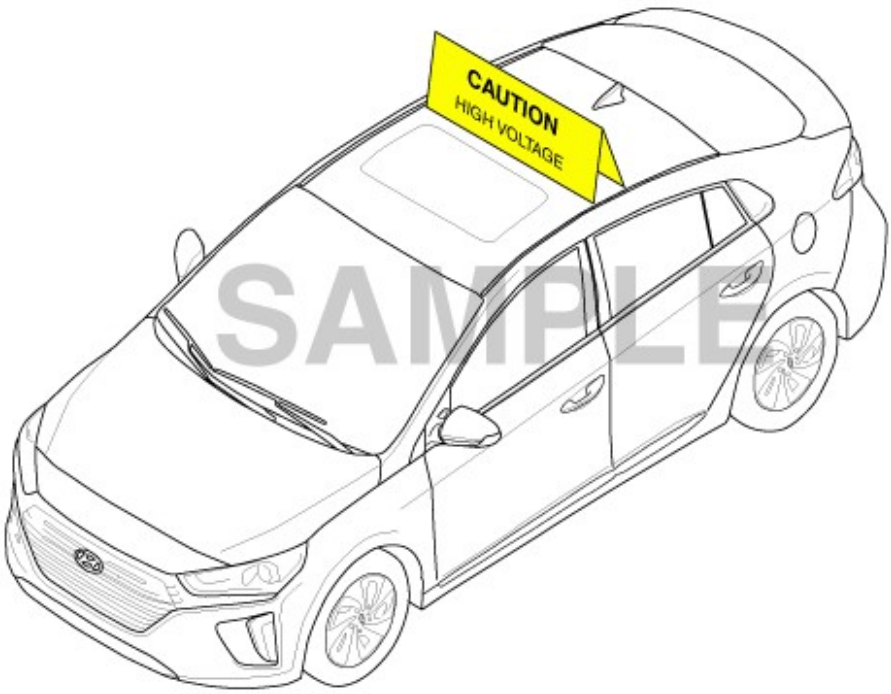
- Be sure to shut off the high voltage by removing the safety plug before performing inspection or repairing the high voltage system. (Refer to "High Voltage Shut-off Procedures")
- The responsible worker keeps the removed safety plug to prevent the plug from being connected by mistake.
- Do not keep any metal objects (watch, ring etc.) while working on the high voltage system, which it can cause serious accidents like electric shock.
- Before beginning work on the high voltage system, the worker should wear personal protective equipment to prevent safety accidents. (Refer to "Personal Protective Equipment")
- Never allow workers who are not wear personal protective equipment to touch the high voltage system. High voltage components should be covered with an insulation sheet to prevent safety accidents.
- Use insulation tools when working on the high voltage system.
- Put the removed high voltage components on the insulation mat.

Information

- All the high voltage wiring and connectors are orange.
- A caution label for high voltage is attached to the high voltage components.
- High voltage components :
  High Voltage Battery Pack Assembly, Power Relay Assembly (PRA), BMS ECU, Hybrid Power Control Unit (HPCU), Hybrid Drive Motor, HSG, Electric A/C Compressor, Low DC/DC Converter (LDC), Power Cable, Electric Compressor etc.

CAUTION

- Inform of danger of high voltage by putting the "high voltage caution" on the vehicle as image below.



SAMPLE

DANGER

High Voltage : Do not touch during operation.

Person in charge : _____

Copy this page and put it after folding on the roof of the vehicle in service.

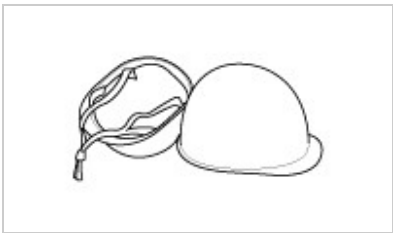
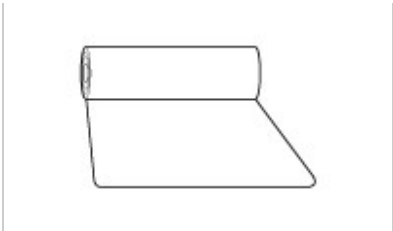
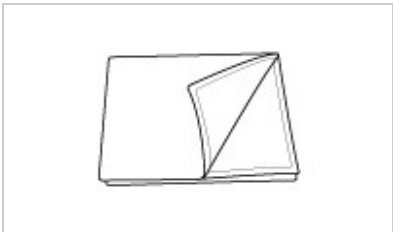
DANGER

High Voltage : Do not touch during operation.

Person in charge : _____

Personal Protective Equipment

Name	Illustration	Description
Insulation glove		Used when inspecting or working on the high voltage components [Insulation performance : 1000V / 300A or above]
Insulation shoes		Used when inspecting or working on the high voltage components
Insulation clothes		

Insulation helmet		
Safety glasses		Used in the case below • During Removal & installation or inspection of the high voltage battery terminals or wiring, which spark might happen. • During working on the high voltage battery pack assembly.
Face shield		
Insulation mat		Putting the removed high voltage components on the insulation mat to prevent safety accidents.
Insulation sheet		Covering the high voltage components with insulation sheet to prevent people who don’t wear the personal protective equipment from safety accidents.

Precautions to take when handling power cable

- Immediately insulate the high voltage terminal after reconnecting the terminal (use insulation tape).
- Tighten the high voltage terminal screw to spec torque.
- Be careful that (+) and (-) terminals do not come in contact when connecting or disconnecting power cable and busbar.

Precautions to take when handling high voltage battery

- When transporting high voltage battery, be sure to keep it flat and leveled. Failure to do so may decrease the battery performance and/or its life-span.
- High voltage battery''s performance may decrease if it is exposed to high temperature for a lengthy period. As a result, heat-treatment after painting must not exceed 70°C/ 30 minutes, or 80°C/ 20 minutes.

Precautions in case of fire on high voltage battery system

- If the fire occurs indoor, ventilate the area to let out hydrogen gas.
- ACB fire extinguisher is recommended for putting out the fire. (water may also be used).

Precautions in case of high voltage battery gas or electrolyte leakage

- Turn OFF the Start button. Keep the Smart Key at least 2 meters away from the vehicle to prevent unintended engine start.
- Gas is hydrogen and alkaline vapor. If the leakage is indoor, ventilate the area immediately and evacuate to a safe location.

- If the leaked liquid comes in contact with skin, immediately neutralize the affected area with boric acid solution, then clean with tap water or saline solution.
- If the leaked vapor or liquid gets in the eye, immediately clean the affected eye with water then get medical attention.
- If the gas leakage is caused by high temperature, then do NOT use the battery until the high voltage battery fully cools down to room temperature.

Precautions when handling the vehicle after an accident

- Be sure to wear insulated gloves (or rubber gloves), protective goggles, insulated suite, and insulated boots.
- Do NOT touch bare cable under any condition.
  (Refer to "Precautions when handling power cable")
- In case of vehicle fire, put out the fire with ABC extinguisher. Do NOT use water (usage of large volume of water is okay, but small volume can worsen the situation).
- If more than half of the vehicle is submerged, then do NOT go near the Safety Switch or other high voltage related components. If such a component must be accessed, then move the vehicle to the safe location first before handling the component.
- Gas is hydrogen and alkaline vapor. If the leakage is indoor, ventilate the area immediately and evacuate to a safe location.
- If the leaked liquid comes in contact with skin, immediately neutralize the affected area with boric acid solution, then clean with tap water or saline solution.
- Refer to "High voltage cut-off procedure" if the high voltage needs to be cut off.

Preparations when servicing the accident vehicle

- Be sure to wear insulated gloves (or rubber gloves), protective goggles, insulated suite, and insulated boots.
- Boric Acid Power or Solution
- ABC Extinguisher
- Towel for cleaning electrolyte
- Vinyl tape (for insulating terminal)
- Mega ohm tester (for checking high voltage)

Precautions in case HEV is left unattended for a lengthy period

- Turn OFF the Start button. Keep the Smart Key at least 2 meters away from the vehicle to prevent unintended engine start.
- We recommend that HEV is driven at least 1 time for over 30 minutes every 2 months to protect and manage the high voltage battery (inquire at relevant team in HMC).
- When inspecting or exchanging the auxiliary battery, check high voltage battery SOC reset related problems.

Hybrid Vehicle Refrigerant Recovery / Charging Precautions

- Since the electric compressor uses high-voltage, you should use POE oil which have high Volumetric Resistivity.
- Do not use the same A/C recovery / charging station as conventional belt-driven compressors.

WARNING

- If the POE oil of the system gets mixed with PAG oil, then dielectric breakdown due to decreased volumetric Resistivity can occur and inoperative A/C compressor may result, A/C compressor may not work

Restraint

High Voltage Shut-off Procedures

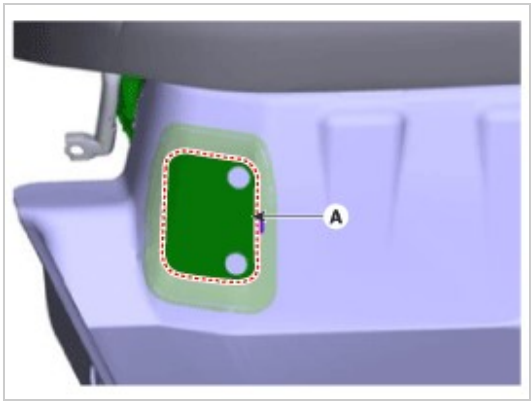
WARNING

- Be sure to read and follow the "General Safety Information and Caution" before doing any work related with the high voltage system. Failure to follow the safety instructions may result in serious electrical injuries.
- Be sure to read and follow the "High Voltage Shut-off Procedures" before doing any work related with the high voltage system. Failure to follow the safety instructions may result in serious electrical injuries.

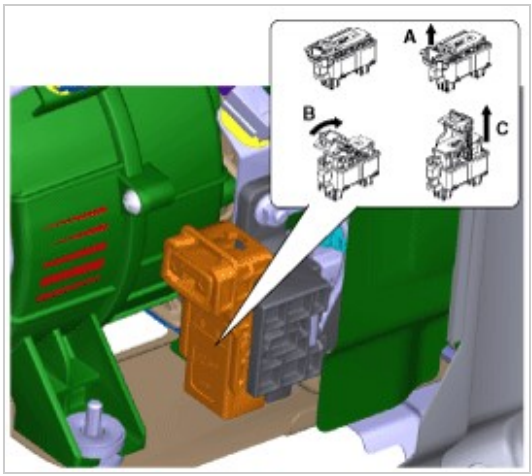
Information

- High voltage components :
  High Voltage Battery Pack Assembly, Power Relay Assembly (PRA), BMS ECU, Hybrid Power Control Unit (HPCU), Hybrid Drive Motor, HSG, Electric A/C Compressor, Low DC/DC Converter (LDC), Power Cable, Electric Compressor etc.

1. Turn the ignition switch OFF and disconnect the auxiliary 12V battery negative (-) terminal.
2. Remove the safety plug cover (A).



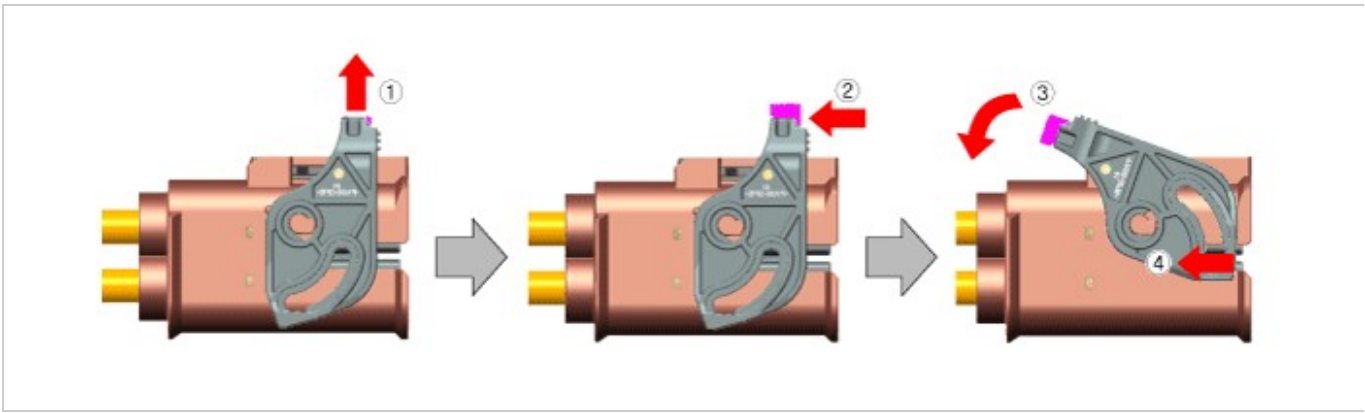
3. Unfasten the hook (A) and then remove the safety plug (C) by pulling the lever (B) to the direction of arrow.



4. Wait for more than 5 minutes so that the capacitor in the high voltage system can be fully discharged.
5. Measure the voltage between the inverter terminals to check that the capacitor in the inverter is discharged completely.
   (1) Remove air cleaner assembly and air duct.
   (Refer to Engine Mechanical System - "Air Cleaner")
   (2) Disconnect the inverter power cable (A).

Information

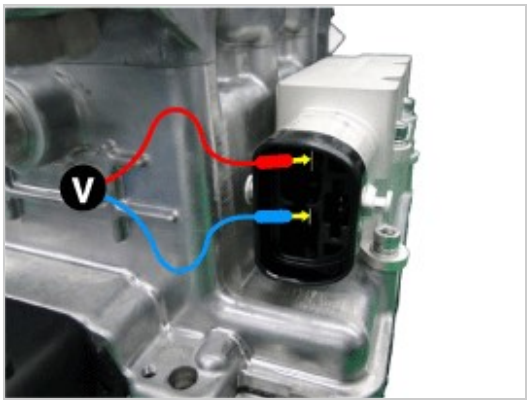
- Disconnect the inverter power cable as the procedures below.

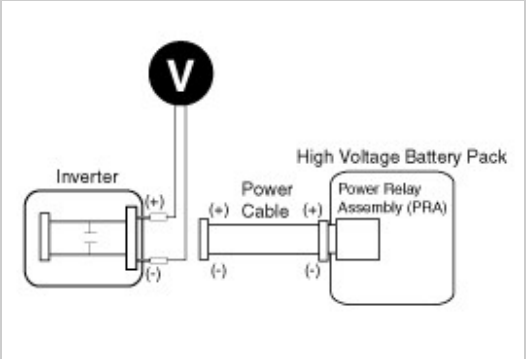


(3) Measure the voltage between the inverter (+) terminal and the inverter (-) terminal.

Less than 30V : High voltage circuit properly shut

More than 30V : Fault on high voltage circuit





WARNING

- If measured more than 30V, check if the safety plug is removed completely.If measured more than 30V despite the safety plug is removed, there can be serious problems on the high voltage circuit. In this case, check DTC and never touch the high voltage system circuits.

Restraint

General Information

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 sensors and internal acceleration sensors inside of SRSCM. For side impact, SRSCM will detect the side impact with 4 side impact sensors, 2 conventional acceleration sensors in Center pillar inner locations and 2 pressure sensing sensors in side of front door module, and internal acceleration sensor inside of SRSCM.

SRSCM is designed to issue corresponding airbag module(s) deployment(s) using above described sensor inputs.

1. DC/DC converter : DC/DC converter in power supply unit includes up/down transformer converter, and provides ignition voltage for all firing circuits, implemented as ASICs and the internal operation voltage of the SRSCM itself. 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 GDS.
4. Airbag warning lamp on: Upon detecting error, the module will transmit signal to SRSCM indicator lamp located at cluster. MIL lamp will indicat to the driver that there is an 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 GDS. However, if an internal fault code is active or if a crash is recorded the fault clearing cannot be performed.
6. Self diagnostic connector: Data stored in SRSCM memory will be output to GDS or other external output devices through a connector located below driver side crash pad.
7. Once airbag is deployed, SRSCM should not be used again but replaced.
8. SRSCM will determine whether passenger fasten the seat belt by the signal from built-in switch in seat belt buckle, and deploy front seat airbag at each set crash speed.
9. Side airbag deployment will be determined by SRSCM that will detect satellite sensor impact signal upon side crash, irrespective to seat belt condition.

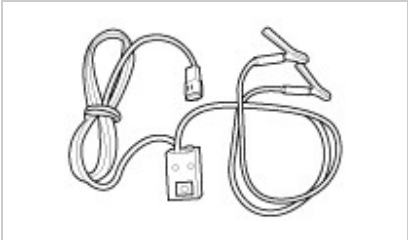
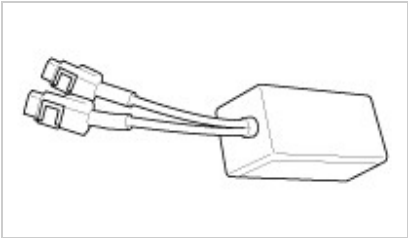
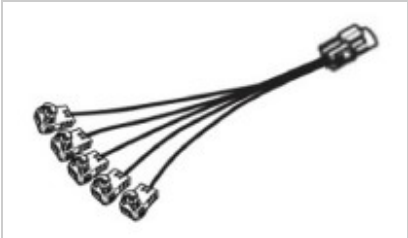
Specification

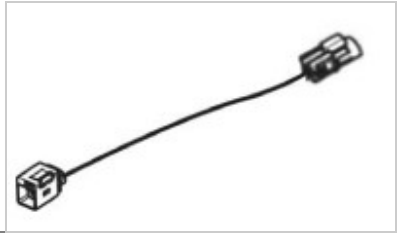
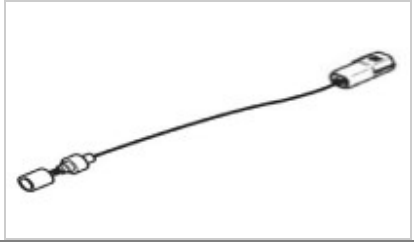
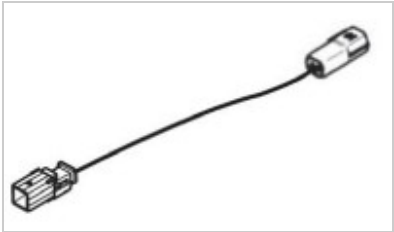
Item	Resistance (Ω)
Driver Airbag (DAB)	2.0 - 6.0
Passenger Airbag (PAB)	1.6 - 6.0
Knee Airbag (KAB)	1.6 - 6.0
Side Airbag (SAB)	1.6 - 6.0
Curtain Airbag (CAB)	1.6 - 6.0
Seat Belt Pretensioner (BPT)	1.6 - 6.0
Emergency Fastening Device (EFD)	1.6 - 6.0

Tightening Torques

Item	N.m	kgf.m	lb-ft
Passenger Air Bag	3.9 - 5.9	0.4 - 0.6	2.9 - 4.3
Curtain Air Bag	7.8 - 11.8	0.8 - 1.2	5.8 - 8.7
Side Air Bag	5.9 - 7.8	0.6 - 0.8	4.3 - 5.8
Knee Airbag (KAB)	7.8 - 11.8	0.8 - 1.2	5.8 - 8.7
Emergency Fastening Device	39.2 - 53.9	4.0 - 5.5	28.9 - 39.8
Seat Belt Retractor Pretensioner	39.2 - 53.9	4.0 - 5.5	28.9 - 39.8
Supplemental Restraint System Control Module	7.8 - 9.8	0.8 - 1.0	5.8 - 7.2
Front Impact Sensor	7.8 - 9.8	0.8 - 1.0	5.8 - 7.2
Pressure Side Impact Sensor	2.0 - 2.9	0.2 - 0.3	1.4 - 2.2
Gravity Side Impact Sensor	7.8 - 9.8	0.8 - 1.0	5.8 - 7.2

Special Service Tools

Tool (Number and Name)	Illustration	Use
Deployment tool 0957A-34100A		Airbag deployment tool. Use with (0957A-AL140, 0957A-AL160)
Dummy 0957A-38200		Simulator to check the resistanceof each wiring harness. Use with (0957A-AL170, 0957A-AL190)
Airbag deployment & dummy adapter kit 0957A-AL100		Use with airbag deployment and airbag inspection
Deployment adapter 0957A-AL140		Use with deployment tool. (0957A-34100A) (DAB, PAB, CAB, BPT, EFD)
Deployment adapter 0957A-AL160		Use with deployment tool. (0957A-34100A) (SAB, KAB)

		
Dummy adapter 0957A-AL170		Use with dummy (0957A-38200) (DAB, PAB, CAB, BPT, EFD)
Dummy adapter 0957A-AL190		Use with dummy (0957A-38200) (SAB, KAB)

DAB : Driver Airbag
PAB : Passenger Airbag
SAB : Side Airbag
CAB : Curtain Airbag
KAB : Knee Air Bag
BPT : Seat Belt Pretensioner
EFD : Emergency fastening Device

Restraint

Precautions

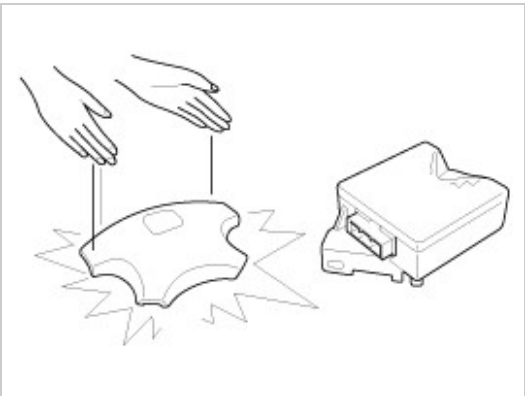
General Precautions

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.

NOTICE
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 SRSCM parts (including the disconnection of the connectors), always disconnect the SRSCM 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.

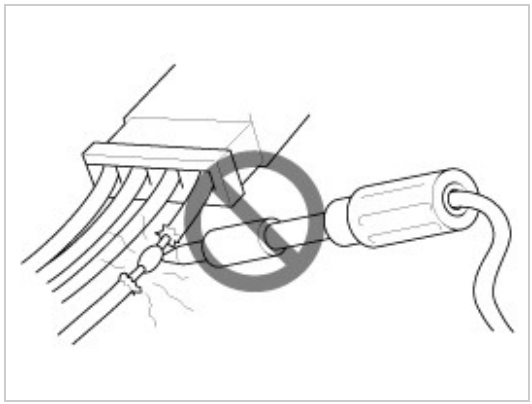
- Store the removed airbag with the pad surface up.
- Keep free from any oil, grease, detergent, or water to prevent damage to the airbag assembly.

- 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 the front airbag is deployed. 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.

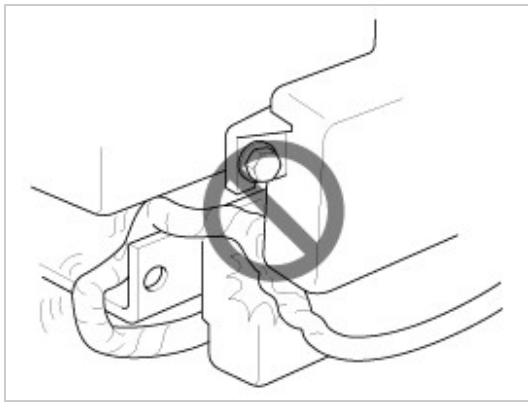
Wiring Precautions

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.



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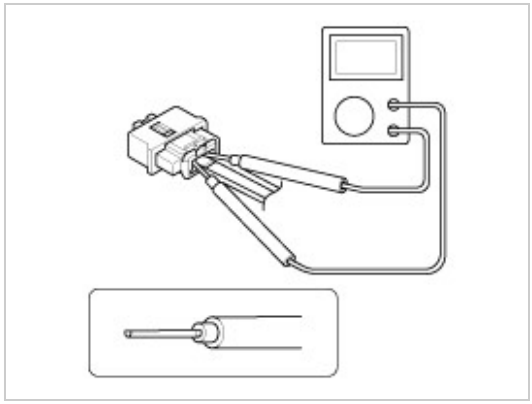
Make sure all SRS ground locations are clean, and grounds are securely fastened for optimum metal-to-metal contact. Poor grounding can cause intermittent problems that are difficult to diagnose.

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.

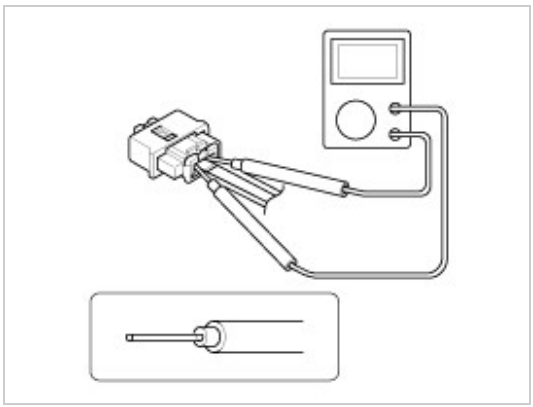
Spring-loaded Lock Connector

Some SRS system connectors have a spring-loaded lock.

Airbag Connector

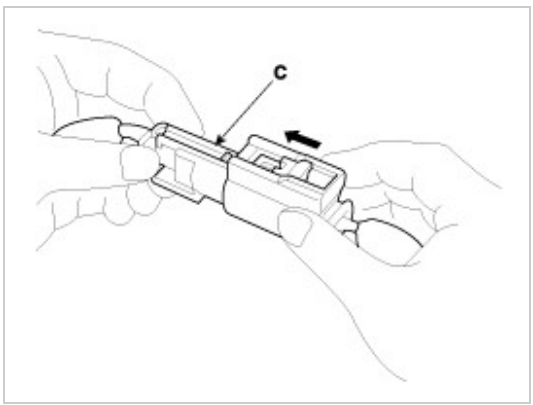
Disconnecting

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.



Restraint

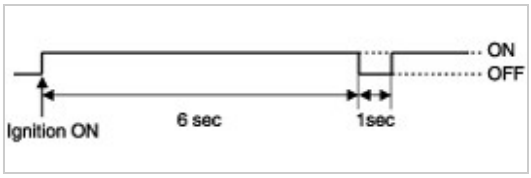
Warning Lamp Activation

Warning Lamp Behavior after Ignition On

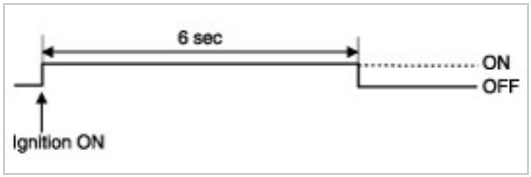
As soon as the operating voltage is applied to the SRSCM ignition input, the SRSCM activates the warning lamp for a LED lamp check.
The lamp shall turn on for 6 seconds during the initialization phase and be turned off afterward.

To alert 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.

1. Active fault.



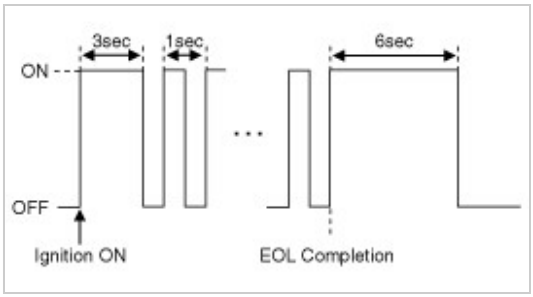
2. Normal or historical fault only exist.



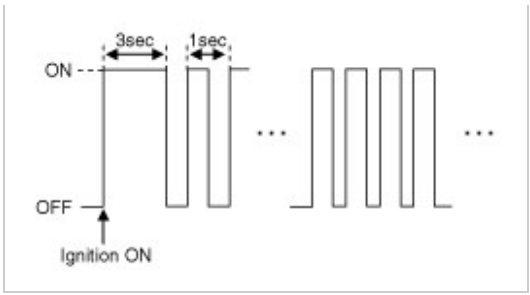
3. When turning the ignition switch ON during variant coding (EOL) mode, the airbag warning lamp is turned on and blinks at intervals of 1 second till the coding is completed.

   If the variant coding is completed normally, the airbag warning lamp will turn on for 6 seconds, and then turned off. Otherwise the airbag warning lamp continuously blinks at intervals of 1 second.

   (1) In case the variant coding is normally completed



   (2) In case the variant coding is not completed



   When there is active fault in airbag system or SRSCM internal fault, the variant coding (EOL) cannot be completed. In this case, perform the variant coding (EOL) procedure again after troubleshooting with the GDS.

SRSCM Independent Warning Lamp Activation

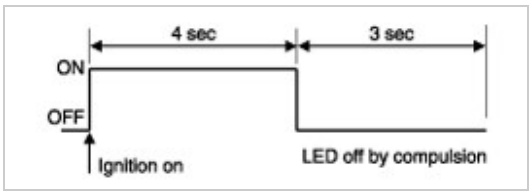
There are certain fault conditions in which the SRSCM cannot function and thus cannot control the operation of the standard warning lamp. In these cases, the standard warning lamp is directly activated by appropriate circuitry that operates independently of the SRSCM. These cases are:

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.

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 (Occupant Classification System) will send an indeterminate status to the SRSCM as a default setting for passenger airbag deployment during the prove out period.

After ignition on, telltale lamp will turn on for 4 seconds and turn off for 3 seconds during the initialization phase and be turned NO afterward until receipt of valid enabled message from OCS (Occupant Classification System).



Component Replacement After Deployment

NOTICE

- Before doing any SRS repairs, use the GDS 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)
– Emergency fastening device(s)
– Front impact sensors
– SRS wiring harnesses
– Inspect the clock spring for heat damage.
If any damage found, replace the clock spring.

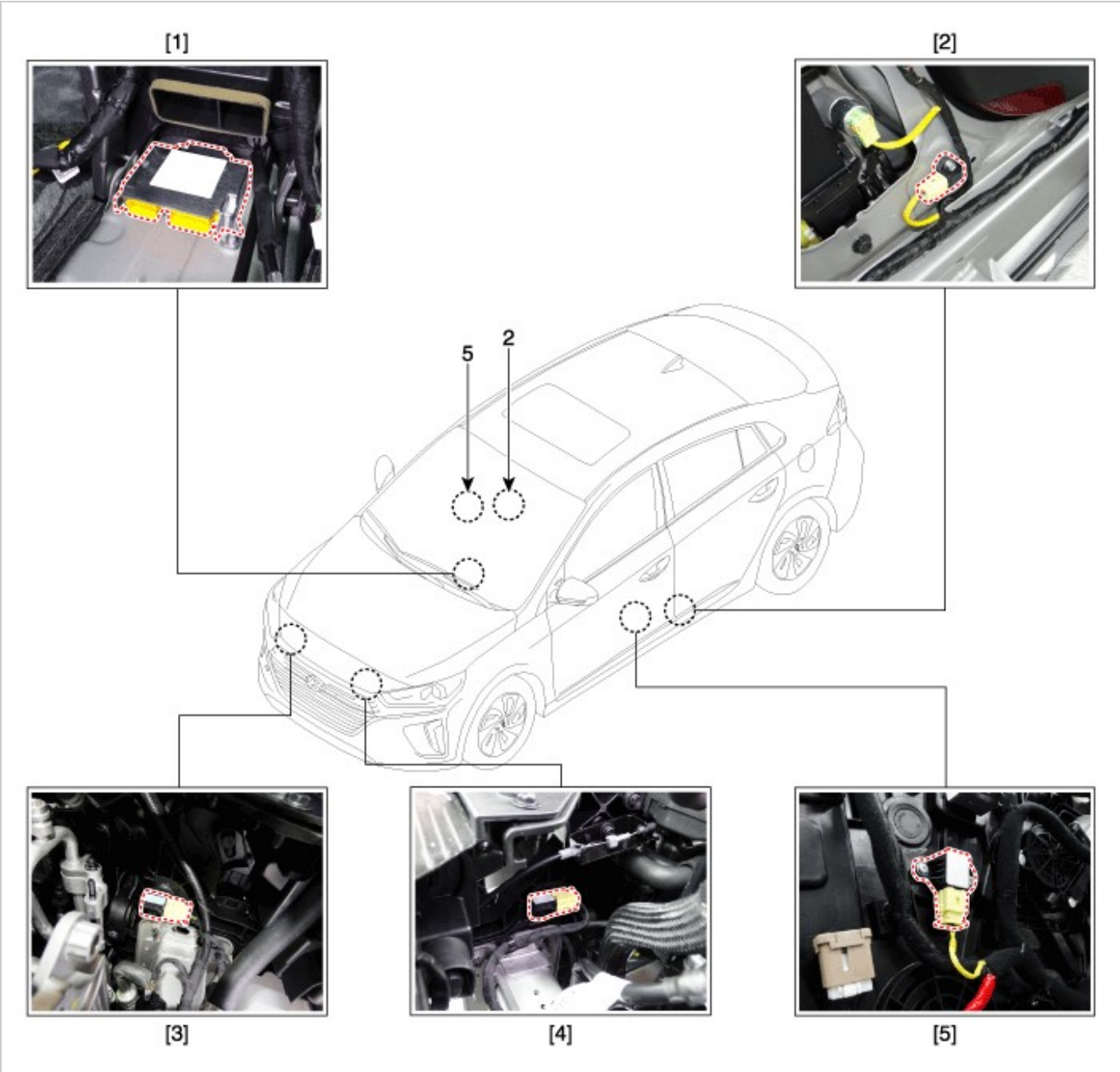
When the side/curtain airbag(s) deployed after a collision, replace the following items.

– SRSCM
– Deployed airbag(s)
– Side impact sensor(s) for the deployed side(s)
– SRS wiring harnesses
– Seat belt pretensioner(s)
– Emergency fastening device(s)

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

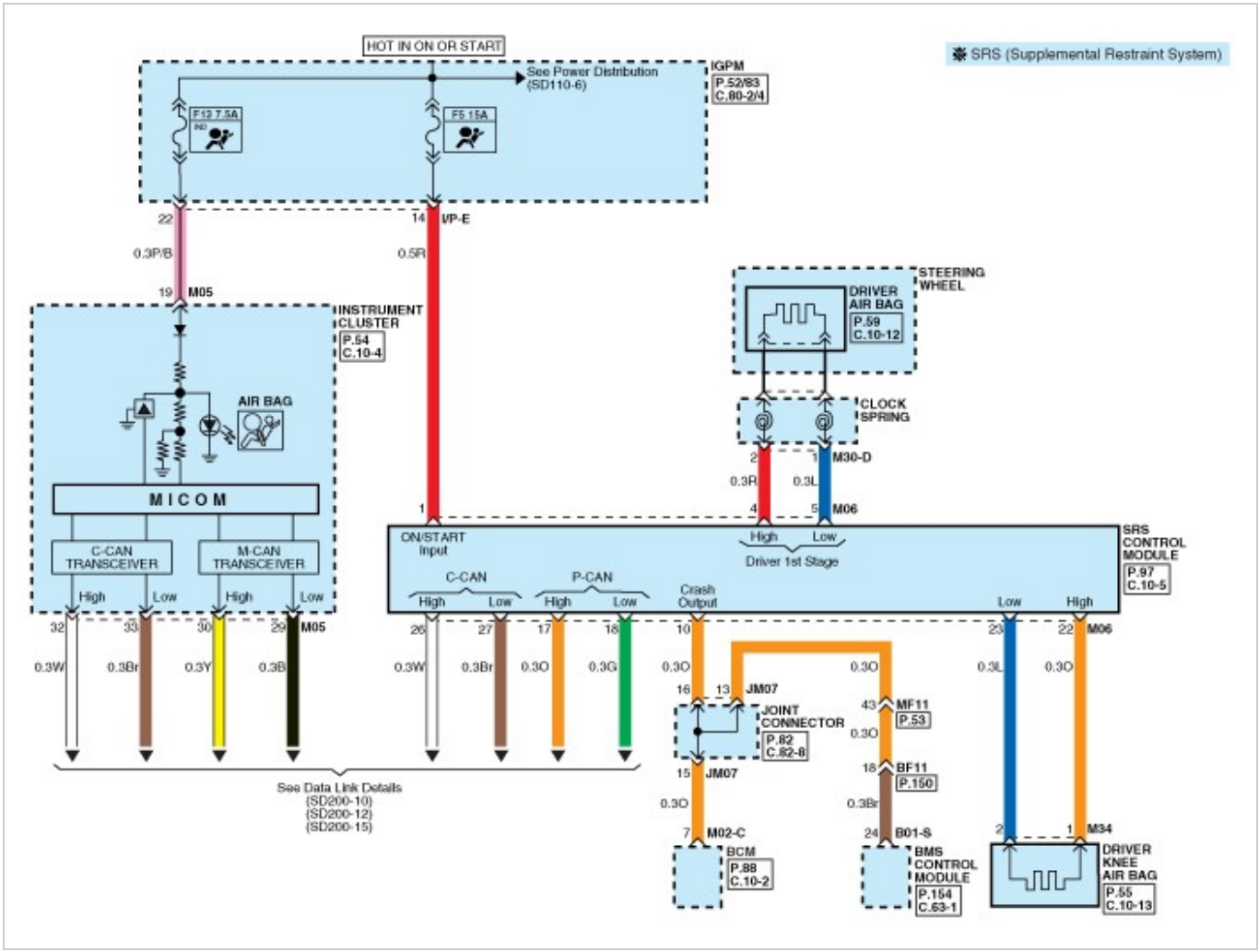
– Turn the ignition switch ON; the SRS indicator should come on for about six seconds and then go off.

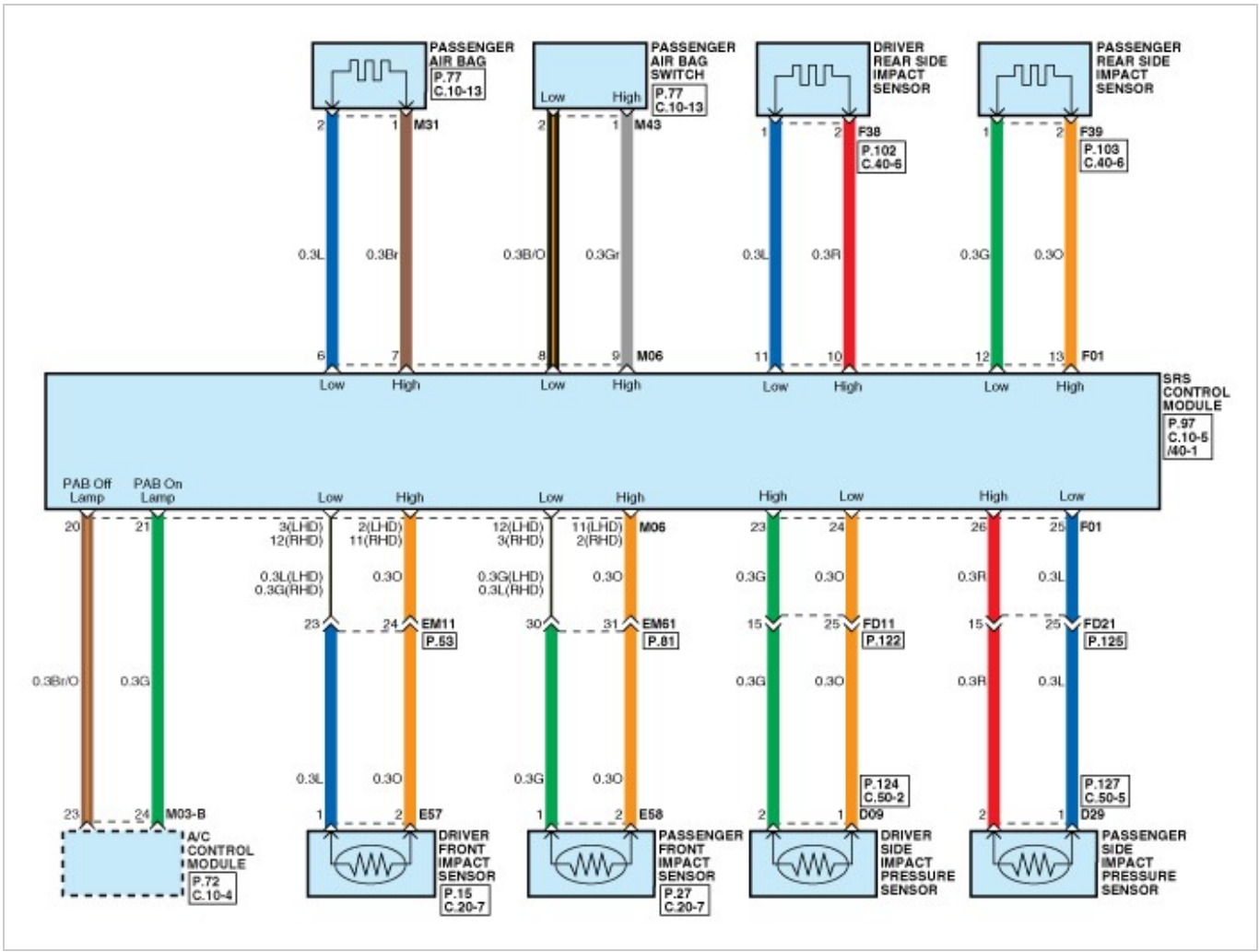
Components

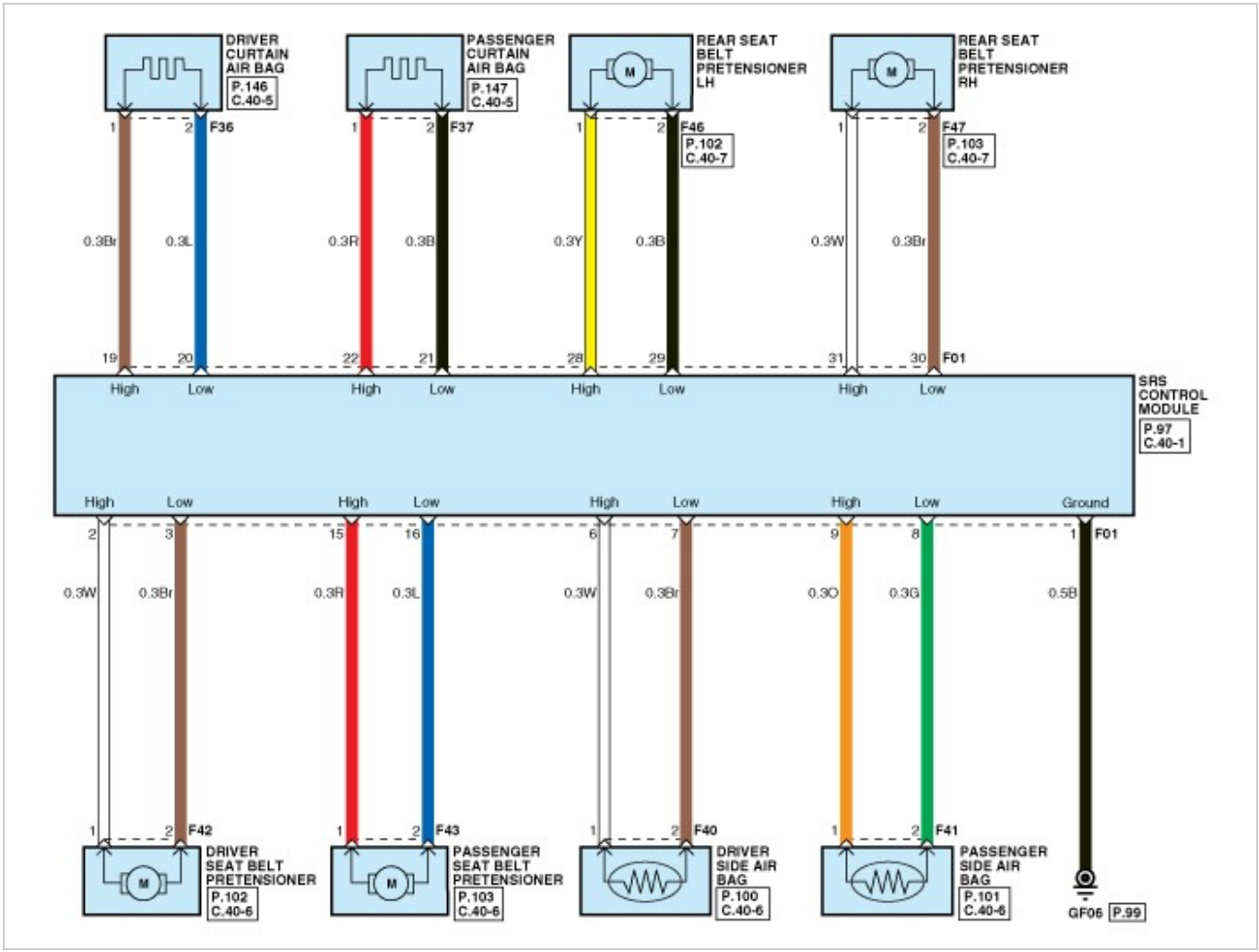


1. Supplemental Restraint System Control Module (SRSCM)
2. Pressure Side Impact Sensor (P-SIS)
3. Front right Pressure Impact Sensor (FIS)
4. Front left Pressure Impact Sensor (FIS)
5. Gravity Side Impact Sensor (G-SIS)

Circuit Diagram


HOT IN ON OR START
SRS (Supplemental Restraint System)
See Power Distribution (SD110-6)
IGPM
P.52/83
C.80-2/4
F12 7.5A
F5 15A
22
14
I/P-E
0.3P/B
0.5R
19
M05
INSTRUMENT CLUSTER
P.54
C.10-4
AIR BAG
MICOM
C-CAN TRANSCEIVER
M-CAN TRANSCEIVER
High
Low
32
33
30
29
M05
0.3W
0.3Br
0.3Y
0.3B
STEERING WHEEL
DRIVER AIR BAG
P.59
C.10-12
CLOCK SPRING
2
1
M30-D
0.3R
0.3L
4
5
M06
1
ON/START Input
High
Low
Driver 1st Stage
SRS CONTROL MODULE
P.97
C.10-5
C-CAN
P-CAN
Crash Output
26
27
17
18
10
0.3W
0.3Br
0.3O
0.3G
0.3O
16
13
JM07
JOINT CONNECTOR
P.82
C.82-8
15
JM07
0.3O
7
M02-C
BCM
P.88
C.10-2
0.3O
43
MF11
P.53
0.3O
18
BF11
P.150
0.3Br
24
B01-S
BMS CONTROL MODULE
P.154
C.63-1
23
22
M06
0.3L
0.3O
2
1
M34
DRIVER KNEE AIR BAG
P.55
C.10-13
See Data Link Details
(SD200-10)
(SD200-12)
(SD200-15)


PASSENGER AIR BAG
P.77
C.10-13
2
1
M31
0.3L
0.3Br
6
7
Low
High
PASSENGER AIR BAG SWITCH
P.77
C.10-13
Low
High
2
1
M43
0.3B/O
0.3Gr
8
9
M06
Low
High
DRIVER REAR SIDE IMPACT SENSOR
1
2
F38
P.102
C.40-6
0.3L
0.3R
11
10
Low
High
PASSENGER REAR SIDE IMPACT SENSOR
1
2
F39
P.103
C.40-6
0.3G
0.3O
12
13
F01
Low
High
SRS CONTROL MODULE
P.97
C.10-5
/40-1
PAB Off Lamp
PAB On Lamp
20
21
0.3Br/O
0.3G
23
24
M03-B
A/C CONTROL MODULE
P.72
C.10-4
Low
High
3(LHD)
12(RHD)
2(LHD)
11(RHD)
0.3L(LHD)
0.3G(RHD)
0.3O
23
24
EM11
P.53
0.3L
0.3O
1
2
E57
DRIVER FRONT IMPACT SENSOR
P.15
C.20-7
Low
High
12(LHD)
3(RHD)
11(LHD)
2(RHD)
M06
0.3G(LHD)
0.3L(RHD)
0.3O
30
31
EM61
P.81
0.3G
0.3O
1
2
E58
PASSENGER FRONT IMPACT SENSOR
P.27
C.20-7
High
Low
23
24
0.3G
0.3O
15
25
FD11
P.122
0.3G
0.3O
P.124
C.50-2
2
1
D09
DRIVER SIDE IMPACT PRESSURE SENSOR
High
Low
26
25
F01
0.3R
0.3L
15
25
FD21
P.125
0.3R
0.3L
P.127
C.50-5
2
1
D29
PASSENGER SIDE IMPACT PRESSURE SENSOR

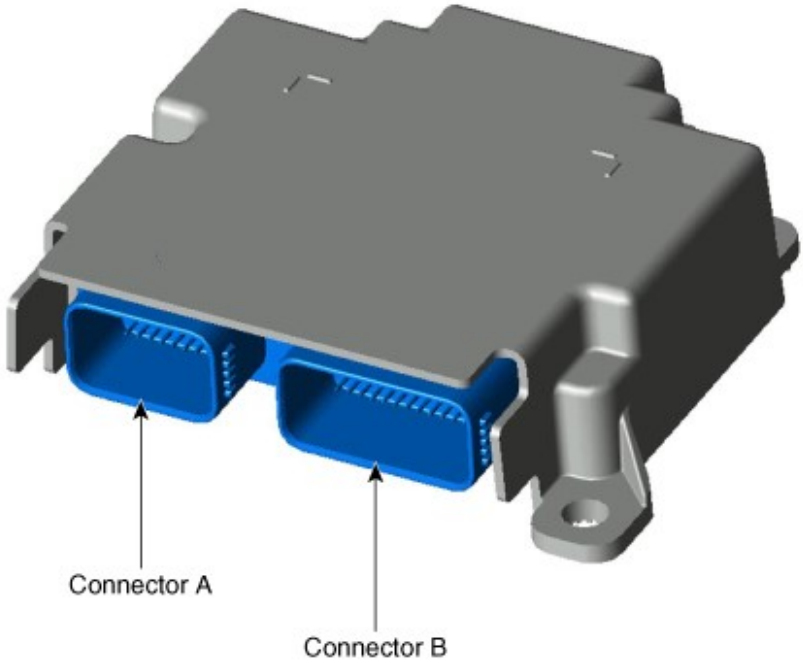


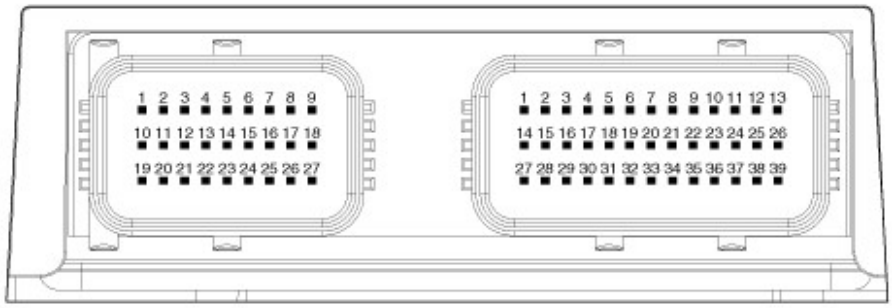
Restraint

Components

1. Supplemental Restraint System Control Module (SRSCM)

Supplemental Restraint System Control Module (SRSCM)





No	Connector A	Connector B
1	IGN 1	Ground
2	Driver front impact sensor - High (+)	Driver seat belt pretensioner - High (+)
3	Driver front impact sensor - Low (-)	Driver seat belt pretensioner - Low (-)
4	Driver airbag 1st stage - High (+)	Driver emergency fastening device - Low (-)
5	Driver airbag 1st stage - Low (-)	Driver emergency fastening device - High (+)
6	Passenger airbag 1st stage - Low (-)	Driver side airbag - High (+)
7	Passenger airbag 1st stage - High (+)	Driver side airbag - Low (-)
8	-	Passenger side airbag - Low (-)
9	-	Passenger side airbag - High (+)
10	Crash signal output	Driver side impact sensor - High (+)
11	Passenger front impact sensor - High (+)	Driver side impact sensor - Low (-)
12	Passenger front impact sensor - Low (-)	Passenger side impact sensor - Low (-)
13	Driver airbag 2 stage - High (+)	Passenger side impact sensor - High (+)
14	Driver airbag 2 stage - Low (-)	-
15	Passenger airbag 2 stage - Low (-)	Passenger seat belt pretensioner - High (+)
16	Passenger airbag 2 stage - High (+)	Passenger seat belt pretensioner - Low (-)
17	P-CAN (High)	Passenger emergency fastening device - Low (-)
18	P-CAN (Low)	Passenger emergency fastening device - High (+)
19	-	Driver curtain airbag - High (+)
20	PAB OFF Lamp	Driver curtain airbag - Low (-)
21	-	Passenger curtain airbag - Low (-)
22	Driver Knee Airbag - High (+)	Passenger curtain airbag - High (+)
23	Driver Knee Airbag - Low (-)	Driver Passenger side impact sensor - High (+)
24	-	Driver pressure side impact sensor - Low (-)
25	-	Passenger pressure side impact sensor - Low (-)

26	C-CAN (High)	Passenger Passenger side impact sensor - High (+)
27	C-CAN (Low)	-
28		-
29		-
30		-
31		-
32		-
33		-
34		-
35		-
36		-
37		-
38		-
39		-

Restraint

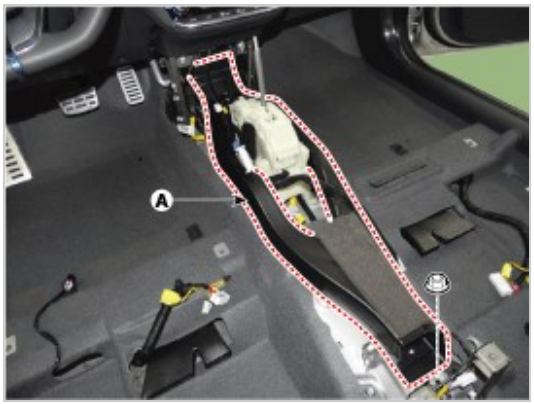
Description

- Supplemental Restraint System Control Module (SRSCM) determines whether and when to deploy air bag module, seat belt pretensioner (BPT) and emergency fastenig device (EFD).
- It supplies the air bag module with the power required to deploy the module or the BPT and EFD.
- It also performs self-diagnosis function of the supplemental restraint system.

Restraint

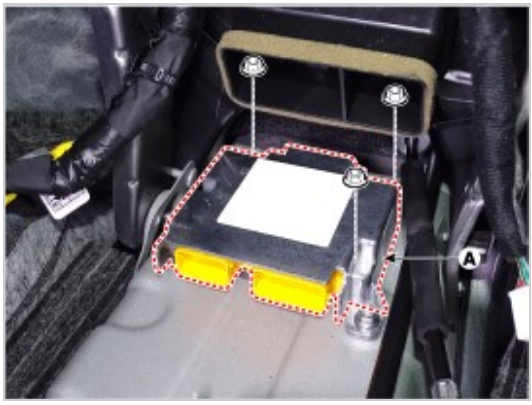
Removal

1. Remove the ignition key from the vehicle.
2. Disconnect the battery negative cable and wait for at least three minutes before beginning work.
3. Remove the floor console.
   (Refer to Body - "Floor Console Assembly")
4. Remove the center console duct (A) after loosening the mounting nut.



5. Disconnect the SRSCM connectors.

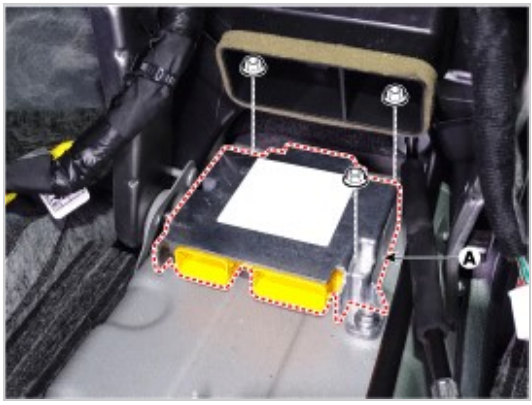
6. Remove the SRSCM (A) after loosening the mounting nuts.



Installation

1. Remove the ignition key from the vehicle.
2. Disconnect the battery negative cable and wait for at least three minutes before beginning work.
3. Install the SRSCM (A) with the SRSCM mounting nuts.

Tightening torque :
7.8 - 9.8 N.m (0.8 - 1.0 kgf.m, 5.8 - 7.2 lb-ft)



4. Connect the SRSCM harness connectors.
5. Install the heater ducts and floor console.
   (Refer to Body - "Floor Console Assembly")
6. Reconnect the battery negative cable.
7. After installing the SRSCM, confirm proper system operation :
   Turn the ignition switch ON; the SRS indicator light should be turned on for about six seconds and then go off.

⚠ CAUTION

- If the SRSCM is replaced always, perform variant coding. Also, perform the lateral G sensor 0 point setup.
  (Refer to Brake System - "Yaw-rate and Lateral G Sensor")

Variant Coding

After replacing the SRSCM with a new one, the "Variant Coding" procedure must be performed.

NOTICE

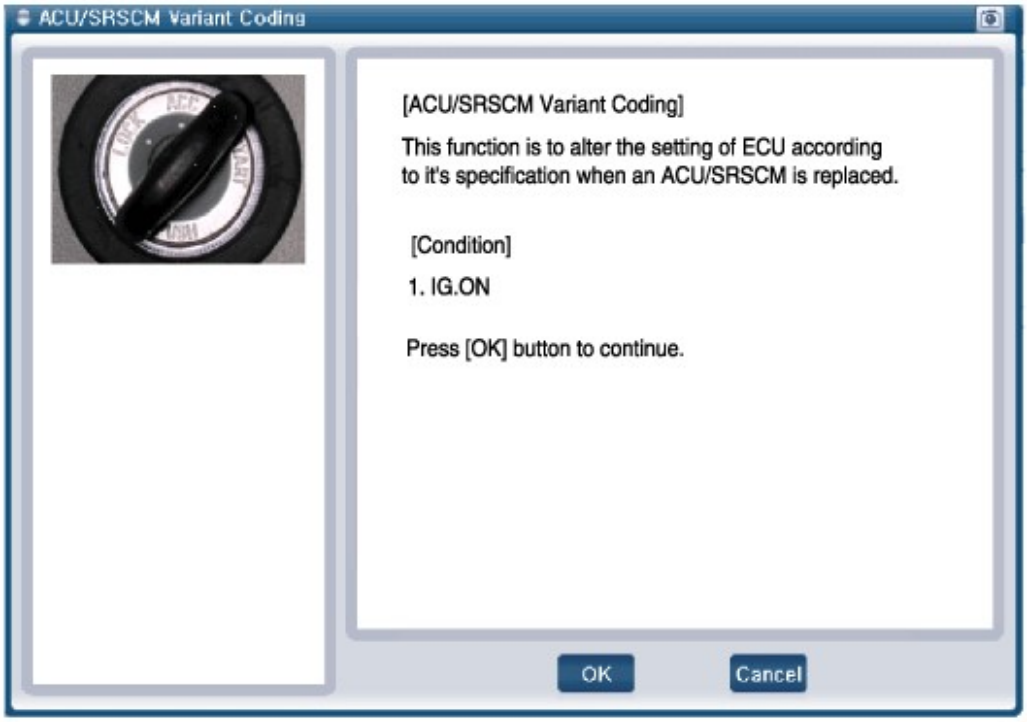
1) On SRSCM variant coding mode, the airbag warning lamp periodically blinks (ON: 0.5sec., OFF: 0.5sec.) until the coding is normally completed.
2) If the variant coding fails, DTC B176200 (ACU Coding Error) will be displayed and the warning lamp will turn on.
   In this case, perform the variant coding procedure again after confirming the cause in “DTC Fault State Information”.
   Variant Coding can be performed up to 255 times, but if the number of coding work exceeds 255 times, DTC B168300 (Exceed Maximum coding Number) will be displayed and SRSCM must be replaced.
3) If the battery voltage is low (less than 9V), DTC B110200 will be displayed. In this case, charge the battery before anything else, and then perform the variant coding procedure.
   DTC B176200 (ACU Coding Error) and B110200 (Battery Voltage Low) may be displayed simultaneously.

Variant Coding Procedure

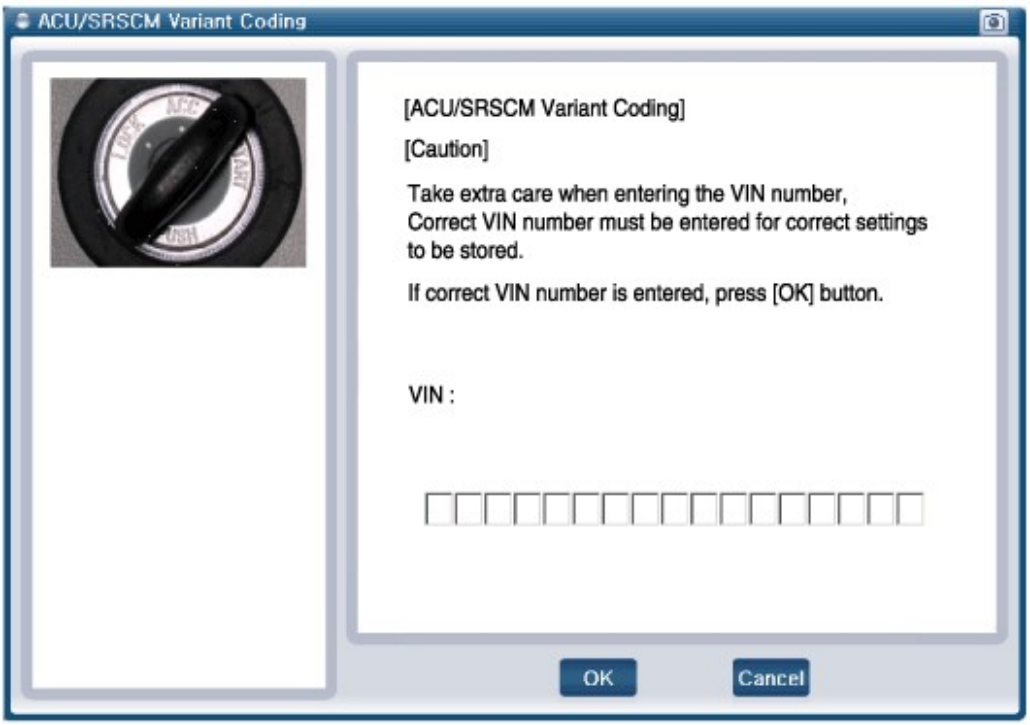
■ On-line Type on GDS

1. Turn the ignition switch OFF.

2. Connect the GDS.
3. Turn the ignition switch ON without the engine running.
4. Select vehicle name and airbag system.
5. Select variant coding mode.
6. Follow the steps on the screen below.
   (1) Initial ACU Variant Coding screen



(2) VIN Code entering screen



(3) Variant Coding"s proceeding screen-1

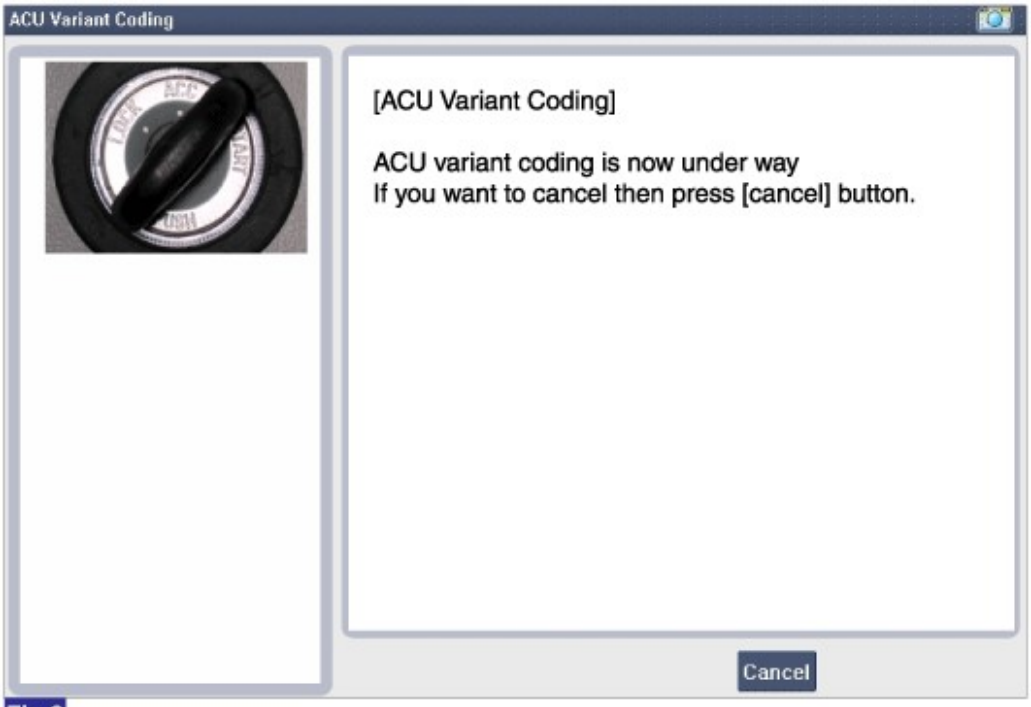


Fig.3

(4) Variant Coding"s proceeding screen-2

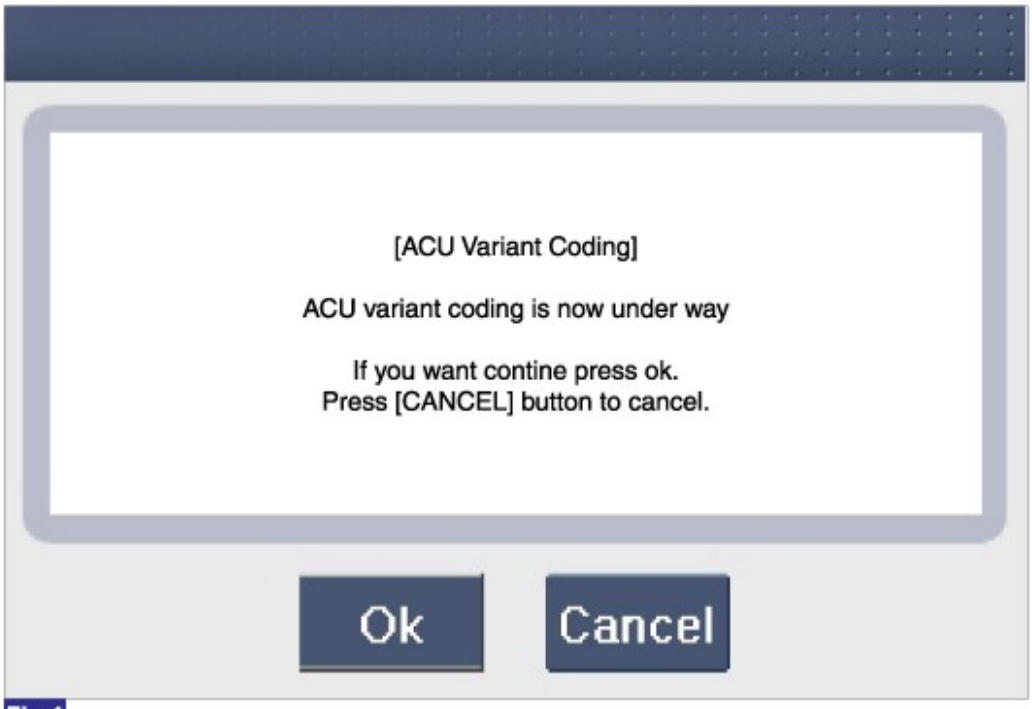


Fig.4

(5) Variant Coding is completed

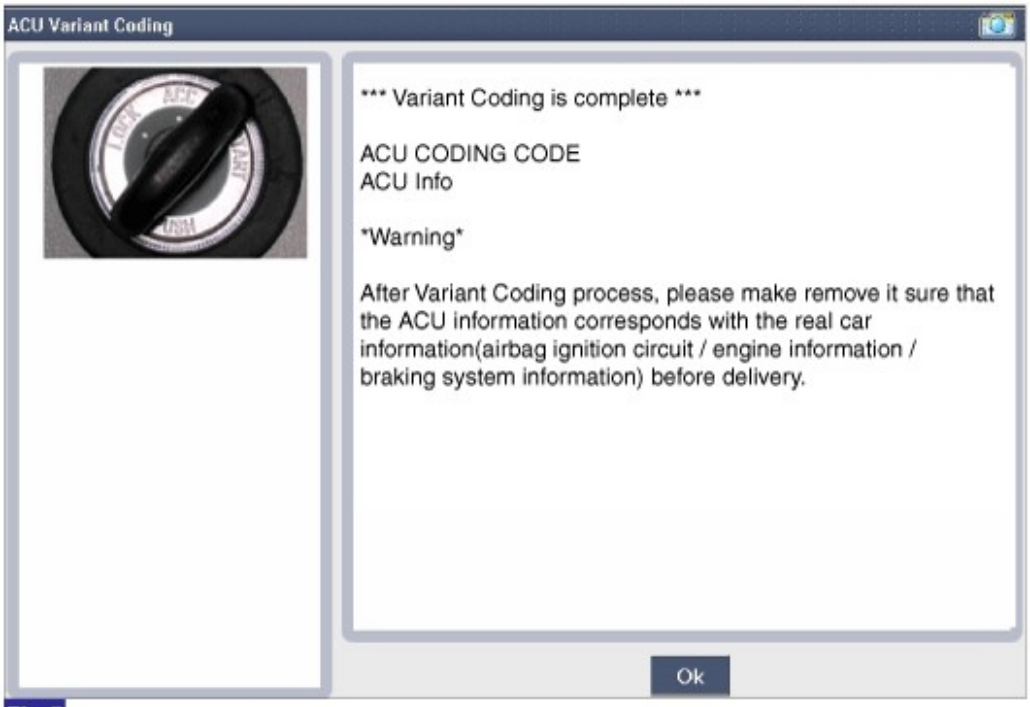
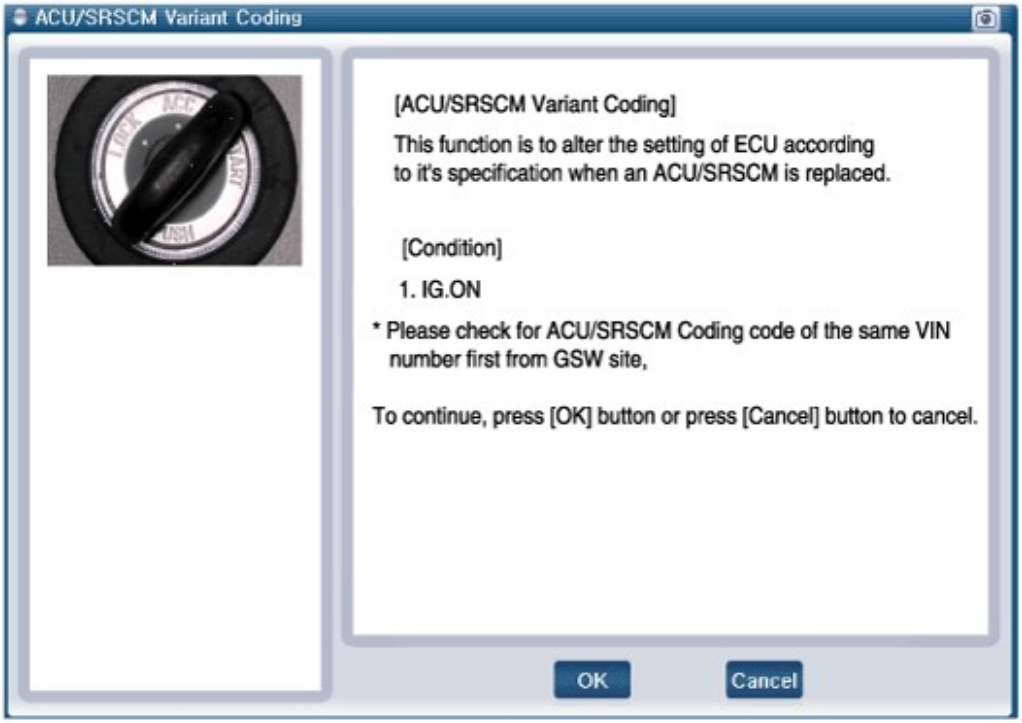


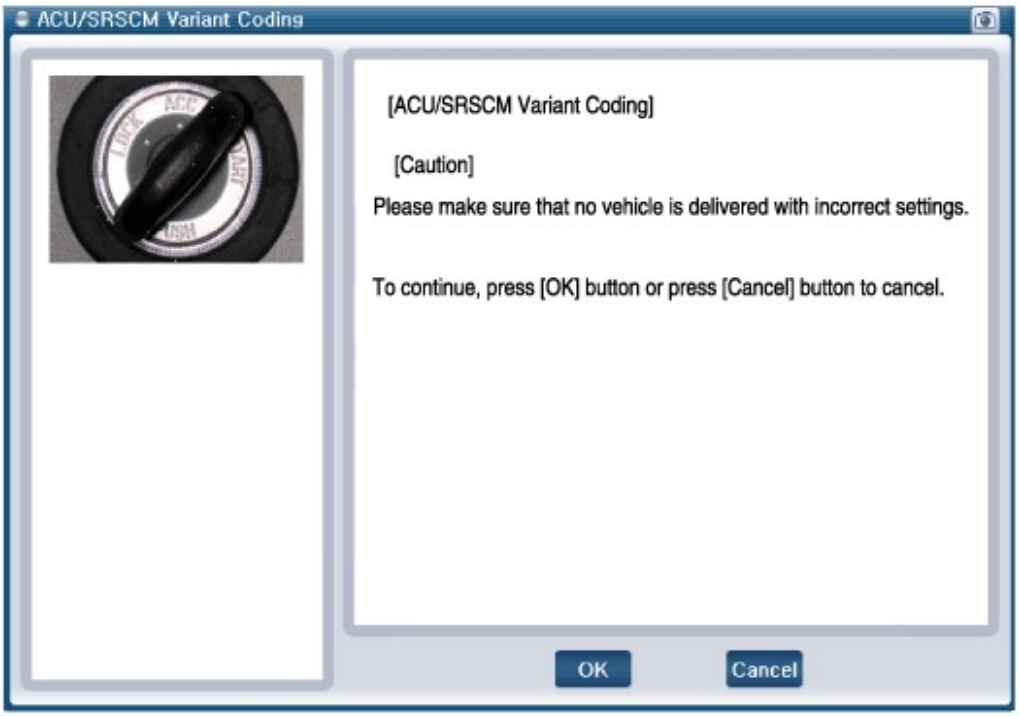
Fig.5

NOTICE

1) This screen is shown when you try variant coding on the SRSCM which has been performed before.



2) This screen is shown when communication failure has occurred.



■ OFF-Line Type on GDS (Use When Not Connected to the Internet)

1. Turn the ignition switch OFF.
2. Connect the GDS.
3. Turn the ignition switch ON without the engine running.
4. Select vehicle name and airbag system.
5. Select variant coding mode.
6. Follow the steps on the screen below.
   (1) Initial ACU Variant Coding screen

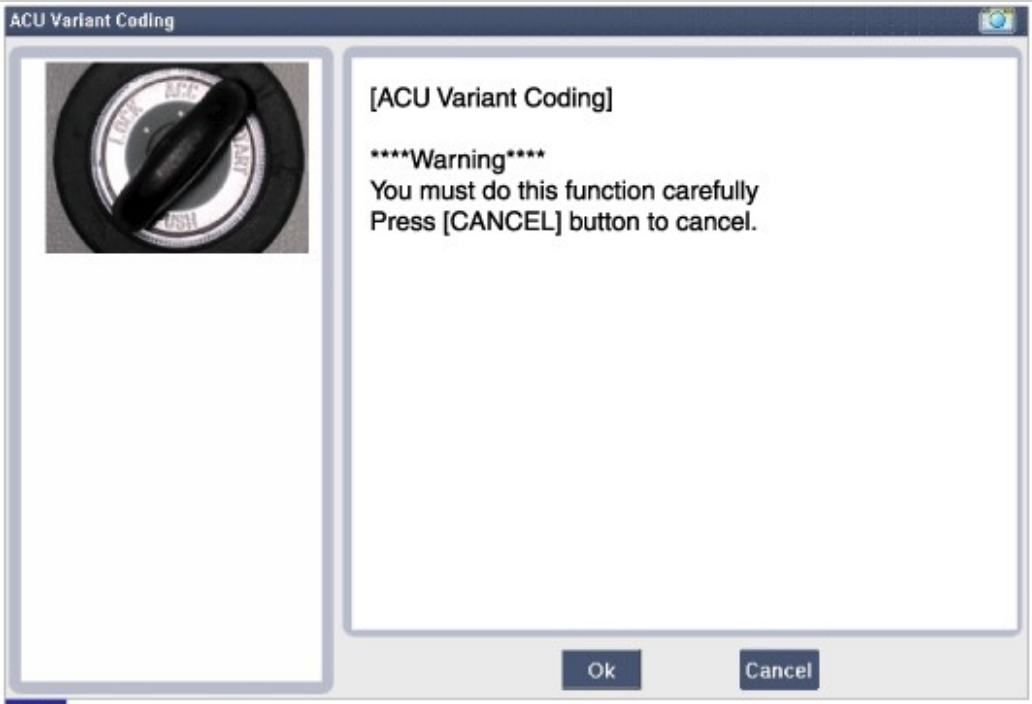
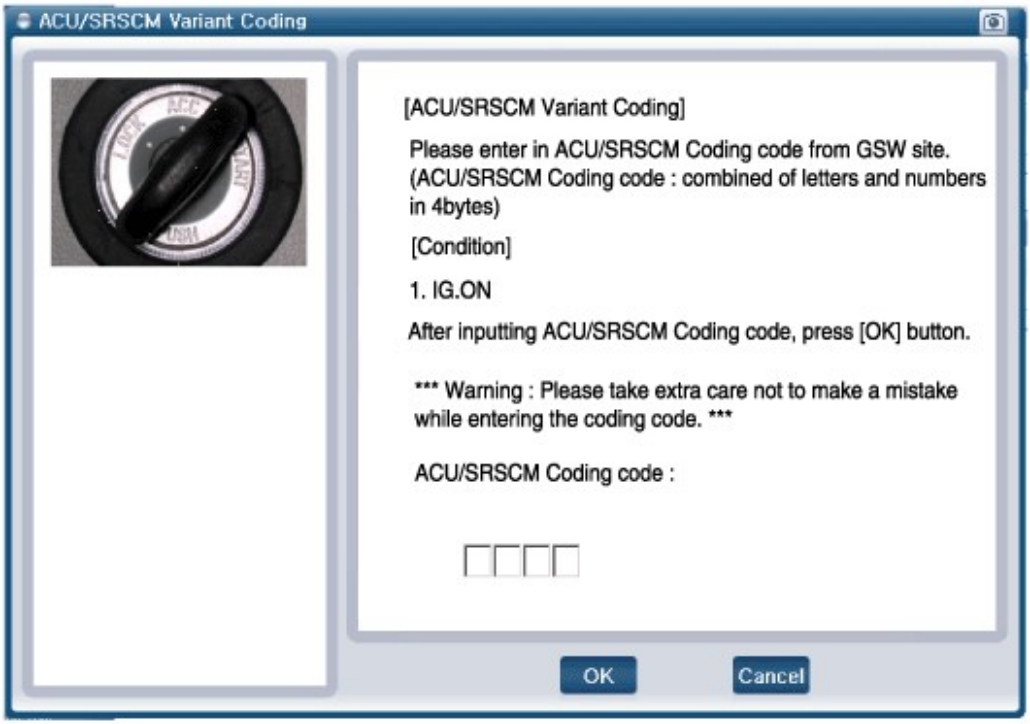


Fig.1

   (2) ACU Coding Code entering screen



(3) Rechecking ACU Coding Code entering screen

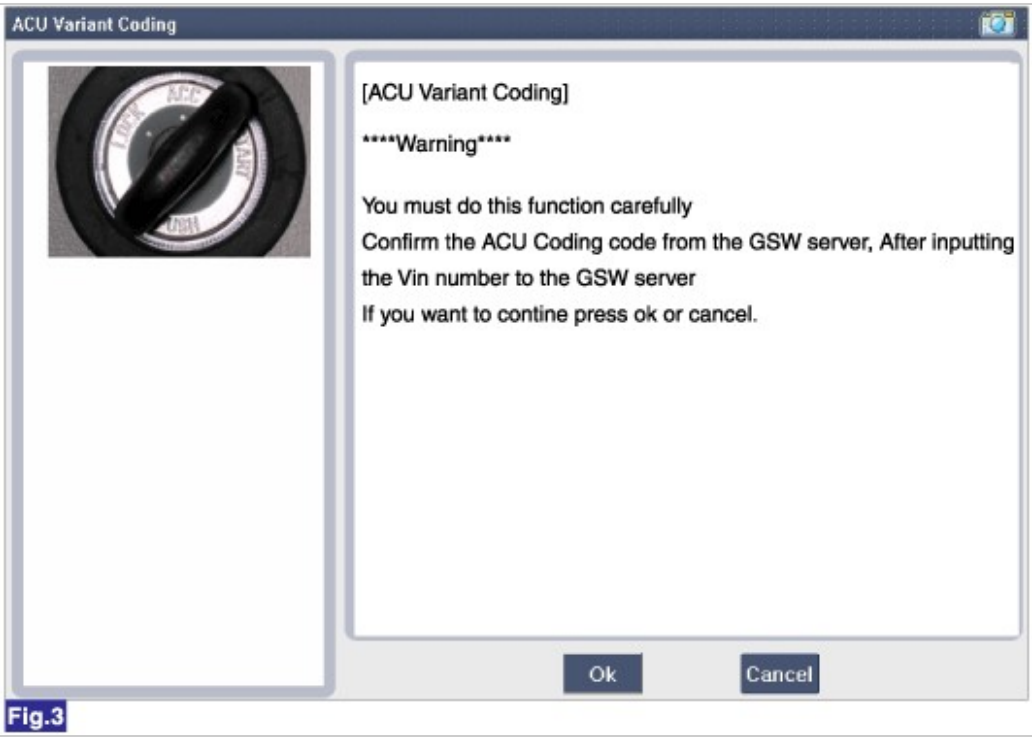


Fig.3

(4) Variant Coding"s proceeding screen-1

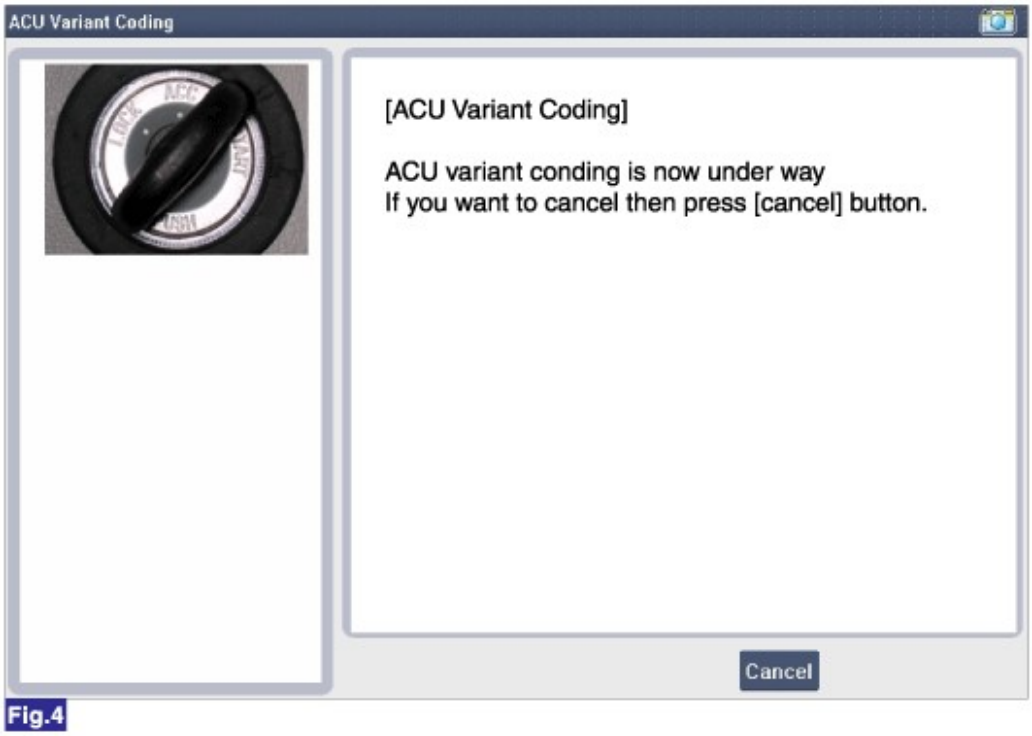


Fig.4

(5) Variant Coding"s proceeding screen-2

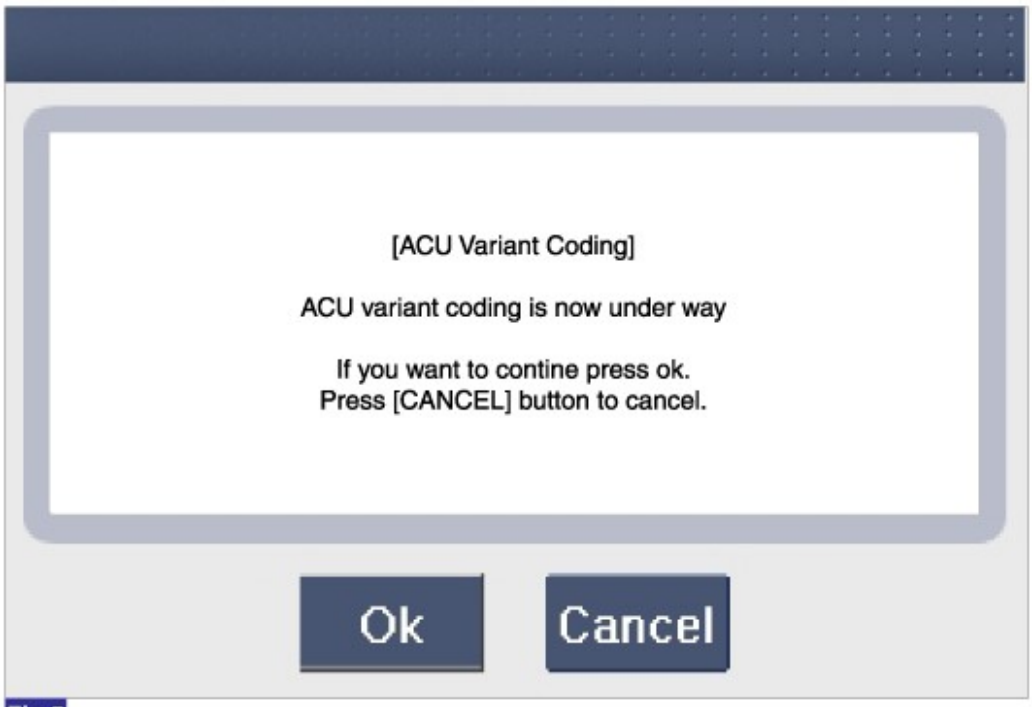


Fig.5

(6) Variant Coding is completed

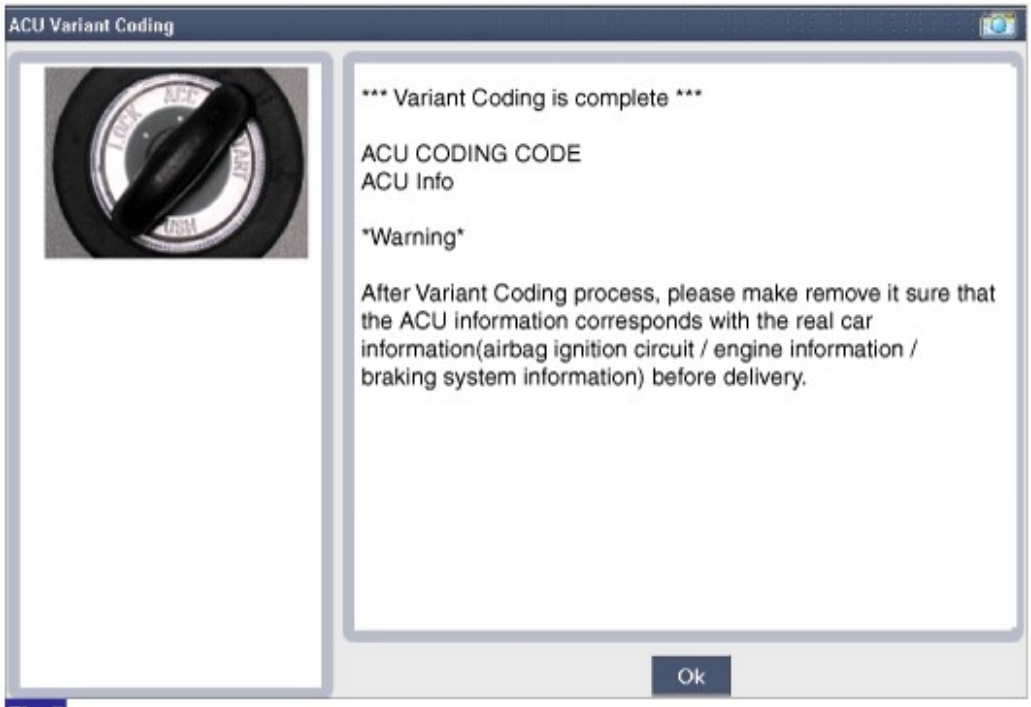


Fig.5

NOTICE

1) This screen is shown when you try variant coding on the SRSCM which has been performed before.

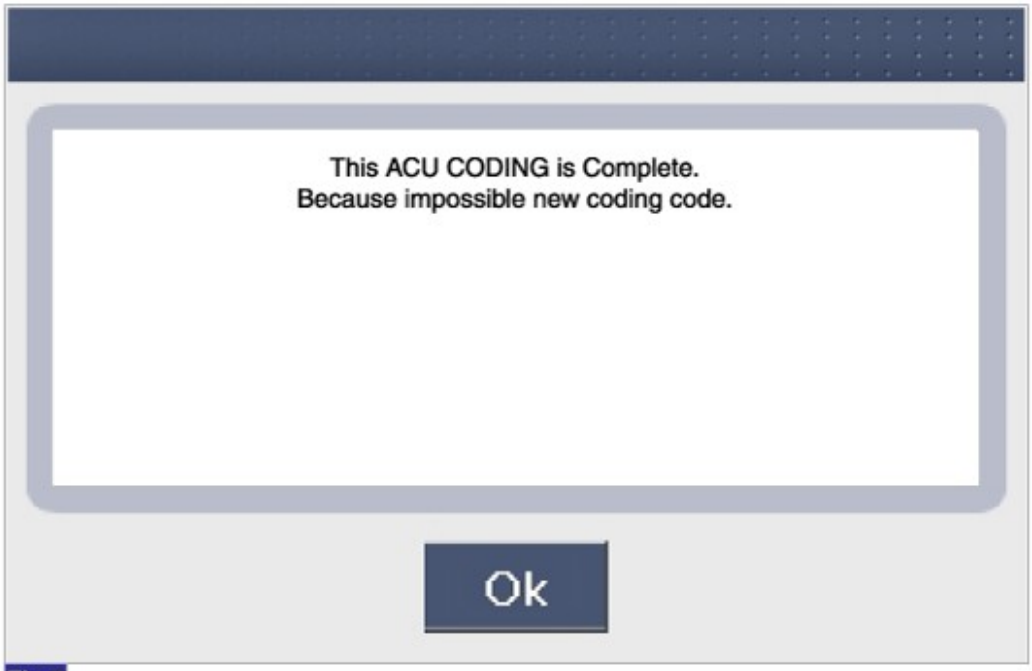
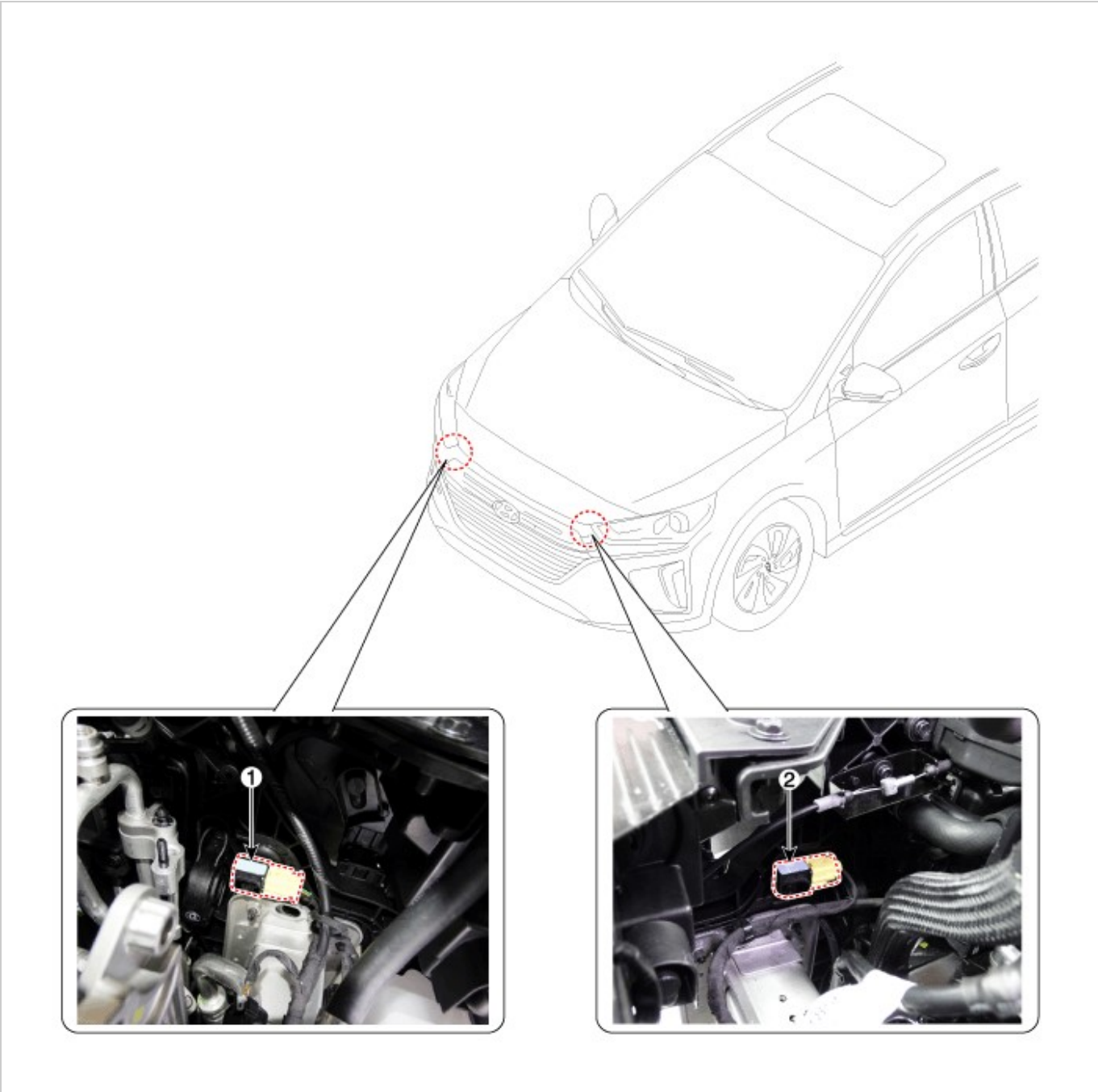


Fig.7

Components



1. Front right Impact Sensor (FIS)
2. Front left Impact Sensor (FIS)

Restraint

Description

- The front impact sensors (FIS) are installed on the upper of the side panel in Front End Module (FEM). They are remote sensors that detect acceleration due to a collision at their mounting locations.
- The primary purpose of the Front Impact Sensor (FIS) is to provide an indication of a collition. The Front Impact Sensor (FIS) sends acceleration data to the SRSCM.

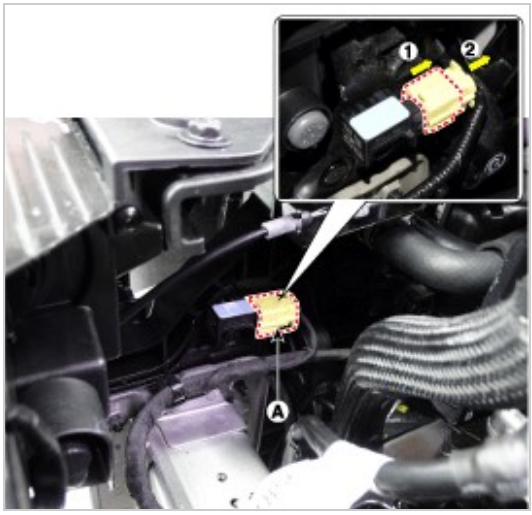
Restraint

Removal

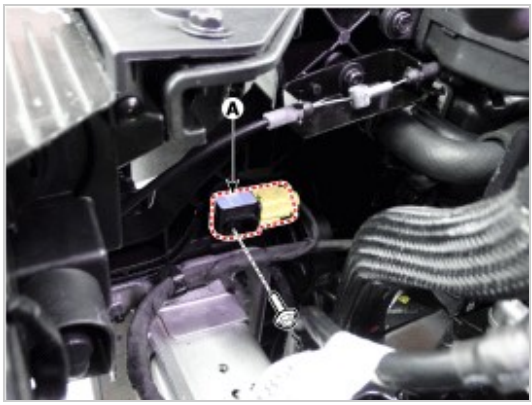
CAUTION

- Removal of the airbag must be performed according to the precautions/ procedures described previously.
- Before disconnecting the front impact sensor connector, disconnect the front airbag connector(s).
- Do not turn the ignition switch ON and do not connect the battery cable while replacing the front impact sensor.

1. Disconnect the battery negative cable, and wait for at least three minutes before beginning work.
2. Disconnect the front impact sensor connector (A).



3. Remove the front impact sensor (A) after loosening the mounting bolt.



Installation

CAUTION

- Do not turn the ignition switch ON and do not contact the battery cable while replacing the front impact sensor.

1. Install the new front impact sensor.
2. Connect the front impact sensor connector.
3. Install the front impact sensor mounting bolt.

   Tightening torque :
   7.8 - 9.8 N.m (0.8 - 1.0 kgf.m, 5.8 - 7.2 lb-ft)

4. Reconnect the battery negative cable.
5. After installing the Front Impact Sensor, confirm proper system operation :
   - Turn the ignition switch ON; the SRS indicator light should be turned on for about six seconds and then go off.

Restraint

Components

1. Front Pressure Side Impact Sensor (P-SIS)
2. Front Gravity Side Impact Sensor (G-SIS)

Description

- Side Impact Sensors (SIS), each installed on the center part of the right and left front door modules and the right and left center pillars, detects side impact during collision.
- The SRSCM uses the signals from SIS during side collision to determine whether and when to deploy the side air bag.

Removal

Pressure Side Impact Sensor

CAUTION

- Removal of the airbag must be performed according to the precautions/procedures described previously.
- Before disconnecting the side impact sensor connector(s), disconnect the side airbag connector(s).
- Do not turn the ignition switch ON and do not connect the battery cable while replacing the side impact sensor.

1. Disconnect the battery negative cable, and wait for at least three minutes before beginning work.
2. Remove the front door trim.
   (Refer to Body - "Front Door Trim")
3. Disconnect the pressure side impact sensor connector (A).

4. Remove the side impact sensor (A) after loosening the side impact sensor mounting screws.

Gravity Side Impact Sensor

1. Disconnect the battery negative cable and wait for at least three minutes before beginning work.
2. Remove the center pillar trim.
   (Refer to Body - "Interior Trim")
3. Disconnect the side impact sensor connector (A).

4. Remove the side impact sensor (A) after loosening the side impact sensor mounting bolt.

Installation

Pressure Side Impact Sensor

1. Install the pressure side impact sensor with the screw then connect the pressure side impact sensor connector.
   Tightening torque :
   2.0 - 2.9 N.m (0.2 - 0.3 kgf.m, 1.4 - 2.2 lb-ft)
2. Install the front door trim.
   (Refer to Body - "Front Door Trim")
3. Reconnect the battery negative cable.
4. After installing the pressure side impact sensor, confirm proper system operation:
   - Turn the ignition switch ON; the SRS indicator light should be turned on for about six seconds and then go off.

⚠ CAUTION

- You must comply with the specified tightening torques with the tool specified because Pressure – Side Impact Sensors (P-SIS) may be broken or POP-NUT may be rotated.
- Problems may be occurred in the durability of P-SIS or impact sensing performance may be depreciated if POP-NUT is rotated.
- The door module must not be transformed because SRSCM judges a impact through the pressure sensor in the door module.

Gravity Side Impact Sensor

⚠ CAUTION

- Do not turn the ignition switch ON and do not connect the battery cable while replacing the side impact sensor.

1. Install the side impact sensor with the bolt then connect the side impact sensor connector.
   Tightening torque :
   7.8 - 9.8 N.m (0.8 - 1.0 kgf.m, 5.8 - 7.2 lb-ft)
2. Install the door scuff trim.
   (Refer to Body - "Interior Trim")
3. Reconnect the battery negative cable.
4. After installing the Side Impact Sensor, confirm proper system operation :
   Turn the ignition switch ON; the SRS indicator light should be turned on for about six seconds and then go off.

Components

1. Seat Belt Buckle Switch (BS)

Restraint

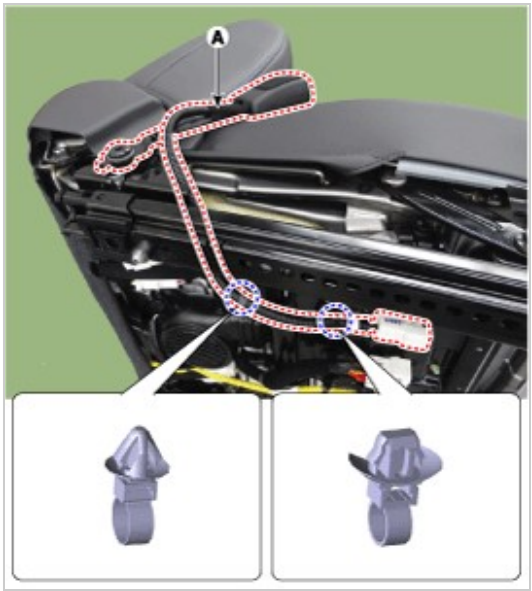
Description

- The SRSCM should detect the condition of seat belt buckles (BS) of the driver and passenger seats.
- The SRSCM provides two pins to each side, in order to enter the condition of seat belt buckles (BS) of the driver and passenger seats.
- The seat belt buckle circuit is operated using internal boost voltage supplied by the SRSCM, and uses body ground for signal return.

Restraint

Removal

1. Disconnect the battery negative cable, and wait for at least three minutes before beginning work.
2. Remove the front seat assembly.
   (Refer to Body - "Front Seat Assembly")
3. Remove the seat belt buckle switch (A) after loosening the seat belt buckle mounting bolt.



Installation

⚠ CAUTION

- Be sure to install the harness wires so they will not pinch or interfere with other parts.

1. Remove the ignition key from the vehicle.
2. Disconnect the battery negative cable, and wait for at least three minutes before beginning work.
3. Install the seat belt buckle switch.
4. Install the front seat assembly.
   (Refer to Body - "Front Seat Assembly")
5. Reconnect the battery negative cable.
6. After installing the seat belt buckle switch, confirm proper system operation.

Restraint

Components

1. Occupant Classification System (OCS) Unit
2. Occupant Classification System (OCS) Sensor

Occupant Classification System (OCS) Unit

Restraint

Description

In order to make normal activation of airbag system, SRSCM detects DTC(s) for the Occupant Classification System (OCS). If the seat is occupied, OCS detects passenger presences status and send signal to SRSCM via CAN.

SRSCM recognizes the signal as 2(two) different classifications; that is, 1(Empty or small occupant with child restraint system), 2(Occupied with large occupant and small occupant).

With these signal, ACU determines whether it needs to deploy the PAB(Passenger Airbag) or not.

Restraint

Removal

Occupant Classification System (OCS) Unit

1. Disconnect the battery negative cable, and wait for at least three minutes before beginning work.
2. Remove the front passenger seat assembly.
   (Refer to Body - "Front Seat Assembly")
3. Disconnect the occupant classification system unit connector (A).

4. Remove the occupant classification system unit (A) after loosening the mounting screws.

Occupant Classification System (OCS) Sensor

1. Disconnect the battery negative cable, and wait for at least three minutes before beginning work.
2. Remove the front passenger seat assembly.
   (Refer to Body - "Front Seat Assembly")
3. Remove the front seat cushion assembly.
   (Refer to Body - "Front Seat Cushion Cover")

Installation

Occupant Classification System (OCS) Unit

1. Install the occupant classification system unit on the Front seat track assembly.
2. Connect the occupant classification system unit connector.
3. Install the front passenger seat assembly.
   (Refer to Body - "Front Seat Assembly")
4. Reconnect the battery negative cable.
5. After installing the occupant classification system, confirm proper system operation.

NOTICE

- Turn the ignition switch ON the SRS indicator should be turned on for about six seconds and then go off.
- Telltale lamp will turn on for 4 seconds and be turned off for 3 seconds. After the 7 seconds, it shall remain off if the OCS does not require suppression and the passenger airbag is enabled.
- Be sure to perform OCS reset with GDS after replacing OCS unit.

OCS Reset procedure

You should perform OCS Reset procedure after service or replacement about all part of the passenger seat. (Not included full seat assembly)

1. Ignition "OFF", connect GDS.
2. Ignition "ON" & Engine "OFF", select Airbag system and "Body Sensor Reset" mode.
3. The GDS will show the two OCS Reset function steps.
   (1) Erase OCS diagnostic codes.
   (2) OCS initialization.

CAUTION

- This Step must be done during front passenger seat empty.

4. Select product configuration.
   (1) C1 : No heater
   (2) C2 : Heater

CAUTION

- Before the starting the OCS Rest process, cross check seat correct configuration with actual vehicle.
- If you see the center console, you can find different buttons per each different seat configuration type. (Refer to the below picture)

5. The OCS initialization procedure will be performed.

C1 : No Heater Type Reset

C2 : Heater Type Reset (Including Cooling Seat)

CAUTION

- Erase the SRSCM diagnostic codes after completing the OCS reset.

DTC Code	Code Name	Description
B176300	ECU Defect	1. Reset(Calibration setting) is not completed 2. ECU is damaged from physical stress
B176400	MAT Defect	1. Mat and ECU are not connected . 2. Mat is damaged from physical stress.
B17672F	Algo cut-off	1. Too much humidity.
B111117	IGN voltage high	1. IGN voltage high.
B111216	IGN voltage low	1. IGN voltage low.
B160388	CAN bus off	1. CAN Bus is not working.
B169787	ACU communication error	1. CAN Bus is not working. 2. ACU is not working.

Restraint

Components

1. Driver Air Bag (DAB)
2. Steering Wheel
3. Clock Spring

Restraint

Description

- Driver Air Bag (DAB)
  DAB is installed in the steering wheel, and electrically connected to the SRSCM via clock spring. It is deployed during frontal impact to protect the driver.
- Clock Spring
  Clock spring delivers actuation signal, generated by the sensors installed in the front and right/left sides of a vehicle, to the inflator (gas generator) of the driver air bag module via internal cable.
  It also delivers actuation signal of the steering wheel remote control switch and horn to relevant systems via internal cable.

CAUTION

- Never attempt to measure the circuit resistance of the airbag module (squib) even if you are using the specified tester. If the circuit resistance is measured with a tester, accidental airbag deployment will result in serious personal injury.

Restraint

Removal

1. Disconnect the battery negative cable and wait for at least three minutes before beginning work.
2. Remove the driver airbag module by putting in a flat tool (Ø5mm) into the guide hole and then press the spring.

3. Release the connector locking pin, then disconnect the driver airbag module connector (A) and horn connector (B).

⚠ CAUTION

- The removed airbag module should be stored in a clean, dry place with the pad cover facing up.

4. Remove the steering wheel.
   (Refer to Steering System - "Steering wheel")
5. Remove the Steering Column Shroud Panel.
   (Refer to Body - "Steering Column Shroud Panel")
6. Remove the clock spring (A) after disconnecting the clock spring connectors (B).

Inspection

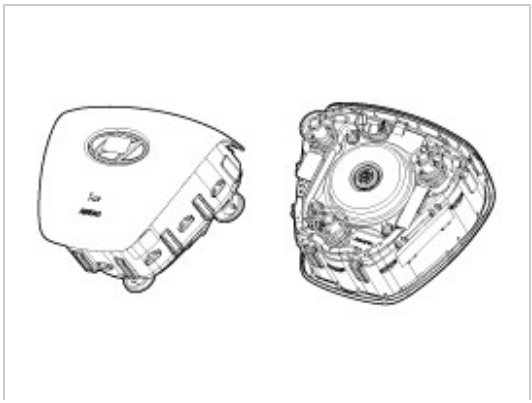
Driver Airbag (DAB)

If any improper parts are found during the following inspection, replace the airbag module with a new one.

⚠ CAUTION

- Never attempt to measure the circuit resistance of the airbag module (squib) even if you are using the specified tester. If the circuit resistance is measured with a tester, accidental airbag deployment will result in serious personal injury.

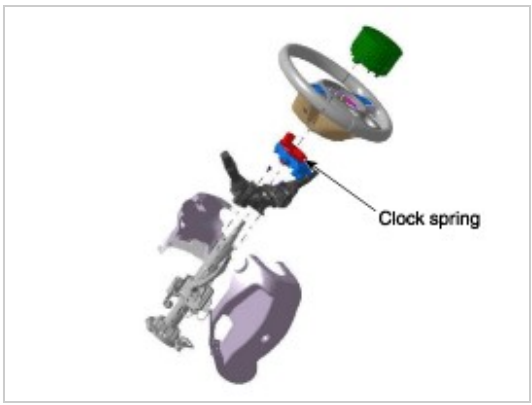
1. Check pad cover for dents, cracks or deformities.
2. Check the airbag module for denting, cracking or deformation.
3. Check hooks and connectors for damage, terminals for deformities, and harness for binds.
4. Check airbag inflator case for dents, cracks or deformities.



5. Install the airbag module to the steering wheel to check for fit or alignment with the wheel.

Clock Spring

1. If, as a result of the following checks, even one abnormal point is discovered, replace the clock spring with a new one.
2. Check connectors and protective tube for damage, and terminals for deformities.



Installation

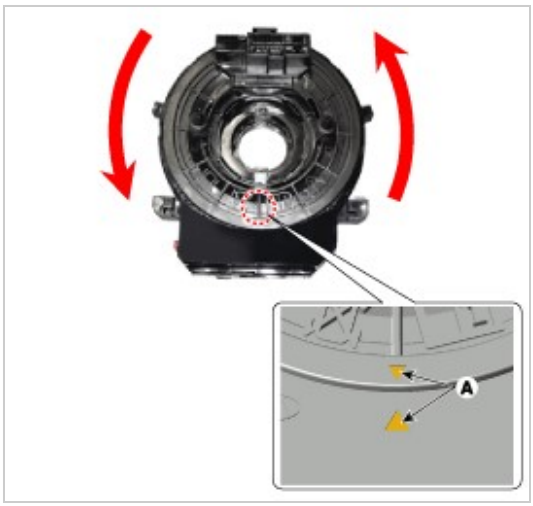
1. Set the front tires straight-ahead.
2. Turn the ignition switch OFF.
3. Disconnect the battery negative cable from the battery and wait for at least three minutes before beginning the work.
4. Assemble the neutral state clock spring.

NOTICE

[Clock spring manual neutral setting procedure]

(1) Turn the clock spring clockwise until it stops.

(2) When it comes to a stop, turn it counter-clockwise 2times and align the neutral mark.



5. Install the steering wheel column shroud and the steering wheel
   (Refer to Steering System - "Steering Column and Shaft")
6. Connect the Driver Airbag (DAB) module connector and horn connector, and then install the Driver Airbag (DAB) module on the steering wheel.

NOTICE

- When install the Driver Airbag (DAB) module, Fix the horn wire and DAB inflator wire tightly with wire clip (A).

7. Connect the battery negative cable.
8. After installing the airbag, confirm proper system operation :
   - Turn the ignition switch ON; the SRS indicator light should be turned on for about six seconds and then go off.
   - Make sure horn button works.

Restraint

Components

1. Passenger Air Bag (PAB)

Restraint

Description

The passenger airbag (PAB) is installed inside the crash pad and protects the front passenger in the event of a frontal crash. The SRSCM determines if and when to deploy the PAB.

CAUTION

- Never attempt to measure the circuit resistance of the airbag module (squib) even if you are using a specified tester. If the circuit resistance is measured with a tester, accidental airbag deployment will result in serious personal injury.

Restraint

Removal

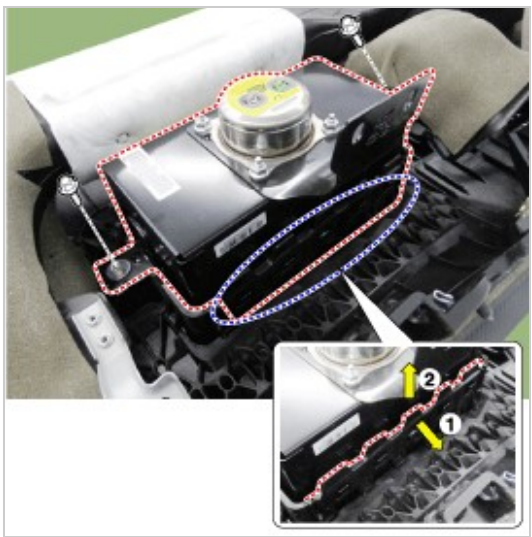
1. Disconnect the battery negative cable and wait for at least three minutes before beginning work.
2. Remove the glove box housing.
   (Refer to Body - "Glove Box Upper Cover Assembly")
3. Remove the passenger airbag mounting bolts.

4. Disconnect the passenger airbag connector (A).

5. Remove the crash pad.
   (Refer to Body - "Main Crash Pad Assembly")

> **NOTICE**
> - Replace the crash pad which that has been damaged after the PAB has been deployed.

6. Remove the passenger airbag (A) from the crash pad after loosening the mounting bolts.

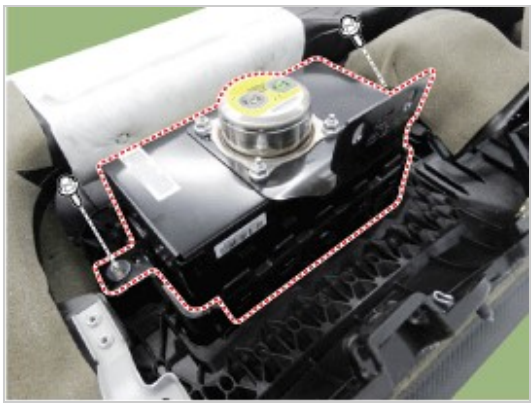


> **⚠ CAUTION**
> - The removed airbag module should be stored in a clean, dry place with the airbag cushion up.

Installation

1. Remove the ignition key from the vehicle.
2. Disconnect the battery negative cable from battery and wait for at least three minutes before beginning work.
3. Place the passenger airbag on the crash pad and tighten the passenger airbag mounting bolts.

Tightening torque :
4.0 - 6.0 N.m (0.4 - 0.6 kgf.m, 2.9 - 4.4 lb-ft)



4. Install the crash pad.
   (Refer to Body - "Main Crash Pad Assembly")
5. Connect the passenger airbag harness connector to the SRS main harness connector (A).

6. Tighten the passenger airbag crash pad mounting bolts.

   Tightening torque :
   7.8 - 11.8 N.m (0.8 - 1.2 kgf.m, 5.8 - 8.7 lb-ft)

7. Install the glove box.
   (Refer to Body - "Crash Pad Center Panel")
8. Connect the battery negative cable.
9. After installing the passenger airbag (PAB), confirm proper system operation :
   - Turn the ignition switch ON; the SRS indicator light should be turned on for about six seconds and then go off.

Components

1. Side Air Bag (SAB)

Restraint

Description

The Side Airbags (SAB) are installed inside the front seat and protects the driver and passenger from danger when side crash occurs. The SRSCM determines deployment of side airbag by using Side Impact Sensor (SIS) signal.

CAUTION

- Never attempt to measure the circuit resistance of the airbag module (squib) even if you are using the specified tester. If the circuit resistance is measured with a tester, accidental airbag deployment will result in serious personal injury.

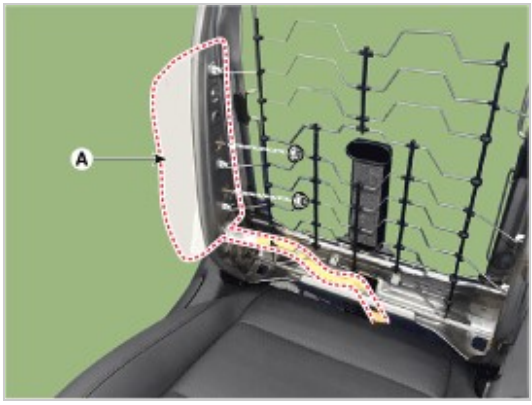
Restraint

Removal

NOTICE

- The side airbag cannot be disassembled from the seat back assembly, so replace the seat back assembly when replacing the side airbag.

1. Disconnect the battery negative cable and wait for at least 3 minutes before beginning work.
2. Remove the front seat assembly.
   (Refer to Body - "Front Seat Assembly")
3. Remove the seat back cover.
   (Refer to Body - "Front Seat Back Cover")
4. Remove the side airbag (A) after loosening the side airbag mounting nuts.



Installation

CAUTION

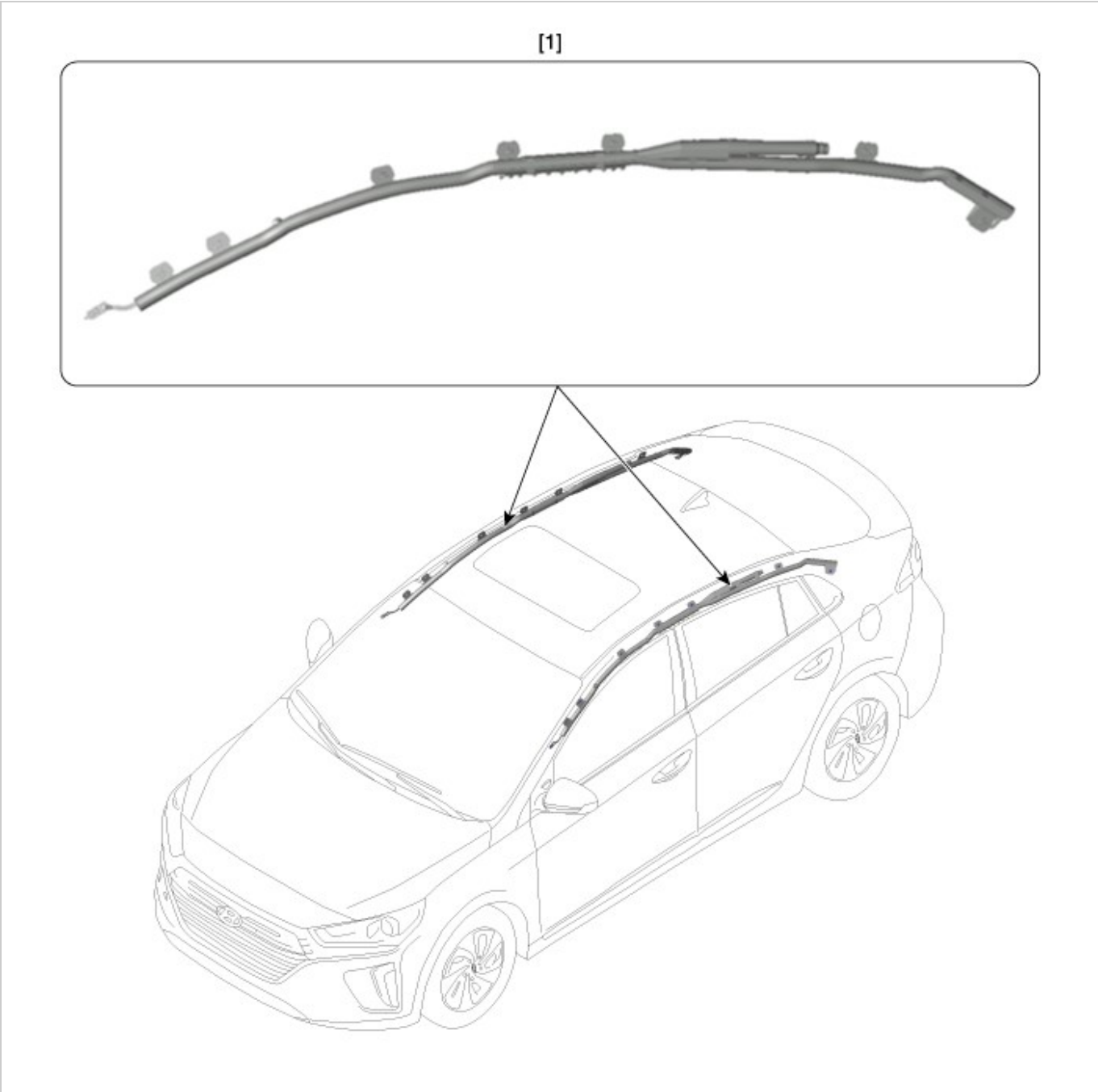
- Be sure to install the harness wires so they will not pinch or interfere with other parts.

NOTICE

- Do not open the lid of the side airbag cover.
- Make sure that the airbag assembly cover is installed properly. Improper installation may prevent the proper deployment.

1. Remove the ignition key from the vehicle.
2. Disconnect the battery negative cable and wait for at least three minutes.
3. Install the front seat back cover.
   (Refer to Body - "Front Seat Back Cover")
4. Install the front seat assembly.
   (Refer to Body - "Front Seat Assembly")
5. Recline and slide the front seat forward fully, make sure the harness wires are not pinched of interfere with other parts.
6. Reconnect the battery negative cable.
7. After installing the side airbag (SAB), confirm proper system operation :
   - Turn the ignition switch ON; the SRS indicator light should be turned on for about six seconds and then go off.

Components



1. Curtain Air Bag (CAB)

Restraint

Description

Curtain airbags are installed inside the headliner (LH and RH) and protect the driver and passenger from danger when side crash occurs. The SRSCM determines deployment of curtain airbag by using side impact sensor (SIS) signal.

CAUTION

- Never attempt to measure the circuit resistance of the airbag module even if you are using the specified tester. If the circuit resistance is measured with a tester, accidental airbag deployment will result in serious personal injury.

Restraint

Removal

1. Disconnect the battery negative cable and wait for at least 3 minutes before beginning work.
2. Remove the roof trim.
   (Refer to Body - "Roof Trim Assembly")
3. Remove the curtain airbag (A) after disconnecting the curtain airbag harness connector(B) and loosening the mounting bolts.

Installation

1. Remove the ignition key from the vehicle.
2. Disconnect the battery negative cable and wait for at least three minutes.
3. Tighten the curtain airbag mounting bolts and nuts.

Tightening torque :
Bolt : 7.8 - 11.8 N.m (0.8 - 1.2 kgf.m, 5.8 - 8.7 lb-ft)

CAUTION

- Never twist the airbag module during installation. If the airbag module is twisted, the airbag module may operate abnormally.

4. Connect the curtain airbag connector.
5. Install the roof trim.
   (Refer to Body - "Roof Trim Assembly")
6. Reconnect the battery negative cable.
7. After installing the curtain airbag (CAB), confirm proper system operation:
   - Turn the ignition switch ON; the SRS indicator light should be turned on for about six seconds and then go off.

Restraint

Components

1. Knee Airbag (KAB)

Restraint

Description

The Knee Airbag (KAB) is installed inside the crash pad lower panel and protects the driver in the event of a frontal crash. The SRSCM determines if and when to deploy the KAB.

CAUTION

- Never attempt to measure the circuit resistance of the airbag module (squib) even if you are using the specified tester. If the circuit resistance is measured with a tester, accidental airbag deployment will result in serious personal injury.

Restraint

Removal

1. Disconnect the battery negative cable and wait for at least 3 minutes before beginning work.
2. Remove the crash pad lower panel.
   (Refer to Body - "Crash Pad Lower Panel")
3. Remove the knee airbag module (A) after loosening the mounting nuts.

4. Disconnect the knee airbag module connector (A).

Installation

1. Remove the ignition key from the vehicle.
2. Disconnect the battery negative cable and wait for at least three minutes.
3. Install the knee airbag module after connect the knee airbag module connector.

   Tightening torque :
   Bolt : 7.8 - 11.8 N.m (0.8 - 1.2 kgf.m, 5.8 - 8.7 lb-ft)
4. Install the crash pad lower panel.
5. Reconnect the battery negative cable.
6. After installing the knee airbag (KAB), confirm proper system operation :
   - Turn the ignition switch ON; the SRS indicator light should be turned on for about six seconds and then go off.

Airbag Disposal

When you scrap a vehicle equipped with an airbag, you must deploy it first.
When you deploy an airbag, you need to have a skilled mechanic do the work. The used airbag should not be reinstalled in another vehicle for reuse.

⚠ CAUTION

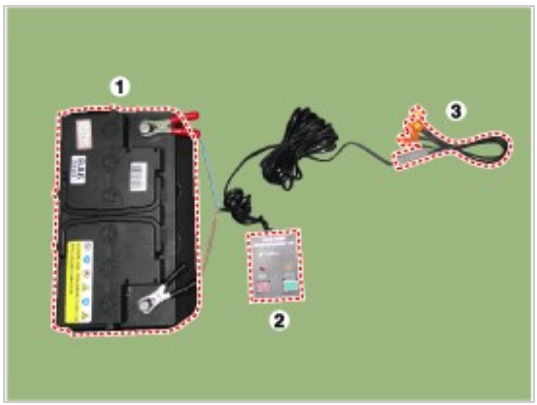
- Upon deployment, the explosion will create a loud noise, so you have to do it in a proper place not to disturb others.
- When you deploy an airbag, use a specially designated tool and select a place where there is no electric noise.
- When operating the airbag deployment tool, you must be at least 5 meters away from the airbag.
- Upon deployment, the airbag gives off an intense heat. So wait for 30 minutes or so before touching it.
- Make sure to use gloves and safety goggles when you deal with the deployed airbag.
- Do not spread water over the deployed airbag.
- Always wash your hands after the deployment work is completed.

Deploying Airbags in the Vehicle

1. Turn the ignition switch OFF, and disconnect the battery negative cable and wait at least three minutes.
2. Confirm that each airbag or side airbag is securely mounted.
3. Confirm that the special tool is functioning properly by following the check procedure.
   (1) Disconnect the 2P connector between the airbag and wire harness.

   (2) Install the SST
   - For the driver airbag, separate the 2-pin connector from it and connect the deployment adapter to reattach it on the steering wheel.

4. Locate the airbag deployment tool at a place at least 5 meters away from the airbag.
5. After connecting the deployment adapter with the deployment tool (0957A-34100A), connect it to the external battery for deployment.
   (1) Battery (12V)
   (2) Deployment tool (0957A-34100A)
   (3) Deployment adapter
      – DAB, PAB, CAB, BPT, EFD (0957A-AL140)
      – SAB, KAB (0957A-AL160)



6. Switch on the deployment tool to proceed with deployment.
   (1) If the battery is connected, the POWER ON (1) light will be on.
   (2) Press and hold READY (2) until it is on, and then press DEPLOY (3) to deploy the airbag.

NOTICE

- Upon deployment, the airbag will create a loud noise and you can see it suddenly expand and contract slowly.

7. Dispose of the complete airbag. No parts can be reused. Place it in a sturdy plastic bag and seal it securely.

Deploying the Airbag Out of the Vehicle

In case the airbag is separated from a scrapped car, or when you find defects or damages on it, you have to deploy it as follows :

1. Place the airbag deployment module face upward on a flat surface outdoor.

⚠ WARNING

- If the airbag deployment module were face downward, the airbag will pop up and cause damage to people around it.

2. Get ready to deploy the airbag as follows:

(1) Separate the 2-pin connecter of the airbag from the vehicle.

(2) Connect the deployment adapter.

- For the driver airbag, separate the 2-pin connector from it and connect the deployment adapter to reattach it on the steering wheel.

3. Locate the airbag deployment tool at a place at least 5 meters away from the airbag.
4. After connecting the deployment adapter (0957A-AL140, 0957A-AL160) with the deployment tool (0957A-34100A), connect it to the external battery (12V) for deployment.

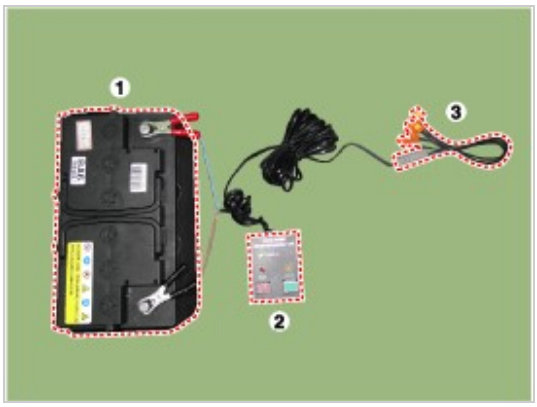
(1) Battery (12V)

(2) Airbag Deploy (0957A-34100A)

(3) Deployment adapter

– DAB, PAB, CAB, BPT, EFD (0957A-AL140)

– SAB, KAB (0957A-AL160)



⚠ CAUTION

- When EFD are deployed, broken parts are exploded and scattered.
- EFD (Emergency Fastening Device) must be placed in the piled up 5 tires to avoid exploded broken parts.
- Technicians should wear an eye protector and extremely be cautions of exploded broken parts.

5. Switch on the deployment tool to proceed with deployment.

(1) If the battery is connected, the POWER ON (1) light will be on.

(2) Press and hold READY (2) until it is on, and then press DEPLOY (3) to deploy the airbag.

6. Dispose of the complete airbag. No parts can be reused. Place it in a sturdy plastic bag and seal it securely.

Disposal of Damaged Airbag (Not Deployed Airbag)

1. Turn the ignition switch OFF, and disconnect the battery negative cable and wait at least three minutes.
2. If installed airbags in a vehicle, follow the removal procedure of damaged airbag.
3. If the removed parts have a lead wire, make a short circuit by twisting together the two airbag inflator wires.
4. Package the airbag in exactly the same packing that the new replacement part come in.
5. Mark the outside of the box ""DAMAGED AIRBAG NOT DEPLOYED"" so it does not get confused with your parts stock.

Restraint

Components

1. Seat Belt Pretensioner (BPT)

Restraint

Description

The Seat Belt Pretensioners (BPT) are installed inside Center Pillar (LH & RH). When a vehicle crashes with a certain degree of frontal impact, the pretensioner seat belt helps to reduce the severity of injury to the front seat occupants by retracting the seat belt webbing. This prevents the front occupants from thrusting forward and hitting the steering wheel or the instrument panel when the vehicle crashes.

(Seat belt pretensioner may be activated in side impact collisions if the vehicle has side airbag or curtain airbag.)

⚠ CAUTION

- Never attempt to measure the circuit resistance of the Seat Belt Pretensioner (BPT) even if you are using the specified tester. If the circuit resistance is measured with a tester, the pretensioner will be ignited accidentally. This will result in serious personal injury.

Restraint

Removal

1. Disconnect the battery negative cable, and wait for at least three minutes before beginning work.
2. Separate the front seat belt (A) from the emergency fastening device.

3. Remove the door scuff trim.
   (Refer to Body - "Interior Trim")
4. Remove the center pillar trim.
   (Refer to Body - "Interior Trim")
5. Remove the front seat belt upper anchor bolt.

6. Disconnect the front seat belt pretensioner connector (A).

7. Remove the seat belt pretensioner (A) after loosening the seat belt pretensioner mounting bolts.

Installation

1. Remove the ignition key from the vehicle.
2. Disconnect the battery negative cable and wait for at least three minutes.
3. Install the seat belt pretensioner.

   Tightening torque :
   Bolt A : 7.8 - 11.8 N.m (0.8 - 1.2 kgf.m, 5.8 - 8.7 lb-ft)
   Bolt B : 39.2 - 53.9 N.m (4.0 - 5.5 kgf.m, 28.9 - 39.8 lb-ft)

4. Connect the seat belt pretensioner connector.

   NOTICE
   - Make sure the lock pin is connected in properly.

5. Install the front seat belt upper anchor bolt.

   Tightening torque :
   39.2 - 53.9 N.m (4.0 - 5.5 kgf.m, 28.9 - 39.8 lb-ft)

6. Install the center pillar trim.
   (Refer to Body - "Interior Trim")
7. Install the door scuff trim.
   (Refer to Body - "Interior Trim")
8. Reconnect the battery negative cable.
9. After installing the seat belt pretensioner, confirm proper system operation:
   - Turn the ignition switch ON; the SRS indicator light should be turned on for about six seconds and then go off.