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INSTRUMENT PANEL

Warnings and Precautions

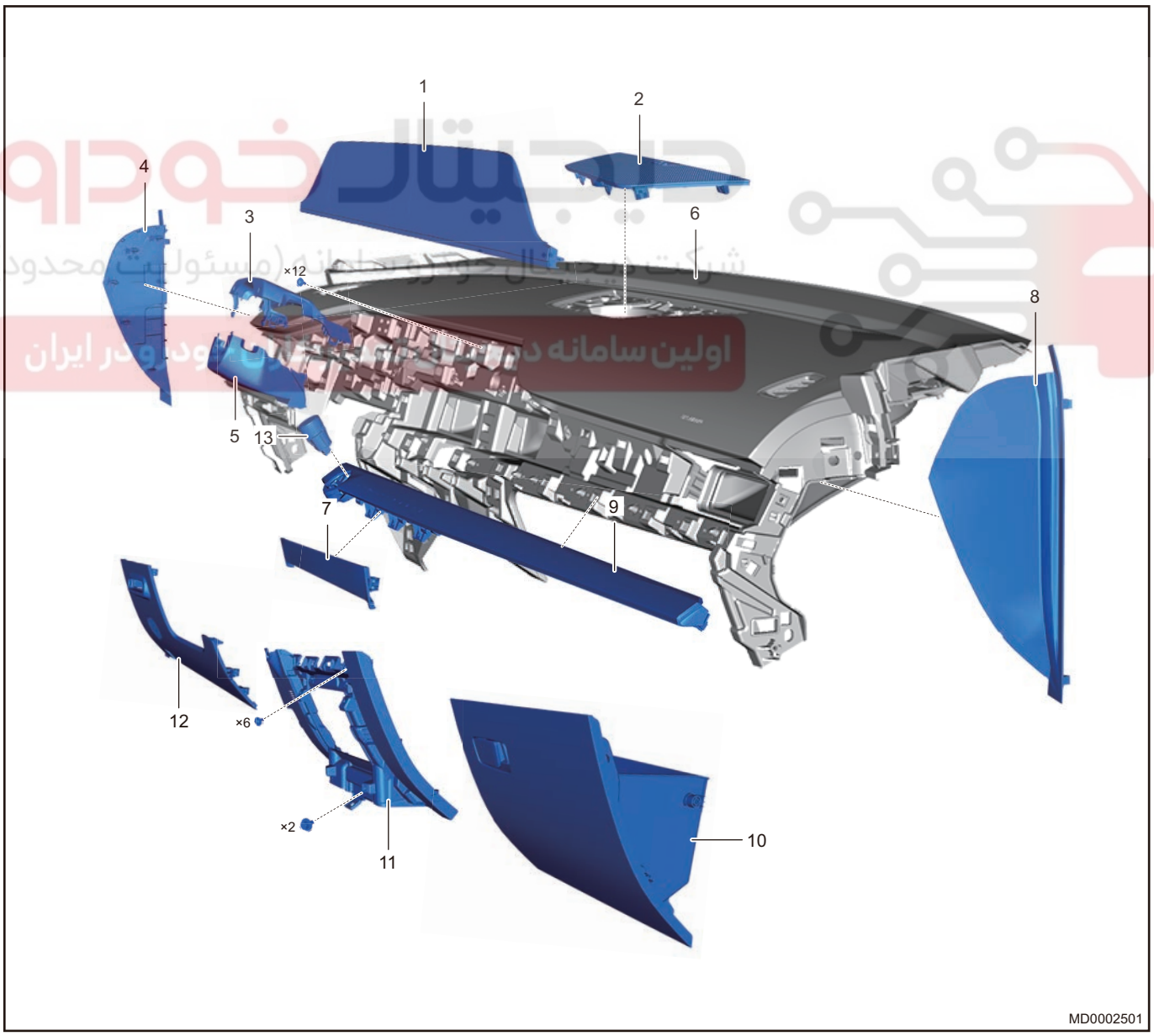
Precautions

In order to avoid possible property loss, personal injury or death, always follow the instructions below before repair.

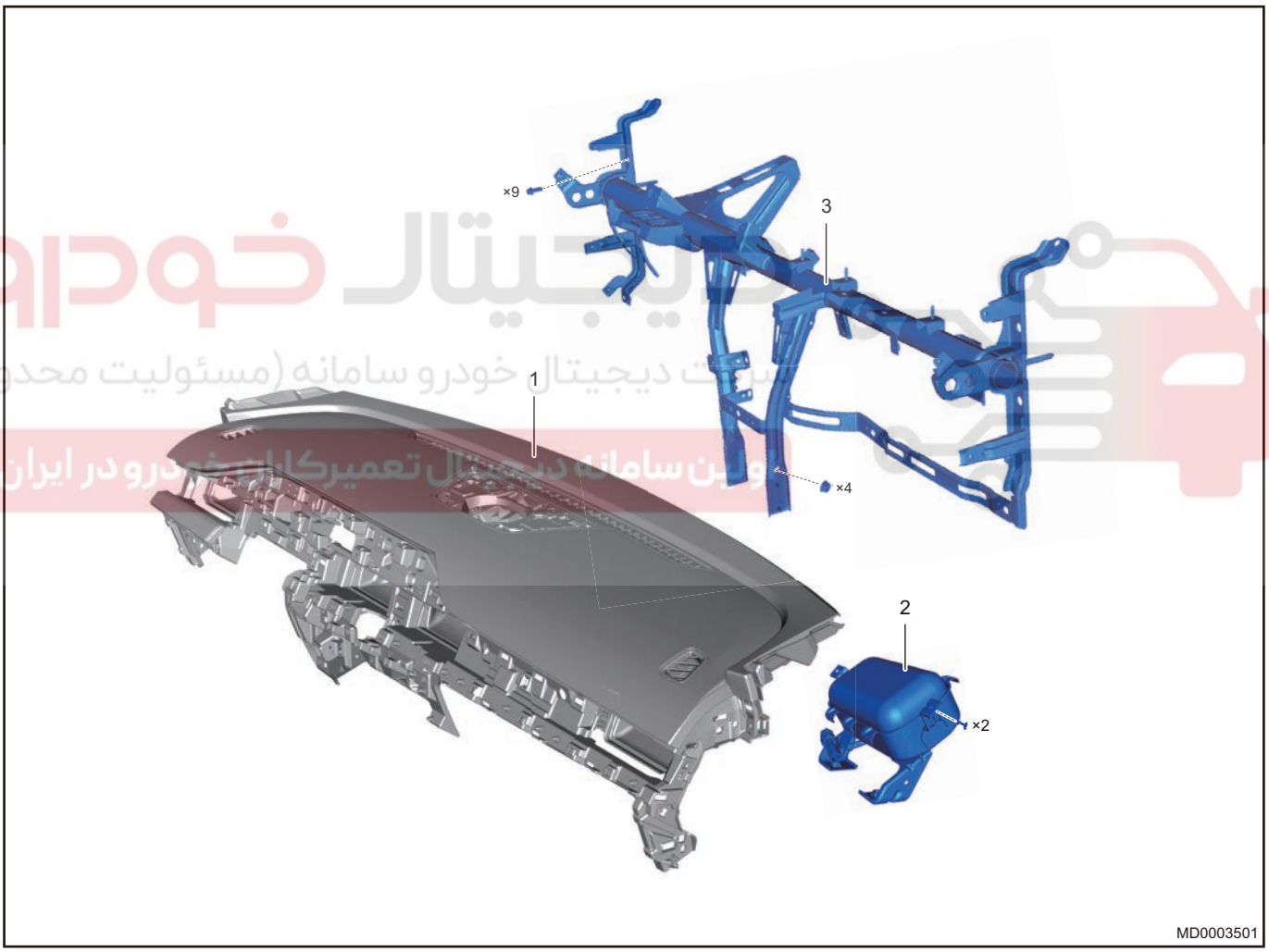
1. Be sure to wear safety equipment to prevent accidents, when removing instrument panel assembly.
2. Appropriate force should be applied, when removing instrument panel assembly. Be careful not to operate roughly.
3. DO NOT scratch interior and body paint, when removing instrument panel assembly.

System Overview

System Components Diagram



1	Dual LCD	8	Instrument Panel Right End Plate Assembly
2	Speaker Cover Assembly	9	A/C Control Panel Assembly
3	Combination Switch Upper Cover Assembly	10	Glove Box Assembly
4	Instrument Panel Left End Plate Assembly	11	Center Lower Protector Assembly
5	Combination Switch Lower Cover Assembly	12	Instrument Panel Lower Left Protector Assembly
6	Instrument Panel Assembly	13	ENGINE START STOP Switch
7	Auxiliary Fascia Console Bolt Plug		



1	Instrument Panel Assembly	3	Instrument Panel Crossmember Assembly
2	Front Passenger Airbag Assembly		

Specifications

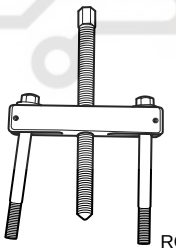
Torque Specifications

Description	Torque (N·m)
Instrument Panel Left Lower Protector Assembly Fixing Screw	1.5 ± 0.5
Combination Switch Lower Cover Fixing Screw	1.5 ± 0.5
Automatic A/C Control Panel Assembly Fixing Screw	1.5 ± 0.5
Fixing Bolt Between Passenger Side Airbag and Crossmember	23 ± 2
Instrument Panel Fixing Bolt	5 ± 1
Central Air Duct Fixing Screw	1.5 ± 0.5
Front Passenger Airbag Assembly Fixing Bolt	2.5 ± 0.5

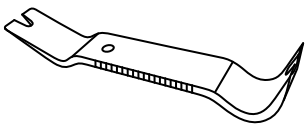
On-vehicle Service

Tools

Special Tool

Tool Name	Part No.	Tool Drawing
Steering Wheel Remover	ECH-0008	 RCH0000014

General Tool

Tool Name	Tool Drawing
Interior Crow Plate	 RCH0000006

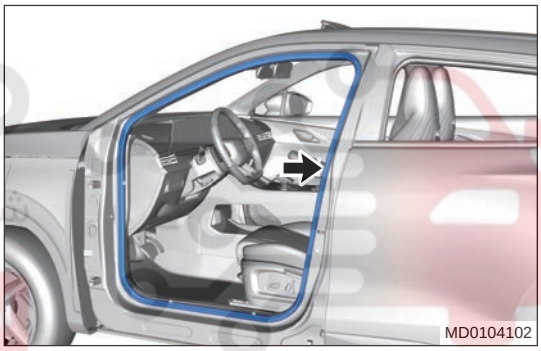
Replacement of Instrument Panel Assembly

Removal

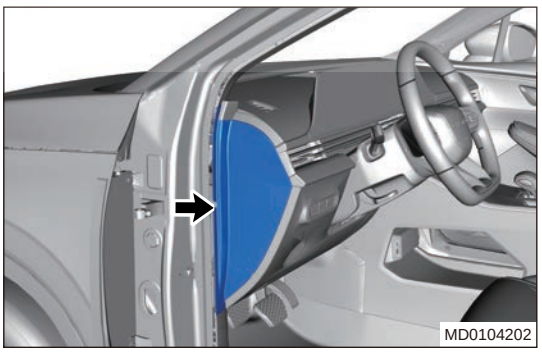
⚠ Warning

- Be sure to wear safety equipment to prevent accidents, when removing auxiliary fascia console assembly.
- All operations related with safety airbag components when removing the instrument panel should be performed after battery power supply is disconnected. Never operate it with power on. Because within 60 seconds after engine stalls or fuse removed, there is enough power remaining in the airbag control module for activating airbag, and the airbag can be accidentally activated, causing personal injury or vehicle damage.
- Never expose airbag components directly to hot air or open flame.
- Removed airbag should be well kept. If triggered accidentally, it may cause personal injury.
- Be sure to wear safety equipment to prevent accidents, when removing instrument panel assembly.
- DO NOT scratch interior and body paint, when removing instrument panel assembly.

1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the front left door opening weatherstrip (arrow).

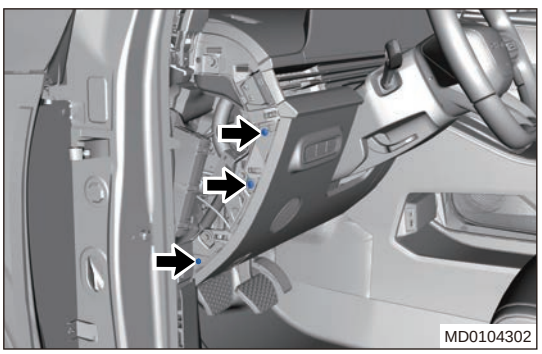


4. Using an interior crow plate, pry off clip from instrument panel left end panel assembly carefully and remove instrument panel left end panel assembly (arrow).



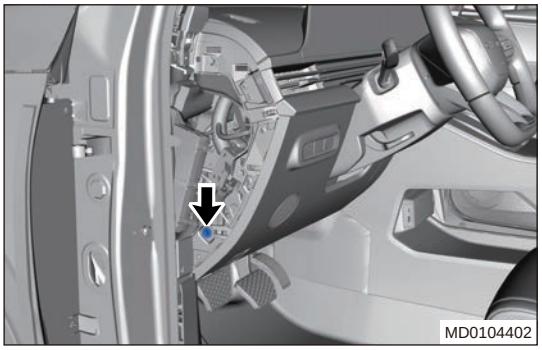
5. Remove 3 fixing screws (arrow) from instrument panel left end panel assembly.

   Tightening torque: 1.5 ± 0.5 N · m

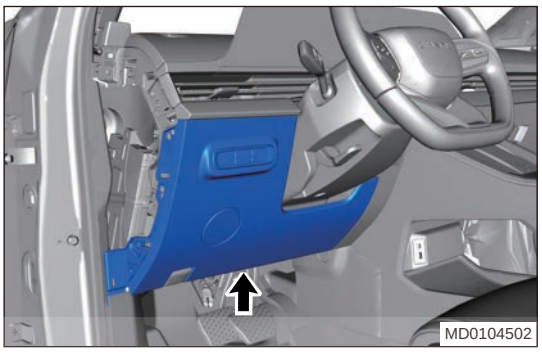


6. Remove 1 fixing bolt (arrow) from instrument panel left end panel assembly.

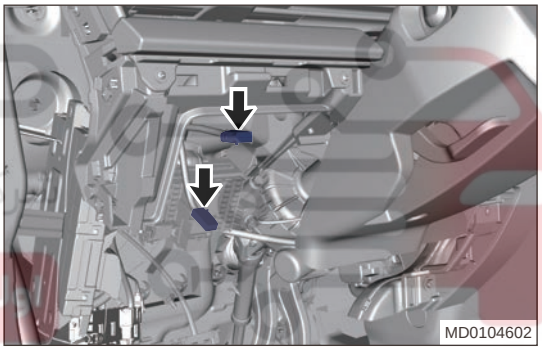
   Tightening torque: 5 ± 1.0 N · m



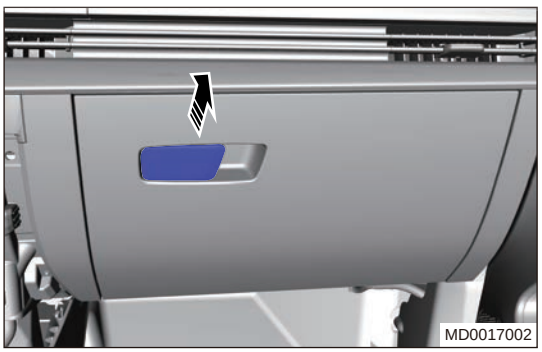
7. Pry up instrument panel lower left protector assembly (- arrow) with interior crow plate.



8. Disconnect driving assist switch connector and audio connector (arrow), and remove instrument panel lower left protector assembly.

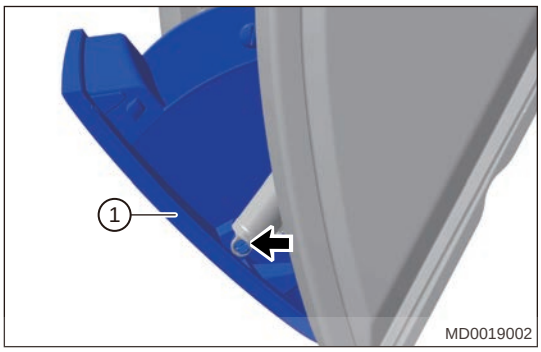


9. Remove the auxiliary fascia console assembly.
10. Press glove box switch and open glove box assembly in direction of arrow as shown in illustration.

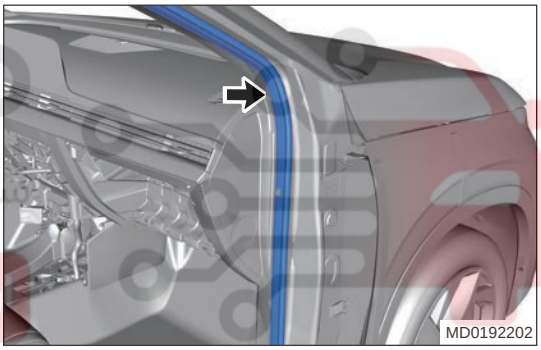


11. Rotate lock knob in direction of arrow as shown in illustration to remove it.

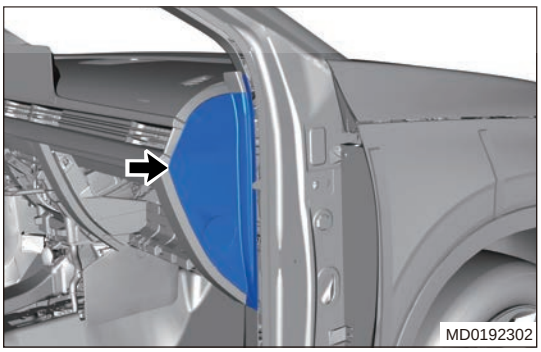
12. Detach the coupling clips between glove box and damper, detach claws from lower side of glove box assembly, and remove glove box assembly (1).



13. Remove the front right door opening weatherstrip (arrow).

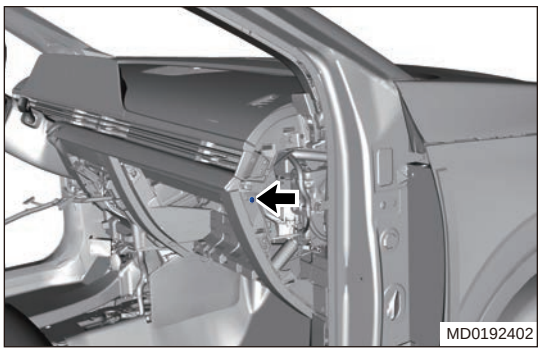


14. Using an interior crow plate, pry off clip from instrument panel right end panel assembly carefully and remove instrument panel right end panel assembly (arrow).



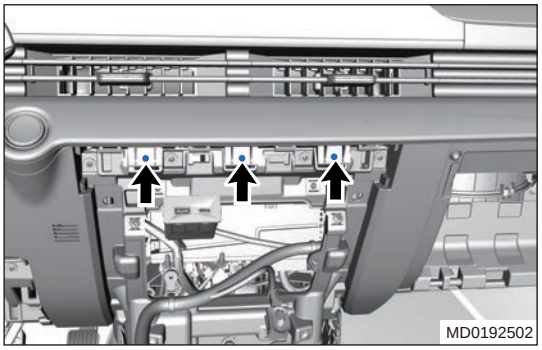
15. Remove 1 fixing screw (arrow) from A/C control panel assembly.

Tightening torque: 1.5 ± 0.5 N · m

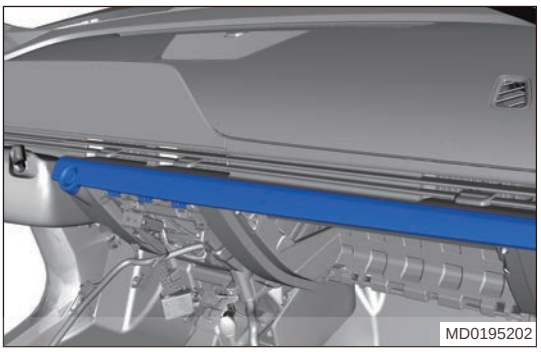


16. Remove 3 fixing screw (arrow) from A/C control panel assembly.

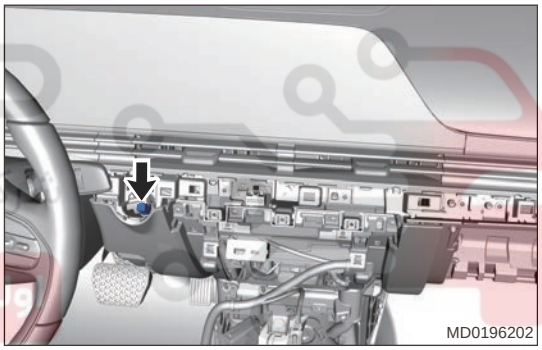
    Tightening torque: 1.5 ± 0.5 N · m



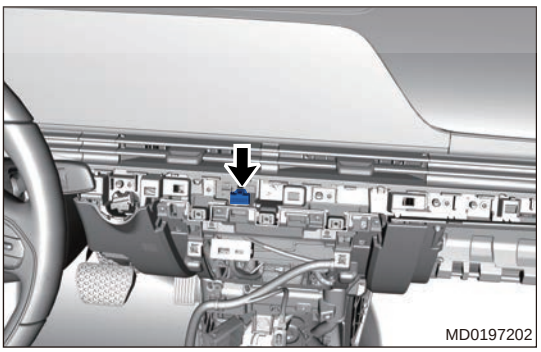
17. Using an interior crow plate, carefully pry off the A/C control panel assembly (arrow).



18. Disconnect the ENGINE START STOP switch connector (arrow).



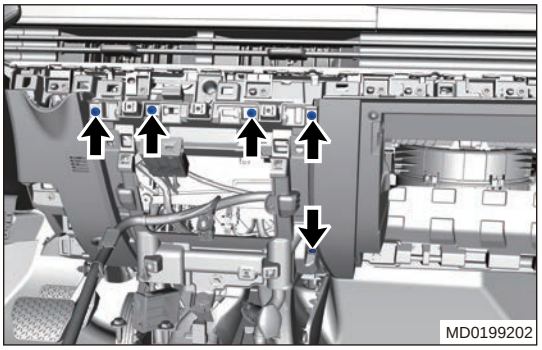
19. Disconnect connector (arrow) from A/C control panel.



20. Remove the A/C control panel assembly.

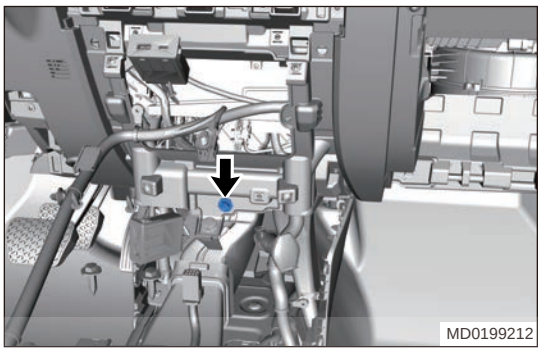
21. Remove 5 fixing screws (arrow) from center lower protector assembly.

    Tightening torque: 1.5 ± 0.5 N · m

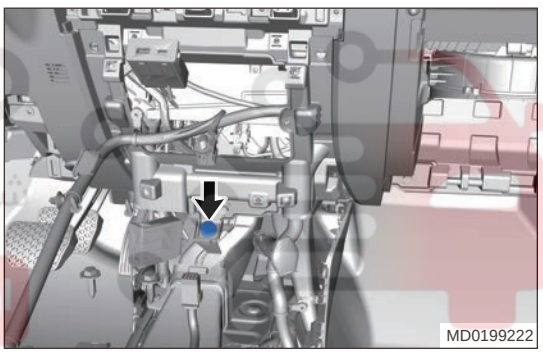


22. Remove 1 fixing bolt (arrow) from center lower protector assembly.

    Tightening torque: 5 ± 1.0 N · m

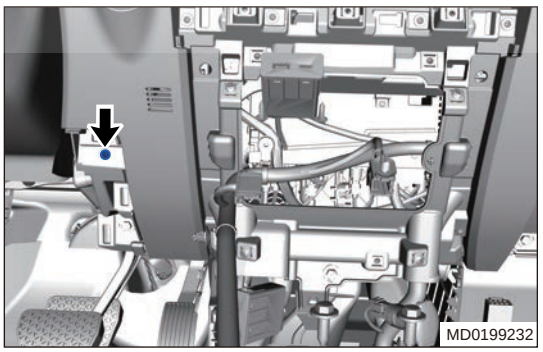


23. Remove 1 fixing clip (arrow) from center lower protector assembly.



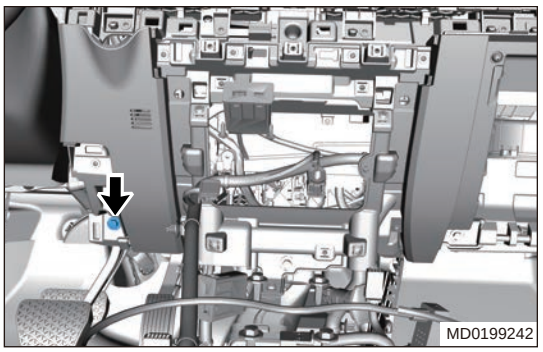
24. Remove 1 fixing screw (arrow) from the left side of center lower protector assembly.

    Tightening torque: 1.5 ± 0.5 N · m

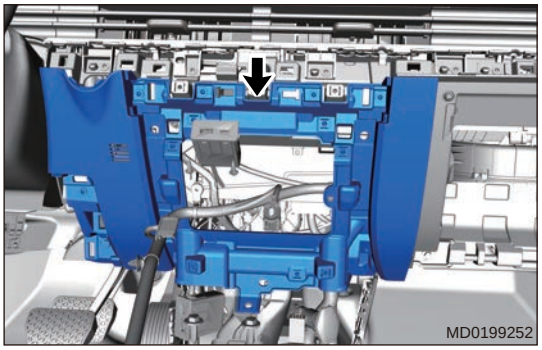


25. Remove 1 fixing bolt (arrow) from the left side of center lower protector assembly.

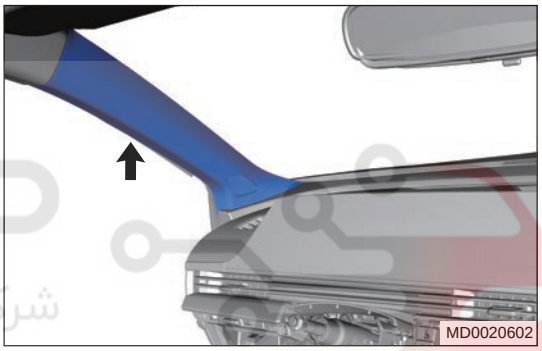
    Tightening torque: 5 ± 1.0 N · m



26. Pry up center lower protector assembly with interior crow plate.



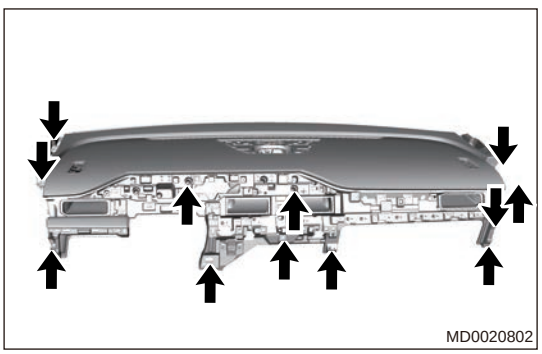
27. Remove the driver airbag assembly.
28. Remove the steering wheel assembly.
29. Remove the combination switch lower cover assembly.
30. Remove the combination switch assembly.
31. Remove the dual LCD.
32. Remove the front passenger airbag.
33. Remove the left A-pillar upper protector assembly (arrow).



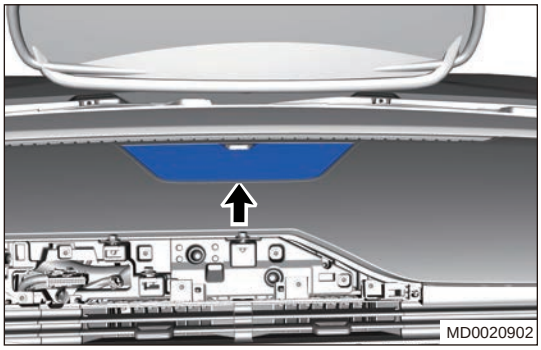
34. Remove the right A-pillar upper protector assembly (arrow).

35. Remove 12 fixing bolts (arrow) from instrument panel.

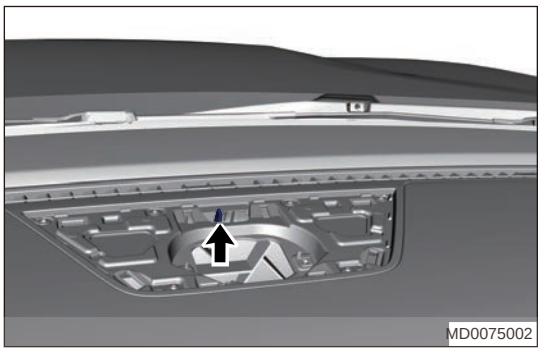
Tightening torque: 5 ± 1 N · m



36. Pry off speaker cover assembly (arrow).



37. Disconnect speaker connector, and remove speaker assembly (arrow).



38. Remove the instrument panel assembly.

Installation

⚠ Caution

- Installation is in the reverse order of removal.

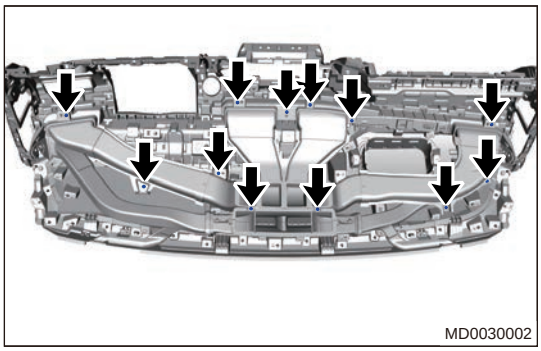
Disassembly

⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when disassembling instrument panel.
- Appropriate force should be applied, when disassembling instrument panel. Be careful not to operate roughly.

1. Remove 12 fixing screws (arrow) from central air duct.

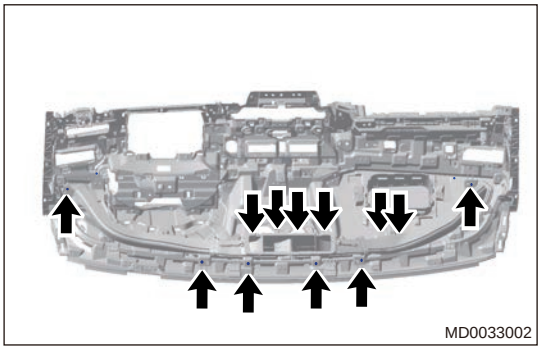
   Tightening torque: 1.5 ± 0.5 N · m



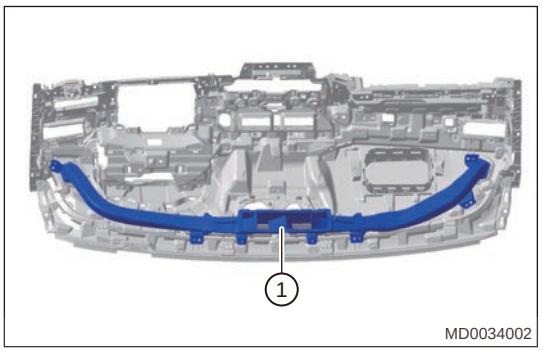
2. Remove the central air duct.

3. Remove 12 fixing screws (arrow) from central defroster duct.

   Tightening torque: 1.5 ± 0.5 N · m

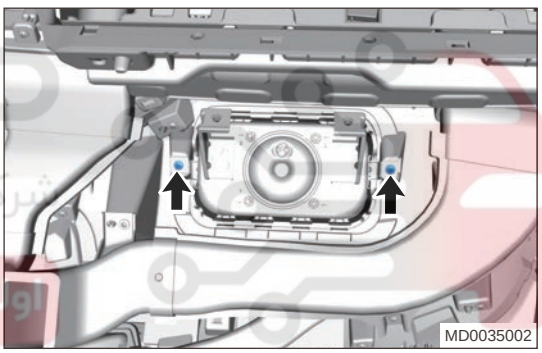


4. Remove the central defroster duct (1).

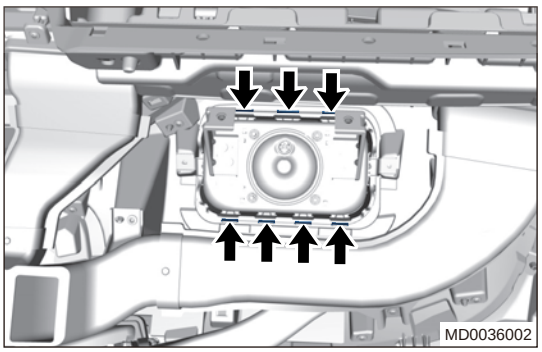


5. Remove 2 fixing screws (arrow) from front passenger airbag assembly.

   Tightening torque: 2.5 ± 0.5 N · m



6. Disengage 7 fixing clips (arrow) from front passenger airbag assembly.



7. Remove the front passenger airbag assembly.

Assembly

⚠ Caution
• Reassembly is in the reverse order of disassembly.

Replacement of Instrument Panel Crossmember Assembly

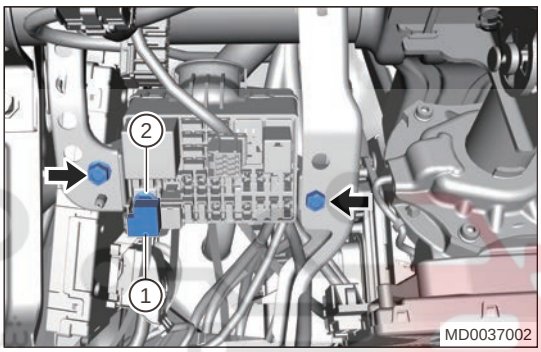
Removal

Warning

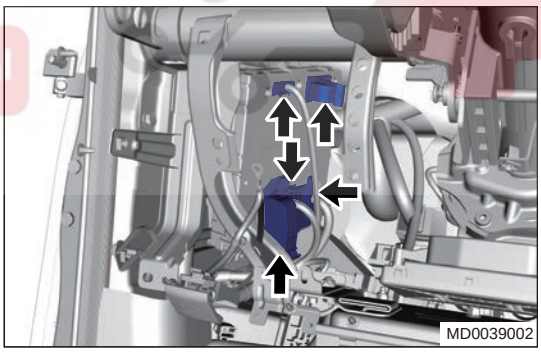
- Be sure to wear safety equipment to prevent accidents, when removing instrument panel crossmember assembly.
- Try to prevent interior and body paint surface from being scratched, when removing instrument panel crossmember assembly.

1. Turn off all electrical equipment and the ignition switch.
2. Disconnect the negative battery cable.
3. Remove the instrument panel assembly.
4. Remove the front windshield lower trim board assembly.
5. Pry off the power supply protector cover (1) from instrument panel relay and fuse box and remove power supply cable fixing nut (2).
6. Remove 2 fixing bolts (arrow) from instrument panel and relay box.

   Tightening torque: 9 ± 1 N · m

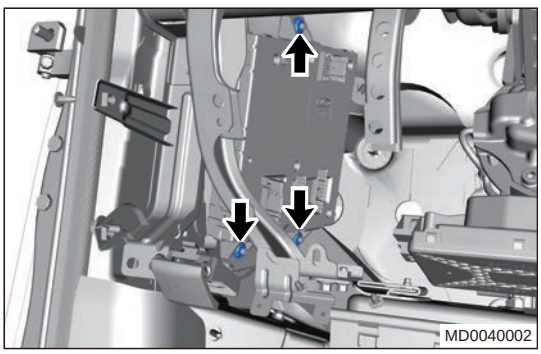


7. Disconnect 5 connectors (arrow) from Body Control Module (BCM).

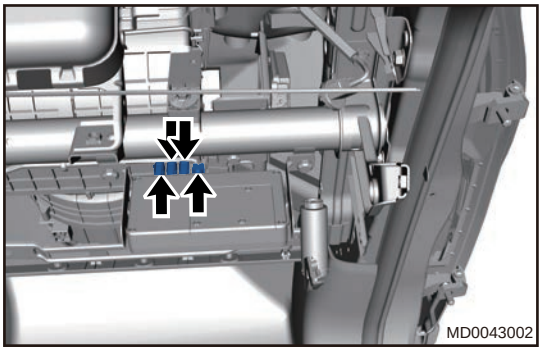


8. Remove 3 fixing nuts (arrow) from Body Control Module (BCM).

   Tightening torque: 7 ± 1 N · m

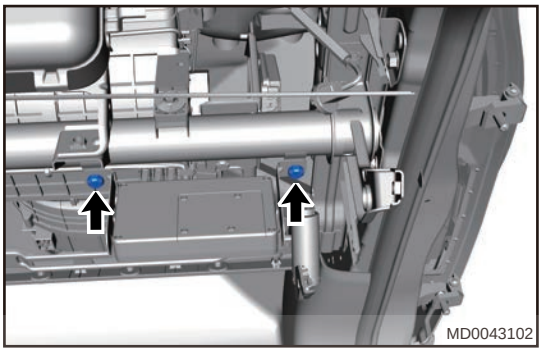


9. Disconnect the wireless communication module connector (arrow).

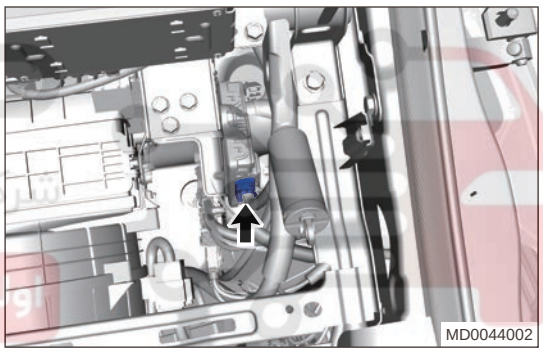


10. Remove 2 fixing bolts (arrow) from wireless communication module.

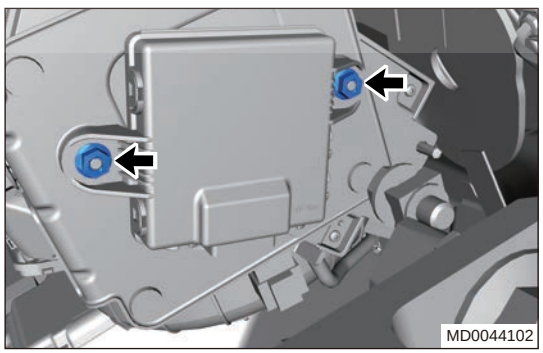
Tightening torque: 5 N · m



11. Disconnect the gateway module connector (arrow).

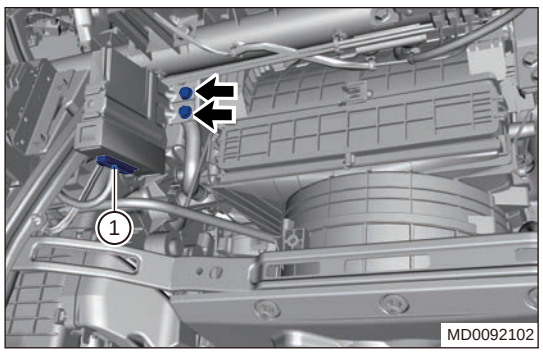


12. Remove 2 fixing nuts (arrow) from network module.

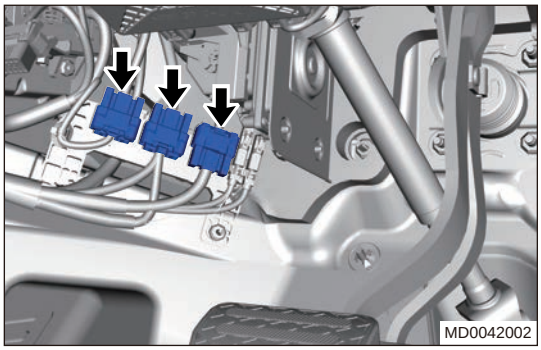


13. Disconnect PEPS module connector (1), remove 2 fixings bolts (arrow) from PEPS.

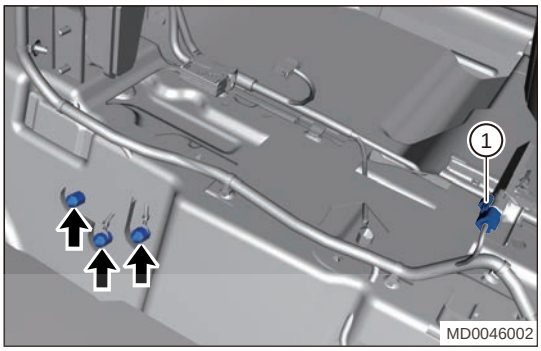
Tightening torque: 7 ± 1 N · m



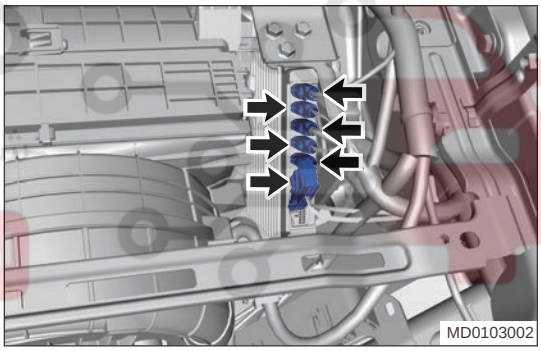
14. Remove the PEPS control module.
15. Disconnect 3 connectors (arrow) between instrument panel wire harness and interior wire harness.



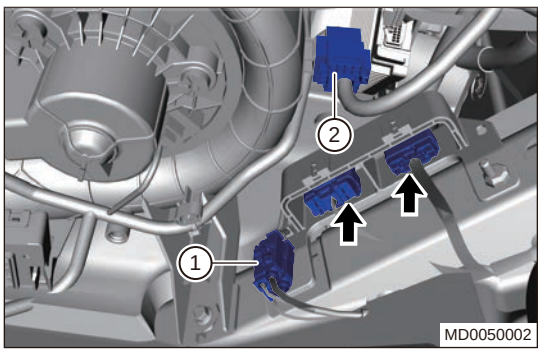
16. Fold back the front passenger carpet to remove instrument panel wire harness body ground nuts (arrow) and disconnect low frequency antenna connector (1).



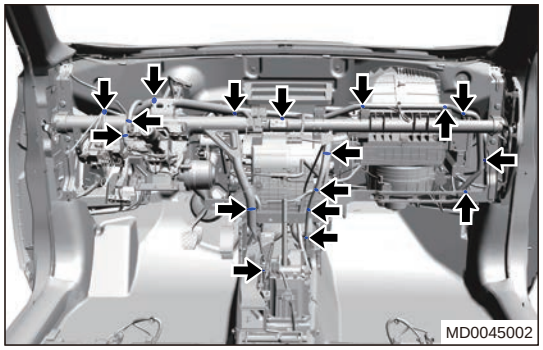
17. Disconnect 6 connectors (arrow) from panorama parking module.



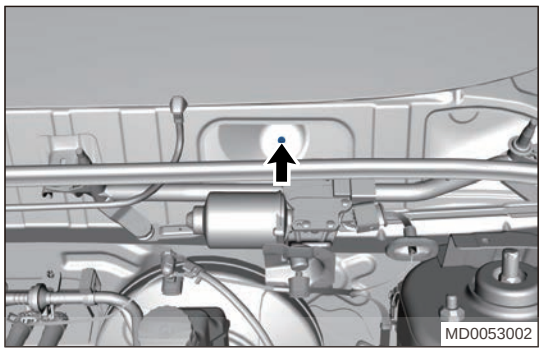
18. Disconnect radio antenna connector (1), A/C wire harness connector (2), 2 connectors (arrow) between instrument panel wire harness and interior wire harness.



19. Disconnect all wire harness fixing clips (arrow) from instrument panel crossmember.

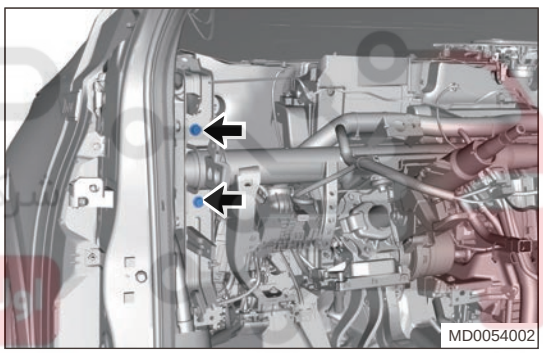


20. Remove 1 fixing bolt (arrow) under front windshield lower trim board outside the instrument panel.



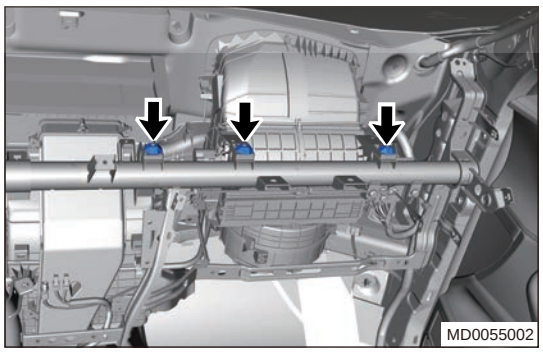
21. Remove 2 fixing bolts (arrow) from instrument panel crossmember (take left side as an example).

Tightening torque: 25 ± 3.5 N · m



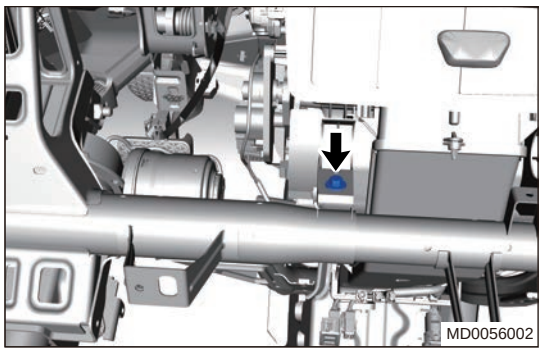
22. Remove 3 fixing nuts (arrow) between HVAC assembly and instrument panel crossmember.

Tightening torque: 5 ± 1 N · m



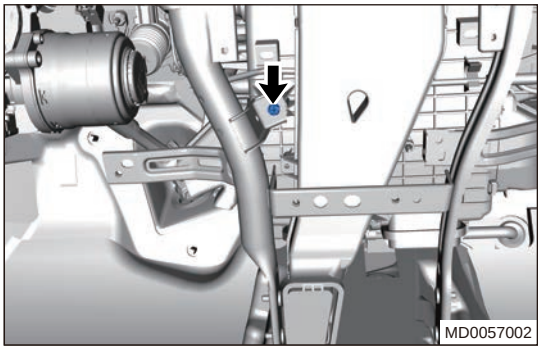
23. Remove fixing bolt (arrow) between HVAC assembly and instrument panel crossmember.

Tightening torque: 5 ± 1 N · m



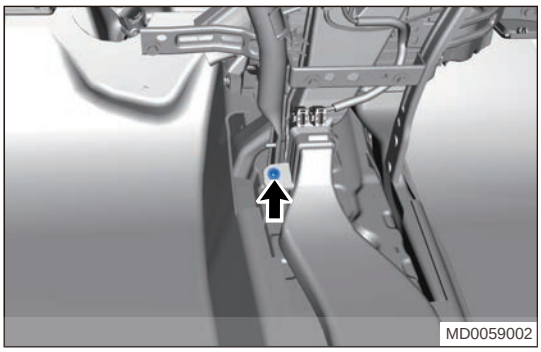
24. Remove fixing bolt (arrow) between HVAC assembly and instrument panel crossmember.

    Tightening torque: 2.5 ± 0.5 N · m



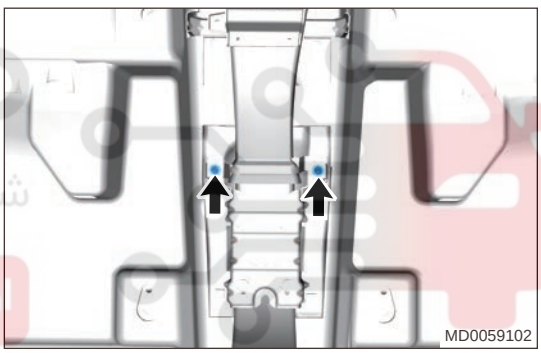
25. Remove 1 fixing screw (arrow) from front part of rear face air duct.

    Tightening torque: 1.5 ± 0.5 N · m



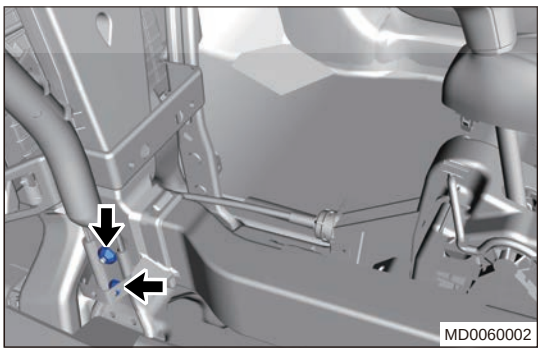
26. Remove 2 fixing screw (arrow) from front part of rear face air duct.

    Tightening torque: 1.5 ± 0.5 N · m



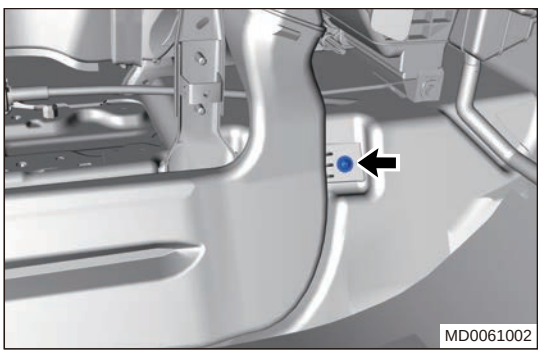
27. Remove 2 fixing nuts (arrow) from lower part of instrument panel crossmember (take left side as an example).

    Tightening torque: 23 ± 2 N · m



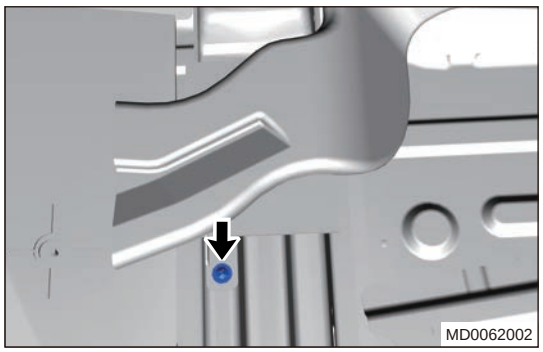
28. Fold back the front passenger carpet to remove 1 fixing screw (arrow) from right foot duct.

    Tightening torque: 5 ± 1 N · m

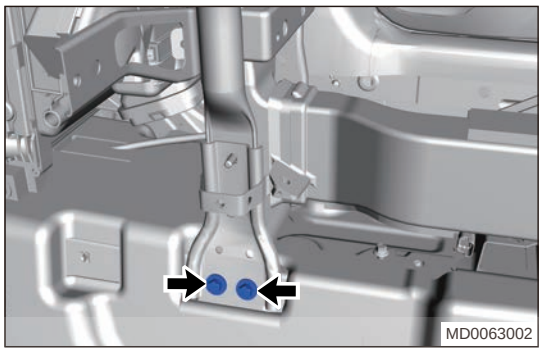


29. Fold back the front passenger carpet to remove fixing screw (arrow) from right foot duct and take away the right foot duct.

    Tightening torque: 5 ± 1 N · m

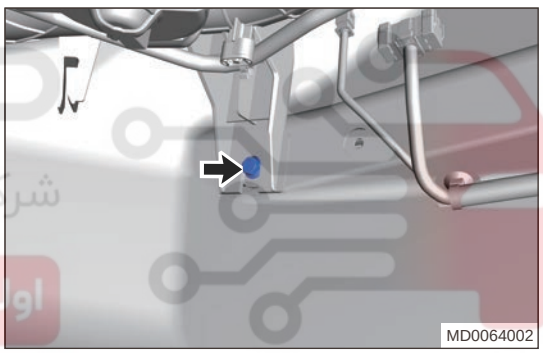


30. Remove 2 fixing bolts (arrow) from instrument panel crossmember fixing bracket (take left side as an example).

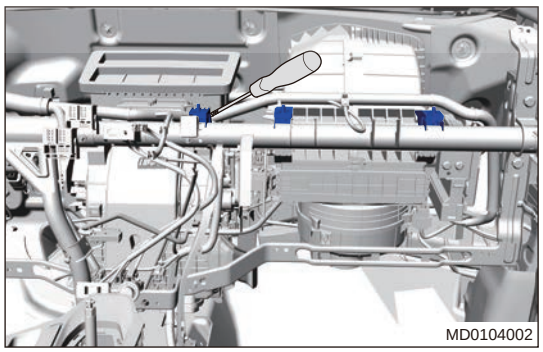


31. Remove fixing bolt (arrow) between HVAC assembly and body.

    Tightening torque: 5 ± 1 N · m



32. Detach HVAC assembly from instrument panel crossmember assembly with a flat tip screwdriver.



33. Carefully remove the instrument panel crossmember assembly.

Installation

- Installation is in the reverse order of removal.

⚠ Caution

- Be sure to tighten fixing bolts to specified torque, when installing instrument panel crossmember assembly.
- Check airbag for proper installation, after installing instrument panel crossmember assembly.
- Check each electrical equipment for proper operation, after installing instrument panel crossmember assembly.

AUXILIARY FASCIA CONSOLE

Warnings and Precautions

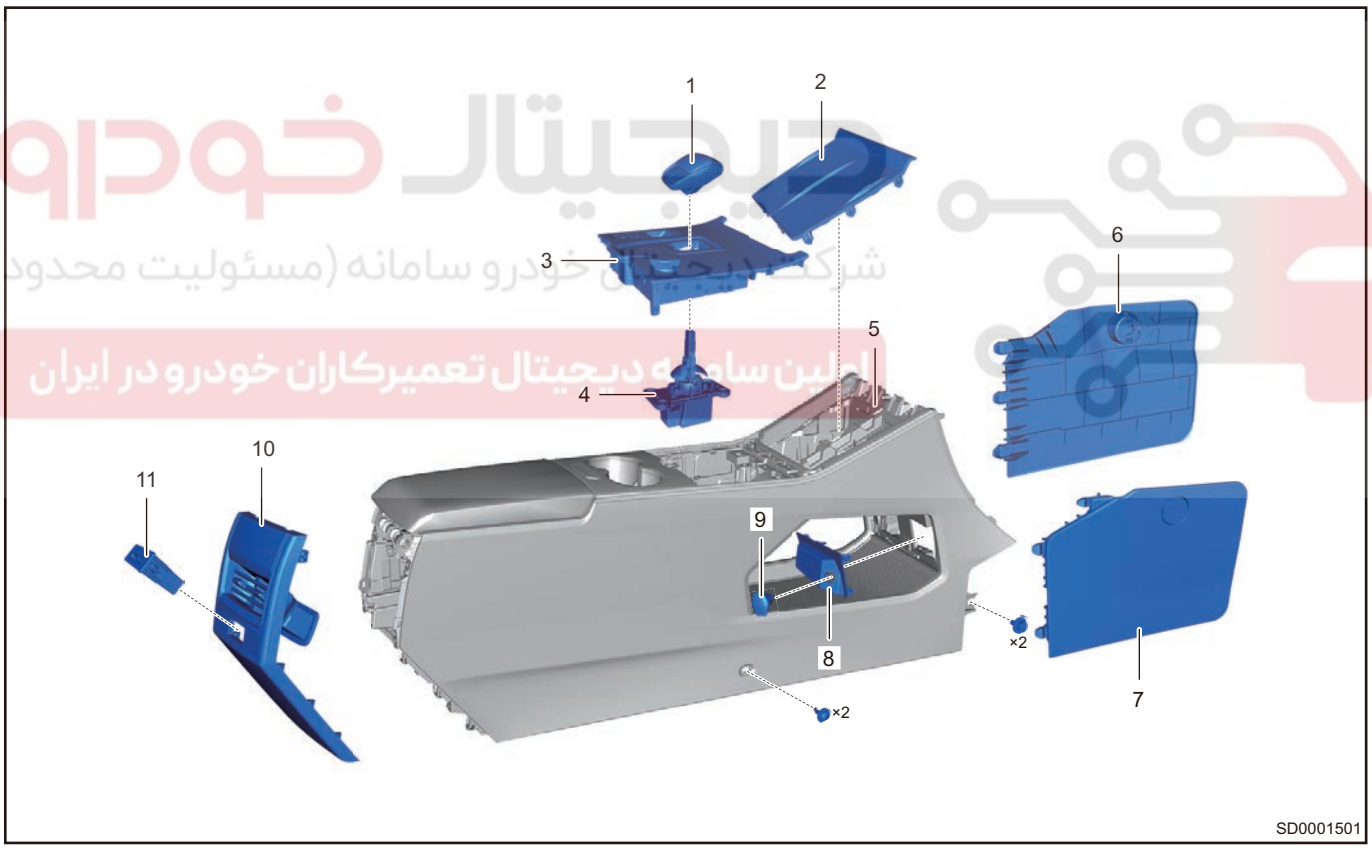
Precautions

In order to avoid possible property loss, personal injury or death, always follow the instructions below before repair.

1. Be sure to wear safety equipment to prevent accidents, when removing auxiliary fascia console assembly.
2. Appropriate force should be applied, when removing auxiliary fascia console assembly. Be careful not to operate roughly.
3. DO NOT scratch interior and body paint, when removing auxiliary fascia console assembly.

System Overview

System Components Diagram



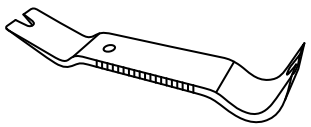
1	Electronic shift lever	7	Auxiliary Fascia Console Front Right Protector Assembly
2	Front Storage Box	8	Storage Box Block Cover
3	Auxiliary Fascia Console Control Panel	9	Backup Power Supply
4	Electronic Shift Mechanism	10	Auxiliary Fascia Console Rear Panel Assembly

5	Auxiliary Fascia Console Body	11	USB
6	Auxiliary Fascia Console Front Left Protector Assembly		

On-vehicle Service

Tool

General Tool

Tool Name	Tool Drawing
Interior Crow Plate	 RCH0000006

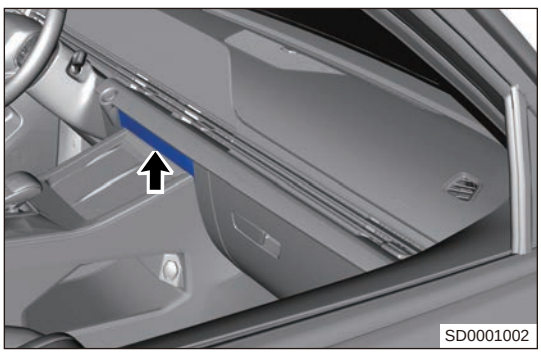
Replacement of Auxiliary Fascia Console

Removal

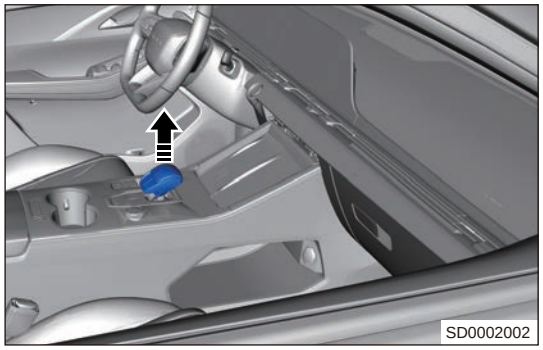
Warning

- Be sure to wear safety equipment to prevent accidents, when removing auxiliary fascia console assembly.
- Appropriate force should be applied, when removing auxiliary fascia console assembly. Be careful not to operate roughly.
- DO NOT scratch interior and body paint, when removing auxiliary fascia console assembly.

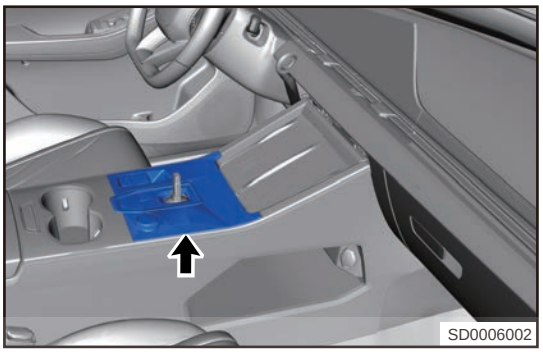
1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable and wait for 30 seconds.
3. Remove auxiliary fascia console bolt plug (arrow) carefully with a small flathead screwdriver.


SD0001002

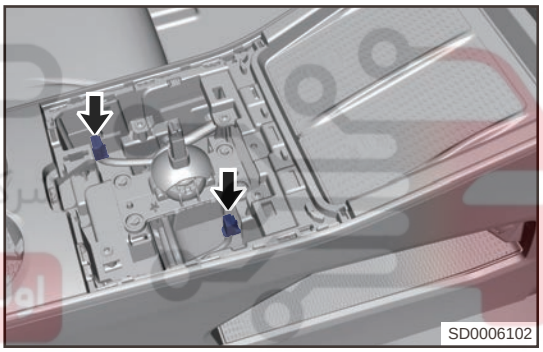
4. Hold electronic shift lever with both hands and pull it out forcibly (arrow).



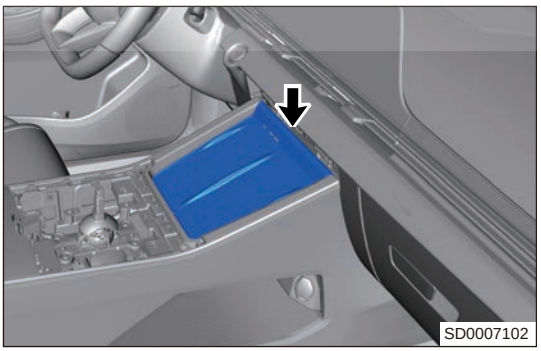
5. Using an interior crow plate, remove the auxiliary fascia console control panel (arrow).



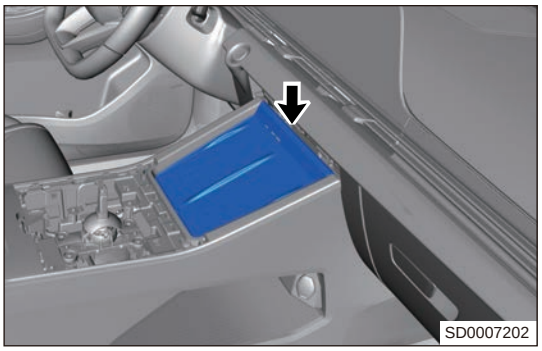
6. Disconnect 2 wire harness connectors (arrow) from auxiliary fascia console control panel.



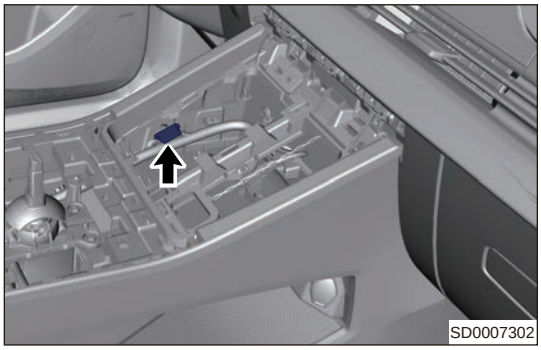
7. Remove the auxiliary fascia console front storage box rubber gasket (arrow).



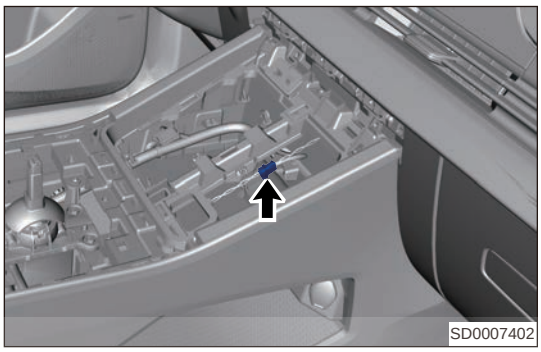
8. Remove front storage box (arrow) with a tool.



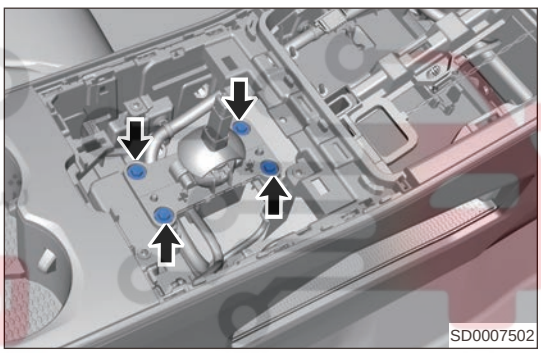
9. Disconnect 1 wire harness connector (arrow) from wireless charging module.



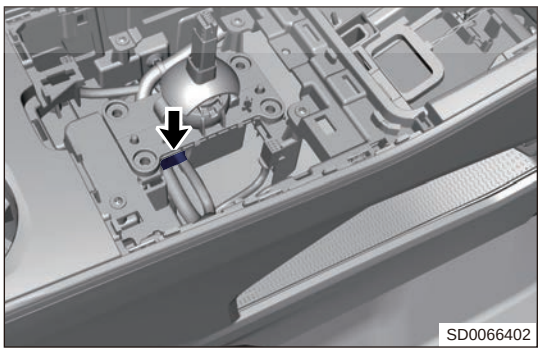
10. Disconnect 1 wire harness connector (arrow) from key induction coil.



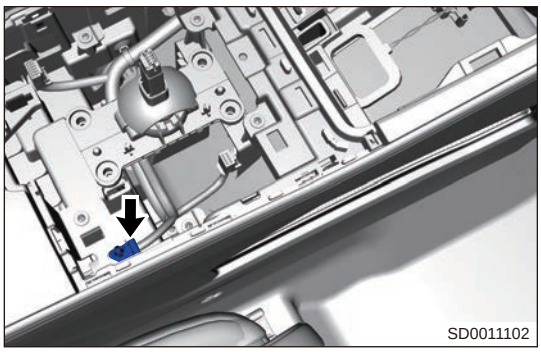
11. Remove 4 fixing bolts (arrow) from electronic shift mechanism.



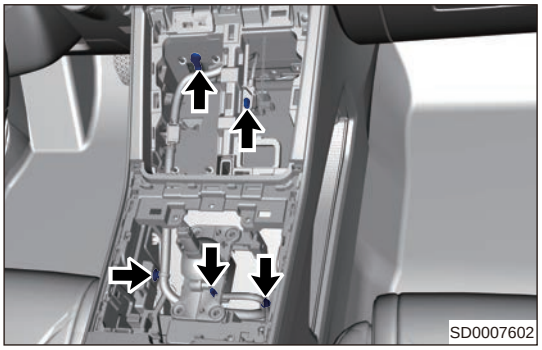
12. Disconnect 1 wire harness connector from electronic shift mechanism and remove electronic shift mechanism assembly (arrow).



13. Disconnect 1 wire harness connectors (arrow) from auxiliary fascia console.

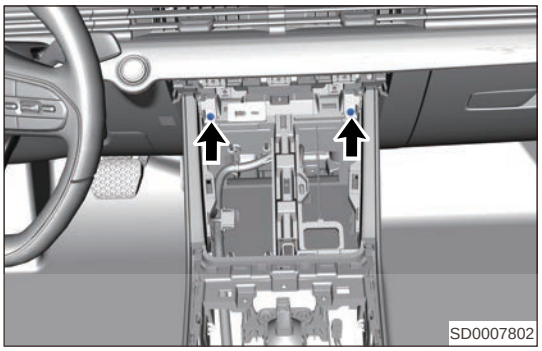


14. Remove 5 wire harness clips (arrow) with interior crow plate.

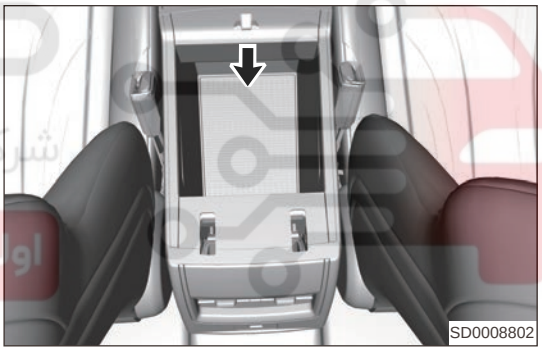


15. Pull the wire harness out from auxiliary fascia console.

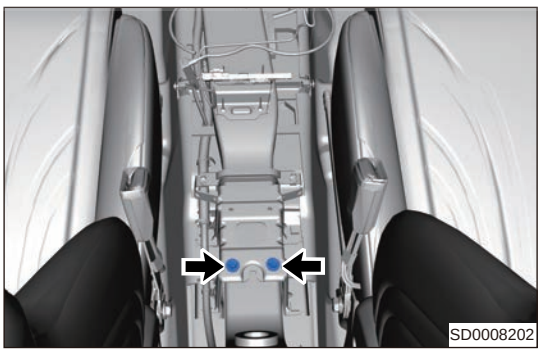
16. Remove 2 fixing screws (arrow) from upper part of auxiliary fascia console.



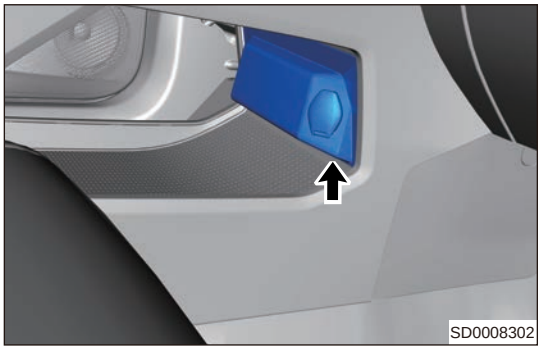
17. Remove the rubber pad (arrow) from center armrest box.



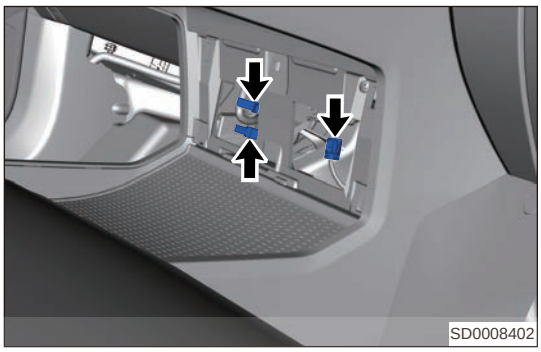
18. Remove 2 fixing bolts (arrow) from center armrest box.



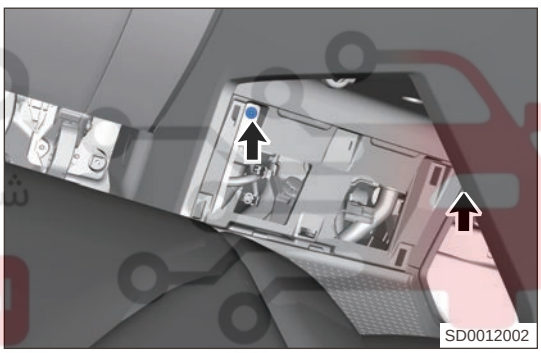
19. Remove storage box block cover (arrow) carefully with a small flathead screwdriver.



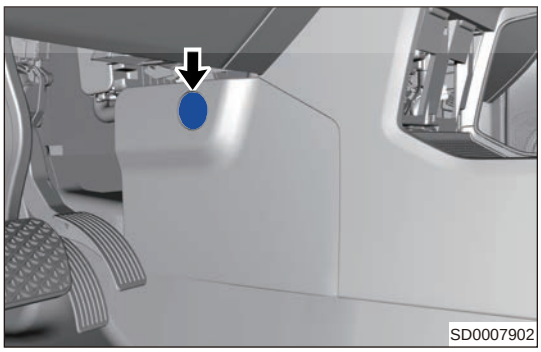
20. Disconnect 3 wire harness connectors (arrow) from storage box block cover.



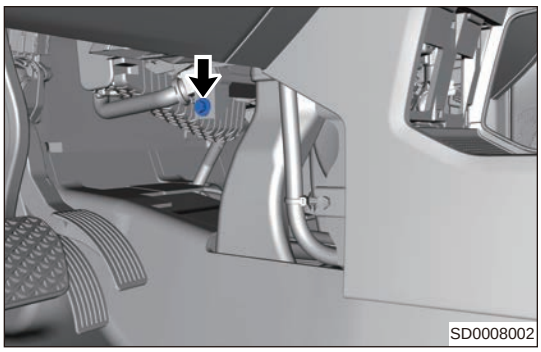
21. Remove 2 fixing screws (arrow) from lower part of auxiliary fascia console.



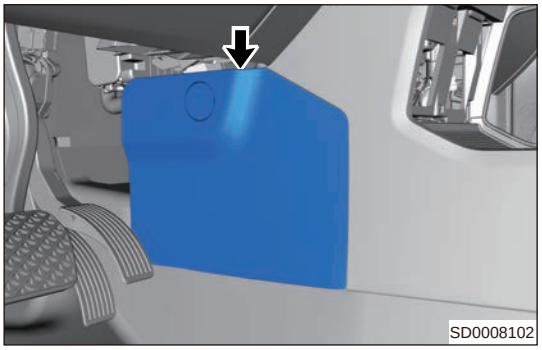
22. Remove the front left end cover plate block cover (arrow) carefully with a small flathead screwdriver.



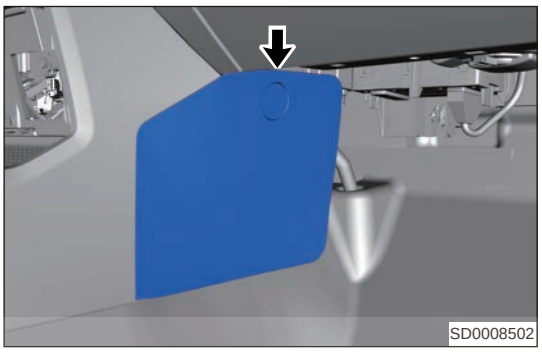
23. Remove 1 fixing bolt (arrow) from the auxiliary fascia console front left end cover plate.



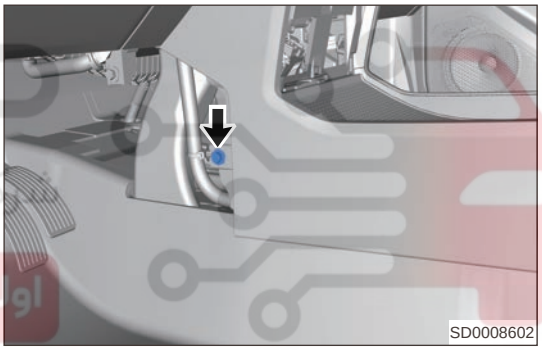
24. Remove the auxiliary fascia console front left end protector (arrow).



25. Remove the auxiliary fascia console front right end cover plate (arrow).

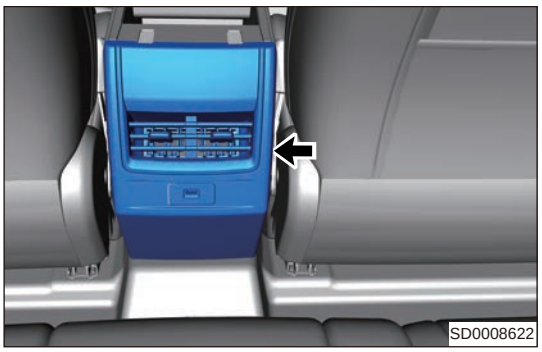


26. Remove 1 fixing bolt (arrow) from the auxiliary fascia console front left end (same to the right).

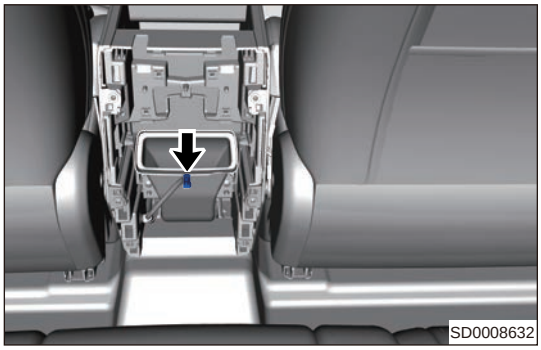


27. Remove 1 fixing screw from the center left part of auxiliary fascia console (same to the right).

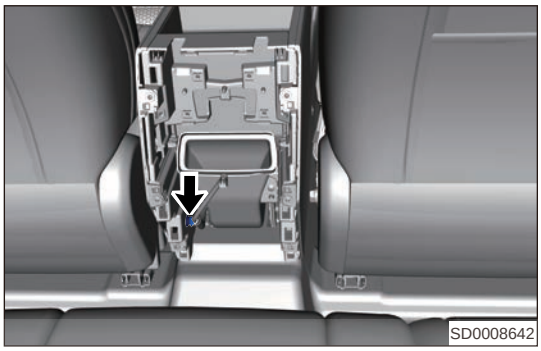
28. Using an interior crow plate, carefully remove he auxiliary fascia console rear panel assembly (arrow).



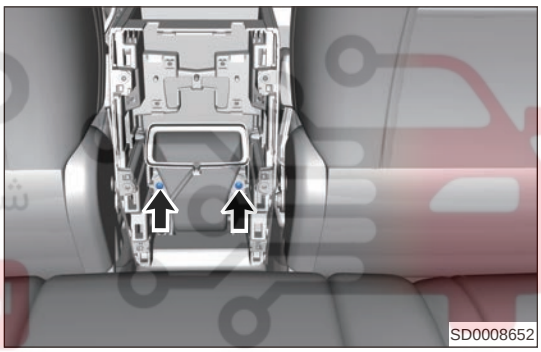
29. Disconnect 1 wire harness connector (arrow) from auxiliary fascia console rear panel assembly, and remove the auxiliary fascia console rear panel assembly.



30. Remove 1 wire harness clips (arrow) with interior crow plate.



31. Remove 2 fixing screws (arrow) from the rear part of rear face air duct assembly.



32. Remove the rear part of rear face air duct assembly.
33. Remove the auxiliary fascia console assembly.

Inspection

1. Inspect if front bracket of auxiliary fascia console is deformed and corroded.
2. Inspect if auxiliary fascia console has abnormal scratches.

Installation

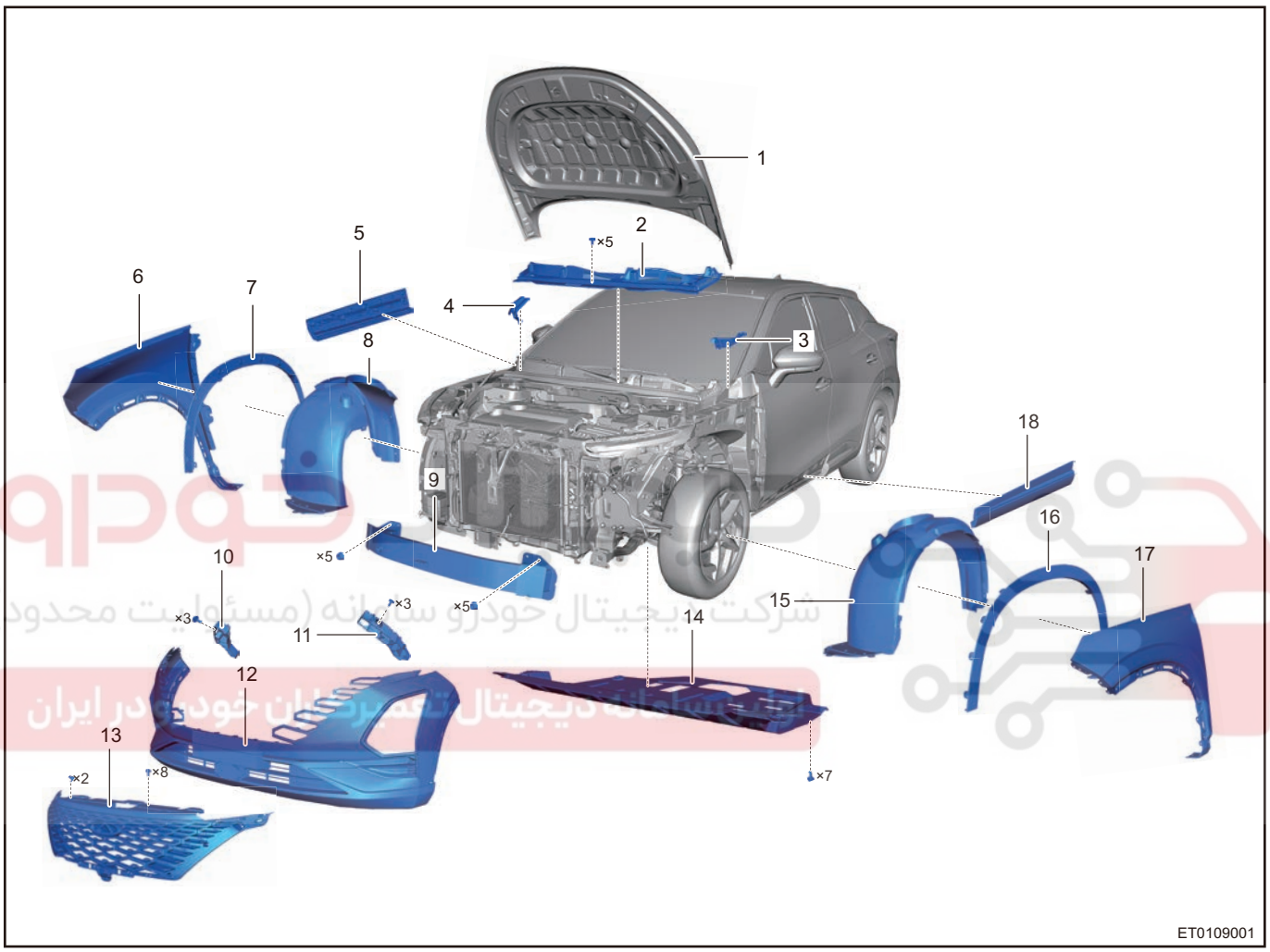
1. Assembly is in the reverse order of disassembly.

EXTERIOR

GENERAL INFORMATION

Description

Front View



1	Engine Hood Assembly	10	Front Bumper Right Bracket
2	Front Windshield Lower Support Assembly	11	Front Bumper Left Bracket
3	Front Windshield Lower Trim Panel Left Cover Plate	12	Front Bumper Assembly
4	Front Windshield Lower Trim Panel Right Cover Plate	13	Radiator Grille Assembly
5	Front Right Door Trim Panel Assembly	14	Engine Lower Protector
6	Right Wing	15	Front Left Wheel House Protector Assembly

7	Front Right Wheel Arch Ornament Assembly	16	Front Left Wheel Arch Ornament Assembly
8	Front Right Wheel House Protector Assembly	17	Left Wing
9	Front Impact Crossmember Assembly	18	Front Left Door Trim Panel Assembly

Rear View

1	Right Rack Body	9	Right D-pillar Trim Board Assembly
2	Left Rack Body	10	Rear Bumper Right Mounting Bracket
3	Spoiler Assembly	11	Rear Right Wheel House Protector Assembly
4	Left D-pillar Trim Board Assembly	12	Rear Right Door Trim Panel Assembly
5	Rear Bumper Left Mounting Bracket	13	Rear Right Wheel Arch Ornament Assembly
6	Rear Left Wheel House Protector Assembly	14	Rear Bumper Body Assembly
7	Rear Left Wheel Arch Ornament Assembly	15	Rear Bumper Crossmember Body
8	Rear Left Door Trim Board Assembly		

Bumper assembly and bumper crossmember assembly are safety device to protect the front and rear body, which mainly absorb and reduce outside shock.

Exterior mainly consists of front bumper assembly, front bumper mounting bracket, front bumper crossmember assembly, grille, front wheel house protector, front wheel arch, wing assembly, wing trim panel assembly, side skirt protector assembly, door trim panel assembly, engine lower protector, rear bumper assembly, rear bumper mounting bracket, rear bumper bracket, rear bumper crossmember assembly, rear wheel house protector, front windshield lower support assembly, fuel filler cap assembly, fuel tank spoiler, D-pillar protector assembly, roof rack assembly, spoiler, etc.

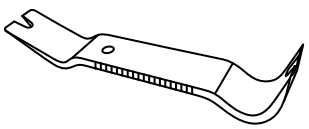
Specifications

Torque Specifications

Description	Torque (N·m)
Front Wheel Arch Fixing Screw	1.5 ± 0.5
Front Bumper Fixing Screw	1.5 ± 0.5
Front Bumper Fixing Bolt	5 ± 1
Radiator Grille Fixing Screw	1.5 ± 0.5
Front Camera Fixing Screw	1.5 ± 0.5
Front Bumper Bracket Fixing Bolt	5 ± 1.0
Front Bumper Crossmember Assembly Fixing Nut	48 ± 7.0
Front Windshield Lower Support Fixing Screw	1.5 ± 0.5
Wing Assembly Fixing Bolt	6 ± 1.0
Rear Spoiler Fixing Nut	5 ± 1
Engine Lower Protector Fixing Bolt	5 ± 1
Rear Wheel Arch Fixing Screw	1.5 ± 0.5

Tool

General Tool

Tool Name	Tool Drawing
Interior Crow Plate	 RCH0000006

ON-VEHICLE SERVICE

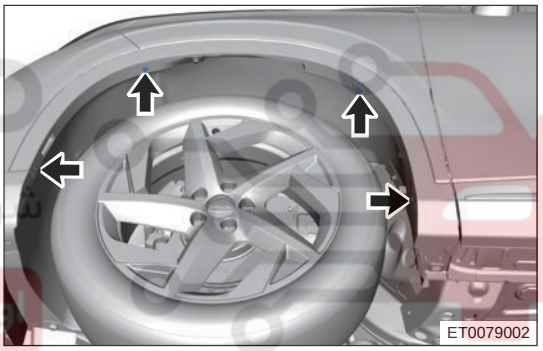
Front Bumper Assembly

Removal

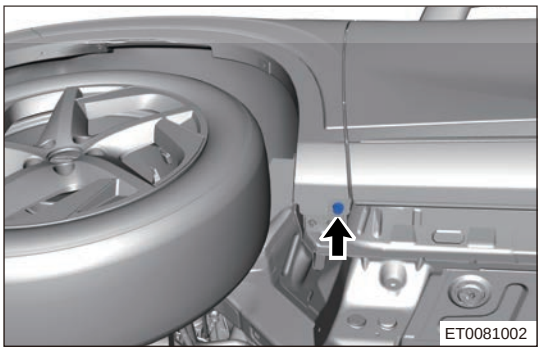
⚠ Caution

- Be sure to wear necessary safety equipment to prevent accidents, when removing front bumper assembly.
- Appropriate force should be applied, when removing front bumper assembly. Be careful not to operate roughly.
- Try to prevent body paint surface from being scratched, when removing front bumper assembly.
- Avoid breaking claws, when disassembling front bumper assembly.

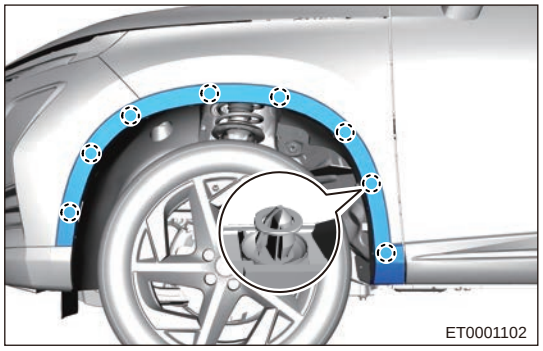
1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove front left wheel arch assembly (take left side as an example).
   a. Remove 4 fixing screws (arrow) from upper side of front wheel arch.
      Tightening torque: 1.5 ± 0.5 N·m



   b. Remove 1 snap fasteners (arrow) from lower side of front wheel arch.



c. Using an interior crow plate, pry off fixing clip from rear left wheel arch.

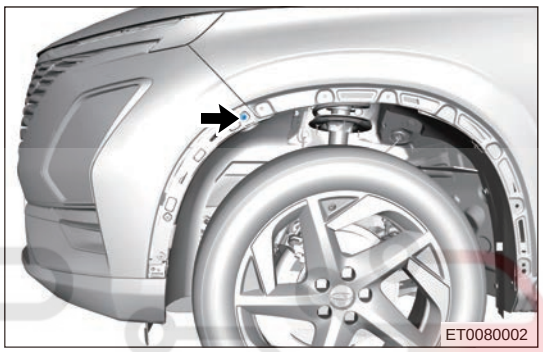


d. Remove the front left wheel arch assembly.

4. Remove the front bumper assembly.

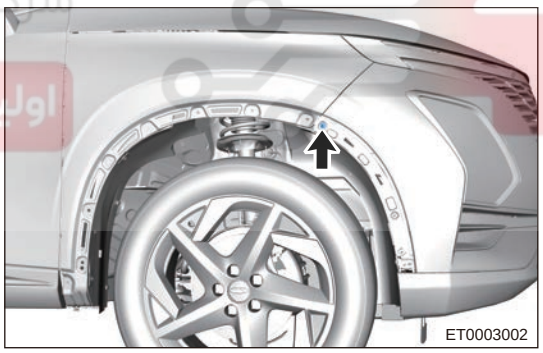
a. Remove fixing screw (arrow) from left side of front bumper.

Tightening torque: 1.5 ± 0.5 N • m



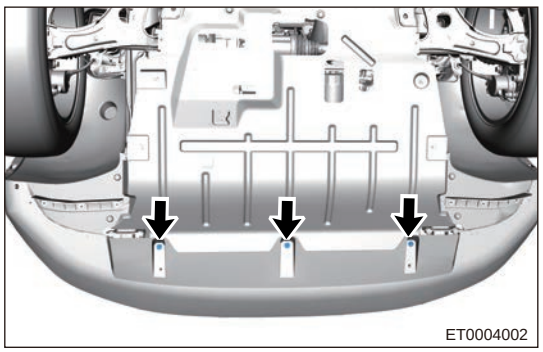
b. Remove fixing screw (arrow) from right side of front bumper.

Tightening torque: 1.5 ± 0.5 N • m



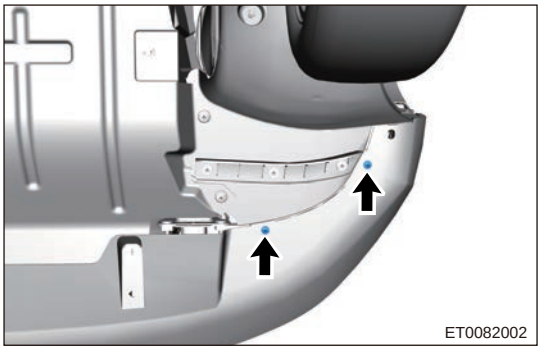
c. Raise the vehicle to a proper position, remove 3 fixing bolts (arrow) from the lower part of front bumper assembly and engine lower protector.

Tightening torque: 5 ± 1 N • m



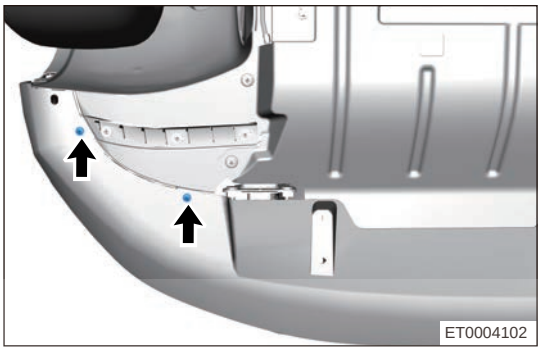
d. Remove 2 fixing screws (arrow) from lower part of front left wheel house protector.

Tightening torque: 1.5 ± 0.5 N • m



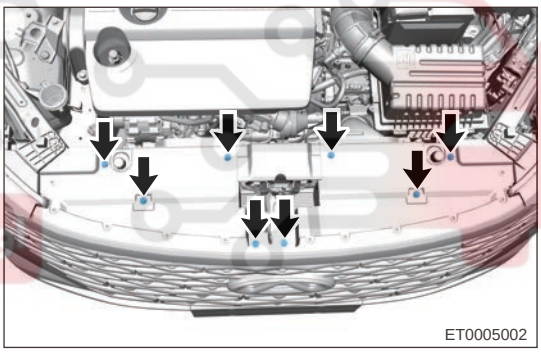
e. Remove 2 fixing screws (arrow) from lower part of front right wheel house protector.

Tightening torque: 1.5 ± 0.5 N • m



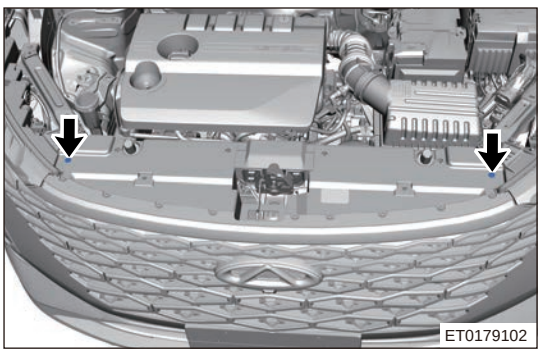
f. Remove 8 fixing bolts (arrow) from upper part of front bumper.

Tightening torque: 5 ± 1.0 N • m

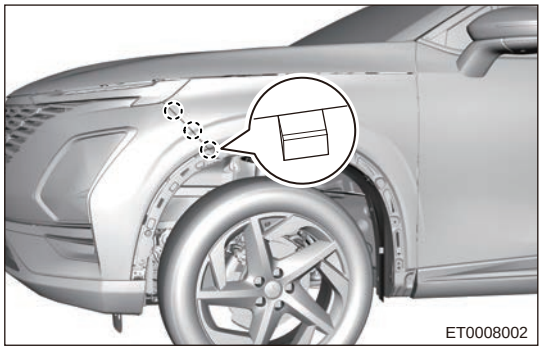


g. Remove 2 fixing screws (arrow) from upper part of front bumper.

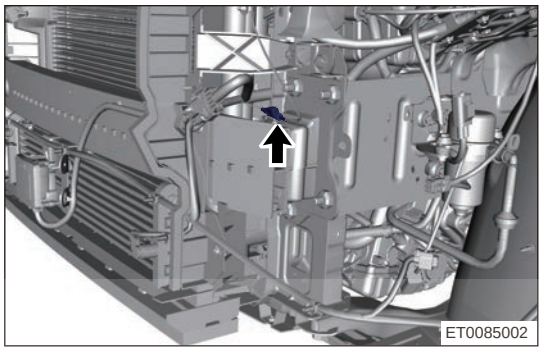
Tightening torque: 1.5 ± 0.5 N • m



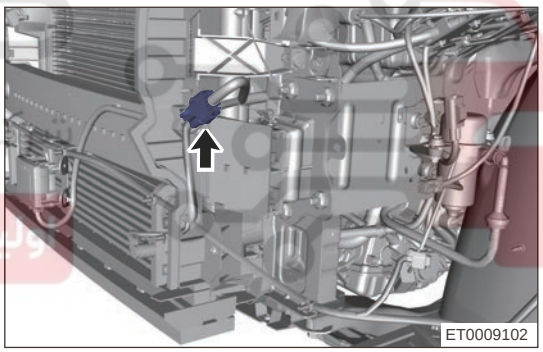
h. Disengage the claws from front bumper assembly (-take left side as an example).



i. Disconnect wire harness connector (arrow) from front camera.



j. Disconnect wire harness connector (arrow) from front bumper radar assembly.



k. Remove the front bumper assembly.

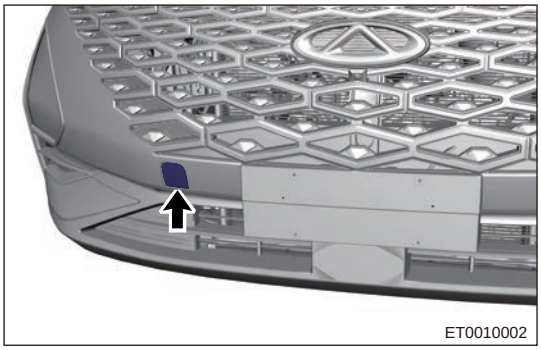
Disassembly

⚠ Caution

- Be sure to wear necessary safety equipment to prevent accidents, when disassembling front bumper assembly.
- Appropriate force should be applied, when disassembling front bumper assembly. Be careful not to operate roughly.
- Avoid breaking claws, when disassembling front bumper assembly.

1. Remove the front bumper towing hook cover.

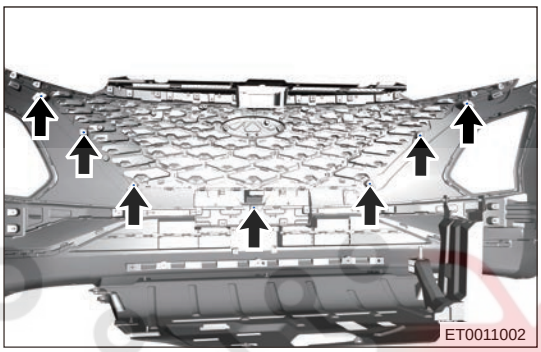
a. Using a screwdriver wrapped with protective tape, pry off front bumper towing hook cover (arrow).


ET0010002

b. Remove the front bumper towing hook cover.

2. Remove the radiator grille assembly.

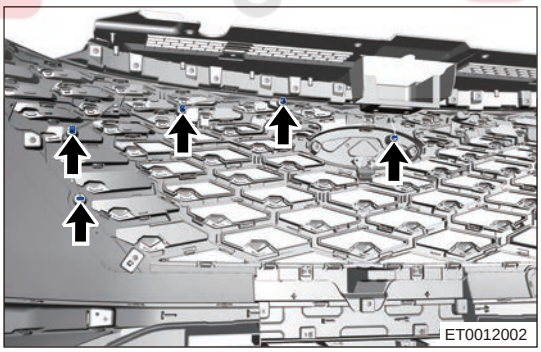
a. Remove 7 fixing screws (arrow) from radiator grille.
Tightening torque: 1.5 ± 0.5 N • m


ET0011002

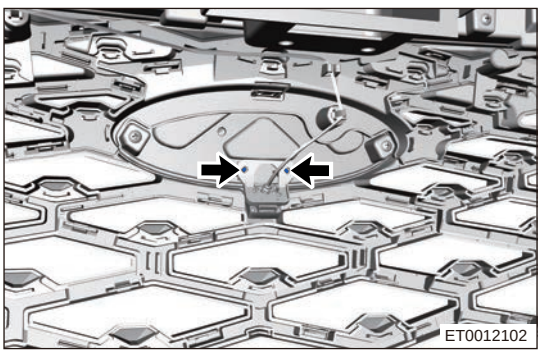
b. Using an interior crow plate, carefully pry off clip from radiator grille and remove radiator grille.

3. Remove the front camera assembly.

a. Using an interior crow plate, pry off fixing clips (-arrow) from front camera wire harness assembly.
Tightening torque: 1.5 ± 0.5 N • m


ET0012002

b. Remove 2 fixing screws (arrow) from front camera.
Tightening torque: 1.5 ± 0.5 N • m


ET0012102

c. Remove the front camera assembly.

Assembly

1. Assembly is in the reverse order of disassembly.

> **⚠ Caution**
>
> - Be sure to wear necessary safety equipment to prevent accidents, when assembling front bumper assembly.
> - Try to prevent front bumper assembly paint surface from being scratched, when assembling front bumper assembly.

Installation

1. Installation is in the reverse order of removal.

> **⚠ Caution**
>
> - Be sure to wear necessary safety equipment to prevent accidents, when installing front bumper assembly.
> - Try to prevent body paint surface from being scratched, when installing front bumper assembly.
> - Make sure that front bumper is installed correctly and fitting clearance between front bumper and body is appropriate, when installing front bumper assembly.

Front Bumper Left Bracket

Removal

Hint:

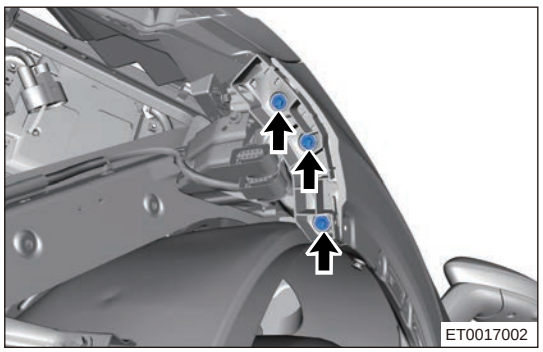
- Use same procedures for right and left sides.
- Procedures listed below are for left side.

> **⚠ Caution**
>
> - Be sure to wear necessary safety equipment to prevent accidents, when removing front bumper left bracket.
> - Try to prevent body paint surface from being scratched, when removing front bumper left bracket.

1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the front bumper assembly.
4. Remove the front bumper left bracket.

   a. Remove 3 fixing bolts (arrow) from front bumper left bracket.

   Tightening torque: 5 ± 1.0 N • m



b. Remove the front bumper left bracket.

Installation

1. Installation is in the reverse order of removal.

> **⚠ Caution**
>
> - Be sure to wear necessary safety equipment to prevent accidents, when installing front bumper left bracket.
> - Try to prevent body paint surface from being scratched, when installing front bumper left bracket.

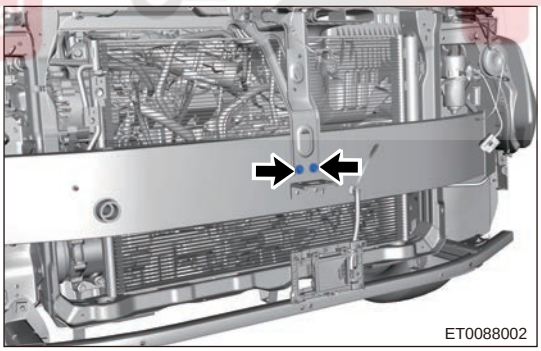
Front Bumper Crossmember Assembly

Removal

> **⚠ Caution**
>
> - Be sure to wear necessary safety equipment to prevent accidents, when removing front bumper crossmember assembly.
> - Try to prevent body paint surface from being scratched, when removing front bumper crossmember assembly.

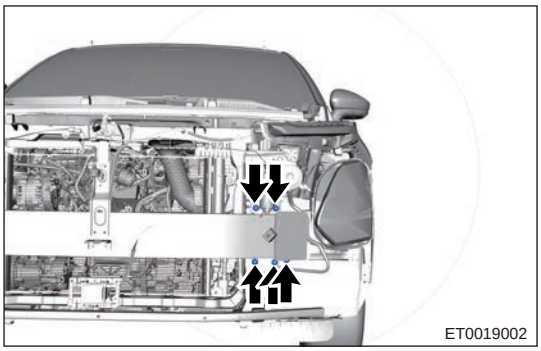
1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the front bumper assembly.
4. Remove the front bumper crossmember assembly.

a. Remove 2 fixing bolts (arrow) from front bumper crossmember assembly.



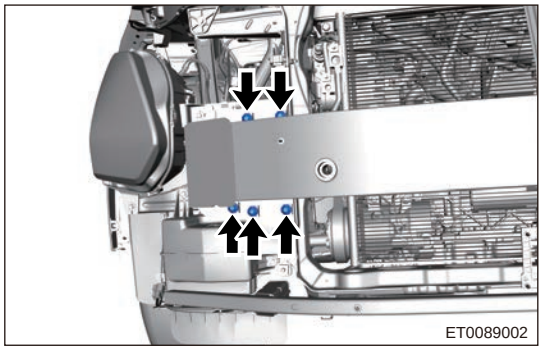
b. Remove 5 fixing nuts (arrow) from right side of front bumper crossmember assembly.

Tightening torque: 48 ± 7.0 N·m



c. Remove 5 fixing nuts (arrow) from left side of front bumper crossmember assembly.

Tightening torque: 48 ± 7.0 N • m



d. Remove the front bumper crossmember assembly.

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Be sure to wear necessary safety equipment to prevent accidents, when installing front bumper crossmember assembly.
- Try to prevent body paint surface from being scratched, when installing front bumper crossmember assembly.
- There should be no looseness, shaking and deformation, after installing front bumper crossmember assembly.

Air Deflector (Upper, Left and Right)

Removal

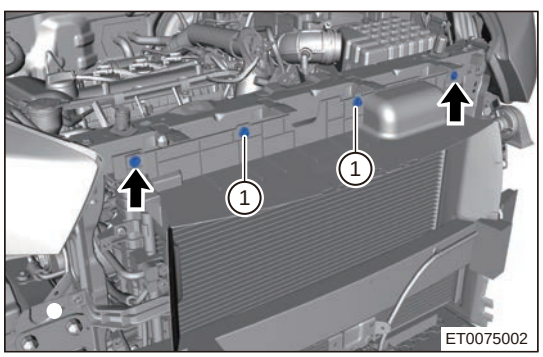
⚠ Caution

- Be sure to wear necessary safety equipment to prevent accidents, when removing air deflector.
- Try to prevent body paint surface from being scratched, when removing air deflector.

1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the front bumper assembly.
4. Remove the upper air deflector assembly.

a. Remove 2 fixing bolts (arrow) and 2 plastic clips (1) from upper air deflector.

Tightening torque: 5 ± 1.0 N • m

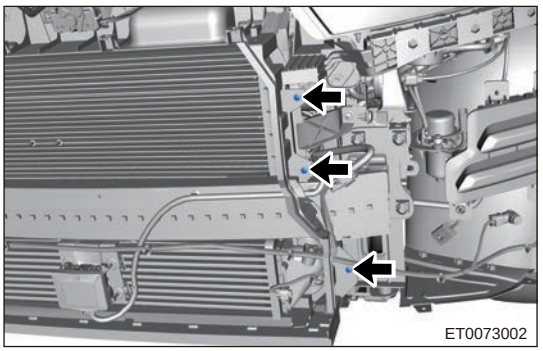


b. Remove the front upper air deflector assembly.

5. Remove the front left air deflector assembly (removal produces for left and right are same).

a. Remove 3 fixing bolts (arrow) from front left air deflector.

Tightening torque: 1.5 ± 0.5 N • m



b. Remove the front left air deflector assembly.

Installation

1. Installation is in the reverse order of removal.

Front Wheel House Protector

Removal

Hint:

- Use same procedures for right and left sides.
- Procedures listed below are for left side.

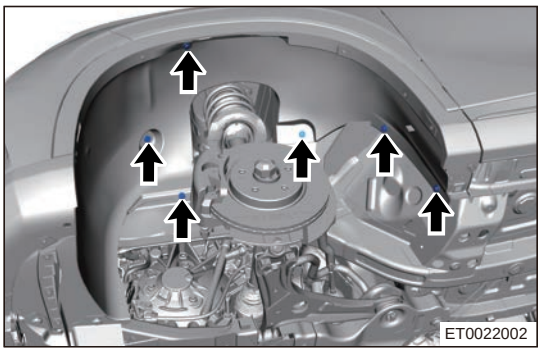
⚠ Caution

- Be sure to wear necessary safety equipment to prevent accidents, when removing front wheel house protector.
- Try to prevent body paint surface from being scratched, when removing front wheel house protector.

1. Remove the front left wheel arch assembly.

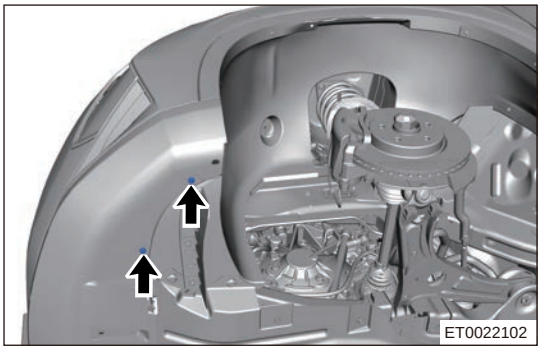
2. Remove the front left wheel house protector.

a. Remove 6 plastic snap fasteners (arrow) from upper part of front wheel house protector.



b. Remove 2 fixing screws (arrow) from lower part of front wheel house protector.

Tightening torque: 1.5 ± 0.5 N • m



c. Remove the front wheel house protector.

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Be sure to wear necessary safety equipment to prevent accidents, when installing front wheel house protector assembly.
- Try to prevent body paint surface from being scratched, when installing front wheel house protector assembly.

Front Windshield Lower Support Assembly

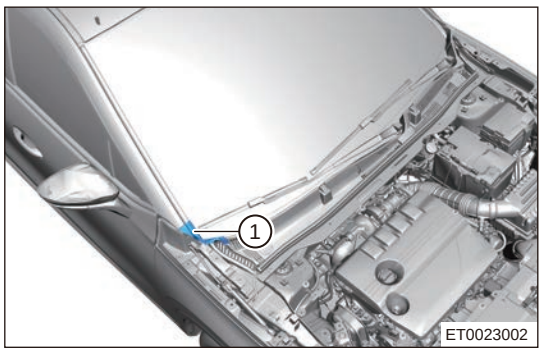
Removal

⚠ Caution

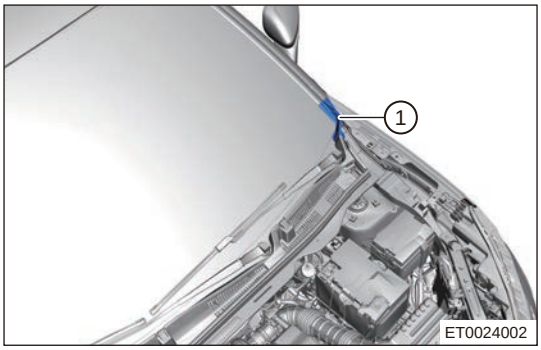
- Be sure to wear safety equipment to prevent accidents, when removing front windshield lower support assembly.
- Try to prevent body paint surface from being scratched, when removing front windshield lower support assembly.

1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the front wiper arm assembly.
4. Remove the front windshield lower trim board assembly.

a. Using a screwdriver wrapped with protective tape, pry off claw from front windshield lower trim board right cover plate, and remove front windshield lower trim board right cover plate (1).

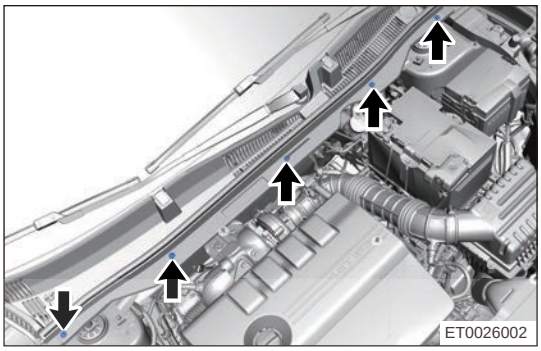


b. Using a screwdriver wrapped with protective tape, pry off claw from front windshield lower trim board left cover plate, and remove front windshield lower trim board left cover plate (1).



c. Remove 5 fixing screws (arrow) from front windshield lower trim board assembly.

Tightening torque: 1.5 ± 0.5 N • m



d. Disconnect front washer pipe 1 and remove front windshield lower trim board assembly.

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when installing front windshield lower support assembly.
- Try to prevent body paint surface from being scratched, when installing front windshield lower support assembly.

Wing Assembly

Removal

⚠ Caution

- Use same procedures for right and left sides.
- Procedures listed below are for left side.

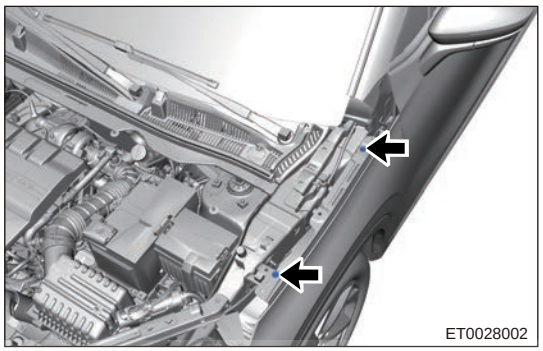
⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when removing wing assembly.
- Try to prevent body paint surface from being scratched, when removing wing assembly.

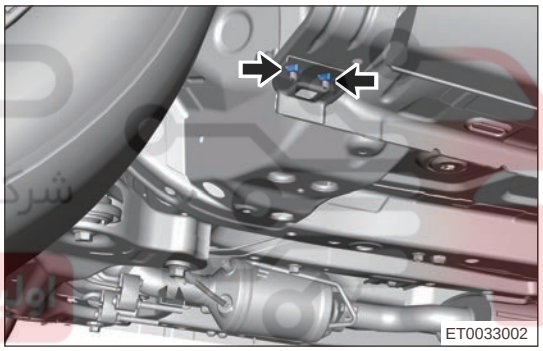
1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the front left wheel arch assembly.

4. Remove the front bumper assembly.
5. Remove the left headlight assembly.
6. Remove the front left whee house assembly.
7. Remove the front left bumper bracket.
8. Remove the left wing assembly.

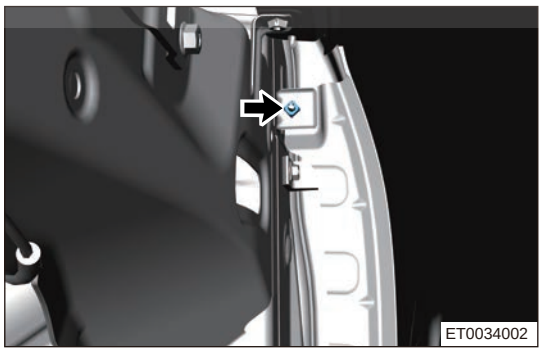
a. Remove 2 fixing bolts (arrow) between the upper part of wing assembly and the body.
Tightening torque: 6 ± 1.0 N • m



b. Remove 2 fixing bolts (arrow) between the lower part of wing assembly and the body.
Tightening torque: 6 ± 1.0 N • m

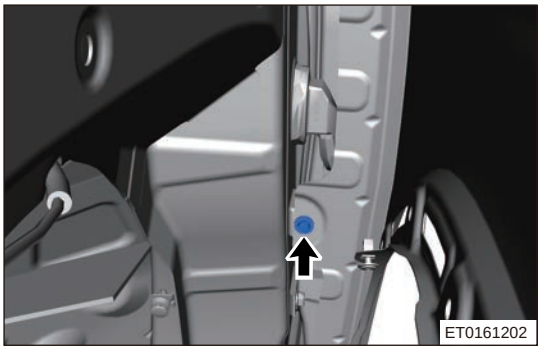


c. Remove 1 fixing bolt (arrow) between the rear part of wing assembly and body.
Tightening torque: 6 ± 1.0 N • m



d. Remove 1 fixing bolt (arrow) between the rear part of wing assembly and body.

Tightening torque: 6 ± 1.0 N • m



e. Remove the wing assembly.

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when installing front wing.
- Try to prevent body paint surface from being scratched, when installing front wing.
- Make sure that front wing is installed correctly and fitting clearance between front wing and body is appropriate, when installing front wing.

Roof Rack

Removal

Hint:

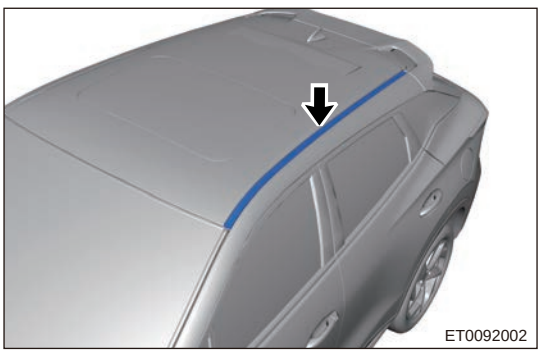
- Use same procedures for right and left sides.
- Procedures listed below are for left side.

⚠ Caution

- Be sure to wear necessary safety equipment to prevent accidents, when removing roof rack.
- Try to prevent body paint surface from being scratched, when removing roof rack.

1. Remove the roof rack.

a. Using an interior crow plate, carefully pry up roof rack (arrow).



Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when installing roof rack assembly.
- Try to prevent body paint surface from being scratched, when installing roof rack assembly.
- When installing, make sure that there is no clearance between the rubber pad of roof rack and quarter, roof. Pay attention to the alignment of clearance between rubber pad and roof.

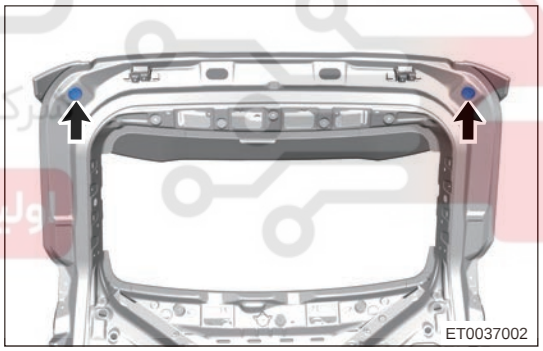
Rear Spoiler Assembly

Removal

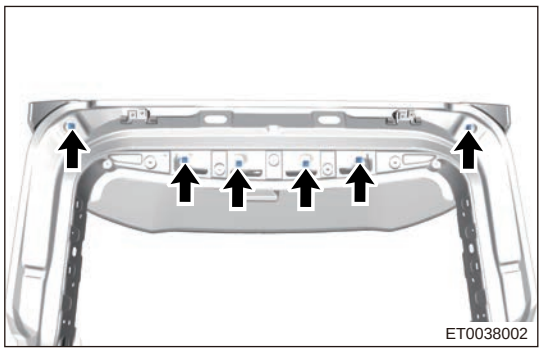
⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when removing rear spoiler assembly.
- Try to prevent body paint surface from being scratched, when removing rear spoiler assembly.

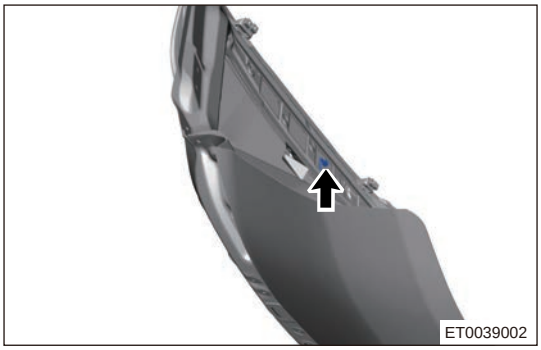
1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the back door left/right protector assembly.
4. Remove the rear spoiler assembly.
   a. Using an interior crow plate, pry off trim covers (- arrow) from rear spoiler.



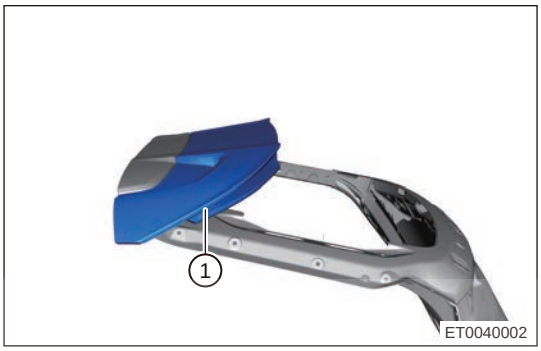
   b. Remove 6 fixing nuts (arrow) from rear spoiler assembly.
      Tightening torque: 5 ± 1 N • m



c. Disconnect wire harness connector (arrow) from high mounted stop light.



d. Remove the rear spoiler assembly (1).



Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when installing rear spoiler assembly.
- Try to prevent body paint surface from being scratched, when installing rear spoiler assembly.

Engine Lower Protector Assembly

Removal

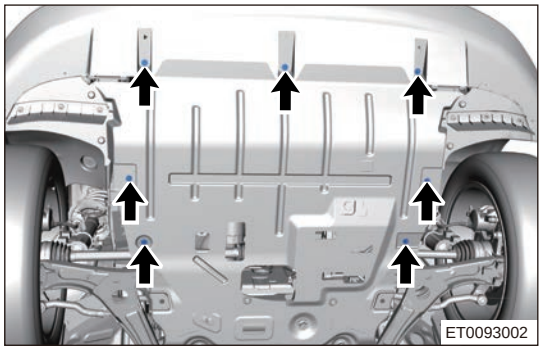
⚠ Caution

- Be sure to wear necessary safety equipment to prevent accidents, when removing engine lower protector assembly.
- Try to prevent body paint surface from being scratched, when removing engine lower protector assembly.

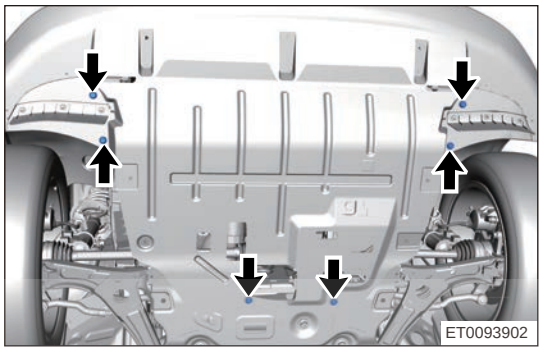
1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the engine lower protector assembly.

a. Remove 7 fixing bolts (arrow) from engine lower protector assembly.

Tightening torque: 5 ± 1.0 N • m



b. Remove 6 fixing snap fasteners (arrow) from engine lower protector assembly.



c. Remove the engine lower protector assembly.

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Be sure to wear necessary safety equipment to prevent accidents, when installing engine lower protector assembly.
- Try to prevent body paint surface from being scratched, when installing engine lower protector assembly.

Rear Bumper Assembly

Removal

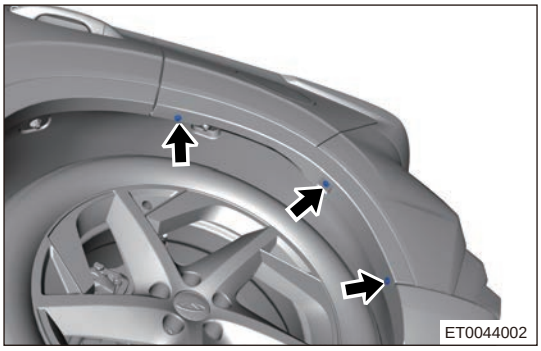
⚠ Caution

- Be sure to wear necessary safety equipment to prevent accidents, when removing rear bumper assembly.
- Appropriate force should be applied, when removing rear bumper assembly. Be careful not to operate roughly.
- Try to prevent body paint surface from being scratched, when removing rear bumper assembly.

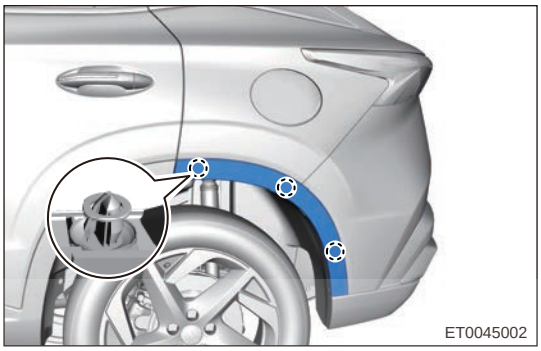
1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the rear combination light (fixed part).
4. Remove rear left wheel arch assembly (take left side as an example).

a. Remove 3 fixing screws (arrow) from rear left wheel arch.

Tightening torque: 1.5 ± 0.5 N·m



b. Using an interior crow plate, pry off fixing clips from rear left wheel arch.

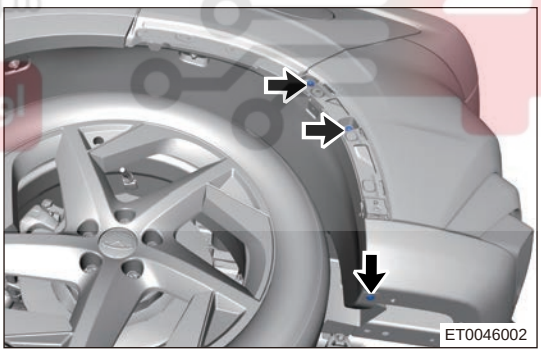


c. Remove the rear left wheel arch assembly.

5. Remove the rear bumper assembly.

a. Remove 3 fixing screws (arrow) from left side of rear bumper (take left side as an example).

Tightening torque: 1.5 ± 0.5 N·m



b. Remove 2 screw block covers (arrow) from rear bumper assembly and remove 2 fixing screws from the rear part of block cover.

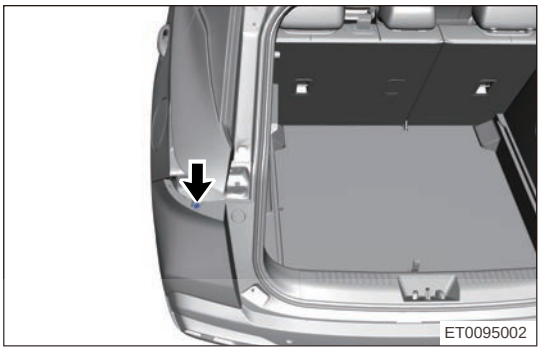
Tightening torque: 1.5 ± 0.5 N·m

c. Remove 2 fixing screws (arrow) from the rear bumper assembly.

Tightening torque: 1.5 ± 0.5 N • m

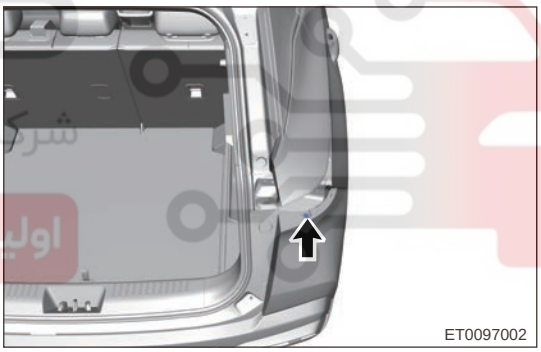
d. Remove 1 fixing bolt (arrow) from upper part of rear bumper assembly.

Tightening torque: 5 ± 1 N • m



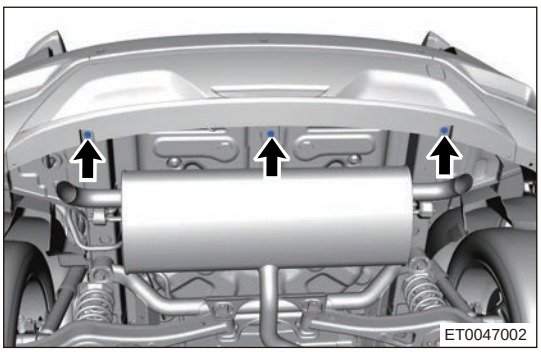
e. Remove 1 fixing bolt (arrow) from upper part of rear bumper assembly.

Tightening torque: 5 ± 1 N • m

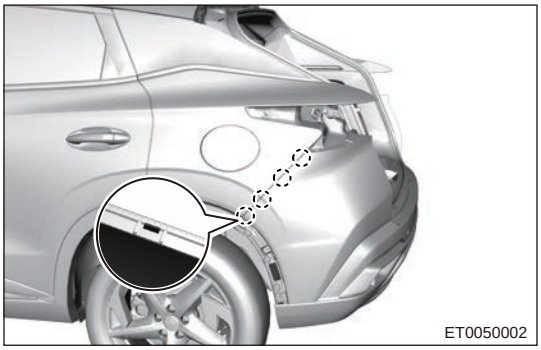


f. Remove 3 fixing bolts (arrow) from lower part of rear bumper assembly.

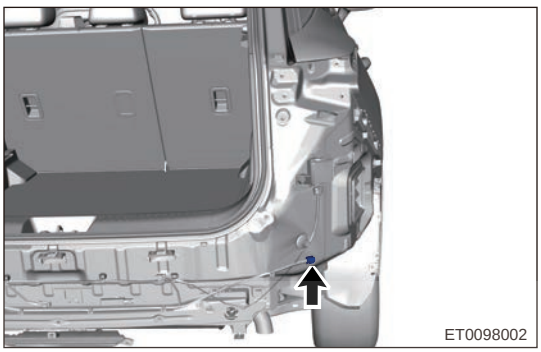
Tightening torque: 5 ± 1 N • m



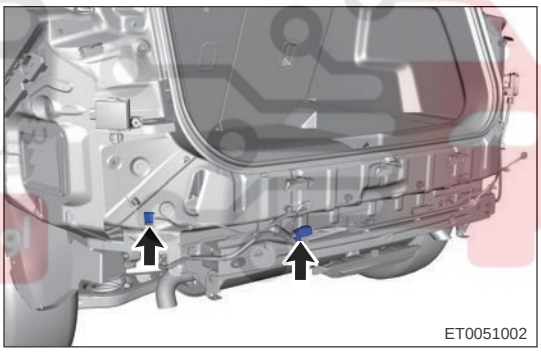
g. Disengage claws from rear bumper assembly (take left side as an example).



h. Disconnect wire harness connector (arrow) from rear bumper.



i. Disconnect wire harness connector (arrow) from rear bumper.



j. Remove the rear bumper assembly.

Disassembly

⚠ Caution

- Be sure to wear necessary safety equipment to prevent accidents, when disassembling rear bumper assembly.
- Appropriate force should be applied, when disassembling rear bumper assembly. Be careful not to operate roughly.
- Avoid breaking claws, when disassembling rear bumper assembly.

1. Remove the rear bumper towing hook cover.

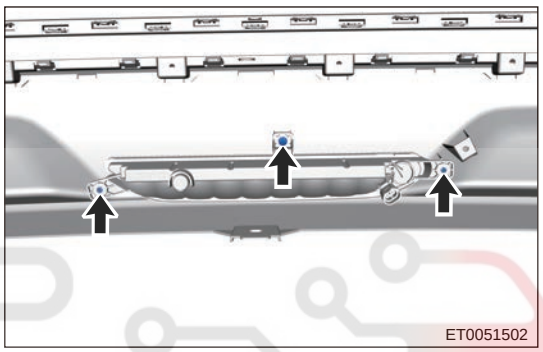
a. Using a screwdriver wrapped with protective tape, pry off the claw from rear bumper towing hook cover.


ET0051302

b. Remove rear bumper towing hook cover from rear bumper assembly.

2. Remove the rear fog light (take left side as an example).

a. Remove 3 fixing screws (arrow) from rear fog light.
Tightening torque: 1.5 ± 0.5 N·m


ET0051502

b. Remove rear fog light from rear bumper assembly.

Assembly

1. Assembly is in the reverse order of disassembly.

⚠ Caution

- Be sure to wear necessary safety equipment to prevent accidents, when assembling rear bumper assembly.
- Try to prevent rear bumper assembly paint surface from being scratched, when assembling rear bumper assembly.

Installation

1. Assembly is in the reverse order of disassembly.

⚠ Caution

- Be sure to wear necessary safety equipment to prevent accidents, when installing rear bumper assembly.
- Try to prevent body paint surface from being scratched, when installing rear bumper assembly.
- Make sure that rear bumper is installed correctly and fitting clearance between rear bumper and body is appropriate, when installing rear bumper assembly.

Rear Bumper Mounting Bracket

Removal

Hint:

- Use same procedures for right and left sides.
- Procedures listed below are for left side.

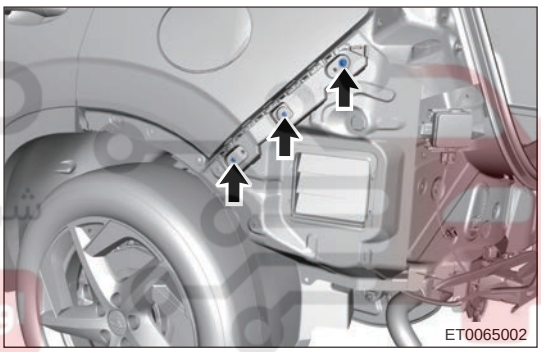
⚠ Caution

- Be sure to wear necessary safety equipment to prevent accidents, when removing rear bumper mounting bracket.
- Try to prevent body paint surface from being scratched, when removing rear bumper mounting bracket.

1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the rear bumper assembly.
4. Remove the rear bumper left mounting bracket.

   a. Remove 3 fixing screws (arrow) from rear bumper mounting bracket.

   Tightening torque: 1.5 ± 0.5 N・m



   b. Remove the rear bumper left mounting bracket.

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Be sure to wear necessary safety equipment to prevent accidents, when installing rear bumper mounting bracket.
- Try to prevent body paint surface from being scratched, when installing rear bumper mounting bracket.

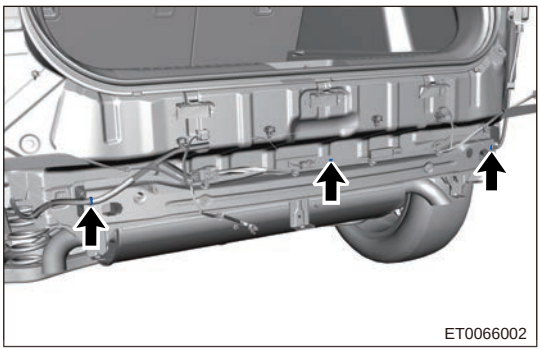
Rear Bumper Crossmember Assembly

Removal

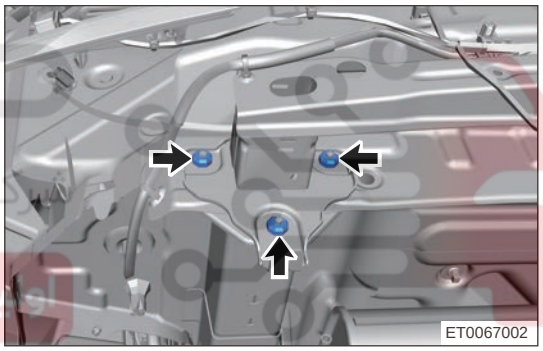
⚠ Caution

- Be sure to wear necessary safety equipment to prevent accidents, when removing rear bumper crossmember assembly.
- Try to prevent body paint surface from being scratched, when removing rear bumper crossmember assembly.

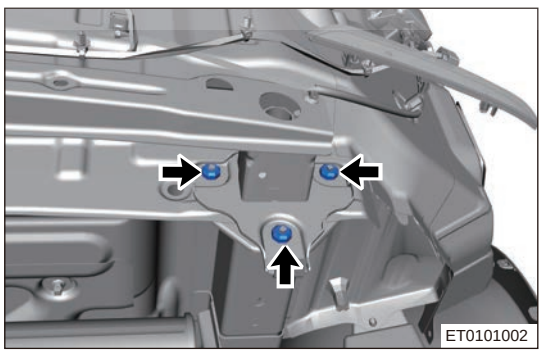
1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the rear bumper assembly.
4. Remove the rear low frequency antenna.
5. Remove the rear bumper crossmember assembly.
   a. Remove fixing clips (arrow) from rear bumper crossmember upper wire harness.



   b. Remove 3 fixing nuts (arrow) from left side of rear bumper crossmember assembly.
      Tightening torque: 25 ± 3.5 N • m



   c. Remove 3 fixing nuts (arrow) from right side of rear bumper crossmember assembly.
      Tightening torque: 25 ± 3.5 N • m



   d. Remove the rear bumper crossmember assembly.

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Be sure to wear necessary safety equipment to prevent accidents, when installing rear bumper crossmember assembly.
- Try to prevent body paint surface from being scratched, when installing rear bumper crossmember assembly.
- There should be no looseness, shaking and deformation after installing rear bumper crossmember assembly.

Front Door Trim Panel Assembly

Removal

Hint:

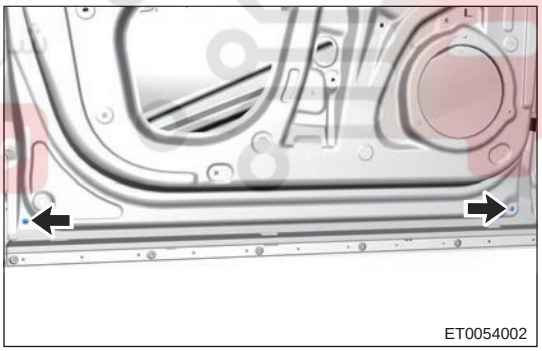
- Use same procedures for right and left sides.
- Procedures listed below are for left side.

⚠ Caution

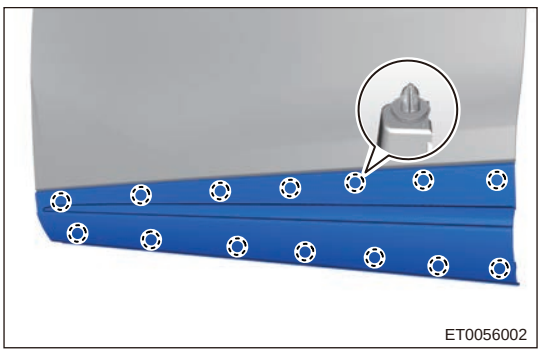
- Be sure to wear safety equipment to prevent accidents, when removing front door trim panel assembly.
- Try to prevent body paint surface from being scratched, when removing front door trim panel assembly.

1. Remove the front door trim panel assembly.

   a. Remove fixing screws (arrow) from front left door trim panel assembly.



   b. Using an interior crow plate, pry off fixing clips from front door trim panel assembly.



   c. Remove the front door trim panel assembly.

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when installing front door trim panel assembly.
- Try to prevent body paint surface from being scratched, when installing front door trim panel assembly.

Rear Door Trim Panel Assembly

Removal

Hint:

- Use same procedures for right and left sides.
- Procedures listed below are for left side.

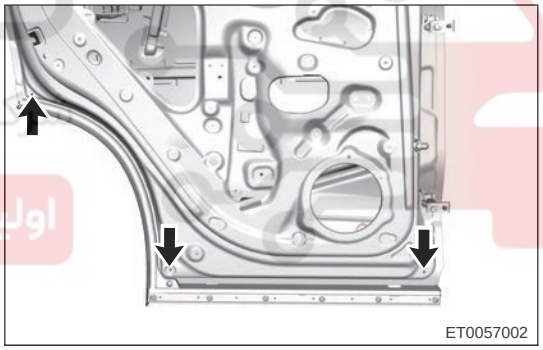
⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when removing rear left door trim panel assembly.
- Try to prevent body paint surface from being scratched, when removing rear left door trim panel assembly.

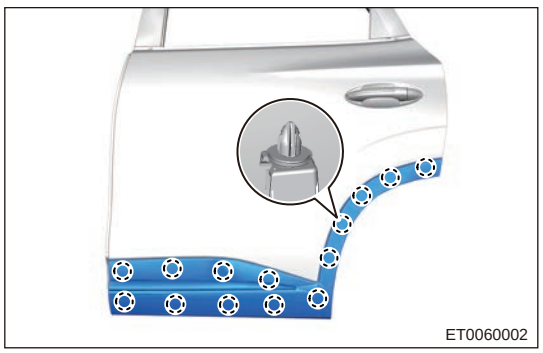
1. Remove the rear left door trim panel assembly.

   a. Remove fixing screws (arrow) from rear left door trim panel assembly.

      Tightening torque: 1.0 ± 0.2 N·m



   b. Using an interior crow plate, pry off fixing clips from rear left door trim panel assembly.



   c. Remove the rear left door trim panel assembly.

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when installing rear left door trim panel assembly.
- Try to prevent body paint surface from being scratched, when installing rear left door trim panel assembly.

Rear Wheel House Protector

Removal

Hint:

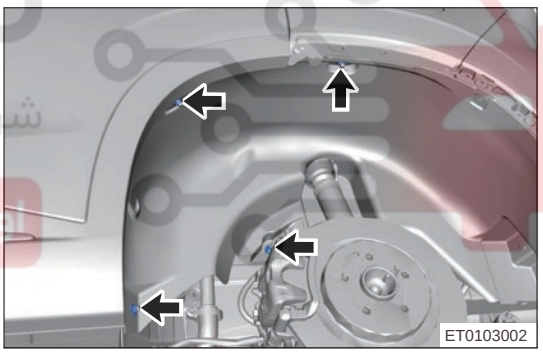
- Use same procedures for right and left sides.
- Procedures listed below are for left side.

⚠ Caution

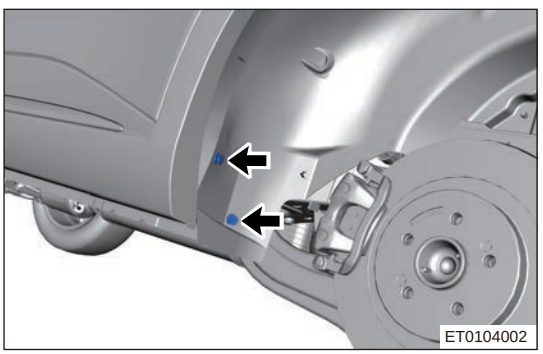
- Be sure to wear necessary safety equipment to prevent accidents, when removing rear left wheel house protector.
- Try to prevent body paint surface from being scratched, when removing rear left wheel house protector.

1. Remove the rear left wheel house protector assembly.

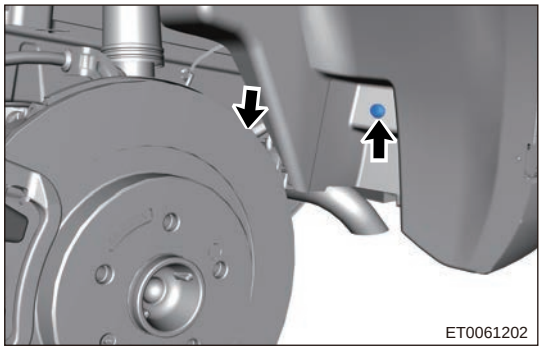
   a. Remove 4 plastic nuts (arrow) from rear left wheel house protector assembly.



   b. Remove 2 snap fasteners (arrow) from rear left wheel house protector assembly.



c. Remove 2 snap fasteners (arrow) from rear left wheel house protector assembly.



d. Remove the rear left wheel house protector assembly.

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Be sure to wear necessary safety equipment to prevent accidents, when installing rear left wheel house protector.
- Try to prevent body paint surface from being scratched, when installing rear left wheel house protector.

D-pillar Trim Board Assembly

Removal

Hint:

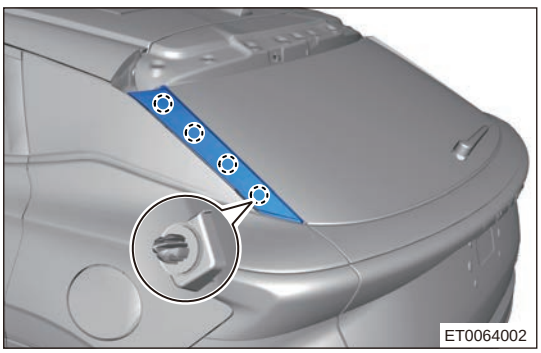
- Use same procedures for right and left sides.
- Procedures listed below are for left side.

⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when removing D-pillar trim board assembly.
- Try to prevent body paint surface from being scratched, when removing D-pillar trim board assembly.

1. Remove the rear spoiler assembly.
2. Remove the D-pillar trim board assembly.

a. Using an interior crow plate, pry off fixing clips from D-pillar trim board assembly.



b. Remove the D-pillar trim board assembly.

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when installing D-pillar trim board assembly.
- Try to prevent body paint surface from being scratched, when installing D-pillar trim board assembly.

Name Plate

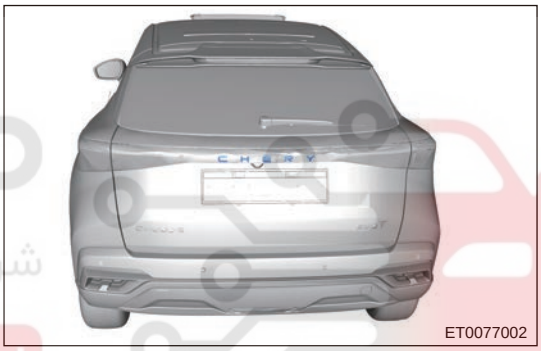
Installation

1. Install "CHERY name plate (rear name plate)".

   a. Clean the places in which may be in contact with 3M glue. Do not allow any dirt or grease to remain, doing so may affect performance of 3M glue.

   b. Clean off release paper on the 3M double-sided tape around rear CHERY name plate, hands do not contact 3M double-sided tape.

   c. Clip CHERY dowel pin column into dowel pin hole mounted on name plate of back door decoration light assembly, apply a certain pressure (pressure: 3 kg/ cm²), and prepress for 3 ".



⚠ Caution

- It is recommended to heat components when ambient temperature is below 15 ˚C (optimal range is 25 ˚C to 30 ˚C).
- Name plate can be exposed to the rain after it is pasted for 2 hours.

2. Install "CHERY".

   a. Clean the places in which may be in contact with 3M glue. Do not allow any dirt or grease to remain, doing so may affect performance of 3M glue.

   b. Clean off release paper on the 3M double-sided tape around rear CAC name plate, hands do not contact 3M double-sided tape.

c. Install name plate to back door metal plate, apply a certain pressure (pressure: 3 kg/cm²), and prepress for 3 ".

⚠ Caution

- It is recommended to heat components when ambient temperature is below 15 ˚C (optimal range is 25 ˚C to 30 ˚C).
- Name plate can be exposed to the rain after it is pasted for 2 hours.

ET0078002

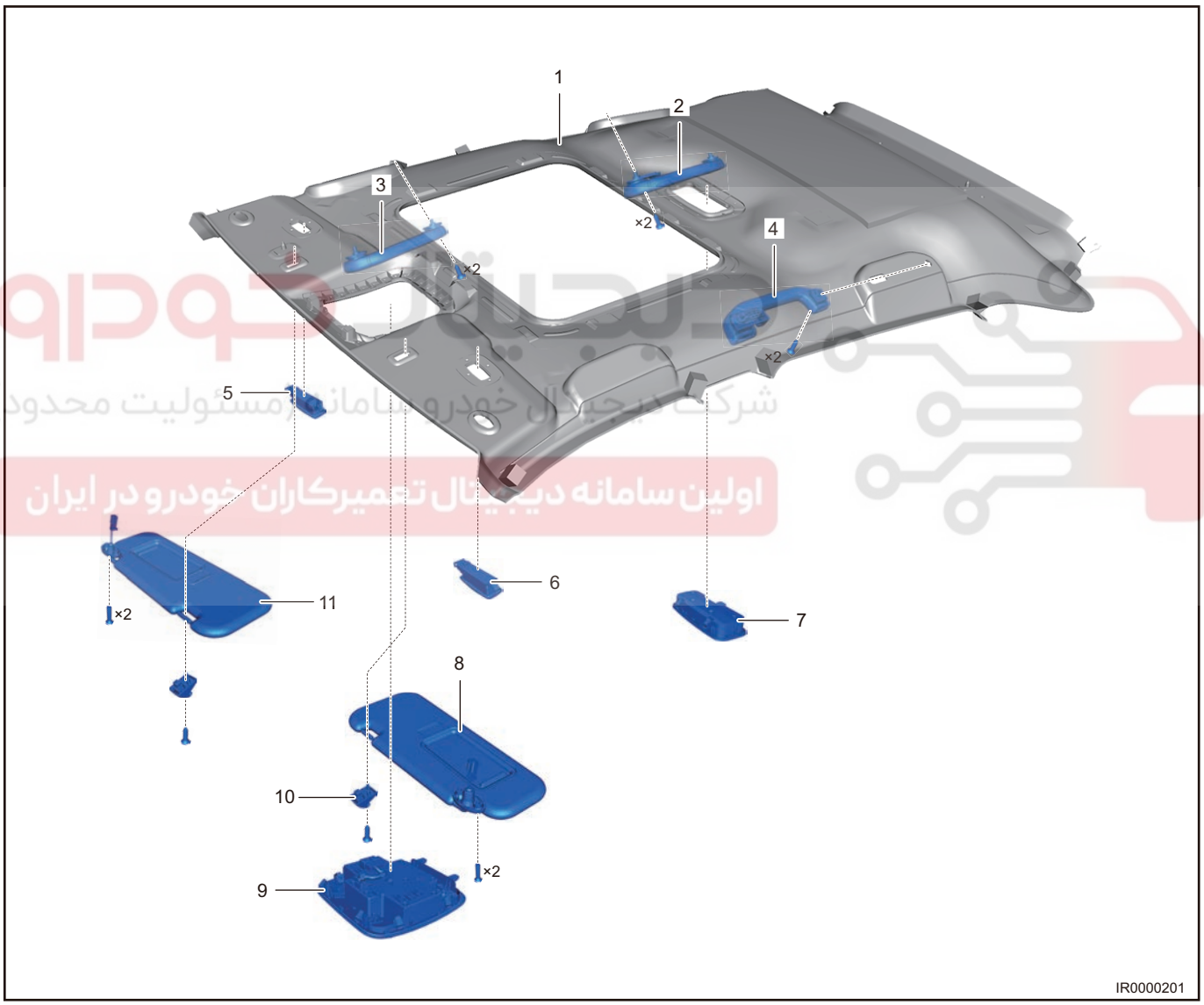
INTERIOR

GENERAL INFORMATION

Description

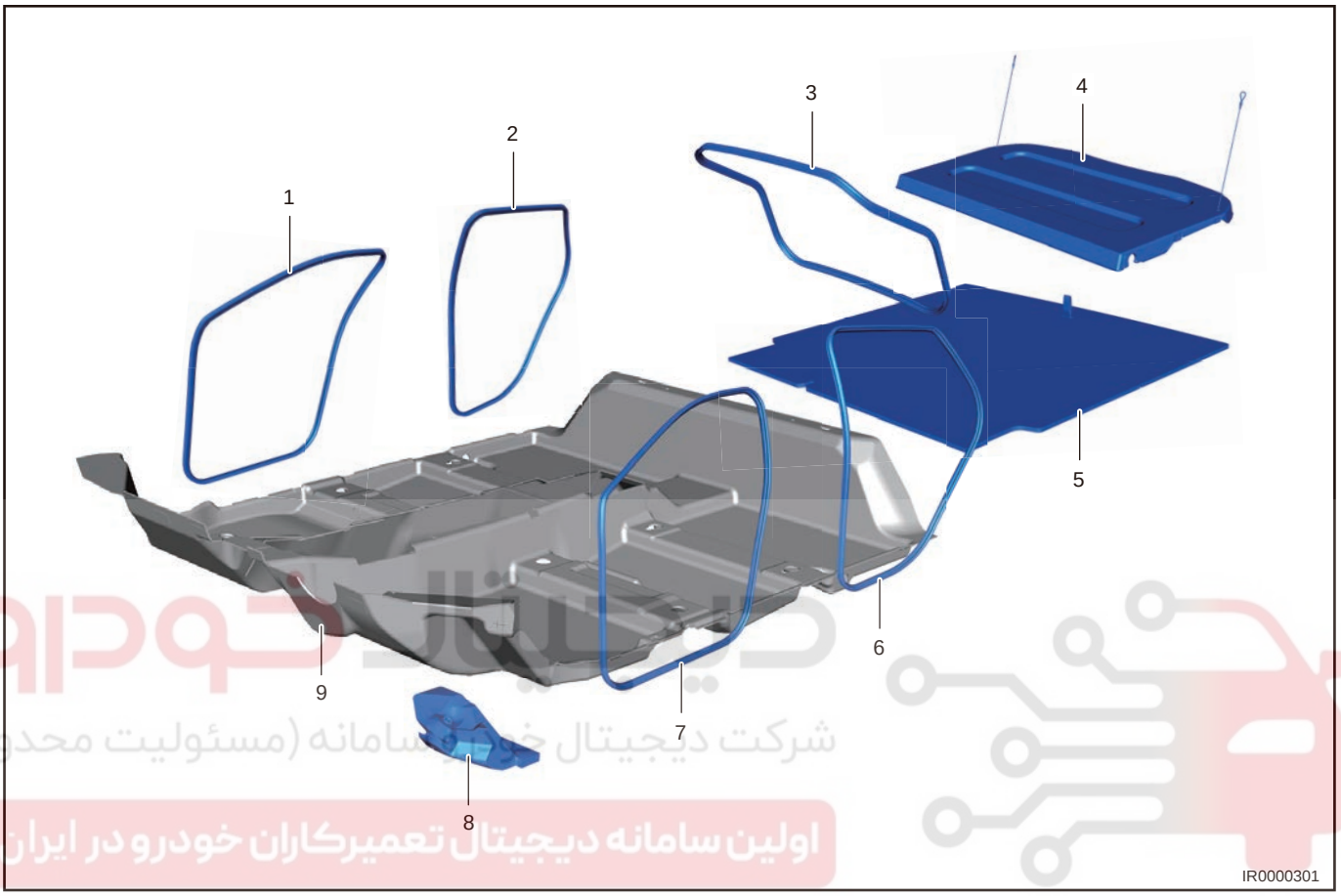
1	Roof Assembly	9	Back Doorsill Pressure Plate Assembly
2	Right A-pillar Upper Protector Assembly	10	Left C-pillar Upper Protector Assembly

3	Front Right Doorsill Pressure Plate Assembly	11	Left C-pillar Lower Protector Assembly
4	Right B-pillar Upper Protector Assembly	12	Rear Left Doorsill Pressure Plate Assembly
5	Right B-pillar Lower Protector Assembly	13	Left B-pillar Upper Protector Assembly
6	Rear Right Doorsill Pressure Plate Assembly	14	Left B-pillar Lower Protector Assembly
7	Right C-pillar Upper Protector Assembly	15	Left A-pillar Upper Protector Assembly
8	Right C-pillar Lower Protector Assembly	16	Front Left Doorsill Pressure Plate Assembly



1	Roof Assembly	7	Interior Dome Light Assembly
2	Rear Right Passenger Grip Assembly	8	Left Sun Visor Assembly
3	Passenger Grip Assembly	9	Interior Front Dome Light Assembly

4	Rear Left Passenger Grip Assembly	10	Holder B
5	Right Vanity Mirror Light	11	Right Sun Visor Assembly
6	Left Vanity Mirror Light		



1	Front Right Door Opening Weatherstrip	6	Rear Left Door Opening Weatherstrip
2	Rear Right Door Opening Weatherstrip	7	Front Left Door Opening Weatherstrip
3	Back Door Weatherstrip	8	Driver Side Foot Rest
4	Tonneau Cover Assembly	9	Front Carpet Assembly
5	Luggage Compartment Carpet Assembly		

Specifications

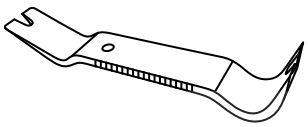
Torque Specifications

Description	Torque (N·m)
Front Seat Belt Assembly Lower Fixing Bolt	50 ± 5.0
B-pillar Upper Protector Assembly Fixing Screw	1.5 ± 0.5
C-pillar Upper Protector Assembly Fixing Screw	1.5 ± 0.5

Description	Torque (N·m)
C-pillar Lower Protector Assembly Fixing Screw	1.5 ± 0.5
Sun Visor Assembly Fixing Bolt	5 ± 1.0
Sun Visor Holder B Fixing Screw	2 ± 0.5
Passenger Grip Assembly Fixing Bolt	3 ± 0.5

Tool

General Tool

Tool Name	Tool Drawing
Interior Crow Plate	 RCH0000006

On-vehicle Service

Front Doorsill Pressure Plate Assembly

Removal

Hint:

- Use same procedures for right and left sides.
- Procedures listed below are for left side.

⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when removing front doorsill pressure plate assembly.
- Appropriate force should be applied, when removing front doorsill pressure plate assembly. Be careful not to operate roughly.
- Try to prevent interior and body paint surface from being scratched, when removing front doorsill pressure plate assembly.

1. Remove the front left door opening weatherstrip.
2. Remove the front left doorsill pressure plate assembly.

a. Use an interior crow plate to pry off fixing clips from front left doorsill scuff plate.


IR0001002

b. Remove the front left doorsill pressure plate assembly.

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Replace damaged clips and install front doorsill pressure plate assembly in place, when installing front doorsill pressure plate assembly.
- Make sure that front doorsill pressure plate assembly is well fitted with B-pillar lower protector assembly and A-pillar lower protector assembly, after installing front doorsill pressure plate assembly.

Rear Doorsill Pressure Plate Assembly

Removal

Hint:

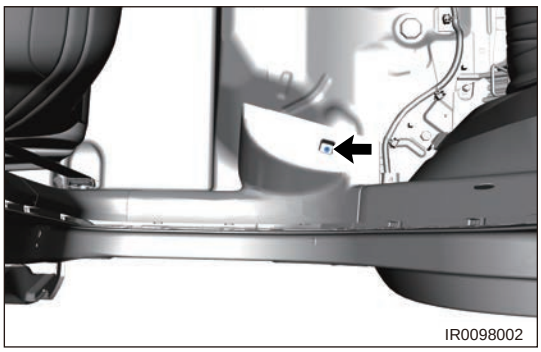
- Use same procedures for right and left sides.
- Procedures listed below are for left side.

⚠ Caution

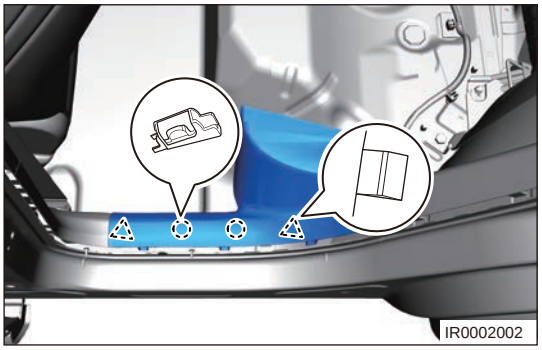
- Be sure to wear safety equipment to prevent accidents, when removing rear doorsill pressure plate assembly.
- Appropriate force should be applied, when removing rear doorsill pressure plate assembly. Be careful not to operate roughly.
- Try to prevent interior and body paint surface from being scratched, when removing rear doorsill pressure plate assembly.

1. Remove the rear left door opening weatherstrip.
2. Remove the rear left doorsill pressure plate assembly.
   a. Remove 1 fixing screw (arrow) from rear left doorsill pressure plate assembly.

      Tightening torque: 1.5 ± 0.5 N·m


IR0098002

b. Using an interior crow plate, pry off fixing clips from rear left doorsill pressure plate assembly.



c. Remove the rear left doorsill pressure plate assembly.

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Replace damaged clips and install rear doorsill pressure plate assembly in place, when installing rear doorsill pressure plate assembly.
- Make sure that rear doorsill pressure plate assembly is well fitted with B-pillar lower protector assembly and C-pillar lower protector assembly, after installing rear doorsill pressure plate assembly.

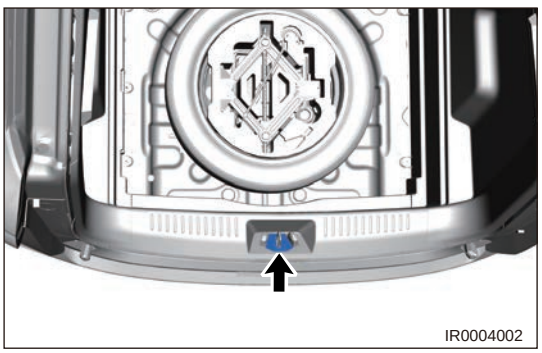
Back Doorsill Pressure Plate Assembly

Removal

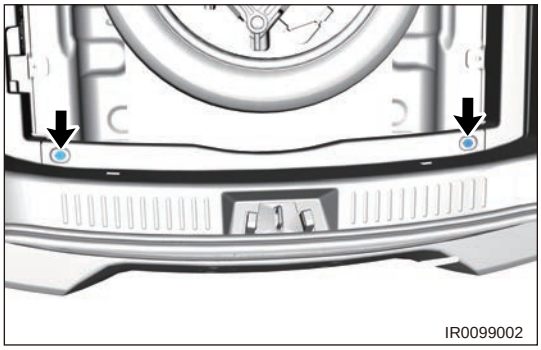
⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when removing back doorsill pressure plate assembly.
- Appropriate force should be applied, when removing back doorsill pressure plate assembly. Be careful not to operate roughly.
- Prevent interior and body paint from being scratched, when removing back doorsill pressure plate assembly.

1. Remove the luggage compartment carpet assembly.
2. Remove the luggage compartment storage box assembly.
3. Remove the back doorsill pressure plate assembly.
   a. Using interior crow plate, pry off the back door lock striker cover plate (arrow).

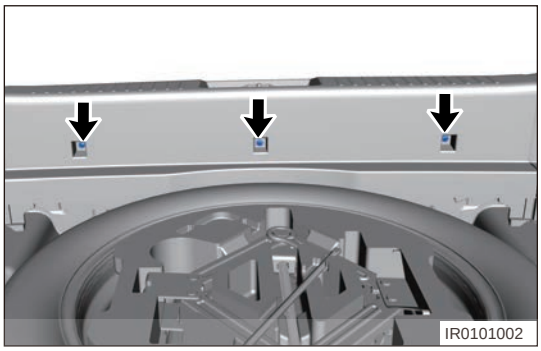


b. Remove 2 plastic clips (arrow) from back doorsill pressure plate assembly.

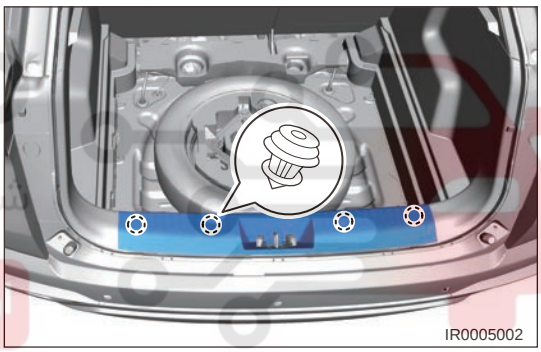

IR0099002

c. Remove 3 fixing screws (arrow) from back doorsill pressure plate assembly.

Tightening torque: 1.5 ± 0.5 N • m


IR0101002

d. Using an interior crow plate, pry off fixing clip from back doorsill pressure plate assembly.


IR0005002

e. Remove the back doorsill pressure plate assembly.

Installation

1. Installation is in the reverse order of removal.

⚠ Caution
• Replace damaged clips and install back doorsill pressure plate assembly in place, when installing back doorsill pressure plate assembly.

Front Door Opening Weatherstrip

Removal

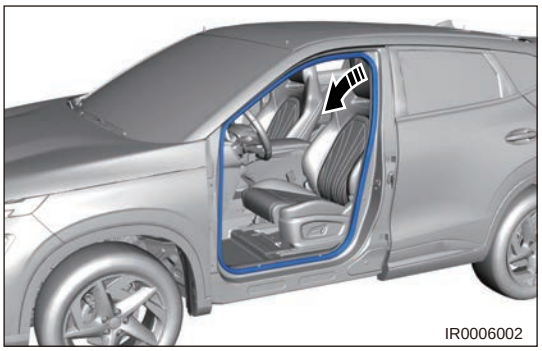
Hint:

- Use same procedures for right and left sides.
- Procedures listed below are for left side.

⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when removing front door opening weatherstrip.
- Appropriate force should be applied, when removing front door opening weatherstrip. Be careful not to operate roughly.
- Try to prevent front door opening weatherstrip from being damaged, when removing front door opening weatherstrip.

1. Remove the front left door opening weatherstrip.
   a. Remove the front left door opening weatherstrip by gently pulling it along edges from one corner of front left door opening weatherstrip.



Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Front door opening weatherstrip and body should be fitted with a certain amount of clamping force and the weatherstrip should not fall off easily, when installing front door opening weatherstrip.
- When installing front door opening weatherstrip, tap all around uniformly with a rubber hammer to install it in place. The surface of weatherstrip should have no defects, such as tapped dents, deformation and warpage after installation.
- After installing front door opening weatherstrip, do not remove or install it unless it is necessary. Otherwise the installation holding force of weatherstrip may be reduced.

Rear Door Opening Weatherstrip

Removal

Hint:

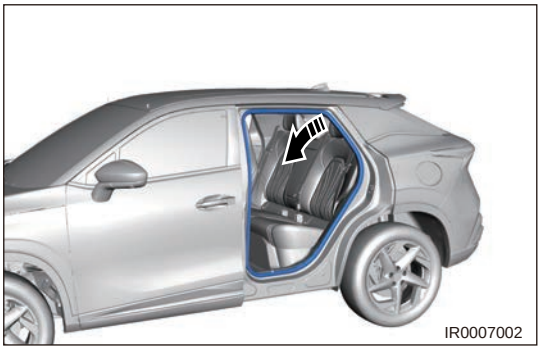
- Use same procedures for right and left sides.
- Procedures listed below are for left side.

⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when removing rear door opening weatherstrip.
- Appropriate force should be applied, when removing rear door opening weatherstrip. Be careful not to operate roughly.
- Try to prevent rear door opening weatherstrip from being damaged, when removing rear door opening weatherstrip.

1. Remove the rear left door opening weatherstrip.

a. Remove the rear left door opening weatherstrip by gently pulling it along edges from one corner of rear left door opening weatherstrip.


IR0007002

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Rear door opening weatherstrip and body should be fitted with a certain amount of clamping force and the weatherstrip should not fall off easily, when installing rear door opening weatherstrip.
- When installing rear door opening weatherstrip, tap all around uniformly with a rubber hammer to install it in place. The surface of weatherstrip should have no defects, such as tapped dents, deformation and warpage after installation.
- After installing rear door opening weatherstrip, do not remove or install it unless it is necessary. Otherwise the installation holding force of weatherstrip may be reduced.

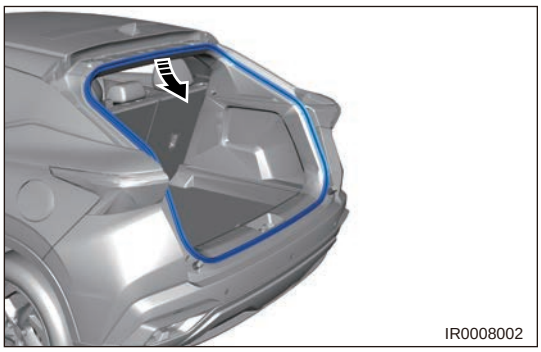
Back Door Opening Weatherstrip

Removal

⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when removing back door opening weatherstrip.
- Appropriate force should be applied when removing back door opening weatherstrip. Be careful not to operate roughly.
- Try to prevent back door opening weatherstrip from being damaged, when removing back door opening weatherstrip.

1. Remove the back door opening weatherstrip.
   a. Remove back door opening weatherstrip by gently pulling it along edges from one corner of back door opening weatherstrip.


IR0008002

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Back door opening weatherstrip and body should be fitted with a certain amount of clamping force and the weatherstrip should not fall off easily, when installing back door opening weatherstrip.
- When installing back door opening weatherstrip, tap all around uniformly with a rubber hammer to install it in place. The surface of weatherstrip should have no defects, such as tapped dents, deformation and warpage after installation.
- After installing back door opening weatherstrip, do not remove or install it unless it is necessary. Otherwise the weatherstrip holding force of installation may be reduced.

A-pillar Upper Protector Assembly

Removal

Hint:

- Use same procedures for right and left sides.
- Procedures listed below are for left side.

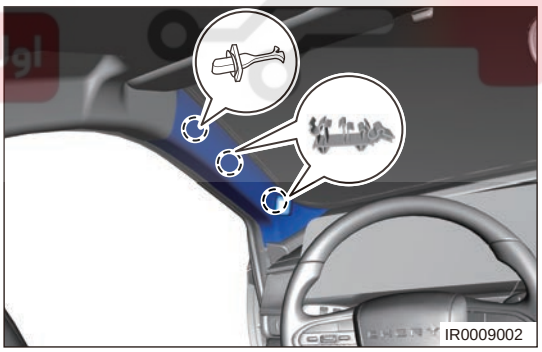
⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when removing A-pillar upper protector assembly.
- Appropriate force should be applied, when removing A-pillar upper protector assembly. Be careful not to operate roughly.
- Try to prevent interior and body paint surface from being scratched, when removing A-pillar upper protector assembly.

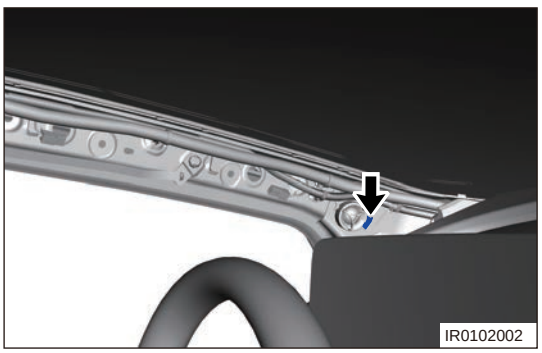
1. Remove the front left door opening weatherstrip.
2. Remove the left A-pillar upper protector assembly.
   a. Using an interior crow plate, remove 1 airbag clip and 2 clips from left A-pillar upper protector assembly.

⚠ Warning

Use needle nose pliers to clamp the dovetail of airbag clip and rotate it 90° to separate the A-pillar upper protector from the sheet metal, the secondary clip is left on the sheet metal.



   b. Disconnect the speaker connector (arrow).



   c. Remove the left A-pillar upper protector assembly.

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Make sure that damaged clips are replaced and A-pillar upper protector assembly is installed in place, when installing A-pillar upper protector assembly.
- A-pillar upper protector assembly should be well fitted with instrument panel and roof headlining, after installing A-pillar upper protector assembly.
- A-pillar upper protector assembly and front door opening weatherstrip should be fitted closely, after installing A-pillar upper protector assembly.

B-pillar Lower Protector Assembly

Removal

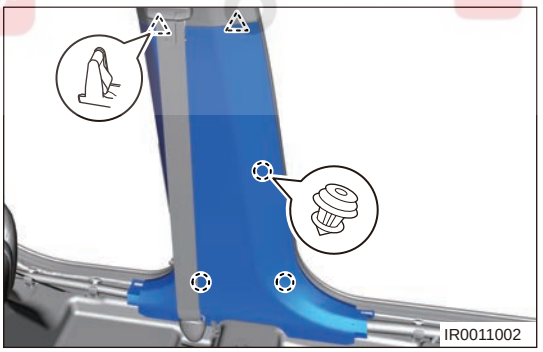
Hint:

- Use same procedures for right and left sides.
- Procedures listed below are for left side.

⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when removing B-pillar lower protector assembly.
- Appropriate force should be applied, when removing B-pillar lower protector assembly. Be careful not to operate roughly.
- Try to prevent interior and body paint surface from being scratched, when removing B-pillar lower protector assembly.

1. Remove the front left doorsill pressure plate assembly.
2. Remove the front left door opening weatherstrip.
3. Remove the rear left doorsill pressure plate assembly.
4. Remove the rear left door opening weatherstrip.
5. Remove the left B-pillar lower protector assembly.
   a. Using an interior crow plate, pry off fixing clips from left B-pillar lower protector assembly.



   b. Remove the left B-pillar lower protector assembly.

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- ?Make sure that damaged clips are replaced and B-pillar lower protector assembly is installed, in place when installing B-pillar lower protector assembly.
- B-pillar lower protector assembly should be well fitted with front and rear doorsill pressure plate assemblies, after installing B-pillar lower protector assembly.
- B-pillar lower protector assembly and front and rear door opening weatherstrips should be fitted closely, after installing B-pillar lower protector assembly.

B-pillar Upper Protector Assembly

Removal

Hint:

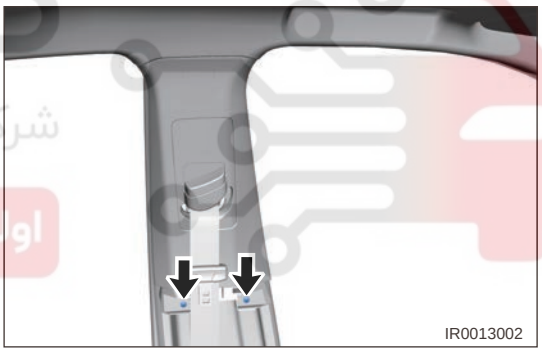
- Use same procedures for right and left sides.
- Procedures listed below are for left side.

⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when removing B-pillar upper protector assembly.
- Appropriate force should be applied, when removing B-pillar upper protector assembly. Be careful not to operate roughly.
- Try to prevent interior and body paint surface from being scratched, when removing B-pillar upper protector assembly.

1. Remove the front left doorsill pressure plate assembly.
2. Remove the front left door opening weatherstrip.
3. Remove the rear left doorsill pressure plate assembly.
4. Remove the rear left door opening weatherstrip.
5. Remove the left B-pillar lower protector assembly.
6. Remove the left B-pillar upper protector assembly.
   a. Remove 2 fixing screws (arrow) from lower part of left B-pillar upper protector.

      Tightening torque: 1.5 ± 0.5 N • m



   b. Remove the front seat belt lower fixing bolt, and pass the webbing through B-pillar upper protector cover plate.

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- B-pillar upper protector assembly should be well fitted with B-pillar lower protector assembly and roof headlining, after installing B-pillar upper protector assembly.
- B-pillar upper protector assembly and front and rear door opening weatherstrips should be fitted closely, after installing B-pillar upper protector assembly.

C-pillar Lower Protector Assembly

Removal

Hint:

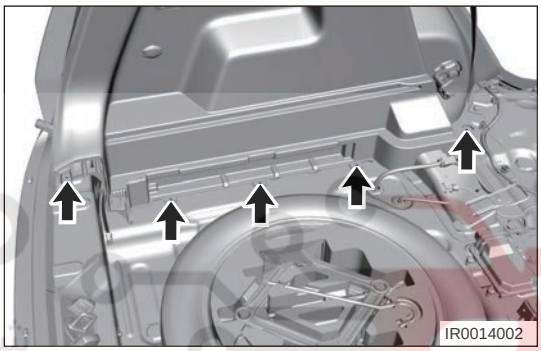
- Use same procedures for right and left sides.
- Procedures listed below are for left side.

⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when removing C-pillar lower protector assembly.
- Appropriate force should be applied, when removing C-pillar lower protector assembly. Be careful not to operate roughly.
- Try to prevent interior and body paint surface from being scratched, when removing C-pillar lower protector assembly.

1. Remove the rear seat assembly.
2. Remove the rear left door opening weatherstrip.
3. Remove the back door opening weatherstrip.
4. Remove the luggage compartment carpet assembly.
5. Remove the luggage compartment storage box assembly.
6. Remove the back doorsill pressure plate assembly.
7. Remove the left C-pillar lower protector assembly.
   a. Remove 5 fixing screws (arrow) from left C-pillar lower protector assembly.

      Tightening torque: 1.5 ± 0.5 N • m

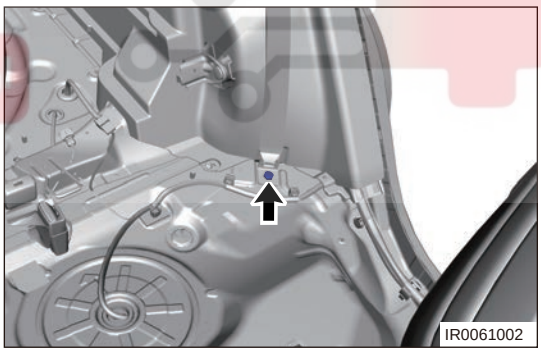


⚠ Caution

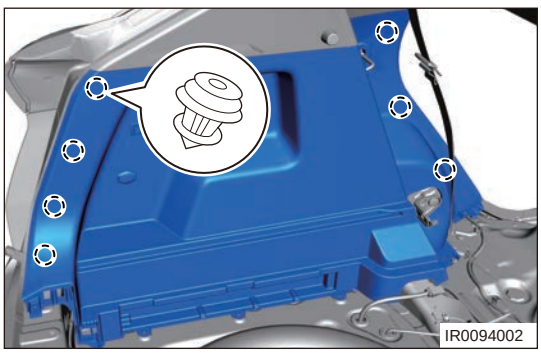
Five on the left and four on the right.

   b. Remove the seat belt lower fixing bolt (arrow).

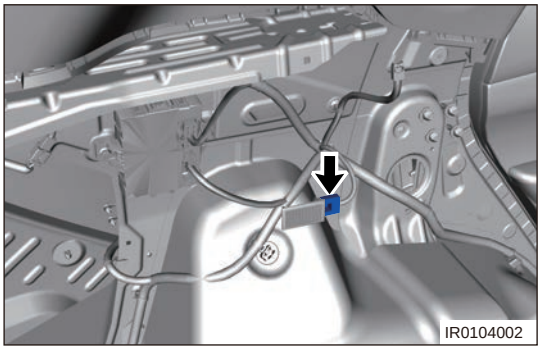
      Tightening torque: 50 ± 5.0 N • m



   c. Using an interior crow plate, pry off clips from left C-pillar lower protector assembly.



d. Disconnect the luggage compartment light connector (arrow).



e. Remove the left C-pillar lower protector assembly.

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Make sure that damaged clips are replaced and C-pillar lower protector assembly is installed in place when installing C-pillar lower protector assembly.
- C-pillar lower protector assembly should be well fitted with C-pillar upper protector assembly and rear doorsill pressure plate assembly, after installing C-pillar lower protector assembly.
- C-pillar lower protector assembly and rear door opening weatherstrip should be fitted closely, after installing C-pillar lower protector assembly.

C-pillar Upper Protector Assembly

Removal

Hint:

- Use same procedures for right and left sides.
- Procedures listed below are for left side.

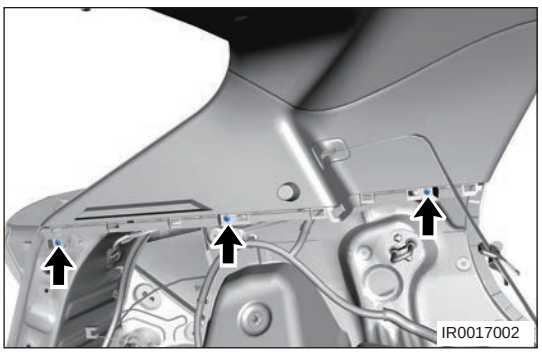
⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when removing C-pillar upper protector assembly.
- Appropriate force should be applied, when removing C-pillar upper protector assembly. Be careful not to operate roughly.
- Try to prevent interior and body paint surface from being scratched, when removing C-pillar upper protector assembly.

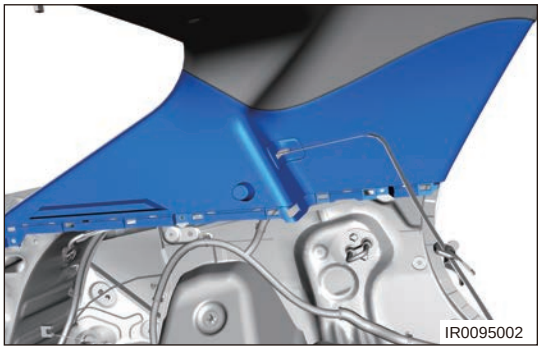
1. Remove the left C-pillar lower protector assembly.
2. Remove the left C-pillar upper protector assembly.

a. Remove 3 fixing screws (arrow) from the lower end of left C-pillar upper protector assembly.

Tightening torque: 1.5 ± 0.5 N·m



b. Using an interior crow plate, pry off clips from left C-pillar upper protector assembly.



c. Remove the left C-pillar upper protector assembly.

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Replace damaged clips and install C-pillar upper protector assembly in place, when installing C-pillar upper protector assembly.
- C-pillar upper protector assembly should be well fitted with roof headlining, after installing C-pillar upper protector assembly.
- C-pillar upper protector assembly and rear door opening weatherstrip should be fitted closely, after installing C-pillar upper protector assembly.

Sun Visor Assembly

Removal

Hint:

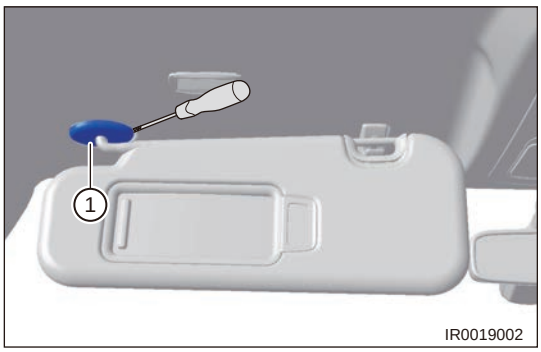
- Use same procedures for right and left sides.
- Procedures listed below are for left side.

⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when removing sun visor assembly.
- Appropriate force should be applied, when removing sun visor assembly. Be careful not to operate roughly.
- Try to prevent interior and roof from being damaged, when removing sun visor assembly.

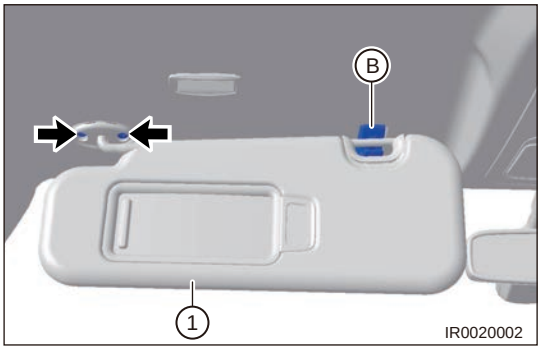
1. Remove the left sun visor assembly.

a. Using an interior crow plate, pry off trim cover (1) from left sun visor holder.

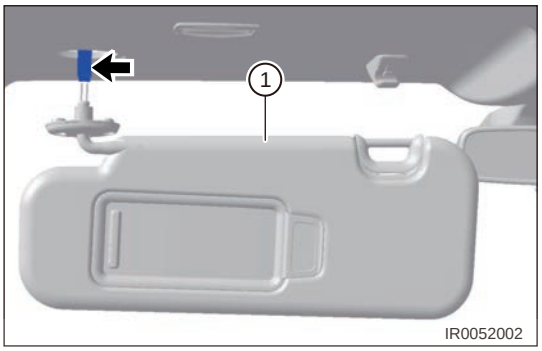


b. Detach sun visor assembly (1) from one side of the holder B, and remove 2 fixing screws (arrow) from left sun visor.

Tightening torque: 5 ± 1.0 N • m



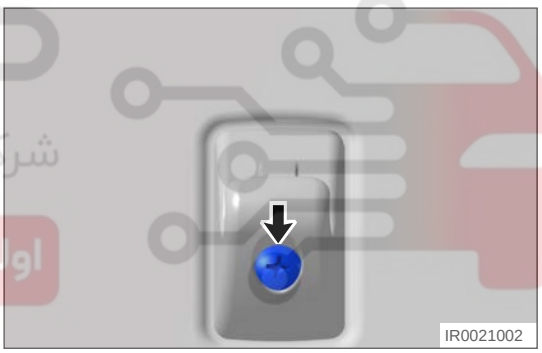
c. Disconnect the left sun visor connector (arrow) and remove sun visor assembly (1).



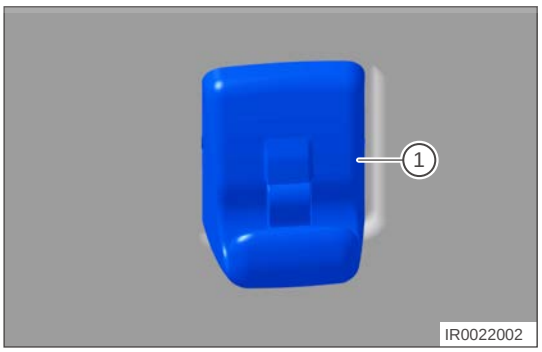
2. Remove the left sun visor holder B.

d. Remove 1 fixing screw (arrow) from sun visor holder B.

Tightening torque: 2 ± 0.5 N • m



e. Using a screwdriver wrapped with protective tape, pry off the left sun visor holder B (1).



Installation

1. Installation is in the reverse order of removal.

Passenger Grip Assembly

Removal

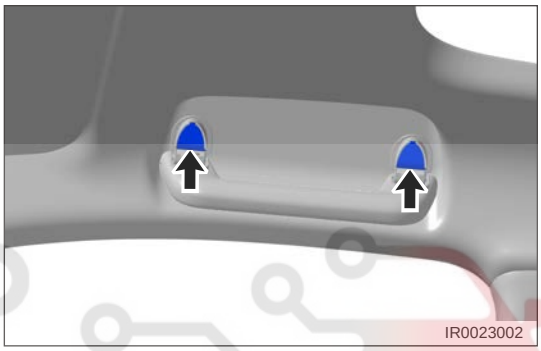
Hint:

- Use same procedures for rear left/rear right and front right sides.
- Procedures listed below are for front right side.

⚠ Caution

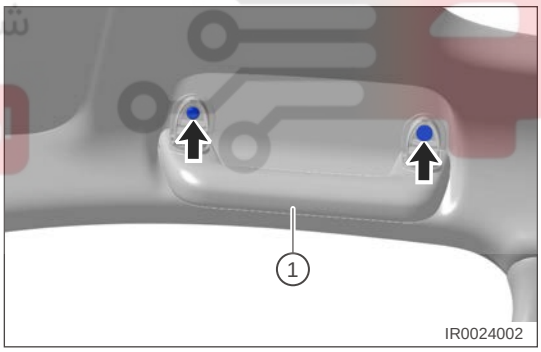
- Be sure to wear safety equipment to prevent accidents, when removing passenger grip assembly.
- Appropriate force should be applied, when removing passenger grip assembly. Be careful not to operate roughly.
- Try to prevent interior and roof from being damaged, when removing passenger grip assembly.

1. Remove the front right passenger grip assembly.
   a. Using an interior crow plate, pry off grip fixing screw block cover (arrow).


IR0023002

   b. Remove 2 fixing screws (arrow) from front right passenger grip assembly.

   Tightening torque: 3 ± 0.5 N • m



IR0024002

   c. Remove the front right passenger grip assembly.

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Passenger grip should be well fitted with roof and peripheral clearance should be even when it is not in use.
- Grip should return normally without any noise during operation.

Roof Assembly

Removal

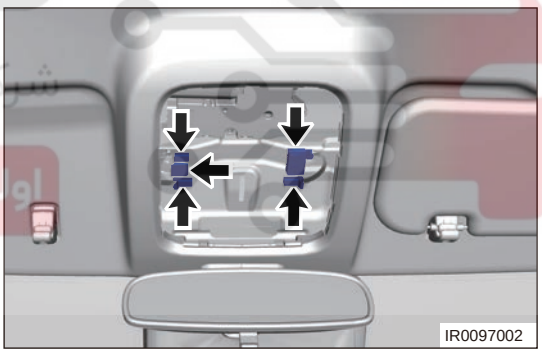
⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when removing roof assembly.
- Appropriate force should be applied, when removing roof assembly. Be careful not to operate roughly.
- Try to prevent interior and body paint surface from being scratched, when removing roof assembly.

1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the interior front dome light assembly.
   a. Using an interior crow plate, pry off interior front dome light assembly.

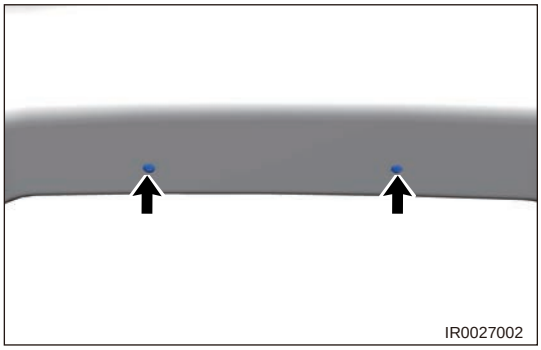

IR0053002

   b. Disconnect front dome light connectors (arrow).


IR0097002

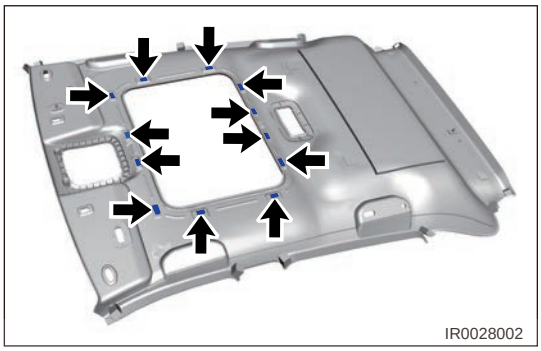
   c. Remove the interior front dome light assembly.
4. Remove the sun visor assembly.
5. Remove left and right vanity mirror light assemblies.
6. Remove the rear interior dome light assembly.
7. Remove the passenger grip assembly.
8. Remove the front door opening weatherstrip.
9. Remove the rear door opening weatherstrip.
10. Remove the back door opening weatherstrip.
11. Remove the A-pillar upper protector assembly.
12. Remove the B-pillar upper protector assembly.
13. Remove the C-pillar upper protector assembly.
14. Remove the roof assembly.

a. Remove 2 clips (arrow) from roof assembly.


IR0027002

> **⚠ Caution**
>
> There are 4 clips on the roof assembly of vehicles without sunroof.

b. Disconnect 12 mushroom buckles (arrow) between the roof and ceiling by force evenly downward around the roof.


IR0028002

c. Remove the roof assembly.

Installation

1. Installation is in the reverse order of removal.

> **⚠ Caution**
>
> - Replace damaged clips and install roof assembly in place, when installing roof assembly.
> - Roof assembly and pillar upper protector should be fitted closely, after installing roof assembly.
> - Roof assembly and door opening weatherstrip should be fitted closely, after installing roof assembly.

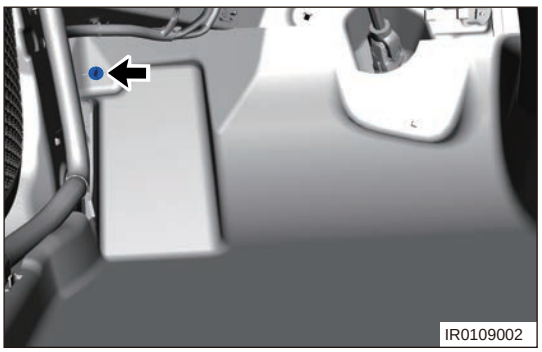
Front Floor Carpet Assembly

Removal

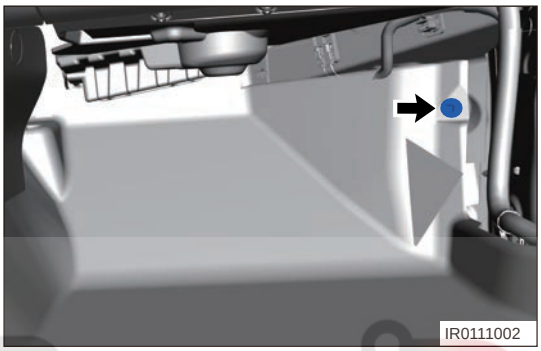
> **⚠ Caution**
>
> - Be sure to wear safety equipment to prevent accidents, when removing front floor carpet assembly.
> - Appropriate force should be applied, when removing front floor carpet assembly. Be careful not to operate roughly.
> - Prevent interior and body paint from being scratched, when removing front floor carpet assembly.

1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the auxiliary fascia console assembly.
4. Remove the front seat assembly.
5. Remove the rear seat cushion assembly.
6. Remove the front doorsill pressure plate assembly.
7. Remove the front door opening weatherstrip.
8. Remove the rear doorsill pressure plate assembly.
9. Remove the rear door opening weatherstrip.

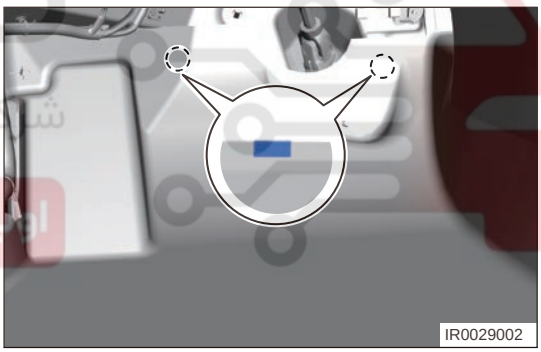
10. Remove the B-pillar lower protector assembly.
11. Remove the front floor carpet.
    a. Remove the front carpet left fixing clamping washer (arrow).



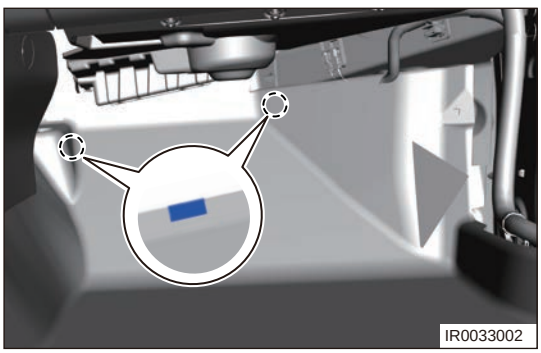
    b. Remove the front carpet right fixing clamping washer (arrow).



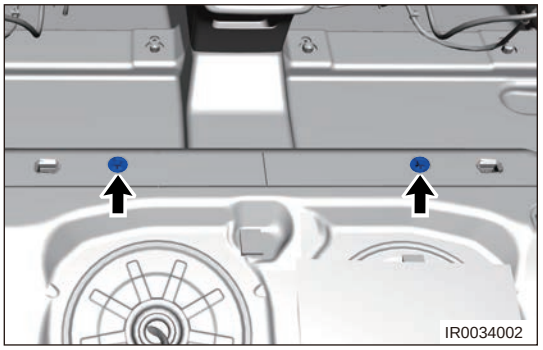
    c. Loosen buckle bonding between 2 magical buckles in front of carpet and front plate sound insulator.



    d. Loosen buckle bonding between 2 magical buckles in front of carpet and front plate sound insulator.



e. Loosen clamping washers (arrow) from left and right sides of the carpet rear end.



f. Remove the front carpet assembly.

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Always pay attention to the flatness around front floor carpet assembly and the routing of relative body wire harness, when installing front floor carpet assembly.
- Spread front floor carpet assembly along the bottom shape, with no obvious bumps and unevenness found. Expose installation holes, and front floor carpet assembly should be firmly abutted against the bottom.

Driver Side Foot Rest Bracket Assembly

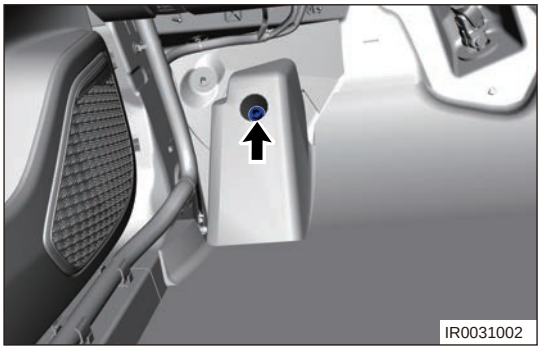
Removal

⚠ Caution

- Be sure to wear necessary safety equipment to prevent accidents, when removing driver side foot rest bracket.
- Appropriate force should be applied when removing driver side foot rest bracket. Be careful not to operate roughly.
- Prevent interior and body paint from being scratched, when removing driver side foot rest bracket.

1. Remove the front left doorsill pressure plate assembly.
2. Remove the front left door opening weatherstrip.
3. Remove the driver side foot rest bracket.
   a. Lift the carpet and floor cushion in the direction of the arrow.

b. Remove fixing clip (arrow) from driver side foot rest.



c. Remove the driver side foot rest bracket.

Installation

1. Installation is in the reverse order of removal.

Luggage Compartment Carpet Assembly

Removal

1. Remove the luggage compartment carpet assembly.
   a. First of all, lift the luggage compartment carpet grip and lift the luggage compartment carpet.
   b. Then move the luggage compartment carpet assembly backward and take out it.

Installation

1. Installation is in the reverse order of removal.

⚠ Caution
• Make sure that the left and right sides of luggage compartment carpet assembly are fitted in place, when installing luggage compartment carpet assembly.

Rear Wheel House Sound Insulator

Removal

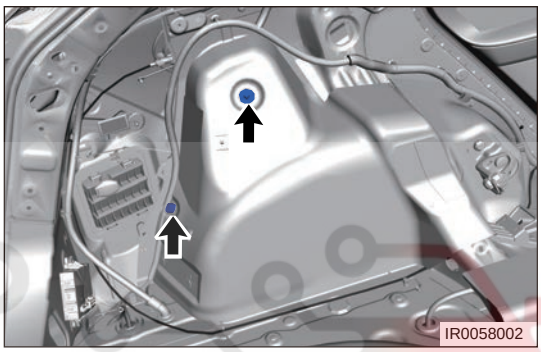
Hint:

- Use same procedures for right and left sides.
- Procedures listed below are for left side.

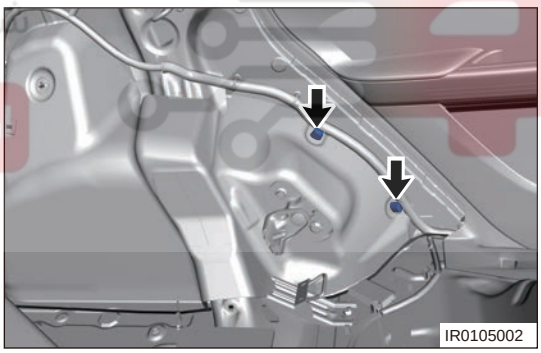
⚠ Caution

- Be sure to wear necessary safety equipment to prevent accidents, when removing rear wheel house sound insulator.
- Appropriate force should be applied, when removing rear wheel house sound insulator. Be careful not to operate roughly.
- Prevent interior and body paint from being scratched, when removing rear wheel house sound insulator.

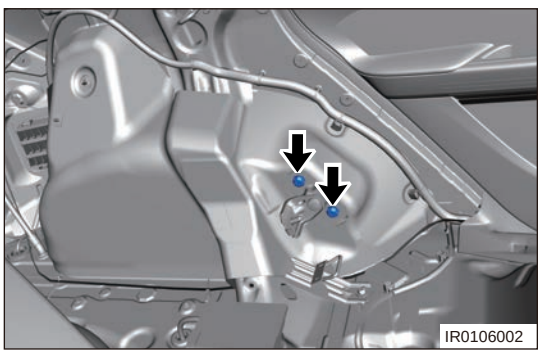
1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the rear seat assembly.
4. Remove the luggage compartment storage box assembly.
5. Remove the left C-pillar lower protector.
6. Remove the rear left wheel house sound insulator assembly.
   a. Remove fixing clips (arrow) from rear wheel house sound insulator assembly.



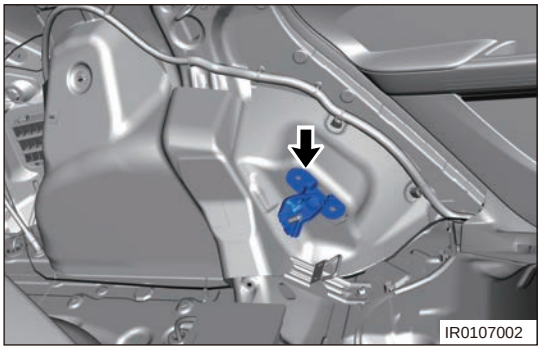
   b. Remove fixing clips (arrow) from rear wheel house sound insulator assembly.



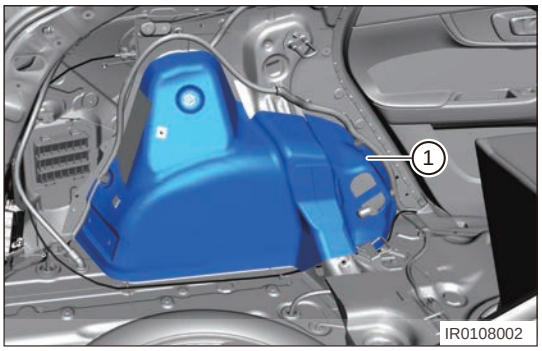
   c. Remove 2 fixing bolts (arrow) from rear seatback left connecting bracket assembly.



d. Remove the rear seatback left connecting bracket assembly.



e. Remove the rear wheel house sound insulator assembly (1).



Installation

1. Installation is in the reverse order of removal.

SEAT

GENERAL INFORMATION

Description

1	Front Passenger Seat Assembly	4	Driver Seatback Adjustment Switch
2	Driver Seat Assembly	5	Driver Seat Front-back Adjustment Switch
3	Rear Seat Assembly		

Front seat assembly can be moved forward and backward by seat track unlock handle, and seatback reclining can be adjusted by seat reclining adjuster handle.Rear seat position is not adjustable; however, rear seatback can be folded forward by pulling seatback unlock mechanism assembly, to help increase the storage space of luggage compartment.

Diagnostic Help

- Connect diagnostic tester (the latest software) to Data Link Connector (DLC), and make it communicate with vehicle electronic module through data network.
- Confirm that malfunction is current, and carry out diagnostic test and repair procedures.
- If Diagnostic Trouble Code (DTC) cannot be cleared, it indicates that there is a current malfunction.
- Only use a digital multimeter to measure voltage of electronic system.
- Refer to any Technical Bulletin that may apply to this malfunction.
- Visually check the related wire harness.
- Check and clean all BCM system grounds related to the latest DTC.
- If numerous trouble codes are set, refer to circuit diagram and look for any common ground circuit or power supply circuit applied to DTC.

Intermittent Troubleshooting

If malfunction is intermittent, perform the followings:

- Check if connector is loose.
- Check if wire harness is worn, pierced, pinched or partially broken.
- Wiggle related wire harness and connector and observe if signal in related circuit is interrupted.
- If possible, try to duplicate conditions under which DTC was set.
- Look for data that has changed or DTC to reset during wiggling test.
- Check for broken, bent, protruded or corroded terminals.
- Check and clean all wire harness connectors and ground parts related to DTC.
- If multiple trouble codes were set, refer to circuit diagrams to look for any common ground circuit or power supply circuit applied to DTC.
- Refer to any Technical Bulletin that may apply to this malfunction.

Ground Inspection

Ground points are very important to the proper operation of circuits. Ground points are often exposed to moisture, dirt and other corrosive environments. Corrosion (rust) may increase load resistance. This situation may change the way in which a circuit operates. Circuits are very sensitive to proper grounding. A loose or corroded ground can seriously affect the control circuit. Check the ground points as follows:

- Remove ground bolt or nut.
- Check all contact surfaces for tarnish, dirt and rust, etc.
- Clean as necessary to ensure that contact is in good condition.
- Reinstall ground bolt or nut securely.
- Check if any additional accessories interfere with ground circuit.
- If several wire harnesses are crimped into one ground terminal, check for proper crimp condition. Make sure that all wire harnesses are clean and securely fastened while providing a proper ground path.

Diagnosis Procedure

Hint:
Use following procedures to troubleshoot the seat control system.

1	**Vehicle brought to workshop**

Next

2	**Examine vehicle and check basic items**

Check system power supply voltage, and check that fuse, wire harness and connector are connected normally.

OK

Standard voltage: Not less than 12 V.

Result

NG → **Check and replace malfunctioning parts**

OK ↓

3	**Using a diagnostic tester, read related DTC and data stream information**

Result

Result	Go to
No DTC	A
DTC occurs	B

A → **Perform troubleshooting procedure without DTCs according to malfunction symptom**

B ↓

4	**Troubleshoot according to DTCs troubleshooting procedure**

Result

Result	Go to
Problem is not resolved	A
Problem is resolved	B

A → **Return to procedure 1 and troubleshoot the process again**

B ↓

5	**According to seat system malfunction repair completion inspection and delivery, confirm if malfunction is resolved.**

Result

Result	Go to
Delivery inspection is failed	A
Delivery inspection is qualified	B

A → **Return to procedure 1 and troubleshoot the process again**

B →

6	**Finished**

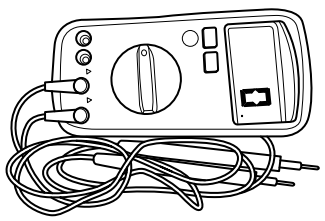
Specifications

Torque Specifications

Description	Torque (N·m)
Front Seat Assembly Fixing Bolt	50 ± 5.0
Seat Belt Buckle Assembly Fixing Bolt	50 ± 5.0

Tool

General Tool

Tool Name	Tool Drawing
Digital Multimeter	 RCH000206

Diagnosis & Test

Diagnostic Trouble Code (DTC) Chart

DTC	DTC
B2178-16	Supply Voltage is too Low
B2178-17	Supply Voltage is too High
B2179-24	Heating Output Relay Adhesion (Continuous High Level)

DTC	DTC
B217A-13	The Heating Output Load is Open
B217B-19	Excessive Seat Heating Current
B217B-18	Overcurrent of Seat Heating
B217C-1A	The NTC Input Feedback Value is too Small
B217C-00	The Heating NTC Input Feedback Value Does Not Change
B217D-16	The Power Supply Voltage is too Low
B217D-17	The Power Supply Voltage is too High
B217E-19	Height Adjustment Control Circuit High Current
B217E-18	Height Adjustment Control Circuit Low Current
B217F-19	Horizontal Adjustment Control Circuit High Current
B217F-18	Horizontal Adjustment Control Circuit Low Current
B2180-04	Seat Height Adjustment and Horizontal Control Circuit Internal Failure
B2181-19	Backrest Adjustment Control Circuit High Current
B2181-18	Backrest Adjustment Control Circuit Low Current
B2182-04	Backrest Control Circuit Internal Fault
B2183-77	The Key Card Lag
U0073-88	Bus Off
U1162-87	Lost Communication With FCM
U0129-87	Lost Communication With BSM
U0140-87	Lost Communication With BCM
U0100-87	Lost Communication With EMS
U0155-87	Lost Communication With ICM
U0101-87	Lost Communication With TCU
U1405-81	Invalid Data Received From FCM
U0418-81	Invalid Data Received From BSM
U0422-81	Invalid Data Received From BCM
U0401-81	Invalid Data Received From EMS
U0423-81	Invalid Data Received From ICM
U0402-81	Invalid Data Received From TCU
U3000-51	Control Module Not Programmed
U1300-55	Not Config
B2178-16	Supply Voltage is too Low

DTC	DTC
B2178-17	Supply Voltage is too High
B2179-24	Heating Output Relay Adhesion (Continuous High Level)
B217A-13	The Heating Output Load is Open
B217B-19	Excessive Seat Heating Current
B217B-18	Overcurrent of Seat Heating
B217C-1A	The NTC Input Feedback Value is too Small
B217C-00	The Heating NTC Input Feedback Value Does Not Change
B217D-16	The Power Supply Voltage is too Low
B217D-17	The Power Supply Voltage is too High
B217E-19	Height Adjustment Control Circuit High Current
B217E-18	Height Adjustment Control Circuit Low Current
B217F-19	Horizontal Adjustment Control Circuit High Current
B217F-18	Horizontal Adjustment Control Circuit Low Current
B2180-04	Seat Height Adjustment And Horizontal Control Circuit Internal failure
B2181-19	Backrest Adjustment Control Circuit High Current
B2181-18	Backrest Adjustment Control Circuit Low Current
B2182-04	Backrest Control Circuit Internal Fault
B2183-77	The Key Card Lag
U0073-88	Bus Off
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U0129-87	Lost Communication With BSM
U0140-87	Lost Communication With BCM
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U0422-81	Invalid Data Received From BCM
U0401-81	Invalid Data Received From EMS
U0423-81	Invalid Data Received From ICM
U0402-81	Invalid Data Received From TCU

DTC	DTC
U3000-51	Control Module Not Programmed
U1300-55	Not Config

DTC Diagnosis Procedure

DTC	U0073-88	Bus Off
DTC	U1162-87	Lost Communication With FCM
DTC	U0129-87	Lost Communication With BSM
DTC	U0140-87	Lost Communication With BCM
DTC	U0100-87	Lost Communication With EMS
DTC	U0155-87	Lost Communication With ICM
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DTC	U0423-81	Invalid Data Received From ICM
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DTC	U3000-51	Control Module Not Programmed
DTC	U1300-55	Not Config

Description

DTC	Description
U0073-88	Bus Off
U1162-87	Lost Communication With FCM
U0129-87	Lost Communication With BSM
U0140-87	Lost Communication With BCM
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U1405-81	Invalid Data Received From FCM
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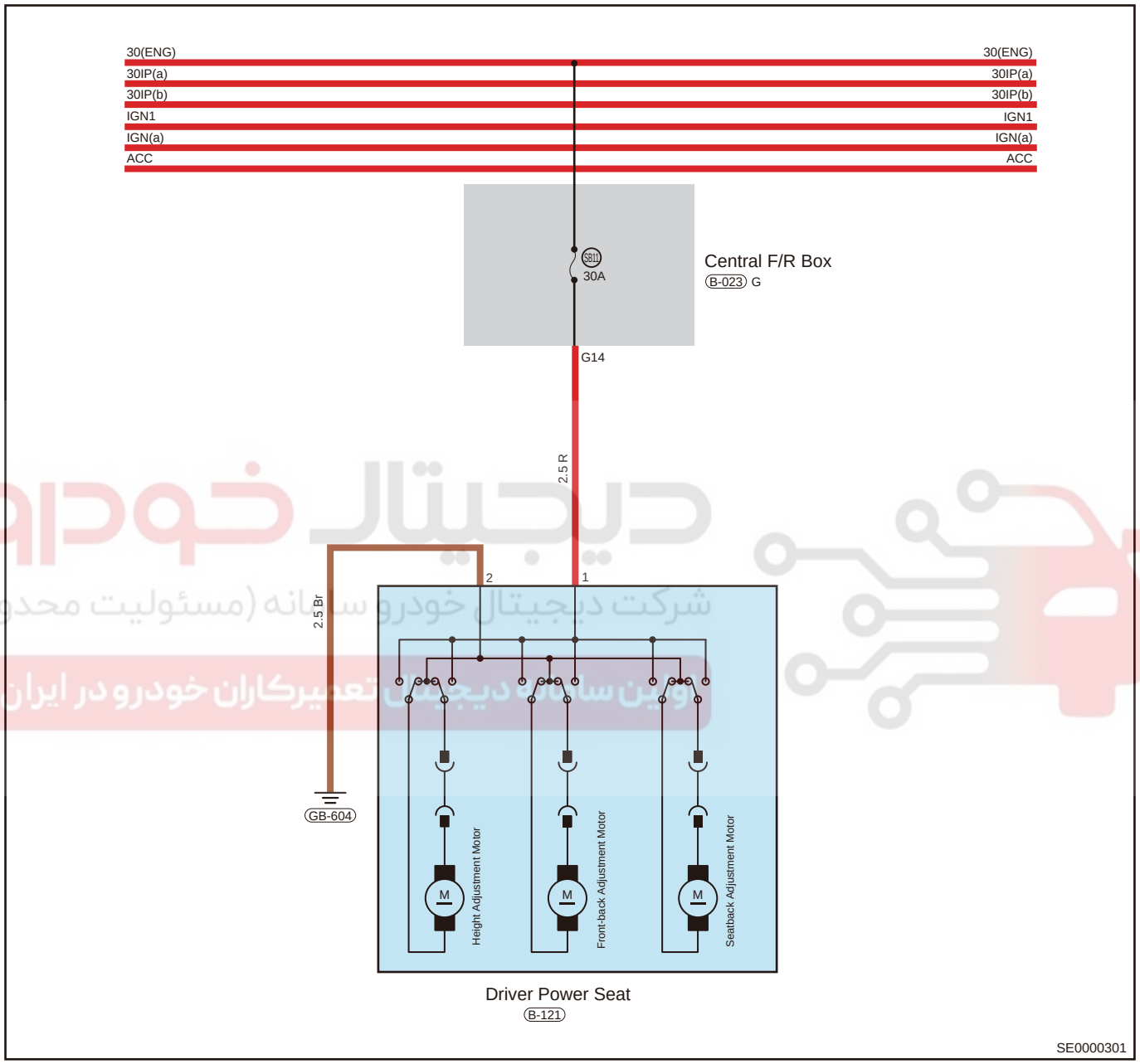
U0100-87	Lost Communication With EMS
U0155-87	Lost Communication With ICM
U0101-87	Lost Communication With TCU
U1405-81	Invalid Data Received From FCM
U0418-81	Invalid Data Received From BSM
U0422-81	Invalid Data Received From BCM
U0401-81	Invalid Data Received From EMS
U0423-81	Invalid Data Received From ICM
U0402-81	Invalid Data Received From TCU
U3000-51	Control Module Not Programmed
U1300-55	Not Config

Description
Refer to CAN communication system

DTC	B2178-16	Low Power Supply Voltage
DTC	B2178-17	High Power Supply Voltage

Description

Control Schematic Diagram



DTC	Description
B2178-16	Low Power Supply Voltage
B2178-17	High Power Supply Voltage

DTC Confirmation Procedure

Confirm that battery voltage is not less than 12 V before performing the following procedures.

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software).

- Start engine and warm it up, and then read DTC again. If DTC is detected, malfunction is current.
- If DTC is not detected, malfunction is intermittent.

Hint:
When performing circuit diagnosis and test, always refer to the circuit diagram for specific circuit and component information.

1	**Check fuse**

(a) Check if fuse SB11 is blown.

NG → **Replace fuse**

OK ↓

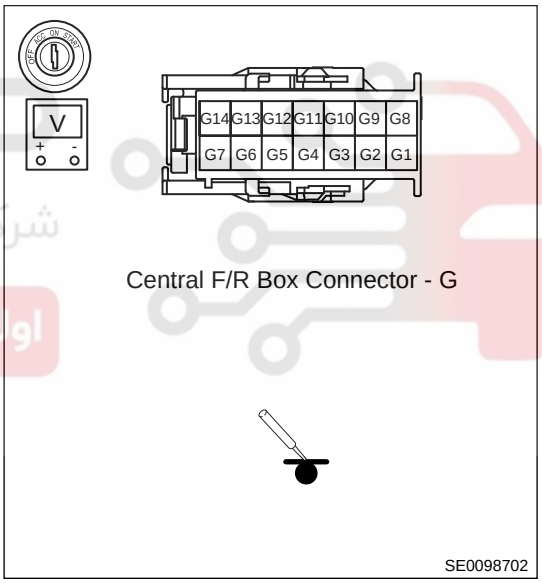
2	**Check output voltage of instrument panel fuse and relay box**

(a) Turn ENGINE START STOP switch to ON.

(b) Disconnect the engine compartment fuse and relay box connector B-023.

(c) Using a digital multimeter, measure voltage between connector B-023 (G14) and body ground.

Multimeter Connection	Condition	Specified Condition
B-023 (G14) - Body ground	ENGINE START STOP switch "ON"	⩽ 12 V



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NG → **Replace engine compartment fuse and relay box assembly.**

OK ↓

3	**Check for open in wire harness**

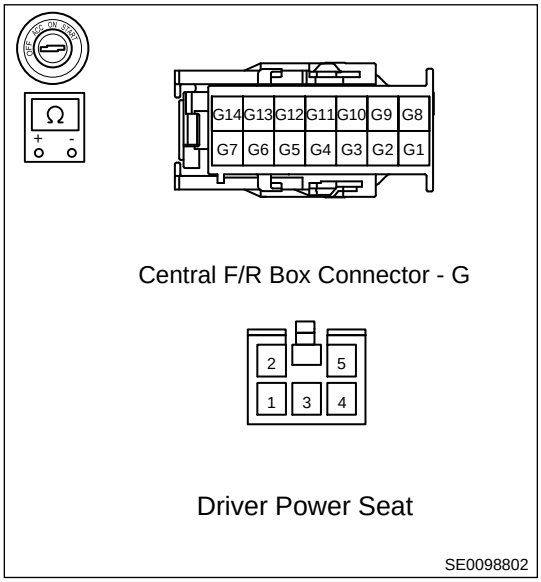
(a) Turn ENGINE START STOP switch to OFF.

(b) Disconnect the negative battery cable.

(c) Disconnect driver seat connector B-121 and engine compartment fuse and relay box connector B-023.

(d) Using a digital multimeter, measure resistance between connectors B-121 (1) and B-023 (G14) to check for open in wire harness.

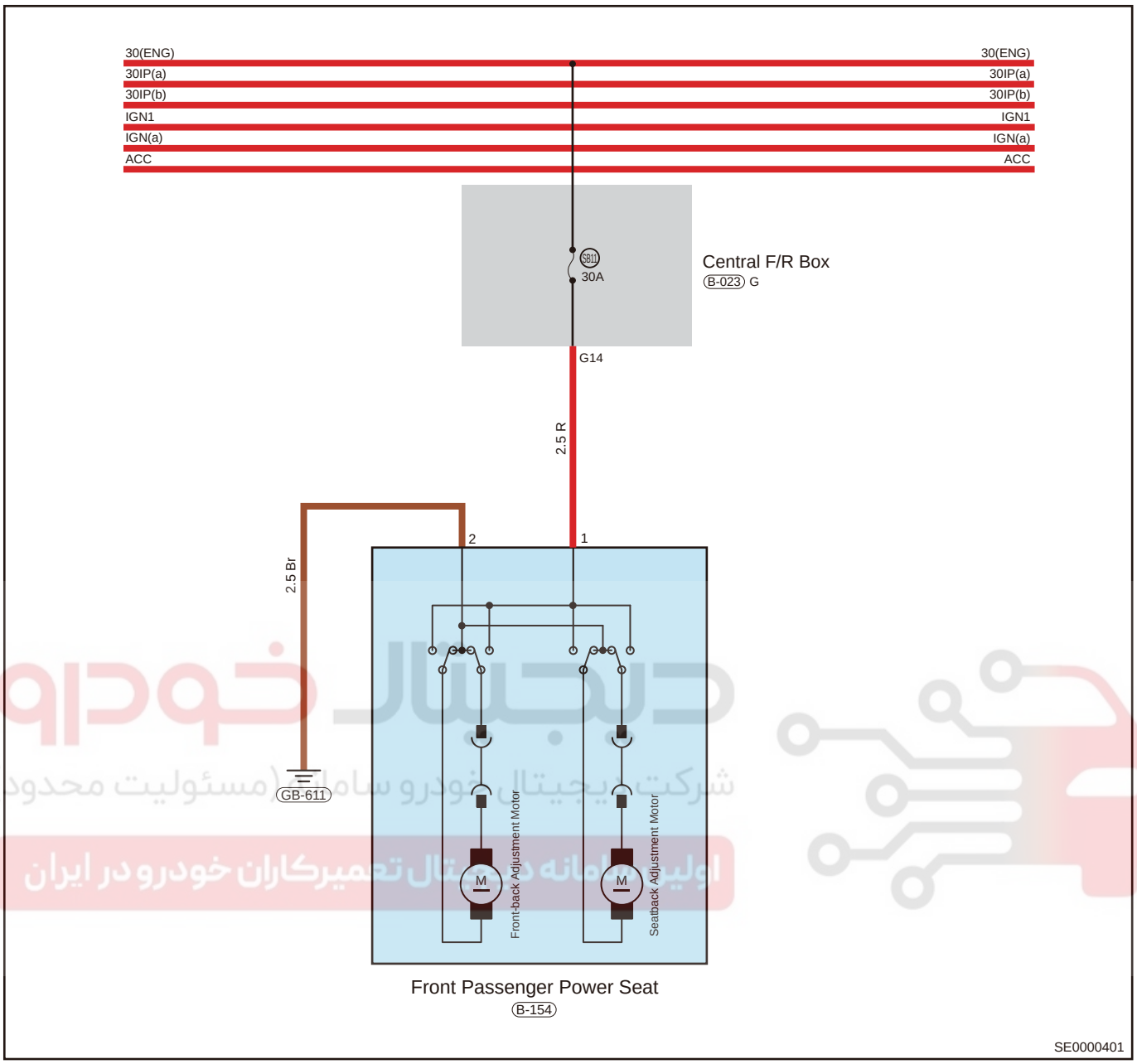
Multimeter Connection	Condition	Specified Condition
B-121 (1) - B-023 (G14)	ENGINE START STOP switch “OFF”	⩽ 1 Ω



OK	**Replace the driver seat.**
NG	**Handle and repair related wire harness**

DTC	**B2178-16**	**Low Power Supply Voltage**
DTC	**B2178-17**	**High Power Supply Voltage**

Description
Control Schematic Diagram



DTC	Description
B2178-16	Low Power Supply Voltage
B2178-17	High Power Supply Voltage

DTC Confirmation Procedure

Confirm that battery voltage is not less than 12 V before performing the following procedures.

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software).
- Start engine and warm it up, and then read DTC again. If DTC is detected, malfunction is current.
- If DTC is not detected, malfunction is intermittent.

Hint:

When performing circuit diagnosis and test, always refer to the circuit diagram for specific circuit and component information.

1	Check fuse

(a) Check if fuse SB11 is blown.

NG → **Replace fuse**

OK

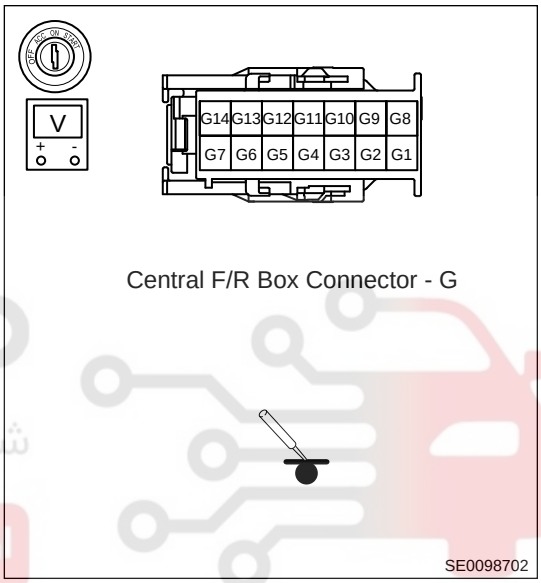
2	Check output voltage of instrument panel fuse and relay box

(a) Turn ENGINE START STOP switch to ON.

(b) Disconnect the engine compartment fuse and relay box connector B-023.

(c) Using a digital multimeter, measure voltage between connector B-023 (G14) and body ground.

Multimeter Connection	Condition	Specified Condition
B-023 (G14) - Body ground	ENGINE START STOP switch "ON"	⩽ 12 V



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NG → **Replace engine compartment fuse and relay box assembly.**

OK

3	Check for open in wire harness

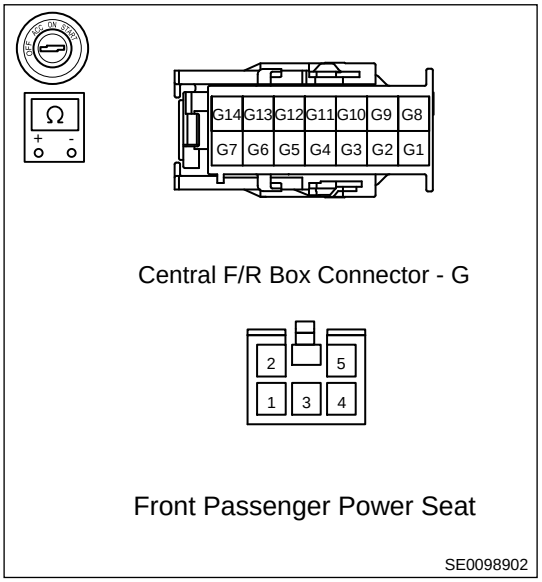
(a) Turn ENGINE START STOP switch to OFF.

(b) Disconnect the negative battery cable.

(c) Disconnect front passenger seat connector B-154 and engine compartment fuse and relay box connector B-023.

(d) Using a digital multimeter, measure resistance between connectors B-154 (1) and B-023 (G14) to check for open in wire harness.

Multimeter Connection	Condition	Specified Condition
B-154 (1) - B-023 (G14)	ENGINE START STOP switch “OFF”	⩽ 1 Ω



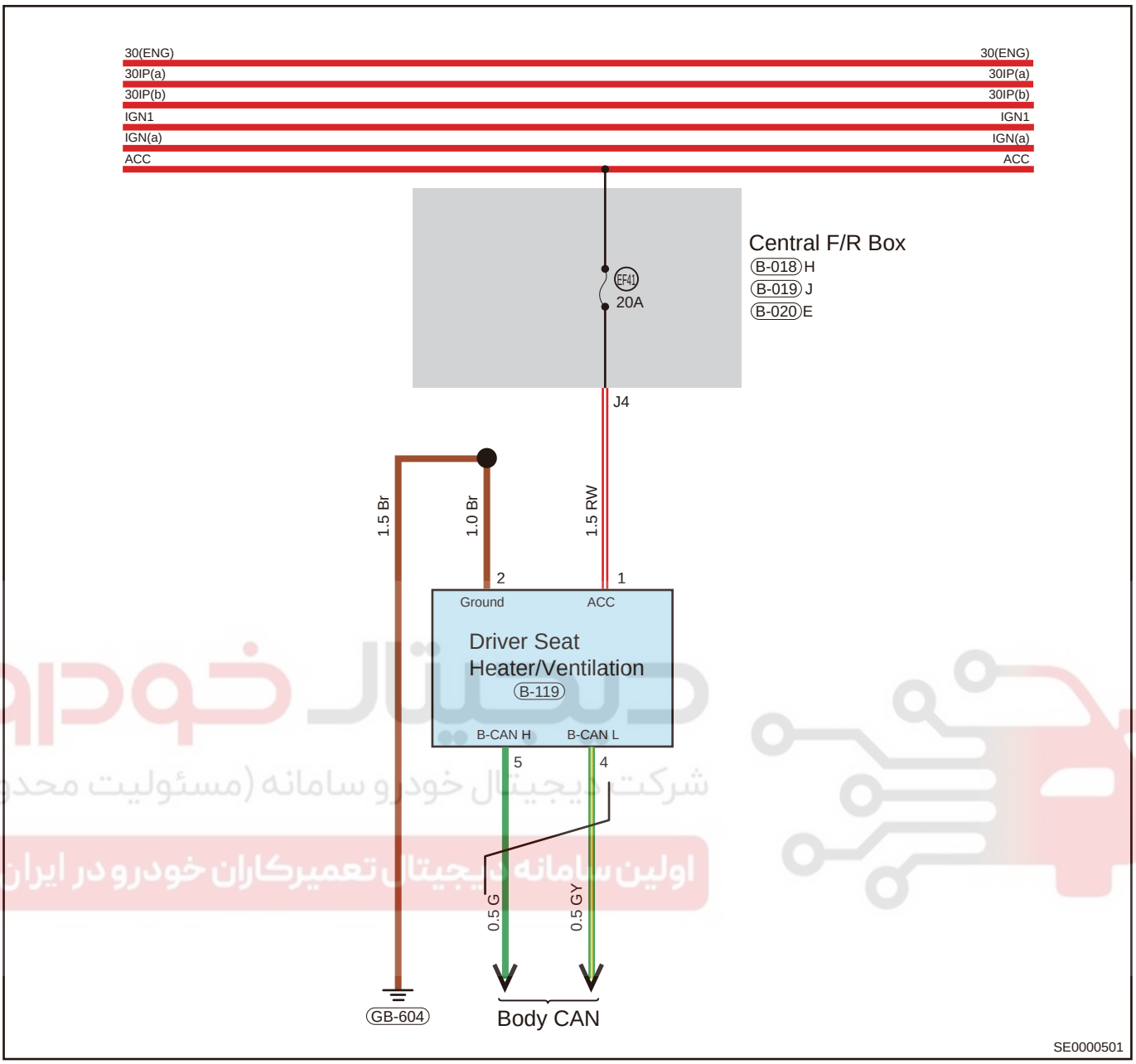
OK → **Replace the front passenger seat.**

NG → **Handle and repair related wire harness**

DTC	**B2179-24**	**Heating Output Relay Adhesion (Continuous High Level)**
DTC	**B217A-13**	**The Heating Output Load is Open**
DTC	**B217B-19**	**Excessive Seat Heating Current**
DTC	**B217B-18**	**Seat Heating Current is too Small**
DTC	**B217C-1A**	**Heating NTC Input Feedback Value is too Small**
DTC	**B217C-00**	**Heating NTC Input Feedback Value Does Not Change**

Description

Control Schematic Diagram



DTC	Description
B2179-24	Heating Output Relay Adhesion (Continuous High Level)
B217A-13	The Heating Output Load is Open
B217B-19	Excessive Seat Heating Current
B217B-18	Seat Heating Current is too Small
B217C-1A	Heating NTC Input Feedback Value is too Small
B217C-00	Heating NTC Input Feedback Value Does Not Change

DTC Confirmation Procedure

When performing circuit diagnosis and test, always refer to the circuit diagram for specific circuit and component information.

- Turn ENGINE START STOP switch to OFF.

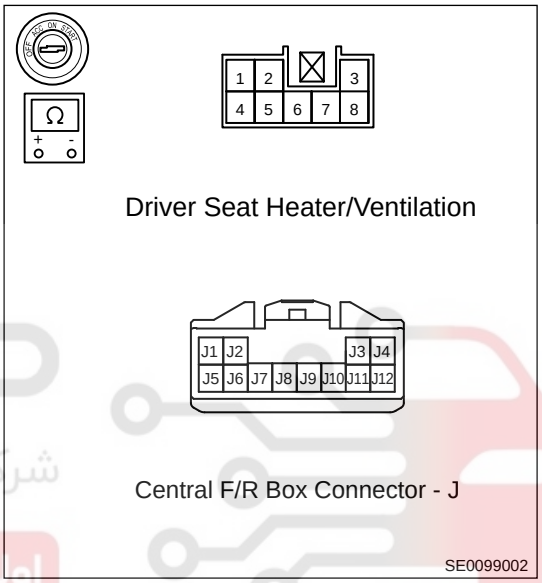
- Connect the diagnostic tester (the latest software).
- Start engine and warm it up, and then read DTC again. If DTC is detected, malfunction is current.
- If DTC is not detected, malfunction is intermittent.

1	**Driver seat heating control circuit low current**

(a) Check sensor connectors, controller connectors for corrosion, poor contact, displacement and repair it if any symptom occurs.
(b) Check the continuity of sensor wire harness and replace wire harness if open circuit malfunction occurs.
(c) Turn ENGINE START STOP switch to “OFF”, disconnect the negative battery cable.
(d) Disconnect the seat heating connector B-119.

(e) Using ohm band of multimeter, detect continuity between B-119 (1) and B-019 (J4), B-119 (2) and GB-604 separately.

Multimeter Connection	Condition	Specified Condition
B-119 (1) - B-019 (J4)	ENGINE START STOP switch “OFF”	⩽ 1 Ω
B-119 (2) - GB-604	ENGINE START STOP switch “OFF”	⩽ 1 Ω

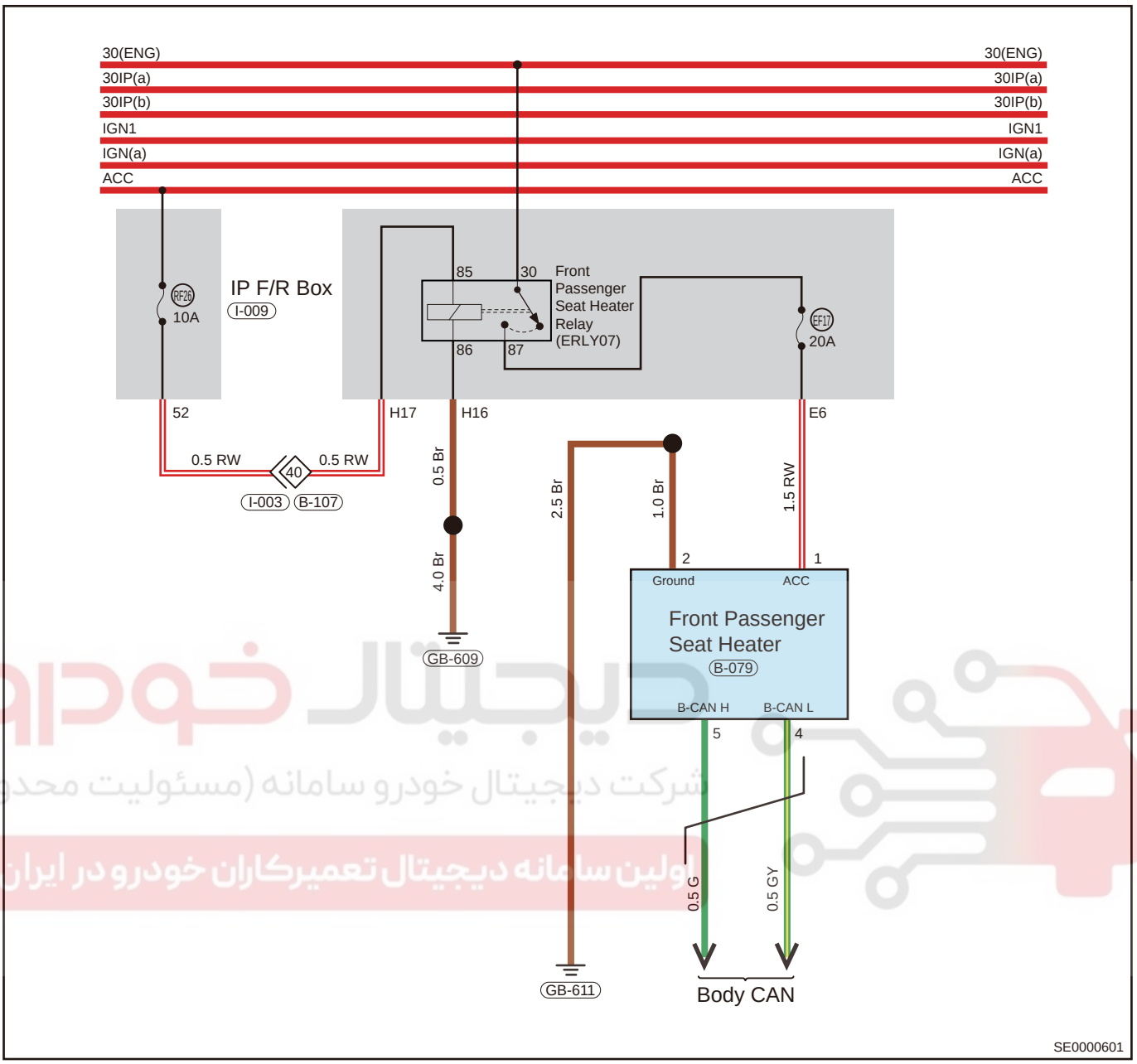


OK → **Replace the driver seat heating.**

NG → **Handle and repair related wire harness**

DTC	**B2179-24**	**Heating Output Relay Adhesion (Continuous High Level)**
DTC	**B217A-13**	**The Heating Output Load is Open**
DTC	**B217B-19**	**Excessive Seat Heating Current**
DTC	**B217B-18**	**Seat Heating Current is too Small**
DTC	**B217C-1A**	**Heating NTC Input Feedback Value is too Small**
DTC	**B217C-00**	**Heating NTC Input Feedback Value Does Not Change**

Description
Control Schematic Diagram



DTC	Description
B2179-24	Heating Output Relay Adhesion (Continuous High Level)
B217A-13	The Heating Output Load is Open
B217B-19	Excessive Seat Heating Current
B217B-18	Seat Heating Current is too Small
B217C-1A	Heating NTC Input Feedback Value is too Small
B217C-00	Heating NTC Input Feedback Value Does Not Change

DTC Confirmation Procedure

When performing circuit diagnosis and test, always refer to the circuit diagram for specific circuit and component information.

- Turn ENGINE START STOP switch to OFF.

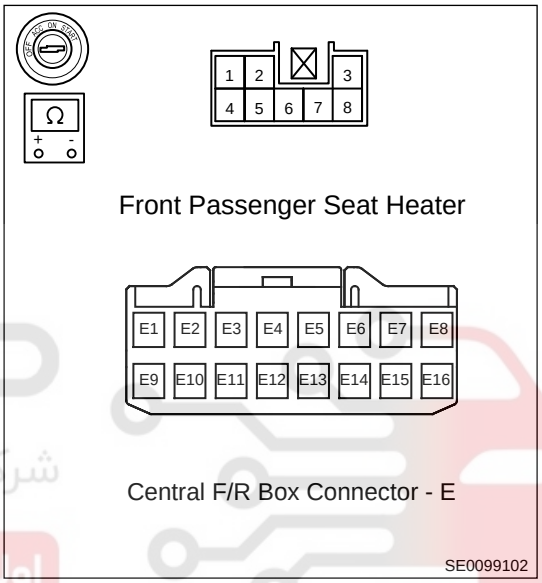
- Connect the diagnostic tester (the latest software).
- Start engine and warm it up, and then read DTC again. If DTC is detected, malfunction is current.
- If DTC is not detected, malfunction is intermittent.

1	**Front passenger heating control circuit low current**

(a) Check sensor connectors, controller connectors for corrosion, poor contact, displacement and repair it if any symptom occurs.
(b) Check the continuity of sensor wire harness and replace wire harness if open circuit malfunction occurs.
(c) Turn ENGINE START STOP switch to “OFF”, disconnect the negative battery cable.
(d) Disconnect the seat heating connector B-079.

(e) Using ohm band of multimeter, detect continuity between B-079 (1) and B-020 (E6), B-079 (2) and GB-611 separately.

Multimeter Connection	Condition	Specified Condition
B-079 (1) - B-020 (E6)	ENGINE START STOP switch “OFF”	⩽ 1 Ω
B-079 (2) - GB-611	ENGINE START STOP switch “OFF”	⩽ 1 Ω

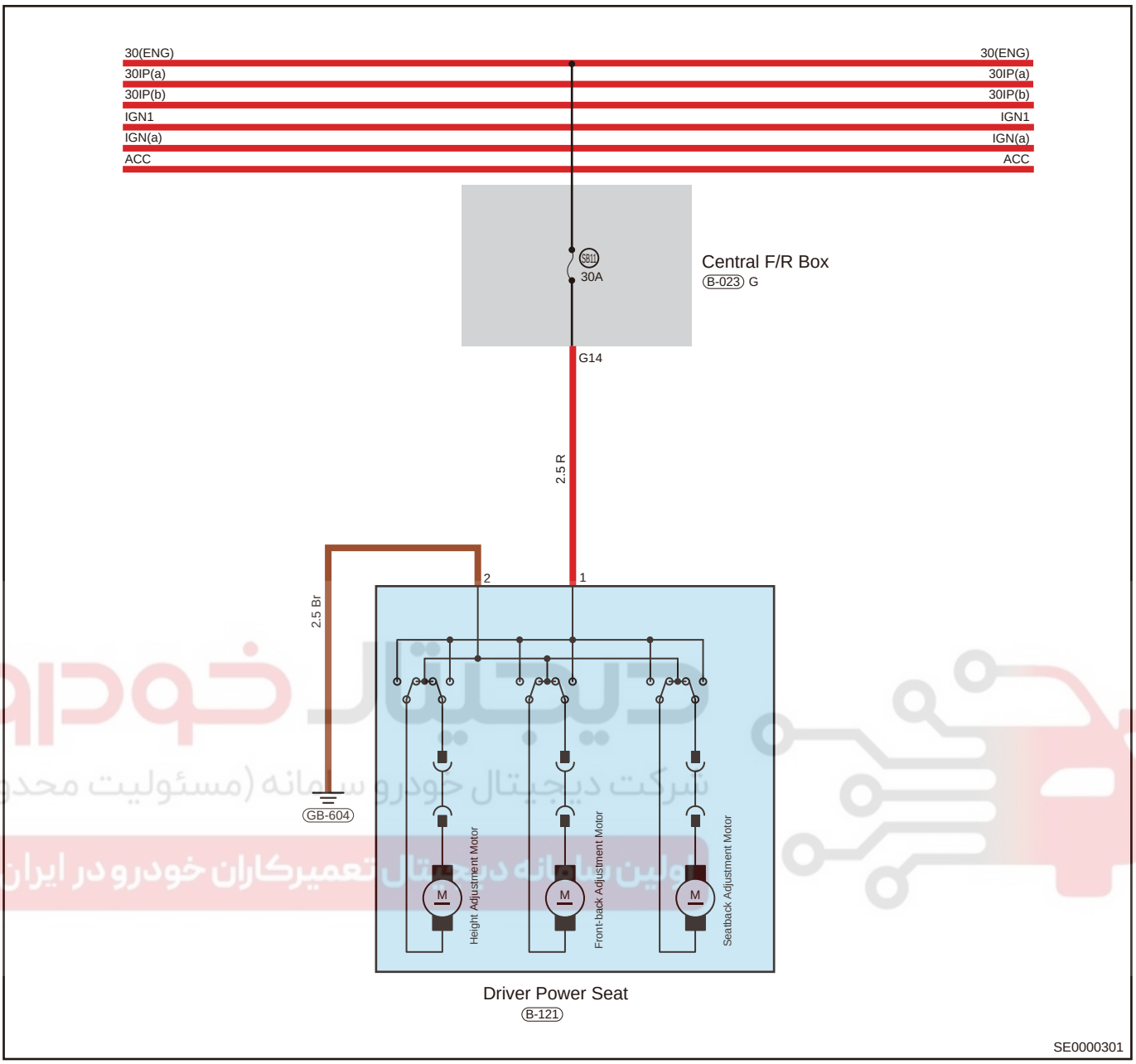


OK → **Replace the front passenger seat heating.**

NG → **Handle and repair related wire harness**

DTC	**B217E-19**	**Vertical adjustment control circuit high current**
DTC	**B217E-18**	**Height Adjustment Control Circuit Low Current**
DTC	**B217F-19**	**Horizontal Adjustment Control Circuit High Current**
DTC	**B217F-18**	**Horizontal Adjustment Control Circuit Low Current**
DTC	**B2180-04**	**Seat Height Adjustment and Horizontal Control Circuit Internal Failure**

Description
Control Schematic Diagram



DTC	Description
B217E-19	Vertical adjustment control circuit high current
B217E-18	Height Adjustment Control Circuit Low Current
B217F-19	Horizontal adjustment control circuit high current
B217F-18	Horizontal Adjustment Control Circuit Low Current
B2180-04	Seat Height Adjustment and Horizontal Control Circuit Internal Failure

Hint:
When performing circuit diagnosis and test, always refer to the circuit diagram for specific circuit and component information.

1	**Seat height adjustment and horizontal control circuit**

(a) Check sensor connectors, controller connectors for corrosion, poor contact, displacement and repair it if any symptom occurs.

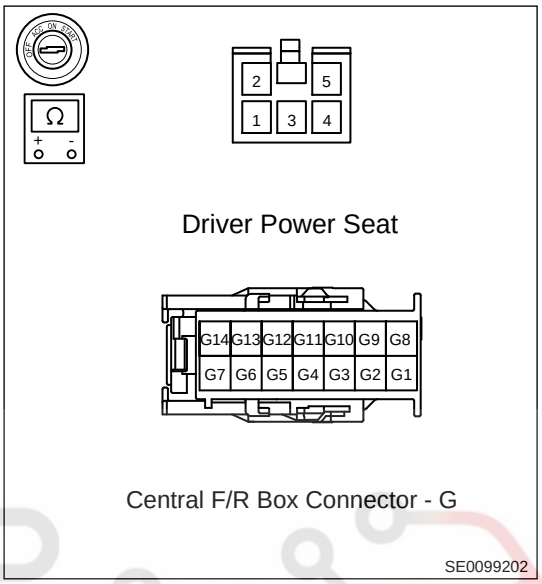
(b) Check the continuity of sensor wire harness and replace wire harness if open circuit malfunction occurs.

(c) Turn ENGINE START STOP switch to “OFF”, disconnect the negative battery cable.

(d) Disconnect the driver horizontal motor connector B-121.

(e) Using ohm band of multimeter, detect continuity between B-121 (1) and B-023G (14), B-121 (2) and GB-604 separately.

Multimeter Connection	Condition	Specified Condition
B-121 (1) - B-023G (14)	ENGINE START STOP switch “OFF”	⩽ 1 Ω
B-121 (2) - GB-604	ENGINE START STOP switch “OFF”	⩽ 1 Ω



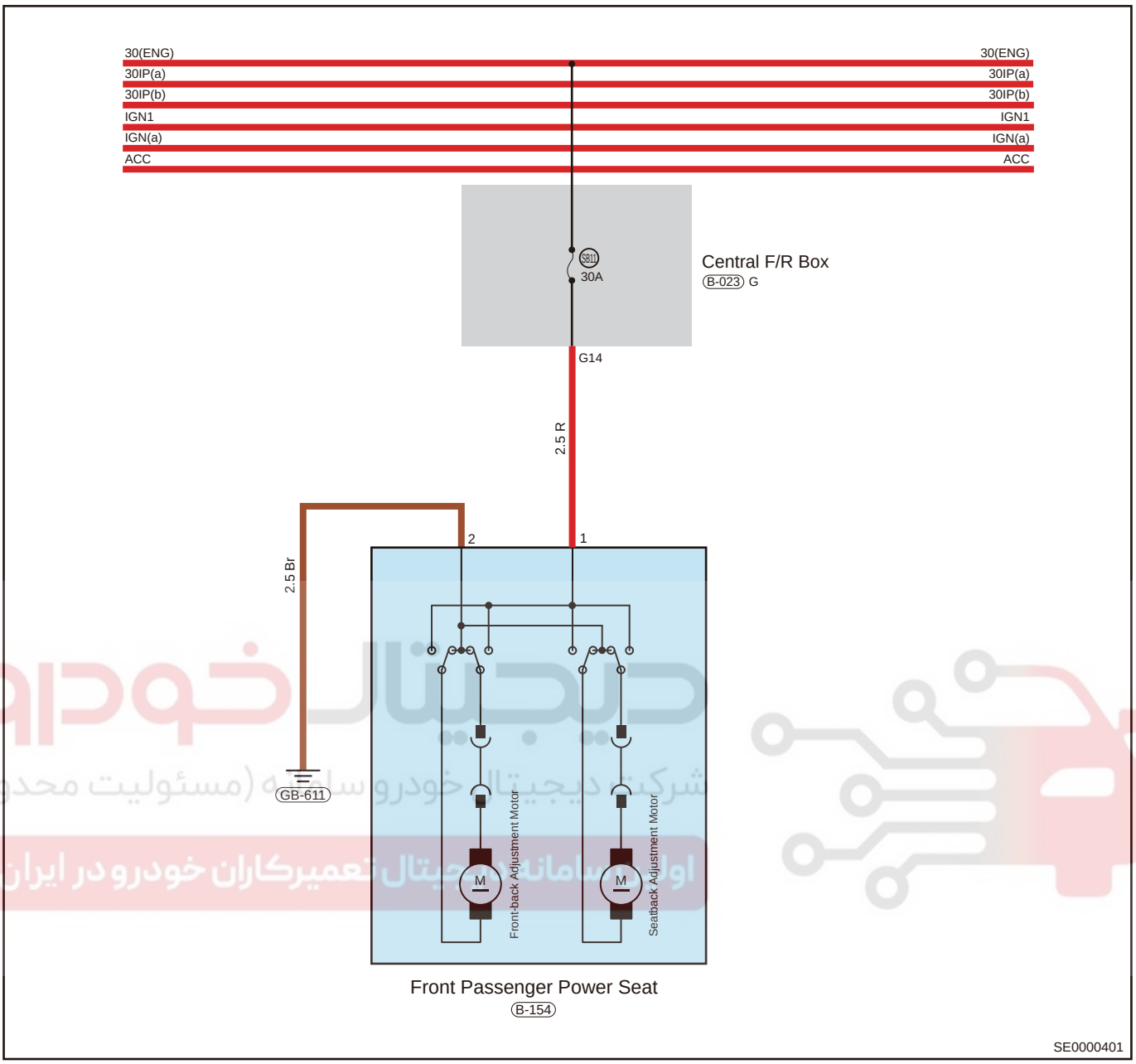
OK → **Replace seat assembly.**

NG → **Handle and repair related wire harness**

DTC	**B217E-19**	**Vertical adjustment control circuit high current**
DTC	**B217E-18**	**Height Adjustment Control Circuit Low Current**
DTC	**B217F-19**	**Horizontal adjustment control circuit high current**
DTC	**B217F-18**	**Horizontal Adjustment Control Circuit Low Current**
DTC	**B2180-04**	**Seat Height Adjustment and Horizontal Control Circuit Internal Failure**

Description

Control Schematic Diagram



DTC	Description
B217E-19	Vertical adjustment control circuit high current
B217E-18	Height Adjustment Control Circuit Low Current
B217F-19	Horizontal adjustment control circuit high current
B217F-18	Horizontal Adjustment Control Circuit Low Current
B2180-04	Seat Height Adjustment and Horizontal Control Circuit Internal Failure

Hint:
When performing circuit diagnosis and test, always refer to the circuit diagram for specific circuit and component information.

1	**Seat height adjustment and horizontal control circuit**

(a) Check sensor connectors, controller connectors for corrosion, poor contact, displacement and repair it if any symptom occurs.

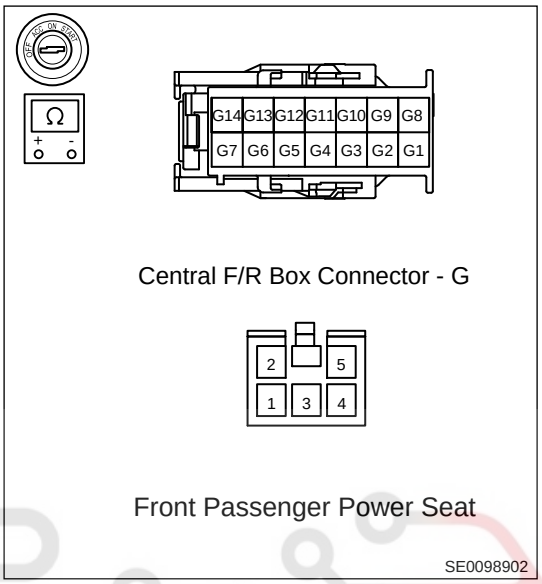
(b) Check the continuity of sensor wire harness and replace wire harness if open circuit malfunction occurs.

(c) Turn ENGINE START STOP switch to “OFF”, disconnect the negative battery cable.

(d) Disconnect the front passenger horizontal motor connector B-154.

(e) Using ohm band of multimeter, detect continuity between B-154 (1) and B-023G (14), B-154 (2) and GB-611 separately.

Multimeter Connection	Condition	Specified Condition
B-154 (1) - B-023G (14)	ENGINE START STOP switch “OFF”	⩽ 1 Ω
B-154 (2) - GB-611	ENGINE START STOP switch “OFF”	⩽ 1 Ω



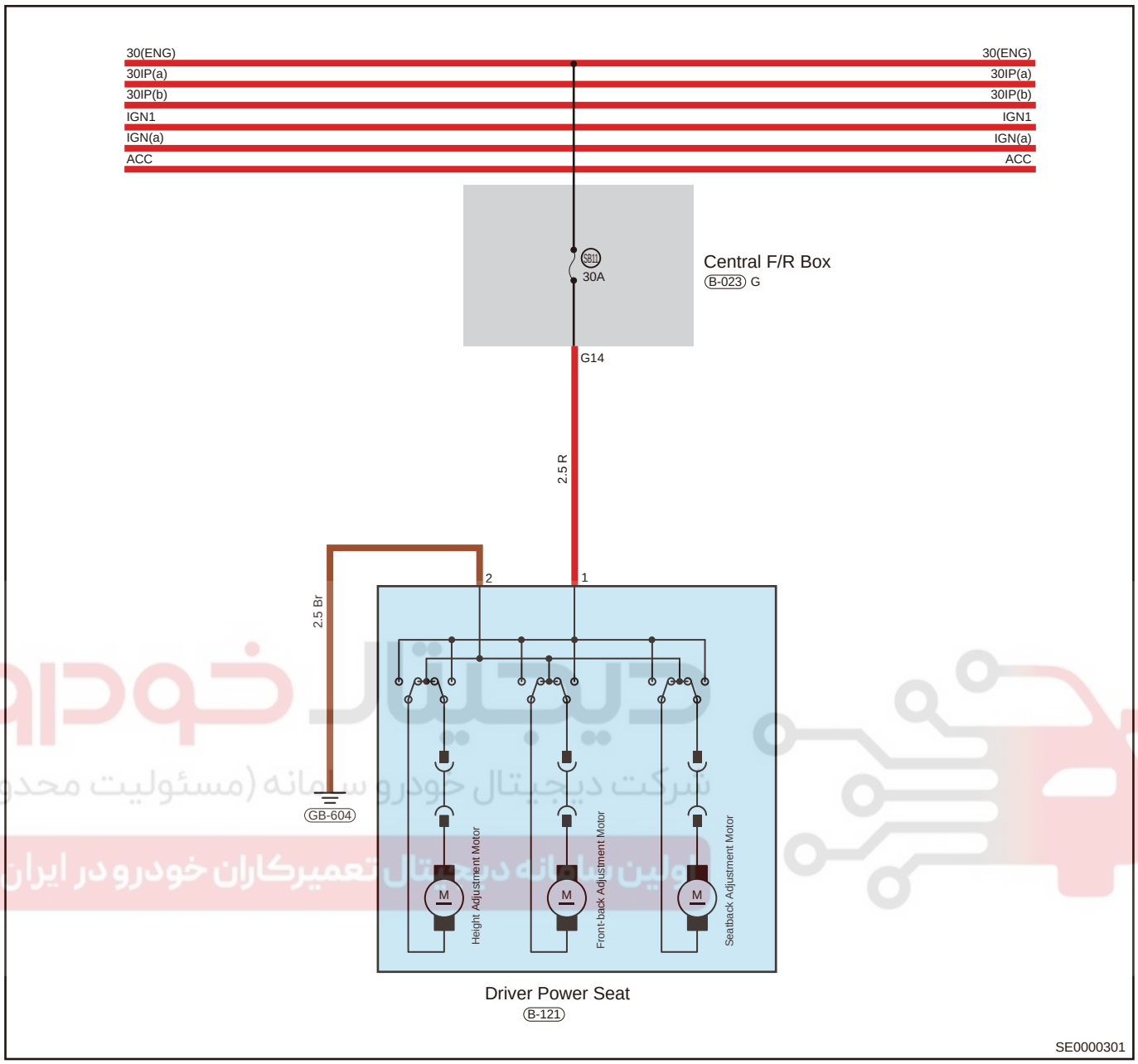
OK → **Replace seat assembly.**

NG → **Handle and repair related wire harness**

DTC	**B2181-19**	**Backrest Adjustment Control Circuit High Current**
DTC	**B2181-18**	**Backrest Adjustment Control Circuit Low Current**
DTC	**B2182-04**	**Backrest Adjustment Control Circuit Internal Fault**

Description

Control Schematic Diagram



DTC	Description
B2181-19	Backrest Adjustment Control Circuit High Current
B2181-18	Backrest Adjustment Control Circuit Low Current
B2182-04	Backrest Adjustment Control Circuit Internal Fault

DTC Confirmation Procedure

Confirm that battery voltage is not less than 12 V before performing the following procedures.

Hint:

When performing circuit diagnosis and test, always refer to the circuit diagram for specific circuit and component information.

(a) Check sensor connectors, controller connectors for corrosion, poor contact, displacement and repair it if any symptom occurs.

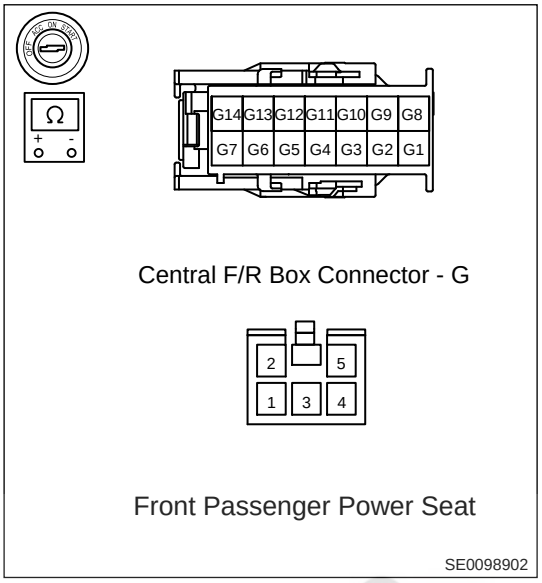
(b) Check the continuity of sensor wire harness and replace wire harness if open circuit malfunction occurs.

(c) Turn ENGINE START STOP switch to “OFF”, disconnect the negative battery cable.

(d) Disconnect the driver seatback motor connector B-121.

(e) Using ohm band of multimeter, detect continuity between B-121 (1) and B-023G (14), B-121 (2) and GB-604 separately.

Multimeter Connection	Condition	Specified Condition
B-121 (1) - B-023G (14)	ENGINE START STOP switch “OFF”	⩽ 1 Ω
B-121 (2) - GB-604	ENGINE START STOP switch “OFF”	⩽ 1 Ω



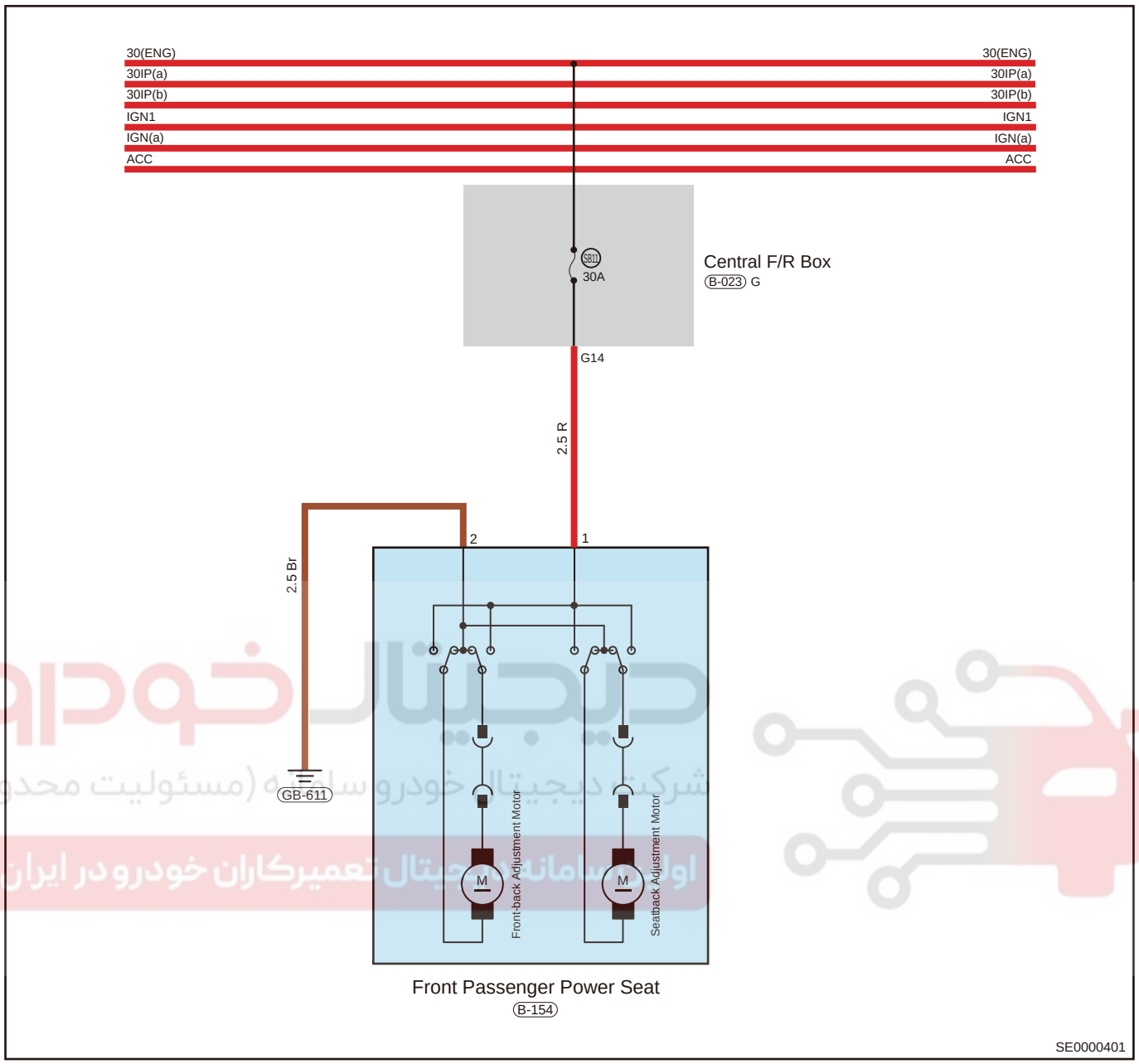
OK → **Replace seat assembly.**

NG → **Handle and repair related wire harness**

DTC	**B2181-19**	**Backrest Adjustment Control Circuit High Current**
DTC	**B2181-18**	**Backrest Adjustment Control Circuit Low Current**
DTC	**B2182-04**	**Backrest Adjustment Control Circuit Internal Fault**

Description

Control Schematic Diagram



DTC	Description
B2181-19	Backrest Adjustment Control Circuit High Current
B2181-18	Backrest Adjustment Control Circuit Low Current
B2182-04	Backrest Adjustment Control Circuit Internal Fault

DTC Confirmation Procedure

Confirm that battery voltage is not less than 12 V before performing the following procedures.

Hint:

When performing circuit diagnosis and test, always refer to the circuit diagram for specific circuit and component information.

(a) Check sensor connectors, controller connectors for corrosion, poor contact, displacement and repair it if any symptom occurs.

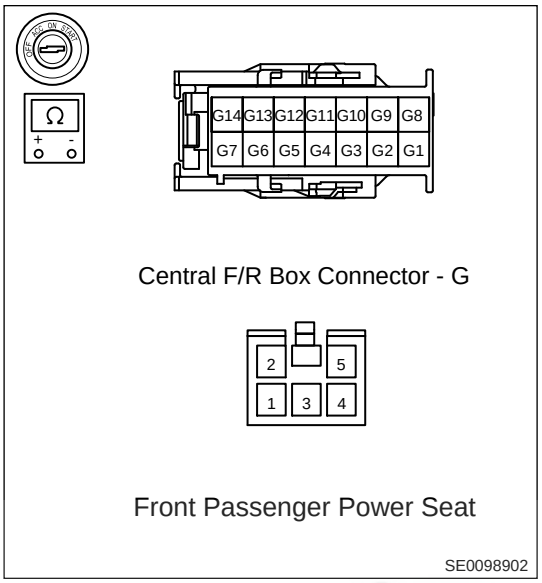
(b) Check the continuity of sensor wire harness and replace wire harness if open circuit malfunction occurs.

(c) Turn ENGINE START STOP switch to “OFF”, disconnect the negative battery cable.

(d) Disconnect the front passenger seatback motor connector B-154.

(e) Using ohm band of multimeter, detect continuity between B-154 (1) and B-023G (14), B-154 (2) and GB-611 separately.

Multimeter Connection	Condition	Specified Condition
B-154 (1) - B-023G (14)	ENGINE START STOP switch “OFF”	⩽ 1 Ω
B-154 (2) - GB-611	ENGINE START STOP switch “OFF”	⩽ 1 Ω



OK → **Replace seat assembly.**

NG → **Handle and repair related wire harness**

DTC	B2183-77	Button Stuck

Description

DTC	Description
B2183-77	Button Stuck

DTC Confirmation Procedure

Confirm that battery voltage is not less than 12 V before performing the following procedures.

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software).
- Start engine and warm it up, and then read DTC again. If DTC is detected, malfunction is current.
- If DTC is not detected, malfunction is intermittent.

Hint:

When performing circuit diagnosis and test, always refer to the circuit diagram for specific circuit and component information.

1	Check button

(a) Install button to a new vehicle, observe whether the same fault phenomenon occurs.

NG → **Replace button**

OK

2	**Reconfirm DTCs**

(a) Connect all the connectors.
(b) Connect the negative battery cable.
(c) Turn ENGINE START STOP switch to “ON”.
(d) Use diagnostic tester (the latest software) to read the DTCs stored in body control system again.

OK	**System is normal**
NG	**Replace seat assembly.**

On-vehicle Service

Front Seat Assembly

Removal

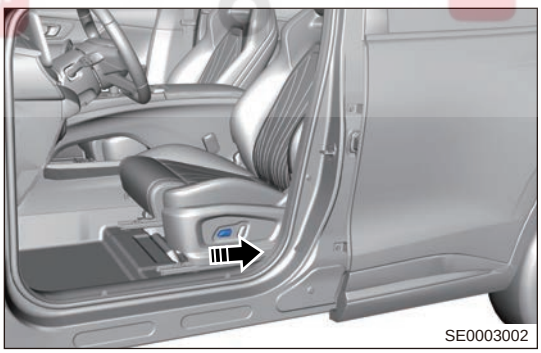
Hint:

- Use same procedures for front passenger seat assembly and driver seat assembly.
- Procedures listed below are for driver seat assembly.

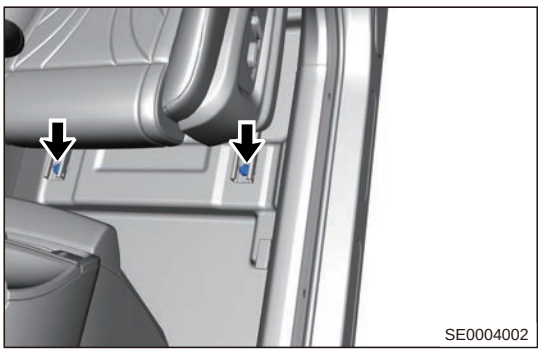
⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when removing driver seat assembly.
- Appropriate force should be applied, when removing driver seat assembly. Be careful not to operate roughly.
- Try to prevent interior and body paint surface from being scratched, when removing driver seat assembly.

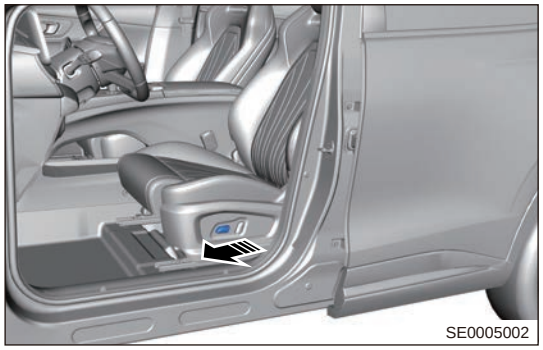
1. Remove the driver seat assembly.
   a. Press power seat front-back adjustment switch, and move seat assembly to rearmost position.


SE0003002

   b. Remove 2 fixing bolts (arrow) from front side of seat assembly.
      Tightening torque: 25 ± 4 N·m

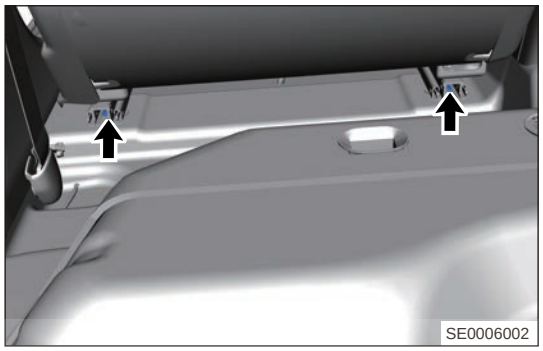

SE0004002

c. As shown in the illustration, press power seat front-back adjustment switch, and move seat assembly to foremost position.


SE0005002

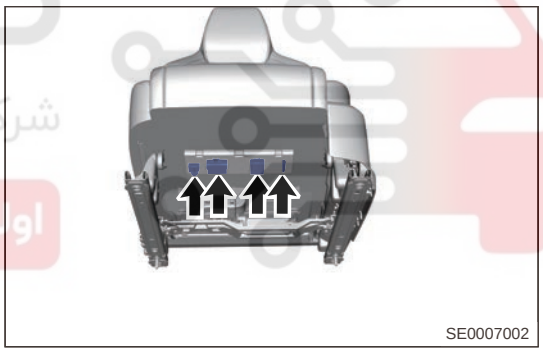
d. Remove 2 fixing bolts (arrow) from rear side of seat assembly.

Tightening torque: 25 ± 4 N • m


SE0006002

2. Turn off all electrical equipment and the ignition switch.
3. Disconnect the negative battery cable.

e. Disconnect wire harness connectors (arrow) under seat assembly.


SE0007002

f. Remove the driver seat assembly.

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when installing seat assembly.
- When installing seat assembly, be careful not to damage the body paint surface.
- Try to prevent carpet from being scratched or damaged, when installing seat assembly.

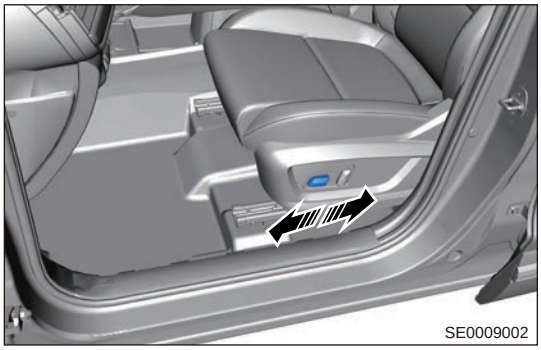
Inspection

1. After installation of seat assembly is completed, check the basic functions of seat assembly, and confirm that the following functions operate normally:

a. When sliding seat to the foremost and rearmost positions by pressing the power seat adjustment switch, check if the following malfunctions of seat occur: heavy operation, high sliding resistance, stuck and motor noise. If above conditions occur, repair or replace in time.

Hint:

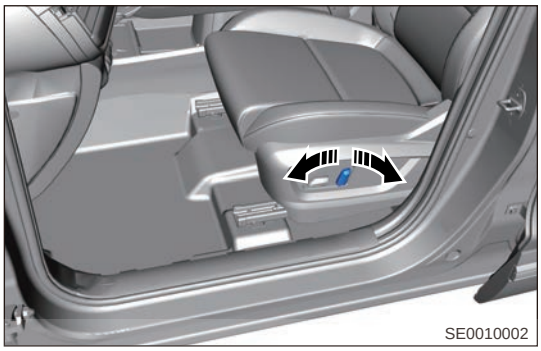
- Whole stroke for forward and backward adjustment is 240 mm. From designed position, the seat is adjustable from 200 mm forward and 40 mm backward.


SE0009002

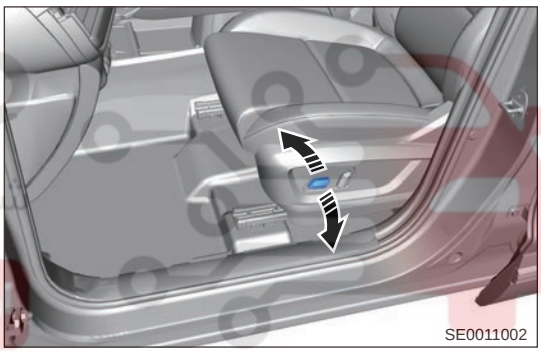
b. Adjust the seat reclining to the maximum and minimum angles by pressing the power seat reclining adjustment switch, to check if seatback is heavily turned over and stuck, motor noise, etc. If above conditions occur, repair or replace in time.

Hint:

- The designed seatback angle is 25° and it is adjustable within 30° forward and 50° backward.

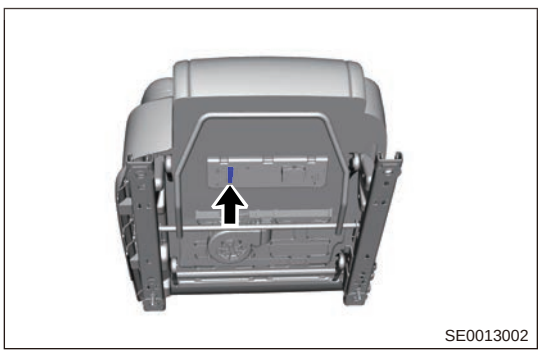

SE0010002

c. Adjust seat to maximum and minimum angle by pressing power seat height adjustment switch (for driver side), to check if the operation of seat is heavy and stuck, and motor noise, etc. If above conditions occur, repair or replace in time.


SE0011002

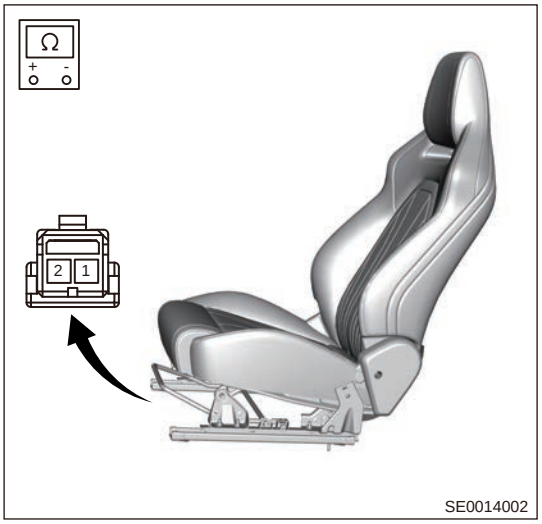
2. Inspect the seat occupancy sensor (for front passenger side).

a. Disconnect the seat occupancy sensor wire harness connector (arrow).


SE0013002

b. Measure the resistance of occupancy sensor with a digital multimeter, standard resistance is shown in the table below:

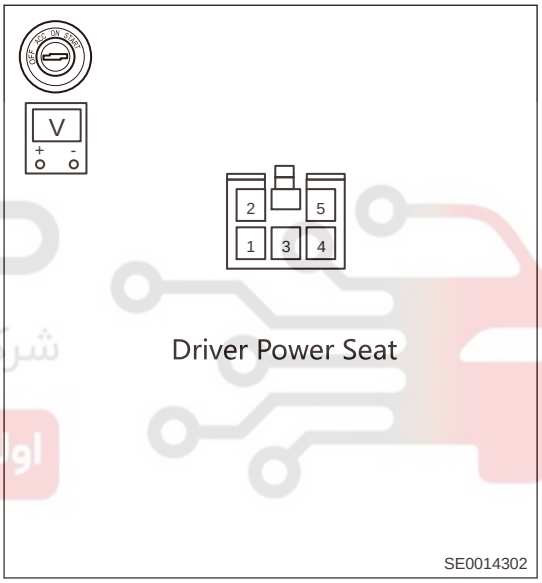
Multimeter Connection	Condition	Specified Condition
Terminal 1 and Terminal 2	Occupied	< 100 Ω
Terminal 1 and Terminal 2	No occupied	> 400 Ω



3. Check power seat power supply.

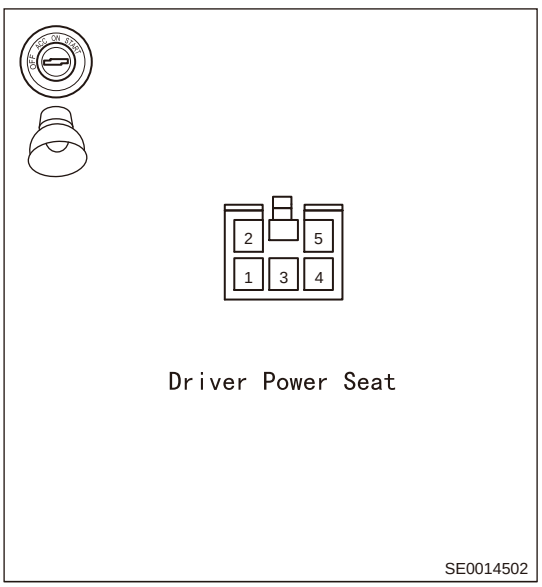
a. Disconnect power seat switch connector B-121. Using multimeter, measure the voltage between B-121 (1) and B-121 (2) to check if the power supply is normal.

Multimeter Connection	Specified Voltage
B-121 (1) - B-121 (2)	Not less than 12 V



b. Using the test light of 21 W, measure the load between B-121 (1) and B-121 (2) to check if the power supply is normal.

Test Light Connection	Specified Condition
B-121 (1) - B-121 (2)	Test light comes on normally



Rear Seat Assembly

Removal

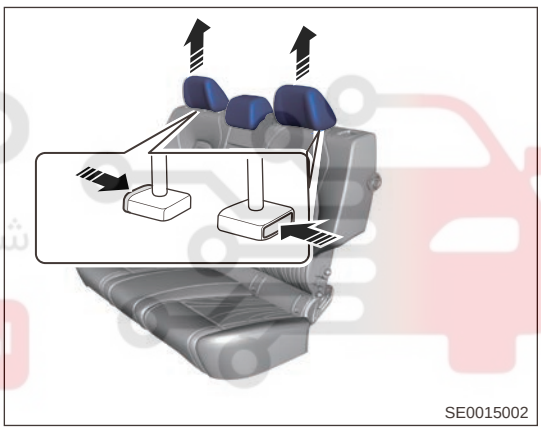
Hint:

- Use same procedures for rear left seat headrest and rear right seat headrest.
- Procedures listed below are for left seat headrest.

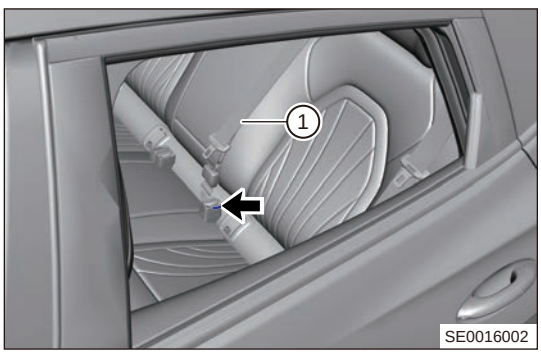
⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when removing rear seat assembly.
- Appropriate force should be applied, when removing rear seat assembly. Be careful not to operate roughly.
- Try to prevent interior and body paint surface from being scratched, when removing rear seat assembly.

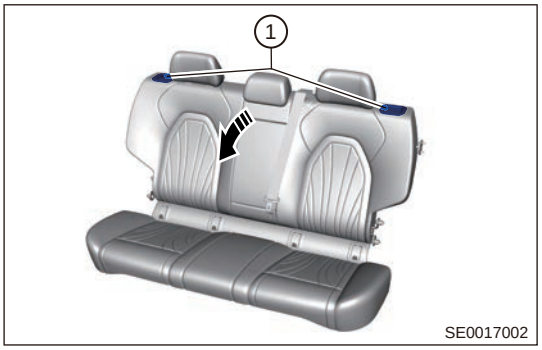
1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the luggage compartment carpet.
4. Remove the rear seat headrest assembly.
   a. As shown in the illustration, press the release button of seat headrest guide (w/ button), and remove rear seat headrest assembly.



5. Remove the rear seat cushion assembly.
   a. Using an interior crow plate, pry off center seat belt buckle switch (arrow), and loosen center seat belt (1).

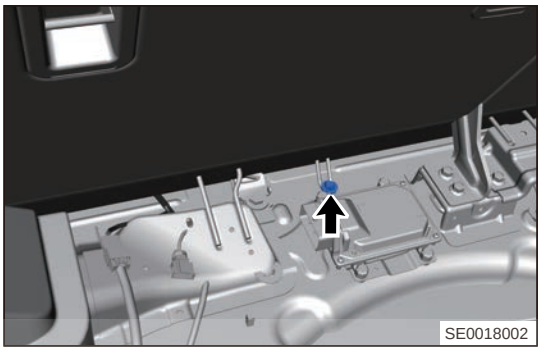


b. Press rear seatback switches (1) and put down rear seat.

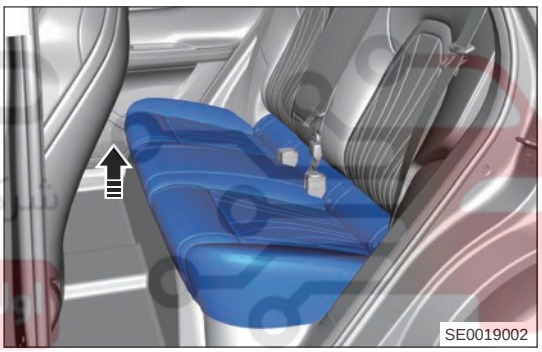


c. Remove fixing bolts (arrow) between rear part of rear seat cushion and body.

Tightening torque: 50 ± 5.0 N • m



d. Raise up one side of rear seat cushion lightly, and detach fixing clip between cushion and body.

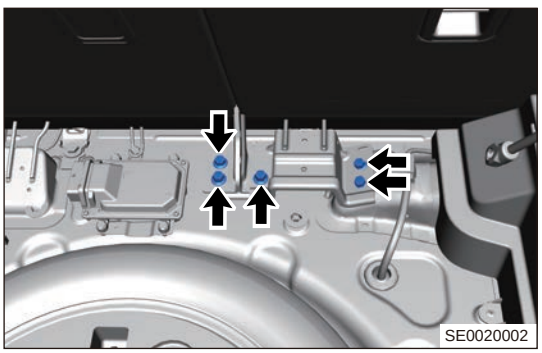


e. Remove the rear seat cushion assembly.

6. Remove the rear seatback assembly.

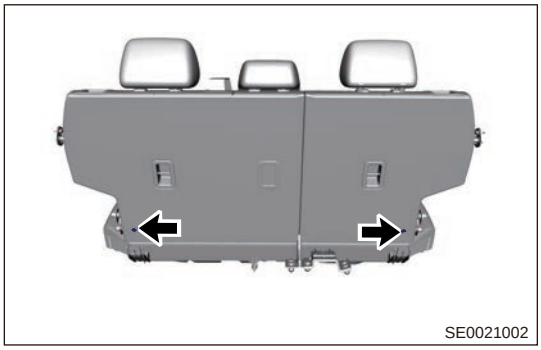
a. Remove 5 fixing bolts (arrow) between rear seatback and body.

Tightening torque: 50 ± 5.0 N • m



b. Remove 2 fixing bolts (arrow) between left and right ends of rear seat and body.

Tightening torque: 50 ± 5.0 N • m


SE0021002

c. Remove the rear seatback assembly.

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when installing rear seat assembly.
- When installing rear seat assembly, be careful not to damage the body paint surface.
- When installing rear seat assembly, try to prevent carpet from being scratched or damaged.

Inspection

1. After installing rear seat assembly, check the basic functions of rear seat assembly, and confirm that the following functions operate normally:
   a. Press rear seatback switch to pull down seatback, to check if operation of seat is hard, seatback not installed in position etc. If above conditions occur, repair or replace in time.

   Hint:
   - The designed seatback angle is 25° and it is adjustable within 100° forward and 0° backward.

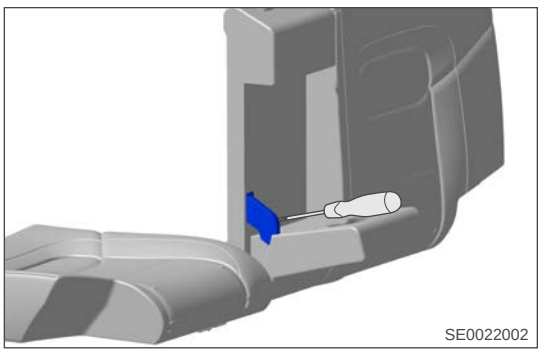
   b. Check if rear seat cushion is loose. If above conditions occur, replace cushion clips in time.
   c. Check extend and retract of rear seat headrest for stuck, noise etc. If above conditions occur, repair or replace in time.

Disassembly

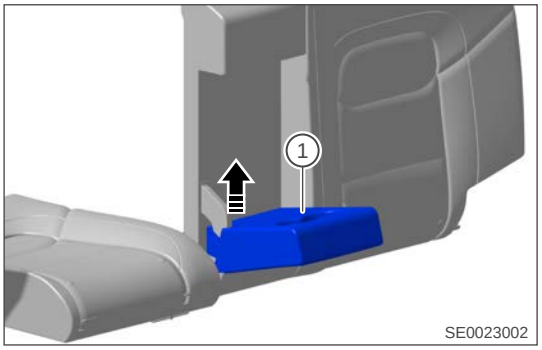
⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when disassembling rear seat assembly.
- Appropriate force should be applied, when disassembling rear seat assembly. Be careful not to operate roughly.
- Try to prevent interior and body paint surface from being scratched, when removing rear seat assembly.

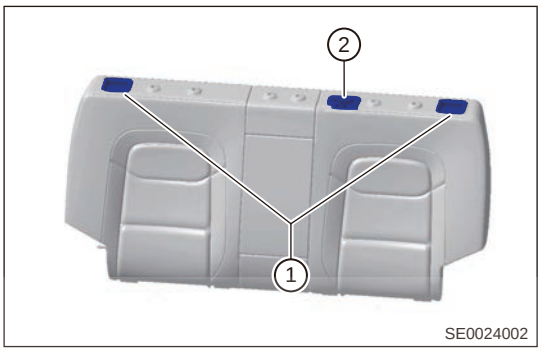
1. Remove the rear seat center armrest assembly.
   a. Using a screwdriver wrapped with protective tape, pry off trim cover (arrow) from center armrest.


SE0022002

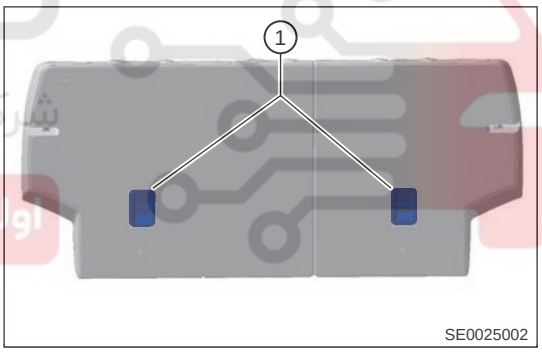
b. Remove center armrest assembly (1) in direction of arrow as shown in illustration.



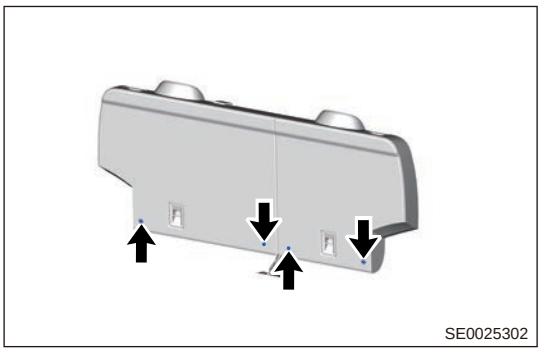
2. Remove rear seat release switch trim cover and center seat belt trim cover.
   a. Using an interior crow plate, pry off rear seat release switch (1) trim cover and center seat belt trim cover (2).



3. Remove the child seat interface trim cover.
   a. Using an interior crow plate, pry off the child seat fixture (1).

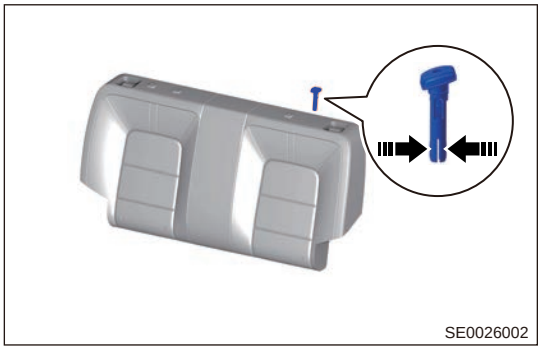


4. Remove the rear seat headrest guide.
   a. Open zippers (arrow) on back side of rear seatback.



   b. Remove the plastic lining plate of seatback.

c. Press and hold the lower part of seat headrest guide in the direction of arrow as shown in the illustration, and remove rear seat headrest guide.



Assembly

1. Assembly is in the reverse order of disassembly.

⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when assembling rear seat assembly.
- Be careful not to damage seat cover, when assembling rear seat assembly.
- When assembling rear seat assembly, replace damaged clips and band.
- When assembling rear seat assembly, keep seat cover clean and tidy, and try to prevent wrinkles.

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when installing rear seat assembly.
- When installing rear seat assembly, be careful not to damage the body paint surface.
- When installing rear seat assembly, try to prevent carpet from being scratched or damaged.

DOOR LOCK

Warnings and precautions

Warnings

In order to avoid possible property loss, personal injury or death, always follow the instructions below before repair.

1. Be sure to wear necessary safety equipment to prevent accidents, when removing engine hood lock assembly.
2. Be sure to wear necessary safety equipment to prevent accidents, when removing engine hood cable assembly.
3. Be sure to wear necessary safety equipment to prevent accidents, when removing front door lock assembly.
4. Be sure to wear necessary safety equipment to prevent accidents, when removing front door key cylinder assembly.
5. Be sure to wear necessary safety equipment to prevent accidents, when removing front door lock striker assembly.

Precautions

In order to avoid dangerous operation and damage to the vehicle, always follow the instructions below before repair.

1. Side door lock is secured to door inner panel with 3 bolts, evenly apply appropriate amount of thread lock adhesive to 5 to 7 teeth of 3 door lock mounting bolts in advance; pay attention to keep child lock locking when assembling rear door lock.
2. Align middle lines in up-down and left-right directions on lock striker with line on quarter, which should be ensured at the center of lock mechanism to ensure flexible locking and unlocking.

System Overview

System Description

Door lock system is a device mounted on the door and its pillar, which can reliably lock the door and realize the opening and locking functions through its internal mechanism. It is a very important accessory of body. It has safety protection function, which must guarantee reliable locking of door in the normal use, preventing the door accident/unintentional recognition to open. It also guarantee that door needs to open smoothly, to ensure that door can open in normal or when an emergency occurs, so as not to cause casualties and property losses which belongs to safety regulations.

System Components Diagram

1	Engine Hood Lock Assembly	9	Rear left door lock assembly
2	Front right door lock assembly	10	Side Door Lock Cylinder

3	Right Door Lock Striker	11	Left Door Lock Striker
4	Rear right door lock assembly	12	Front left door lock assembly
5	Right Rear Door Lock Striker	13	Engine Hood Lock Cable Assembly
6	Back Door Lock Striker Assembly	14	Central Control Lock Switch
7	Back door lock assembly	15	Engine Hood Grip Assembly
8	Rear Left Door Lock Striker		

Anti-theft Management

1. Fortifying mode
   - Trigger conditions:
   - IGN = OFF (it is not in IGN ON or ACC);
   - Four doors & two covers are closed;
   - BCM receives remote control lock command.
   - BCM feedback when fortifying mode is entered:
   - Turn signal light flashes once (turn on for 500 ms) and sends the corresponding LHTurnsignalSts and RHTurnsignalSts;
   - Theft deterrent indicator is continuous flash at frequency of 100ms, 1900ms.
   - Actuate the anti-theft horn 50 ms and high and low pitched horns 15 ms.
2. Fortifying failure mode
   - Trigger conditions:
   - IGN = OFF;
   - Any of four doors & two covers is open;
   - BCM receives remote control lock command.
   - BCM light feedback when fortifying failure mode is entered:
   - Turn signal light flashes two times (flashing for 500 ms, interval time is 1 s) and sends the corresponding LHTurnsignalSts and RHTurnsignalSts signals.
   - When entering fortifying failure mode: If four doors are closed and any of the two covers is opened, BCM will perform central control lock command once; If two covers are closed and any of the doors is opened, BCM will perform central control lock command and then perform unlock command (the interval time is 500 ms).
3. Intrusion mode
   - Trigger conditions: BCM will enter to alarm status after the following conditions are met when the vehicle is in fortifying mode:
   - Doors or engine hood is opened;
   - Key is turned to IGN ON;
   - Luggage compartment is opened forcibly.
   - After entering to intrusion mode, BCM feedback the conditions within one alarm cycle (30 s):
   - Anti-theft horn (high and low pitched horns sound at frequency of 500 ms ON and 500 ms OFF) operates for 28 ± 2s, pause for 5s;
   - Left and right turn signal lights flash 28 s at frequency of 75 times/min (400 ms on, 400 ms off) and pause for 5s, and send the corresponding LHTurnsignalSts and RHTurnsignalSts (Bcan);
   - Anti-theft indicator continuously flashes at frequency of 100 ms on, 200 ms off, 100 ms on, 600 ms off.
   - Four doors & two covers and IGN ON illegal activation action are alarm trigger sources;
   - In the same alarm source, a single trigger source can trigger 3 alarm cycles at most;

- In multiple alarm trigger sources, BCM can trigger 8 alarm cycles at most (after 8 alarm cycles, the sound and light alarm will stop);
- If the intrusion ends, BCM will stop alarm after the current alarm cycle. If the same alarm source is triggered again after the alarm is over, BCM will perform the remaining alarm cycles.
- If the four doors & two covers are closed at the end of the alarm, BCM will enter fortifying mode.

4. Fortifying deactivation mode
   - Activation conditions: Vehicle is in alarm mode; BCM receives RF unlock command or BCM detects IMMOCodeWarningLightSts=0 for 1 s continuously after the key is switched to IGN ON for 2 seconds.
   - When the alarm is released: vehicle exits anti-theft function mode; anti-theft horn (high and low pitched horns (if equipped)) stops working, and the turn signal light stops flashing.
   - After alarm is released, if key is not in IGN ON, anti-theft indicator light still flashes at a frequency of 100 ms on, 200 ms off, 100 ms on and 600 ms off; if the key is in IGN ON, anti-theft indicator light stops flashing.
5. Pre-rearming mode
   - Trigger conditions:
   - Vehicle is in fortifying mode;
   - BCM receives remote control unlock command.
   - BCM feedbacks when fortifying mode is released.
   - Theft deterrent indicator turns off immediately;
   - Turn signal light flashes 2 times at frequency of 500 ms on and 500 ms off, and sends the corresponding LHTurnsignalSts and RHTurnsignalSts.
   - Within 30±2 s after fortifying mode is released:
   - If any of all doors, engine hood or luggage compartment are open, BCM exits anti-theft mode;
   - If all doors, engine hood and luggage compartment are always closed, BCM will lock automatically and enter the fortifying state after 30 s, and anti-theft indicator will flash at the frequency of 100 ms on and 1900 ms off.
6. Luggage compartment opening mode
   - Trigger conditions:
   - Vehicle is in fortifying mode;
   - BCM receives remote control luggage compartment open command for more than 1.5 s;
   - BCM feedback when luggage compartment opening mode is triggered:
   - Turn signal light illuminates and sends the corresponding LHTurnsignalSts and RHTurnsignalSts;
   - Luggage compartment is open and no alarm is triggered
   - Then close the luggage compartment, vehicle returns to the fortifying state, and if there is no legal key, the luggage compartment switch cannot open luggage compartment.
   - After using remote control to open the luggage compartment: After BCM receives remote control lock command, vehicle will immediately lock and return to fortifying state, but the turn signal light prompts fortifying failure.
   - After using remote control to open the luggage compartment and close it again: After BCM receives remote control lock command, vehicle will immediately lock and return to fortifying state, but the turn signal light prompts fortifying successfully. If there is no registered key after the luggage compartment closed, the switch will not open the luggage compartment;
7. Luggage Compartment Opening Management (without PLG)
   - When the central control lock is in unlock state:
   - When the luggage compartment opening switch is activated, the luggage compartment opens.
   - When the central control lock is in lock state:
   - Luggage compartment is opened.
   - IGN OFF;

- BCM receives RF luggage compartment command for more than 1.5 s.
- Turn signal light illuminates and sends the corresponding LHTurnsignalSts and RHTurnsignalSts;
- Luggage compartment is opened
- After luggage compartment is opened by remote control, close it manually, if there is no registered key (PKE), the luggage compartment will not open by the luggage compartment button.
- When luggage compartment is opened, the luggage compartment light turns on.
- When luggage compartment is opened, the actuate time of motor is 200 ms.
- When the vehicle speed reaches 10km/h, the luggage compartment will not be opened (please note that the ignition remains in IGN while testing - BSM is 15 nodes).

8. Luggage Compartment Opening Management (with PLG)

- When the vehicle is in fortifying deactivation mode:
- When the luggage compartment switch is activated, the luggage compartment opens/closes; turn signal light flashes twice, 200ms ON - 200ms OFF.
- During the process of opening / closing back door, press remote control briefly to stop the current action of back door.
- Global fortifying.
- When GlobaSW is pressed and following conditions are met, BCM performs vehicle fortifying.
- IGN OFF.
- Four doors and engine hood are closed;
- Back door is locked within 10 s.
- When the vehicle is in fortifying mode:
- Luggage compartment is open/closed.
- IGN OFF/ACC position;
- BCM receives remote control luggage compartment command for more than 1.5 s.
- Turn signal light flashes twice, 200ms ON - 200ms OFF.
- During the process of opening / closing back door, press remote control briefly to stop the current action of back door.
- After back door is closed, the vehicle returns to fortifying state.

9. Central Control Lock

- Central control lock activation conditions:
- (1)Four doors are closed; (2) Vehicle is not in anti-theft state; (3) Central control lock locked switch is activated.
- Central control unlock activation conditions:
- (1) Central control lock unlocked switch is activated; (2) Vehicle is not in anti-theft state.
- Mechanical lock locked/unlocked activation conditions:
- (1) Central control lock or mechanical lock locked switch is activated; (2) Vehicle is not in anti-theft state.
- Activation conditions for auto unlock (if equipped):
- Vehicle speed is 0km/h;
- Door lock is locked;
- Key is switched to OFF from other positions.
- The bench testing needs to ensure that there is no speed signal after IGN is turned off.
- Collision unlock: After BCM receives CrashOutputSts≠00 CAN signal when IGN ON:
- BCM performs central control unlocking twice and the interval time is 1 second (regardless of the door state); locking is prohibited; key is switched to OFF, prohibit locking is canceled.
- BCM receives unlocking or locking command twice in 1 second and the second time will be ignored.

- BCM is powered on again after powered off, BCM has no lock or unlock action.
- For remote control lock and unlock function, please refer to lock and unlock contents in anti-theft management.

Diagnostic Information and Steps

Problem Symptoms Table

Hint:
Use symptoms table below to help determine cause of problem. Check each suspected area in sequence. Repair or adjust faulty components, or replace it as necessary.
Power door lock control system:

Symptom	Suspected Area
All door lock/unlock functions do not operate	Body control module (BCM) fuse
	Power door unlock/lock switch button
	Wire harness or connector
	Body Control Module (BCM)
Only Driver Side Door Lock/Unlock Function does not Operate	Front Left Door Lock Assembly
	Wire harness or connector
Only passenger side door lock/unlock function does not operate	Front Right Door Lock Assembly
	Wire harness or connector
Only Rear Left Door Lock/Unlock Function does not Operate	Rear Left Door Lock Assembly
	Wire harness or connector
Only rear right door lock/unlock function does not operate	Rear Right Door Lock Assembly
	Wire harness or connector
Only back door open/close function does not operate	Back door lock assembly
	Wire harness or connector

Wireless Door Lock Control System:

Symptom	Suspected Area
Only wireless control function does not operate	Wireless key battery
	Anti-theft Matching
	Wire harness or connector
	Body Control Module (BCM)

Diagnostic Help

- Connect diagnostic tester (the latest software) to diagnostic interface, and make it communicate with vehicle electronic module through data network.
- Confirm that malfunction is current, and carry out diagnostic test and repair procedures.
- If Diagnostic Trouble Code (DTC) cannot be cleared, malfunction is current.
- Only use a digital multimeter to measure voltage of electronic system.
- Refer to any Technical Bulletin that may apply to this malfunction.

- Visually check the related wire harness.
- Check and clean all system grounds related to the latest DTCs.
- If numerous trouble codes are set, refer to circuit diagram and look for any common ground circuit or power supply circuit applied to DTC.

DTC Confirmation Procedure

Confirm that battery voltage is not less than 12 V before performing following procedures.

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software).
- Turn ENGINE START STOP switch to ON.
- Use the diagnostic tester to record and clear DTCs stored in the system.
- Turn ENGINE START STOP switch to OFF and wait several seconds.
- Turn ENGINE START STOP switch to ON and check DTCs in the system again.
- If DTC is detected, it indicates current malfunction.
- If no DTC is detected, malfunction indicated by the DTC is intermittent.

Intermittent DTC Troubleshooting

If malfunction is intermittent, perform the followings:

- Check if connector is loose.
- Check if wire harness is worn, pierced, pinched or partially broken.
- Wiggle related wire harness and connector and observe if signal in related circuit is interrupted.
- If possible, try to duplicate the conditions under which DTC was reset.
- Look for data that has changed or DTC to reset during wiggling test.
- Look for broken, bent, protruded or corroded terminals.
- Inspect the mounting areas of instrument cluster, wire harness or wire harness connector and so on for damage, foreign matter, etc. that will cause incorrect signals.
- Check and clean all wire harness connectors and ground parts related to DTC.
- Remove instrument cluster from malfunctioning vehicle, then install it to a new vehicle and perform a test. If this DTC cannot be cleared, instrument cluster is malfunctioning. If DTC can be cleared, reinstall instrument cluster to original vehicle.
- If multiple trouble codes were set, refer to circuit diagrams to look for any common ground circuit or power supply circuit applied to DTC.
- Refer to any Technical Bulletin that may apply to this malfunction.

Ground Inspection

Groundings are very important to entire circuit system, which are normal or not can seriously affect the entire circuit system. Ground points are often exposed to moisture, dirt and other corrosive environments. Corrosion (rust) and oxidation may increase load resistance. This case will seriously affect normal operation of circuit. Check the ground points as follows:

- Remove ground bolt or nut.
- Check all contact surfaces for tarnish, dirt and rust, etc.
- Clean as necessary to ensure that contact is in good condition.
- Reinstall ground bolt or nut securely.
- Check if any additional accessories interfere with ground circuit.
- If several wire harnesses are crimped into one ground terminal, check for proper crimp condition. Make sure that all wire harnesses are clean and securely fastened while providing a proper ground path.

Diagnosis Procedure

Hint:
Use following procedures to troubleshoot the door lock system.

1	**Vehicle brought to workshop**

Next

2	**Examine vehicle and check basic items**

Check system power supply voltage, and check that fuse, wire harness and connector are connected normally.

OK

Standard voltage: Not less than 12 V.

Result

NG → **Check and replace malfunctioning parts**

OK

3	**Using a diagnostic tester, read related DTC and data stream information**

Result

Result	Proceed to
No DTC	A
DTC occurs	B

A → **Perform troubleshooting procedure without DTCs according to malfunction symptom**

B

4	**Troubleshoot according to DTCs troubleshooting procedure**

Result

Result	Proceed to
Problem is not resolved	A
Problem is resolved	B

A → **Return to procedure 1 and troubleshoot the process again**

B

5	**According to door lock system malfunction repair completion inspection and delivery, confirm that malfunction is resolved.**

Result

Result	Proceed to
Delivery inspection is failed	A
Delivery inspection is qualified	B

A

Return to procedure 1 and troubleshoot the process again

B

6	**Finished**

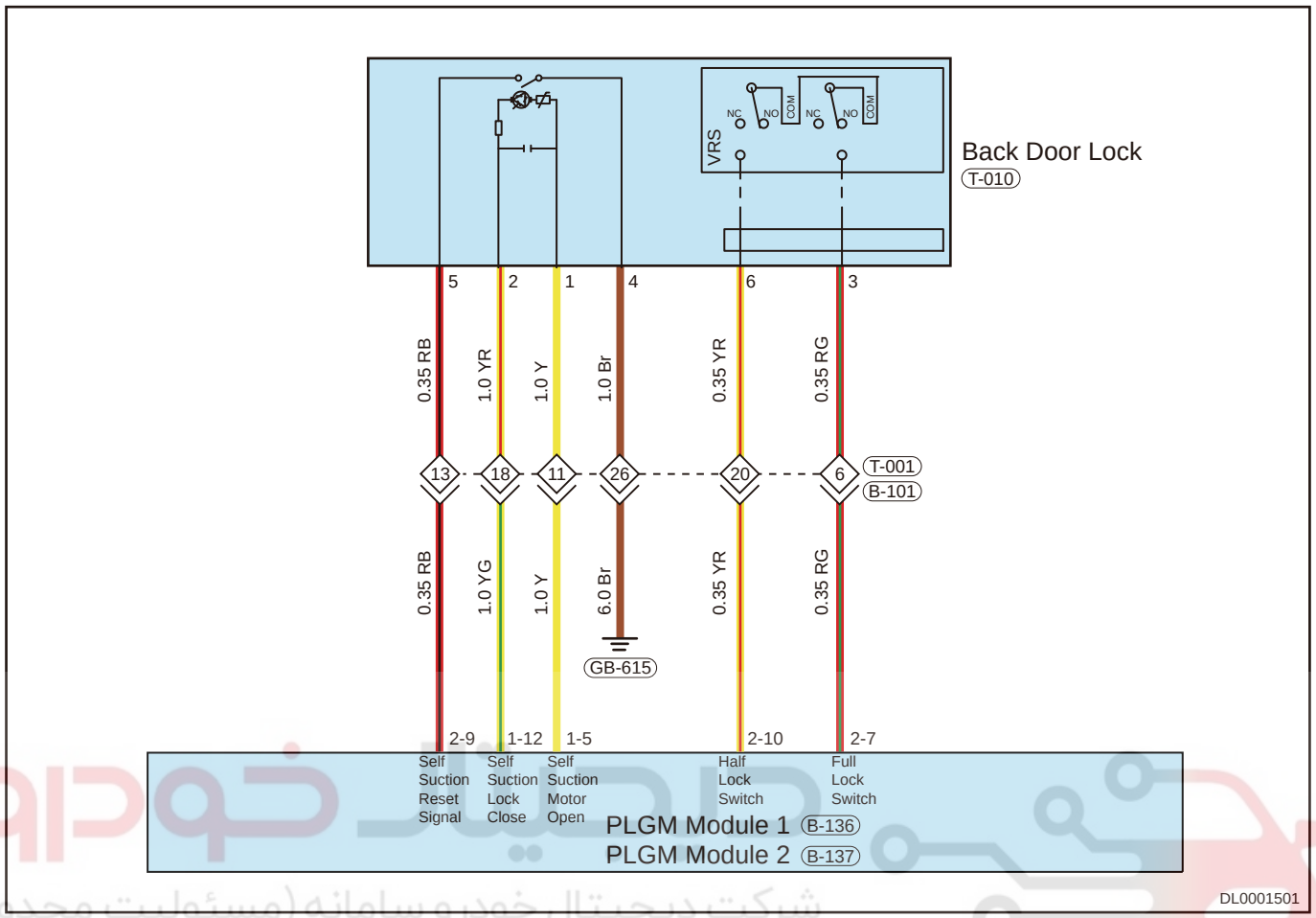
Diagnostic Trouble Code (DTC) Chart

DTC	DTC
B1024-71	Trunk Lock Control Circuit

DTC Diagnosis Procedure

DTC	B1024-71	Trunk Lock Control Circuit

Description
Control Schematic Diagram



DTC	Description	Failure Category Definition	Fault Type	Detection Conditions (-Store Current DTC)	Recovery Conditions (-Save as History DTC)	Detection Conditions (-Store Current DTC) Software Actual Detection Strategy	Detection Conditions (-Store Current DTC) Software Actual Detection Strategy	Fault Lamp	Component Interface Circuit	Possible Cause
B102-4-71	Trunk Lock Control Circuit	Actuator Stuck	Output error	when output is OFF, V_BAT_SW is OFF, output voltage>7-V, it is stored as the current DTC. (The error is less than 10%, the time of duration is more than 100 MS, the software will detect once every	The output is invalid, the voltage in the circuit is less than 3V, clear the current DTC, and store it as history DTC (The error is less than 10%, the time of duration is more than 100 MS, the software	The output is not turned on and detected as valid (the diagnosis collects high level for more than 10 times (-detection starts after 2s of power on, once in 10ms)), it is stored as	The output is not turned on and detected as invalid (the diagnosis collects low level (-detection starts after 2s of power on, once in 10ms)) , clear the current DTC, and store it as history DTC.	/	/	• Back door lock assembly • Wire harness or connector • PLG-M module

DTC	Description	Failure Category Definition	Fault Type	Detection Conditions (-Store Current DTC)	Recovery Conditions (-Save as History DTC)	Detection Conditions (-Store Current DTC) Software Actual Detection Strategy	Detection Conditions (-Store Current DTC) Software Actual Detection Strategy	Fault Lamp	Component Interface Circuit	Possible Cause
				10M-S, and it will be determined after at least 3 consecutive times of detection. The detection will start after 2 seconds since power supply is turned on. Regardless of key position, load will be output	will detect once every 10M-S, and it will be determined after at least 3 consecutive times of detection. The detection will start after 2 seconds since power supply is turned on. Regardless of key	current DTC.				

DTC	Description	Failure Category Definition	Fault Type	Detection Conditions (-Store Current DTC)	Recovery Conditions (-Save as History DTC)	Detection Conditions (-Store Current DTC) Software Actual Detection Strategy	Detection Conditions (-Store Current DTC) Software Actual Detection Strategy	Fault Lamp	Component Interface Circuit	Possible Cause
				as long as operating conditions of load are met.)	position, load will be output as long as operating conditions of load are met.)					

DTC Confirmation Procedure

Confirm that battery voltage is not less than 12 V before performing the following procedures.

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software).
- Start engine and warm it up, and then read DTC again. If DTC is detected, malfunction is current.
- If DTC is not detected, malfunction is intermittent.

Hint:

When performing circuit diagnosis and test, always refer to the circuit diagram for specific circuit and component information.

1	**Check back door lock assembly**

(a) Check back door lock assembly.

NG → **Replace back door lock assembly**

OK

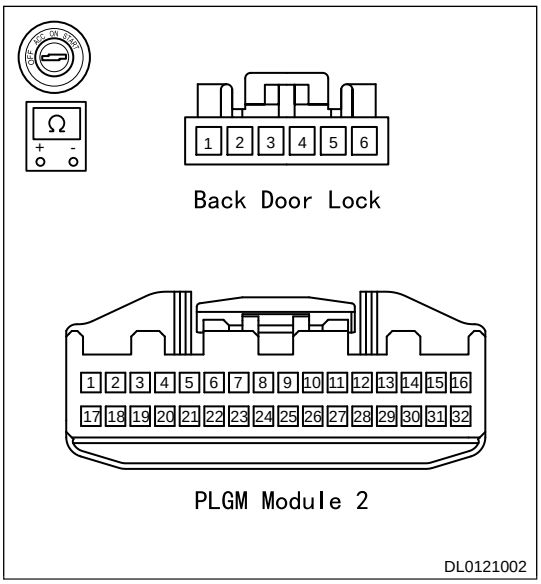
2	**Check back door lock wire harness**

(a) Turn ENGINE START STOP switch to “OFF”.

(b) Disconnect PLGM connector B-136 and back door lock connector T-010.

(c) Using ohm band of multimeter, check for continuity between PLGM terminal and back door lock terminal.

Multimeter Connection	Condition	Specified Condition
B-137 (2-9) - T-010 (5)	Always	⩽ 1 Ω
B-136 (1-12) - T-010 (2)	Always	⩽ 1 Ω
B-136 (1-5) - T-010 (1)	Always	⩽ 1 Ω
T-010 (4) - GB-615	Always	⩽ 1 Ω
B-137 (2-10) - T-010 (6)	Always	⩽ 1 Ω
B-137 (2-7) - T-010 (3)	Always	⩽ 1 Ω



NG → **Repair or replace back door lock wire harness**

OK →

3	Check PLGM module

(a) Install PLGM module to a new vehicle, observe whether the same fault phenomenon occurs.

NG → **Replace PLGM module**

OK →

4	Reconfirm DTCs

(a) Connect all the connectors.

(b) Connect the negative battery cable.

(c) Turn ENGINE START STOP switch to “ON”.

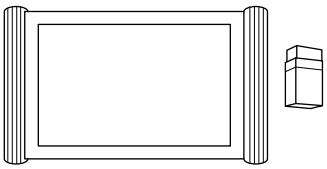
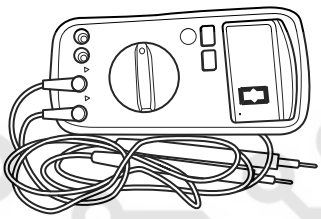
(d) Use diagnostic tester (the latest software) to read the DTCs stored in body control system again.

OK → **System is normal**

On-vehicle Service

Tools

General Tools

Tool Name	Tool Drawing
Diagnostic tester	 RCH0001006
Digital Multimeter	 RCH0002006

Replacement of Engine Hood Lock Assembly

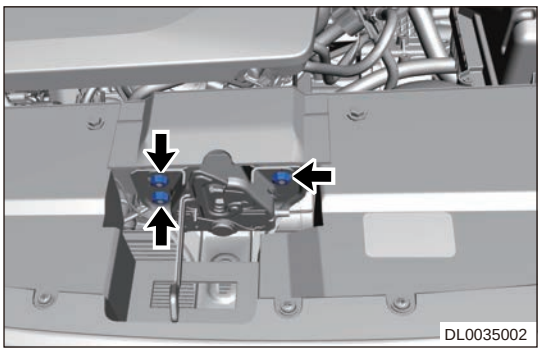
Removal

⚠ Warning

- Be sure to wear necessary safety equipment to prevent accidents, when removing engine hood lock assembly.
- Try to prevent body paint surface from being scratched, when removing engine hood lock assembly.

1. Remove 3 fixing nuts (arrow) from engine hood lock assembly.

   Torque: 9 ± 1.5 N · m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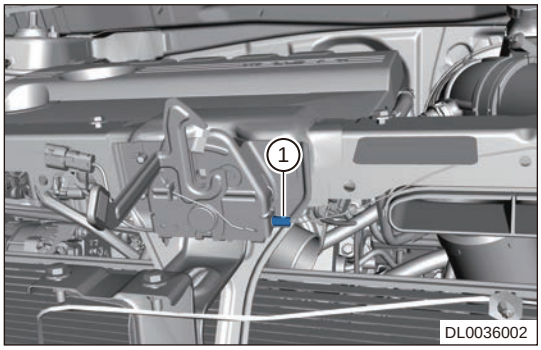
2. Disengage the engine hood cable assembly (1) from slot and remove the engine hood lock assembly.



Installation

1. Installation is in the reverse order of removal.

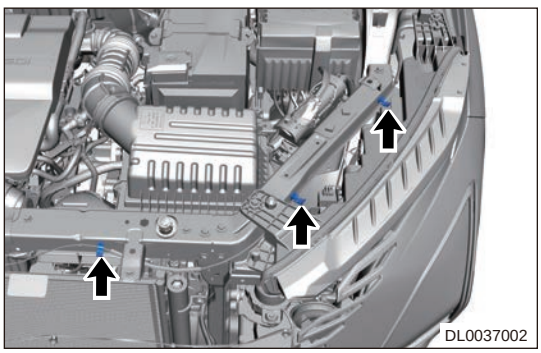
⚠ Caution
• Check if engine hood operates properly, after installing engine hood lock assembly.

Replacement of Engine Hood Cable Assembly

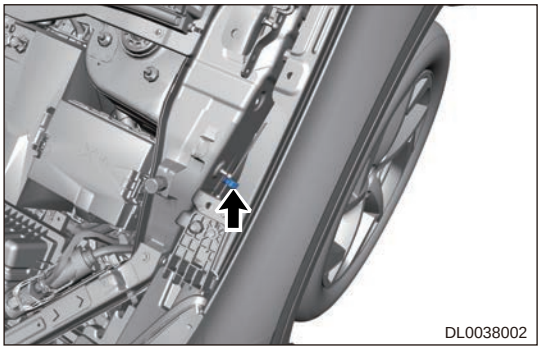
Removal

⚠ Warning
• Be sure to wear necessary safety equipment to prevent accidents, when removing engine hood cable assembly. • Try to prevent interior and body paint from being scratched, when removing engine hood cable assembly.

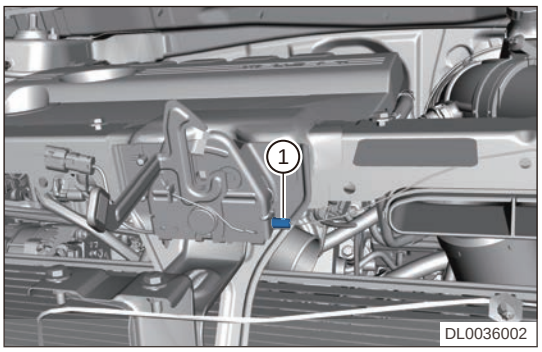
1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the wing assembly.
4. Remove the engine hood lock assembly.
5. Disengage fixing clips (arrow) of engine hood cable assembly.



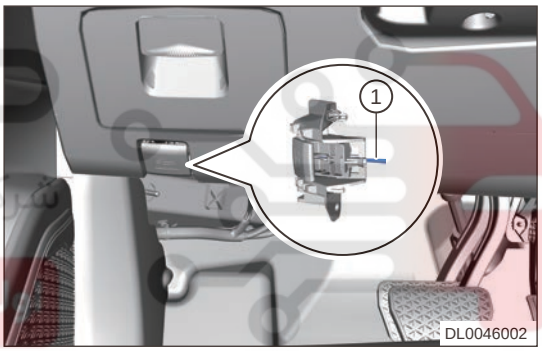
6. Disengage fixing clips (arrow) of engine hood cable assembly.



7. Disengage the engine hood cable assembly (1) from slot and remove the engine hood lock assembly.



8. Disengage engine hood cable assembly (1) from engine hood grip assembly.



9. Remove the engine hood cable assembly.

Installation

1. Installation is in the reverse order of removal.

⚠ Caution
• Check if engine hood operates properly, after installing engine hood lock assembly.

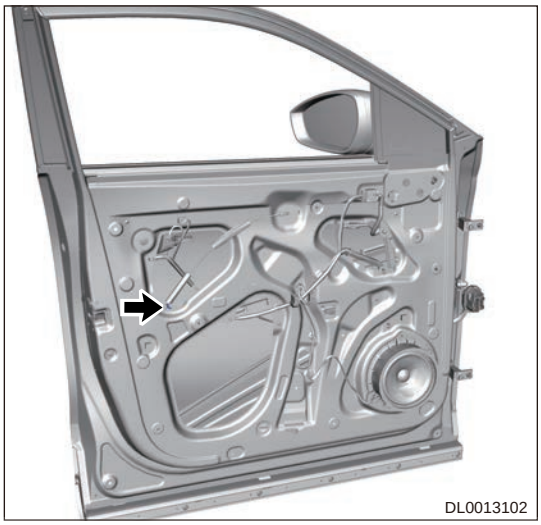
Replacement of Front Door Lock Assembly

Removal

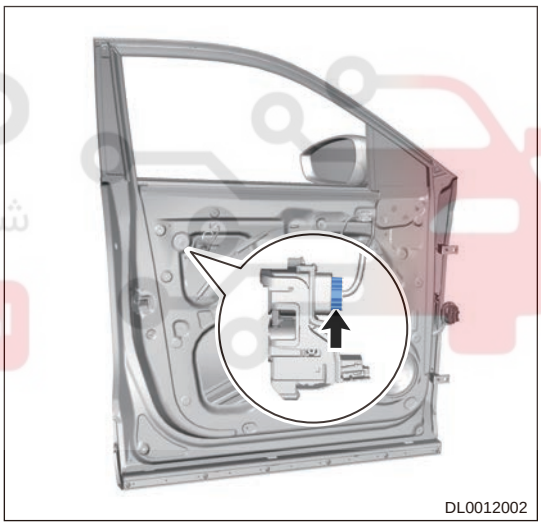
⚠ Warning
• Be sure to wear necessary safety equipment to prevent accidents, when removing front door lock assembly. • Try to prevent interior and body paint surface from being scratched, when removing front door lock assembly. • Use same procedures for right and left sides, procedures listed below are for left side.

1. Turn off all electrical equipment and ENGINE START STOP switch.

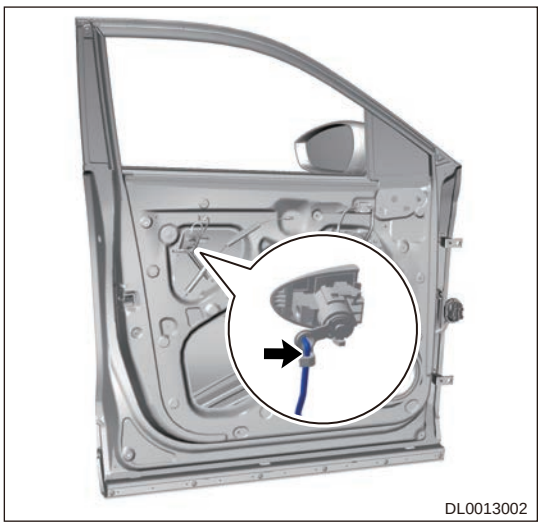
2. Disconnect the negative battery cable.
3. Remove the front left door inner protector assembly.
4. Remove the front left door protective film assembly.
5. Remove the front left door glass rear guide rail assembly.
6. Disengage cable fixing clip (arrow) carefully with an interior crow plate.


DL0013102

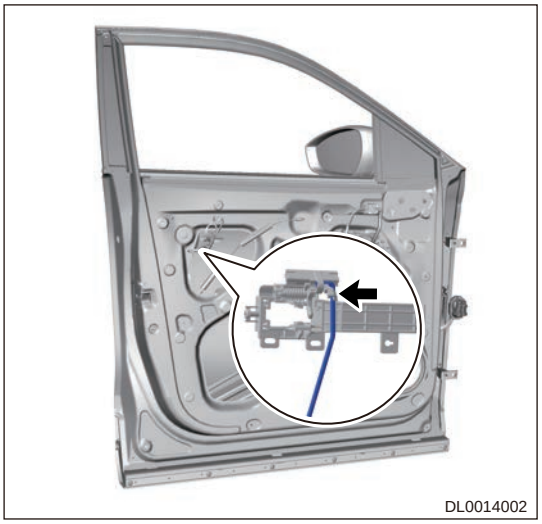
7. Disconnect the connector (arrow) from front left door lock assembly.


DL0012002

8. Disconnect the clip (arrow) between front left door lock assembly and front door key cylinder lever.

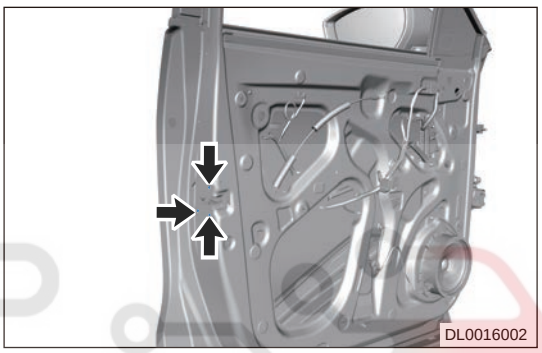

DL0013002

9. Disengage the front door outside push rod (arrow) from the slot of front door handle base.



10. Remove 3 fixing screws (arrow) from front door lock assembly, and remove the front door lock assembly.

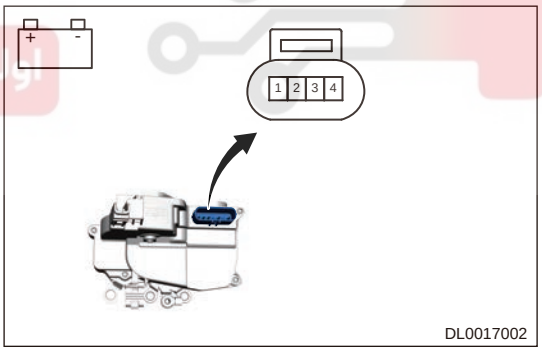
Torque: 9 ± 1 N · m



Inspection

1. Apply battery voltage to the terminals of front door lock assembly (fastener assembly) connector and check if front door lock assembly operates normally according to the table below.

Measurement Condition	Specified Condition
Battery positive (+) - Terminal 1 Battery negative (-) - Terminal 2	Lock
Battery positive (+) - Terminal 2 Battery negative (-) - Terminal (1)	Unlock



If result is not as specified, replace front door lock assembly.

Installation

⚠ Caution

- Check if connector is installed correctly, when installing front door lock assembly.
- Install the clips and cables in place, when installing front door lock assembly.
- Check if front door lock operates properly, after installing front door lock assembly.

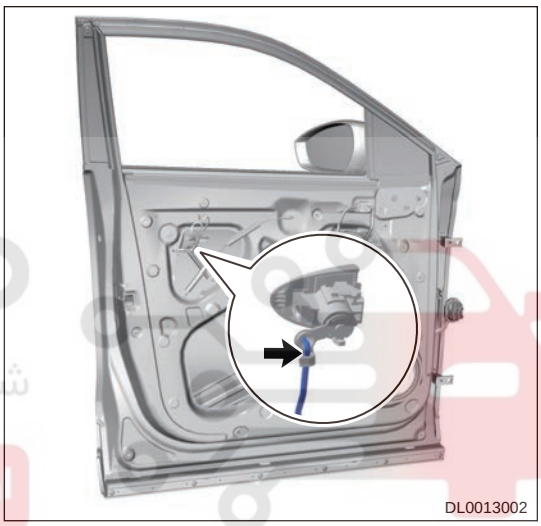
Replacement of Front Door Key Cylinder Assembly

Removal

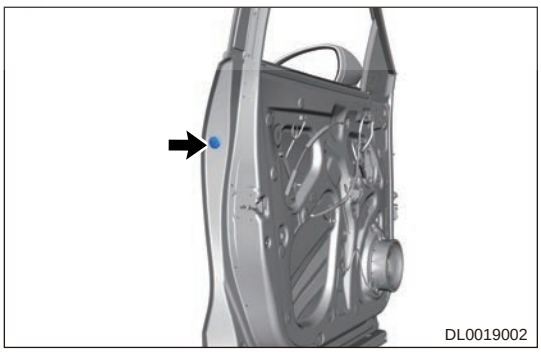
Warning

- Be sure to wear necessary safety equipment to prevent accidents, when removing front door key cylinder assembly.
- Try to prevent body paint surface from being scratched, when removing front door key cylinder assembly.

1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the front left door inner protector assembly.
4. Remove the front left door protective film assembly.
5. Disengage key cylinder lever (arrow).

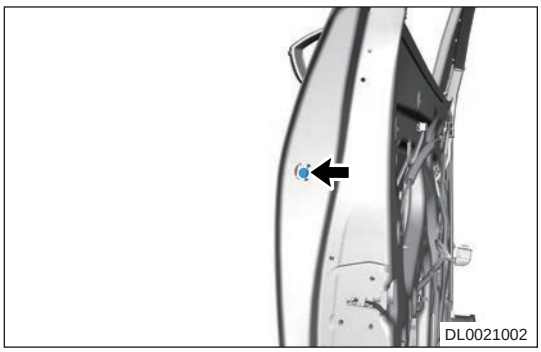


6. Remove the front door outside handle protective cover block cover (arrow).

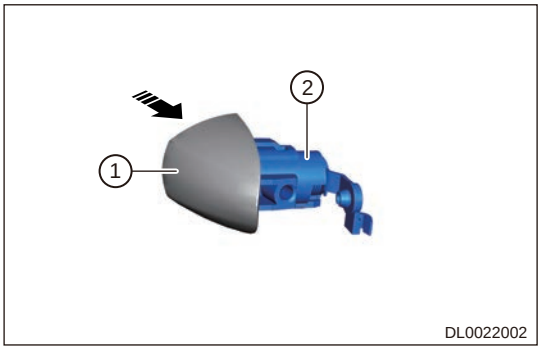


7. Loosen 1 fixing screw (arrow) from front door key cylinder assembly, and remove the front door key cylinder assembly and front door handle protective cover.

   Torque: 5 ± 1 N · m



8. Insert the key into the hole on lock cylinder protective cover and carefully pry the lock cylinder cover or using a screwdriver wrapped with protective tape, disengage the claws (arrow) and separate the front door handle protective cover (1) from front door key cylinder assembly (2).



Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Install clip on lever in place when installing front door key cylinder assembly.
- Check if front door key cylinder operates properly, after installing front door key cylinder assembly.

Replacement of Front Door Lock Striker Assembly

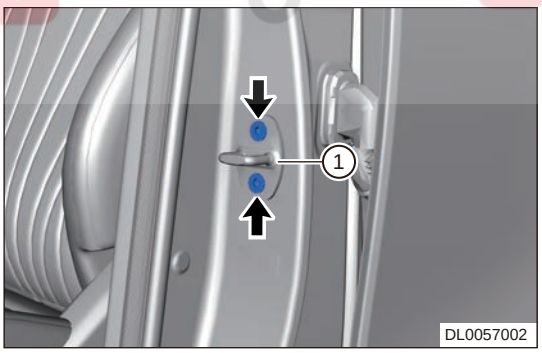
Removal

⚠ Warning

- Be sure to wear necessary safety equipment to prevent accidents, when removing front door lock striker assembly.
- Try to prevent body paint surface from being scratched, when removing front door lock striker assembly.
- Use same procedures for right and left sides, procedures listed below are for left side.

1. Remove 2 fixing screws (arrow) from front door lock striker assembly, and remove the front left door lock striker assembly (1).

   Torque: 23 ± 2 N · m



Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Before installation, lock striker position should be adjusted to ensure that lock cylinder of lock striker is engaged with lock body in the center line of lock mouth, ensure that the door is normally opened and closed.

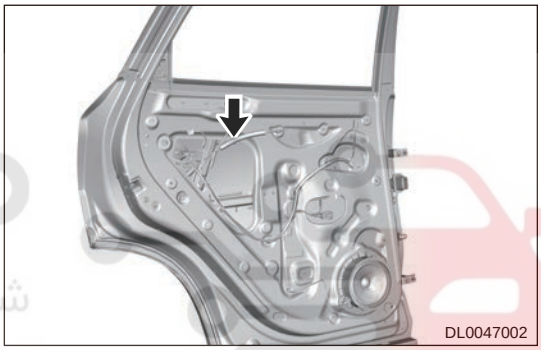
Replacement of Rear Door Lock Assembly

Removal

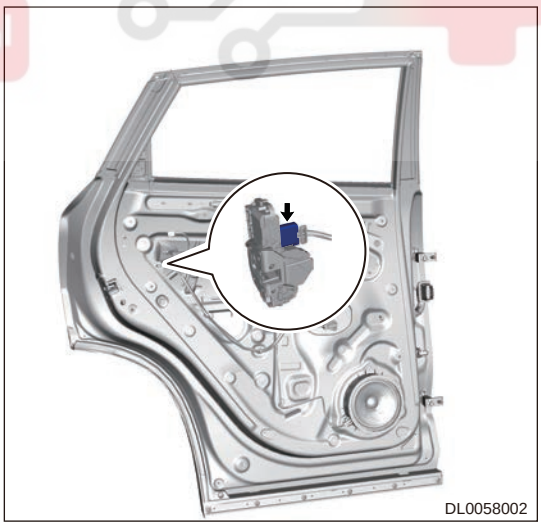
⚠ Warning

- Be sure to wear necessary safety equipment to prevent accidents, when removing rear door lock assembly.
- Try to prevent interior and body paint surface from being scratched, when removing rear door lock assembly.
- Use same procedures for right and left sides, procedures listed below are for left side.

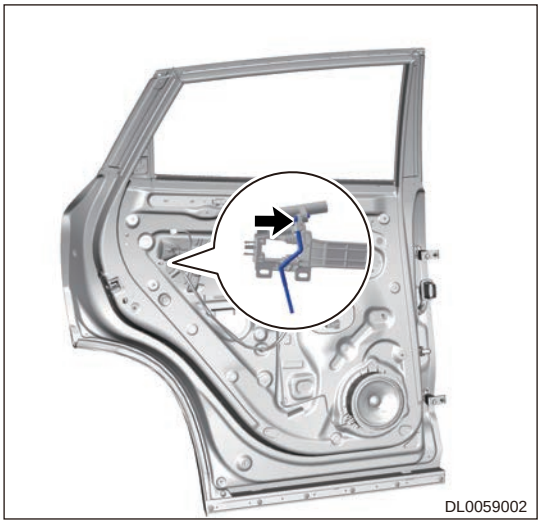
1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the rear left door inner protector assembly.
4. Remove the rear left door protective film assembly.
5. Remove the rear left door glass rear guide rail assembly.
6. Disengage cable fixing clip (arrow) carefully with an interior crow plate.



7. Disconnect the connector (arrow) from rear door lock assembly.

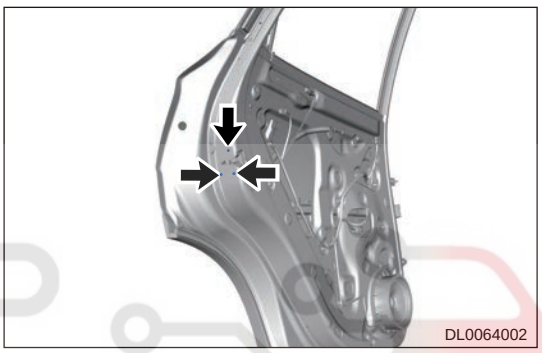


8. Disengage the outside push rod (arrow) from the clip of rear door handle base.



9. Remove 3 fixing screws (arrow) from rear door lock assembly, and remove the rear door lock assembly.

   Torque: 9 ± 1 N · m



Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Check if connector is installed correctly, when installing rear door lock assembly.
- Install the cable in place, when installing rear door lock assembly.
- Check if rear door lock operates properly, after installing rear door lock assembly.

Replacement of Rear Door Lock Striker Assembly

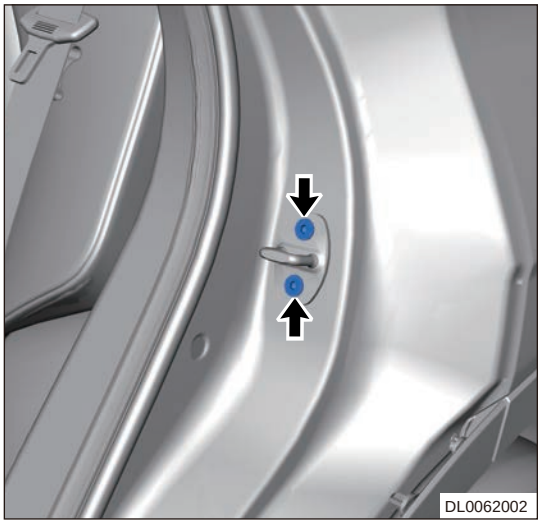
Removal

⚠ Warning

- Be sure to wear necessary safety equipment to prevent accidents, when removing rear door lock striker.
- Try to prevent body paint surface from being scratched, when removing rear door lock striker.
- Use same procedures for right and left sides, procedures listed below are for left side.

1. Remove 2 fixing screws (arrow) from rear door lock striker, and remove the rear left door lock striker assembly.

   Torque: 23 ± 2 N · m



Installation

1. Installation is in the reverse order of removal.

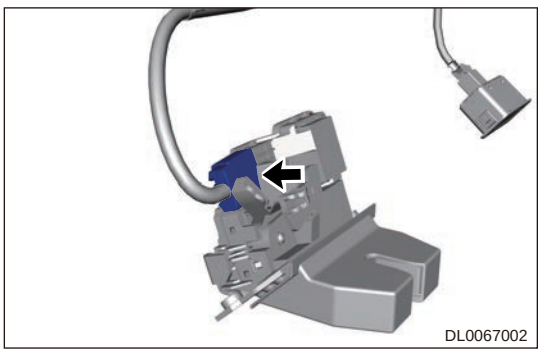
Replacement of Back Door Lock Assembly

Removal

⚠ Warning

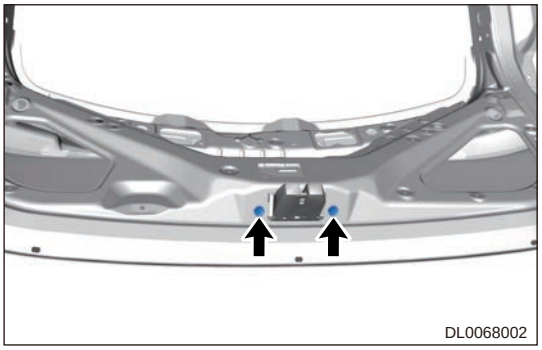
- Be sure to wear necessary safety equipment to prevent accidents, when removing back door lock assembly.
- Try to prevent interior and body paint from being scratched, when removing back door lock assembly.

1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the back door lower protector assembly.
4. Disconnect the connector (arrow) from back door lock assembly.



5. Remove 2 fixing bolts (arrow) from back door lock assembly, and remove the back door lock assembly.

   Torque: 23 ± 2 N · m



Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Check if connector is installed correctly, when installing back door lock assembly.
- Check if back door lock operates properly, after installing back door lock assembly.

Replacement of Back Door Lock Striker Assembly

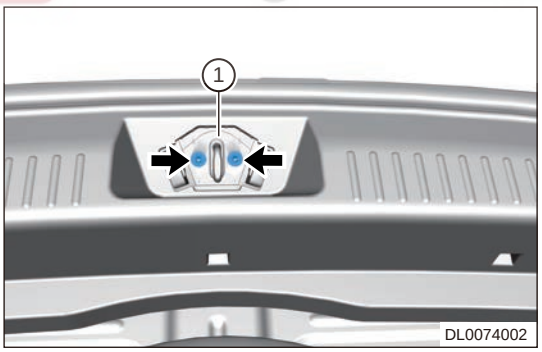
Removal

⚠ Warning

- Be sure to wear necessary safety equipment to prevent accidents, when removing back door lock striker assembly.
- Try to prevent body paint surface from being scratched, when removing back door lock striker assembly.

1. Remove the cover plug from back door lock striker assembly.
2. Remove 2 fixing screws (arrow) from back door lock striker assembly, and remove the back door lock striker assembly (1).

   Torque: 23 ± 2 N · m



Installation

1. Installation is in the reverse order of removal.

Sensing Outside Handle

Sensing Outside Handle Lock/Unlock Principle

The door handle and the key are certified through radio communication; The door handle is capacitance sensing, when touching the sensing area with finger, the door handle senses the capacitance change, thus triggering the key search process.

1. Handle antenna is short or open
   The lock/unlock function of the handle on open or short side fails, PEPS will record DTC at this time.

After the fault is eliminated, it needs to be locked/unlocked through the wireless key, and then the function will be restored.

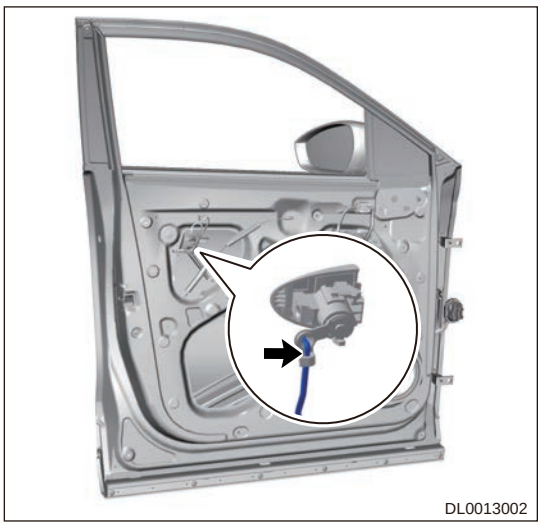
2. There is water, dirt or ice and snow in handle sensing area
   The capacitance noise caused by water, dirt and ice and snow interferes with the capacitance detection of the handle antenna, causing the antenna to enter the self-protection mode, or shielding off the capacitance sensing function, resulting in the decrease of lock/unlock sensitivity, and the lock/unlock function is temporarily unavailable in severe cases.
   Wipe the handle clean and wait for about 15s for the function to return to normal automatically; if the handle is frozen or water enters, wait for the water to be discharged.
3. The handle is continuously impacted by raindrops in rainy days
   Under the impact of raindrops, the handle sensing capacitance will continuously senses the capacitance change. In order to avoid false triggering sensing, the handle antenna enters the rain mode. In this mode, the lock sensing time is longer, and the lock/unlock induction sensitivity is reduced.
   When the impact of raindrop disappears, the function will return to normal automatically within 3.5 minutes later.
4. Electromagnetic interference or shield
   Radio communication will be affected by the same frequency interference and shielding effect. If there is an interference source, it will interfere with the normal communication between wireless key and antenna; if the wireless key or handle is equipped with a decorative cover that contains metal ingredient, it will weaken the strength of the communication signal. In this case, the lock/unlock function has potential failure risk.
   The function will recover automatically after the interference source is far away and the shield is eliminated.

Removal

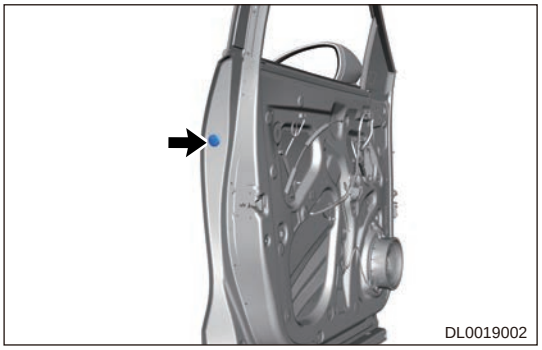
⚠ Warning

- Be sure to wear safety equipment to prevent accidents, when removing sensing outside handle assembly.
- Try to prevent body paint surface from being scratched, when removing sensing outside handle assembly.

1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the front left door inner protector assembly.
4. Remove the front left door protective film assembly.
5. Disengage the clip (arrow) between front door lock assembly and front door key cylinder lever.

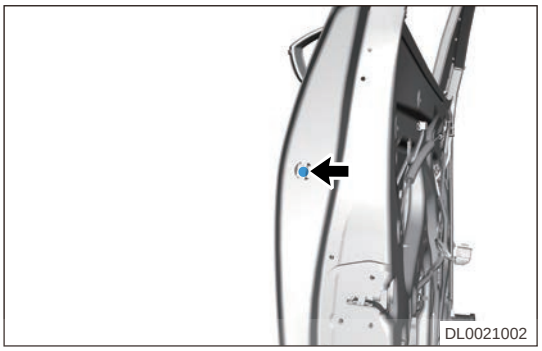


6. Remove the front door outside handle protective cover block cover (arrow).

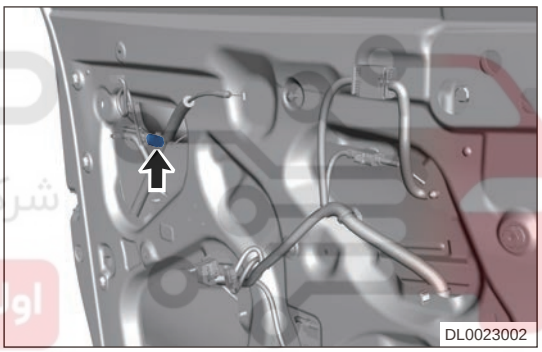


7. Loosen 1 fixing screw (arrow) from front door key cylinder assembly, and remove the front door key cylinder and protective cover assembly.

   Torque: 5 ± 1 N · m



8. Disconnect the front left outside handle wire harness connector (arrow).



9. Remove the front left outside handle assembly.

Installation

1. Installation is in the reverse order of removal.

ENGINE HOOD/DOOR

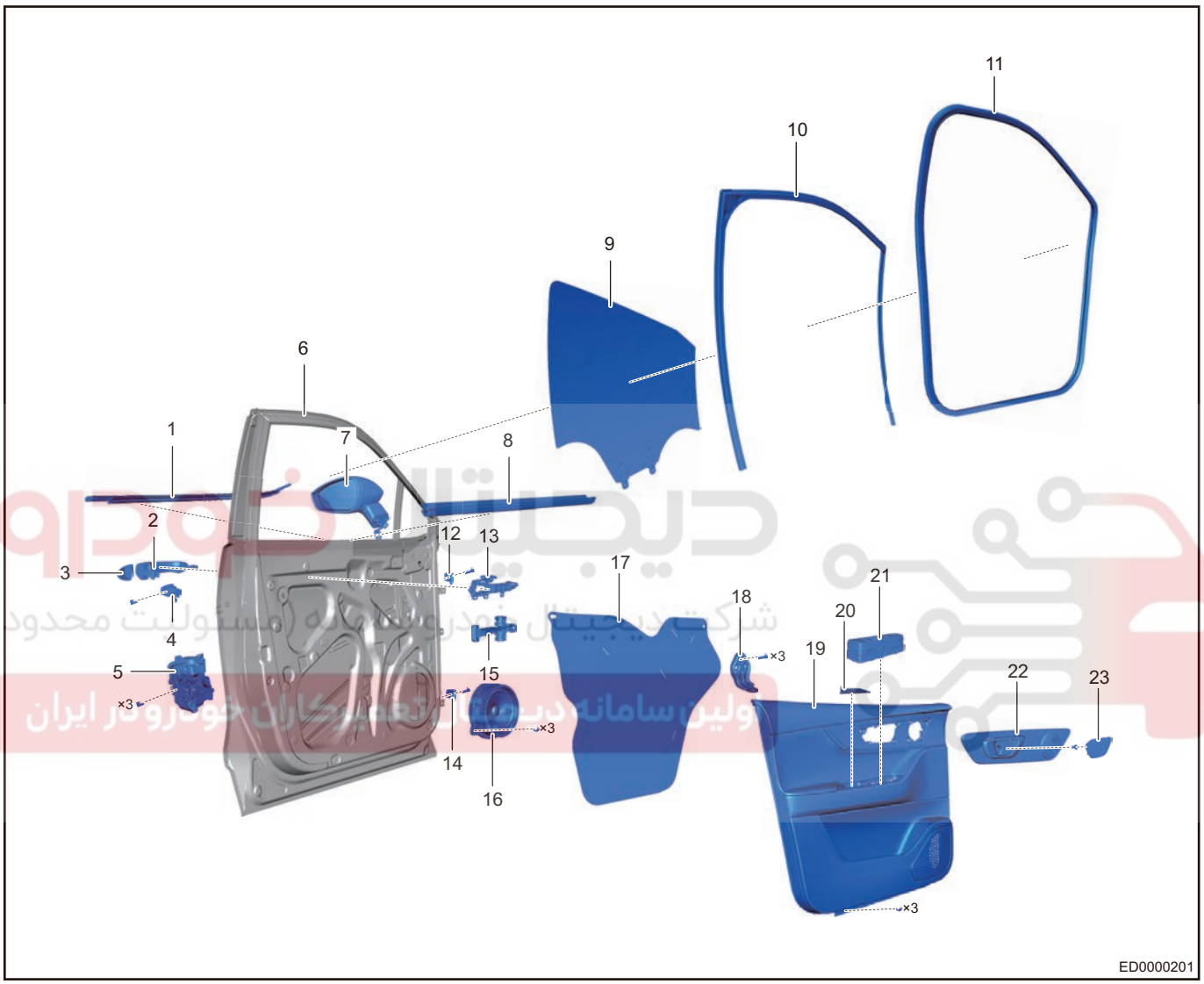
GENERAL INFORMATION

Description

Engine Hood Assembly

1	Engine Hood Assembly	4	Engine Hood Sound Insulator Pad
2	Engine Hood Right Hinge Assembly	5	Engine Hood Right Air Spring Assembly
3	Engine Hood Left Hinge Assembly		

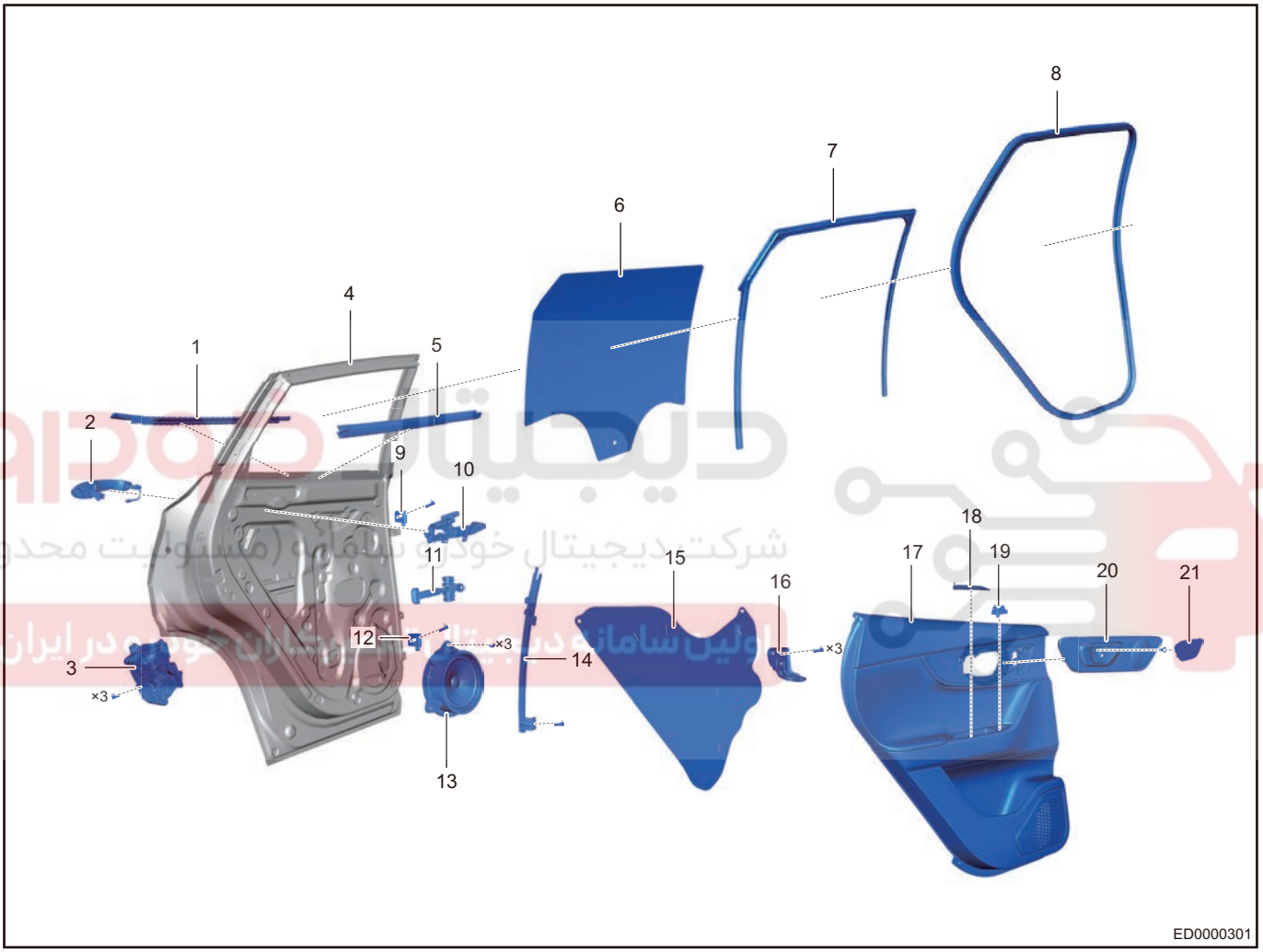
Front Door Assembly



1	Front Left Door Outer Weather Bar	13	Front Left Outside Handle Seat Assembly
2	Front Left Door Outside Handle	14	Left Door Hinge Assembly
3	Front Left Door Lock Cylinder Protector Cover	15	Front Door Stopper Assembly
4	Side Door Lock Cylinder	16	Front Door Woofer
5	Front Left Door Lock	17	Front Left Door Protective Film Assembly
6	Front Left Door Sheet Metal Assembly	18	Front Door Metal Bracket
7	Left Outside Rear View Mirror Assembly	19	Rear Left Door Protector Body

8	Front Left Door Inner Weather Bar	20	Handle Box Gasket
9	Front Left Side Door Glass Assembly	21	Driver Glass Regulator Switch
10	Front Left Door Run	22	Front Left Inside Handle Assembly
11	Front Left Door Opening Weatherstrip	23	Block Cover
12	Left Door Hinge Assembly		

Rear Door Assembly



1	Rear Left Door Outer Weather Bar	12	Left Door Hinge Assembly
2	Side Rear Door Outside Handle	13	Rear Door Woofer
3	Rear Left Door Lock	14	Rear Left Door Glass Rear Lower Guide Rail Assembly
4	Rear Left Door Sheet Metal Assembly	15	Rear Left Door Protective Film Assembly
5	Rear Left Door Inner Weather Bar	16	Rear Left Door Metal Bracket
6	Rear Left Side Door Glass Assembly	17	Rear Left Door Protector Body
7	Rear Left Door Run	18	Handle Box Gasket

8	Rear Left Door Opening Weatherstrip	19	Single Glass Regulator Switch
9	Left Door Hinge Assembly	20	Rear Left Inside Handle Assembly
10	Rear Left Outside Handle Seat Assembly	21	Block Cover
11	Rear Door Stopper Assembly		

Back Door Assembly

1	Adjustment Switch Assembly	9	Engine Hood Adjusting Block
2	Power Back Door Module	10	Right Anti-pinch Strip Assembly
3	Rear Cover Upper Left Bracket	11	Right Balance Bar Assembly
4	Left Electric Support Assembly	12	Rear Trunk Lid Lower Left Bracket
5	Left Anti-pinch Strip Assembly	13	Back Door Left Protector

6	Back Door Hinge Assembly	14	Back Door Right Protector
7	Back Door Hinge Assembly	15	Back Door Lower Protector
8	Back Door Sheet Metal Assembly		

The vehicle is designed as a structure with four doors & two covers: Front left door, rear left door, front right door, rear right door, power back door (power back door system consists of PLG module, power support, anti-pinch strip, each functional switch, back door lock and self-engage mechanism, etc. When system receives functional switch signal, it opens or closes back door by motor drive) and engine hood.

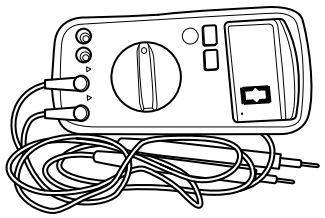
Specifications

Torque Specifications

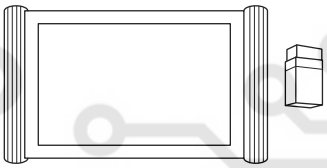
Description	Torque (N·m)
Engine Hood Hinge Assembly Fixing Nut	23 ± 2.0
Engine Hood Lock Assembly Fixing Nut	10 ± 1.5
Engine Hood Hinge Assembly Fixing Bolt	23 ± 2.0
Front Door Inside Protector Assembly Fixing Screw	1.5 ± 0.5
Front Door Inside Handle Fixing Screw	1.5 ± 0.5
Front Door Lock Striker Fixing Bolt	25 ± 3.75
Rear Door Inside Protector Assembly Fixing Screw	1.5 ± 0.5
Rear Door Inside Handle Fixing Screw	1.5 ± 0.5
Rear Door Metal Bracket Fixing Bolt	5 ± 1.0
Rear Door Lock Striker Fixing Bolt	25 ± 3.75
Back Door Lower Protector Assembly Fixing Screw	1.5 ± 0.5
Back Door Hinge Fixing Bolt	25 ± 2.0
Back Door Lock Striker Fixing Bolt	25 ± 3.75
Power Back Door Module Fixing Nut	5 ± 1.0

Tools

General Tool

Tool Name	Tool Drawing
Digital Multimeter	 RCH000206

Special Tool

Tool Name	Tool Drawing
Diagnostic Tester	 S00001

Function Introduction

Power Back Door Function Introduction

Function			
1	Instrument Panel Switch Opening or Closing Back Door	11	On-line Refresh Function
2	Back Door Outer Opener Switch Opening Back Door	12	DVD Setting Opening Height
3	Back Door Lower Edge Switch Closing Back Door	13	DVD Voice Opening/Closing Back Door
4	Wireless Key Opening or Closing Back Door	14	T-BOX APP
5	Opening Height Setting	15	Opening Condition Sleeping
6	Soft Stop Function	16	Environmental Self-adaption
7	Jam Protection Function	17	Emergency Stop Function
8	Violently Closing Self-protection	18	Diagnosis and Recording Function

Function			
9	Manual Operation of Back Door Function	19	Induction Opening
10	Mechanical Unlocking Function		

Power Back Door Opening Method

1. For convenience using, power back door can achieve various opening/closing methods, such as open/close back door manually, one button open/close, open/close by voice, remote open/close (if equipped), and can realize height adjustment function, make you fully feel the convenience of power back door.
   a.Power back door switch locates on left side of instrument panel. ENGINE START STOP switch is changed to OFF, ACC or ON mode and gear is switched to P position, so as to make vehicle in unfortified mode. In such condition, long press power back door switch to illuminate turn signal light and open/close power back door.
   b.ENGINE START STOP switch is changed to OFF, ACC or ON mode and gear is switched to P position: l Manually opening/closing door: with central control lock in unlocked condition, press back door switch to illuminate turn signal light and open/close power back door. l Manually opening/closing door: with central control lock in locked condition, carry smart key to approach rear of vehicle and press back door switch to illuminate turn signal light and open/close power back door.
   c.One button open/close: Long press back door open button on smart key, turn signal light comes on and power back door opens/closes.
   d.Voice opening and closing: opening: with power back door in closed condition, perform “Open back door” by voice patten in audio/visual system and power back door is opened; closing: with power back door in opened condition, perform “Close back door” by voice patten in audio/visual system and power back door is closed;
   e.For details about back door remote control, refer to Remote Control System.
   f.Smart key should not be placed together with wireless computer mouse and mobile phone, etc., which may cause the power back door to fail to sensing open/close.
   g.Three days after the vehicle is locked, the sensing open function of back door is closed, the engine needs to be restarted, and the function resumes.

Power Back Door Opening Height Setting

1. Perform setting via audio and entertainment system.
   a.Touch “Vehicle Setting” on no disc DVD screen to enter vehicle setting screen.
   b.Touch “Trunk Opening State” on “Vehicle Setting” screen to adjust opening height of back door.
   c.Range of back door adjustment height: 70% - 100%.
2. Perform setting by switch under back door.
   a.After power back door opens, adjust power back door to the desired height.
   b.Long press power back door button until vehicle gives a light signal, power back door opening height set is successful.

⚠ Caution

- It is recommended that the height of back door should not be too low, otherwise the opening height of the back door cannot be set.

Power Back Door Jam Protection Function

1. Forward jam protection: During opening of power back door, if there is resistance (such as wall, obstructions, etc.), the forward jam protection of back door will prevent damage to the vehicle.
2. Reverse jam protection: During closing of power back door, if there is resistance (such as children, luggage, etc.), the reverse jam protection of back door will prevent injury to children or damage to the vehicle.

Others

1. After power is shut off, it is necessary to perform power back door manual learning. Learning method: Close back door to lock position, press back door switch to open back door and wait until back door opens to Max. opening position. The learning is completed successfully.
2. When power back door is opened, never pull power support rod laterally, which may cause damage to relevant parts.
3. When power back door opens to highest position, do not push or support it upward by hands, otherwise, it may cause damage to relevant parts.
4. Make sure that there is no debris, wall, etc. within back door opening range before opening power back door, so as to avoid back door scratching.
5. Before vehicle is driving, confirm that back door is closed in place, so as to prevent accidents or damage to relevant parts as power back door is not closed completely.
6. When power back door is closed manually, perform closing operation slowly by hands. Never close it forcibly, or it may cause damage to motor and module.
7. The power back door may be unable to open or close due to the change in center of gravity on uphill or downhill. This phenomenon is normal. Please manually open/close the power back door.
8. During back door closing, ensure that there is no person is caught. If the closing operation is interrupt, it is necessary to perform back door closing operation again.
9. Before vehicle is driving, confirm that back door is closed in place, so as to prevent accidents or damage to relevant parts as power back door is not closed completely.
10. Although the vehicle is equipped with anti-pin function, never make any part of body test this function, so as to avoid personal injury.

Diagnostic Tester Menu Function and Data Stream

PLGM System

1. Version information

Version Information	-	Boot software version, part number, head unit factory ECU software version number, supplier code, head unit factory ECU hardware version number, head unit factory calibrated version

2. Read DTCs

Read DTCs	Read current DTC	Read current DTC, and display the fault information if there is a DTC. No DTC shows the "No DTC"
	Read history DTC	Read history DTC, and display the fault information if there is a DTC. No DTC shows the "No DTC"

3. Clear DTCs

Clear DTCs	Clean DTC conditions: 1. Turn ignition switch ON (ON position) 2. Engine cannot start (electric vehicle is non-ready condition)	DTC clearing is completed. All history DCTs are cleared. The current DTC still exists

4. Read Data Stream

- Back door input status

Read Data Stream	Back door input status	Driver side switch: Not activated, driver side switch is pressed: Activated
		Power back door inside switch: Not activated, inside switch is pressed: Activated
		Trunk opening switch: Not activated, trunk switch is pressed: Activated
		Global menu switch: Not Activated; Global menu switch is pressed： Activated
		Half-locked switch: Not Activated; Half-locked switch is pressed: Activated
		Full-locked switch: Not Activated; Full-locked switch is pressed: Activated

- Power supply voltage status

Read data stream	Power supply voltage status	Logic power supply voltage value: Normal voltage value is displayed
		Control power supply voltage value: Normal voltage value is displayed

- Sensor input

Read Data Stream	Sensor input	Left rod anti-pinch strip collecting AD value: Normal AD value is displayed
		Right rod anti-pinch strip collecting AD value: Normal AD value is displayed
		Temperature value: Normal operating temperature is displayed

- Vehicle information

Read Data Stream	Vehicle information	Power supply status: Correct switch positions OFF/ACC/ ON/CRANK ON are displayed
		Driver door lock status: Correct locking/unlocking information is displayed

		RKE_Trunk status: Correct back door switch information is displayed
		Information source: Information source: Correct information source RKE/PKE/ Smart Information is displayed
		Demand information: Correct signal source RKE/PKE/Smart lock/unlock signal is displayed
		Trip mileage: Actual mileage is displayed
		Outside temperature: Normal outside temperature is displayed
		Outside temperature fault status: Normal/Abnormal
		Start and stop status: Correct start and stop condition is displayed
		Vehicle speed: Correct vehicle speed is displayed
		Valid vehicle speed status: Displays whether the speed is valid or not
		Gear display: Real gear signal is displayed
		Collision status: Collision signal is displayed
		Back door position set by DVD: Back door setting height percentage value is displayed
		Voice control back door demand: Voice ON/OFF input is displayed
		TBOX control back door demand: Remote ON/OFF input is displayed
		Lateral acceleration signal is effectively identified: Displays whether the lateral acceleration signal is valid
		Lateral acceleration: The specific value of the lateral acceleration is displayed

		Longitudinal acceleration effective mark: Displays whether the longitudinal acceleration signal is valid
		Longitudinal acceleration: The specific value of the longitudinal acceleration is displayed

- Left support motor data

Read data stream	Left support motor data	Left support motor speed: Correct motor speed is displayed
		Left support motor moving direction: Correct open/close direction is displayed
		Left support motor position: Actual hall position is displayed
		Left support motor current: Actual drive current of support is displayed

- Back door status

Read Data Stream	Back door status	Lock position status: Half latch/full latch information is displayed
		Lock engagement status: Displays the correct action information such as engaging/ engagement completion
		Lock control status: Displays correct action information such as initialization/ engagement completion/engaging
		Ratchet position: PCM actual signals are displayed
		Back door position: back door actual position (Hall position) is displayed
		Back door position area: Back door actual area is displayed
		Back door operation status: Back door action status is displayed

		Main detected status of obstacle: Blocking is detected according to current
		Obstacle secondary detection status: blocking is detected according to anti-pinch strip

- Back door learning position

Read Data Stream	Back door learning position	Mechanical max. opening position: mechanical max. opening learning position is displayed
		User set opening position: user set max. opening position is displayed
		Differential value between two rods: /

- PLG software configuration code

Read Data Stream	PLG software configuration code	PLG Software configuration code: correct configuration code C001000000000000 is displayed

- Back door switch input detection

Read Data Stream	Back door switch input detection	Driver side switch: Detect whether the state of driver side switch has changed
		Power back door inner switch: Detect whether the state of power back door inner switch has changed
		Trunk opening switch: Detect whether the state of power back door switch has changed
		Global switch: Detect whether the state of power back door global switch has changed

5. Active test

- Lock status control

Active Test	Lock status control	Lock motor rotates clockwise: click “ON” Lock motor rotates clockwise: Click “OFF” Click “Back”

		Lock motor rotates counterclockwise: Click “ON” Lock motor rotates counterclockwise: Click “OFF” Click “Back”
		Unlock motor control: Click “ON” Lock motor rotates clockwise: Click “OFF” Click “Back”

- Left support motor control

Active Test	Left support motor control	Left support motor ON: The user can select three speeds to drive the support to open the back door: 50%, 75% and 100% Click “Back” to cancel the drive
		Left support motor OFF: The user can select three speeds to drive the support to close the back door: 50%, 75% and 100% Click “Back” to cancel the drive

- Left support hall power supply

Active Test	Left support Hall power supply	Click “ON”: Turn on the Hall power supply
		Click “OFF”: Turn off the Hall power supply
		Click “Back”

- LED indicator output

Active Test	LED indicator output	Click “ON”: Turn on LED background indicator
		Click “OFF”: Turn off LED background indicator
		Click “Back”

6. Special operation
   - Software configuration information writing

Special operation	Software configuration information writing	User enters 16-bit software configuration information: Software configuration information is written successfully; Failed to write software configuration information

- PLG self-learning

Active Test	PLG self-learning	Click the “Special operation-PLG self-learning” menu: Start self-learning
		Click the “Emergency stop” menu: You can stop self-learning as an emergency
		Click “Back”

Diagnostic Help

- Connect diagnostic tester (the latest software) to Data Link Connector (DLC), and make it communicate with vehicle electronic module through data network.
- Confirm that malfunction is current, and carry out diagnostic test and repair procedures.
- If Diagnostic Trouble Code (DTC) cannot be cleared, it indicates that there is a current malfunction.
- Only use a digital multimeter to measure voltage of electronic system.
- Refer to any Technical Bulletin that may apply to this malfunction.
- Visually check the related wire harness.
- Check and clean all BCM system grounds related to the latest DTC.
- If numerous trouble codes are set, refer to circuit diagram and look for any common ground circuit or power supply circuit applied to DTC.

Intermittent Troubleshooting

If malfunction is intermittent, perform the followings:

- Check if connector is loose.
- Check if wire harness is worn, pierced, pinched or partially broken.
- Wiggle related wire harness and connector and observe if signal in related circuit is interrupted.
- If possible, try to duplicate conditions under which DTC was set.
- Look for data that has changed or DTC to reset during wiggling test.
- Check for broken, bent, protruded or corroded terminals.
- Check and clean all wire harness connectors and ground parts related to DTC.
- If multiple trouble codes were set, refer to circuit diagrams to look for any common ground circuit or power supply circuit applied to DTC.
- Refer to any Technical Bulletin that may apply to this malfunction.

Ground Inspection

Ground points are very important to the proper operation of circuits. Ground points are often exposed to moisture, dirt and other corrosive environments. Corrosion (rust) may increase load resistance. This situation may change the way in which a circuit operates. Circuits are very sensitive to proper grounding. A loose or corroded ground can seriously affect the control circuit. Check the ground points as follows:

- Remove ground bolt or nut.

- Check all contact surfaces for tarnish, dirt and rust, etc.
- Clean as necessary to ensure that contact is in good condition.
- Reinstall ground bolt or nut securely.
- Check if any additional accessories interfere with ground circuit.
- If several wire harnesses are crimped into one ground terminal, check for proper crimp condition. Make sure that all wire harnesses are clean and securely fastened while providing a proper ground path.

Diagnosis Procedure

Hint:
Use following procedures to troubleshoot the power back door control system.

1	**Vehicle brought to workshop**

Next

2	**Examine vehicle and check basic items**

Check system power supply voltage, and check that fuse, wire harness and connector are connected normally.

OK

Standard voltage: Not less than 12 V.

Result

NG → **Check and replace malfunctioning parts**

OK

3	**Using a diagnostic tester, read related DTC and data stream information**

Result

Result	Go to
No DTC	A
DTC occurs	B

A → **Perform troubleshooting procedure without DTCs according to malfunction symptom**

B

4	**Troubleshoot according to DTCs troubleshooting procedure**

Result

Result	Go to
Problem is not resolved	A
Problem is resolved	B

A → **Return to procedure 1 and troubleshoot the process again**

B

5	**According to power back door control system malfunction repair completion inspection and delivery, confirm if malfunction is resolved.**

Result

Result	Go to
Delivery inspection is failed	A
Delivery inspection is qualified	B

A → **Return to procedure 1 and troubleshoot the process again**

B

6	**Finished**

Diagnosis & Test

Diagnostic Trouble Code (DTC) Chart

DTC	DTC
U0073-88	CAN Busoff Failure
U0140-87	Lost Communication with BCM
U0214-87	Lost Communication With PEPS
U0151-87	Lost Communication with ABM
U0164-87	Lost Communication with CLM
U0155-87	Lost Communication with ICM
U0101-87	Lost Communication with TCU
U0129-87	Lost communication with BSM
U0100-87	Lost Communication with EMS

DTC	DTC
U1300-55	Software Configuration Error
B1A90-16	VBAT Power is Open Circuit
B1A91-15	LH Pinch Strip Sensor Failure
B1A92-15	RH Pinch Strip Sensor Failure
B1A93-07	Driver Switch Failure
B1A94-07	Handle Switch Failure
B1A95-07	Inner Switch Failure
B1A96-07	Global Switch Failure
B1A97-01	LH Hall Pulse is Out of Range
B1A98-13	LH Hall Sensor Failure (LH Spindle Unit Failure)
B1A99-14	LH Hall Sensor Power Supply Failure
B1A9A-1C	LH Spindle Motor Output Failure
B1A9B-1D	LH Spindle Motor Overload
B1A9C-01	RH Hall Pulse is Out of Range
B1A9D-13	RH Hall Sensor Failure (RH Spindle Unit Failure)
B1A9E-14	RH Hall Sensor Power Supply Failure
B1A9F-1C	RH Spindle Motor Output Failure
B1AA0-1D	RH Spindle Motor Overload
B1AA1-1C	Cinch Latch Motor Output Failure
B1AA2-1D	Cinch Latch Motor Overload
B1AA3-1C	Release Motor Output Failure
B1AA4-07	Half/Full Latch Abnormality
B1AA5-07	PCM Switch Failure
B1AA6-07	PLG Position is Out of Range
B1AA7-07	Dual Spindles Position Misalignment
B1AA8-07	Cinch Failure
B1AAA-04	ECU fault

DTC Diagnosis Procedure

DTC	**U0073-88**	**CAN Busoff Failure**
DTC	**U0140-87**	**Lost Communication with BCM**
DTC	**U0214-87**	**Lost Communication With PEPS**
DTC	**U0151-87**	**Lost Communication with ABM**

DTC	**U0164-87**	**Lost Communication with CLM**
DTC	**U0155-87**	**Lost Communication with ICM**
DTC	**U0101-87**	**Lost Communication with TCU**
DTC	**U0129-87**	**Lost communication with BSM**
DTC	**U0100-87**	**Lost Communication with EMS**
DTC	**U1300-55**	**Software Configuration Error**

Description

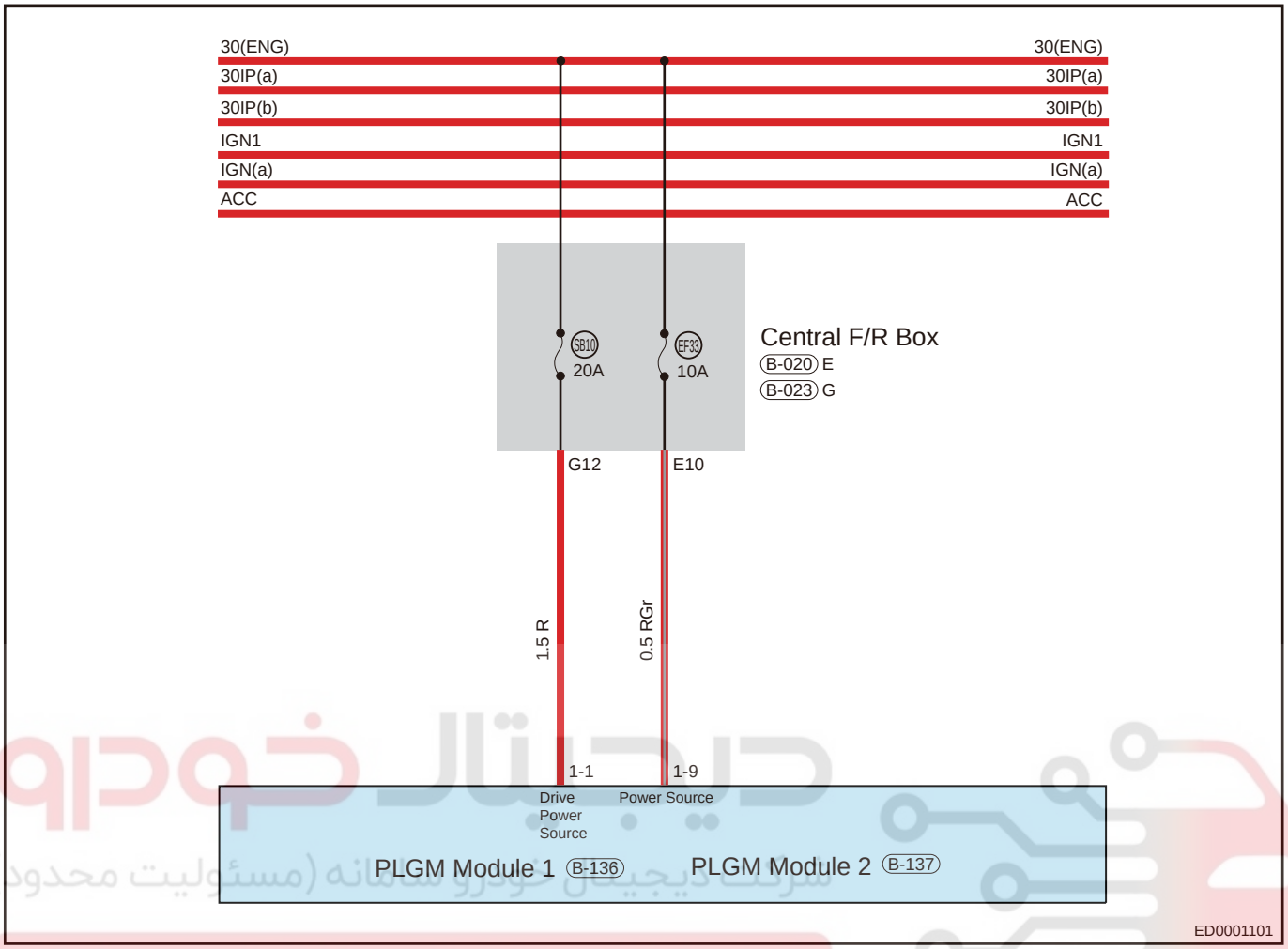
DTC	Description	Fault Class Definition	Fault Type	Store Current DTC	Save as History DTC	Possible Causes	Malfunction Protection Measures	Malfunction Light
U0073-88	CAN Busoff Failure	/	Bus off	Bus enters busoff mode for 2s, which is stored as current fault.	A frame of message is sent successfully, current fault is cleared which is stored as history fault	Bus is short to ground, power supply, CANH and CANL has short circuit and open circuit.	All network signal uses default value; Door opening operation is stopped while closing operation still continue; New door operation is prohibited.	Bus off
U0140-87	Lost Communication with BCM	/	Message missing	BCM message is not received for 4000 ms	A frame of BCM message is received, current fault is cleared which is stored as history fault	BCM node off	All BCM signal uses default value.	Message missing
U0214-87	Lost Communication With PEPS	/	Message missing	PEPS message is not received for 4000 ms	A frame of PEPS message is received, current fault is cleared which is stored as history fault	PEPS node off	All PEPS signals use default values.	Message missing
U0151-87	Lost Communication	/	Message missing	ABM message is not received for 4000 ms	A frame of ABM message is received, current fault is cleared	ABM node off	All ABM signals use default values.	Message missing

DTC	Description	Fault Class Definition	Fault Type	Store Current DTC	Save as History DTC	Possible Causes	Malfunction Protection Measures	Malfunction Light
	with ABM				which is stored as history fault.			
U0-16-4-87	Lost Communication with CLM	/	Message missing	CLM message is not received for 4000 ms	A frame of CLM message is received, current fault is cleared which is stored as history fault.	CLM node off	All CLM signals use default values.	Message missing
U0-15-5-87	Lost Communication with ICM	/	Message missing	ICM message is not received for 4000 ms	A frame of ICM message is received, current fault is cleared which is stored as history fault.	ICM node off	All ICM signal uses default value.	Message missing
U0-10-1-87	Lost Communication with TCU	/	Message missing	TCU message is not received for 4000 ms	A frame of TCU message is received, current fault is cleared which is stored as history fault.	TCU node off	All TCU signal uses default value.	Message missing
U0-12-9-87	Lost communication with BSM	/	Message missing	BSM message is not received for 4000 ms	A frame of BSM message is received, current fault is cleared which is stored as history fault.	BSM node off	All BSM signal uses default value.	Message missing
U0-10-0-87	Lost Communication with EMS	/	Message missing	EMS message is not received for 4000 ms	A frame of EMS message is received, current fault is cleared which is stored as history fault.	EMS node off	All EMS signals use default values.	Message missing
U1-30-0-55	Software Configuration Error	/	Not configured	Controller is not configured	Configuration is completed, clear the current fault and it is stored as history fault.	/	New operation command is prohibited	Not configured

Description
Refer to CAN communication system

DTC	B1A90-16	VBAT Power is Open Circuit

Description
Control Schematic Diagram



DTC	Description	Fault Class Definition	Fault Type	Store Current DTC	Save as History DTC	Possible Causes	Malfunction Protection Measures	Malfunction Light
B1-A9-0-16	VBAT Power is Open Circuit	/	Power supply circuit voltage below threshold	The voltage is less than 3 V for 5 s.	When the voltage is higher than 9 V for 500 ms, clear the current fault and it is stored as history fault.	Fuse is broken	Stop the back door current operation and prohibit new operation command.	Power supply circuit voltage below threshold

DTC Confirmation Procedure

Confirm that battery voltage is not less than 12 V before performing the following procedures.

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software).
- Start engine and warm it up, and then read DTC again. If DTC is detected, malfunction is current.

- If DTC is not detected, malfunction is intermittent.

Hint:
When performing circuit diagnosis and test, always refer to the circuit diagram for specific circuit and component information.

1	Check fuse

(a) Check if fuse of center fuse and relay box is blown.

NG → **Replace fuse**

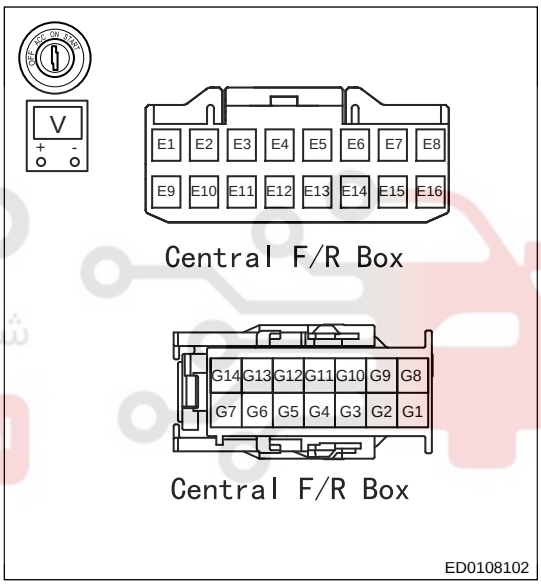
OK

2	Check output voltage of center fuse and relay box

(a) Turn ENGINE START STOP switch to ON.

(b) Check the voltage between center fuse and relay box E10, center fuse and relay box G12 and ground.

Multimeter Connection	Condition	Specified Condition
Center fuse and relay box (E10) - Body ground	ON	Not less than 12 V
Center fuse and relay box (G12) - Body ground	ON	Not less than 12 V



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NG → **Replace center fuse and relay box**

OK

3	Check for open in wire harness

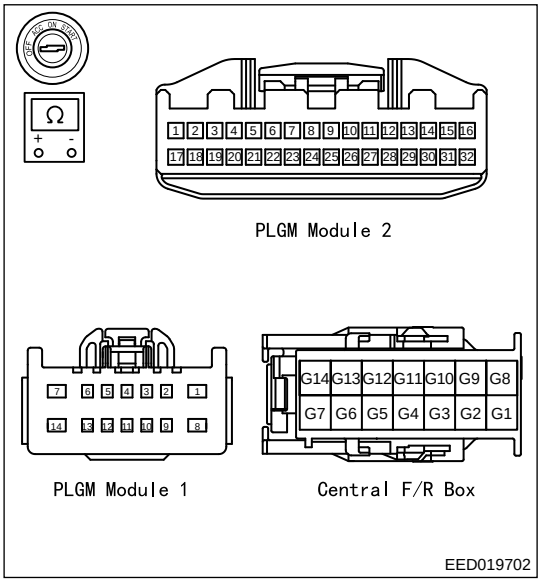
(a) Turn ENGINE START STOP switch to OFF.

(b) Disconnect the negative battery cable.

(c) Disconnect power back door module connector, engine compartment fuse and relay box connector.

(d) Using ohm band of digital multimeter, measure if resistance between connector power back door module back door power supply 1 and fuse, power back door module back door signal power supply and fuse is normal to check wire harness for open.

Multimeter Connection	Condition	Specified Condition
Power back door module back door power supply 1 - Fuse	ENGINE START STOP switch “OFF”	⩽ 1 Ω
Power back door module back door signal power supply - Fuse	ENGINE START STOP switch “OFF”	⩽ 1 Ω



OK	**Replace power back door module**
NG	**Handle and repair related wire harness**

DTC	**B1A93-07**	**Driver Switch Failure**
DTC	**B1A94-07**	**Handle Switch Failure**

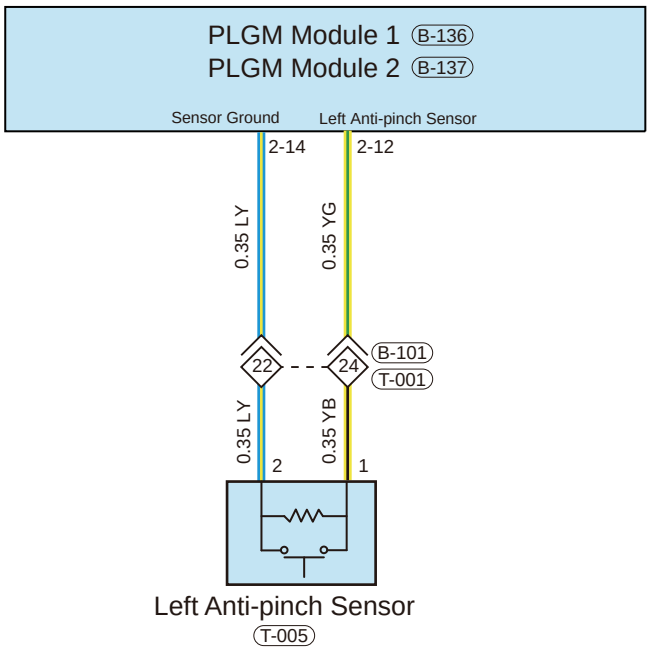
Description

DTC	Description	Fault Class Definition	Fault Type	Store Current DTC	Save as History DTC	Possible Causes	Malfunction Protection Measures	Malfunction Light
B1-A9-3-07	Driver Switch Failure	/	Mechanical malfunction	The switch is valid for 30s	The switch is invalid, clear the current fault and it is stored as history fault.	The switch is stuck or short to ground	Setting switch input is invalid	Mechanical malfunction
B1-A9-4-07	Handle Switch Failure	/	Mechanical malfunction	The switch is valid for 30s	The switch is invalid, clear the current fault and it is stored as history fault.	The switch is stuck or short to ground	Setting switch input is invalid	Mechanical malfunction

Description
Refer to PEPS system

DTC	**B1A91-15**	**LH Pinch Strip Sensor Failure**
DTC	**B1A92-15**	**RH Pinch Strip Sensor Failure**

Description
Control Schematic Diagram



DTC	Description	Fault Class Definition	Fault Type	Store Current DTC	Save as History DTC	Possible Causes	Malfunction Protection Measures	Malfunction Light
B1-A9-1-15	LH Pinch Strip Sensor Failure	/	Circuit is short to power supply or open	The collected AD value is above threshold for 500ms	When the collected AD value is within normal range for 100ms, clear the current fault and it is stored as history fault.	Circuit is open or short to power supply	The back door current closing operation is stopped	Circuit is short to power supply or open
B1-A9-2-15	RH Pinch Strip Sensor Failure	/	Circuit is short to power supply or open	The collected AD value is above threshold for 500ms	Clear the current fault and it is stored as history fault.	Circuit is open or short to power supply	The back door current closing operation is stopped	Circuit is short to power supply or open

DTC Confirmation Procedure

Confirm that battery voltage is not less than 12 V before performing the following procedures.

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software).
- Start engine and warm it up, and then read DTC again. If DTC is detected, malfunction is current.
- If DTC is not detected, malfunction is intermittent.

Hint:
When performing circuit diagnosis and test, always refer to the circuit diagram for specific circuit and component information.
Take left rod anti-pinch strip as an example. For right rod anti-pinch strip, refer to LH side.

1	Check left rod anti-pinch strip connector

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect the negative battery cable.
(c) Disconnect the left anti-pinch sensor connector.
(d) Check wire harness, connector and terminal for deformation, bending or damage.

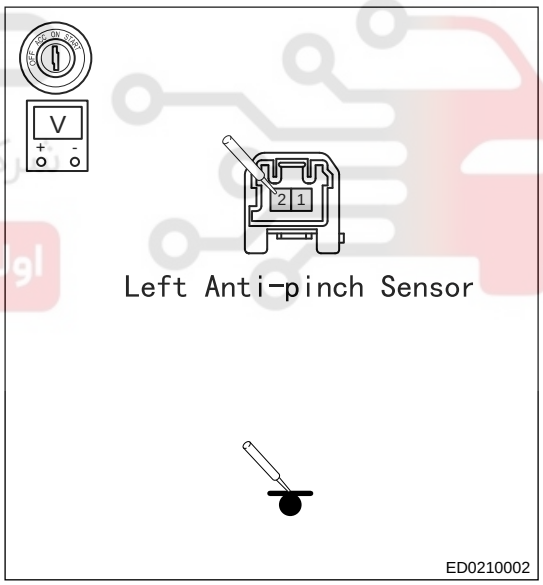
NG → **Repair or replace left anti-pinch sensor wire harness**

OK

2	Left anti-pinch sensor wire harness short check

(a) Connect the negative battery cable.
(b) Turn ENGINE START STOP switch to ON.
(c) Disconnect the left anti-pinch sensor connector, measure if left anti-pinch sensor is short to power supply.

Multimeter Connection Terminal	Condition	Specified Condition
Left anti-pinch sensor (2) - Body ground	Always	≈ 0 V
Left anti-pinch sensor (1) - Body ground	Always	5 V



NG → **Repair or replace left anti-pinch sensor wire harness**

OK

3	Test left anti-pinch sensor

(a) Turn ENGINE START STOP switch to OFF.
(b) Disconnect left anti-pinch sensor connector, measure internal resistance of left anti-pinch sensor with digital multimeter.

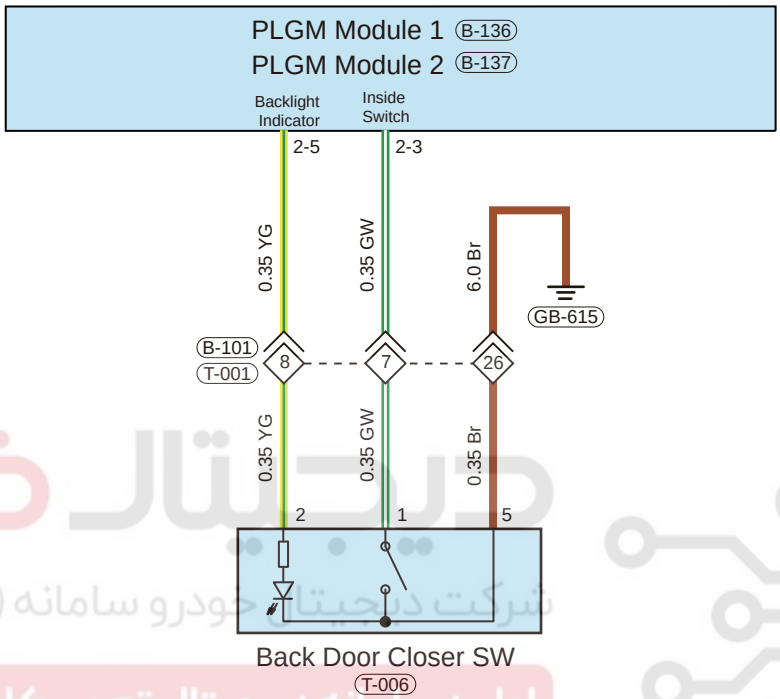
OK → **System is normal**

NG → **Replace the left anti-pinch sensor**

DTC	**B1A95-07**	**Inner Switch Failure**
DTC	**B1A96-07**	**Global Switch Failure**

Description

Control Schematic Diagram



DTC	Description	Fault Class Definition	Fault Type	Store Current DTC	Save as History DTC	Possible Causes	Malfunction Protection Measures	Malfunction Light
B1A95-07	Inner Switch Failure	/	Mechanical malfunction	The switch is valid for 30s	The switch is invalid, clear the current fault and it is stored as history fault.	The switch is stuck or short to ground	Setting switch input is invalid	Mechanical malfunction
B1A96-07	Global Switch Failure	/	Mechanical malfunction	The switch is valid for 30s	The switch is invalid, clear the current fault and it is stored as history fault.	The switch is stuck or short to ground	Setting switch input is invalid	Mechanical malfunction

DTC Confirmation Procedure

Confirm that battery voltage is not less than 12 V before performing the following procedures.

- Turn ENGINE START STOP switch to OFF.

- Connect the diagnostic tester (the latest software).
- Start engine and warm it up, and then read DTC again. If DTC is detected, malfunction is current.
- If DTC is not detected, malfunction is intermittent.

Hint:
When performing circuit diagnosis and test, always refer to the circuit diagram for specific circuit and component information.

1	**Check vehicle malfunction condition**

(a) Press back door close switch to check if back door can close normally.

NG → **Turn off vehicle power supply (- disconnect the negative battery cable), then turn on power supply again and clear DTC.**

OK ↓

2	**Check if back door close switch power supply is normal**

(a) Turn ENGINE START STOP switch to “ON”.

(b) Detect back door switch signal with a digital multimeter according to the table below.

Multimeter Connection Terminal	Condition	Specified Condition
Back door closer switch (1) - Body ground	Initial status	12V
	Internal switch pressed	1.5V
Back door closer switch (2) - Body ground	Internal switch pressed	12V
Back door closer switch (5) - Body ground	Always	0V

NG → **Check if power supply fuse is burnt**

OK ↓

3	**Check wire harness and connector**

(a) Disconnect the connector.
(b) Check if wire harnesses are worn, pierced, pinched or partially broken.
(c) Check for broken, bent, protruded or corroded terminals.
(d) Check if terminal contact pins of related connectors are in good condition.

NG → **Repair or replace wire harness connector**

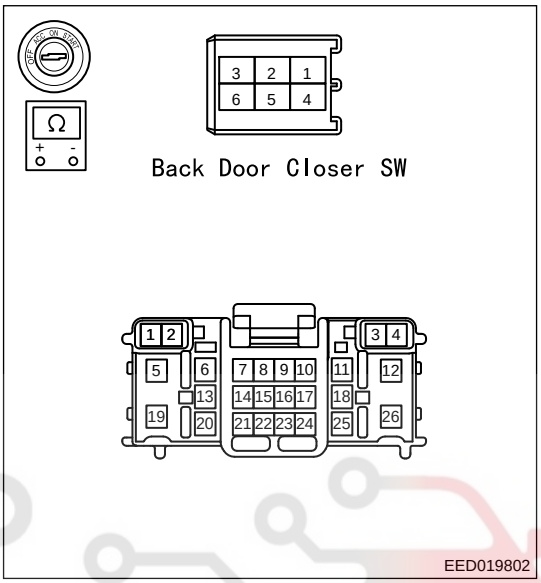
OK

4	Check back door close switch wire harness

(a) Turn ENGINE START STOP switch to “OFF”.

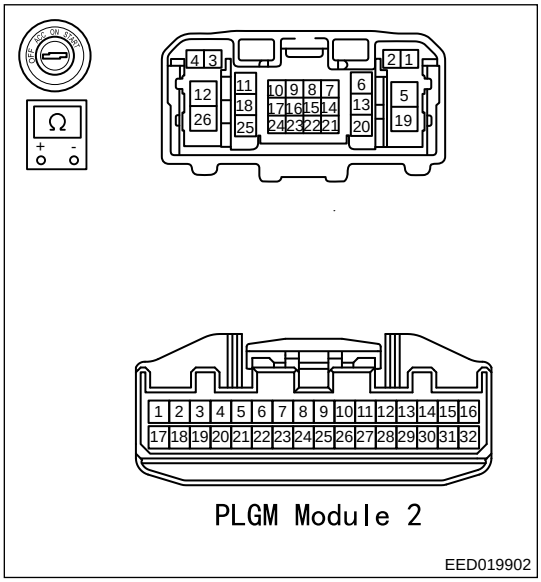
(b) Disconnect the connector back door closer switch, and interface between left back door wire harness and interior wire harness.

(c) Using ohm band of multimeter, measure resistance between back door closer switch (2) and interface between left back door wire harness and interior wire harness (8), back door closer switch (1) and interface between left back door wire harness and interior wire harness (7), back door closer switch (5) and interface between left back door wire harness and interior wire harness (26).



Multimeter Connection Terminal	Condition	Specified Condition
Back door closer switch (2) - Interface between left back door wire harness and interior wire harness (8)	ENGINE START STOP switch “OFF”	⩽ 1 Ω
Back door closer switch (1) - Interface between rear left back door wire harness and interior wire harness (7)		⩽ 1 Ω
Back door closer switch (5) - Interface between rear left back door wire harness and interior wire harness (26)		⩽ 1 Ω

(d) Using ohm band of multimeter, measure resistance between interface between interior wire harness and left back door wire harness (8) and power back door module 2 (205), interface between interior wire harness and left back door wire harness (7) and power back door module 2 (203), interface between interior wire harness and left back door wire harness (26) and GB-615.



Multimeter Connection Terminal	Condition	Specified Condition
Interface between interior wire harness and left back door wire harness (8) - Power back door module 2 (205)	ENGINE START STOP switch "OFF"	⩽ 1 Ω
Interface between interior wire harness and rear left back door wire harness (7) - Power back door module 2 (203)		⩽ 1 Ω
Interface between interior wire harness and left back door wire harness (26) - GB-615		⩽ 1 Ω

NG → **Replace back closer switch wire harness**

OK

5	Reconfirm DTCs

(a) Connect all the connectors.
(b) Connect the negative battery cable.
(c) Turn ENGINE START STOP switch to "OFF".
(d) Use diagnostic tester (the latest software) to read the DTCs stored in body control system again.

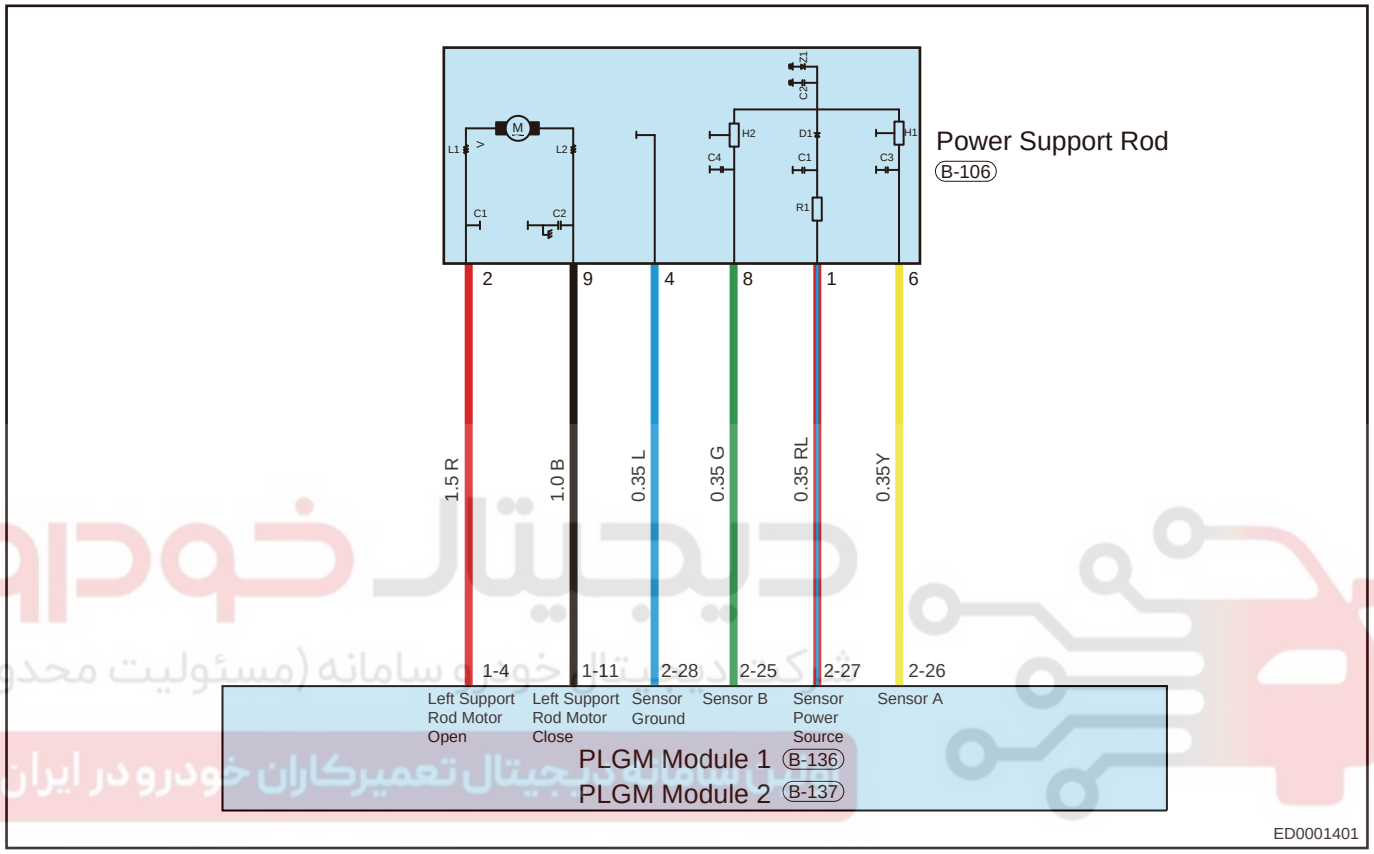
OK → **System is normal**

NG → **Replace power back door module**

DTC	**B1A97-01**	**LH Hall Pulse is Out of Range**
DTC	**B1A98-13**	**LH Hall Sensor Failure (LH Spindle Unit Failure)**
DTC	**B1A99-14**	**LH Hall Sensor Power Supply Failure**

Description

Control Schematic Diagram



DTC	Description	Fault Class Definition	Fault Type	Store Current DTC	Save as History DTC	Possible Causes	Malfunction Protection Measures	Malfunction Light
B1-A9-7-01	LH Hall Pulse is Out of Range	/	General electrical fault	Three HALL cycles which are less than 100 us occur in one running	If it returns to normal, clear the current fault and it is stored as history fault.	HALL signal is interfered or HALL sensor has fault	/	General electrical fault
B1-A9-8-13	LH Hall Sensor Failure (LH Spindle Unit Failure)	/	Circuit is open	When motor is running, A/B channel has no HALL signal, meanwhile, more than 5 HALL signals are detected in B/A channel	If there is HALL signal in A/B channel, clear the current fault and it is stored as history fault.	HALL signal input is open, or short to ground, power supply, or sensor has fault	Stop the back door current operation and set the position abnormal	Circuit is open
B1-A9-9-14	LH Hall Sensor Power Supply Failure	/	Circuit is short to ground or open	Over-current is output for 500ms	The over-current fault lasts for 1 s, clear the current fault and it is stored as history fault.	The signal input is short to ground, power supply is shut off, or sensor is short to ground	Stop the back door current operation and position set the position to abnormal. If over-current fault still exits, cut off the power supply output	Circuit is short to ground

DTC Confirmation Procedure

Confirm that battery voltage is not less than 12 V before performing the following procedures.

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software).
- Start engine and warm it up, and then read DTC again. If DTC is detected, malfunction is current.
- If DTC is not detected, malfunction is intermittent.

Hint:

When performing circuit diagnosis and test, always refer to the circuit diagram for specific circuit and component information.

1	**Check left support wire harness connector**

(a) Turn ENGINE START STOP switch to “OFF”, disconnect the power support connector.
(b) Check for broken, bent, protruded or corroded terminals.
(c) Check if wire harnesses are worn, pierced, pinched or partially broken.

NG → **Repair or replace wire harness connector.**

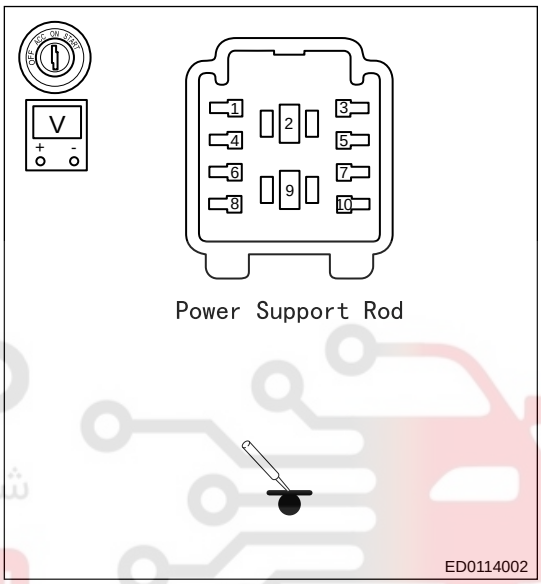
OK

2	**Check sensor power supply**

(a) Turn ENGINE START STOP switch to “ON”.

(b) Disconnect the connector power support, measure voltage between terminal 1 and body ground with a multimeter, it should be not less than 12 V.

Multimeter Connection Terminal	Condition	Specified Condition
Power support (1) - Body ground	ENGINE START STOP switch “OFF”	Not less than 12 V



NG → **Repair or replace wire harness connector**

OK

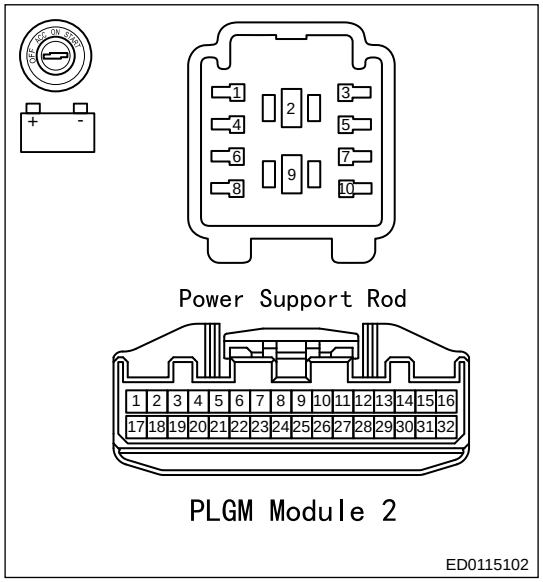
3	**Check power supply wire harness**

(a) Turn ENGINE START STOP switch to “OFF”.

(b) Disconnect connector from power back door module.

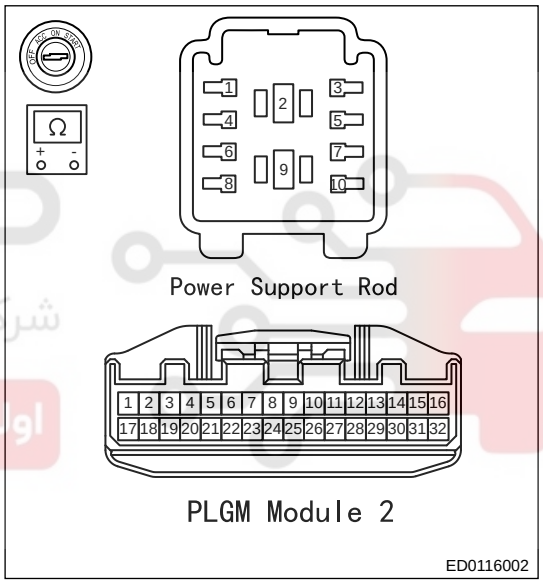
(c) Using ohm band of multimeter, check if power back door module-2 (227) and power support (1) are short to power supply separately.

Multimeter Connection Terminal	Condition	Specified Condition
Power back door module-2 (227)- Battery (+)	ENGINE START STOP switch “OFF”	∞
Power support (1) - Battery (+)	ENGINE START STOP switch “OFF”	∞



(d) Using ohm band of multimeter, check for continuity between power back door module-2 (227) and power support (1).

Multimeter Connection Terminal	Condition	Specified Condition
Power back door module-2 (227) - Power support (1)	ENGINE START STOP switch “OFF”	⩽ 1 Ω



NG → **Repair or replace power support**

OK

4	Reconfirm DTCs

(a) Connect all the connectors.
(b) Connect the negative battery cable.
(c) Turn ENGINE START STOP switch to “ON”.
(d) Use diagnostic tester (the latest software) to read the DTCs stored in body control system again.

OK → **System is normal**

NG → **Replace power back door module**

DTC	B1AA6-07	PLG Position is Out of Range

Description

DTC	Description	Fault Class Definition	Fault Type	Store Current DTC	Save as History DTC	Possible Causes	Malfunction Protection Measures	Malfunction Light
B1-A-A6-07	PLG Position is Out of Range	/	Mechanical malfunction	HALL position is out of Max. value	If the HALL position returns to normal, clear the current fault and it is stored as history fault.	/	/	Mechanical malfunction

DTC Confirmation Procedure

Confirm that battery voltage is not less than 12 V before performing the following procedures.

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software).
- Start engine and warm it up, and then read DTC again. If DTC is detected, malfunction is current.
- If DTC is not detected, malfunction is intermittent.

Hint:

When performing circuit diagnosis and test, always refer to the circuit diagram for specific circuit and component information.

1	**Check appearance of power support**

(a) Check appearance of power support for deformation or damage.

NG → **Replace power support**

OK ↓

2	**Check power support**

(a) Install power support to a new vehicle, observe whether the same fault phenomenon occurs.

NG → **Replace power support**

OK ↓

3	**Reconfirm DTCs**

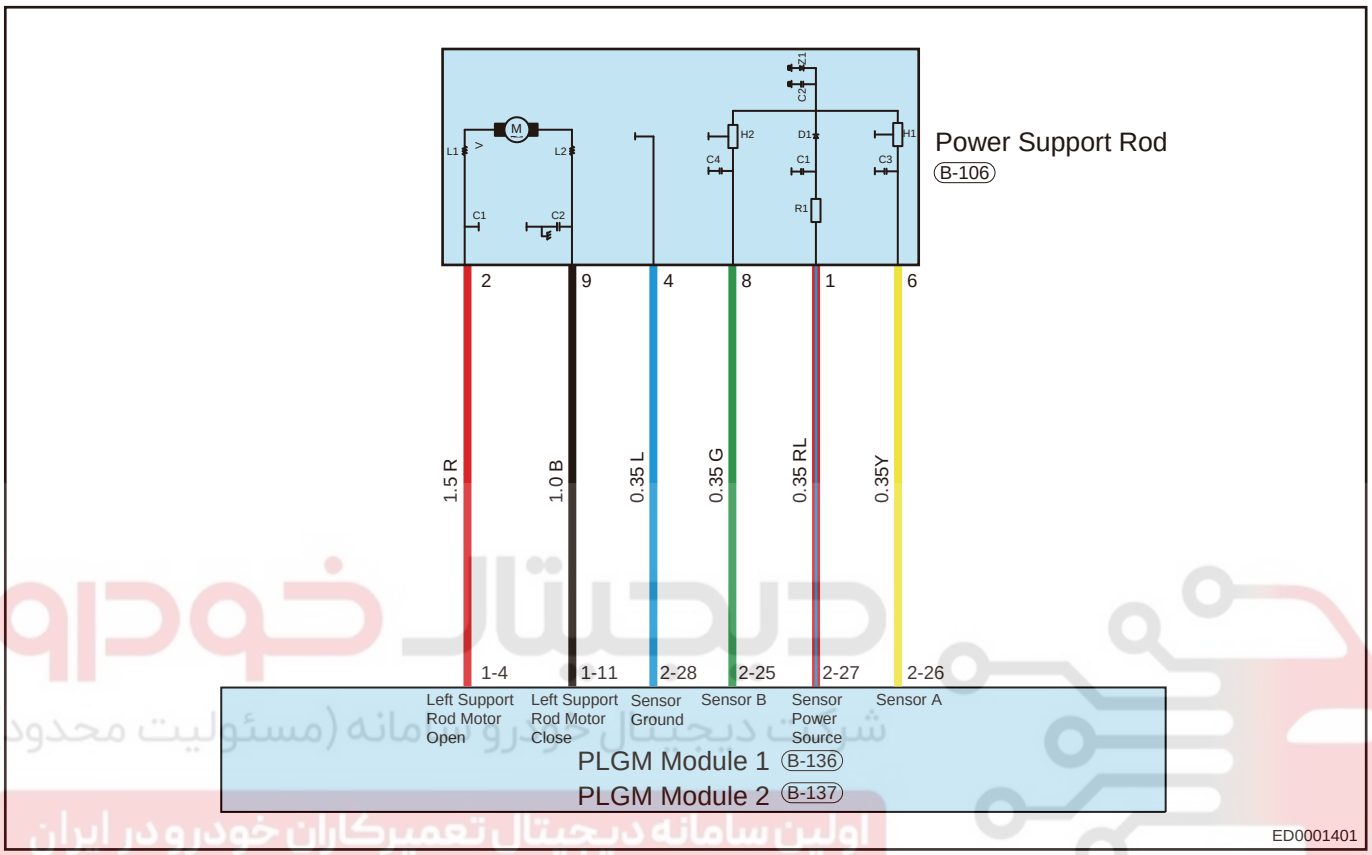
(a) Connect all the connectors.
(b) Connect the negative battery cable.
(c) Turn ENGINE START STOP switch to “ON”.
(d) Use diagnostic tester (the latest software) to read the DTCs stored in body control system again.

OK → **System is normal**

NG → **Replace power back door module**

DTC	B1A9A-1C	LH Spindle Motor Output Failure
DTC	B1A9B-1D	LH Spindle Motor Overload

Description
Control Schematic Diagram



DTC	Description	Fault Class Definition	Fault Type	Store Current DTC	Save as History DTC	Possible Causes	Malfunction Protection Measures	Malfunction Light
B1A9A-1C	LH Spindle Motor Output Failure	/	Circuit voltage is out of range	The voltage feedback value detection fault occurs for 600ms	If voltage feedback value restores for 500 ms, clear the current fault and it is stored as history fault.	Motor output is open or short to ground or power supply	New operation command is prohibited	Circuit voltage is out of range
B1A9B-1D	LH Spindle Motor Overload	/	Circuit current is out of range	Motor current is over 35A for 50ms	If there is new operation command, clear the current fault and it is stored as history fault.	Motor output short to ground	Stop the back door current closing operation	Circuit current is out of range

DTC Confirmation Procedure
Confirm that battery voltage is not less than 12 V before performing the following procedures.

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software).
- Start engine and warm it up, and then read DTC again. If DTC is detected, malfunction is current.
- If DTC is not detected, malfunction is intermittent.

Hint:
When performing circuit diagnosis and test, always refer to the circuit diagram for specific circuit and component information.

1	**Check left support motor connector**

(a) Turn ENGINE START STOP switch to “OFF”.
(b) Disconnect the connector power support, check if connector terminals are damaged or displaced.

NG → **Repair or replace power support**

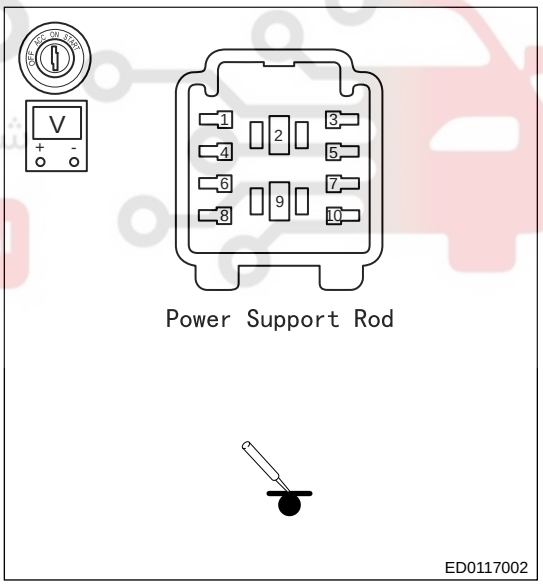
OK

2	**Check motor power supply**

(a) Turn ENGINE START STOP switch to “ON”.

(b) Disconnect connector power support, measure voltage between power support (2) and ground using multimeter, it should be not less than 12 V.

Multimeter Connection Terminal	Condition	Specified Condition
Power support (2) - Body ground	ENGINE START STOP switch “ON”	Not less than 12 V



NG → **Repair or replace power supply wire harness**

OK

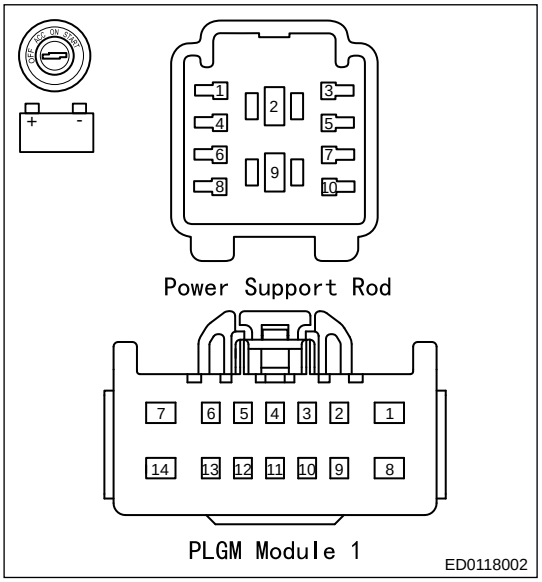
3	**Check motor wire harness.**

(a) Turn ENGINE START STOP switch to “OFF”.

(b) Disconnect connector from power back door module.

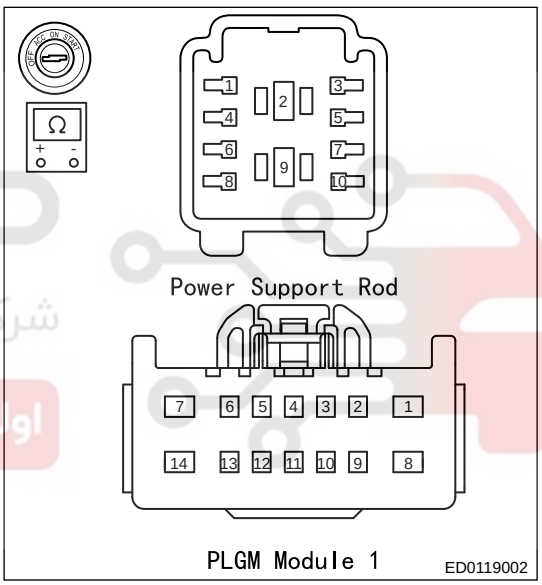
(c) Using ohm band of multimeter, check for continuity between power back door module 1 (104), power support (2) and battery (+) and check if it is short to power supply.

Multimeter Connection Terminal	Condition	Specified Condition
Power back door module 1 (4) - Battery (+)	ENGINE START STOP switch "OFF"	∞
Power support (2) - Battery (+)		∞



(d) Using ohm band of multimeter, check for continuity between power back door module 1 (104) and power support (2), power back door module 1 (11) and power support (9) and check if there is open.

Multimeter Connection Terminal	Condition	Specified Condition
Power back door module 1 (104) - Power support (2)	ENGINE START STOP switch "OFF"	⩽ 1 Ω
Power back door module 1 (11) - Power support (9)		⩽ 1 Ω



NG → **Repair or replace left support motor**

OK

4	Reconfirm DTCs

(a) Connect all the connectors.
(b) Connect the negative battery cable.
(c) Turn ENGINE START STOP switch to "ON".
(d) Use diagnostic tester (the latest software) to read the DTCs stored in body control system again.

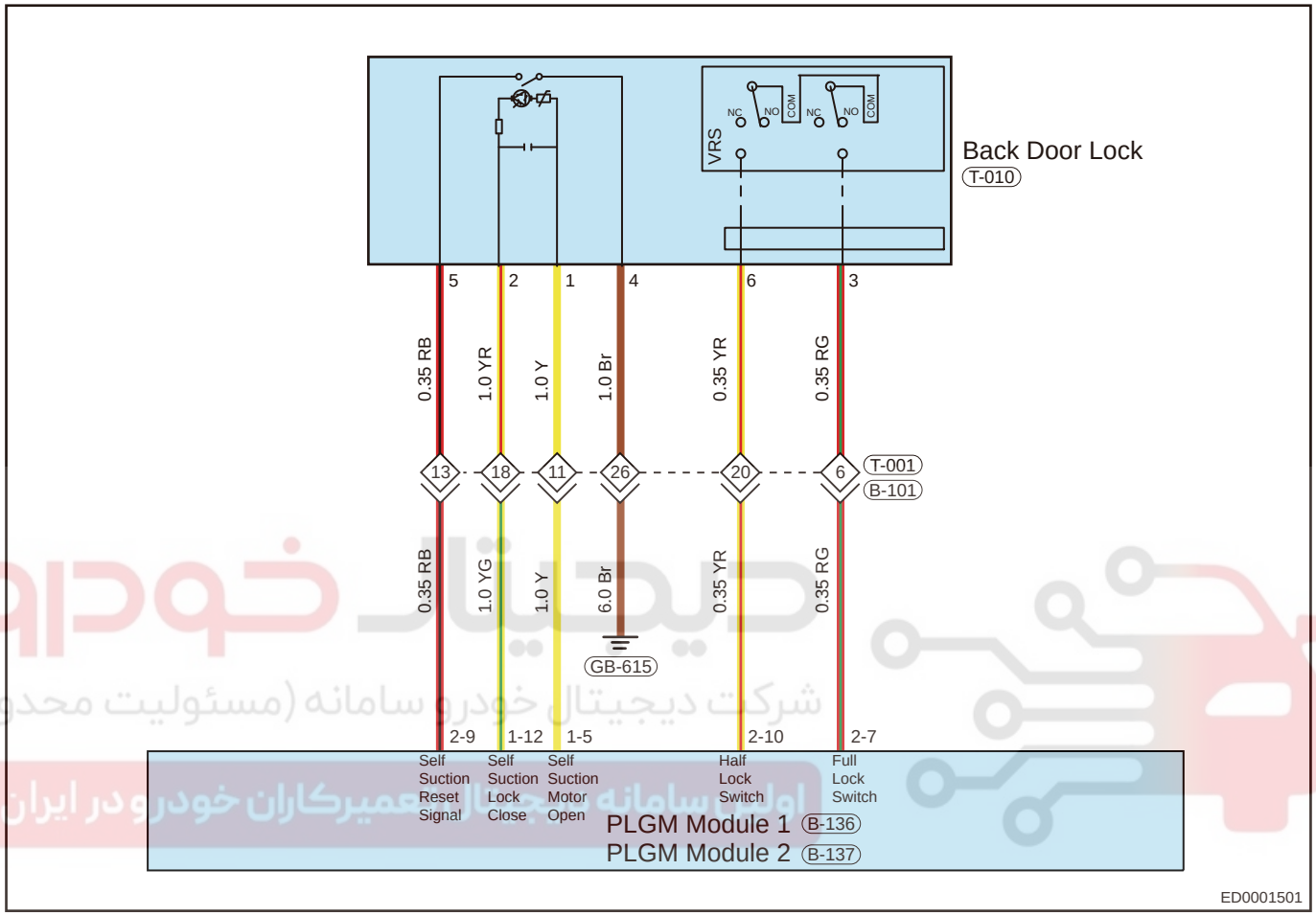
OK → **System is normal**

NG → **Replace power back door module**

DTC	**B1AA1-1C**	**Cinch Latch Motor Output Failure**
DTC	**B1AA2-1D**	**Cinch Latch Motor Overload**

Description

Control Schematic Diagram



DTC	Description	Fault Class Definition	Fault Type	Store Current DTC	Save as History DTC	Possible Causes	Malfunction Protection Measures	Malfunction Light
B1-A-A1-1C	Cinch Latch Motor Output Failure	/	Circuit voltage is out of range	The voltage feedback value detection fault occurs for 600ms	If voltage feedback value restores for 500 ms, clear the current fault and it is stored as history fault.	Motor output is open or short to ground or power supply	New operation command is prohibited	Circuit voltage is out of range
B1-A-A2-1D	Cinch Latch Motor Overload	/	Circuit current is out of range	Motor current is over threshold for 100 ms	If there is new operation command and command operation is successful, clear the current fault and it is stored as history fault.	Motor output short to ground	Stop the back door current closing operation	Circuit current is out of range

DTC Confirmation Procedure

Confirm that battery voltage is not less than 12 V before performing the following procedures.

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software).
- Start engine and warm it up, and then read DTC again. If DTC is detected, malfunction is current.
- If DTC is not detected, malfunction is intermittent.

Hint:

When performing circuit diagnosis and test, always refer to the circuit diagram for specific circuit and component information.

1	Check lock motor connector

(a) Turn ENGINE START STOP switch to “OFF”.

(b) Disconnect back door lock connector and check terminal.

NG → **Repair or replace motor wire harness**

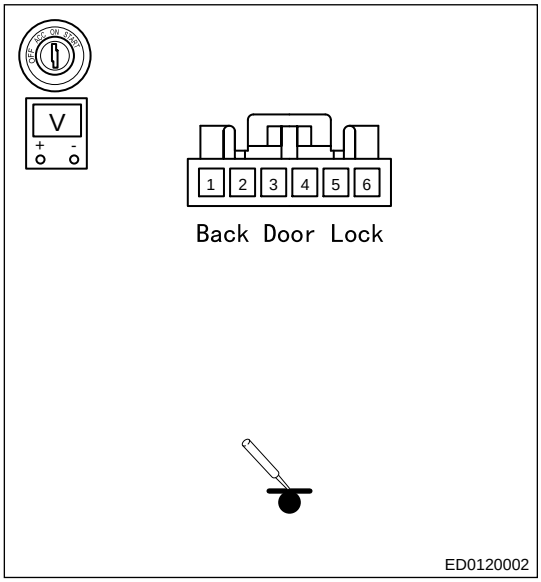
OK

2	Check lock motor signal voltage

(a) Turn ENGINE START STOP switch to “ON”.

(b) Measure voltage of back door lock (5) with voltage band of multimeter, it should be not less than 12 V.

Multimeter Connection Terminal	Condition	Specified Condition
Back door lock (5) - Ground	ENGINE START STOP switch “ON”	Not less than 12 V



NG → **Repair or replace motor wire harness**

OK

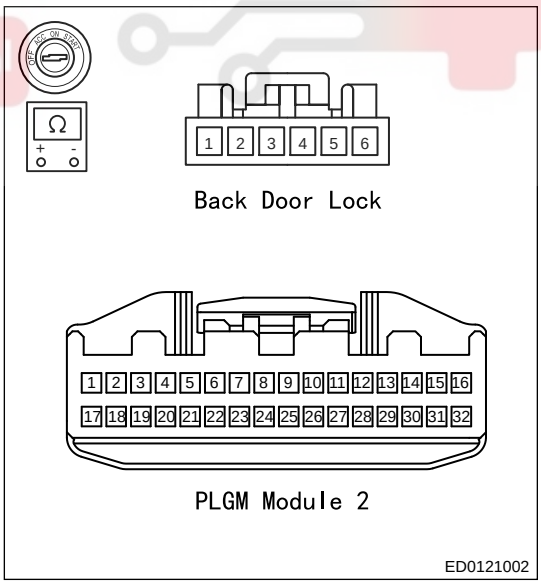
3	Check lock motor wire harness

(a) Turn ENGINE START STOP switch to “OFF”.

(b) Disconnect connector from back door lock. Disconnect connector from power back door module.

(c) Using ohm band of multimeter, check for continuity between back door lock (5) and power back door module 2 (209).

Multimeter Connection Terminal	Condition	Specified Condition
Back door lock (5) - B-Power back door module 2 (209)	ENGINE START STOP switch “OFF”	⩽ 1 Ω
Back door lock (4) - B-GB-615		⩽ 1 Ω



NG → **Repair or replace motor wire harness**

OK

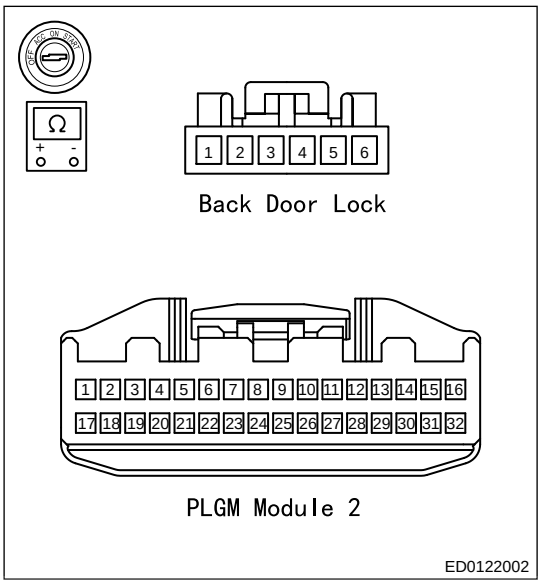
4	Check motor control circuit

(a) Turn ENGINE START STOP switch to “OFF”, disconnect the negative battery cable.

(b) Disconnect connector from back door lock. Disconnect connector from power back door module.

(c) Using ohm band of multimeter, check for continuity between back door lock (5), T-back door lock (4) and power back door module.

Multimeter Connection Terminal	Condition	Specified Condition
Back door lock (5) - B-Power back door module 2 (209)	ENGINE START STOP switch “OFF”	⩽ 1 Ω
Back door lock (4) - B-GB-615		⩽ 1 Ω



NG → **Repair or replace motor wire harness**

OK →

5	Reconfirm DTCs

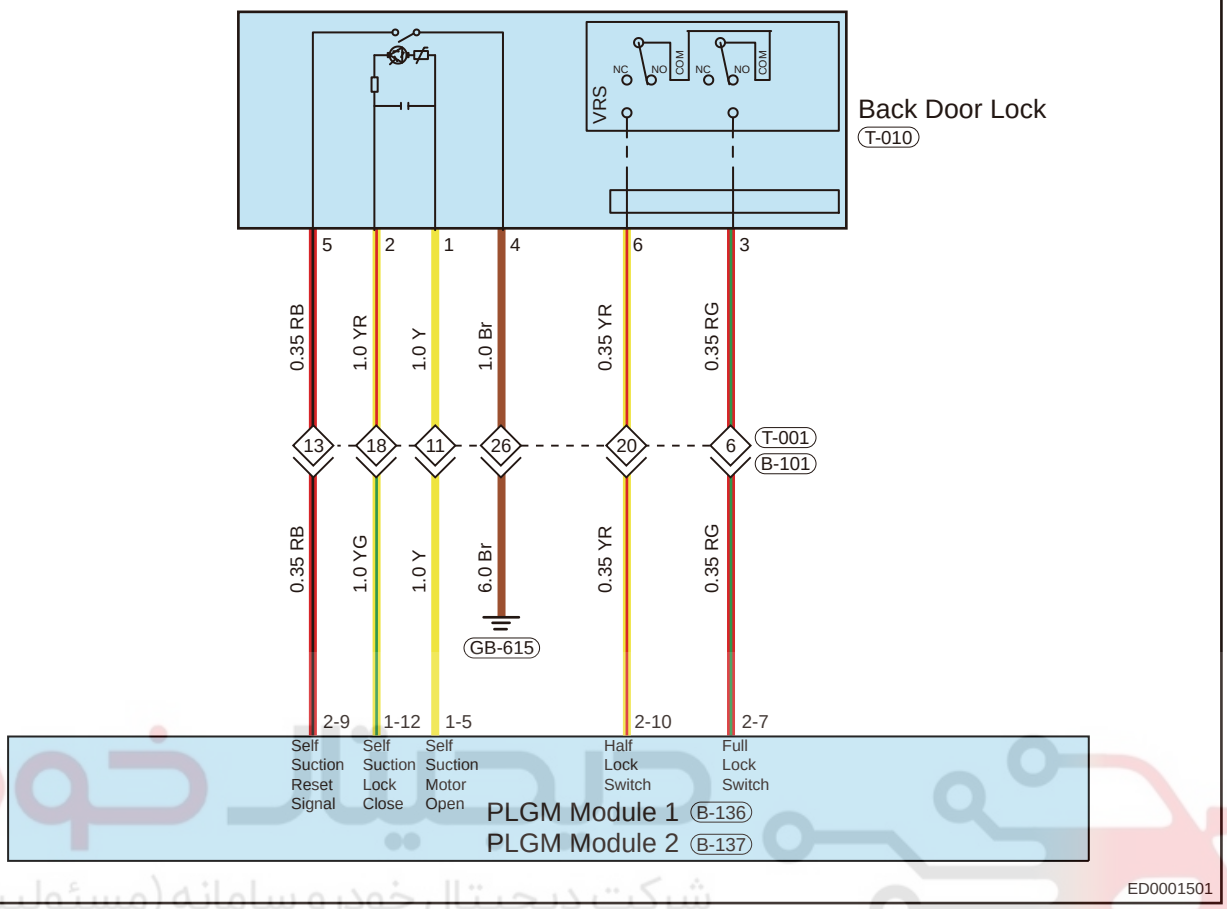
(a) Connect all the connectors.
(b) Connect the negative battery cable.
(c) Turn ENGINE START STOP switch to “ON”.
(d) Use diagnostic tester (the latest software) to read the DTCs stored in body control system again.

OK → **System is normal**

NG → **Replace fastener assembly**

DTC	B1AA3-1C	Release Motor Output Failure

Description
Control Schematic Diagram



DTC	Description	Fault Class Definition	Fault Type	Store Current DTC	Save as History DTC	Possible Causes	Malfunction Protection Measures	Malfunction Light
B1-A-A3-1C	Release Motor Output Failure	/	Circuit voltage is out of range	The feedback status and control status is inconsistent for 200 ms	If the feedback status and control status is consistent for 100 ms, clear the current fault and it is stored as history fault.	Relay is short to ground or power supply	Stop the motor current operation and prohibit the new operation	Circuit voltage is out of range

DTC Confirmation Procedure

Confirm that battery voltage is not less than 12 V before performing the following procedures.

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software).
- Start engine and warm it up, and then read DTC again. If DTC is detected, malfunction is current.
- If DTC is not detected, malfunction is intermittent.

Hint:

When performing circuit diagnosis and test, always refer to the circuit diagram for specific circuit and component information.

1	**Check unlock motor connector**

(a) Turn ENGINE START STOP switch to “OFF”, disconnect the negative battery cable.
(b) Disconnect back door lock connector.
(c) Check if wire harnesses are worn, pierced, pinched or partially broken.
(d) Check for broken, bent, protruded or corroded terminals.

NG → **Repair or replace back door lock wire harness**

OK

2	Check unlock motor wire harness connector

(a) Disconnect back door lock connector.

(b) Turn ENGINE START STOP switch to “ON”.

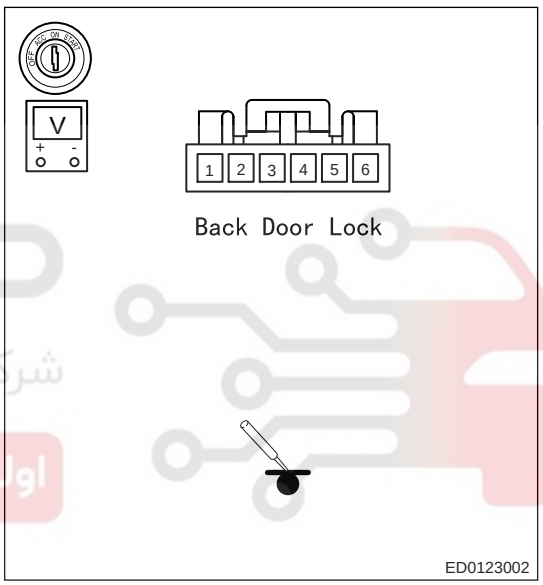
(c) Measure voltage of back door lock (1) with voltage band of multimeter, it should be not less than 12 V.

Check power supply voltage

Multimeter Connection	Condition	Specified Condition
Back door lock (1) - Body ground	ENGINE START STOP switch “ON”	Not less than 12 V

Check for Open

Multimeter Connection	Condition	Specified Condition
Back door lock (2) - Body ground	ENGINE START STOP switch “OFF”	⩽ 1 Ω



NG → **Repair or replace back door lock wire harness**

OK

3	Check back door lock

(a) Install back door lock of malfunctioning vehicle to new vehicle, and test if inspection is normal.

NG → **Replace back door lock**

OK

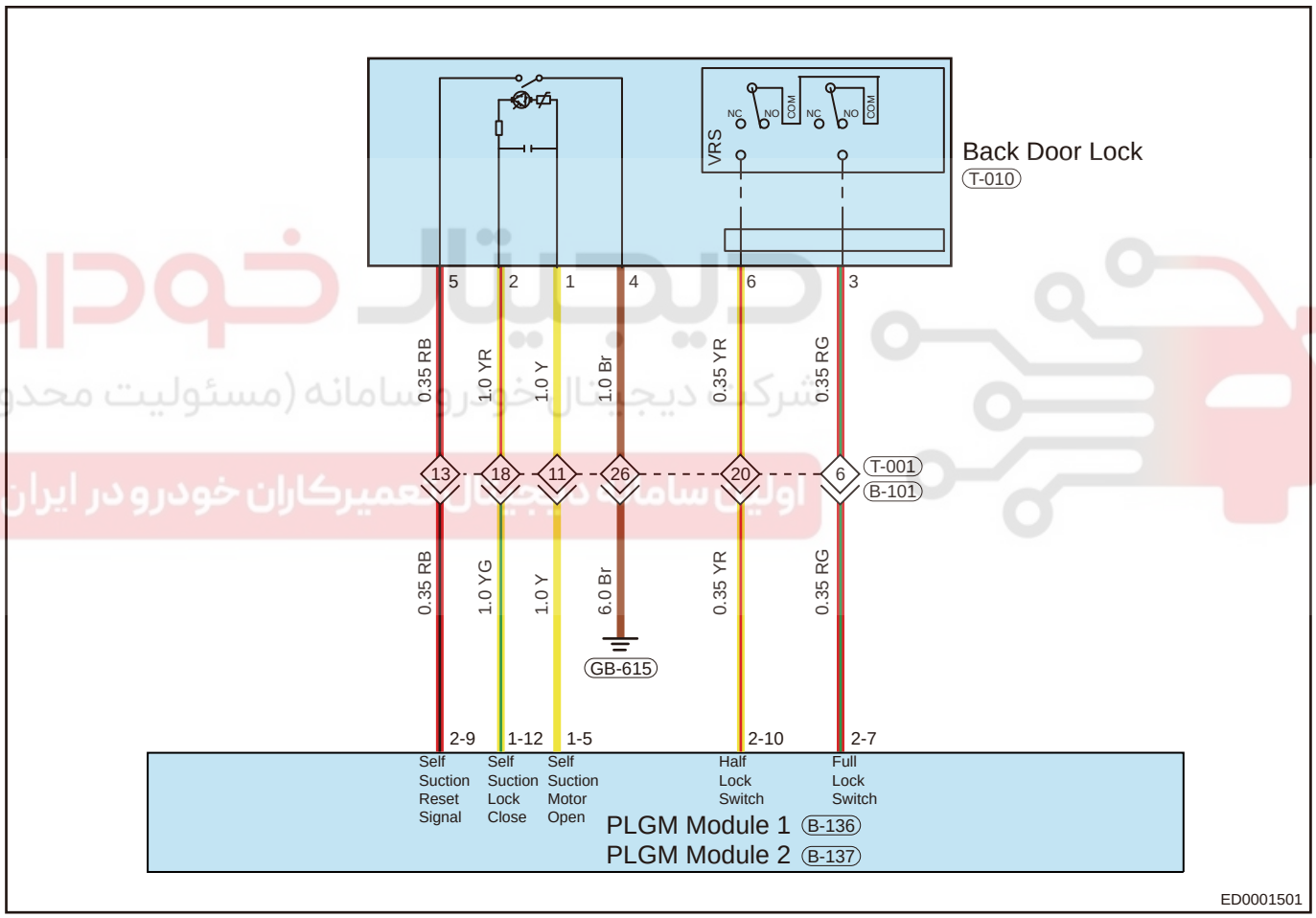
4	Reconfirm DTCs

(a) Connect all the connectors.
(b) Connect the negative battery cable.
(c) Turn ENGINE START STOP switch to “ON”.
(d) Use diagnostic tester (the latest software) to read the DTCs stored in body control system again.

OK	**System is normal**
NG	**Replace power back door module**

DTC	**B1AA4-07**	**Half/Full Latch Abnormality**
DTC	**B1AA5-07**	**PCM Switch Failure**

Description
Control Schematic Diagram



DTC	Description	Fault Class Definition	Fault Type	Store Current DTC	Save as History DTC	Possible Causes	Malfunction Protection Measures	Malfunction Light
B1-A-A4-07	Half/Full Latch Abnormality	/	Mechanical malfunction	Unlocking 200ms is timeout, full opening status signal is not detected	If unlocking is successful next time, clear the current fault and it is stored as history fault.	/	/	Mechanical malfunction
B1-A-A5-07	PCM Switch Failure	/	Mechanical malfunction	Pulling-in 2s is timeout, PCM pulling-in signal is not detected, but full locking signal can be detected Or returning 2s is timeout, PCM returning signal is not detected	If PCM timing order is correct during pulling-in and returning, clear the current fault and it is stored as history fault.	/	/	Mechanical malfunction

DTC Confirmation Procedure

Confirm that battery voltage is not less than 12 V before performing the following procedures.

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software).
- Start engine and warm it up, and then read DTC again. If DTC is detected, malfunction is current.
- If DTC is not detected, malfunction is intermittent.

Hint:

When performing circuit diagnosis and test, always refer to the circuit diagram for specific circuit and component information.

1	**Check back door lock wire harness connector**

(a) Disconnect the connector.

(b) Check if wire harnesses are worn, pierced, pinched or partially broken.

NG → **Repair or replace back door lock wire harness**

OK

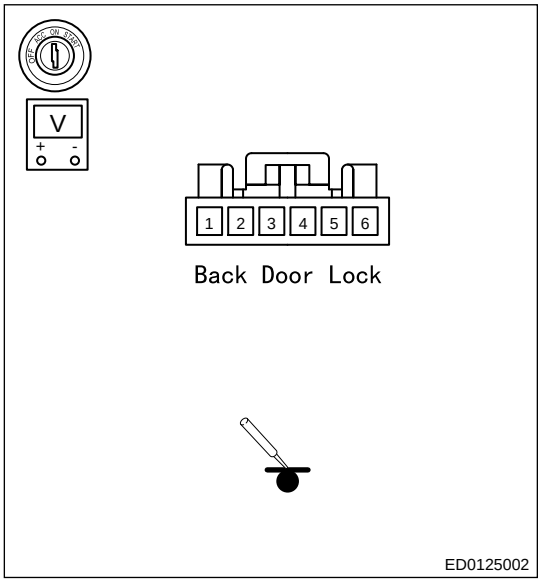
2	**Check half-lock/full-lock position signals**

(a) Disconnect the wire harness connector.

(b) Turn ENGINE START STOP switch to “ON”.

(c) Measure voltage of back door lock (6) and back door lock (3) with voltage band of multimeter, they should be not less than 12 V.

Multimeter Connection	Condition	Specified Condition
Back door lock (6) - Body ground	ENGINE START STOP switch "ON"	Not less than 12 V
Back door lock (3) - Body ground		Not less than 12 V



Check for Open

Multimeter Connection	Condition	Specified Condition
Back door lock (4) - Body ground	ENGINE START STOP switch "OFF"	⩽ 1 Ω

NG → **Repair or replace back door lock wire harness**

OK ↓

3	**Check back door lock**

(a) Install back door lock of malfunctioning vehicle to new vehicle, and test if inspection is normal.

NG → **Replace back door lock**

OK ↓

4	**Reconfirm DTCs**

(a) Connect all the connectors.
(b) Connect the negative battery cable.
(c) Turn ENGINE START STOP switch to "ON".
(d) Use diagnostic tester (the latest software) to read the DTCs stored in body control system again.

OK → **System is normal**

NG → **Replace power back door module**

DTC	B1AAA-04	ECU fault

Description

DTC	Description	Fault Class Definition	Fault Type	Store Current DTC	Save as History DTC	Possible Causes	Malfunction Protection Measures	Malfunction Light
B1-AA-A-04	ECU fault	/	System internal failure	MCU failure	If MCU fault disappears, clear the current fault and it is stored as history fault.	/	/	System internal failure

DTC Confirmation Procedure

Confirm that battery voltage is not less than 12 V before performing the following procedures.

- Turn ENGINE START STOP switch to OFF.
- Connect the diagnostic tester (the latest software).
- Start engine and warm it up, and then read DTC again. If DTC is detected, malfunction is current.
- If DTC is not detected, malfunction is intermittent.

Hint:

When performing circuit diagnosis and test, always refer to the circuit diagram for specific circuit and component information.

1	**Clear DTCs**

(a) Using diagnostic tester to enter PLG system and clear DTCs.

(b) Reconfirm DTCs after clearing DTCs.

OK	**Reconfirm power back door control function**
NG	**Replace PLG module assembly**

ON-VEHICLE SERVICE

Engine Hood Assembly

Removal

⚠ Caution

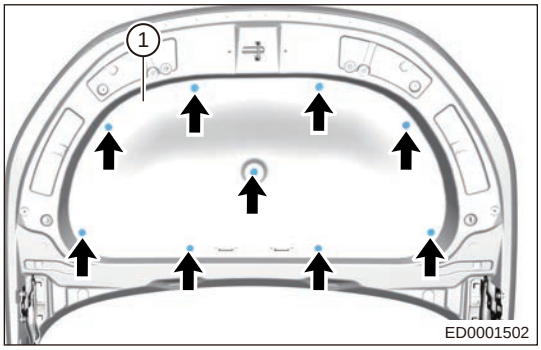
- Be sure to wear safety equipment to prevent accidents, when removing engine hood assembly.
- When removing engine hood assembly, try to prevent engine hood from falling down during operation, resulting in damage to body or front windshield.

Hint:

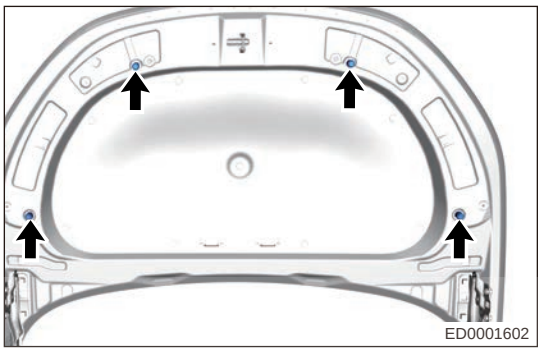
- When removing engine hood assembly, an assistant is needed to hold engine hood. Try to prevent engine hood from falling down or closing suddenly during operation, resulting in accidents.

1. Remove the engine hood sound insulator.

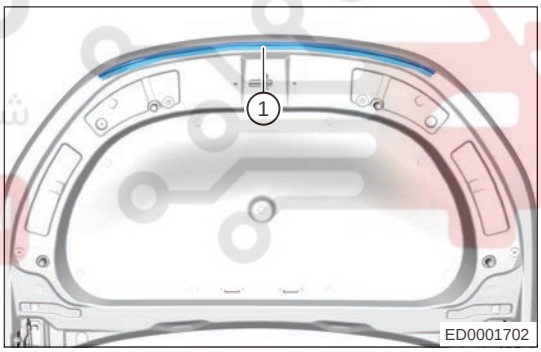
a. Remove clips (arrow) from engine hood sound insulator, and remove engine hood sound insulator (1).



2. Remove the engine hood adjustable buffer block.
   a. Rotate engine hood adjustable buffer block (arrow) counterclockwise and remove it.

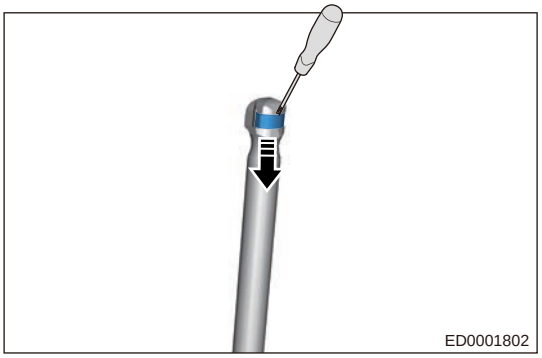


3. Remove the engine weatherstrip.
   a. Disengage clips from engine weatherstrip and remove engine weatherstrip (1).



4. Remove the left/right air spring assembly.

a. Using a screwdriver wrapped with protective tape, pry off fixing clips from upper end of engine hood left air spring assembly (Use same procedures for right side).



⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when removing left/right air spring assembly.
- Try to prevent body paint surface from being scratched, when removing left/right air spring assembly.
- During removal of left/right air spring assembly, avoid engine hood falling off during operation, resulting in damage to body or front windshield.

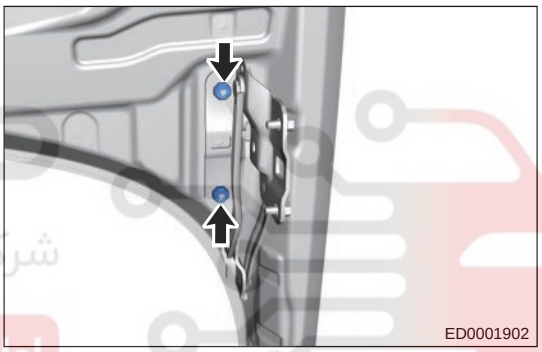
Hint:

- When removing left/right air spring assembly, an assistant is needed to hold it. Try to prevent engine hood from falling down or closing suddenly during operation, resulting in accidents.

5. Remove the engine hood assembly.

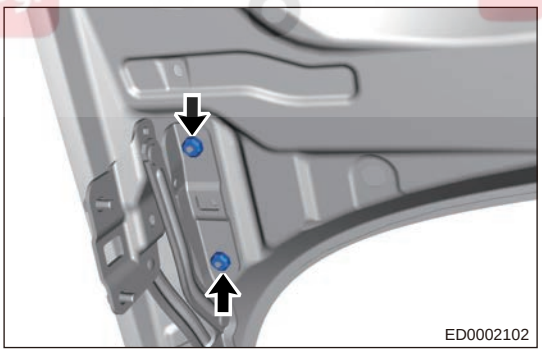
a. Remove 2 fixing nuts (arrow) between engine hood assembly and engine hood left hinge assembly.

Tightening torque: 23 ± 2.0 N·m



b. Remove 2 fixing nuts (arrow) between engine hood assembly and engine hood right hinge assembly and remove engine hood assembly.

Tightening torque: 23 ± 2.0 N·m



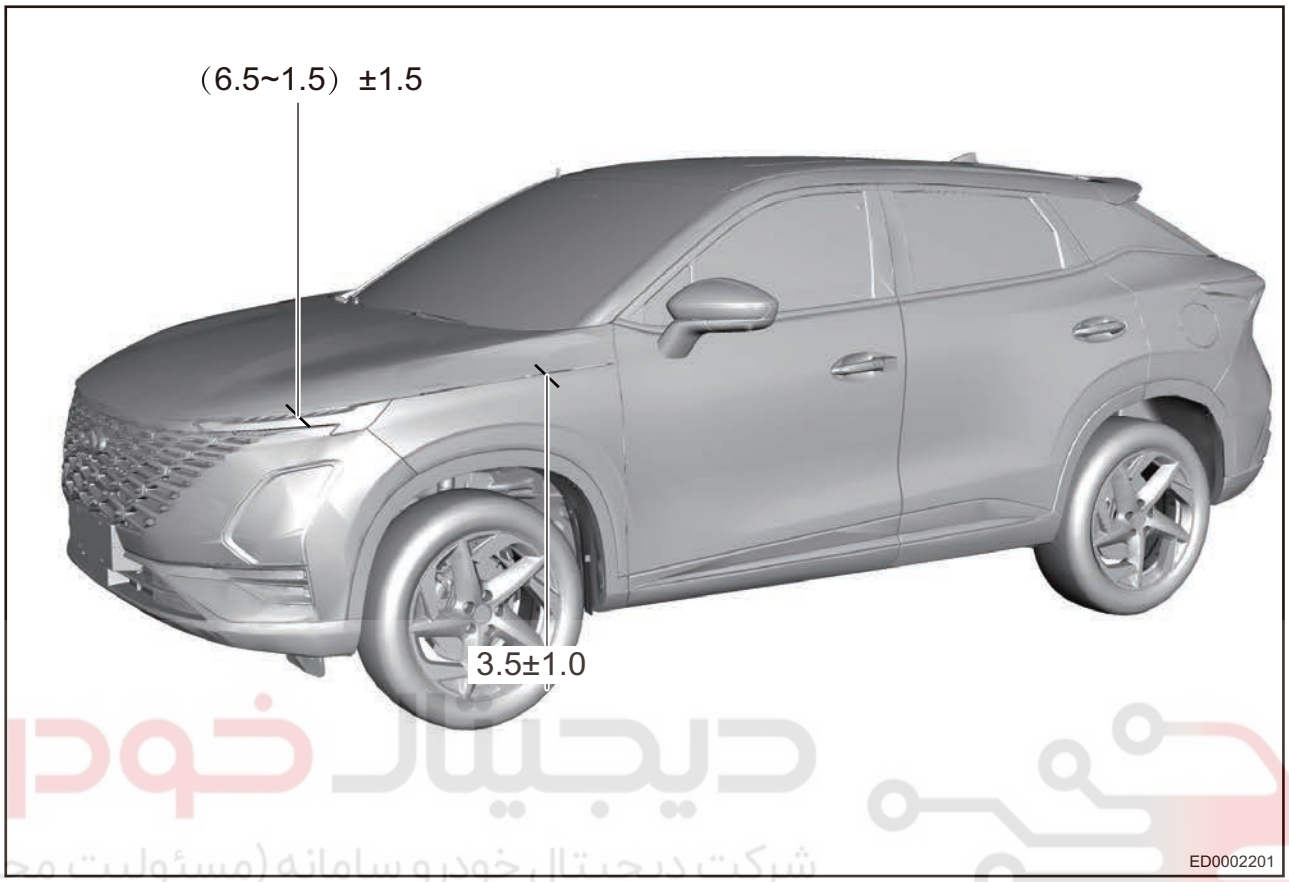
Installation

1. Installation is in the reverse order of removal.

Disassembly

1. Adjust the engine hood assembly.
   a. Loosen fixing bolts of engine hood hinge assembly.
   b. Adjust the clearance of engine hood assembly within standard range and pre-tighten fixing bolts of engine hood hinge assembly.

c. Standard ranges of clearance between installation position of engine hood assembly and each part are as in illustration.



d. After adjustment, tighten fixing bolts between engine hood hinge assembly and engine hood assembly to specified torque.

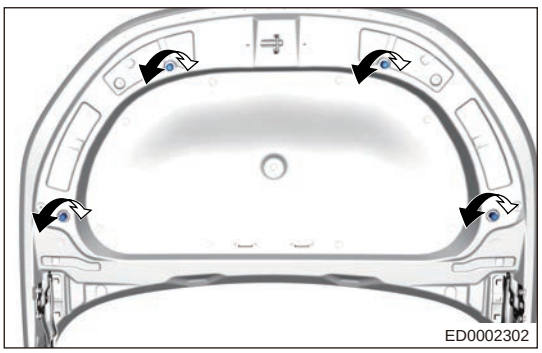
Tightening torque: 23 ± 2.0 N·m

e. After adjustment, tighten fixing bolts between engine hood hinge assembly and body to specified torque.

Tightening torque: 23 ± 2.0 N·m

2. Adjust the height of engine hood front end with adjustable buffer blocks.

a. Raise or lower the hood front end by rotating the adjustable buffer blocks clockwise or counterclockwise.



b. After adjustment, make sure that alignment between engine hood assembly and wing assembly is within the standard range.

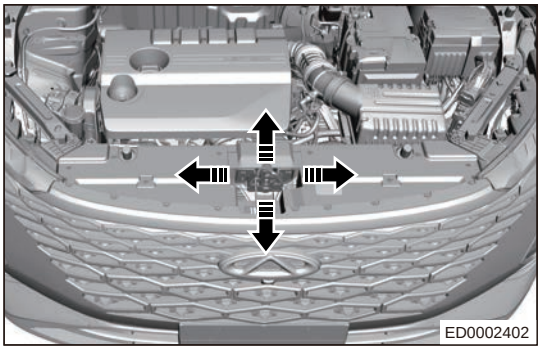
Standard alignment height: 3.5 ± 1.0//1.0

c. After adjustment, make sure that alignment between engine hood assembly and front combination light is within the standard range.

Standard alignment height: 6.5 ± 1.5//1.5

3. Adjust the engine hood lock assembly.

a. Slightly loosen the fixing nuts of engine hood lock assembly, and adjust the engine hood lock assembly in direction of arrow.



b. Tighten the engine hood lock assembly fixing nuts to specified torque after adjustment.
Tightening torque: 10 ± 1.5 N • m

Inspection

1. Check hood for wear or deformation during installation, and repair as necessary.
2. Check if fixing bolts are installed in place. Tighten them to specified torque as necessary.
3. Check if clearance and alignment between engine hood assembly installation position and each part are within the specified range. Adjust as necessary.

Engine Hood Hinge Assembly

Removal

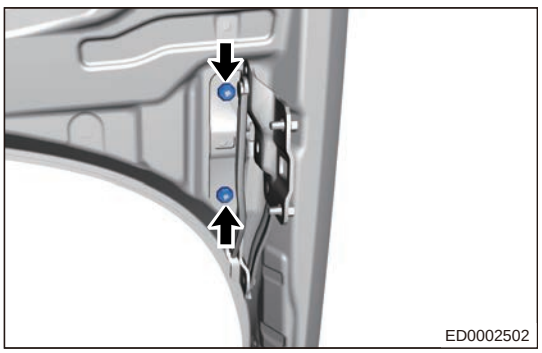
Hint:

- Use same procedures for right and left sides.
- Procedures listed below are for left side.

⚠ Caution

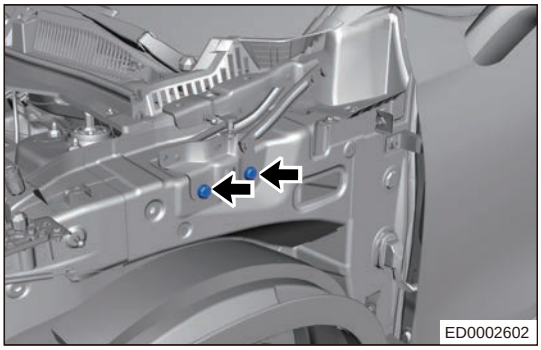
- Be sure to wear safety equipment to prevent accidents, when removing engine hood hinge assembly.
- When removing engine hood hinge assembly, try to prevent engine hood from falling down during operation, resulting in damage to body or front windshield.
- When removing engine hood hinge assembly, an assistant is needed to hold engine hood. Try to prevent engine hood from falling down or closing suddenly during operation, resulting in accidents.

1. Remove the engine hood left hinge assembly
   a. Remove the wing assembly.
   b. Remove 2 fixing nuts (arrow) between left hinge assembly and engine hood assembly.
   Tightening torque: 23 ± 2.0 N • m



c. Remove 2 fixing bolts (arrow) between engine hood left hinge assembly and body.

Tightening torque: 23 ± 2.0 N • m



d. Remove the engine hood left hinge assembly.

Installation

1. Installation is in the reverse order of removal.

Front Door Inside Protector Assembly

Removal

Hint:

- Use same procedures for right and left sides.
- Procedures listed below are for left side.

⚠ Caution

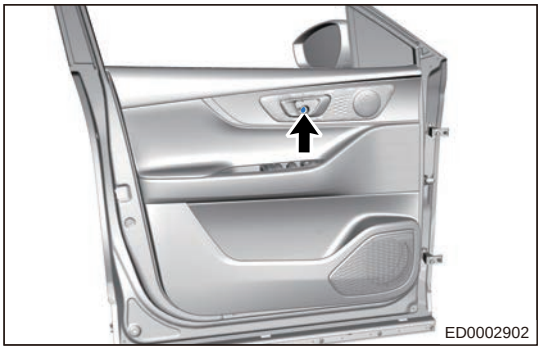
- Be sure to wear necessary safety equipment to prevent accidents, when removing front door inner protector assembly.
- Try to prevent front door inside protector surface from being damaged, when removing front door inside protector assembly.

1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the front left door inner protector assembly.

a. Using interior crow plate, pry off inside handle screw block cover (arrow).

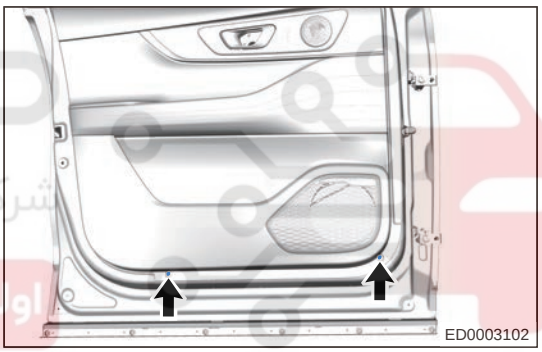
a. Remove the inside handle box cover gasket (arrow).

a. Remove 1 fixing screw (arrow) from door protector.
Tightening torque: 1.5 ± 0.5 N • m

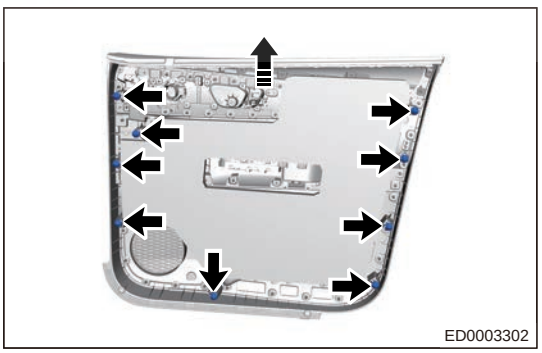


b. Remove 1 fixing screw (arrow) from door protector.
Tightening torque: 1.5 ± 0.5 N • m

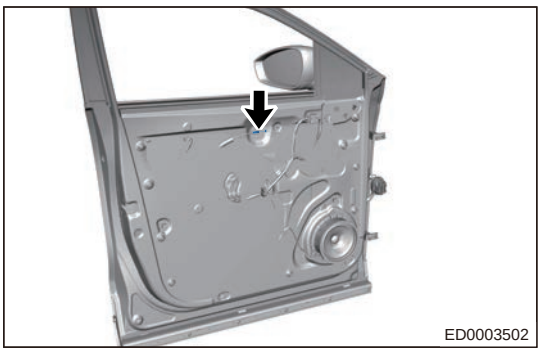
c. Remove 2 fixing screws (arrow) from bottom of door protector.
Tightening torque: 1.5 ± 0.5 N • m



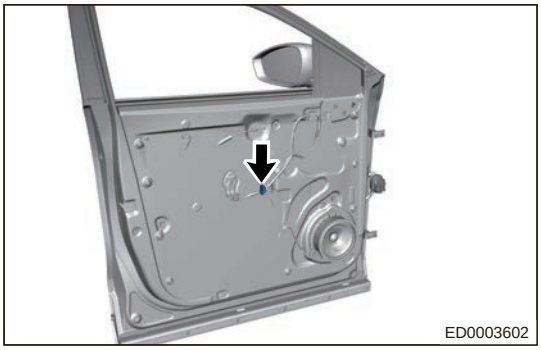
d. Using an interior crow plate, carefully pry off clips on front door inner protector assembly, and loosen front door inner protector assembly in direction of arrow as shown in illustration.



e. Disengage the front door inside handle cable (arrow) from front door inside handle.



f. Disconnect the connector from front door power glass regulator switch connector (arrow).

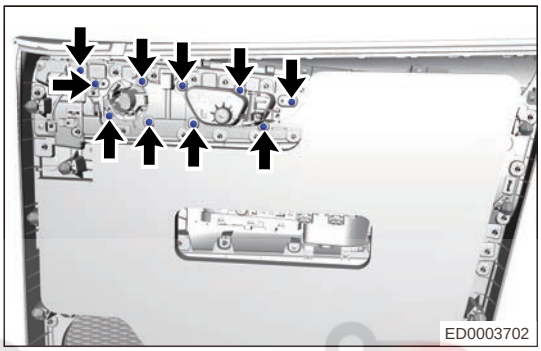

ED0003602

g. Remove the front left door inside protector assembly.

4. Remove the front door inside handle

a. Remove 10 fixing screws (arrow) from front door inside handle.

Tightening torque: 1.5 ± 0.5 N • m


ED0003702

b. Remove the front door inside handle.

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Replace damaged clips and install front door inner protector assembly in place, when installing front door inner protector assembly.
- Install connectors in place, when installing front door inner protector assembly.
- Check that each function can operate properly, after installing front door inner protector assembly.

Front Door Assembly

Removal

Hint:

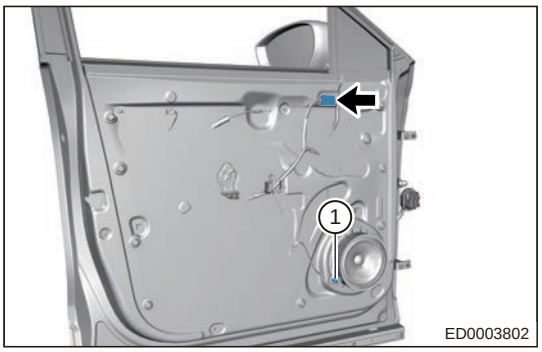
- Use same procedures for right and left sides.
- Procedures listed below are for left side.
- When removing front door assembly, an assistant is needed to hold it, to prevent front door from falling down during operation, resulting in accidents.

⚠ Caution

- Be sure to wear necessary safety equipment to prevent accidents, when removing front door assembly.
- Try to prevent body paint surface from being scratched, when removing front door assembly.

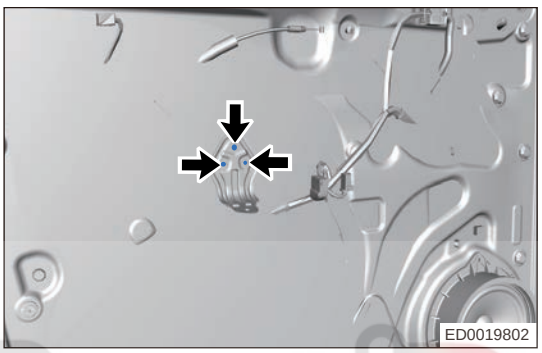
1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the front left door inner protector assembly.

4. Remove the front left door protective film assembly.
   a. Disconnect the left rear view mirror connector plug (arrow).
   b. Disconnect the full-range speaker connector (1).



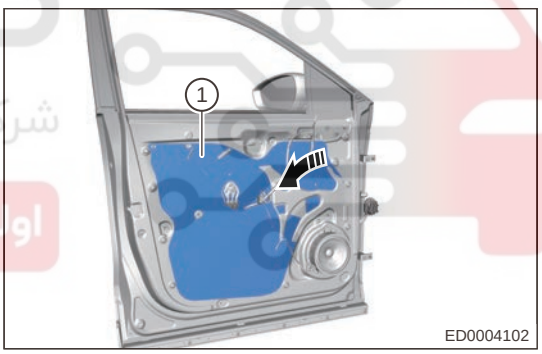
   c. Remove 3 fixing bolts (arrow) and front left door metal bracket.

      Tightening torque: 5 ± 1.0 N • m



   d. As shown in illustration, remove the front left door protective film assembly (1) by gently peeling it along edges from one corner.

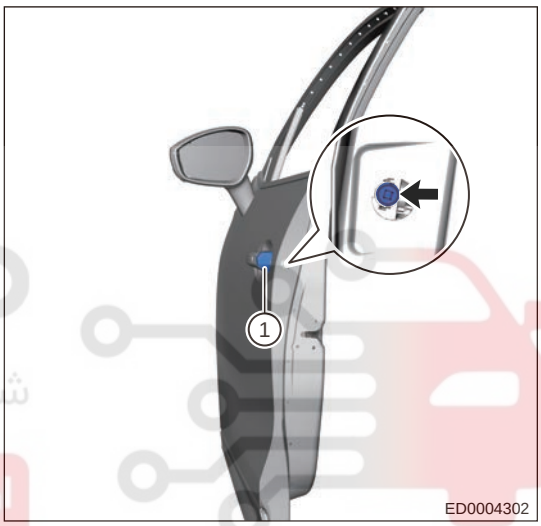
      Hint:
      - Try to prevent front door protective film from being damaged, when removing front door protective film assembly.
      - Place front door protective film assembly properly after removal, and prevent adhesive sticker on front door protective film assembly from sticking to other components.



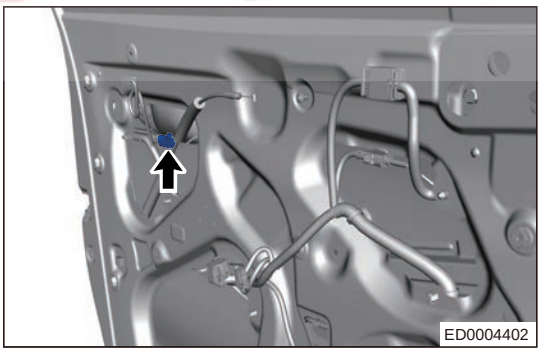
5. Remove the front left door full-range speaker assembly.
6. Remove the front left door weather bar.
7. Remove the front door glass upper run.
8. Remove the front door glass assembly.
9. Remove the front door power glass regulator.
10. Remove the front left door lock assembly.
11. Remove the front left door outside handle.

a. Using an interior crow plate, pry off front left door lock block cover (arrow).

b. Loosen fixing screw (arrow) from front door outside handle and remove lock cylinder assembly (1).



c. Disconnect the left door handle sensor connector (arrow).



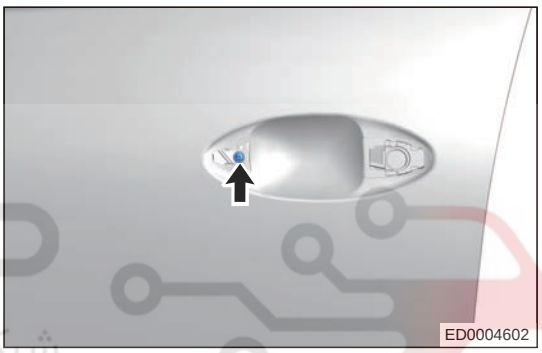
d. Slide and pull front door outside handle in direction of arrow as shown in illustration, and remove it.

- It is not necessary to remove the fixing screw from front door outside handle cover because fixing screw is integrated with front door handle base.

12. Remove the front left door outside handle seat assembly.

a. Remove the fixing screw (arrow) from front door outside handle seat assembly.

Tightening torque: 1.5 ± 0.5 N • m

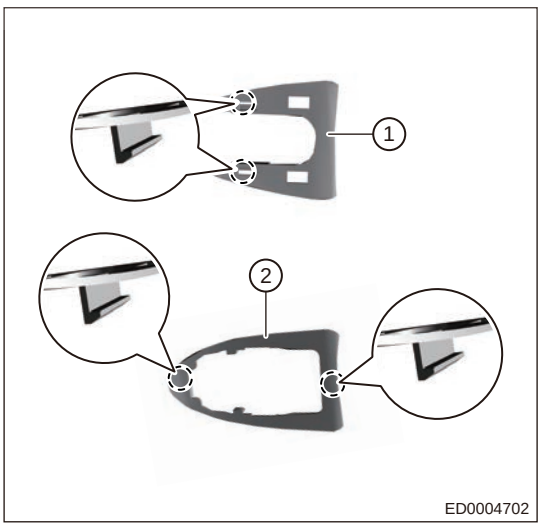


b. Disengage clips from door lock connecting rod and remove front left door outside handle seat assembly.

13. Remove the front left door outside handle gasket.

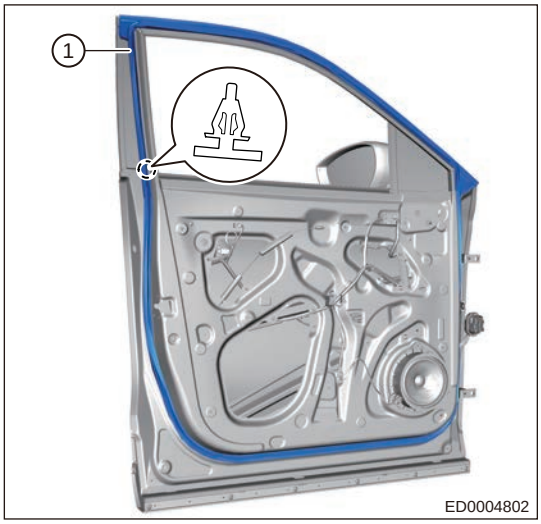
a. Disengage claws from front door outside handle front shim, and remove front left door outside handle front shim (1).

b. Disengage claws from front door outside handle rear shim, and remove front left door outside handle front shim (2).



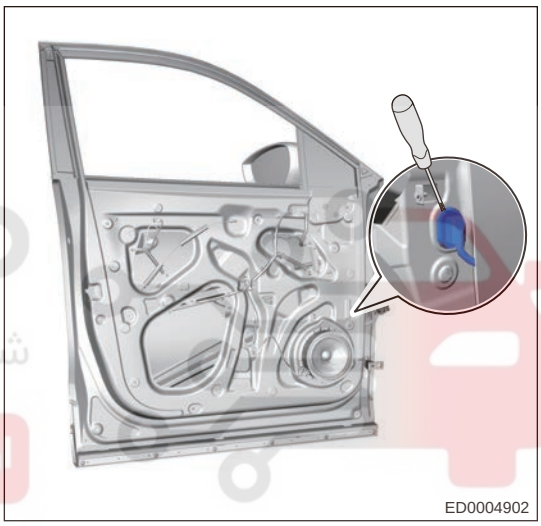
14. Remove the front left door frame weatherstrip.

a. Disengage clips from front door frame weatherstrip, and remove front left door frame weatherstrip (1).

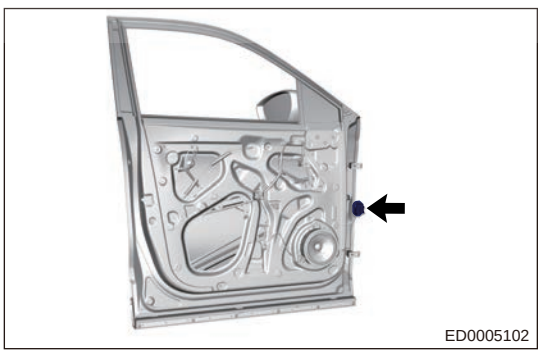


15. Disconnect the front left door wire harness connector.

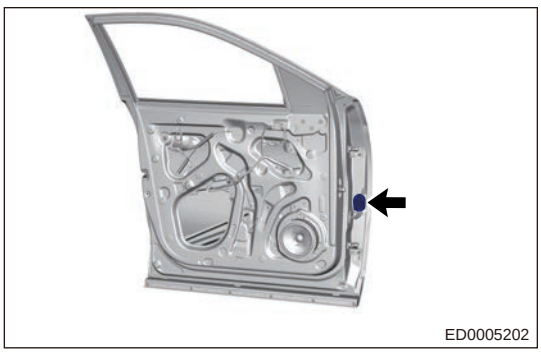
a. Using a screwdriver wrapped with protective tape, pry off front door wire harness dust boot.



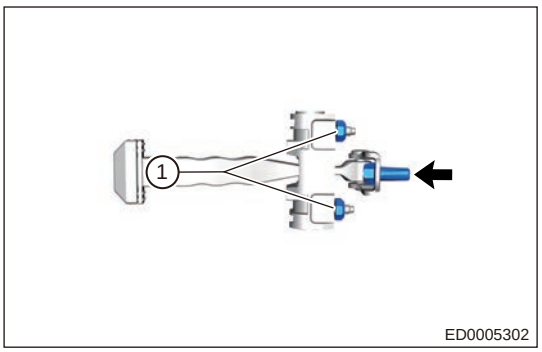
b. Using screwdriver wrapped with tape, pry off claws (-arrow) of front left door wire harness connector.



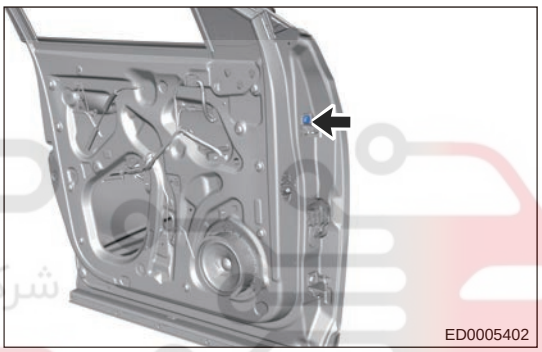
c. Disconnect the front left door wire harness connector (arrow).



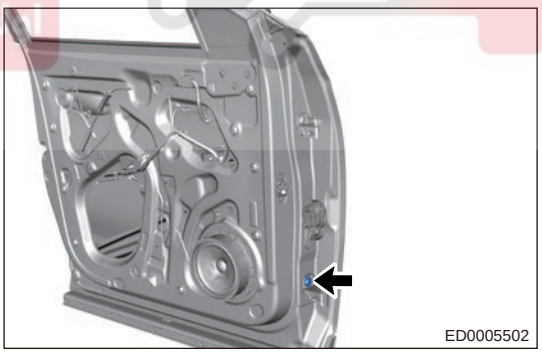
16. Remove the front left door check assembly.
    a. Remove coupling nut (1) between door check and door.
       Tightening torque: 9 ± 1.0 N • m
    b. Remove 1 coupling bolt (arrow) between door check and front left door.
       Tightening torque: 32 ± 2.5 N • m



    c. Remove the front left door check assembly.
17. Remove the front left door assembly.
    a. Disconnect the front left door wire harness connector.
    b. Remove the front left door check assembly.
    c. Remove 1 fixing bolt (arrow) between door and upper hinge.
       Tightening torque: 55 ± 5.0 N • m



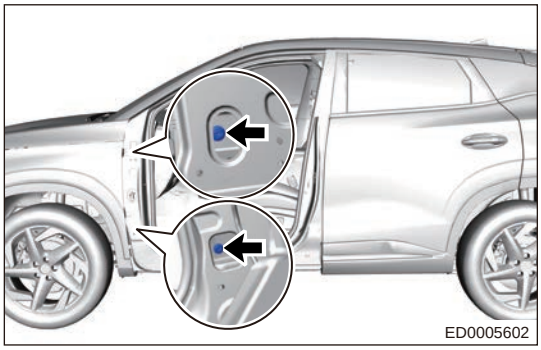
    d. Remove 1 fixing bolt (arrow) between door and lower hinge.
       Tightening torque: 55 ± 5.0 N • m



    e. Remove the front left door assembly.
18. Remove the front left door hinge assembly.
    a. Remove 2 fixing bolts (arrow) between front door upper hinge assembly and quarter assembly.
       Tightening torque: 32 ± 3.0 N • m

b. Remove 2 fixing bolts (arrow) between front door lower hinge assembly and quarter assembly.

Tightening torque: 32 ± 3.0 N • m


ED0005602

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Replace damaged clips and install front door inner protector in place, when installing front door inner protector.
- Stick protective film in specified position, not in a wrong position or an asymmetric position between left and right sides or cover the mounting holes of other installation parts.
- DO NOT drag protective film when sticking. It should be installed under its original condition and ensure sheet metal is clean before installation.
- Finished protective film should have no defects, such as wrinkles, bubbles or turnups.
- Finished protective film should have powerful adherence. Protective film sticking should be finished at one time. Avoid repeat sticking.

Hint:

- When installing front door assembly, an assistant is needed to hold it, to prevent front door from falling down during operation, resulting in accidents.
- Be sure to wear necessary safety equipment to prevent accidents, when installing front door assembly.

Adjustment

1. Adjust the front door assembly.
   a. Loosen fixing bolts between front door hinge assembly and quarter, and adjust the front door assembly position in direction of arrow as shown in illustration.
   b. After adjustment, tighten fixing bolts on front door hinge assembly to specified torque.

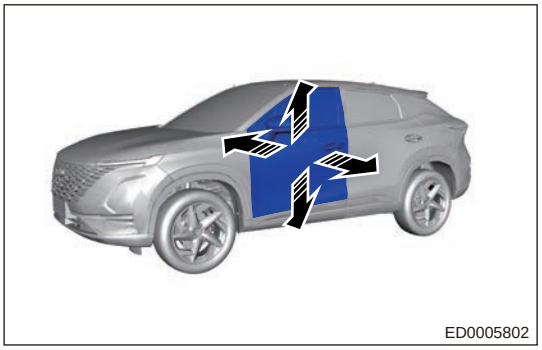
      Tightening torque: 32 ± 3.0 N • m


ED0005702

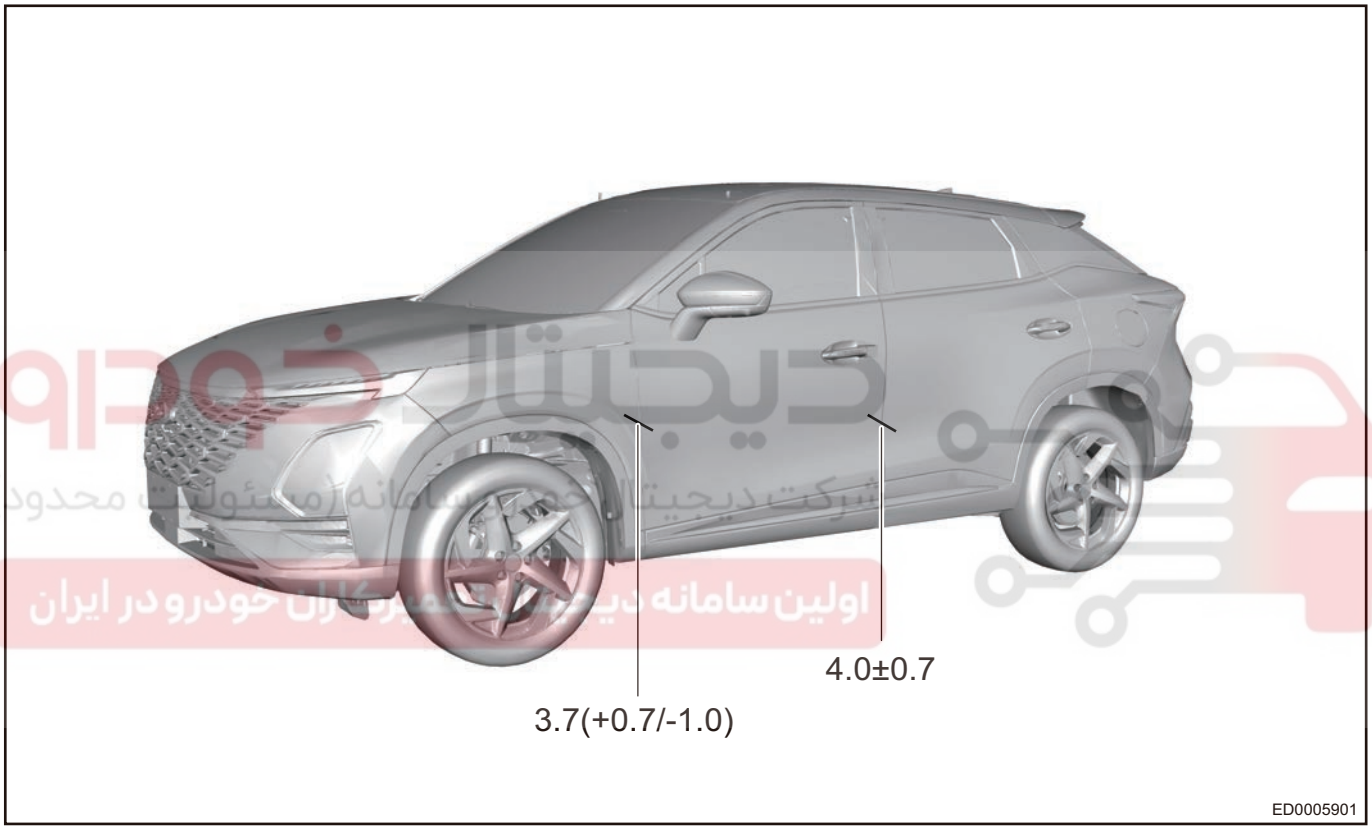
   c. Loosen fixing bolts between front door hinge assembly and door, and adjust the front door assembly position in direction of arrow as shown in illustration.

d. After adjustment, tighten fixing bolts on front door hinge assembly to specified torque.

Tightening torque: 32 ± 3.0 N • m


ED0005802

e. Standard ranges of clearance between installation positions of front door assembly and each part are as shown in illustration.



ED0005901

f. After adjustment, make sure that alignment between front door assembly and rear door assembly is within standard range.

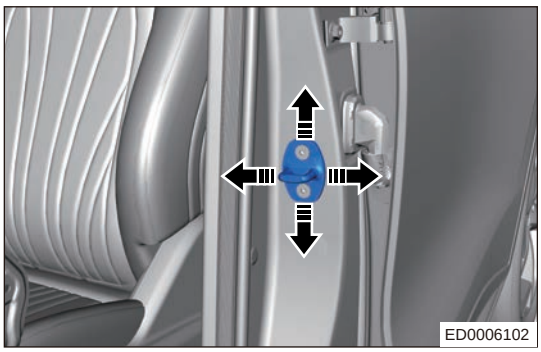
Standard alignment height: 4.0 ± 0.7 mm

g. After adjustment, make sure that alignment between front door assembly and wing assembly is within standard range.

Standard alignment height: 3.7 (+0.7/-1.0) mm

2. Adjust the front door lock striker.

a. Slightly loosen the fixing bolts on front door lock striker and tap it with a plastic hammer in direction of arrow to adjust the lock striker position.



b. Tighten fixing bolts on front door lock striker to specified torque after adjustment.
Tightening torque: 25 ± 3.75 N • m

Adjustment

1. Check front door assembly for wear or deformation during installation, and repair as necessary.
2. Check if fixing bolts are installed in place. Tighten them to specified torque as necessary.
3. Check if clearance and alignment between installation position of front door assembly and each part are within specified range. Adjust as necessary.

Rear Door Inside Protector Assembly

Removal

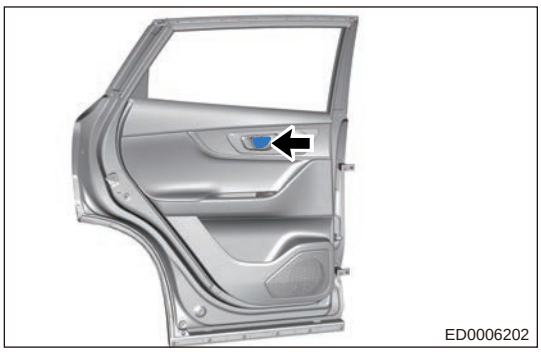
Hint:

- Use same procedures for right and left sides.
- Procedures listed below are for left side.

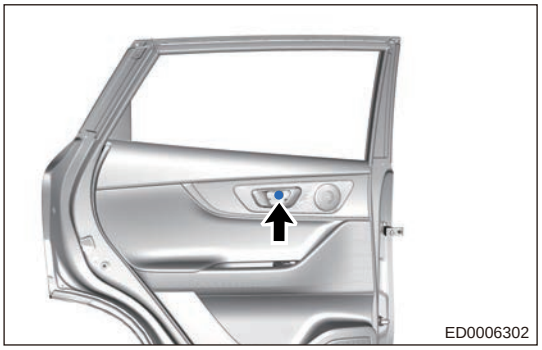
⚠ Caution

- Be sure to wear necessary safety equipment to prevent accidents, when removing rear door inner protector assembly.
- Try to prevent rear door inner protector surface from being damaged, when removing rear door inner protector assembly.

1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the rear left door inner protector assembly.
   a. Using interior crow plate, pry off inside handle block cover (arrow) carefully.

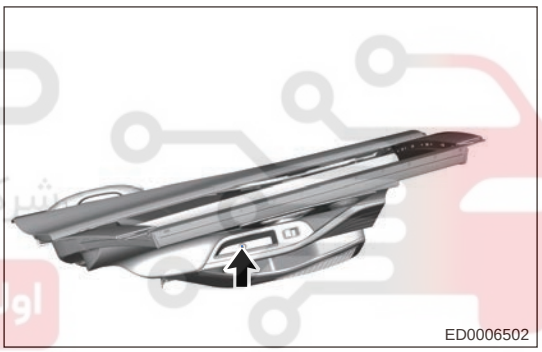


a. Remove 1 fixing screws (arrow).
   Tightening torque: 1.5 ± 0.5 N • m

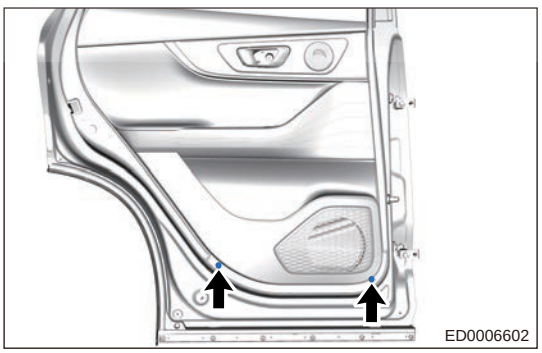


b. Remove the inside handle box cover gasket (arrow).

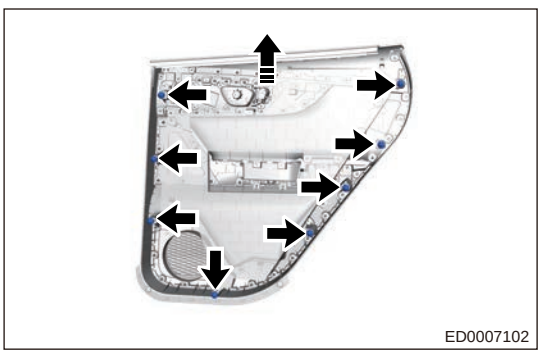
c. Remove 1 fixing screw (arrow) on the rear side of rear door handle box block cover.
   Tightening torque: 1.5 ± 0.5 N • m



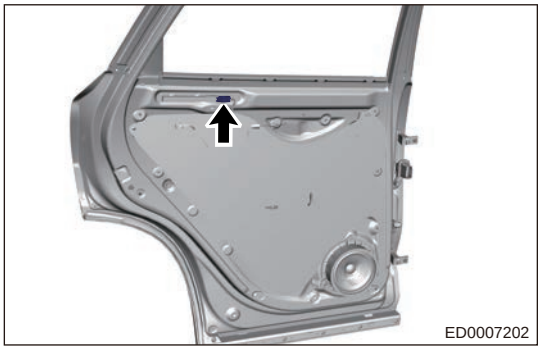
d. Remove 2 fixing screws (arrow) from lower side of rear left door inner protector assembly.
   Tightening torque: 1.5 ± 0.5 N • m



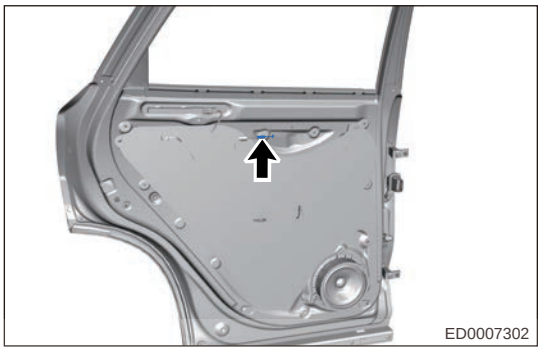
e. Using an interior crow plate, pry up clips on rear door inner protector assembly, and remove rear door inner protector assembly in direction of arrow.



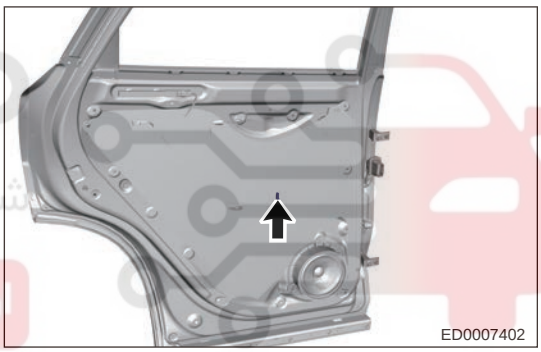
f. Disconnect the connector (arrow) from low frequency antenna.



g. Disengage handle cable (arrow) from rear door inside handle.



h. Disconnect the rear door power glass regulator switch connector plug (arrow).

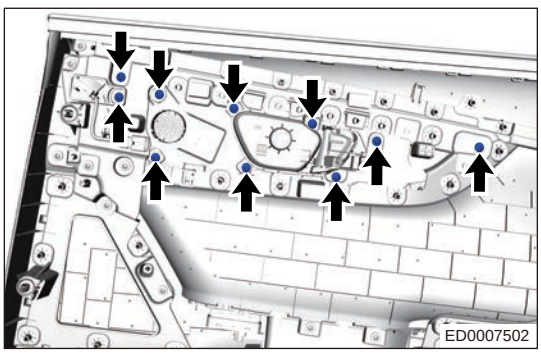


i. Remove the rear left door inner protector assembly.

4. Remove the rear door inside handle.

a. Remove 10 fixing screws (arrow) from rear door inside handle.

Tightening torque: 1.5 ± 0.5 N·m



b. Using interior crow plate, pry off claws from rear door inside handle, and remove rear door inside handle.

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Replace damaged clips and install rear door inner protector assembly in place, when installing rear door inner protector assembly.
- Check that inside handle assembly can operate properly, after installing rear door inner protector assembly.

Rear Door Assembly

Removal

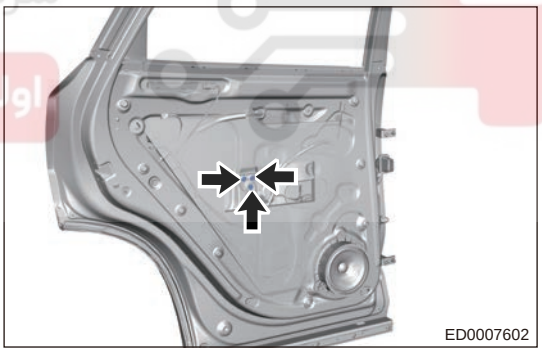
⚠ Caution

- Use same procedures for right and left sides, procedures listed below are for left side.
- When removing rear door assembly, an assistant is needed to hold rear door, to prevent front door from dropping to cause accidents during operation.

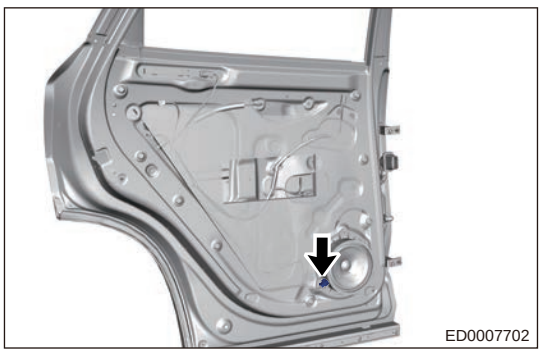
⚠ Caution

- Be sure to wear necessary safety equipment to prevent accidents, when removing rear door assembly.
- Try to prevent body paint surface from being scratched, when removing rear door assembly.

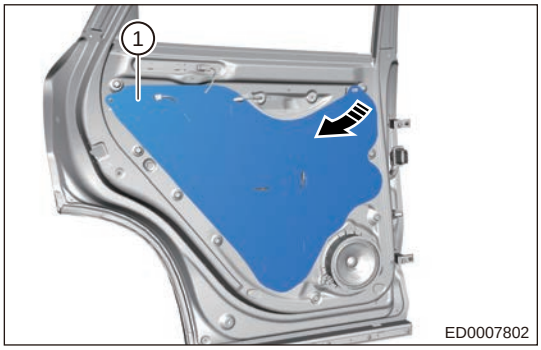
1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the rear left door inner protector assembly.
4. Remove the rear left door protective film assembly.
   a. Remove 3 fixing bolts (arrow) from rear door metal bracket and remove rear left door metal bracket.
      Tightening torque: 5 ± 1.0 N·m



   b. Disconnect the full-range speaker connector (arrow).



c. As shown in illustration, remove the rear left door protective film assembly (1) by gently peeling it along edges from one corner.

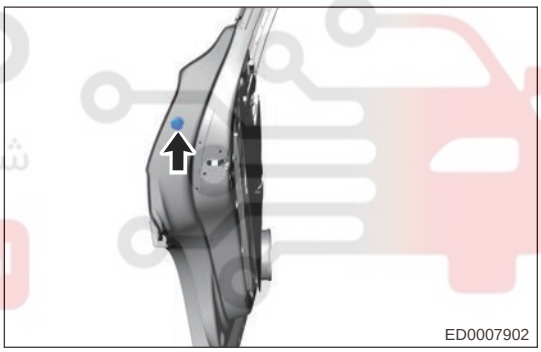


⚠ Caution

- Try to prevent rear door protective film from being damaged, when removing rear door protective film assembly.
- Place rear door protective film assembly properly after removal, and avoid adhesive sticker on rear door protective film assembly from sticking to other components.

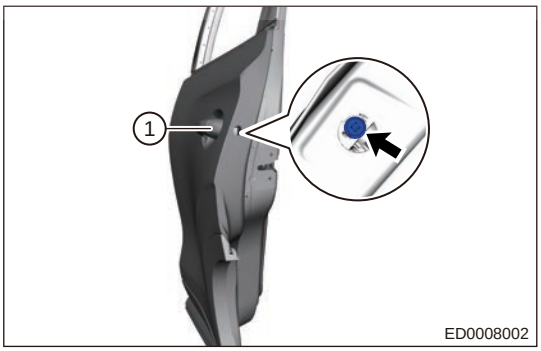
5. Remove the rear left door full-range speaker.
6. Remove the rear left door weather bar.
7. Remove the rear door glass upper run.
8. Remove the rear door glass assembly.
9. Remove the rear door glass guide rail assembly.
10. Remove the rear door power glass regulator.
11. Remove the rear left door lock assembly.
12. Remove the rear left door outside handle cover.

a. Remove the rear door outside handle block cover (arrow).



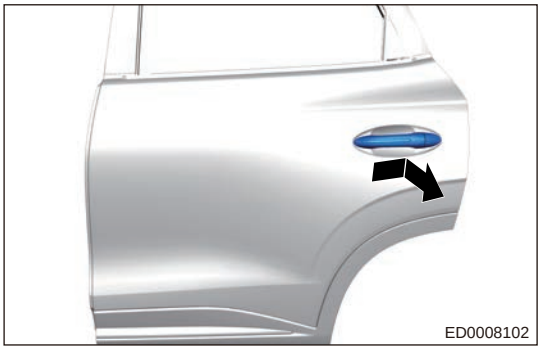
b. Loosen fixing screw (arrow) on rear door outside handle cover, and remove the rear door outside handle cover (1).

Tightening torque: 5 ± 1.0 N • m



13. Remove the rear left door outside handle.

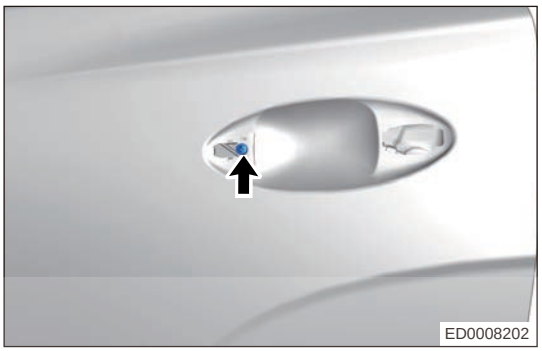
a. As shown in illustration, slide and pull the rear door outside handle in direction of arrow, and remove it.



14. Remove the rear left door outside handle seat assembly.

a. Remove fixing screw (arrow) from rear door outside handle seat assembly, and remove rear door outside handle seat assembly.

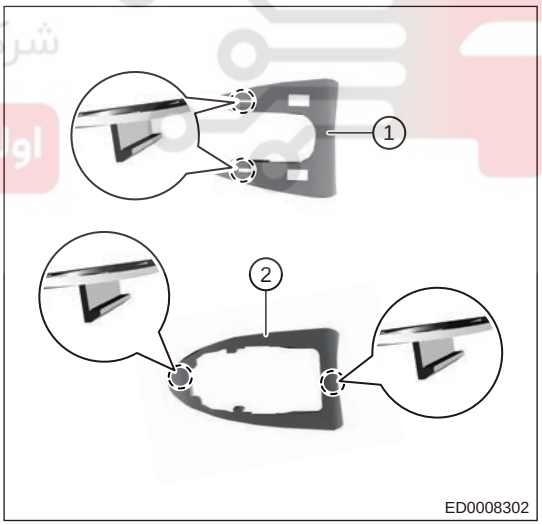
Tightening torque: 1.5 ± 0.5 N • m



15. Remove the rear left door outside handle shim.

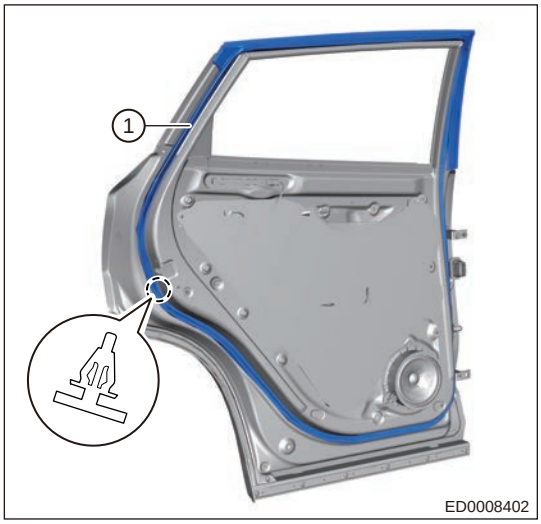
a. Disengage claws from rear door outside handle front shim, and remove rear left door outside handle front shim (1).

b. Disengage claws from rear door outside handle rear shim, and remove rear left door outside handle rear shim (2).

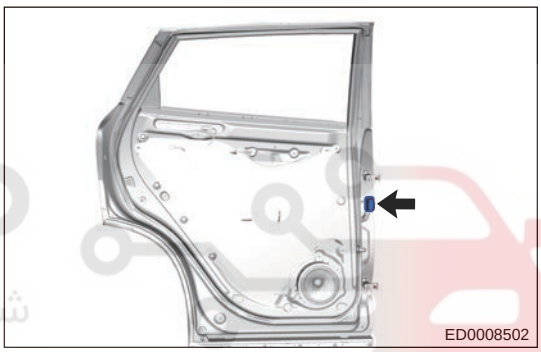


16. Remove the rear left door frame weatherstrip.

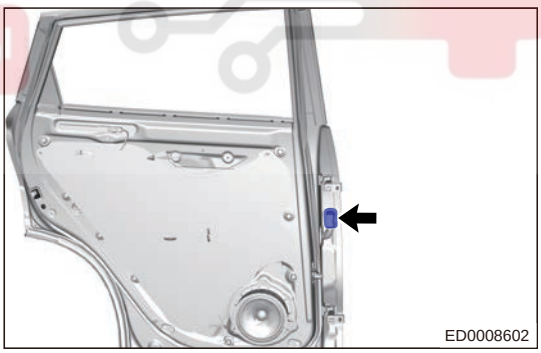
a. Disengage clips from rear door frame weatherstrip, and remove rear left door frame weatherstrip (1).



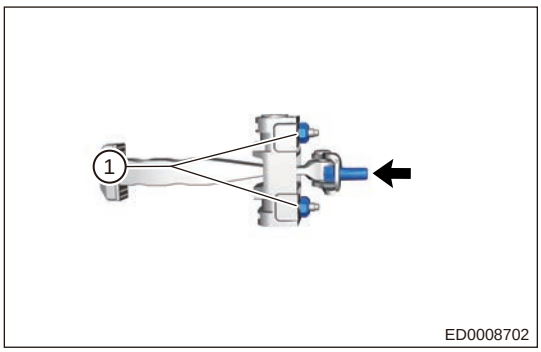
17. Disconnect the rear left door connector.
    a. Using an interior crow plate, pry up the rear door dust boot.
    b. Using an interior crow plate, pry up the claw of connector (arrow).



    c. Disconnect the rear left door wire harness connectors (arrow).



18. Remove the rear left door check.
    a. Remove 2 nuts (1) between door check and rear left door.
       Tightening torque: 9 ± 1.0 N • m
    b. Remove coupling bolt (arrow) between door check and body.
       Tightening torque: 32 ± 2.5 N • m

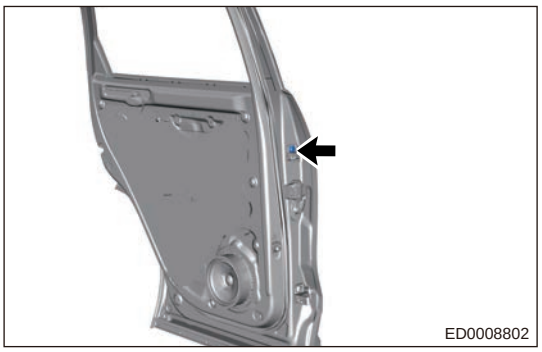


c. Remove rear left door check assembly from door assembly.

19. Remove the rear left door assembly.

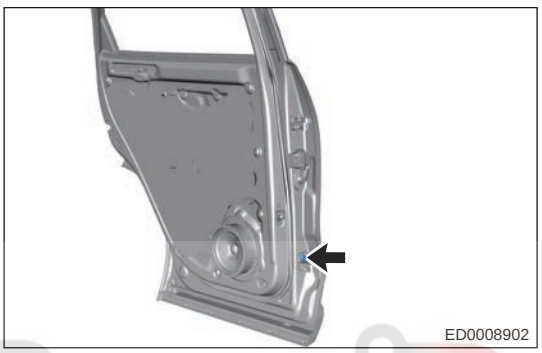
a. Remove fixing bolt (arrow) between rear door upper hinge assembly and rear door assembly.

Tightening torque: 55 ± 5.0 N • m



b. Remove fixing bolt (arrow) between rear door lower hinge assembly and rear door assembly.

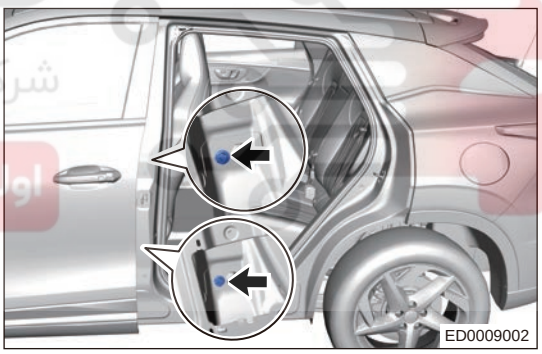
Tightening torque: 55 ± 5.0 N • m



20. Remove the rear left door hinge assembly.

a. Remove 2 fixing bolts (arrow) between front door upper hinge assembly and quarter panel.

Tightening torque: 32 ± 3.0 N • m



b. Remove 2 fixing bolts (arrow) between front door lower hinge assembly and quarter.

Tightening torque: 32 ± 3.0 N • m

c. Remove the rear left door hinge assembly.

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Replace damaged clips and install rear door inner protector in place, when installing rear door inner protector.
- Stick protective film in specified position, not in a wrong position or an asymmetric position between left and right sides or cover the mounting holes of other installation parts.
- DO NOT drag protective film when sticking. It should be installed under its original condition and ensure sheet metal is clean before installation.
- Finished protective film should have no defects, such as wrinkles, bubbles or turnups.
- Finished protective film should have powerful adherence. Protective film sticking should be finished at one time. Avoid repeat sticking.

Hint:

- Be sure to wear safety equipment to prevent accidents, when installing rear door assembly.
- When installing rear door assembly, an assistant is needed to hold it, prevent rear door from falling down during operation, resulting in accidents.

Adjustment

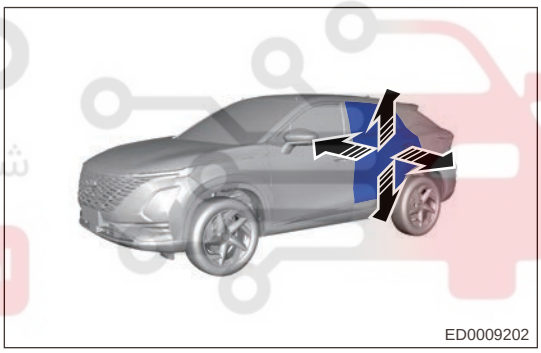
1. Adjust the rear door assembly.
   a. Loosen fixing bolts between rear door hinge assembly and door, and adjust rear door assembly position in direction of arrow as shown in illustration.
   b. After adjustment, tighten fixing bolts on rear door hinge assembly to specified torque.

      Tightening torque: 55 ± 5.0 N·m

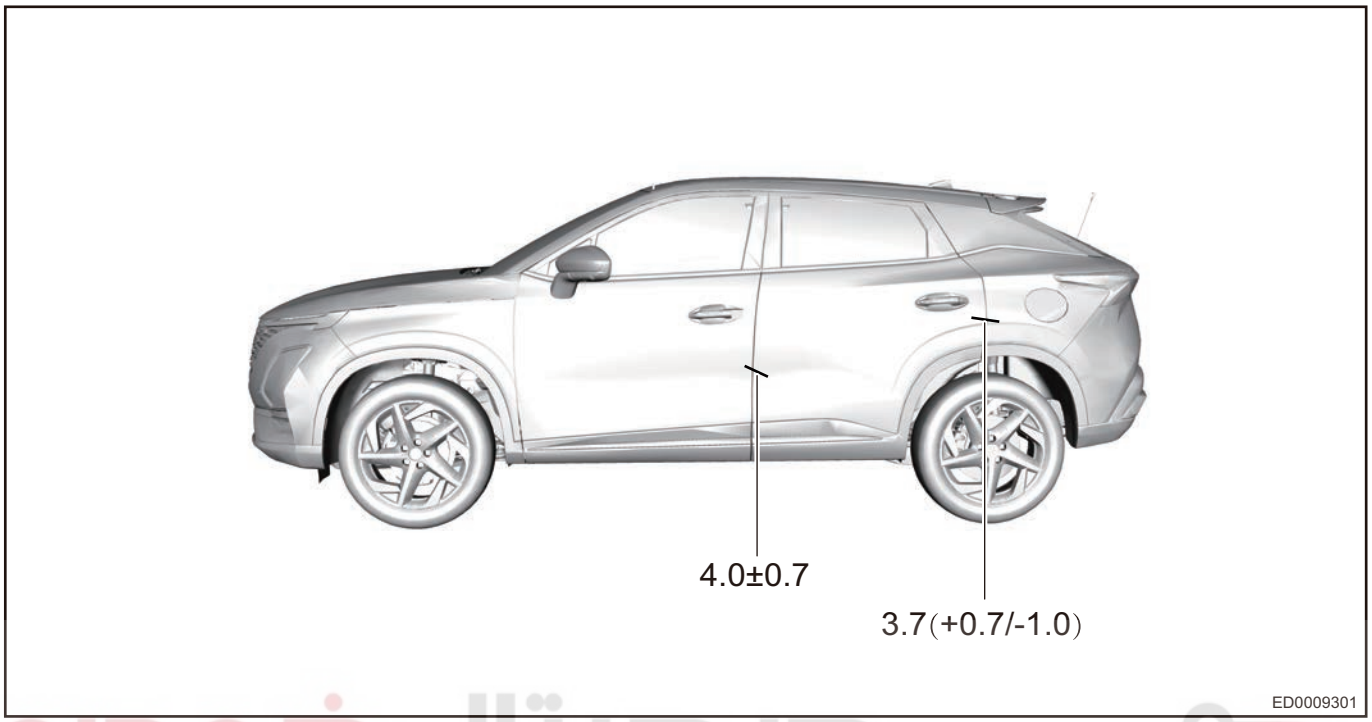

ED0009102

   c. Loosen fixing bolts between rear door hinge assembly and quarter, and adjust rear door assembly position in direction of arrow as shown in illustration.
   d. After adjustment, tighten fixing bolts on rear door hinge assembly to specified torque.

      Tightening torque: 32 ± 3.0 N·m


ED0009202

e. Standard ranges of clearance between installation position of rear door assembly and each part are as shown in illustration.



f. After adjustment, make sure that alignment between rear door assembly and front door assembly is within standard range.

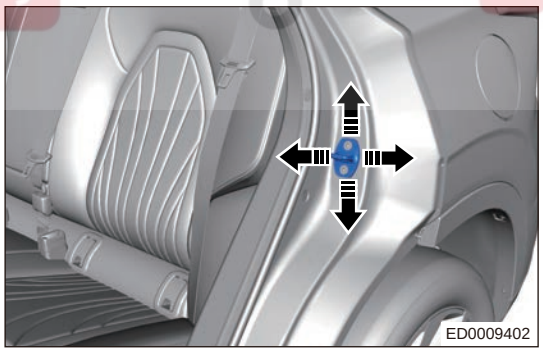
Standard alignment height: 4.0 ± 0.7 mm

g. After adjustment, make sure that alignment between rear door assembly and body outside panel is within standard range.

Standard alignment height: 3.7 (+0.7/-1.0) mm

2. Adjust the rear left door lock striker assembly.

a. Slightly loosen fixing bolts on rear door lock striker and tap it with a plastic hammer in direction of arrow to adjust the lock striker position.



b. Tighten fixing bolt on rear door lock striker assembly to specified torque after adjustment.

Tightening torque: 25 ± 3.75 N·m

Inspection

1. Check rear door assembly for wear or deformation during installation, and repair as necessary.
2. Check if fixing bolts are installed in place. Tighten them to specified torque as necessary.
3. Check if clearance and alignment between installation position of rear door assembly and each part are within specified range. Adjust as necessary.

Back Door Protector Assembly

Removal

⚠ Caution

- Be sure to wear safety equipment when removing back door protector assembly.
- Try to prevent body paint surface from being scratched, when removing back door protector assembly.

1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the trunk lid adjustable buffer block.
   a. Rotate 2 trunk lid adjustable buffer blocks (arrow) counterclockwise and remove them.


ED0009502

4. Remove the left back door protector assembly.
   a. Using a screwdriver wrapped with protective tape, pry off plastic clips from left back door protector assembly carefully.
   b. Remove the left back door protector assembly.

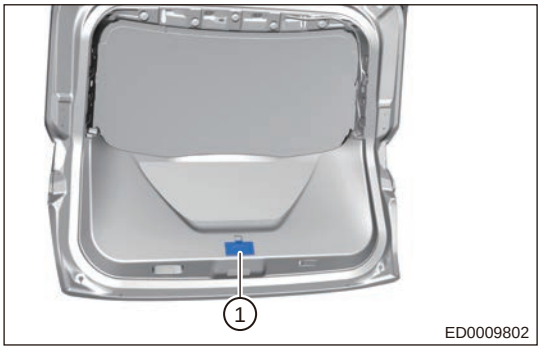

ED0009602

5. Remove the right back door protector assembly.
   a. Using a screwdriver wrapped with protective tape, pry off plastic clips from right back door protector assembly carefully.
   b. Remove the right back door protector assembly.


ED0009702

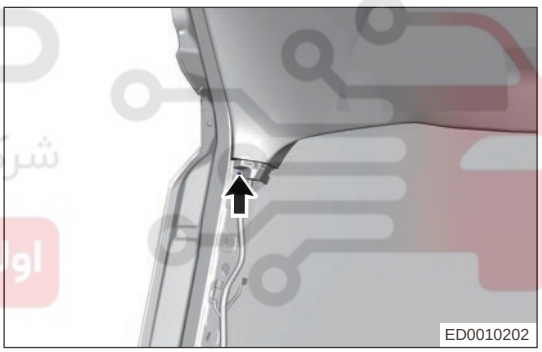
6. Remove the emergency block cover.
   a. Using a screwdriver wrapped with protective tape, pry off the claw from emergency block cover.

b. Remove the emergency block cover (1).

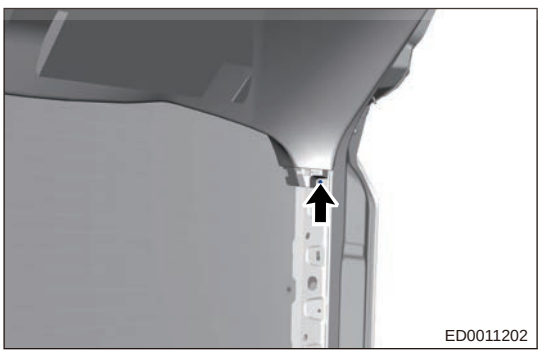


7. Remove the back door lower protector assembly.
   a. Using a screwdriver wrapped with protective tape, pry off handle box block cover (arrow), and remove fixing screws from back door lower protector assembly.

   b. Remove the fixing screws (arrow) from back door lower protector assembly.
      Tightening torque: 1.5 ± 0.5 N • m



   c. Remove the fixing screws (arrow) from back door lower protector assembly.
      Tightening torque: 1.5 ± 0.5 N • m



d. Using a screwdriver wrapped with protective tape, pry off small block cover (1) and disconnect the connector.

e. Using a screwdriver wrapped with protective tape, pry off claws from back door lower protector assembly.

f. Remove the back door lower protector assembly.

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when installing back door protector assembly.
- Try to prevent body paint surface from being scratched, when installing back door protector assembly.

Back Door Assembly

Removal

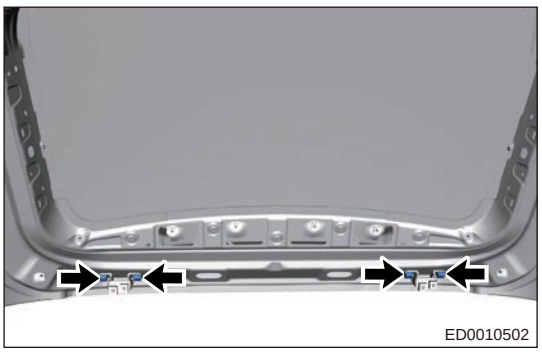
⚠ Caution

- When removing back door assembly, be sure to wear safety equipment to prevent accidents.
- When removing back door assembly, try to prevent body paint surface from being scratched.
- When removing back door assembly, an assistant is needed to hold the trunk lid. Try to prevent trunk lid from falling down or closing suddenly during operation, resulting in accidents.

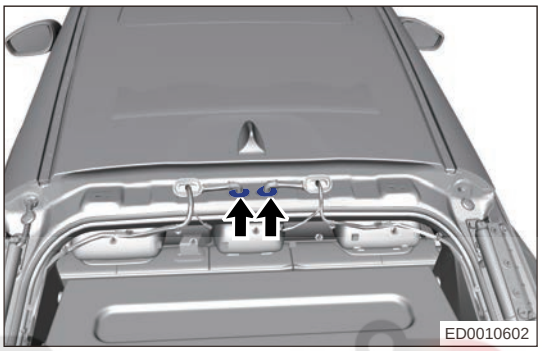
1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the back door protector assembly.
4. Remove the back door wiper arm.
5. Remove the back door wiper motor assembly.
6. Remove the back door wiper washer nozzle.
7. Remove the combination taillight.
8. Remove the back door switch assembly.
9. Remove the back door opening weatherstrip.

10. Remove the roof assembly.
11. Remove the back door assembly.
    a. Remove 4 fixing bolts (arrow) from back door left and right hinges.

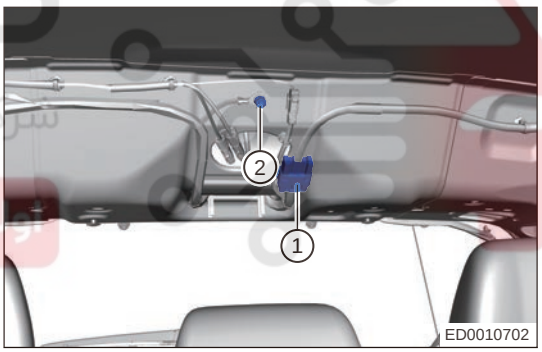
       Tightening torque: 25 ± 2.0 N • m



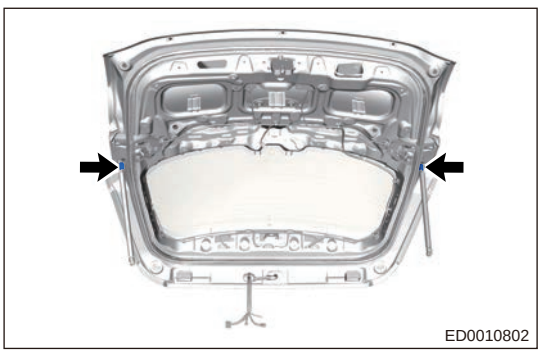
    b. Using an interior crow plate, pry up back door wire harness dust boot (arrow).



    c. Disconnect back door wire harness assembly connector plug (1), back door wire harness ground fixing nut (2) and back door wiper spraying pipe joint.

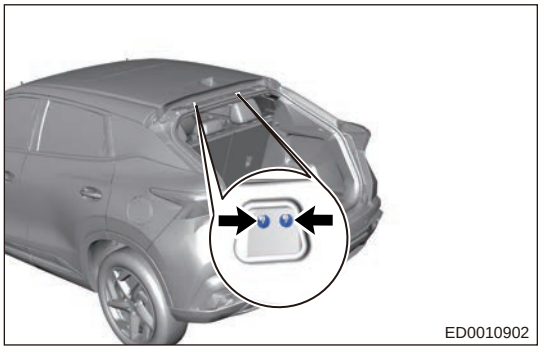


    d. Using a screwdriver wrapped with protective tape, pry off the upper fixing clips (arrow) between left power support and right air spring.



    e. Remove the back door assembly.
12. Remove the back door hinge assembly.

a. Remove 4 fixing bolts (arrow) from back door hinge.
   Tightening torque: 25 ± 2.0 N • m


ED0010902

b. Remove the back door hinge assembly.

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

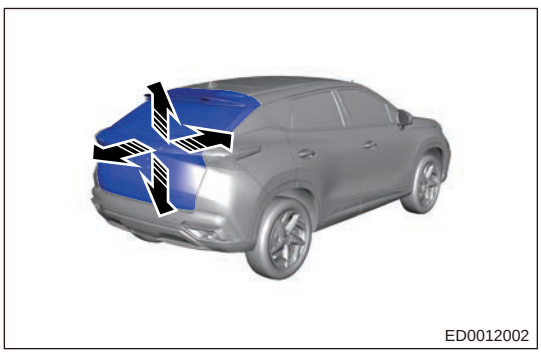
- When installing back door hinge assembly, an assistant is needed to hold back door. During operation, prevent the back door from dropping, which may cause an accident.
- Be sure to wear safety equipment to prevent accidents, when installing back door assembly.
- Try to prevent body paint surface from being scratched, when installing back door assembly.
- After installing back door assembly, it is necessary to perform panoramic image calibration.

Adjustment

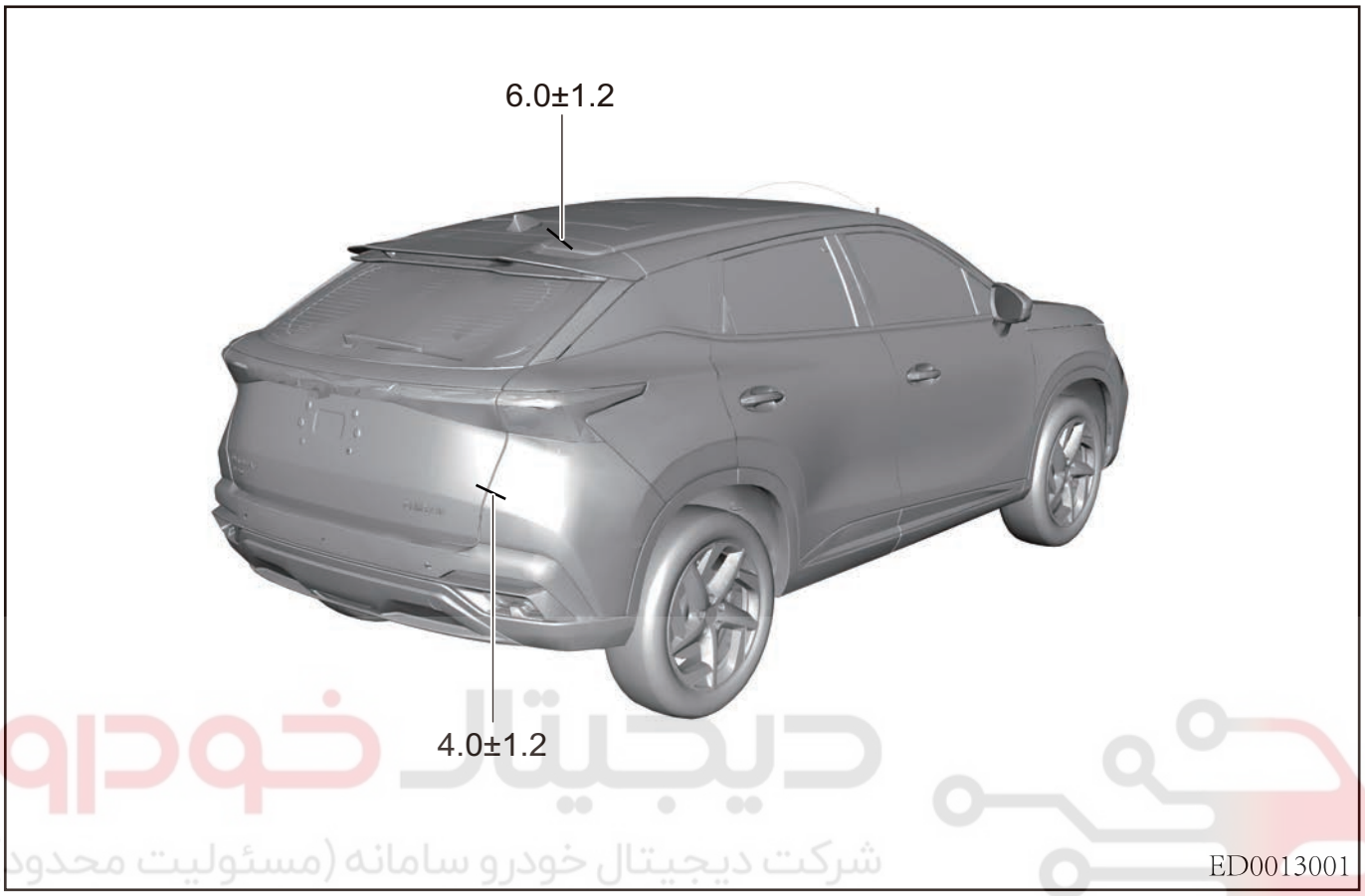
1. Adjust the back door assembly.
   a. Loosen the fixing bolts on back door assembly and adjust back door assembly position in direction of arrow.
   b. Tighten back door assembly fixing bolts to specified torques after adjustment.
      Tightening torque: 25 ± 2.0 N • m


ED0011002

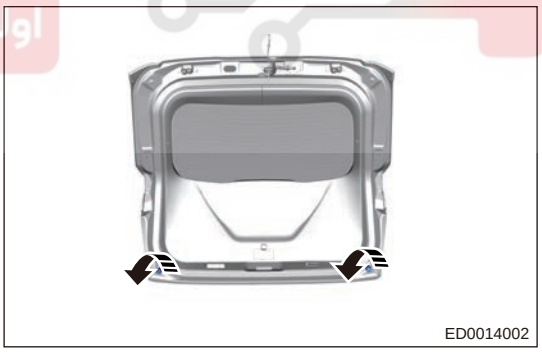
   c. Loosen the fixing bolts on back door assembly and adjust back door assembly position in direction of arrow.
   d. Tighten back door assembly fixing bolts to specified torques after adjustment.
      Tightening torque: 25 ± 2.0 N • m


ED0012002

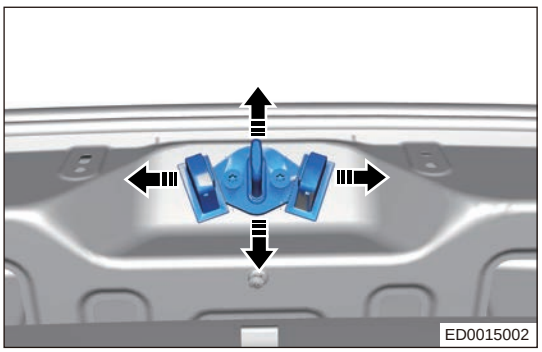
e. Standard ranges of clearance between installation position of back door assembly and each part are as shown in illustration.



2. Adjust the height of back door assembly with back door assembly adjustable buffer block.
   a. Lower or raise the back door by rotating the back door assembly adjustable buffer blocks clockwise or counterclockwise.



3. Adjust the back door assembly.
   a. Slightly loosen the fixing bolts on back door lock striker assembly, and tap it with a plastic hammer in direction of arrow as shown in illustration to adjust the back door assembly position.



b. Tighten the fixing bolts on back door lock striker assembly to specified torque after adjustment.
Tightening torque: 25 ± 3.75 N • m

Back Door Assembly

Inspection

1. Check back door for wear or deformation during installation, and repair as necessary.
2. Check if fixing bolts, fixing screws are set in position. Tighten them to specified torque as necessary.
3. Check if clearance and alignment between back door assembly installation position and each part are within the specified range. Adjust as necessary.

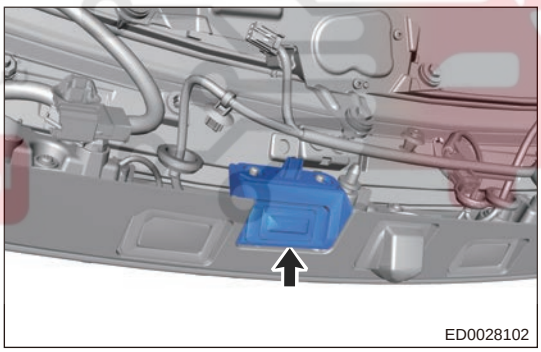
Back Door Switch Assembly

Removal

⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when removing back door switch assembly.
- When removing back door switch assembly, try to prevent body paint surface from being scratched.

1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the back door switch assembly.
   a. Using an plastic crow plate, pry off switch from mounting hole.
   b. Disconnect back door wire harness connector, and remove back door switch assembly.



Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- After back door opener switch assembly is installed, install the connector into place.
- After back door opener switch assembly is installed, it is necessary to confirm that the function can operate normally.

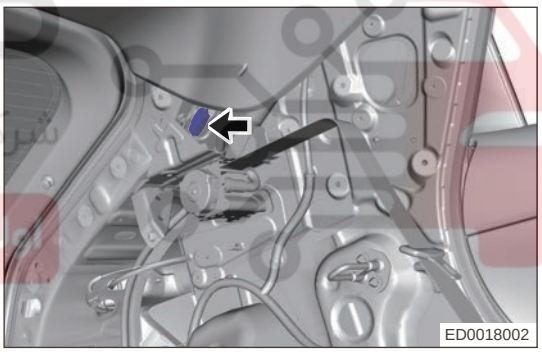
Back Door Power Support Assembly

Removal

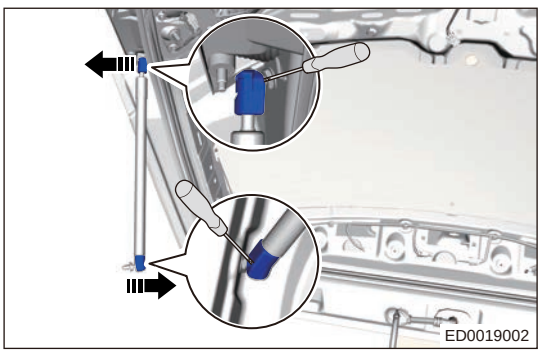
⚠ Caution

- Left side is power support with wire harness and right side is balance bar without wire harness.
- The following is the operation procedure of power support.
- Be sure to wear necessary safety equipment to prevent accidents, when removing back door power support assembly.
- When removing back door power support assembly, try to prevent body paint surface from being scratched.
- When removing back door power support assembly, pay attention to not separate power support by lateral force and during removal, one assistance is needed to hold back door; avoid back door falling down or closing suddenly during opening, resulting in accidents.
- Handle the removed power support assembly carefully and avoid it falling down. Once it falls down, internal mechanical damage may occur, which may cause it impossible to use.

1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the left back door power support assembly.
   a. Using a screwdriver wrapped with protective tape, pry off left C-pillar upper protector (until it is possible to disconnect power support connector).
   b. Disconnect the power support connector (arrow).



   c. Using a screwdriver wrapped with protective tape, pry off fixing clips from upper and lower parts of back door power support.



   d. Remove the power support assembly in direction of arrow.

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- When installing back door power support assembly, one assistance is needed to hold back door; avoid back door falling down or closing suddenly during opening, resulting in accidents.
- Be sure to wear necessary safety equipment to prevent accidents, when installing back door power support assembly.
- When installing back door power support assembly, it is necessary for wire harness grommet to be installed in place. If not, water leakage may occur at this area.

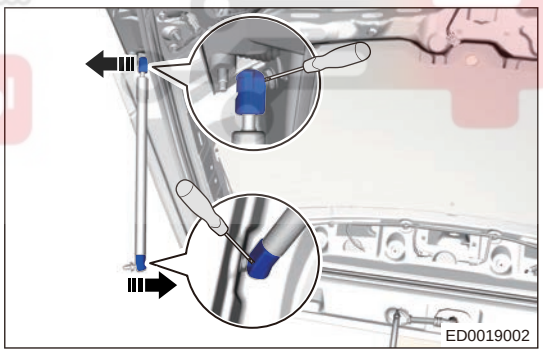
Back Door Air Spring Assembly

Removal

⚠ Caution

- When removing back door air spring assembly, be sure to wear necessary safety equipment to prevent accidents.
- When removing back door air spring assembly, try to prevent body paint surface from being scratched.
- When removing back door air spring assembly, one assistance is needed to hold back door; avoid back door falling down or closing suddenly during opening, resulting in accidents.

1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the right back door air spring assembly.
   a. Using a screwdriver wrapped with protective tape, pry off fixing clips (arrow) from upper part of back door air spring.
   b. Using a screwdriver wrapped with protective tape, pry off fixing clips (arrow) from lower part of back door air spring.



   c. Remove the air spring assembly in direction of arrow.

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- When installing back door air spring assembly, one assistance is needed to hold back door; avoid back door falling down or closing suddenly during opening, resulting in accidents.
- When installing back door air spring assembly, be sure to wear necessary safety equipment to prevent accidents.

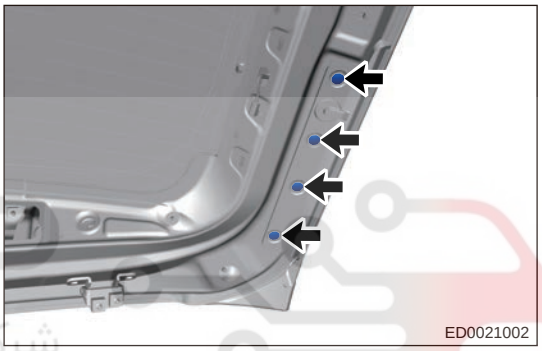
Back Door Anti-pinch Strip Assembly

Removal

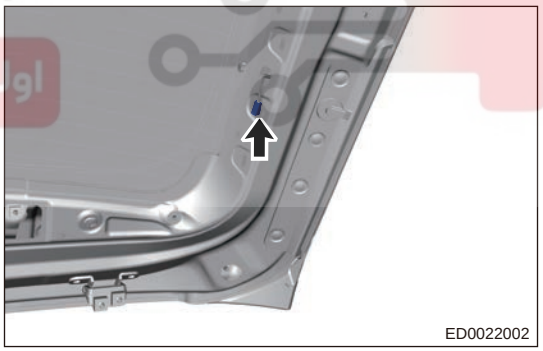
⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when removing back door anti-pinch strip assembly.
- When removing back door anti-pinch strip assembly, try to prevent body paint surface from being scratched.
- Use the same procedures for left anti-pinch strip assembly and right anti-pinch strip assembly, procedures listed below are for left anti-pinch strip.

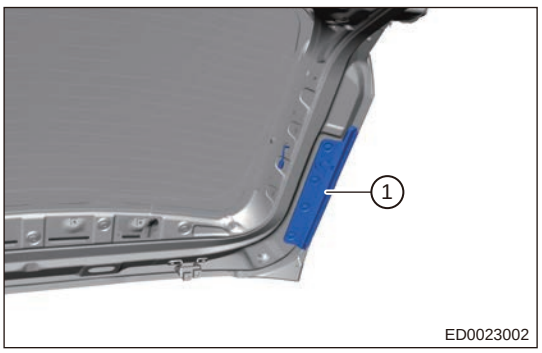
1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the left back door protector assembly.
4. Remove the back door left anti-pinch strip assembly.
   a. Using a screwdriver wrapped with protective tape, pry off fixing plastic nuts (arrow) from back door anti-pinch strip assembly.



   b. Disconnect the anti-pinch strip connector (arrow).



   c. Remove the back door anti-pinch strip assembly (1).

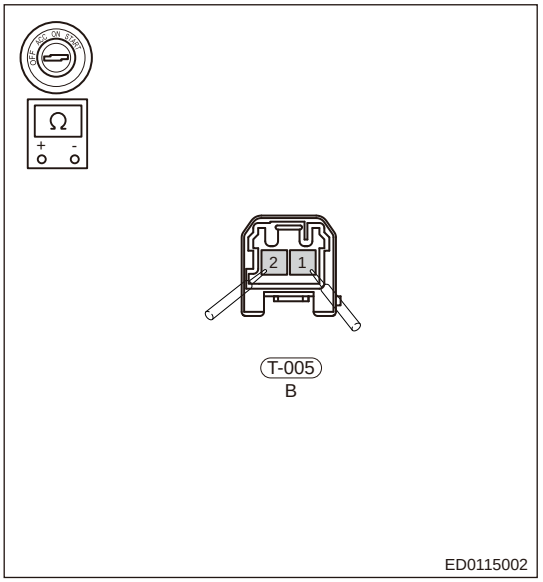


Inspection

1. Check the jam protection function.

d. Turn ENGINE START STOP switch to OFF position. Measure the resistance of anti-pinch strip sensor with a digital multimeter, standard resistance is shown in the table below:

Multimeter Connection	Condition	Specified Condition (at room temperature)
T-005 (1) - T-005 (2)	Jam protection ON	31 Ω
T-005 (1) - T-005 (2)	Jam protection OFF	5560 Ω



Installation

1. Installation is in the reverse order of removal.

Power Back Door Module Assembly

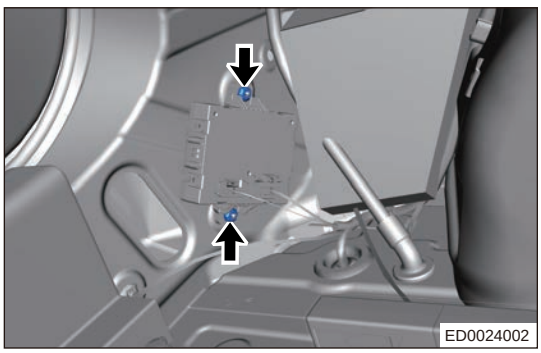
Removal

⚠ Caution

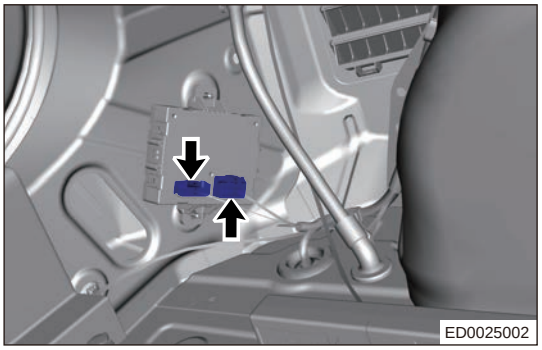
- Be sure to wear safety equipment to prevent accidents, when removing power back door module assembly.
- When removing power back door module assembly, try to prevent body paint surface from being scratched.

1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the power back door module assembly.
   a. Remove fixing nuts (arrow) from power back door module.

      Tightening torque: 5 ± 1.0 N • m



b. Disconnect the power back door module wire harness connectors (arrow).



c. Remove the power back door module.

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- After replacing power back door module, use diagnostic tester to perform self-learning operation, perform corresponding operation on each functional switch after learning is successful, so as to check each function of power back door operates normally.
- When disconnecting battery negative cable or power back door module power supply; after power is turned on again, it is necessary to perform fortifying on vehicle.

Power Back Door Instrument Cluster Switch Assembly

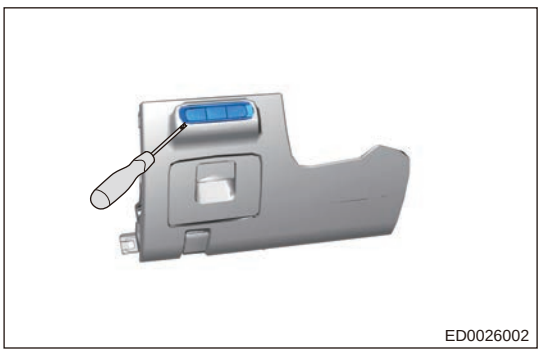
Removal

⚠ Caution

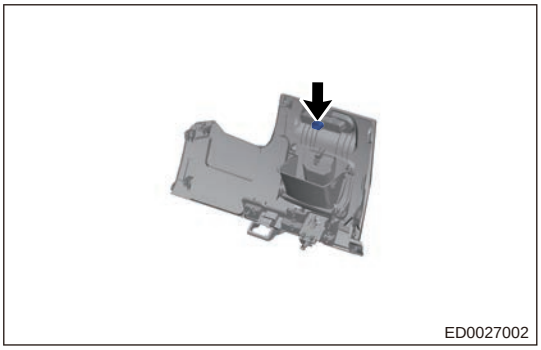
- Be sure to wear safety equipment to prevent accidents, when removing power back door instrument cluster switch assembly.
- When removing power back door instrument cluster switch assembly, try to prevent body paint surface from being scratched.

1. Turn off all electrical equipment and the ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the power back door instrument cluster switch assembly.

a. Using a screwdriver wrapped with protective tape, pry off power back door instrument cluster switch assembly.



b. Disconnect the power back door instrument cluster switch connector (arrow).



c. Remove the power back door instrument cluster switch assembly.

Installation

1. Installation is in the reverse order of removal.

⚠ Caution

- Install the power back door instrument cluster switch assembly, and install the connector in place.
- After power back door instrument cluster switch assembly is installed, it is necessary to confirm that the function can operate normally.

BODY DIMENSIONS

General Information

Service materials of Collision

Body collision accidents usually cause symptoms such as construction deformation, steel plate cracks, weld points desoldering, etc., sometimes also cause local damage of other assembling parts such as engine and chassis, etc. Adhesive, sealant, anti-loose solvent, surface protection materials, anti-corrosion materials and chemical materials may be used during the body collision service, so please operate it strictly in accordance with the use, scope of use and use specifications in the Product Description. Select the service materials with the same functions according to the functional requirements of parts and materials in the process of body service. The service materials that may be used in the process of body service are listed in following table for reference only.

Products	Base Materials	Usage	Recommended Model
Car Seal Gum	One-component polyurethane	It used for the bonding of components such as body outer panel, interior and exterior decoration, body construction, etc. This adhesive has strong adhesion and cohesion and has good adhesion with metal, various paint surfaces, etc.	1922, 1923
Weld Seal Gum	One-component polyurethane type	As the room temperature solidifying type adhesive, it is used for the sealing of body welds and the fine sealing of doors, engine cover and luggage compartment (trunk) foldings.	C8802
Anti-stone-chipping primer	Rubber and resin	As the room temperature solidifying type chassis protection adhesive, it is used to form a permanent anti-aging elastic corrosion protection coating at the bottom and wheel house, and there is no crack at low temperature. This product can replace PVC coating because of the excellent functions such as anti-rust, sound insulation, anti-stone-chipping, anti-	C312DW

Products	Base Materials	Usage	Recommended Model
		oxidization and protective coating.	
Windshield Gum	One-component polyurethane	As the room temperature solidifying polyurethane adhesive, it is used for direct adhesion and sealing of car window glass. This adhesive has strong adhesion performance, when it reacts with moisture in the air, it forms excellent performance such as high strength, anti-aging, anti-vibration fatigue, low temperature resistance and no corrosion, etc.	C8802 1956, 1924
Primer	-	Before applying windshield gum, apply a primer to the body and glass to make the windshield and the body bond more firmly.	-
Cleaner	-	It’ s used to clean all surfaces contacting with premier coating and adhesive.	-
Pressure Sensitive Tape	Acrylic tape	It is used for bonding such as scuff strip, name plate, fender apron, door edge protection, various body trim strips, etc. This tape has excellent weather resistance and durability.	3M 4229P, 4215, 4221L

Products	Base Materials	Usage	Recommended Model
Heat Sensitive Tape	Acrylic tape	It is mainly used for rubber weatherstrip system on the car. This type of tape should have a strong bonding force and strong sealing performance to avoid the gap and corrosion problems caused by poor bonding.	3M 4237P
Primer for Tape	-	Select different primers according to the materials of bonding surface. The bonding surface should be clean, and apply the primer evenly to the surface to be adhered with a brush after it is completely dry, and apply the tape after it is dry. The tape has strong adhesion.	3M C-100, K-500/520, N-200

Basic Description of Body Service

Body service should be carried out by professional technicians in accordance with the manufacturer's requirements in order to keep the guarantee of “no rust” and “no paint defects”.

1. Only use the materials selected by the manufacture.
2. It’s necessary to apply paint protective coating inside the body firstly when welding body outside metal.
3. It’s necessary to use zinc coating during spot welding.
4. Apply a layer of filling coating inside and outside welding position before performing air seal.
5. Apply a protective layer to prevent stone collision before using paint to protect the chassis.
6. All openings at this position should be fixed with fixing parts after spraying paint to the coating.
7. In some cases, it’s necessary to raise the vehicle to lift platform because the distribution of each component of the body when removing parts.
8. It’s necessary to remove battery connectors before performing spot welding. Check if the ventilation condition is good enough before welding.
9. Pay attention to other vehicles in this area when repairing the body within a certain area.
10. Be careful when perform sandblasting or welding around fuel tank or fuel system parts.
11. Pay attention to preventive measures of preventing accidents when performing body repairing or sandblasting.
12. The spot welding current should be increased by 30% with a pointed electrode, and the clamping force of the electrode should be increased when welding galvanized steel plate; the welding current should be further increased when performing gas shielded welding.
13. Neither the air conditioning parts nor the parts that may be heated can not be welded on the vehicle. When painting and repairing the frame, the temperature should not exceed 80°C in the baking furnace or in preheating stove.

The following measures have to be taken in the process of welding to prevent electrical welding device from bumping.

1. Connect the electrical welding device ground wire to welding position. Carefully check that there is no part or insulator part between ground wire and spot welding position during connection.
2. Firstly remove ECU and electrical device or circuits to avoid contacting ground wire or welding rod.

Calibration

The production of body and chassis is completed through low temperature tempering and cold casting process on the assembly line. Therefore, it's necessary to use the same process to restore it to its original appearance and it cannot be heated after the metal part is damaged in an accident. If the damage is so severe that it cannot be restored, the damaged part can only be removed after the connector surface has been calibrated.

Safety Precautions

It's necessary to observe the following safety precautions when performing body metal plate service:

1. It's necessary to wear protective clothing, goggles, gloves and working shoes when performing body metal plate welding, cutting and polishing.
2. Ensure the ventilation is well in welding area.
3. Disconnect battery and cover the post before welding.
4. If spark may be generated when working near the battery, it's necessary to remove the battery.
5. Before removing the vehicle parts, the vehicle should be fixed on the lifting frame to avoid the change of the vehicle gravity, which may affect the operation safety.
6. Connect the ground wire of the welding device directly to the parts that need to be welded, and ensure that there is no conductive part between the ground point and the welding point when operating.
7. Ground wire or welding electrode is forbidden to contact with electronic control unit and cable.
8. Never park an unprotected vehicle in the body service area, because splashing sparks may cause fire, damage paint surface and glass.
9. Special care should be taken when polishing and welding near fuel tank or other components that contain fuel, and all suspected components that may affect safety should be removed.
10. Never weld, hard solder or soft solder any compartment of air conditioning system that contains refrigerant, or weld other parts of vehicle that may cause the temperature of air conditioning system components to rise, which may cause explosion of the air conditioning system. If it's necessary to carry out electric welding near the refrigerant hose, the refrigerant must be recovered, because the invisible ultraviolet ray generated when performing electric welding can penetrate the refrigerant hose and cause the refrigerant to decay.
11. It's necessary to disconnect the battery ground wire when operating the airbag system or carrying out body calibration; the temperature around airbag components should not exceed 100℃ (212°F).

State of Components

Before the repaired car or parts are sent to the paint shop for painting, its surface must be flat, filled and polished with abrasive paper. The preparation process is completed by metal plate worker. The body and floor compartments are mainly formed by cold stamping with steel plates. Therefore, the same method should be used to restore the shape of the damaged area caused by an accident. If the damaged area cannot be restored to the original appearance, the adjacent area should be calibrated, the damaged area should be removed and replaced according to the integrity of the parts. Do not cut the parts separately. The rigidity, driving safety and service convenience of the vehicle will be affected after cutting and welding.

Description of Welding Types

Common welding types include spot welding, gas shielded welding and soldering. Never reduce the number of welding spots when performing spot welding. Generally speaking, when the spot welding device can not be carried out, plug welding can be carried out by means of gas shielded welding after

drilling it. When spot welding is used, if it is the connection of three-layer plates, only the outer plate is replaced and the welding points must be placed on the original welding points. When spot welding is used, single weld, double weld and double offset weld can be generated. When gas shielded welding is used, lap weld, continuous weld and continuous weld (intermittent) can be generated. Soldering is often used to weld and repair areas with low tensile strength and relatively thinner component thickness.

Anti-corrosion Treatment

1. It’s necessary to use approved materials to restore standard anti-corrosion layer after service.
2. It’s necessary to apply primer to inside and outside of all welds before sealing.
3. It’s necessary to apply sealant to metal plates with primer coating.
4. It’s necessary to seal lap metal plates, metal edges, butt welds and welds with sealant.
5. Apply long-term deck protection agent to the vehicle deck.
6. It’s necessary to deal with the cavity in the service area with the protection material in the cavity after spraying the finish paint.
7. Clean drain after the protection material in the cavity is dry.

Environment Protection Treatment Method of Car Disposal Parts

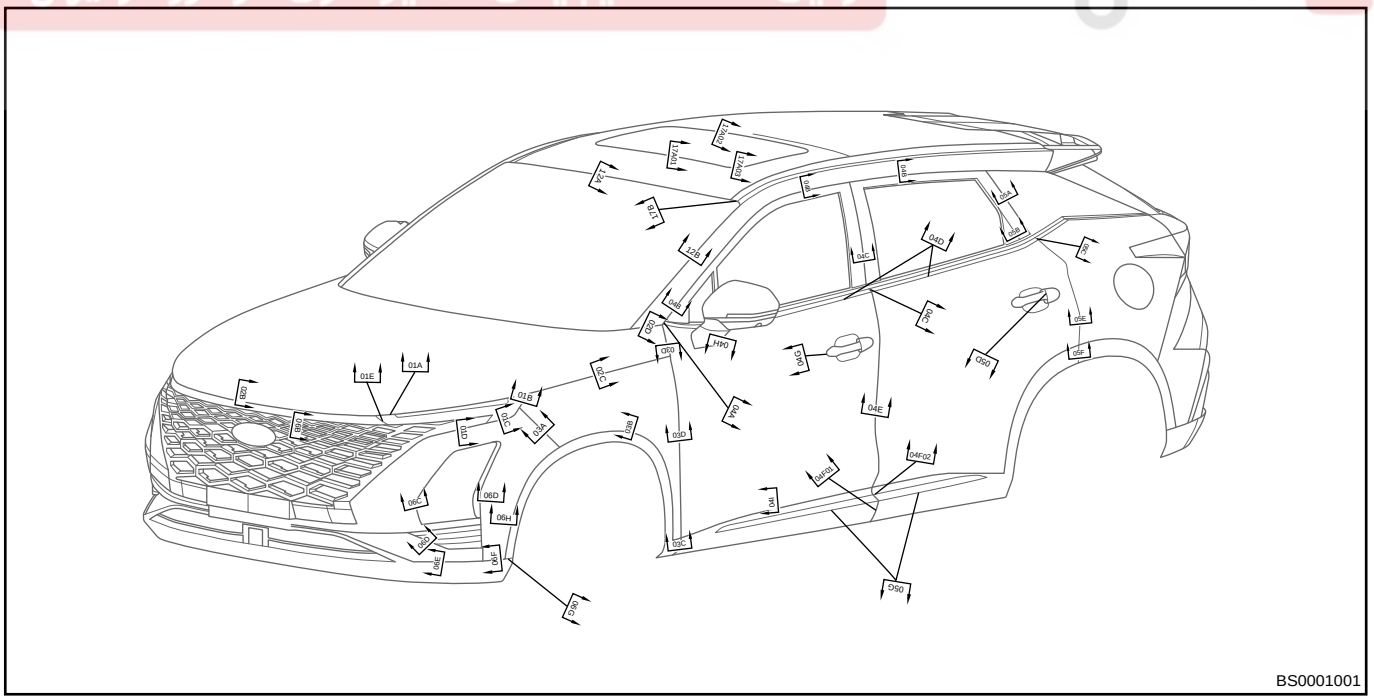
1. It’s necessary to collect disposal materials according to the types after car maintenance or service.
2. Classify disposal materials and check if they can be used repeatedly.

Body Surface Gap/Surface Difference

Hint:

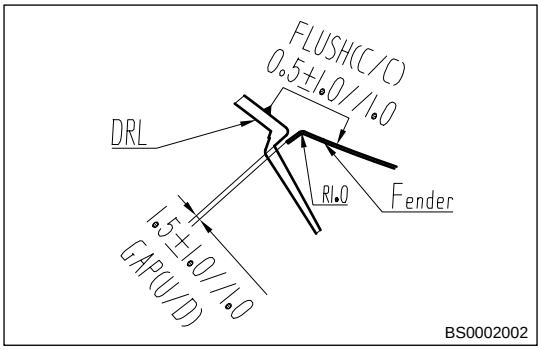
- Gap dimensions are always in millimeter/inch.
- Use plastic gap adjustment gauge to adjust or check gap dimensions.

Front Body Assembly

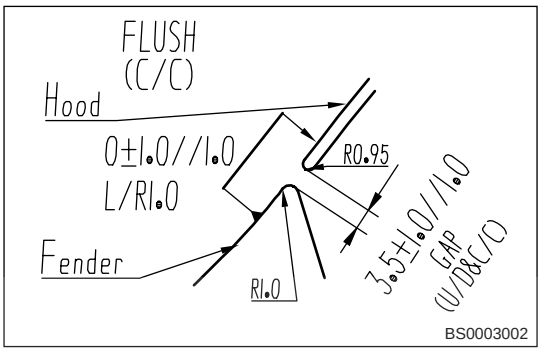


BS0001001

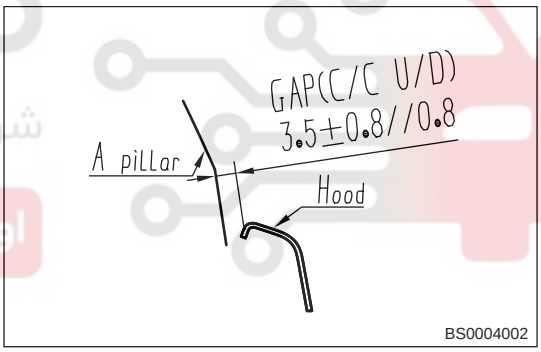
1. Assembly clearance between daytime running light and wing.



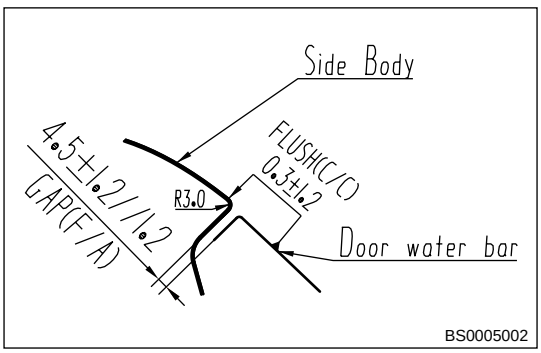
2. Assembly clearance between engine hood and wing.



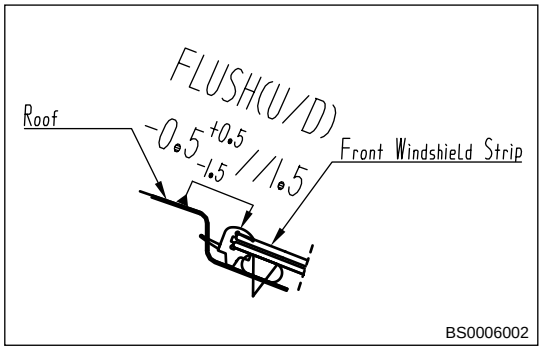
3. Assembly clearance between A-pillar and engine hood.



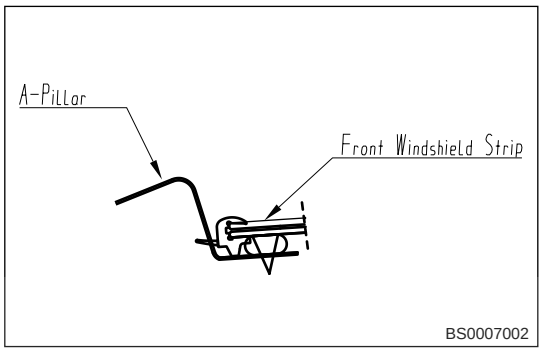
4. Assembly clearance between quarter and outer weather bar.



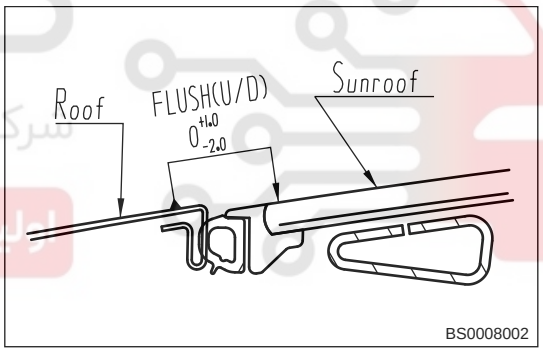
5. Assembly clearance between roof cover and front windshield strip.



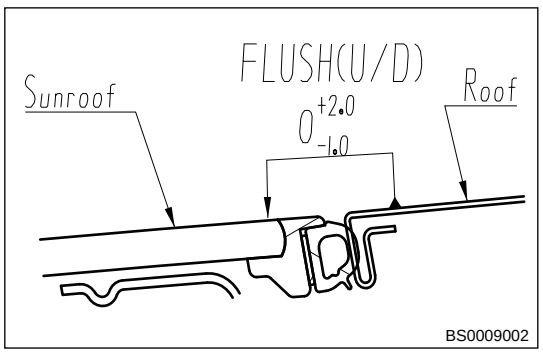
6. Assembly clearance between quarter A-pillar and front windshield strip.



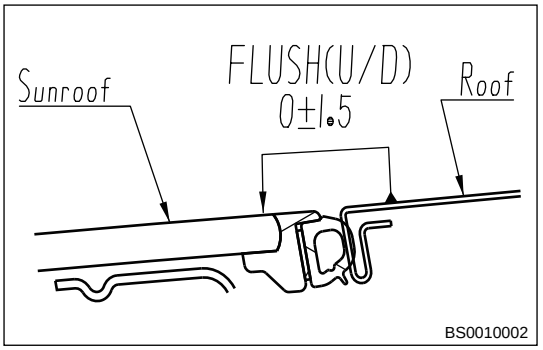
7. Assembly clearance between roof cover and roof.



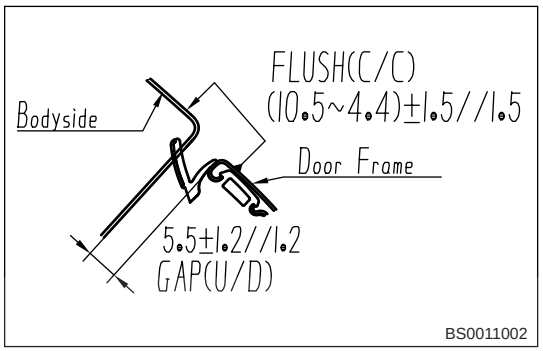
8. Assembly clearance between roof and roof cover.



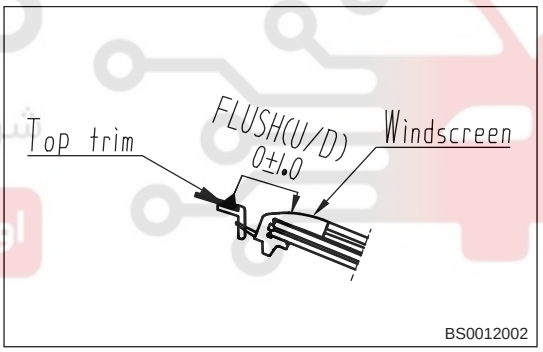
9. Assembly clearance between roof and roof cover.



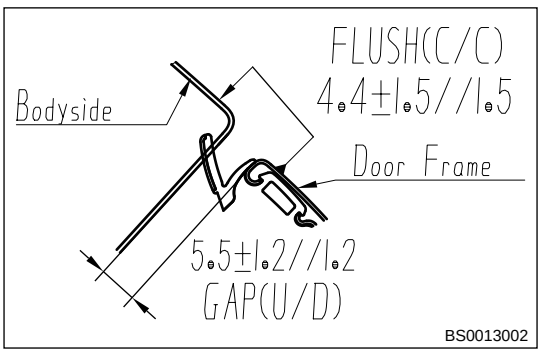
10. Assembly clearance between quarter and front/rear door upper frame.



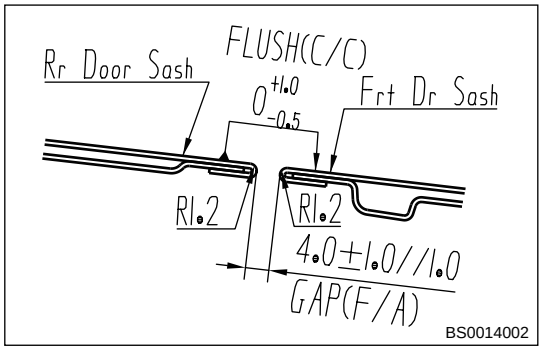
11. Assembly clearance between roof trim strip and front windshield with strip.



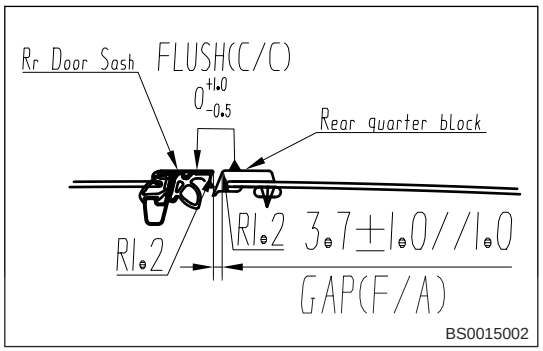
12. Assembly clearance between quarter and front/rear door upper frame.



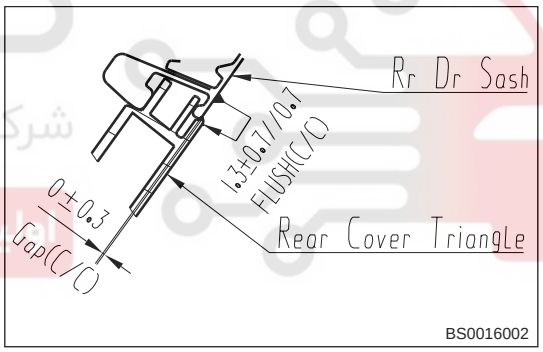
13. Assembly clearance between rear door window frame and front door window frame.



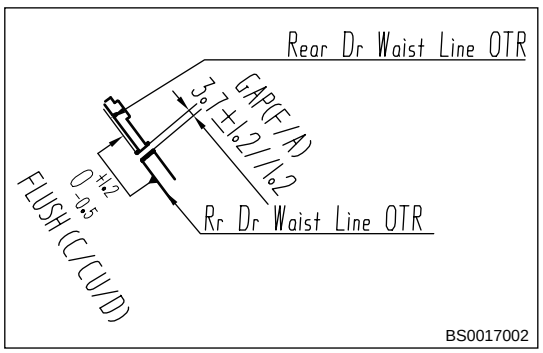
14. Assembly clearance between rear door window frame and rear quadrangular block.



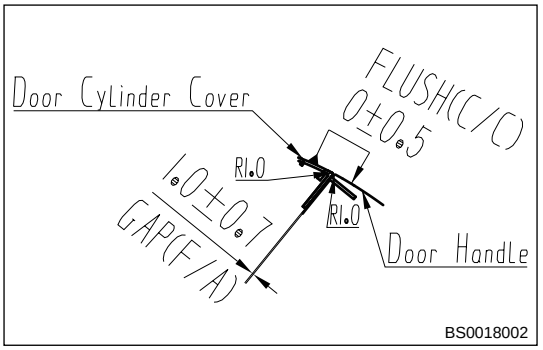
15. Assembly clearance between rear door window frame and rear triangular block window frame.



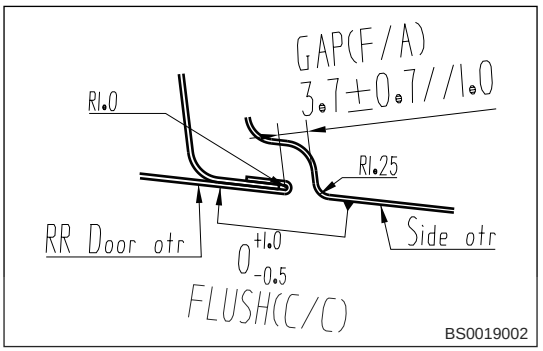
16. Assembly clearance between rear door glass outer weather bar and rear quarter window weather bar.



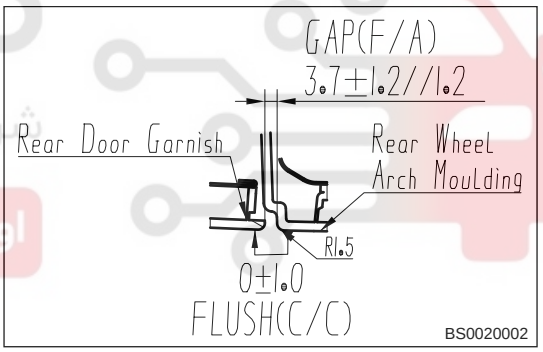
17. Assembly clearance between handle cover panel and door handle.



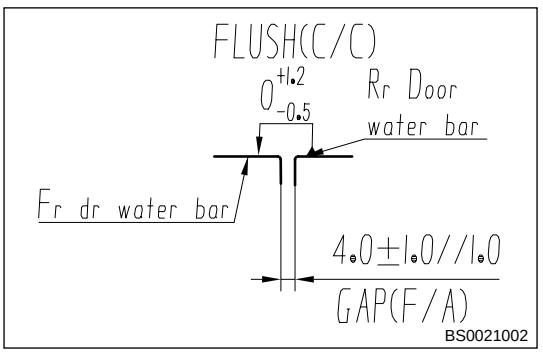
18. Assembly clearance between rear door outer panel and quarter outer panel.



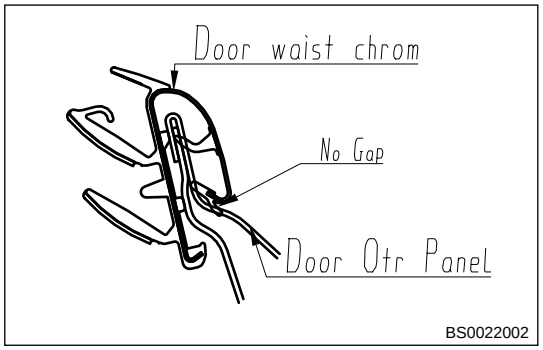
19. Assembly clearance between rear door trim panel and rear wheel arch trim panel.



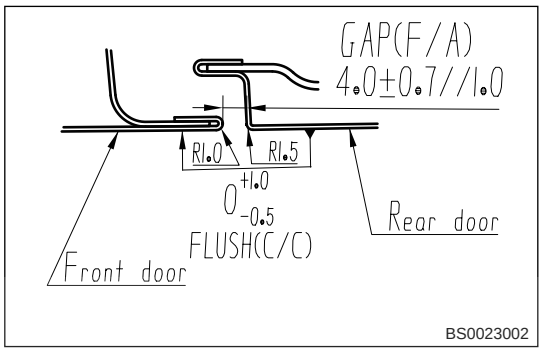
20. Assembly clearance between front door weather bar and rear door weather bar.



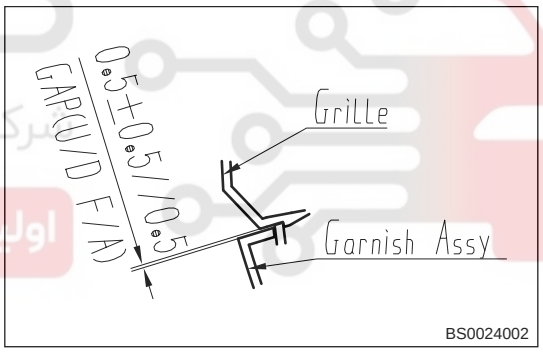
21. Assembly clearance between outer weather bar and door outer panel.



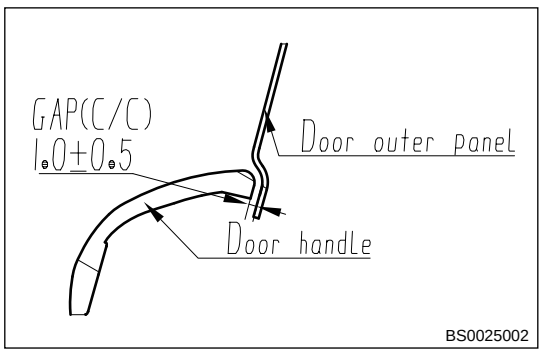
22. Assembly clearance between front door outer panel and rear door outer panel.



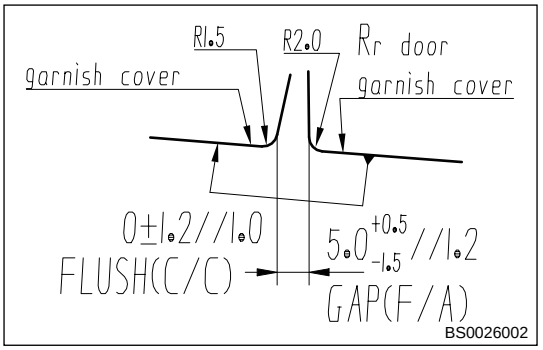
23. Assembly clearance between trim panel strip and door trim panel.



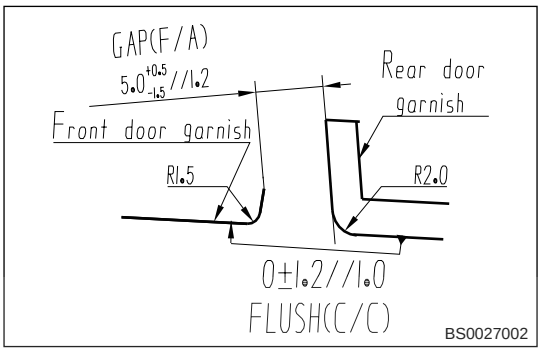
24. Assembly clearance between door outer panel and door handle.



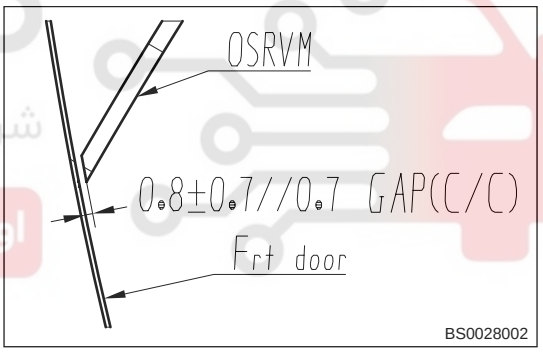
25. Assembly clearance between front door trim panel strip and rear door trim panel strip.



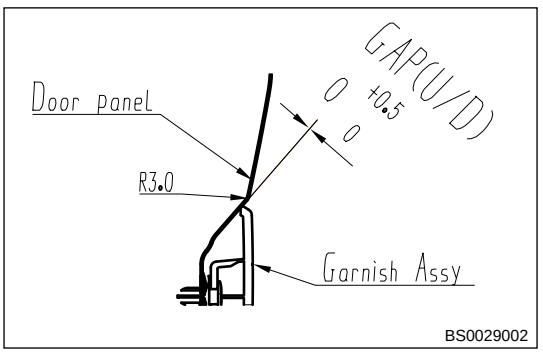
26. Assembly clearance between rear door trim panel and rear door trim panel.



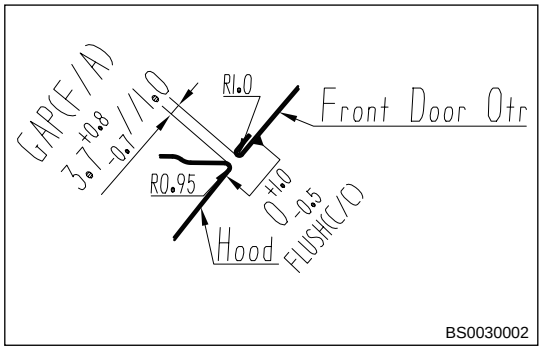
27. Assembly clearance between outside rear view mirror and front door outer panel.



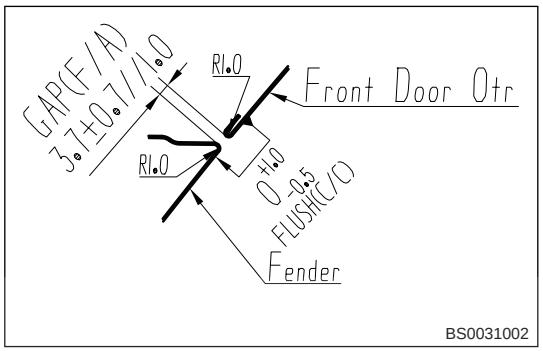
28. Assembly clearance between front/rear door outer panel and front/rear door trim panel.



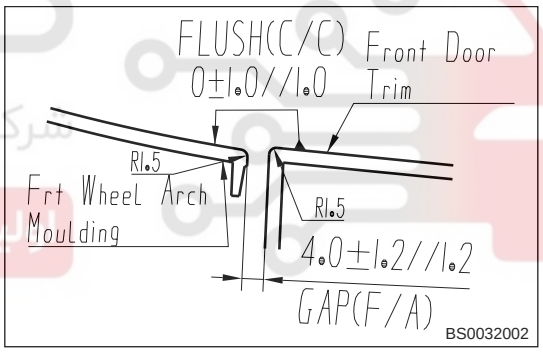
29. Assembly clearance between front door outer panel and engine hood.



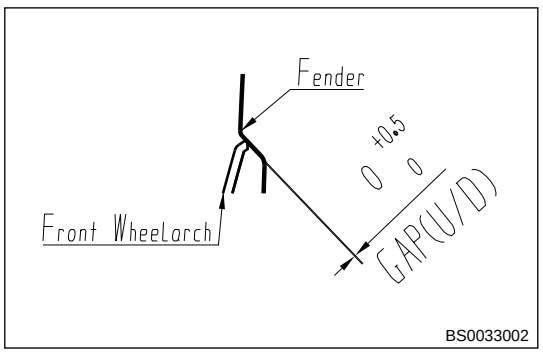
30. Assembly clearance between front door outer panel and wing.



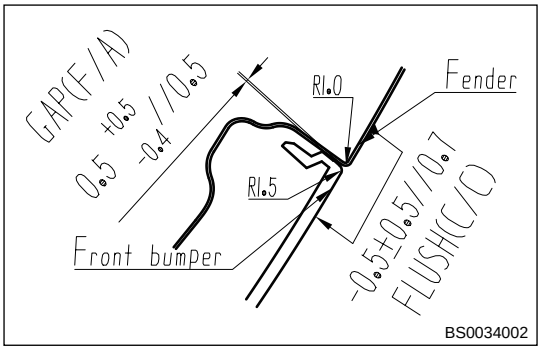
31. Assembly clearance between front wheel arch trim panel and front door trim panel.



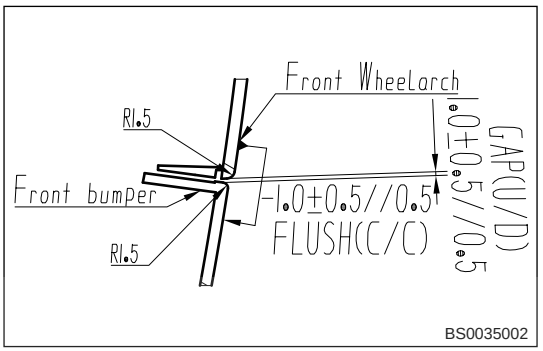
32. Assembly clearance between front wheel arch and wing.



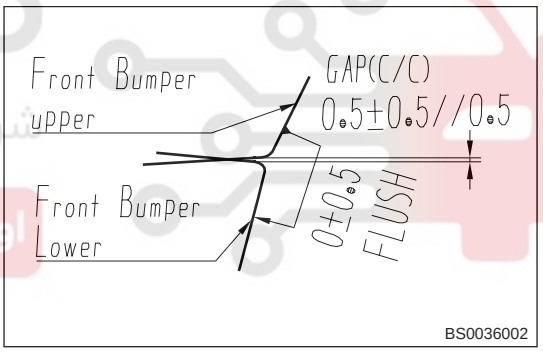
33. Assembly clearance between front bumper and wing.



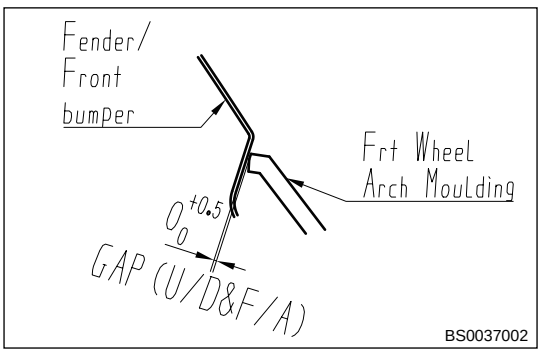
34. Assembly clearance between front bumper and front wheel arch.



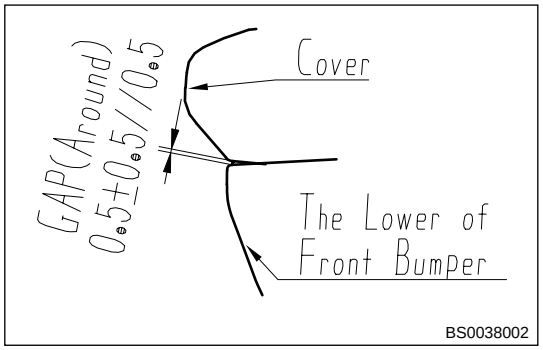
35. Assembly clearance between front bumper upper body and front bumper lower body.



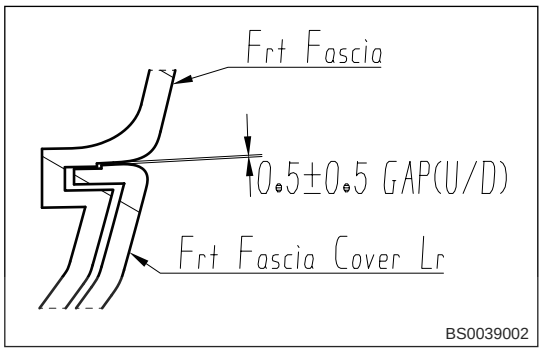
36. Assembly clearance between wing/front bumper and front wheel arch trim panel.



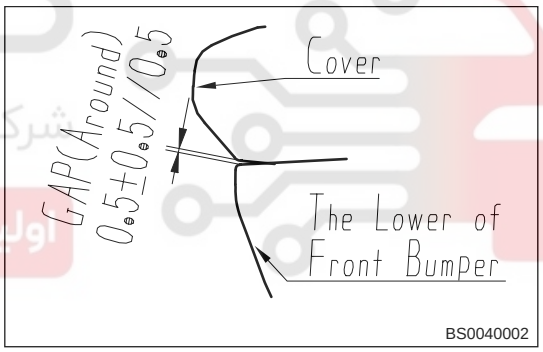
37. Assembly clearance between headlight trim cover and front bumper upper body.



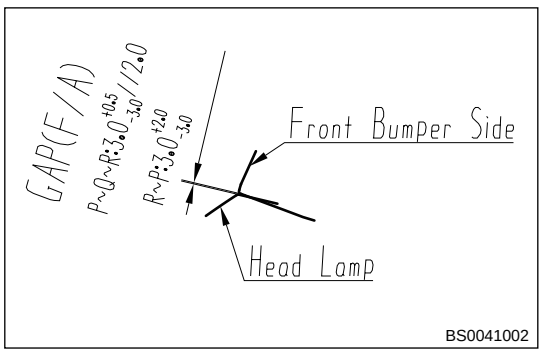
38. Assembly clearance between front bumper body and front bumper lower body.



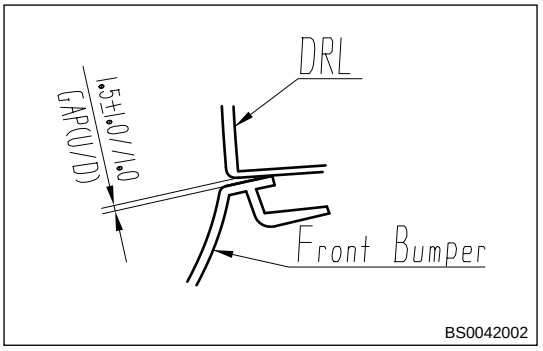
39. Assembly clearance between trim cover and front bumper upper body.



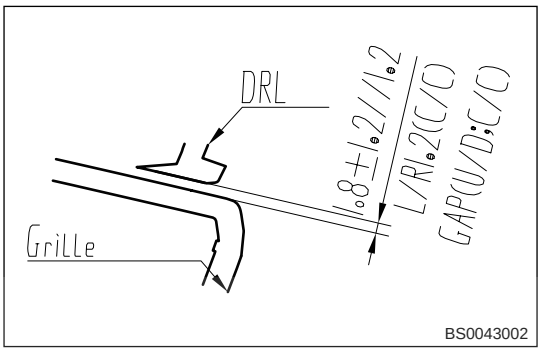
40. Assembly clearance between front bumper body and headlight.



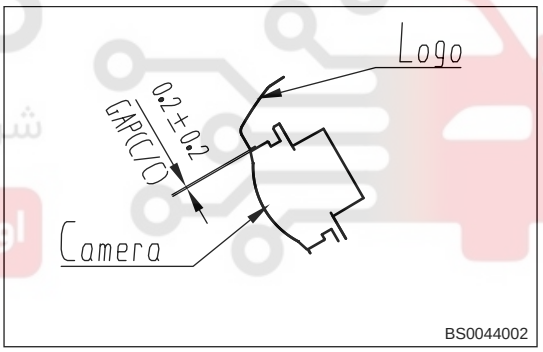
41. Assembly clearance between daytime running light and front bumper body.



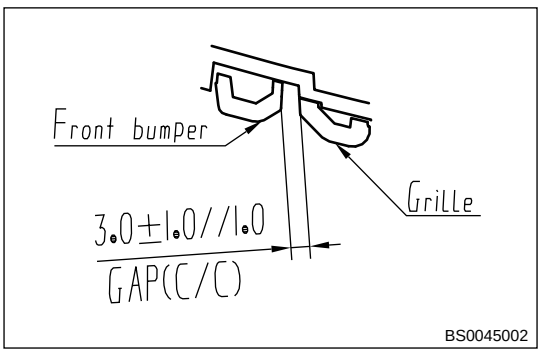
42. Assembly clearance between grille and daytime running light.



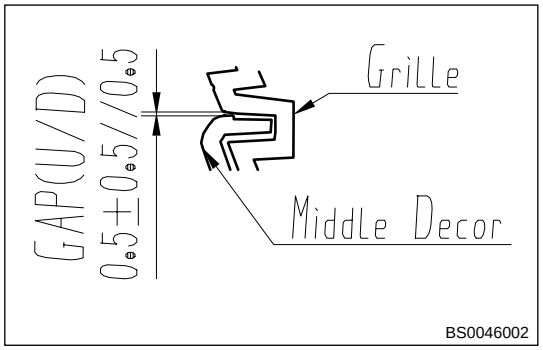
43. Assembly clearance between camera and LOGO.



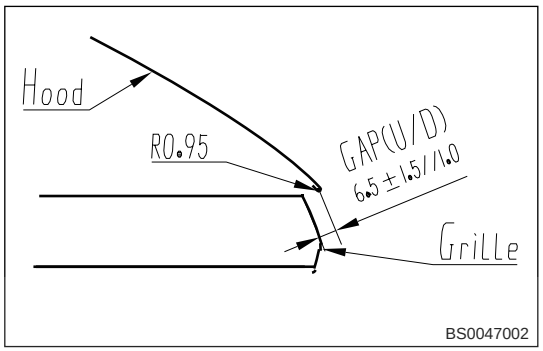
44. Assembly clearance between front grille and front bumper.



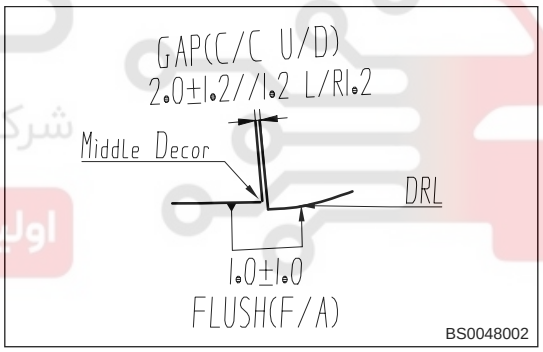
45. Assembly clearance between grille and center trim strip.



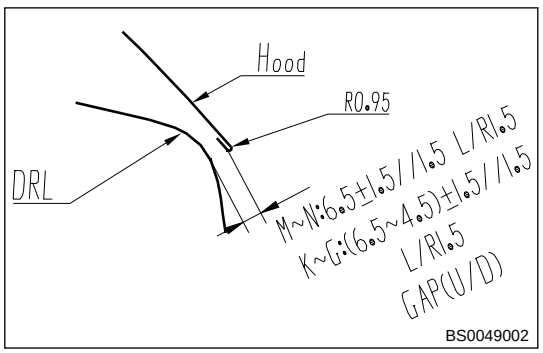
46. Assembly clearance between engine hood and grille.



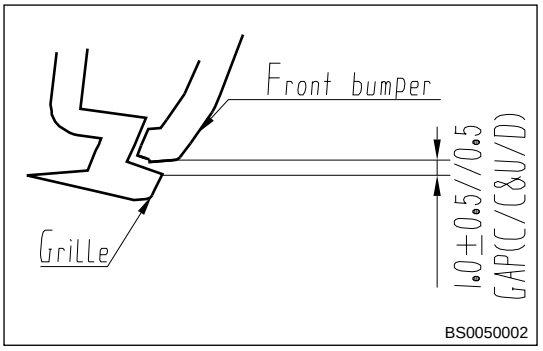
47. Assembly clearance between center trim strip and daytime running light.



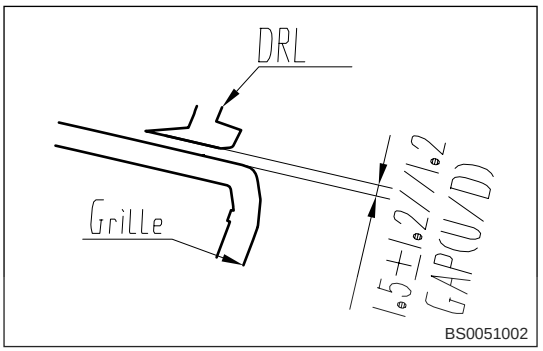
48. Assembly clearance between daytime running light and engine hood.



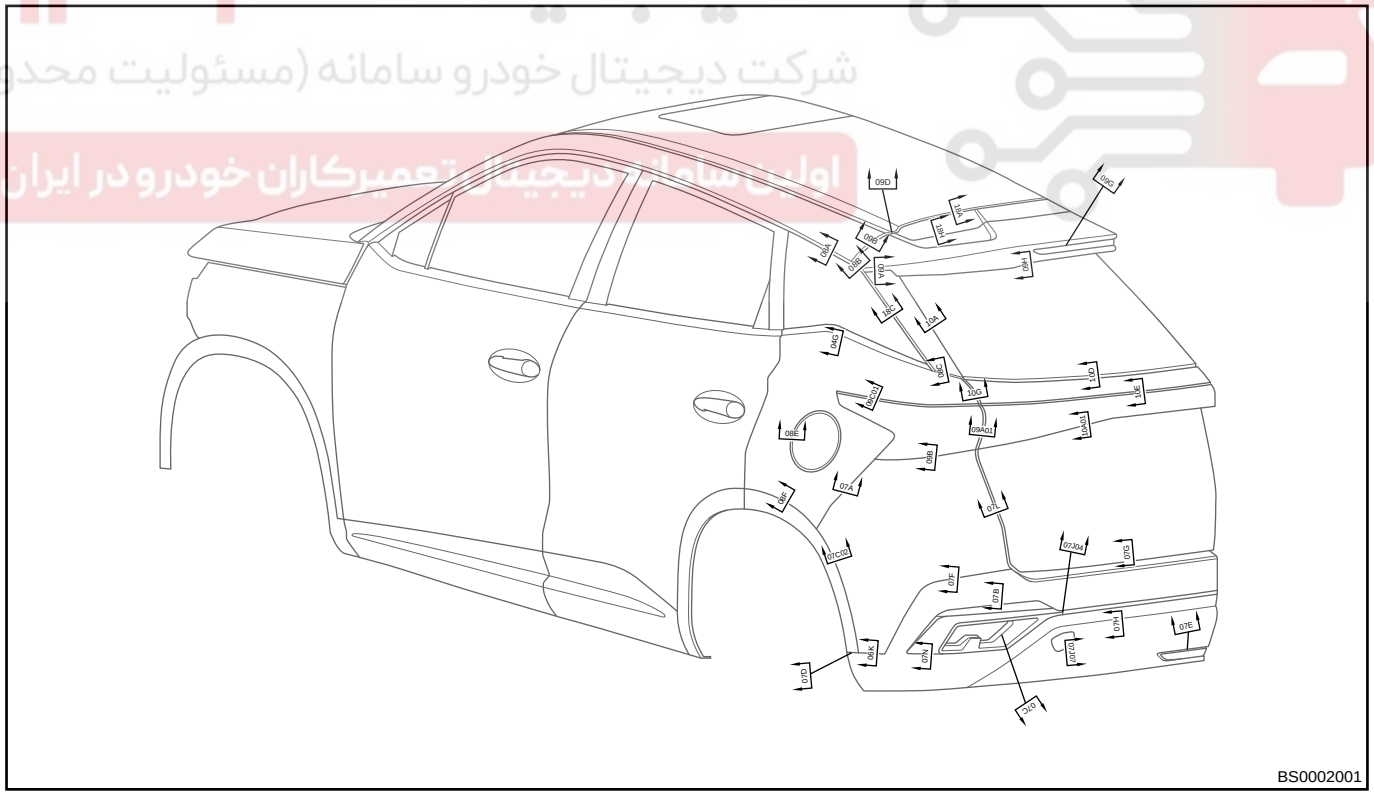
49. Assembly clearance between front bumper and grille.



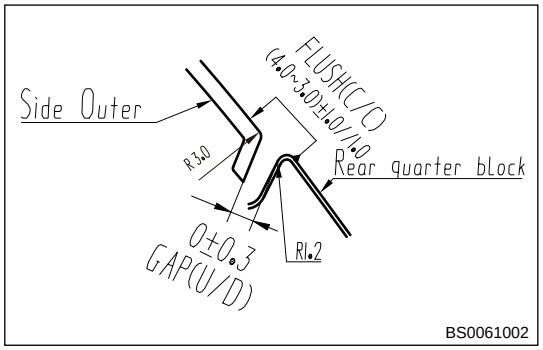
50. Assembly clearance between grille and daytime running light.



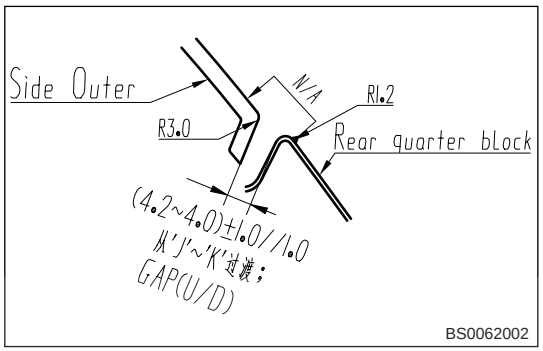
Rear Body Assembly



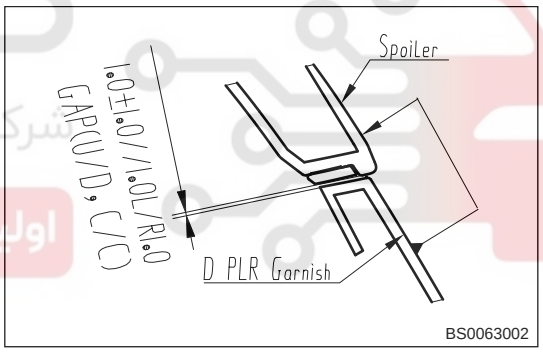
51. Assembly clearance between quarter outer panel and rear quadrangular block.



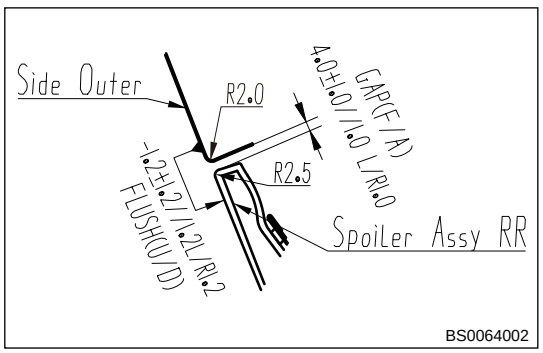
52. Assembly clearance between spoiler and rear quadrangular block.



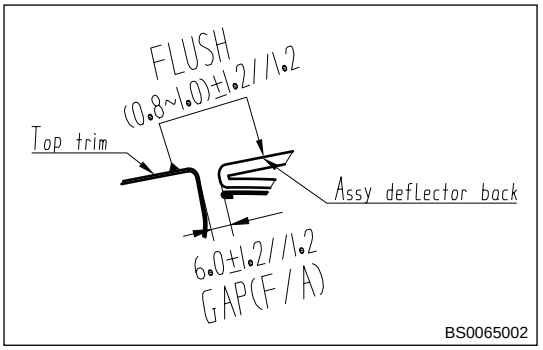
53. Assembly clearance between spoiler and D-pillar trim panel.



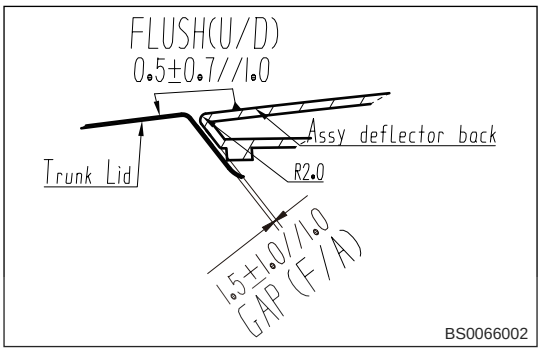
54. Assembly clearance between quarter outer panel and spoiler assembly.



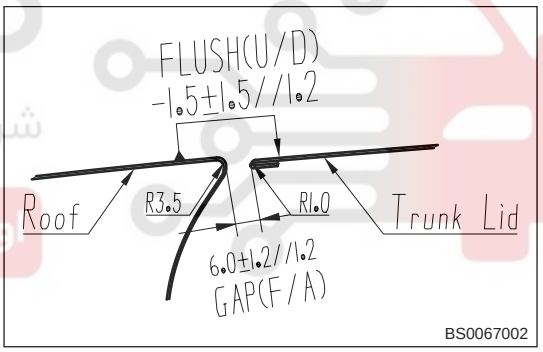
55. Assembly clearance between roof trim strip and rear spoiler assembly.



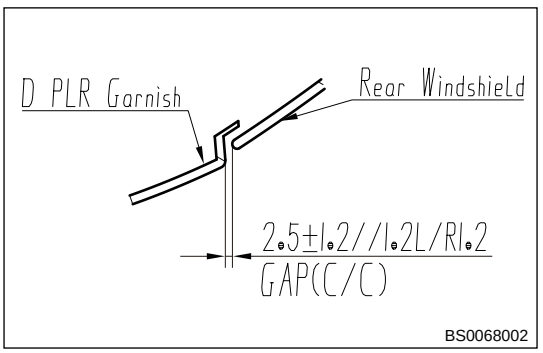
56. Assembly clearance between back door outer panel and spoiler.



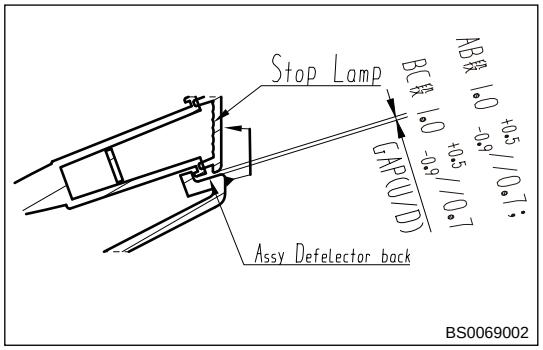
57. Assembly clearance between roof cover and back door.



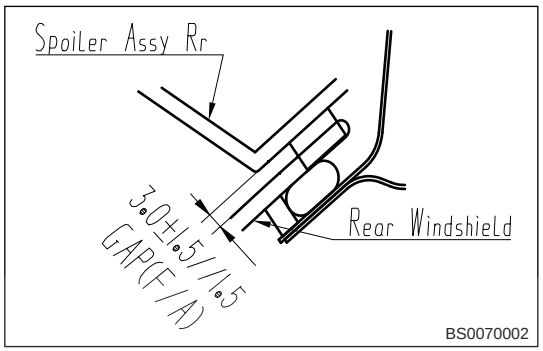
58. Assembly clearance between D-pillar trim panel and rear windshield.



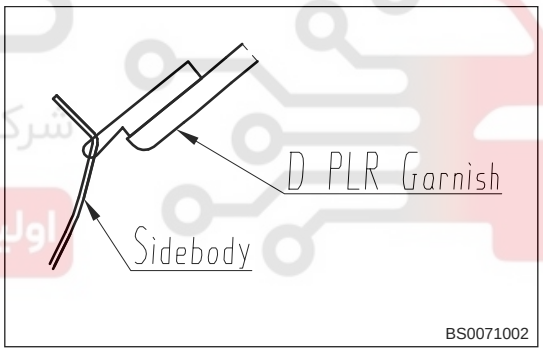
59. Assembly clearance between high mounted brake light and spoiler.



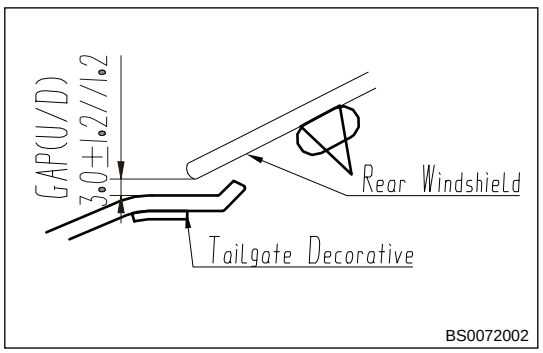
60. Assembly clearance between spoiler assembly and rear windshield.



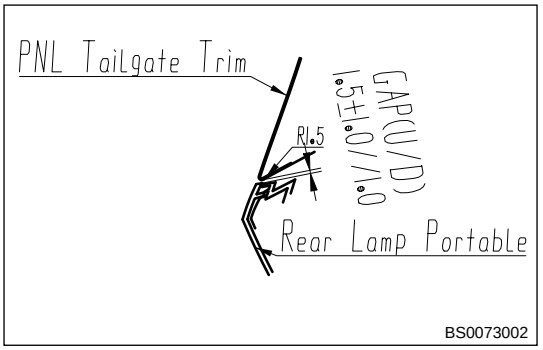
61. Assembly clearance between D-pillar trim panel and quarter outer panel.



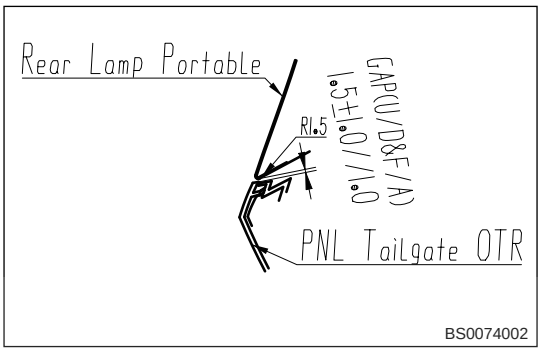
62. Assembly clearance between rear windshield and back door trim panel.



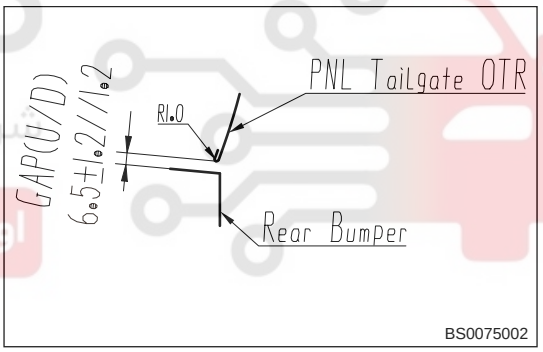
63. Assembly clearance between back door trim panel and combination light (movable).



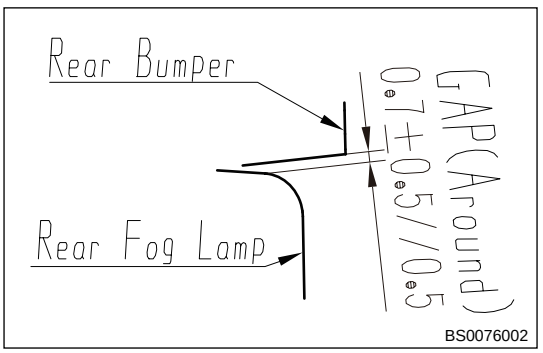
64. Assembly clearance between combination light (-movable) and back door outer panel.



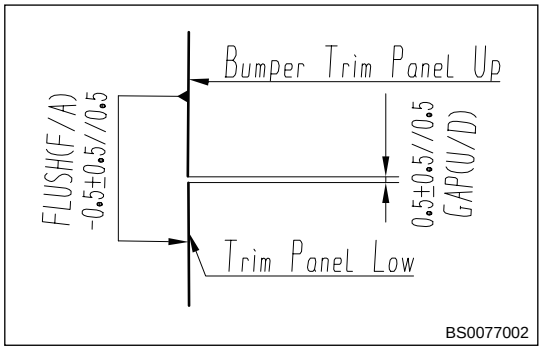
65. Assembly clearance between back door outer panel and rear bumper body.



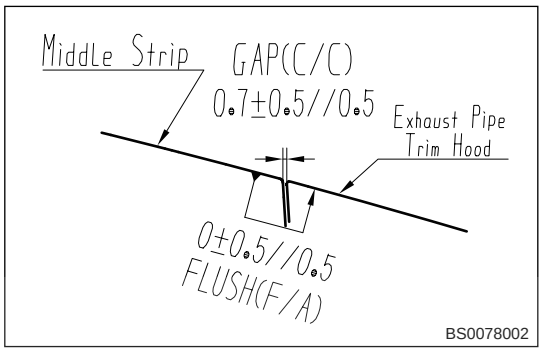
66. Assembly clearance between rear bumper and rear fog light.



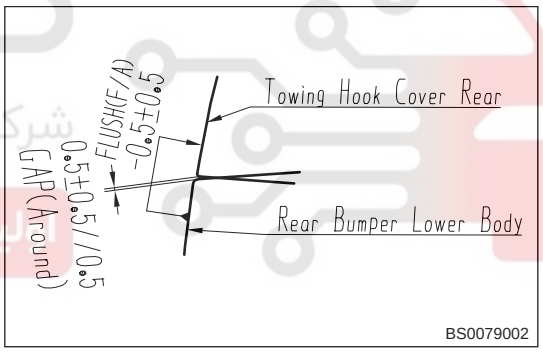
67. Assembly clearance between upper part and lower part of rear bumper trim panel.



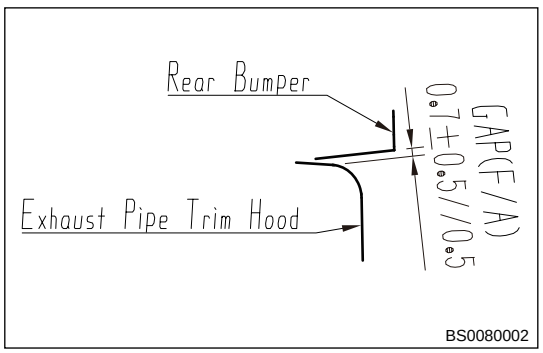
68. Assembly clearance between center strip and exhaust pipe trim cover.



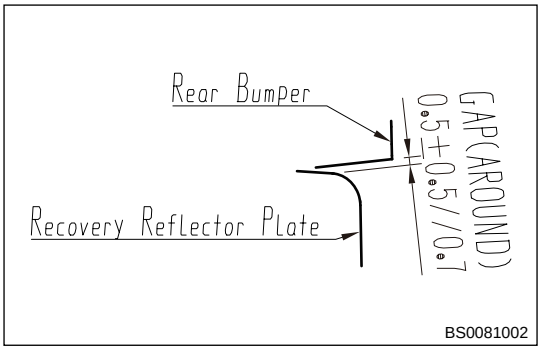
69. Assembly clearance between rear towing hook cover and rear bumper lower body.



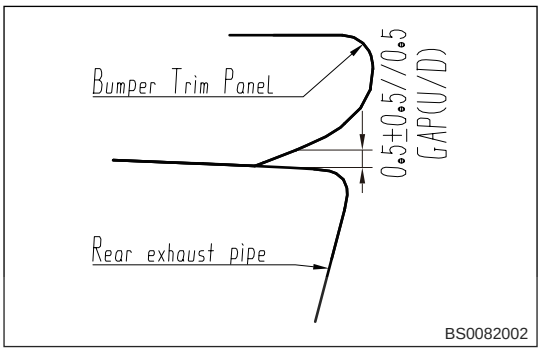
70. Assembly clearance between rear bumper and exhaust pipe trim cover.



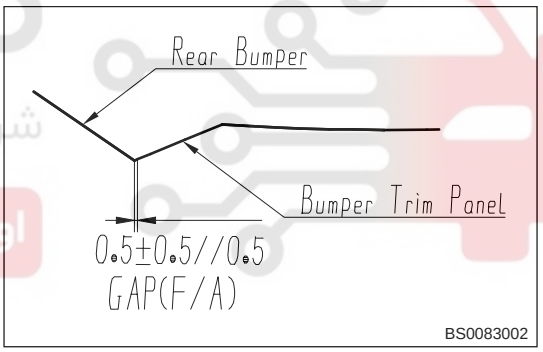
71. Assembly clearance between rear bumper and retro-reflector plate.



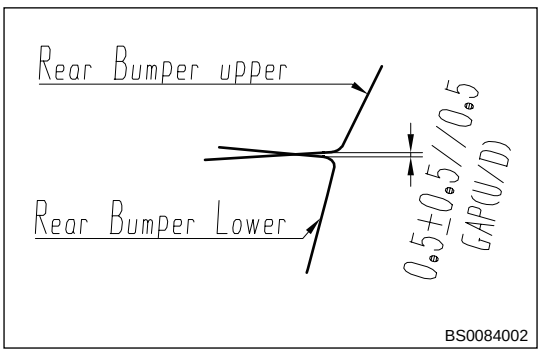
72. Assembly clearance between rear bumper trim panel and exhaust tailpipe.



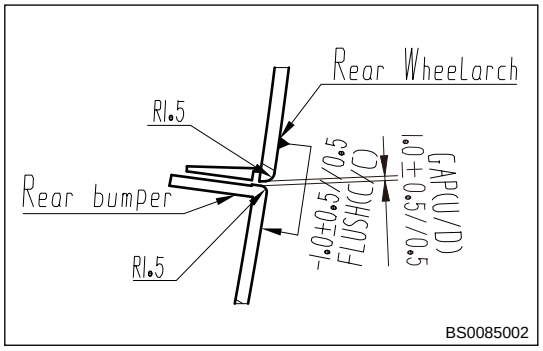
73. Assembly clearance between rear bumper and rear bumper trim panel.



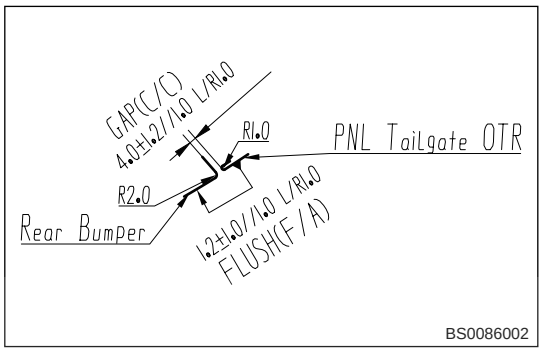
74. Assembly clearance between rear bumper upper body and rear bumper lower body.



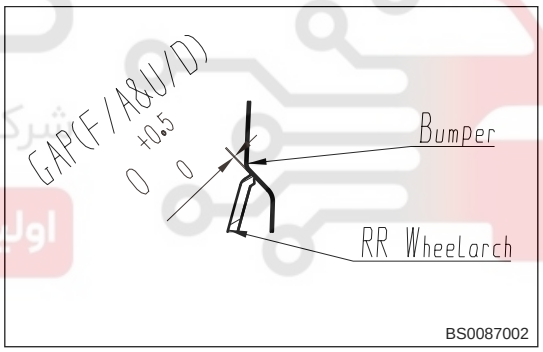
75. Assembly clearance between rear bumper and rear wheel arch.



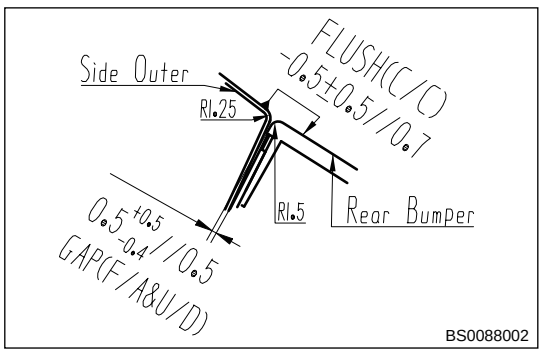
76. Assembly clearance between rear bumper body and back door outer panel.



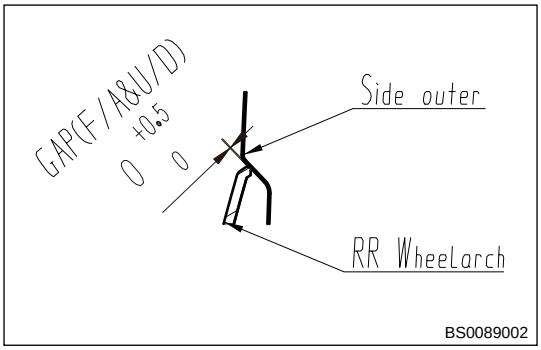
77. Assembly clearance between rear bumper and rear wheel arch.



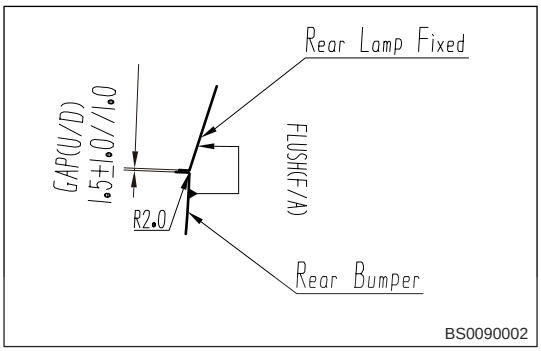
78. Assembly clearance between quarter outer panel and rear bumper body.



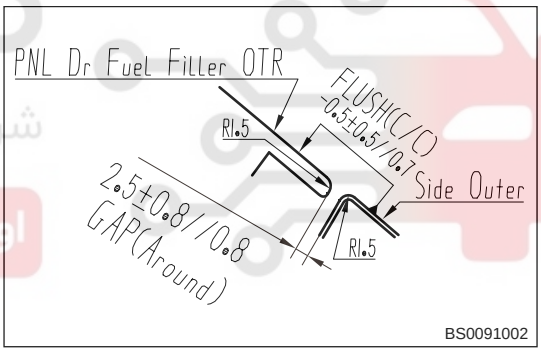
79. Assembly clearance between quarter and rear wheel arch.



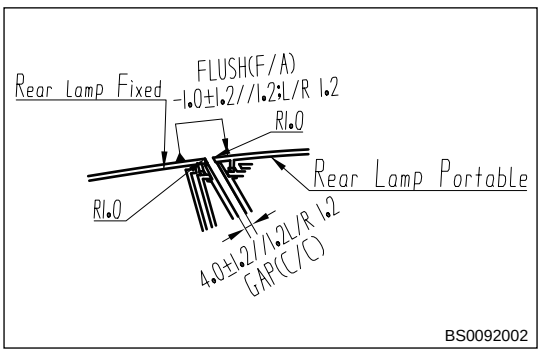
80. Assembly clearance between combination light (fixed) and rear bumper body.



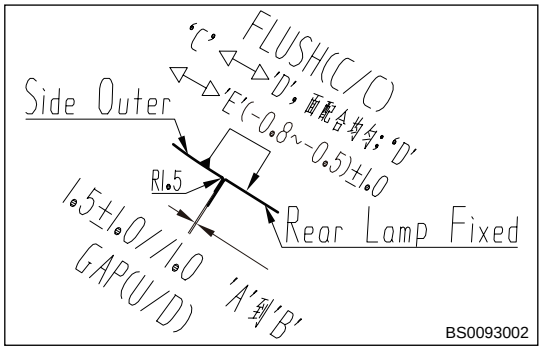
81. Assembly clearance between fuel filler cap outer panel and quarter outer panel.



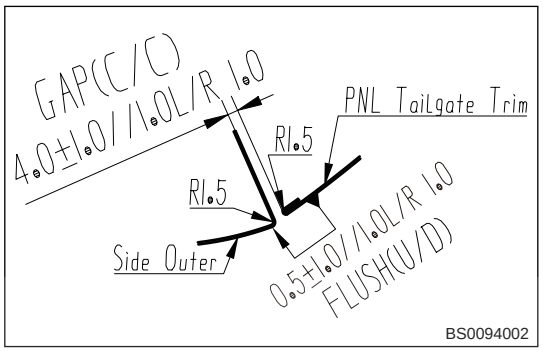
82. Assembly clearance between combination light (fixed) and combination light (movable).



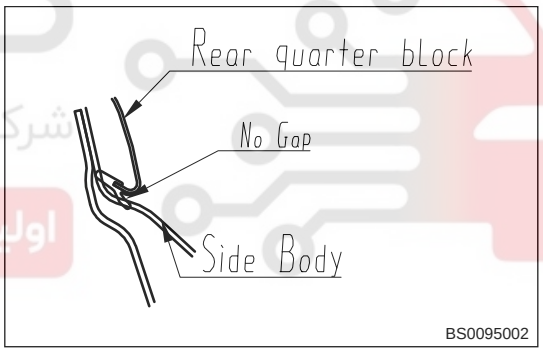
83. Assembly clearance between quarter outer panel and combination light (fixed).



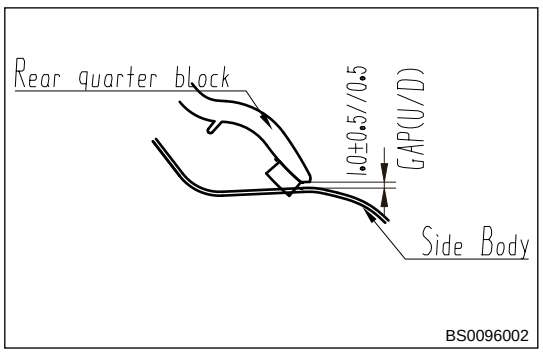
84. Assembly clearance between quarter outer panel and back door trim panel.



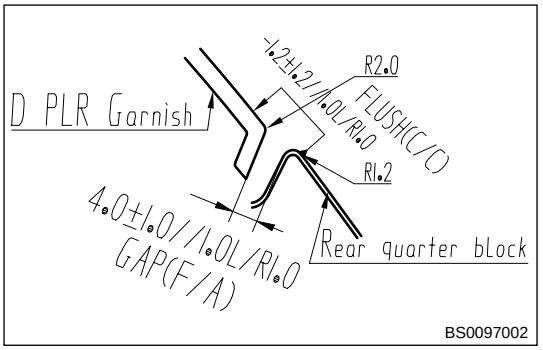
85. Assembly clearance between rear quadrangular block and quarter.



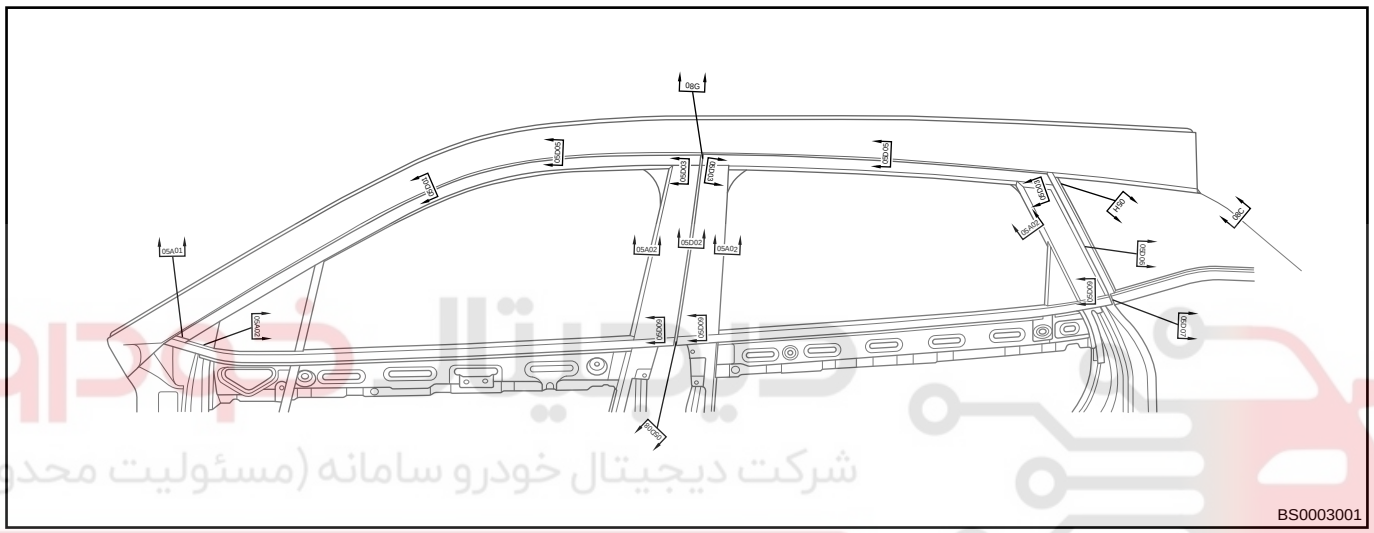
86. Assembly clearance between rear quadrangular block (-black) and quarter.



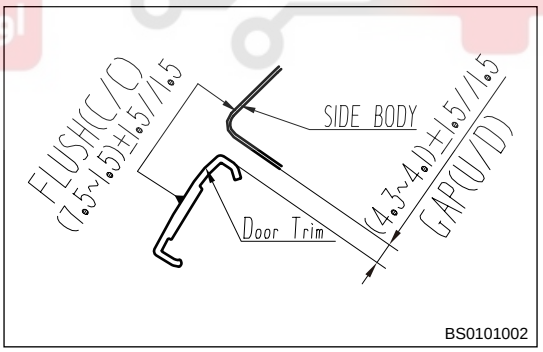
87. Assembly clearance between D-pillar trim panel and rear quadrangular block.



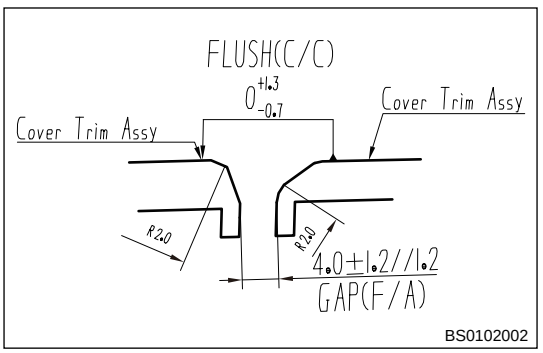
Rear Body Assembly



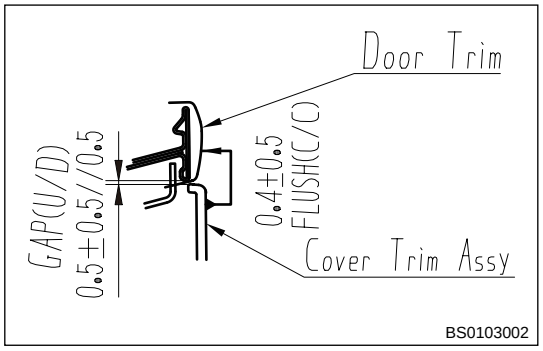
88. Assembly clearance between quarter outer panel and trim strip.



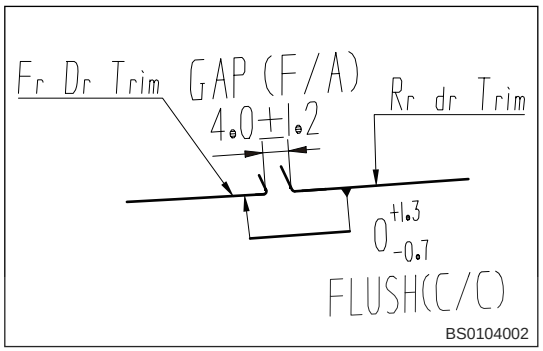
89. Assembly clearance between front door cover plate and rear door cover plate.



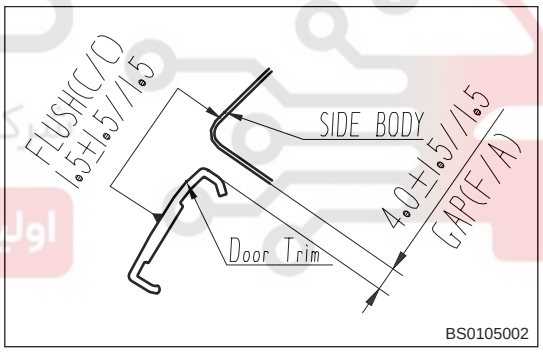
90. Assembly clearance between door trim strip and door cover plate.



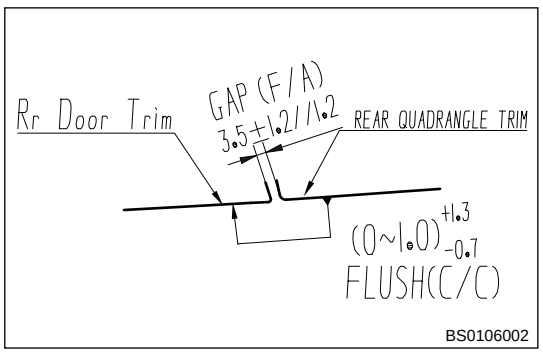
91. Assembly clearance between front door trim strip and rear door trim strip.



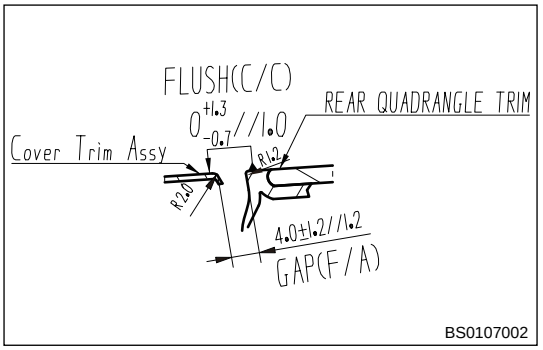
92. Assembly clearance between trim strip and quarter outer panel.



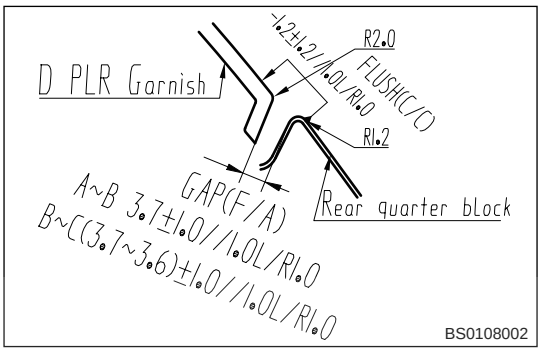
93. Assembly clearance between rear door strip and rear quadrangular trim panel.



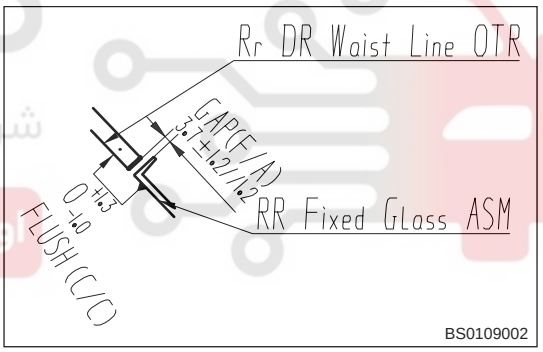
94. Assembly clearance between rear door cover plate and rear quadrangular trim panel.



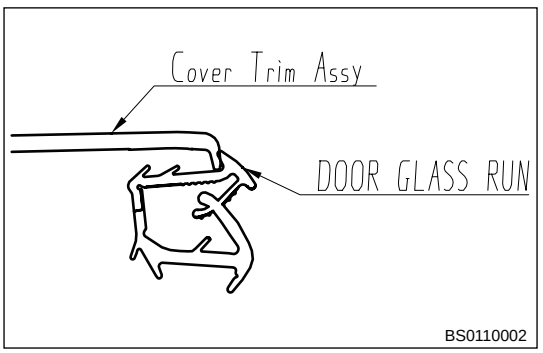
95. Assembly clearance between D-pillar trim panel and rear quadrangular block.



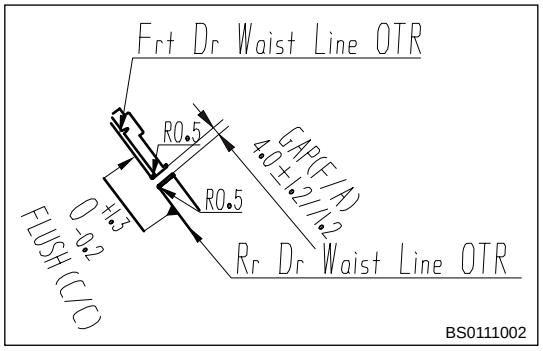
96. Assembly clearance between rear door glass outer weather bar and rear side window glass assembly.



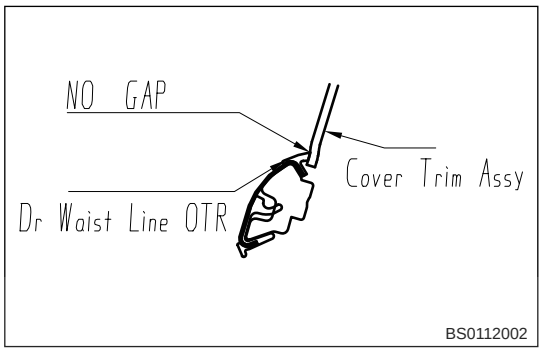
97. Assembly clearance between cover plate and glass run.



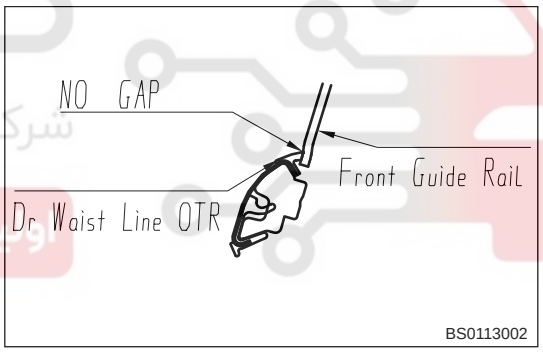
98. Assembly clearance between front door glass outer weather bar and rear door glass outer weather bar.



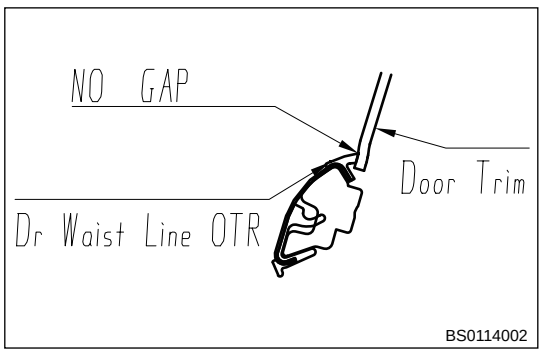
99. Assembly clearance between outer weather bar and cover plate.



100. Assembly clearance between outer weather bar and front door guide rail.



101. Assembly clearance between outer weather bar and trim strip.



Diagnostic Information and Steps

Diagnosis of Accident Vehicle

In the procedure of repairing body, professional technicians need to use beam calibrator, electronic measurement system, body metal plate repair machine, welding machine and various polishing and cutting tools to ensure that the vehicle can restore to the original level in terms of geometric dimensions

and usage performance. However, sometimes it is unable to find the driving system failure and mounting failure that may cause serious results when repairing the accident vehicle. Therefore, in addition to checking the necessary body geometric dimensions, special attention must be paid to the following components:

1. Check to make sure that the steering mechanism and steering link can operate correctly within the number of rotations of steering wheel, and visually check for bent or cracked parts.
2. Check all components of the driving system (such as fork pipe/rail arm, suspension sliding arm, steering knuckle, lateral stabilizer bar, frame, and mounting) for bending, twist and crack.
3. Check wheel and tire for damage, concentric rotation and unbalance. Check the tire pattern and tire wall for cuts, and check the tire pressure.
4. Check engine/transmission/exhaust system mounting for damage.
5. Perform a road test to ensure vehicle driving ability, finally deliver the vehilcle to users.

Removal and Installation

- Before replacing the critical parts of the body, it’s necessary to use the universal body calibration frame to calibrate the body, and then determine the damaged parts to be replaced. Before welding, it is necessary to perform accurate positioning of components, and then carry out measurement to ensure that the components meet the requirements of body dimensions before welding. In the process of welding, measure frequently to ensure the correct assembly.
- It’s necessary to understand the welding and assembly relationship among body metal plates before removal. Please refer to Body Metal Plate Components View. Cutting the parts separately is not suggested. The rigidity, driving safety and service convenience of the vehicle will be affected after cutting and welding.

Removal

1. Remove all plates and components related with replacement components.
2. Remove sealant and anti-corrosion materials if necessary.
3. Locate, mark and drill all factory welding points that connect components to be replaced.
4. Remove the damaged replacement component.
5. Remove the residue material.

Installation

1. Treat the mating surface beforehand if necessary.
2. Select the correct welding method according to original vehicle welding type. Use shielded welding where it’s inconvenient for resistance welding. If plug welding is selected, drill holes for plug welding on new parts, and determine the diameters and spaces of plug welding holes according to the original welding points.
3. Place new parts on the vehicle temporally.
4. Assemble and secure the new components with the calibration support (locate service plate correctly).
5. Measure positions of new parts to ensure their correct assembly dimensions.
6. Perform the corresponding welding.
7. Clear all welding surfaces.
8. Spray the primer.
9. Spray the sealant and anti-corrosion materials if necessary.
10. Install all related plates and components.

Paint/Coating Description

Paint is a kind of mixed liquid, which can be applied on a variety of base material. After the paint is dry, it forms a solid paint film to protect the base material and beautify the appearance. When the vehicle is delivered out of the factory, the following four layers of paint have been applied to make it have good anti-corrosion and gloss.

1. Electrophoretic primer.
2. Intermediate paint.
3. Pigmented paint.
4. Celluloid paint (transparent external coating).

Main functions of electrophoretic primer:

1. Anti-rust.
2. Improve the adhesion during working.
3. Provide limited filling capability.

Functions of intermediate paint:

1. Filling capability.
2. Isolation/sealing.
3. Serve as the pigmented paint.

Functions of pigmented paint:

1. Enrich the color.
2. Improve the gloss.

Functions of celluloid paint:

1. It contains ultraviolet-proof materials, which can resist the ultraviolet rays in the sun.
2. Resist the corrosion of environmental dust (acid rain) on the paint surface.
3. Make the paint surface friction resistant.
4. Make paint surface have better gloss.

Daily Maintenance of Vehicle Paint Surface

The maintenance of the body aims mainly to prevent the early aging and damage of the coating to keep the body clean and beautiful. In addition, keeping the body clean helps to find the damage of the body coating at any time to repair it in time.

1. Washing the body.
   a.It’ s necessary to wash the body frequently to keep good paint surface and beauty of the body. However, it should not be performed in strong sunlight or in low temperature condition. In any case, do not wash it until body surface cools. Wash the dirt on the body surface with pressure water flow when using spraying-water washing, and then scrub the body surface with soft and clean sponge or towel from top to bottom. If car detergent is used, wash it with large amount of water. When using the high-pressure washing machine, do not turn the nozzle directly to transmission, steering gear, radiator, engine cover, rubber protective parts of various components and external ornaments. After washing the car, use high-quality white gauze to dry the body surface. Never use gasoline, kerosene, trichloroethylene, strong alkaline water and alcohol to scrub the body surface and organic glass surface.
2. Cleaning the body.
   a. Before using the wax on the car body coating, remove the oxide, road dirt, oil stain and the dirt that cannot be cleaned firstly. Do not scrape off the asphalt or gasoline stains on the body and bumper, and do not use gasoline or fabric decontamination agent, but use special decontamination products to remove them in time.
   b. For cleaning of body exterior ornaments and light alloy, firstly use soapy water or water that adds a small amount of decontamination agent or detergent, and then wash with a large amount of water. For scrubbing of windshield and door glass, it is better to use the washer fluid supplied by CHERY CAR TECH. SERVICE STATION so as to obtain high-quality scrubbing effect, instead of using silicone based products.
3. Waxing and polishing the body.
   a.Waxing the body surface is one effective method that protects the gloss of paint coating surface. Wax can protect the paint coating surface well because after waxing, enough grease is kept on the

paint surface, which cuts off the contact between water, air and the paint coating, and the coating is free from oxidization, which can effectively prevent the body surface from being eroded. Before waxing, make sure that the body surface is clean and dry; if the paint surface is discolored or oxidized, it’s necessary to paint it before waxing.
b.It’s better to use the waxing tool for polishing wax. If not, wax it with a soft napkin or a soft and lint-free cotton or flannel. Because waxing will change in the sunlight in most cases, sometimes there will be spots on the body surface when waxing in the sunlight, do not wax it in the direct sunlight.
c.Water droplet test can be used to check if waxing the body is good. If the water forms a water ball on the body surface, it proves there is the wax layer, otherwise, it needs to be cleaned and waxed. Do not wipe off the wax on the body too early and polish it after drying. Polishing the body paint should be carried out when the surface is clean and dry with a polisher (or by hand). Polishing any plastic parts is forbidden.

4. Restoring scratch on the body.
   a.When the scratch on the body surface is not serious and does not reach the metal, the special paint repair spraying tank can be used. Spraying the paint marked the same color to the scratch surface. The repaired paint will be dry in the air. CHERY CAR TECH. SERVICE STATION can provide paint spraying tanks filled with various colors (the paint number is marked in the designated vehicle area).
   b.If the scratch on the body surface has damaged the metal with rust stain, remove the rust firstly, then scratch the putty with rubber or nylon scraper, and then perform general repair treatment for the paint and coating surface.
5. Maintenance of the bottom protective layer.
   a.There is a protective layer on the bottom of the car, which has a permanent anti-chemical corrosion and mechanical trauma. The car bottom may contact with the road during driving, causing damage to the protective layer of the car bottom. It needs regular inspection and timely service.
6. Treatment of cavity anti-corrosion.
   a.If the external temperature is very high, the wax may flow out of the cavity, which can be removed with a plastic scraper. At this time, pay attention to safety and environmental protection. All cavities that may be corroded on the car have been filled with wax for anti-corrosion before leaving factory. Maintenance is free in general condition.

WARNING:

- In the process of mixing and spraying paint, diffuse solvents can cause serious respiratory disease. It’s necessary to operate in strict accordance with the manufacturers’ instruction manual of paint, device and safety device. When performing the operation of this procedure, wear special labor protection appliances such as gas mask, anti-static clothing, protective glasses and gloves etc. to prevent injury.

CAUTION:

Never mix paint systems of different manufacturers or substitute products. When incompatible products are mixed, the following phenomena will occur:

- Primer peels off.
- Adhesion between coatings is poor.
- Curing is not completely.
- Gloss is reduced.
- Color accuracy is poor.
- Coating is damaged (dent, bubble, wrinkle without gloss).

CAUTION:

Precautions during Finish Varnish Maintenance and Repair

- Avoid washing vehicle in direct sunlight.

- Avoid using strong soap and chemical detergent.
- Use the brushless automatic car-cleaning equipment.
- Avoid using products containing acid and alkali.
- Do not use a brush or broom to remove snow or ice.
- After cleaning it completely, wipe the remaining rinse water immediately and forbid to make it dry on the surface. It is recommended to dry it with soft chamois leather.
- When the defect on the surface can be eliminated by polishing, the vehicle can be polished.
- If the surface defect is not serious, try to eliminate the repairing area.
- Avoid removing too much celluloid paint, otherwise it cause the paint damage prematurely.
- Use electric polishing device in strict accordance with the requirements recommended by the polishing manufacturer. Do not use wax or silicone products to cover the vortex imprinting (the imprinting will reappear soon and make the user unsatisfied).

CAUTION:

Precautions of Anti-corrosion Treatment

- When spraying sound insulation or anti-corrosive materials, oreventive measures must be taken to avoid spraying into component openings (such as door locks, window regulator slots, window regulators and seat belt retractors) and any moving and rotating components, especially the parking brake cable. After spraying the materials, make sure that all drain holes on the body are open.
- When using open flame to repair the body, it’s necessary to remove the foamed sound insulation materials at the repair areas. When reinstalling the sound insulation materials, avoid inhaling dust that is harmful to the human body.
- When performing the operation of this procedure, wear special protective glasses and gloves to prevent injury.
- When the vehicle leaves the factory, it’s necessary to deal with the body metal plates by means of spraying electrophoretic primer. After repairing and / or replacing parts, it’s necessary to deal with all exposed metal surfaces with anti-rust primer.
- If the original coating or anti-corrosive material is burnt during welding or heating operation, remove it and carry out anti-corrosion treatment again.
- When carrying out collision service, the metal will be exposed, and it’s necessary to spray these surfaces with special anti-corrosion materials.
- Sealant can prevent water and dust from entering the vehicle and it has anti-corrosion function. The original sealed joint is obvious, if these seals are damaged, reseal to calibrate them. Reseal the connection of the newly replaced plate. The sealant used should be flexible after curing and painting. Fill the opening seams sealed with sealant with high consistency filler. Perform operation according to the instructions for the selected material.
- The sound insulation material can control the general noise level in the vehicle. When the sound insulation layer is damaged due to service operation or replacing new panels, it’s necessary to replace it with the same material.

Diagnostic Information and Steps

Examples and Treatment of Common Car Paint Surface Defects

Name	Cause	Treatment Method
Efflorescence	1. The paint film is strongly eroded, such as strong ultraviolet ray. 2. The paint mix ratio is not correct during application. 3. Light and weather resistance of coating is poor. 4. Do not wash the car frequently or do not wash it completely. 5. The selected car cleaner is not suitable or the polishing wax is too coarse.	1. Polishing and beatifying treatment. 2. General grinding, polishing and beatifying treatment. 3. Depth grinding, polishing and refurbishing treatment. 4. Local spraying paint and repair.
Peeled off Paint on Plastic Parts	1. The adhesion between the coating and the base material is too poor or the upper coating is harder than the lower coating. 2. The coating is too thick, and the paint film is eroded by moisture, acid and alkali in the air. 3. The recoatability of the lower coating is not good, or the treatment is not good; the upper coating have defects such as pinholes, exposed bottom, etc.	1. Polishing and beatifying treatment. 2. General grinding, polishing and beatifying treatment. 3. Depth grinding, polishing and refurbishing treatment. 4. Local spraying paint and repair.
Honeycomb Cracks	1. Do not mix primer coating completely before spraying it. 2. Finish paint coating is too thick. 3. Floating coating is too thick.	1. Polishing and beatifying treatment. 2. General grinding, polishing and beatifying treatment. 3. Depth grinding, polishing and refurbishing treatment. 4. Local spraying paint and repair.
Bird Droppings Erosion	1. Bird droppings erode.	1. Polishing and beatifying treatment. 2. General grinding, polishing and beatifying treatment. 3. Depth grinding, polishing and refurbishing treatment. 4. Local spraying paint and repair.
Abrasion Imprinting	1. The paint film harness is not enough. 2. Hard objects scratch.	1. Polishing and beatifying treatment. 2. General grinding, polishing and beatifying treatment. 3. Depth grinding, polishing and refurbishing treatment.

Name	Cause	Treatment Method
		4. Local spraying paint and repair.
Corrosion	1. The paint film at the edge is thinner. 2. Collision damage causes corrosion. 3. Acid and alkali erode.	1. Polishing and beatifying treatment. 2. General grinding, polishing and beatifying treatment. 3. Depth grinding, polishing and refurbishing treatment. 4. Local spraying paint and repair.
Peeled off Paint	1. The adhesion between the coating and the base material is too poor or the upper coating is harder than the lower coating. 2. The coating is too thick, and the paint film is eroded by moisture, acid and alkali in the air. 3. The recoatability of the lower coating is not good, or the treatment is not good. 4. The upper coating have defects such as pinholes, exposed bottom, etc.	1. Polishing and beatifying treatment. 2. General grinding, polishing and beatifying treatment. 3. Depth grinding, polishing and refurbishing treatment. 4. Local spraying paint and repair.
Acid Rain Corrosion	1. Acid rain erodes	1. Polishing and beatifying treatment. 2. General grinding, polishing and beatifying treatment. 3. Depth grinding, polishing and refurbishing treatment. 4. Local spraying paint and repair.

Name	Cause	Treatment Method
Loss of Gloss	1. The paint film is strongly eroded by acid, alkali, electric arc, sea water and salt mist. 2. The maintenance method of the paint film is not correct in the severe condition. 3. Durability of paint itself is not enough. 4. When the paint is applied, the incorrect mix ratio causes poor durability of the paint film.	1. Polishing and beatifying treatment. 2. General grinding, polishing and beatifying treatment. 3. Depth grinding, polishing and refurbishing treatment. 4. Local spraying paint and repair.
Bubble	1. When the paint film is exposed to the humid environment for a long time, the moisture penetrates into the paint film and moisture raises bubbles when the temperature rises. 2. Base materials are corroded by penetrating materials. 3. The paint film is eroded by gasoline, acid and alkali.	1. Polishing and beatifying treatment. 2. General grinding, polishing and beatifying treatment. 3. Depth grinding, polishing and refurbishing treatment. 4. Local spraying paint and repair.

Removal and Installation

Examples of Common Paint Film Defects Treatment Process

- During operation, keep the machine moving smoothly and gently, and avoid operating too long to avoid overheating and burning the paint surface.

1. Clean the surface to be polished with degreasing material before polishing.
2. Make the sponge wet firstly and squeeze out the excessive water.
3. Apply a small amount of polishing wax to the surface to be polished, and adjust the speed of polishing machine.
4. After the sponge contacts the paint surface, start the machine with the speed of 2500 - 3000 r/min. Then press it for 3 ~ 5 seconds gently before polishing.
5. Wipe off excessive polishing wax with waxing cloth.

Example of General Grinding, Polishing and Beatifying Treatment Process

- Keep the machine moving smoothly and gently and avoid grinding too much. Make sure that the grinding time is as short as possible and the grinding area is as small as possible.
- During operation, keep the machine moving smoothly and gently, and avoid operating too long to avoid overheating and burning the paint surface.

1. Clean the surface to be polished with degreasing material before polishing.
2. Apply a appropriate amount of polishing paste to the surface to be polished, adjust the speed of polishing machine.
3. After the polishing wool pad contacts the paint surface, start the machine with the speed of 2500 - 3000 r/min.
4. Make the sponge wet firstly and squeeze out the excessive water; Apply a small amount of polishing wax to the surface to be polished, and start the machine with the speed of 2500 - 3000 r/min after the sponge contacts the paint surface. Then press it for 3 - 5 seconds gently before polishing.

5. Make the sponge wet firstly and squeeze out the excessive water; Apply a small amount of polishing wax to the surface to be polished, and start the machine with the speed of 2500 - 3000 r/min after the sponge contacts the paint surface. Then press it for 3 - 5 seconds gently before polishing.

Example of Depth Grinding and Polishing Treatment Process

- Keep the machine moving smoothly and gently and avoid grinding too much. Make sure that the grinding time is as short as possible (3- 5 seconds) and the grinding area is as small as possible.
- During operation, keep the machine moving smoothly and gently, and avoid operating too long to avoid overheating and burning the paint surface.

1. Grind the damaged paint surface with # 2000 waterproof abrasive paper, make it parallel and contact with the paint surface to be ground, and carry out circular grinding.
2. Clean grinding dust on the surface.
3. Apply a appropriate amount of polishing paste to the surface to be polished, adjust the speed of polishing machine.
4. After the polishing wool pad contacts the paint surface, start the machine with the speed of 2500 - 3000 r/min.
5. Make the sponge wet firstly and squeeze out the excessive water; Apply a small amount of polishing wax to the surface to be polished, and start the machine with the speed of 2500 - 3000 r/min after the sponge contacts the paint surface. Then press it for 3 - 5 seconds gently before polishing.

Tips on Spraying Process of Paint with Rigid Surface

- Take the wing as an example to illustrate the local spraying (paint repair) process.

1. If the scratch on the wing is severe, use local spraying (paint repair) process.
2. Grind (circularly grind) the damaged paint surface with # P500 wet (waterproof) abrasive paper.
3. Degrease and clean it with degreasant after grinding.
4. When spraying he primer, try to control the scope of the primer and make sure the coating at the edge should be gradual instead of stair-step shape.
5. Flash off for 4 - 5 minutes, and dry it and bake it for 20 - 30 minutes. The temperature of baking finish house is 70 - 80℃(158 - 176°F).
6. After baking, carry out the wet polishing with # P800-1000 abrasive paper.
7. Grind it with # 2000 fine waterproof abrasive paper and expand grinding range.
8. After polishing is completed, use sticky gauze to remove dust before spraying the paint.
9. Spray the base coat.
10. Flash off for 2 - 3 minutes, and spray the second base coat until the interface position is not obvious.
11. Flash off for 4 -5 minutes, and dry it for 20 - 30 minutes.
12. After drying is completed, use sticky gauze to remove dust before spraying the varnish.
13. When spraying celluloid paint, the spraying range should cover the base coat range completely.
14. Flash off for 2 - 3 minutes, and spray the second celluloid paint, the spraying range should cover the first varnish range completely.
15. After spraying celluloid paint is completed, immediately replace it with barge saliva or add interface additive or thiner into the original celluloid paint.
16. Spray barge saliva or diluted celluloid paint for 2 - 3 times at interface position.
17. Bake it for 20 - 30 minutes in the baking finish house.

Spraying Procedure of Paint with Rigid Surface After Repairing Metal Plate

1. Spraying procedure of Paint with rigid surface after repairing metal plate is similar to spraying process of paint with rigid surface, except that the following steps are added after the primer is ground and before the primer is sprayed:
   a. Scrape and apply the atomic ash.
   b. Grind the atomic ash.
   c. Blow dust, remove oil and clean.
   d. Scrape and apply the filling eye gray.
   e. Brush the old paint film surface.

Repairing Procedure of Paint Surface on Plastic Part Surface

1. There are three basic requirements for the paint surface repairing on plastic part surface:
   a. The paint and plastic have certain adhesion without damaging mechanical properties.
   b. The paint film shall be flexible enough to deform with the plastic without cracks.
   c. The original particles and coarse texture on some plastic part surfaces.

Description & Operation

The materials of interior and exterior surface covering parts are modified PP, ABS, PC + ABS and PVC (-artificial leather materials), which are all thermoplastic plastics and its modified materials. The materials of interior and exterior non-surface covering parts also uses POM, PA and HDPE materials etc. Thermosetting plastic is rarely used in interior and exterior trims, and only ashtray uses phenolic plastic. Thermosetting plastic is mainly used as construction part in electronic appliance and safety component. Repairing thermoplastic part uses hot soldering iron plastic materials to fill the welding machine, but the common service uses replacement method. Thermosetting plastic can use epoxy resin or other harder two-component service materials. In this chapter, its service method is simply introduced while the service is not suggested.

Classification of Plastic

Thermosetting plastic refers to the plastic that can solidify or has insoluble (melting) characteristics under heating or other conditions, such as phenolic plastic, epoxy plastic, etc. Thermoplastic refers to the plastic that can be repeatedly heated, softened, cooled and hardened within a specific temperature range, such as polyethylene, polytetrafluoroethylene, etc. Thermoplastic and thermosetting plastics can be either hard plastic or soft plastic.

Repair Precaution of Plastic Part

1. Apply protective cream to exposed skin to prevent skin irritation.
2. Wear rubber gloves.
3. Wear protective glasses when using compressed air and sanding.
4. Immediately clear any mixture that contacts your skin because mixture solidifies quickly.
5. Wear dust boot and protective glasses when grinding or sanding.
6. Clean your skin with cold water to reduce the slight irritation of resin dust on your skin.
7. Avoid service materials sticking to your clothes.
8. Use service materials in a well ventilated environment because the soot particles produced by the service materials are toxic.
9. After using, close all service material containers. Dust or moisture will pollute service materials and reduce service effect.

Repair of Thermosetting Plastic Dent

1. Clean and dry the components to be repaired.
2. Heat the dent position with a hot air blower until the dent can be flattened with an appropriate tool.

3. Polish the dent area with abrasive paper/emery paper.
4. Then clean service area with cleaner and dry it out for 5 minutes.
5. Apply a thin layer of adhesive on it and dry it out for 10 minutes.
6. Fill the uneven surface with adhesive and smooth it with trowel.
7. Accelerate solidifying process with infrared lamp, adjust the temperature to 60-70℃ (140-158°F) and heat it for 15 minutes.
8. Polish the dent area with abrasive paper.
9. Remove dust and debris.
10. Apply a thin layer of adhesive on it and dry it out for 10 minutes.
11. Restore paint surface according to the repairing procedure on paint surface of plastic parts.

Repair of Thermosetting Plastic Scratch

1. Clean and dry the area to be repaired.
2. Remove protruding materials with abrasive paper.
3. Then clean service area with cleaner and dry it out for 5 minutes.
4. Apply a layer of adhesive on it and dry it out for 10 minutes.
5. Fill the uneven surface with adhesive and smooth it with trowel.
6. Accelerate solidifying process with infrared lamp, adjust the temperature to 60-70℃ (140-158ºF) and heat it for 15 minutes.
7. Polish the pit area with abrasive paper.
8. Remove dust/debris.
9. Apply a thin layer of adhesive on it and dry it out for 10 minutes.
10. Restore paint surface according to the repairing procedure on paint surface of plastic parts.

Repair of Thermosetting Plastic Crack (The Length is Less Than 100 mm)

1. Clean and dry the area to be repaired.
2. Chisel crack end for 5mm (0.19in) and polish crack to V-shape to internal stress and protruding area.
3. Then clean service area with cleaner and dry it out for 5 minutes.
4. Apply a layer of adhesive on it and dry it out for 10 minutes.
5. Stick reinforcing tape to the back of service part with adhesive and overlap the damaged part for at least 20mm (0.79in).
6. Accelerate solidifying process with infrared lamp, adjust the temperature to 60-70℃ (140-158ºF) and heat it for 15 minutes.
7. Fill the front part of crack with adhesive and smooth it with trowel.
8. Accelerate solidifying process of the front part of crack with infrared lamp.
9. Polish the pit area with abrasive paper.
10. Apply a thin layer of adhesive on it and dry it out for 10 minutes.
11. Remove dust/debris.
12. Apply a layer of adhesive on it and dry it out for 10 minutes.
13. Restore paint surface according to the repairing procedure on paint surface of plastic parts.