
DOOR

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56.1 Warnings and Precautions

1 Warnings

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

- (1) When removing front door assembly, an assistant is needed to hold it, prevent front door from falling down during operation, resulting in accidents.
- (2) When removing rear door assembly, an assistant is needed to hold it, prevent rear door from falling down during operation, resulting in accidents.

2 Precautions

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

- (1) Replace damaged clips and install front door inner protector assembly in place, when installing inner protector assembly.
- (2) Install connectors in place, when installing inner protector assembly.
- (3) Check that each function can operate properly, after installing inner protector assembly.

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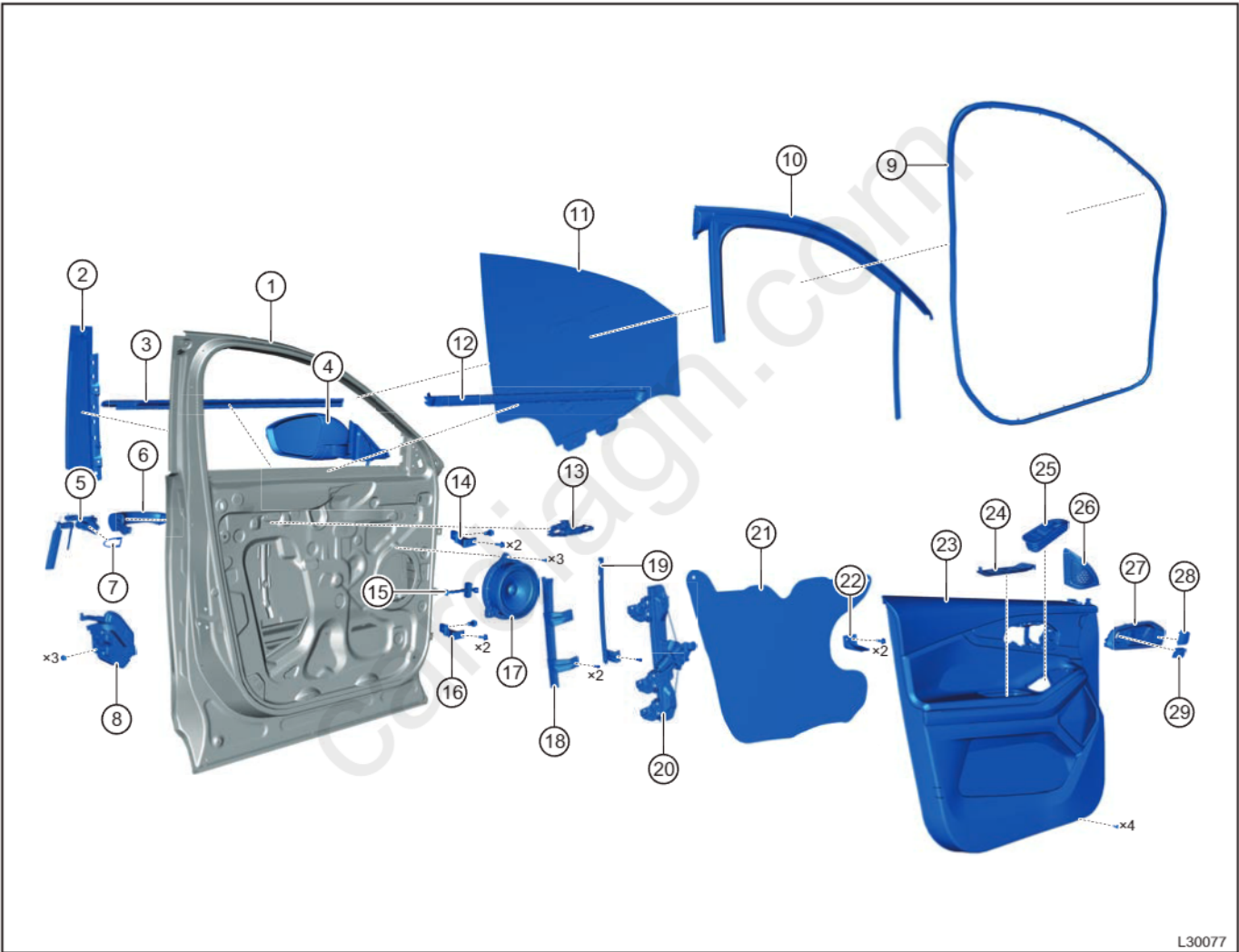
56.2 System Overview

1 System Description

Doors provide driver and passengers with access to and from vehicles, and insulate the outside interference, absorb the side impact to a certain extent, thus protecting passenger. Aesthetic of vehicle is also related to the door modeling. The quality of doors is mainly reflected in anti-collision performance, sealing performance and opening & closing convenience of doors, of course, and there are other usage function targets, etc. Anti-collision performance is particularly important, as when vehicle is involved in a side collision, it is easy to cause inside personal injury due to the very short buffer distance.

2 System Components Diagram

Front Door Assembly

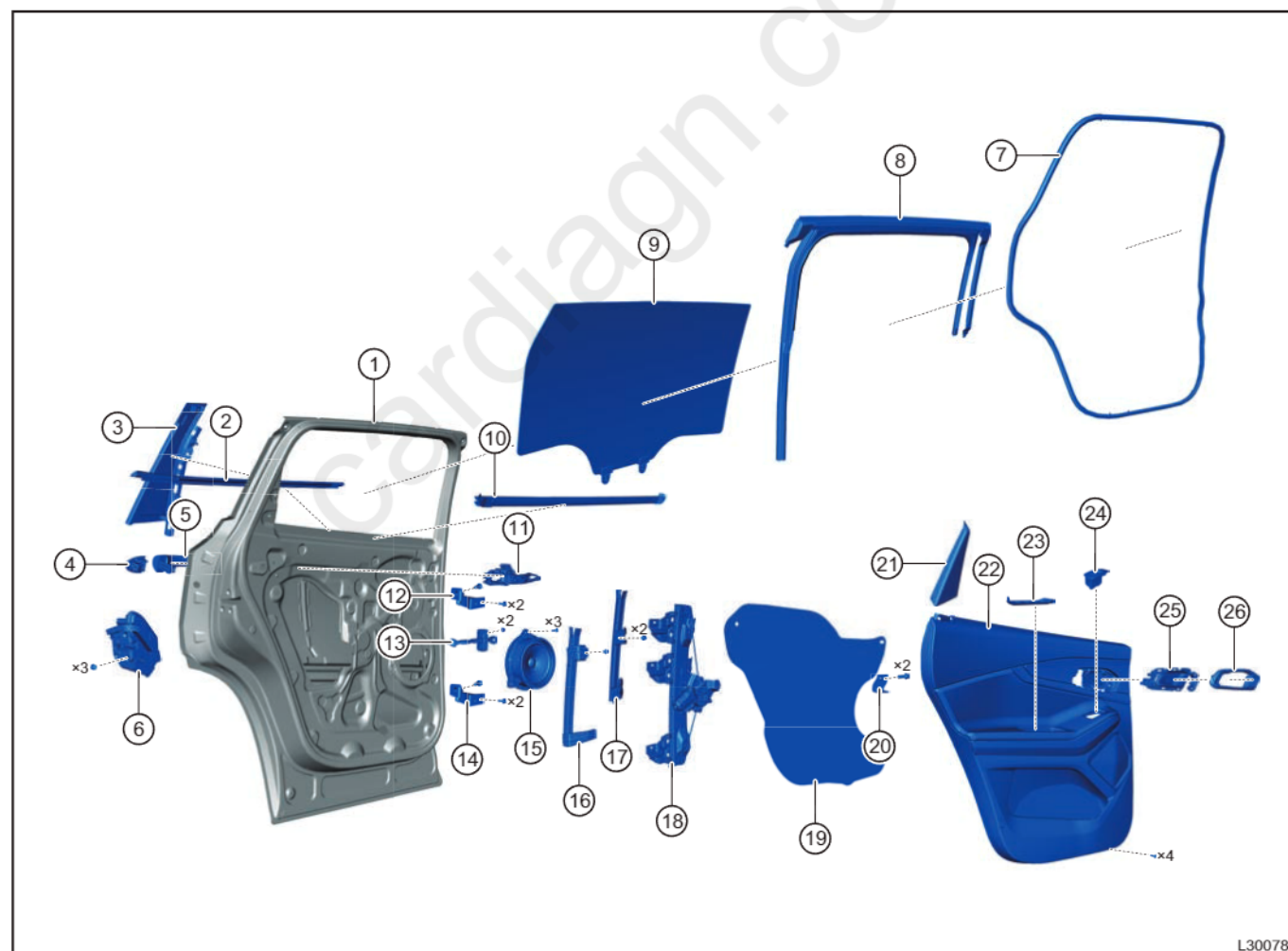


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1	Front Left Door Sheet Metal Assembly	16	Left Door Hinge Assembly
2	Front Left Door Cover Plate Guide Rail Assembly	17	Woofer
3	Front Left Door Outer Weather Bar	18	Front Left Door Rear Glass Guide Rail Assembly
4	Left Outside Rear View Mirror Assembly	19	Front Left Door Glass Front Guide Rail Assembly

5	Front Left Door Lock Cylinder Assembly	20	Front Left Rope Wheel Type Glass Regulator Assembly
6	Door Outside Handle Assembly	21	Front Left Door Protective Film
7	Door Handle Rear Gasket	22	Bracket Between Front Left Door Protector and Door Sheet Metal
8	Front Left Door Lock Assembly	23	Front Left Door Protector Body
9	Front Left Door Frame Weatherstrip	24	Front Left Door Handle Box Rubber Gasket
10	Front Left Door Run	25	Driver Glass Regulator Switch
11	Front Left Side Door Sound-proof Glass Assembly	26	Front Left Door Inner Triangular Block Assembly
12	Front Left Door Inner Weather Bar	27	Front Left Inside Handle Assembly
13	Front Left Outside Handle Seat Assembly	28	Front Left Door Protective Cap Assembly
14	Left Door Hinge Assembly	29	Central Control Lock Switch
15	Front Door Check Assembly		

Rear Door Assembly



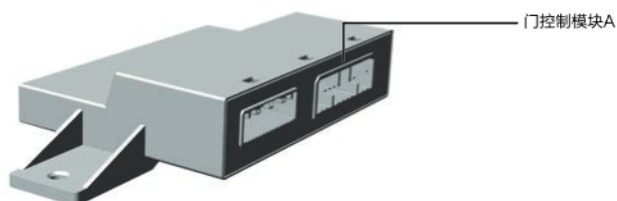
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1	Rear Left Door Sheet Metal Assembly	14	Left Door Hinge Assembly
2	Rear Left Door Outer Weather Bar	15	Woofer
3	Rear Left Door C-pillar Cover Plate Assembly	16	Rear Left Door Glass Rear Guide Rail Assembly
4	Door Handle Cover	17	Rear Left Door Lower Glass Run
5	Door Outside Handle Assembly	18	Rear Left Rope Wheel Type Glass Regulator Assembly
6	Rear Left Door Lock Assembly	19	Rear Left Door Protective Film
7	Rear Left Door Frame Weatherstrip	20	Bracket Between Rear Left Door Protector and Door Sheet Metal
8	Rear Left Door Run	21	Rear Left Door Inner Triangular Block Body
9	Rear Left Door Glass Assembly	22	Rear Left Door Protector Body
10	Rear Left Door Inner Weather Bar	23	Rear Left Door Handle Box Rubber Gasket
11	Front Left Outside Handle Seat Assembly	24	Front Passenger Glass Regulator Switch
12	Left Door Hinge Assembly	25	Rear Left Inside Handle Assembly
13	Rear Door Check Assembly	26	Rear Left Door Inside Handle Screw Block Cover

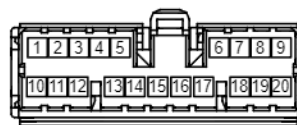
56.3 System Circuit Diagram

1 Module Terminal Definition

Door Control Module - A



门控制模块A



Terminal Inspection		Terminal Definition	Detection Condition	Measured Value
Multimeter Positive	Multimeter Negative			
A1	Body ground	-	Power supply "ON"	-
A2	Body ground	-	Power supply "ON"	-
A3	Body ground	Blind spot detection output	Power supply "ON"	12 V
A4	Body ground	-	Power supply "ON"	-
A5	Body ground	Window lock switch indicator light	Power supply "ON"	0 V
A6	Body ground	Rear right door panel warning light	Power supply "ON"	0 V
A7	Body ground	-	Power supply "ON"	-
A8	Body ground	-	Power supply "ON"	-
A9	Body ground	Power supply	Power supply "ON"	12 V
A10	Body ground	-	Power supply "ON"	-
A11	Body ground	Ground	Power supply "ON"	0 V
A12	Body ground	Ground	Power supply "ON"	0 V
A13	Body ground	Right rear view mirror adjustment common terminal	Power supply "ON"	0 V when not adjusted; 10 V when adjusted downwards/rightwards

Terminal Inspection		Terminal Definition	Detection Condition	Measured Value
Multimeter Positive	Multimeter Negative			
A14	Body ground	Right rear view mirror horizontal adjustment	Power supply "ON"	0 V when not adjusted; 10 V when adjusted leftwards/ downwards
A15	Body ground	Right rear view mirror vertical adjustment	Power supply "ON"	0 V when not adjusted; 10 V when adjusted upwards/ rightwards
A16	Body ground	Power supply	Power supply "ON"	12 V
A17	Body ground	Rear left door panel warning light	Power supply "ON"	0 V
A18	Body ground	Left rear view mirror vertical adjustment	Power supply "ON"	0 V when not adjusted; 10 V when adjusted upwards/ rightwards
A19	Body ground	Left rear view mirror horizontal adjustment	Power supply "ON"	0 V when not adjusted; 10 V when adjusted downwards/ leftwards
A20	Body ground	Left rear view mirror adjustment common terminal	Power supply "ON"	0 V when not adjusted; 10 V when adjusted downwards/ rightwards

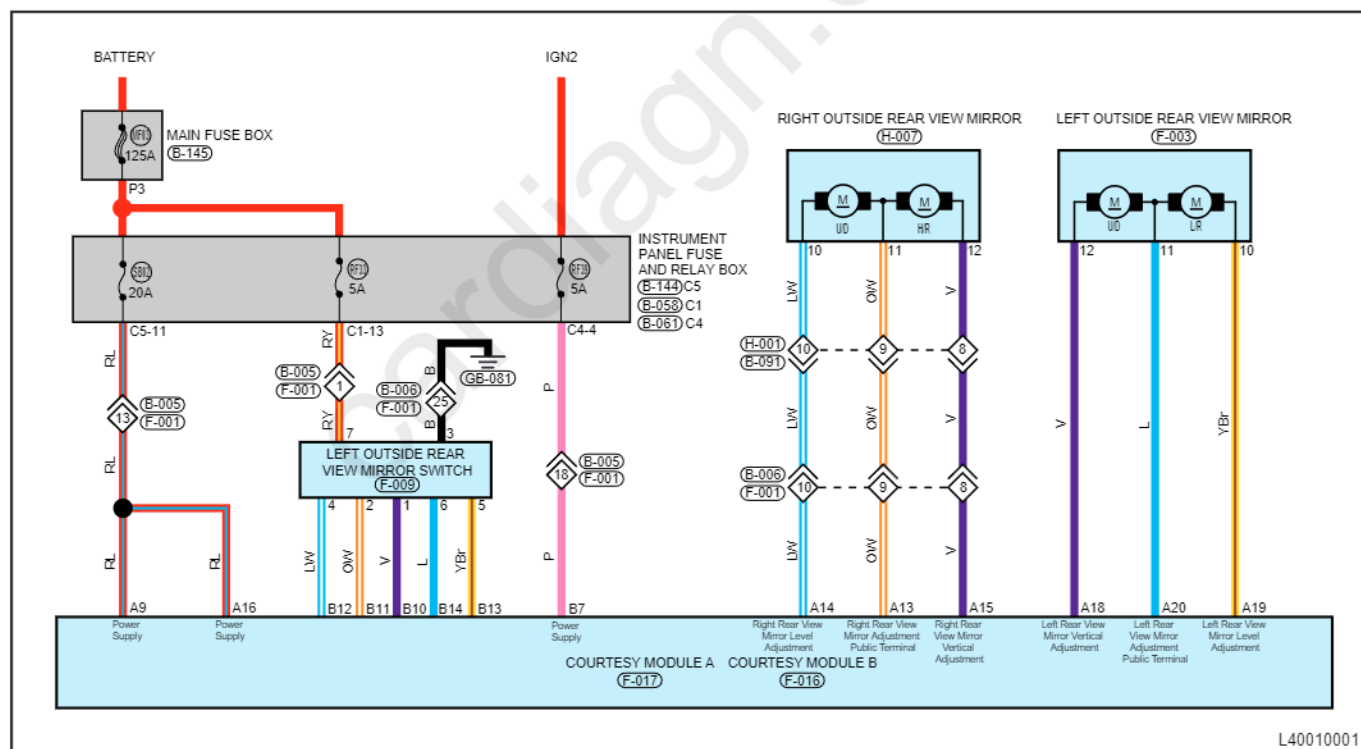
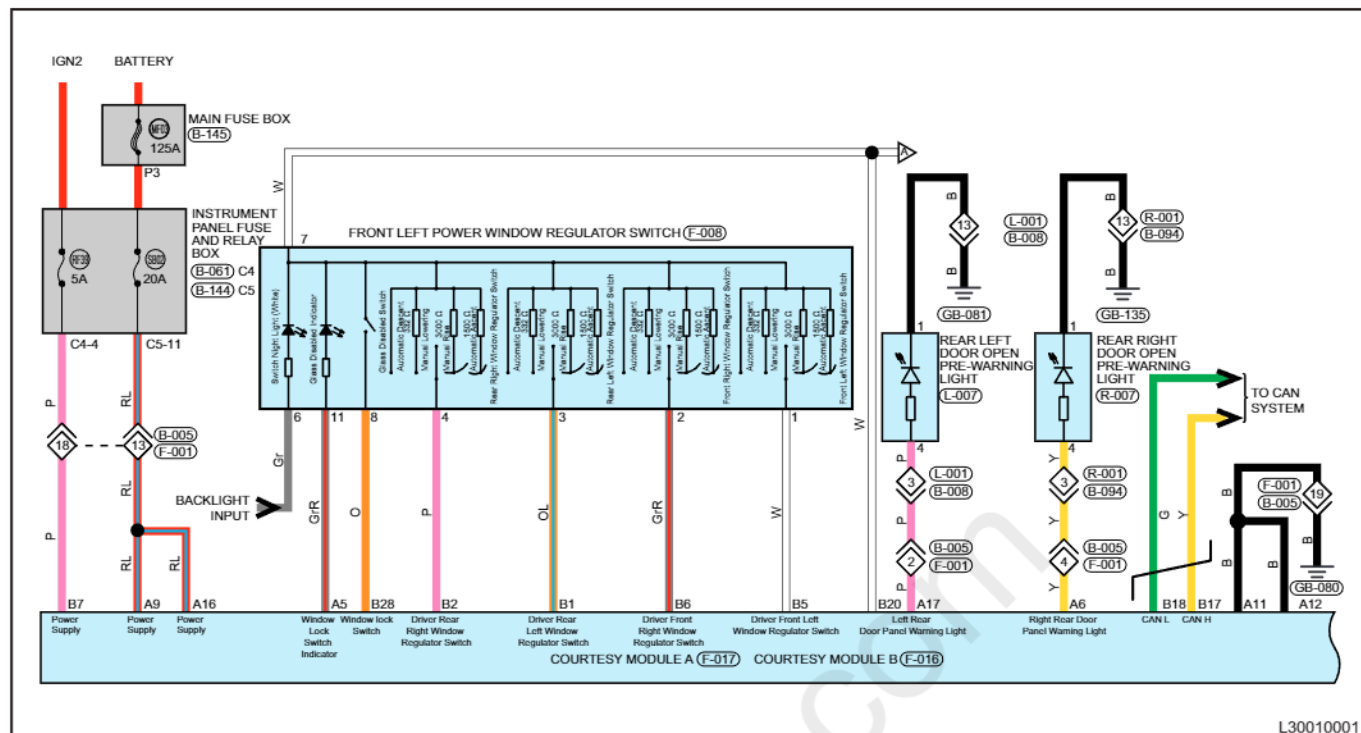
Door Control Module - B

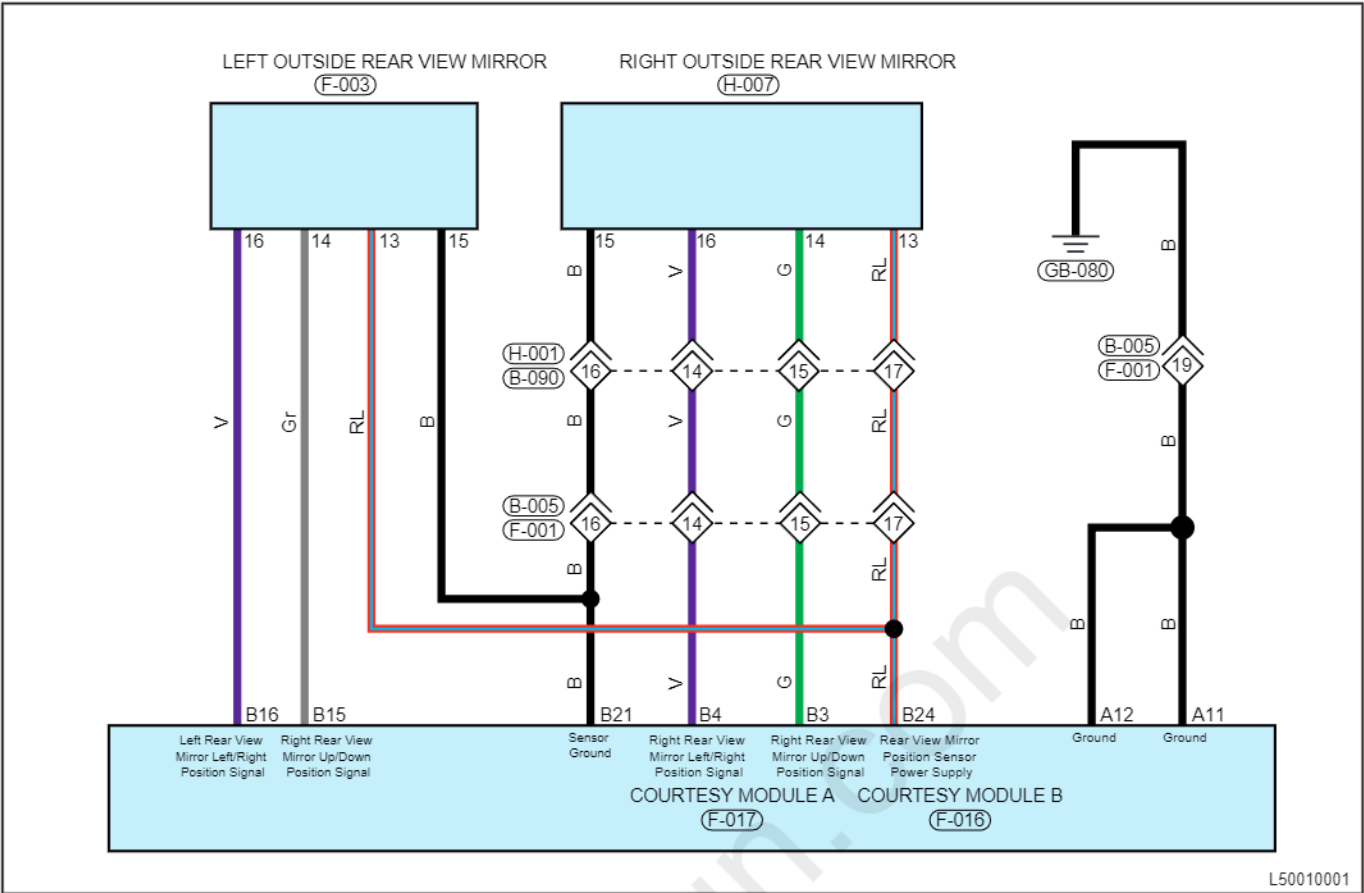
Terminal Inspection		Terminal Definition	Detection Condition	Measured Value
Multimeter Positive	Multimeter Negative			
B1	Body ground	Driver glass regulator switch	Power supply "ON"	12 V
B2	Body ground	Driver glass regulator switch	Power supply "ON"	12 V
B3	Body ground	Right rear view mirror upper and lower position signal	Power supply "ON"	With the change of position, the voltage is 0.9 V-4 V from bottom to top
B4	Body ground	Right rear view mirror left and right position signal	Power supply "ON"	With the change of position, the voltage is 1.4 V-3.4 V from left to right
B5	Body ground	Driver glass regulator switch	Power supply "ON"	12 V with switch not pushed; 3 V with 1st gear pushed; 0 V with 2nd gear

Terminal Inspection		Terminal Definition	Detection Condition	Measured Value
Multimeter Positive	Multimeter Negative			
				pushed; 9 V with 1st gear pulled up; 6 V with 2nd gear pulled up
B6	Body ground	Driver glass regulator switch	Power supply "ON"	12 V with switch not pushed; 3 V with 1st gear pushed; 0 V with 2nd gear pushed; 9 V with 1st gear pulled up; 6 V with 2nd gear pulled up
B7	Body ground	IGN power supply	Power supply "ON"	12 V
B8	Body ground	Rear view mirror folding input	Power supply "ON"	12 V with switch not pushed; 0 V with switch pushed and held
B9	/	-	/	/
B10	Body ground	Rear view mirror switch - 1	Power supply "ON"	0 V with switch not pushed; 12 V with both left and right sides upwards/rightwards
B11	Body ground	Rear view mirror switch - 2	Power supply "ON"	0 V
B12	Body ground	Rear view mirror switch - 3	Power supply "ON"	7.2 V at left; 0 V with right side not pushed, 12 V with right side leftwards/downwards
B13	Body ground	Rear view mirror switch - 4	Power supply "ON"	7.2 V at right; 0 V with left side not pushed, 12 V with left side leftwards/downwards
B14	Body ground	Rear view mirror switch - 5	Power supply "ON"	7.2 V at middle and right side; 0 V with left side not adjusted, 12 V with left side downwards/rightwards
B15	Body ground	Left rear view mirror upper and lower position signal	Power supply "ON"	With the change of position, the voltage is 1.1 V-4 V from bottom to top
B16	Body ground	Left rear view mirror left and right position signal	Power supply "ON"	With the change of position, the voltage

Terminal Inspection		Terminal Definition	Detection Condition	Measured Value
Multimeter Positive	Multimeter Negative			
				is 1.5 V-3.3 V from left to right
B17	Body ground	CAN-H	Power supply "ON"	2.7 V
B18	Body ground	CAN-L	Power supply "ON"	2.3 V
B19	Body ground	-	Power supply "ON"	-
B20	Body ground	Ground	Power supply "ON"	0 V
B21	Body ground	Sensor ground	Power supply "ON"	0 V
B22	/	-	/	/
B23	/	-	/	/
B24	Body ground	Rear view mirror position sensor power supply	Power supply "ON"	5 V
B25	/	-	/	/
B26	Body ground	Central control switch lock input	Power supply "ON"	12 V with switch not pushed; 0 V with switch pushed
B27	Body ground	Central control switch unlock input	Power supply "ON"	12 V with switch not pushed; 0 V with switch pushed
B28	Body ground	Window lock switch	Power supply "ON"	12 V

2 Circuit Diagram





56.4 Function Overview

1 Door Opening Warning (Use Same Logics for Left and Right DOW Lights)

- Any power supply mode;
- When DCM receives CAN signal DOW_WarningLH = OFF or DOW_WarningLH = reserved, DCM controls left DOW light to turn off;
- When DCM receives CAN signal DOW_WarningLH = Level1 Warning, DCM controls left DOW light to come on;
- When DCM receives CAN signal which changes alternately between DOW_WarningLH = Level2 Warning and DOW_WarningLH = OFF, DCM controls left DOW light to flash.

2 Rear View Mirror Position Storage

■ Conditions of rear view mirror position storage

- Seat memory enable signal (STAT_SeatMemoryEnable = “enable”) is received, otherwise DCM judges that position storage conditions are not met.
- DCM does not drive rear view mirror to move.
- Communication is not lost with IHU_6
- Communication is not lost with SCU and STAT_MemorySysEnable invalid value signal is not received.

■ Rear view mirror position storage

- DCM receives memory request signal via CAN, when memory request (including ID and mode number of request) of CAN signal from IUH is received.
- DCM stores current 4 shafts positions to EEPROM. DCM is required to distribute EEPROM to store 15 groups positions: There are 5 IDs which each ID has 3 modes, corresponding to the IDs and MODE number in the REQ_SeatPosStore respectively.

■ Clear and cover storage position

- When the seat module receives the CAN bus: Set_Default=0X01, with judging the seat memory enable signal (STAT_SeatMemoryEnable= “enable”), 3 sets of memory position information under the current ID is set to the initial default position, other IDs are not memorized and remain unchanged (current ID is judged according to the ID recognized by IHU).
- When the seat module receives the CAN bus: Set_Default= 0X04, with judging the seat memory enable signal (STAT_SeatMemoryEnable= “enable”), 15 sets of memory position information under all IDs is set to the initial default position.
- When there is memory information under the stored IDs and mode gear, the memory request under this ID and mode gear is received again, and the previous memory information is covered by current position.

■ Clear and cover storage position

- After rear view mirror position is stored successfully, three frames success signals (STAT_MirrorMemoryPosition= “Done”) are sent to CAN.
- If rear view mirror position storage fails, three frames failure signals (STAT_MirrorMemoryPosition= “Failed”) are sent to CAN.
- After sending 3 frames or when there is no storage action, feedback signal (STAT_MirrorMemoryPosition= “No action”) to CAN all the time.

3 Rear View Mirror Position Recall

■ Conditions of seat memory position recall

- Seat memory enable signal (STAT_SeatMemoryEnable= “enable”).
- Engine starting.
- Communication is not lost with IHU_6.
- Communication is not lost with SCU and STAT_MemorySysEnable invalid value signal is not received.

■ Conditions of recalling action termination

- When single shaft reaches memory information position, single shaft action terminates (applicable to all shafts).
- Any manual adjustment input of switch will stop recall action of all shafts.
- When single shaft reaches blocking stopping position, stop recall action of all shafts.

- When single shaft detects short circuit, over-current of related drive motor, stop recall action of all shafts.
- When single shaft reaches the longest output time of 15s, stop recall action of all shafts.

■ Conditions of recalling action termination

- Rear view mirror always sends signal (STAT_MirrorRecallPosition = Recall Ongoing) to CAN during position recalling.
- Rear view mirror reaches recall position, and three frames completion signals (STAT_MirrorRecallPosition = Done) are sent to CAN.
- Rear view mirror does not reach recall position, and three frames failure signals (STAT_MirrorRecallPosition = Failed) are sent to CAN.
- After sending 3 frames or when there is no recall action, feedback signal (STAT_MirrorRecallPosition = "No action") to CAN all the time.

4 BSD power supply

- (1) When power supply is in ACC/ON/Crank, DCM always keeps output to supply power to BSD.
- (2) When power supply is in OFF, if one of following conditions is met, DCM keeps output for 5min to supply power to BSD:
 - Power supply position status is turned from ACC/ON/Crank to OFF.
 - During in OFF, the status of any door (all 4 doors) changes (from opened to closed or from closed to opened).
 - DCM keeps wake-up status within 5 minutes of BSD output.
- (3) When DCM is in OFF, if one of following conditions is met, the output will be off immediately:
 - 5 minutes timing ends in OFF.
 - ATWS status is turned from other statuses to "Secured" status.
 - ATWS status is turned from other statuses to "Partly Secured" status.
 - Power supply position status sent from PEPS is Invalid.
 - Lost communication with PEPS.

56.5 Diagnostic Information and Steps

1 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 multiple trouble codes were set, use circuit diagrams and look for any common ground circuit or power supply circuit applied to DTC.

2 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 the DTCs in system again.
- If DTC is detected, it indicates current malfunction.
- If no DTC is detected, malfunction indicated by the DTC is intermittent.

3 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 set.
- 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.

4 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.

5 Diagnostic Trouble Code (DTC) Chart

■ Description

DTC	DTC Definition	Generation Condition	Possible Cause	Maintenance Advice
B1BA0 - 16	Low Power Supply Voltage	Power supply voltage below threshold detected.	Power supply malfunction; circuit connection malfunction.	Check if supply voltage is less than normal voltage.
B1BA0-17	High Power Supply Voltage	Power supply voltage above threshold detected.		Check if supply voltage is more than normal voltage.
B1BA1 - 11	Power Window Regulator Prohibited Indicator Light Short to Ground	/	1. Circuit malfunction; 2. Indicator light malfunction.	1. Check circuit and connector; 2. Check indicator light; 3. Check module assembly.
B1BA2 - 11	Central Control Lock Status Indicator Light Short to Ground			
B1BA3 - 11	Left Door Opening Warning Indicator Light Short to Ground	/	1. Circuit malfunction; 2. Indicator light malfunction.	1. Check circuit and connector; 2. Check indicator light; 3. Check module assembly.
B1BA4 - 11	Right Door Opening Warning Indicator Light Short to Ground			
U2502 - 88	CAN Bus Off	Vehicle CAN is short to ground, this DTC will occur when disconnected; This DTC will be cleared after returning to normal	1. Control module is damaged; 2. Wire harness is damaged.	Refer to CAN network system for troubleshooting
U0142-87	Lost Communication With AVM	If AVM information is not received within 10 ms, this DTC will occur, if this information is received for 3 consecutive times, DTC will be cleared		
U0140-87	Lost Communication With BCM	If BCM information is not received within 10 ms, this DTC will occur, if this information is received for 3 consecutive times, DTC will be cleared		

DTC	DTC Definition	Generation Condition	Possible Cause	Maintenance Advice
U0232 - 87	Lost Communication With BSDL	If BSDL information is not received within 10 ms, this DTC will occur, if this information is received for 3 consecutive times, DTC will be cleared		
U0233 - 87	Lost Communication With BSDR	If BSDR information is not received within 10 ms, this DTC will occur, if this information is received for 3 consecutive times, DTC will be cleared		
U0100-87	Lost Communication With EMS	If EMS information is not received within 10 ms, this DTC will occur, if this information is received for 3 consecutive times, DTC will be cleared		
U0122-87	Lost Communication With ESC	If ESC information is not received within 10 ms, this DTC will occur, if this information is received for 3 consecutive times, DTC will be cleared		
U0245-87	Lost Communication With IHU	If IHU information is not received within 10 ms, this DTC will occur, if this information is received for 3 consecutive times, DTC will be cleared		
U0248-87	Lost Communication With PEPS	If PEPS information is not received within 10 ms, this DTC will occur, if this information is received for 3 consecutive times, DTC will be cleared		
U0208 - 87	Lost Communication With SCU	If SCU information is not received within 10 ms, this DTC will occur, if this information is received for 3		

DTC	DTC Definition	Generation Condition	Possible Cause	Maintenance Advice
		consecutive times, DTC will be cleared		
U0101-87	Lost Communication With TCU	If TCU information is not received within 10 ms, this DTC will occur, if this information is received for 3 consecutive times, DTC will be cleared		
U0198-87	Lost Communication With TGW	If TGW information is not received within 10 ms, this DTC will occur, if this information is received for 3 consecutive times, DTC will be cleared		
U0422-81	Invalid Data Received from BCM	If incorrect data is received from BCM, this DTC will occur, the DTC will be cleared after data is normal		
U0533 - 81	Invalid Data Received from BSDL	If incorrect data is received from BSDL, this DTC will occur, the DTC will be cleared after data is normal		
U0534 - 81	Invalid Data Received from BSDR	If incorrect data is received from BSDR, this DTC will occur, the DTC will be cleared after data is normal		
U0401-81	Invalid Data Received from EMS	If incorrect data is received from EMS, this DTC will occur, the DTC will be cleared after data is normal		
U0416-81	Invalid Data Received from ESC	If incorrect data is received from ESC, this DTC will occur, the DTC will be cleared after data is normal		
U0546-81	Invalid Data Received from IHU	If incorrect data is received from IHU, this DTC will occur, the DTC will be cleared after data is normal		

DTC	DTC Definition	Generation Condition	Possible Cause	Maintenance Advice
U0426-81	Invalid Data Received from PEPS	If incorrect data is received from PEPS, this DTC will occur, the DTC will be cleared after data is normal		
U0509 - 81	Invalid Data Received from SCU	If incorrect data is received from SCU, this DTC will occur, the DTC will be cleared after data is normal		
U0402-81	Invalid Data Received from TCU	If incorrect data is received from TCU, this DTC will occur, the DTC will be cleared after data is normal		

6 DTC Diagnosis Procedure

DTC	DTC Definition
B1BA0 - 16	Low Power Supply Voltage
B1BA0-17	High Power Supply Voltage

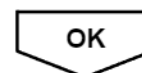
Hint:

When performing electrical equipment diagnosis and test, always refer to circuit diagram for related circuit and component information.

1	Check fuse
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(a) Check if fuses MF03, SB02 and RF39 are blown.

NG	Replace fuse
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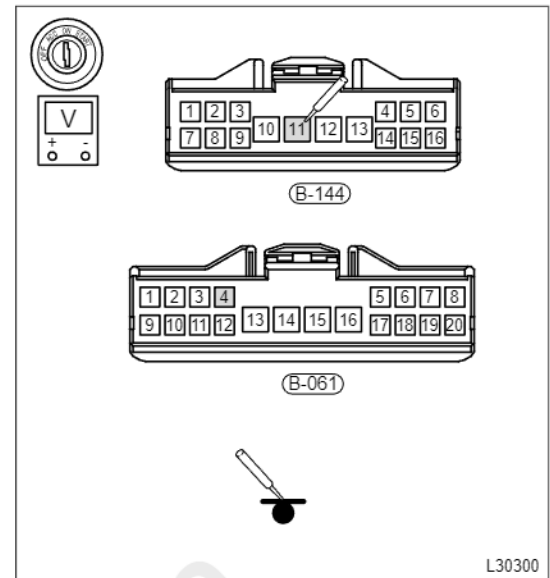
2	Check output voltage of instrument panel fuse and relay box
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(a) Turn ENGINE START STOP switch to ON.

(b) Disconnect instrument panel fuse and relay box connector B-061, B-144.

- (c) Using a digital multimeter, measure voltage value between connectors B-061 (4), B-144 (11) and body ground.

Multimeter Connection	Condition	Specified Condition
B-061 (4) - Body ground	ENGINE START STOP switch "ON"	$\leq 12 \text{ V}$
B-144 (11) - Body ground	ENGINE START STOP switch "ON"	$\leq 12 \text{ V}$



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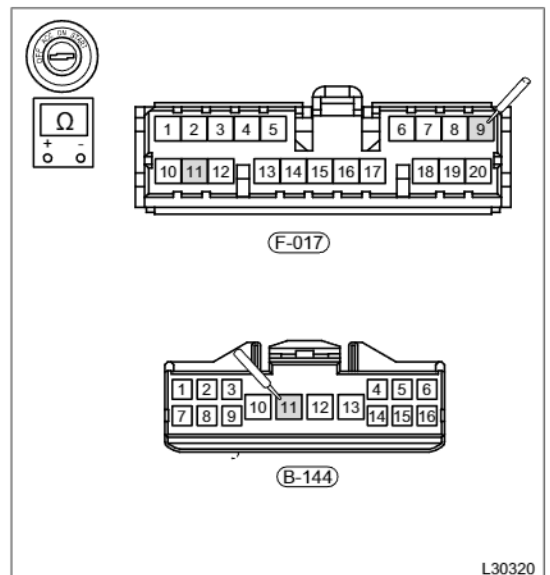
Replace instrument panel fuse and relay box assembly

OK

3 Check wire harness for open

- (a) Turn ENGINE START STOP switch to OFF.
 (b) Disconnect the negative battery terminal cable.
 (c) Disconnect door control module connectors F-017 and F-016, and instrument panel fuse and relay box connectors B-061 and B-144.
 (d) Using a digital multimeter, measure if resistance of connectors F-016 (7) - B-061 (4), F-017 (9) - B-144 (11) and F-017 (16) - B-144 (11) is normal to check wire harness for open.

Multimeter Connection	Condition	Specified Condition
F-016 (7) - B-061 (4)	ENGINE START STOP switch "OFF"	$\leq 1 \Omega$
F-017 (9) - B-144 (11)	ENGINE START STOP switch "OFF"	$\leq 1 \Omega$
F-017 (16) - B-144 (11)	ENGINE START STOP switch "OFF"	$\leq 1 \Omega$



OK

Replace door control module assembly

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Handle and repair related wire harness

DTC	DTC Definition
B1BA1 - 11	Power Window Regulator Prohibited Indicator Light Short to Ground
B1BA2 - 11	Central Control Lock Status Indicator Light Short to Ground
B1BA3 - 11	Left Door Opening Warning Indicator Light Short to Ground
B1BA4 - 11	Right Door Opening Warning Indicator Light Short to Ground

Hint:

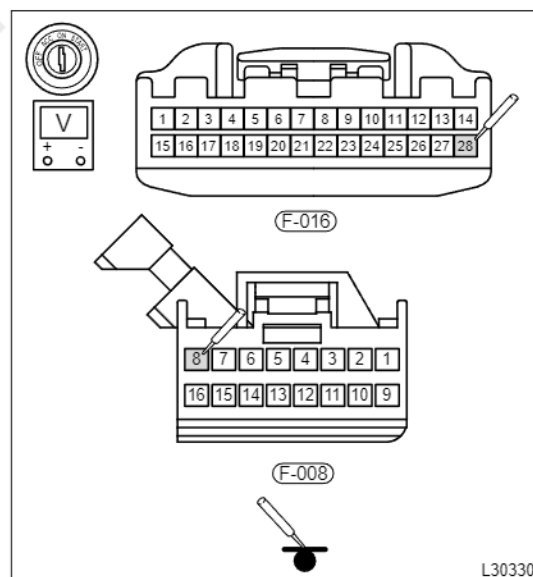
When performing electrical equipment diagnosis and test, always refer to circuit diagram for related circuit and component information.

For similar malfunctions of door control module, it's also allowable to refer to "Power Window Regulator Prohibited Indicator Light Short to Ground" for troubleshooting.

1	Power Window Regulator Prohibited Indicator Light Short to Ground
----------	--

- Check sensor connectors, controller connectors for corrosion, poor contact, looseness and repair it if any symptom occurs.
- Check the continuity of sensor wire harness and replace wire harness if open circuit malfunction occurs.
- Turn ENGINE START STOP switch to "OFF", disconnect the negative battery cable.
- Disconnect door controller connector F-016 and front left door window switch F-008.
- Using voltage band of multimeter, detect F-016 (28) - ground and F-008 (8) - ground separately.

Multimeter Connection	Condition	Specified Condition
F-016 (28) - Ground	ENGINE START STOP switch "ON"	$\leq 12\text{ V}$
F-008 (8) - Ground	ENGINE START STOP switch "ON"	$\leq 12\text{ V}$



OK

Replace door controller or front left door window switch

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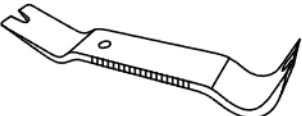
Handle and repair related wire harness

DTC	DTC Definition
U2502 - 88	CAN Bus Off
U0142-87	Lost Communication With AVM
U0140-87	Lost Communication With BCM

U0232 - 87	Lost Communication With BSDL
U0233 - 87	Lost Communication With BSDR
U0100-87	Lost Communication With EMS
U0122-87	Lost Communication With ESC
U0245-87	Lost Communication With IHU
U0248-87	Lost Communication With PEPS
U0208 - 87	Lost Communication With SCU
U0101-87	Lost Communication With TCU
U0198-87	Lost Communication With TGW
U0422-81	Invalid Data Received from BCM
U0533 - 81	Invalid Data Received from BSDL
U0534 - 81	Invalid Data Received from BSDR
U0401-81	Invalid Data Received from EMS
U0416-81	Invalid Data Received from ESC
U0546-81	Invalid Data Received from IHU
U0426-81	Invalid Data Received from PEPS
U0509 - 81	Invalid Data Received from SCU
U0402-81	Invalid Data Received from TCU
1	Refer to "CAN" network system for troubleshooting

56.6 ON-VEHICLE SERVICE

1 Tools

Tool Name	Tool Drawing
Interior Crow Plate	 S00020

2 Replace Front Door Inner Protector Assembly

2.1 Removal

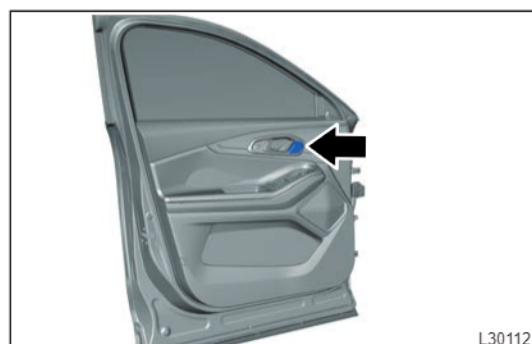
Caution

- **Be sure to wear necessary safety equipment to prevent accidents, when removing front door inner protector assembly.**

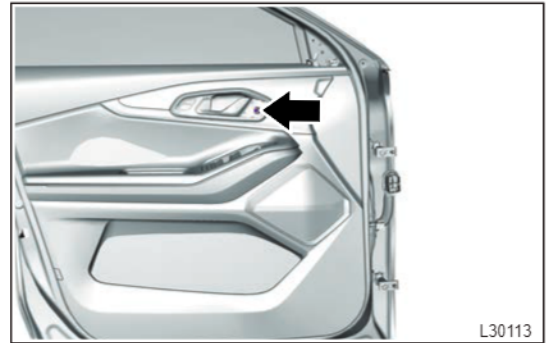
- (1) Turn off all electrical equipment and ENGINE START STOP switch.
- (2) Disconnect the negative battery cable.
- (3) Using an interior crow plate, carefully remove front door triangular block assembly.



- (4) Using an interior crow plate, carefully remove front left door protective cap assembly.



- (5) Remove the fixing screw on the rear side of front left door protective cap assembly.



- (6) Remove the front left door handle box rubber gasket.



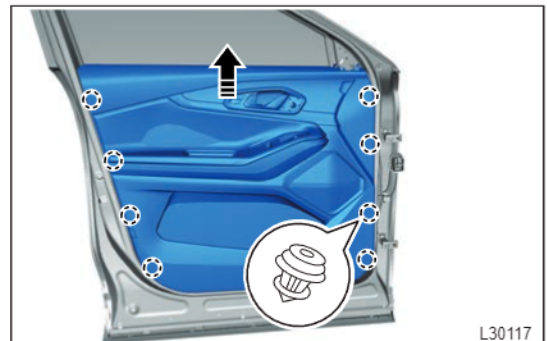
- (7) Remove the fixing screw on the rear side of front left door handle box rubber gasket.



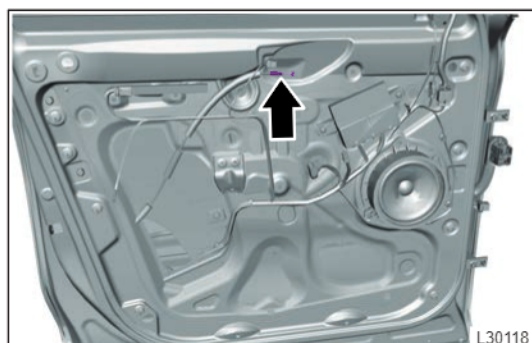
- (8) Remove 2 fixing screws from lower side of front left door inner protector assembly.



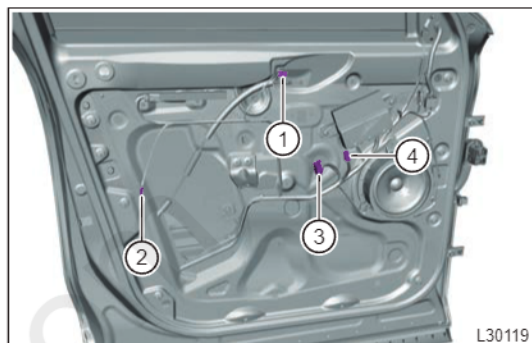
- (9) Using an interior crow plate, carefully pry off clips on front door inner protector assembly, and loosen front door inner protector assembly in direction of arrow as shown in illustration.



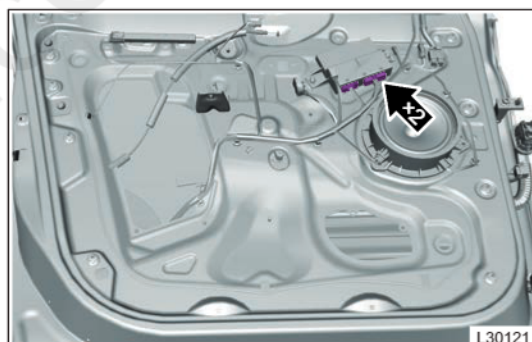
- (10) Disengage the front door inside handle cable (arrow) from front door inside handle.



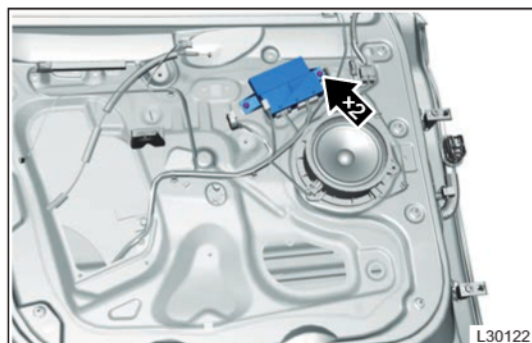
- (11) Disconnect the ambient light, glass regulator switch and rear view mirror adjustment switch, and remove door protector assembly.



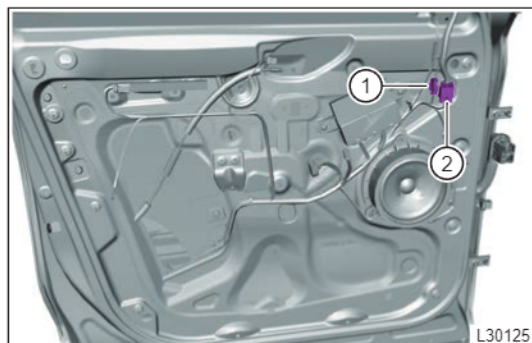
- (12) Disconnect the door control module connectors.



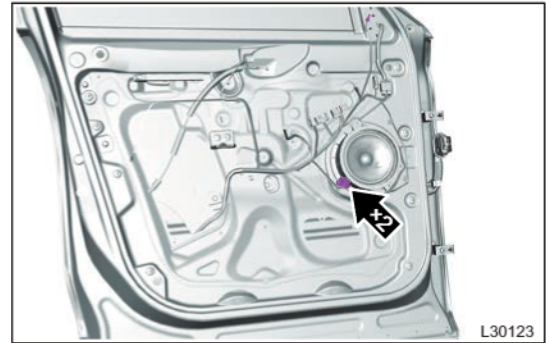
- (13) Remove 2 fixing bolts and door control module assembly.



- (14) Disconnect the camera wire harness connector plug (1) and rear view mirror wire harness connector plug (2).



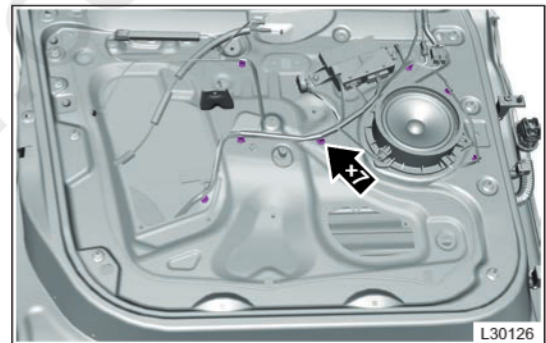
(15) Disconnect the woofer and tweeter connector plugs.



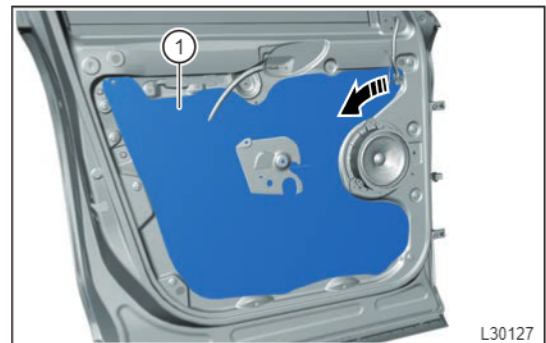
(16) Remove 2 fixing bolts and bracket.



(17) Remove fixing clips from front left door wire harness.



(18) As shown in illustration, remove the front left door protective film assembly (1) by gently peeling it along edges from one corner.



⚠ Caution

- 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.

2.2 Installation

⚠ 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.

(1) Install front left door protective film.

- (2) Fix the fixing clips on the front left door wire harness.
- (3) Install the bracket and 2 fixing bolts.
Torque: $5 \pm 1 \text{ N}\cdot\text{m}$
- (4) Connect the woofer and tweeter connector plugs.
- (5) Connect the camera wire harness connector plug (1) and rear view mirror wire harness connector plug (2).
- (6) Install the door control module assembly and 2 fixing bolts.
- (7) Connect the door control module connector.
- (8) Connect the ambient light, glass regulator switch and rear view mirror adjustment switch connector, install front door inside handle cable, and install front door inner protector assembly.
- (9) Install 2 fixing screws on lower side of front left door inner protector assembly.
Torque: $1.5 \pm 0.2 \text{ N}\cdot\text{m}$
- (10) Install the fixing screw on the rear side of front left door handle box rubber gasket.
Torque: $1.5 \pm 0.2 \text{ N}\cdot\text{m}$
- (11) Install the front left door handle box rubber gasket.
- (12) Install the fixing screw on the rear side of front left door protective cap assembly.
Torque: $1.5 \pm 0.2 \text{ N}\cdot\text{m}$
- (13) Install the front left door protective cap assembly.
- (14) Install the front door triangular block assembly.
- (15) Connect the negative battery cable.

3 Replace Front Door Assembly

3.1 Removal

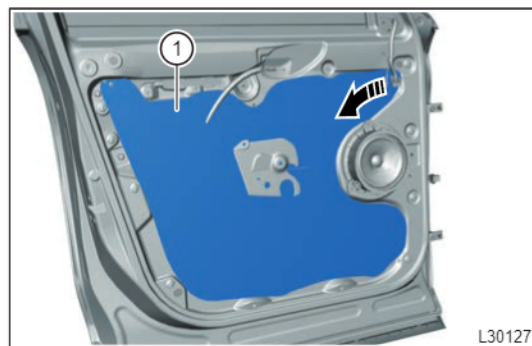
Caution

- 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.
- 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, prevent front door from falling down during operation, resulting in accidents.

- (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) Disconnect the woofer connector.
- (5) As shown in illustration, remove the front left door protective film assembly (1) by gently peeling it along edges from one corner, and pass cable and wire harness through the opening of protective film.

Caution

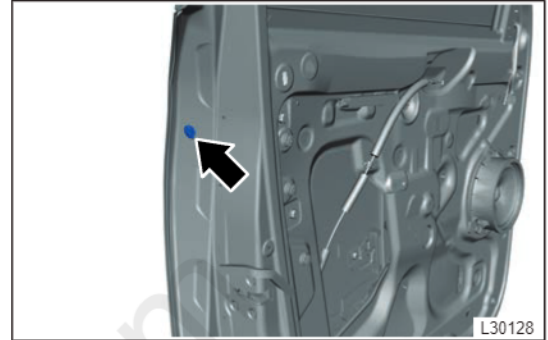
- Try to prevent front door protective film from being damaged, when removing front door protective film assembly.
- Place front door protective film assembly properly after removal, and prevent adhesive sticker on front door protective film assembly from sticking to other components.



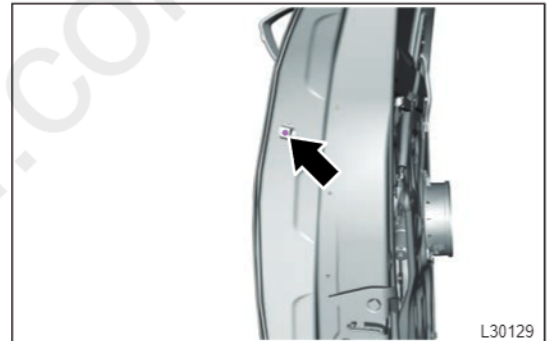
L30127

- (6) Remove the front left door woofer.

- (7) Remove the left outside rear view mirror.
- (8) Remove the front left door weather bar.
- (9) Remove the front door glass assembly.
- (10) Remove the front door glass run.
- (11) Remove the front door glass guide rail assembly.
- (12) Remove the front door power glass regulator.
- (13) Remove the front left door lock assembly.
- (14) Remove the front door outside handle block cover.



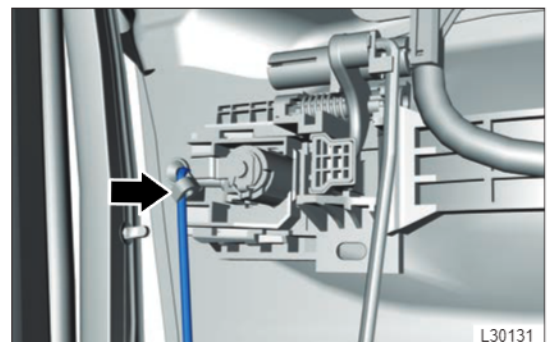
- (15) Remove 1 fixing screw from front door outside handle.



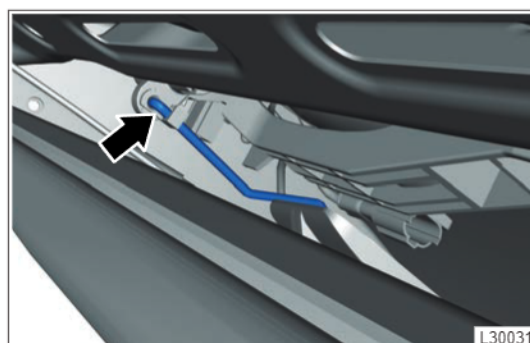
- (16) Slide and pull front door outside handle in direction of arrow as shown in illustration, and remove it.



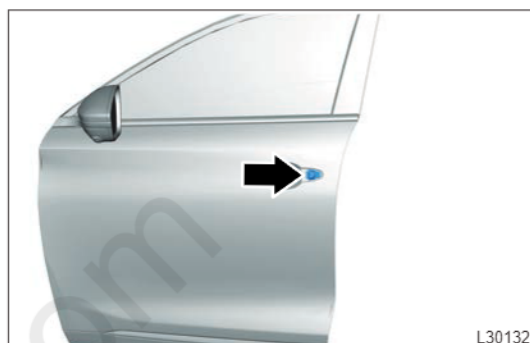
- (17) Disengage the key cylinder rod.



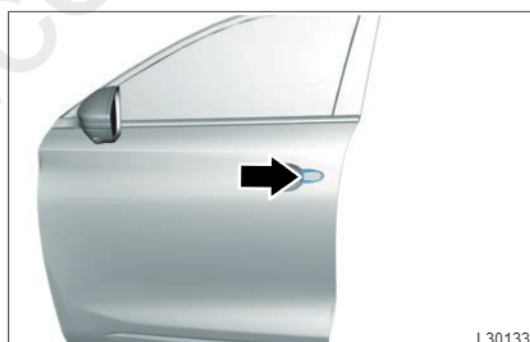
(18) Disengage the outside handle rod.



(19) Remove the key cylinder assembly.



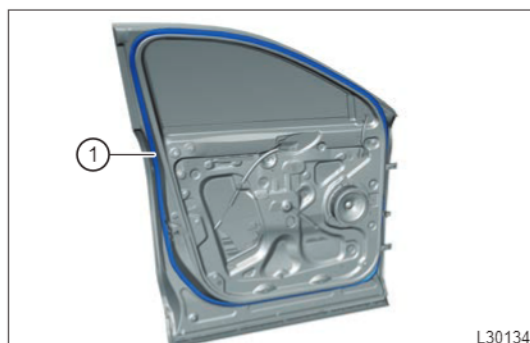
(20) Remove the front left door outside handle rear gasket.



(21) Remove fixing screw from front door outside handle seat assembly, and remove the front left outside handle seat assembly.



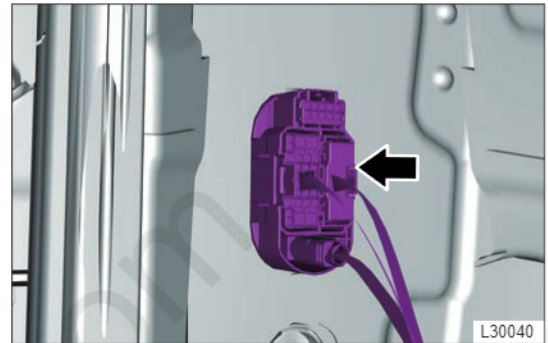
(22) Disengage clips from front door frame weatherstrip, and remove front left door frame weatherstrip (1).



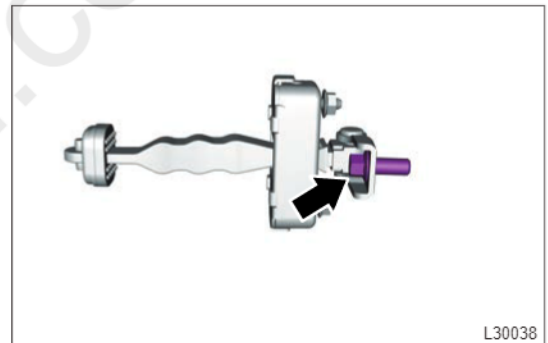
- (23) Using a screwdriver wrapped with protective tape, pry off front door wire harness dust boot.



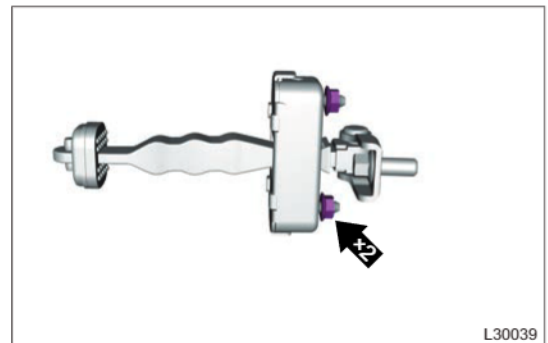
- (24) Disconnect the front left door wire harness connector.



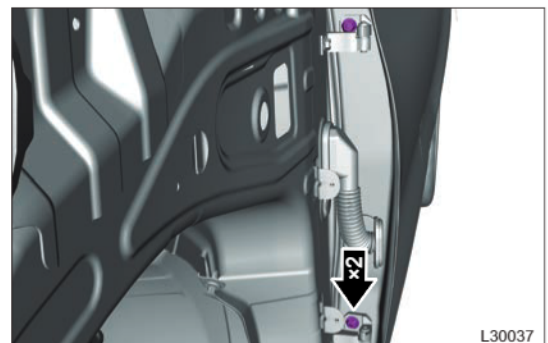
- (25) Remove the coupling bolt between door check and front left door.



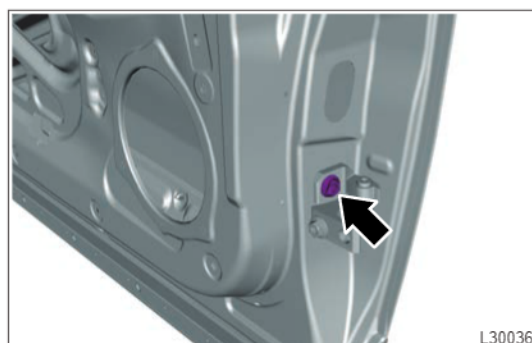
- (26) Remove the coupling nuts between door check and door.



- (27) Remove 2 fixing bolts between door and upper and lower hinges.



(28) Remove 1 fixing bolt between door and lower hinge.

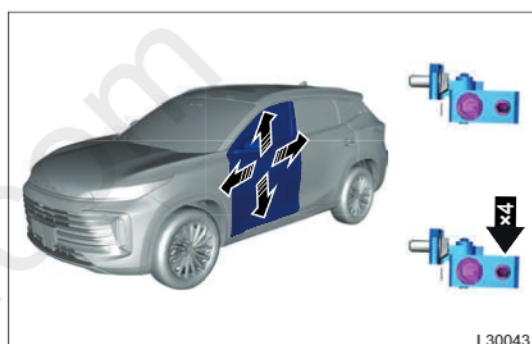


(29) Remove the front left door assembly.

3.2 Inspection

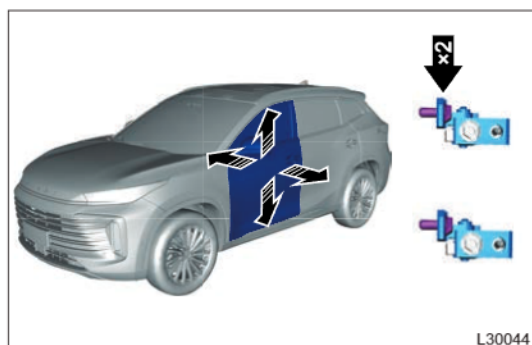
■ Adjust front door assembly

(1) Loosen 4 fixing bolts between front door hinge assembly and quarter, and adjust the front door assembly position in direction of arrow as shown in illustration.



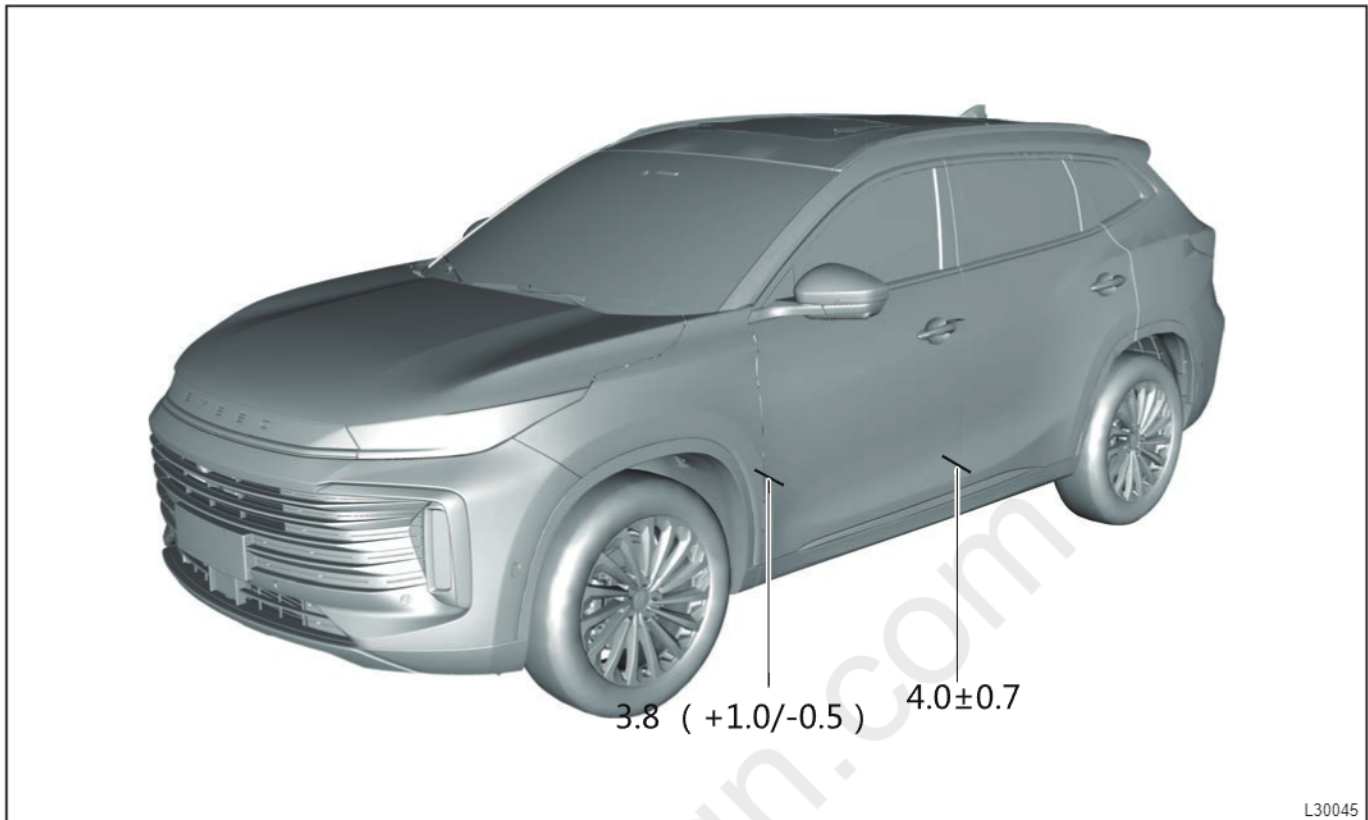
(2) After adjustment, tighten fixing bolts on front door hinge assembly to specified torque.

(3) Loosen 2 fixing bolts between front door hinge assembly and door, and adjust the front door assembly position in direction of arrow as shown in illustration.



(4) After adjustment, tighten fixing bolts on front door hinge assembly to specified torque.

- (5) Standard ranges of clearance between installation positions of front door assembly and each part are as shown in illustration.



L30045

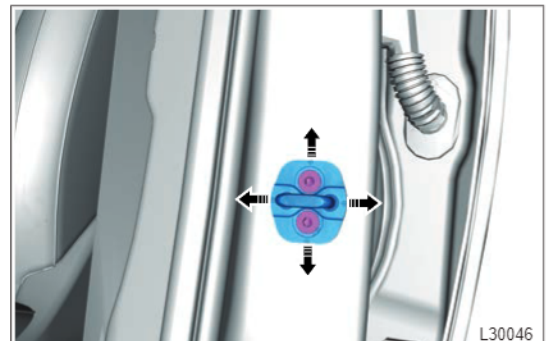
- (6) After adjustment, make sure that alignment between front door assembly and rear door assembly is within standard range.
- (7) After adjustment, make sure that alignment between front door assembly and wing assembly is within standard range.

■ Adjust front door buckle

- (1) Slightly loosen the fixing bolts on front door buckle and tap it with a plastic hammer in direction of arrow to adjust the buckle position.

⚠ Caution

- Align the middle scale of buckle with scale of quarter.



L30046

- (2) Tighten the fixing bolts on front door buckle to specified torque after adjustment.

3.3 Installation

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.
- When installing front door assembly, an assistant is needed to hold it, 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.

- (1) Install the door to a proper position of body.
- (2) Install 2 fixing bolts between door and lower hinge.
Torque: $24 \pm 2 \text{ N}\cdot\text{m}$
- (3) Install the coupling nuts between door check and door.
Torque: $9 \pm 1 \text{ N}\cdot\text{m}$
- (4) Install the coupling bolt between door check and front left door.
Torque: $32 \pm 2.5 \text{ N}\cdot\text{m}$
- (5) Connect the front left door wire harness connector.
- (6) Install the front door wire harness dust boot.
- (7) Install the front left door frame weatherstrip.
- (8) Install the front left door outside handle seat assembly, and install the fixing screw on the front door outside handle seat assembly.
Torque: $5 \pm 1 \text{ N}\cdot\text{m}$
- (9) Install the front left door outside handle rear gasket.
- (10) Install the lock cylinder assembly.
- (11) Install the outside handle rod.
- (12) Install the lock cylinder rod.
- (13) Install the front door outside handle.
- (14) Connect the front door handle sensor connector.
- (15) Install 1 fixing screw on the front door outside handle.
Torque: $5 \pm 1 \text{ N}\cdot\text{m}$
- (16) Install the front door outside handle block cover.
- (17) Install the front left door lock assembly.
- (18) Install the front door power glass regulator.
- (19) Install the front door glass guide rail assembly.
- (20) Install the front door glass run.
- (21) Install the front door glass assembly.
- (22) Install the front left door weather bar.
- (23) Install the left outside rear view mirror.
- (24) Install the front left door woofer.

(25) Install the front left door protective film assembly.

Hint:

- Wipe the door sheet metal with alcohol cloth (or fine fiber clean cloth) to ensure that the door inner sheet metal is clean and uncontaminated before assembling the protective film.
- It's strictly forbidden to use liquid products / or products containing surfactants (detergent type) when assembling the door connector.
- Pay attention to prevent protective film from contamination (waterproof, oil-proof, dust-proof, etc.).
- Make sure that there is sufficient pressure on the sticking place/ painted joint surface: $10\text{N/cm}^2 \leq \text{Rolling pressure} \leq 30\text{N/cm}^2$ Using roller.
- Assembly ambient temperature requirement is $18^\circ\text{C} - 40^\circ\text{C}$.
- Heating oven temperature requirement is $(30+5)^\circ\text{C}$, $30\text{ minutes} \leq \text{Heating time} \leq 8\text{ hours}$.

(26) Connect the woofer connector.

(27) Install the front left door inner protector assembly.

(28) Connect the negative battery cable.

4 Replace Door Inner Protector Assembly

4.1 Removal

⚠ 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.**
- **Use same procedures for right and left sides, procedures listed below are for left side.**

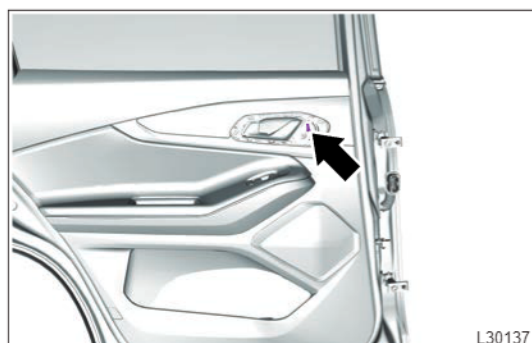
- (1) Turn off all electrical equipment and ENGINE START STOP switch.
- (2) Disconnect the negative battery cable.
- (3) Using an interior crow plate, carefully remove interior rear left door triangular block assembly.



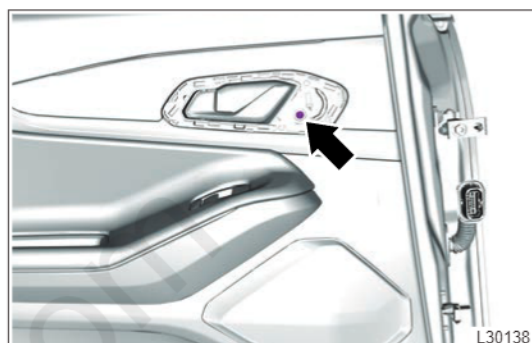
- (4) Using an interior crow plate, carefully pry off rear left door handle cover assembly.



- (5) Disconnect the high frequency speaker connector plug.



- (6) Remove 1 fixing screw from door protector.



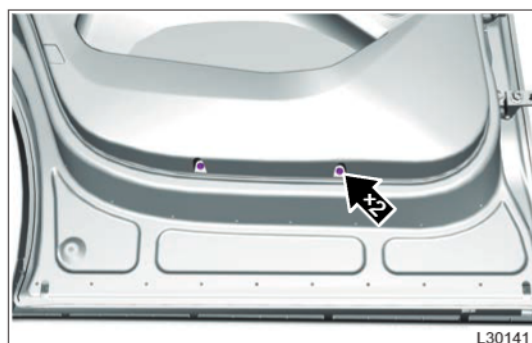
- (7) Remove the rear left door handle box rubber gasket.



- (8) Remove 1 fixing screw from the rear side of rear left door handle box rubber gasket.



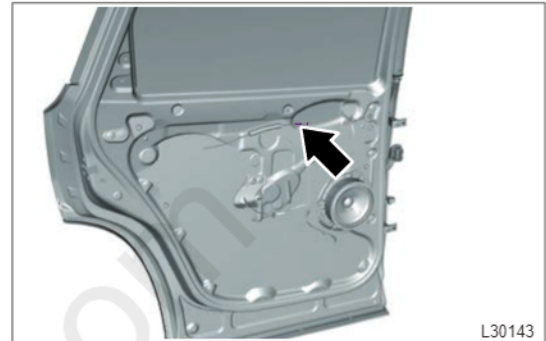
- (9) Remove 2 fixing screws from lower side of door protector.



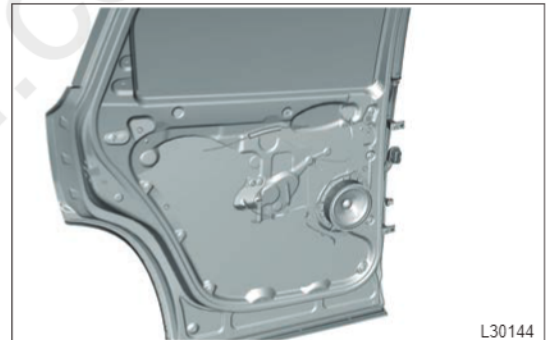
- (10) Using an interior crow plate, carefully pry off fixing clips from rear left door inner protector assembly.



- (11) Disengage the handle cable from rear door inside handle.



- (12) Disconnect the ambient light connector plug, rear door power glass regulator switch, and door opening warning connector plug.



- (13) Remove the rear left door inner protector assembly.

4.2 Installation

Caution

- **Replace damaged clips and install rear door inner protector assembly in place, when installing rear door inner protector assembly.**
- **Install the connectors in place, when installing rear door inner protector assembly.**
- **Check that each function can operate properly, after installing rear door inner protector assembly.**

- (1) Install the rear left door protector assembly to a proper position.
- (2) Connect the rear door power glass regulator switch connector, door opening warning connector and ambient light connector plug, install the rear left door cable .
- (3) Hang the upper end of door protector on the sheet metal, align door protector clip with the sheet metal hole, and clamp clips to the corresponding mounting hole on sheet metal in the order from up to down.
- (4) Install 2 fixing screws on the lower side of door protector.
Torque: $1.5 \pm 0.2 \text{ N}\cdot\text{m}$
- (5) Install 1 fixing screw on the rear side of rear left door handle box rubber gasket.
Torque: $1.5 \pm 0.2 \text{ N}\cdot\text{m}$
- (6) Install the rear left door handle box rubber gasket.

- (7) Install 1 fixing screw on the door protector.
Torque: $1.5 \pm 0.2 \text{ N}\cdot\text{m}$
- (8) Install the rear left door handle cover assembly, and connect the high frequency speaker connector plug.
- (9) Install the interior rear left door triangular block assembly.
- (10) Connect the negative battery cable.

5 Replace Rear Door Assembly

5.1 Removal

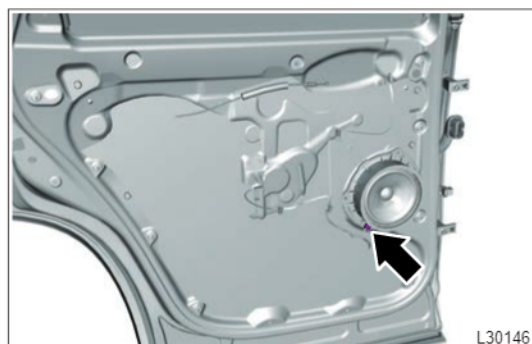
Caution

- 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.
- When removing rear door assembly, an assistant is needed to hold it, prevent rear door from falling down during operation, resulting in accidents.
- Use same procedures for right and left sides, procedures listed below are for left side.

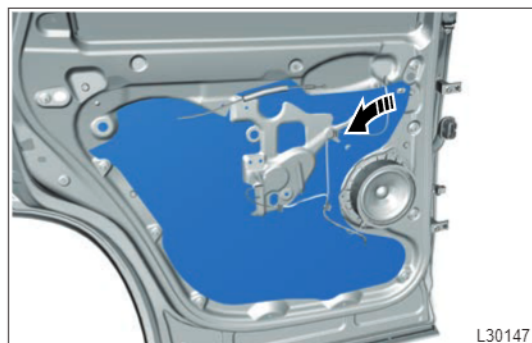
- (1) Turn off all electrical equipment and ENGINE START STOP switch.
- (2) Disconnect the negative battery cable.
- (3) Remove the rear left door inner protector assembly.
- (4) Remove 2 fixing bolts from rear left door armrest bracket, and remove the rear left door armrest bracket.



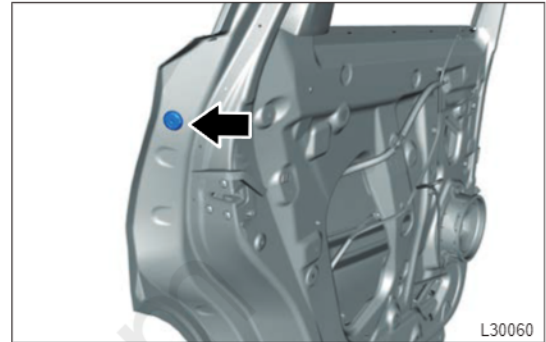
- (5) Disconnect the woofer connector.



- (6) As shown in illustration, remove the rear left door protective film assembly by gently peeling it along edges from one corner, and pass cable and wire harness through the opening of protective film.



- (7) Remove the rear left door woofer.
- (8) Remove the rear left door weather bar.
- (9) Remove the rear door upper glass run.
- (10) Remove the rear door glass assembly.
- (11) Remove the rear door glass guide rail assembly.
- (12) Remove the rear door power glass regulator.
- (13) Remove the rear left door lock assembly.
- (14) Remove the rear door outside handle cover block cover.



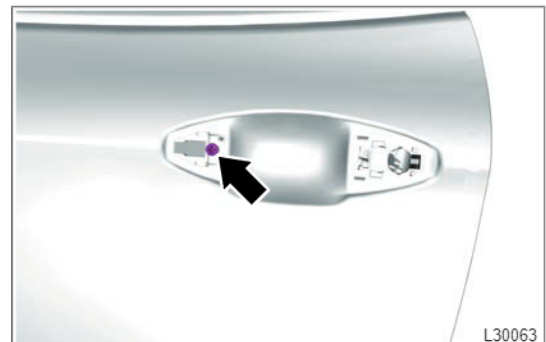
- (15) Remove 1 fixing screw from rear door outside handle cover.



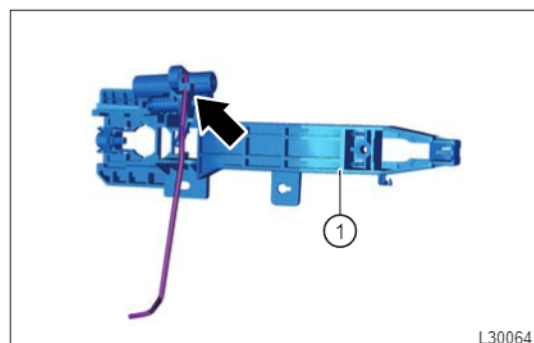
- (16) As shown in illustration, slide and pull the rear door outside handle in direction of arrow, and remove it.



- (17) Remove 1 fixing bolts from rear door outside handle seat assembly.



- (18) Disengage the rear door outside handle rod, and remove rear door outside handle seat assembly (1).



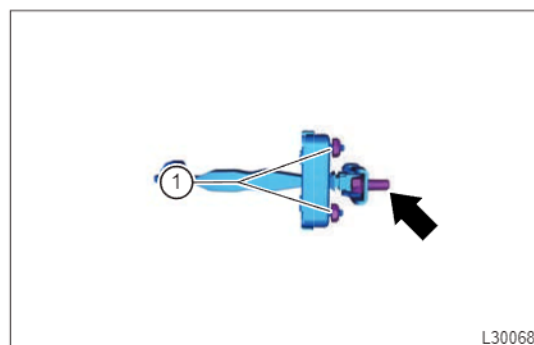
- (19) Disengage clips from rear door frame weatherstrip, and remove rear left door frame weatherstrip (1).



- (20) Using an interior crow plate, pry up the rear door dust boot, and disconnect the rear left door wire harness connectors.



- (21) Remove 2 coupling nuts (1) between door check and rear left door, and remove the coupling bolt between door check and body.



- (22) Remove 2 fixing bolts between rear door upper and lower hinges assembly and rear door assembly.

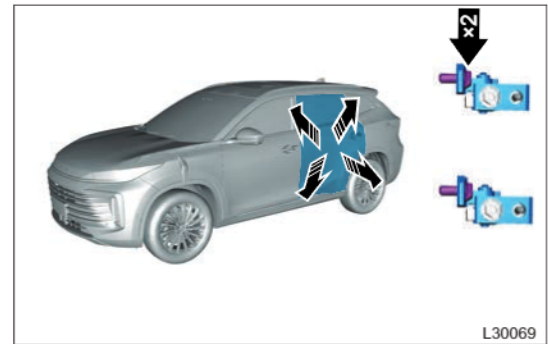


(23) Remove the rear left door assembly.

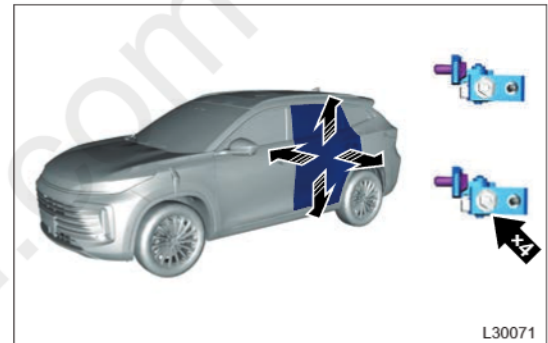
5.2 Inspection

■ Adjust the rear door assembly.

- (1) Loosen 2 fixing bolts between rear door hinge assembly and door, and adjust rear door assembly position in direction of arrow as shown in illustration.

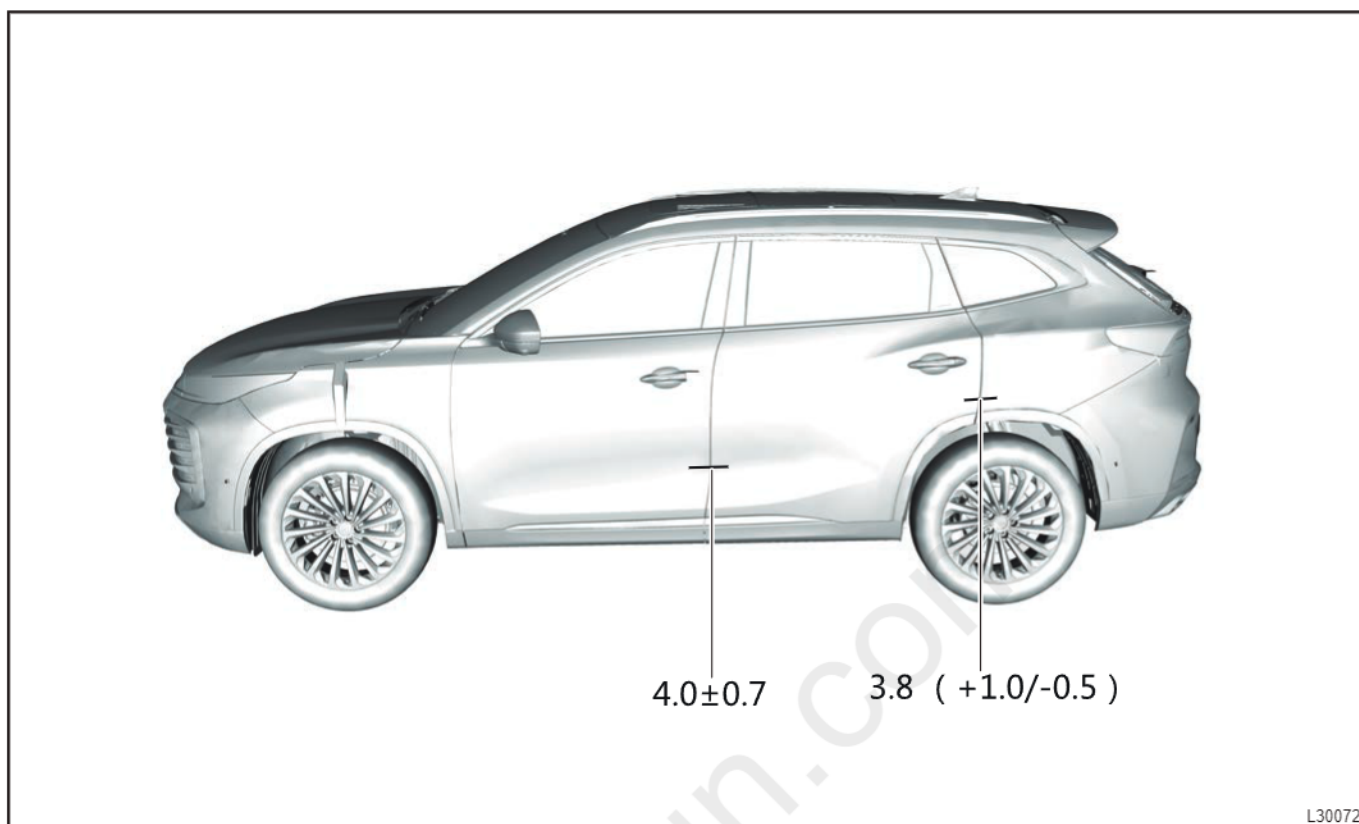


- (2) After adjustment, tighten fixing bolts on rear door hinge assembly to specified torque.
- (3) Loosen 4 fixing bolts between rear door hinge assembly and quarter, and adjust rear door assembly position in direction of arrow as shown in illustration.



- (4) After adjustment, tighten fixing bolts on rear door hinge assembly to specified torque.

- (5) Standard ranges of clearance between installation position of rear door assembly and each part are as shown in illustration.



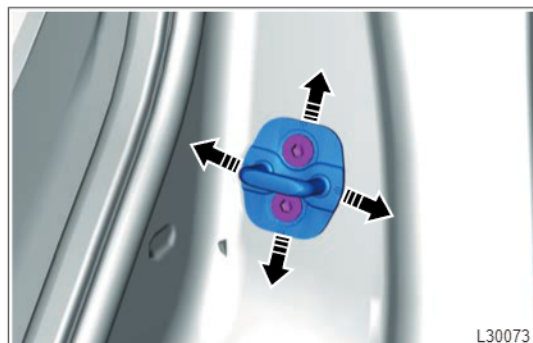
- (6) After adjustment, make sure that alignment between rear door assembly and front door assembly is within standard range.
- (7) After adjustment, make sure that alignment between rear door assembly and body outside panel is within standard range.

■ Adjust the rear door buckle

- (1) Slightly loosen the fixing bolts on rear door buckle and tap it with a plastic hammer in direction of arrow to adjust the buckle position.

⚠ Caution

- Align the middle scale of buckle with scale of quarter.



- (2) Tighten the fixing bolts on rear door buckle assembly to specified torque after adjustment.

5.3 Installation

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.
- Be sure to wear necessary 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.

- (1) Install the rear left door assembly to a proper position of body.
- (2) Install 2 fixing bolts between rear door upper and lower hinges assembly and rear door assembly.
Torque: $24 \pm 2 \text{ N}\cdot\text{m}$
- (3) Install 2 coupling nuts between door check and rear left door, and install coupling bolt between door check and body.
Coupling nut torque: $9 \pm 1 \text{ N}\cdot\text{m}$
Coupling bolt torque: $32 \pm 2.5 \text{ N}\cdot\text{m}$
- (4) Connect the rear left door wire harness connector, and install the rear door dust boot.
- (5) Install the rear left door frame weatherstrip.
- (6) Install the rear door outside handle seat assembly, and connect the outside handle rod.
- (7) Install 1 fixing bolt on the rear door outside handle seat assembly.
Torque: $5 \pm 1 \text{ N}\cdot\text{m}$
- (8) Install the rear door outside handle assembly.
- (9) Install 1 fixing screw on the rear door outside handle cover.
Torque: $1.5 \pm 0.5 \text{ N}\cdot\text{m}$
- (10) Install the rear door outside handle block cover.
- (11) Install the rear left door lock assembly.
- (12) Install the rear door power glass regulator.
- (13) Install the rear door glass guide rail assembly.
- (14) Install the rear door glass assembly.
- (15) Install the rear door upper glass run.
- (16) Install the rear left door weather bar.
- (17) Install the rear left door woofer.
- (18) Install the rear left door protective film assembly.

Hint:

- Wipe the door sheet metal with alcohol cloth (or fine fiber clean cloth) to ensure that the door inner sheet metal is clean and uncontaminated before assembling the protective film.
 - It's strictly forbidden to use liquid products / or products containing surfactants (detergent type) when assembling the door connector.
 - Pay attention to prevent protective film from contamination (waterproof, oil-proof, dust-proof, etc.).
 - Make sure that there is sufficient pressure on the sticking place/ painted joint surface: $10\text{N}/\text{cm}^2 \leq \text{Rolling pressure} \leq 30\text{N}/\text{cm}^2$ Using roller.
 - Assembly ambient temperature requirement is $18^\circ\text{C} - 40^\circ\text{C}$.
 - Heating oven temperature requirement is $(30+5)^\circ\text{C}$, 30 minutes $\leq$ Heating time $\leq$ 8 hours.
- (19) Install the woofer assembly, and connect the woofer connector.

(20) Install the rear left door armrest bracket and 2 fixing bolts.

Torque: $5 \pm 1 \text{ N}\cdot\text{m}$

(21) Install the rear left door inner protector assembly.

(22) Connect the negative battery cable.

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