
ENGINE HOOD AND BACK DOOR

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57.1 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 engine hood gas spring 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.
- (2) 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.
- (3) 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.
- (4) 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.
- (5) When removing back door electric support assembly, pay attention not to bend electric support by lateral force and during removal, one assistance is needed to hold back door; Try to prevent back door from falling down or closing suddenly during operation, resulting in accidents.
- (6) When removing balance bar, one assistance is needed to hold back door; Try to prevent back door from falling down or closing suddenly during operation, resulting in accidents.
- (7) When removing back door gas spring assembly, one assistance is needed to hold back door; Try to prevent back door from falling down or closing suddenly 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) Be sure to wear safety equipment to prevent accidents, when removing engine hood left gas spring assembly.
- (2) Be sure to wear safety equipment to prevent accidents, when removing engine hood assembly.
- (3) When removing engine hood hinge assembly, try to prevent engine hood from falling down during operation, resulting in damage to body or front windshield.
- (4) Try to prevent body paint surface from being scratched, when removing back door assembly.
- (5) Remove the electric support assembly carefully and avoid it falling down. Once it falls down, internal mechanical damage may occur, which may cause it impossible to use.

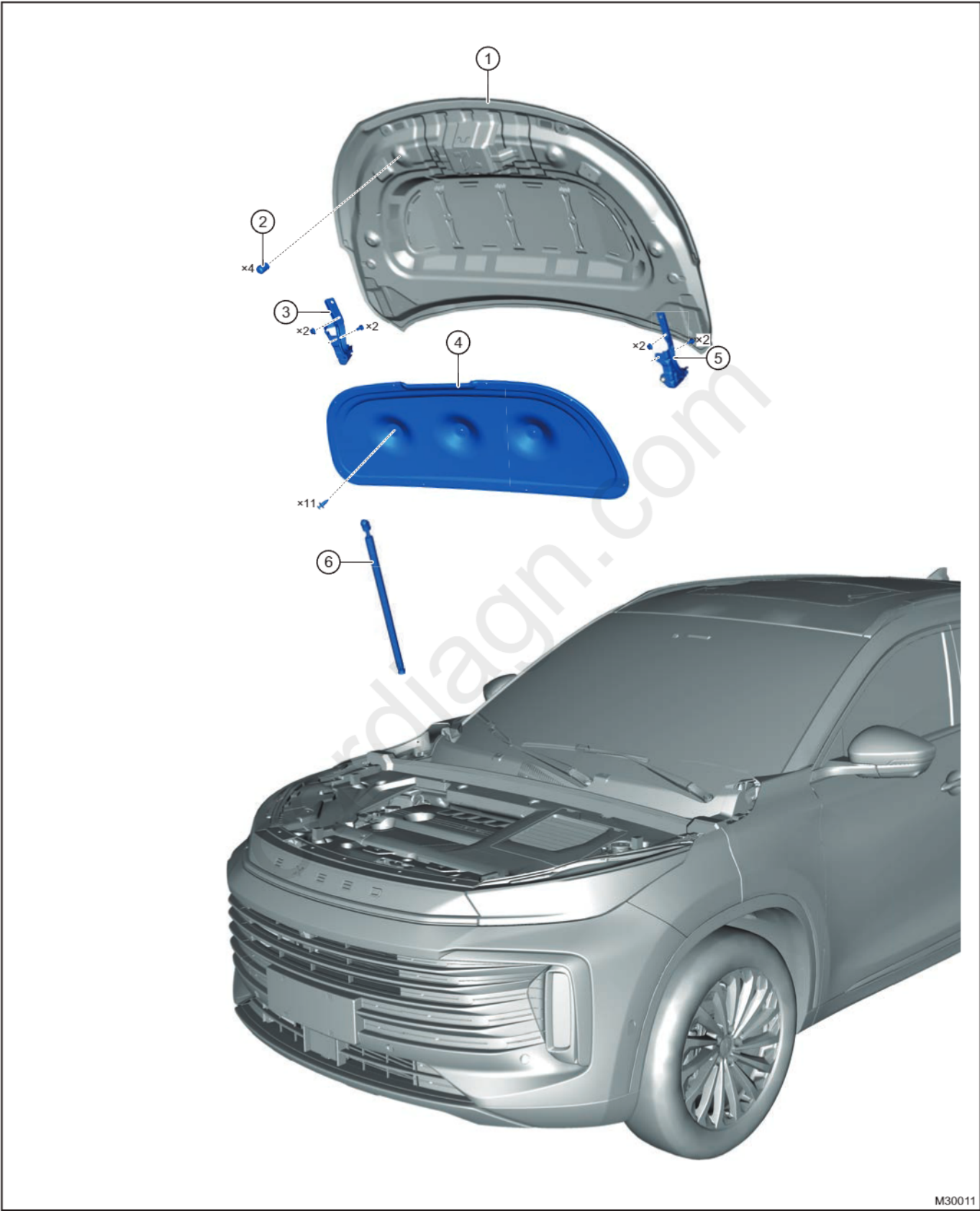
57.2 System Overview

1 System Description

Power back door is equipped on the vehicle (for high configuration)(Power back door system consists of PLG module, electric support, anti-pinch strip, various functional switches, back door lock and self-engage mechanism, etc. Once system receives functional switch signal, it will open or close back door a motor-driven manner).

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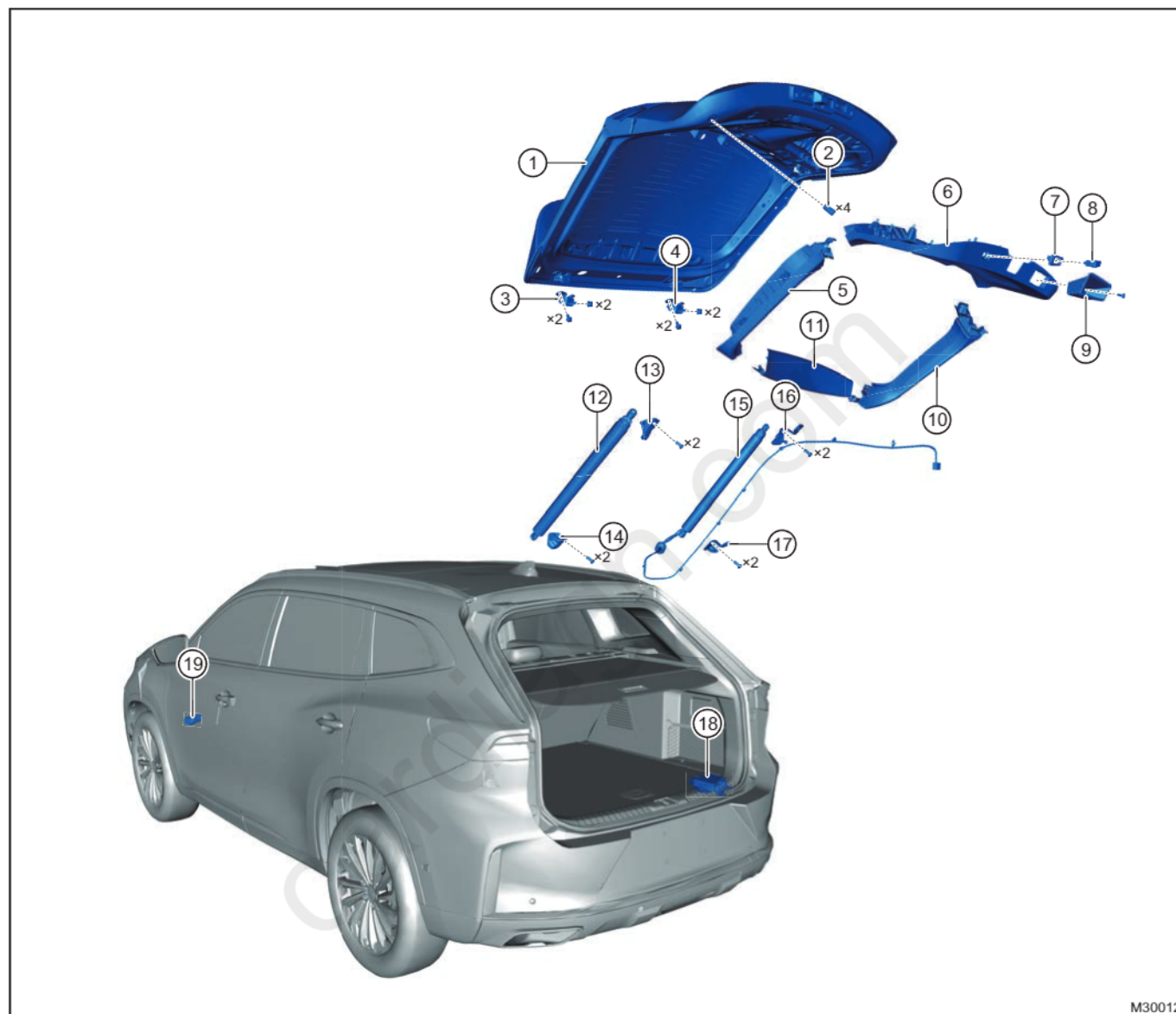
2 System Components Diagram



M30011

1	Engine Hood Assembly	4	Engine Hood Sound Insulator Pad
2	Engine Hood Buffer Block	5	Engine Hood Left Hinge Assembly
3	Engine Hood Right Hinge Assembly	6	Engine Hood Gas Spring

Rear Door Assembly

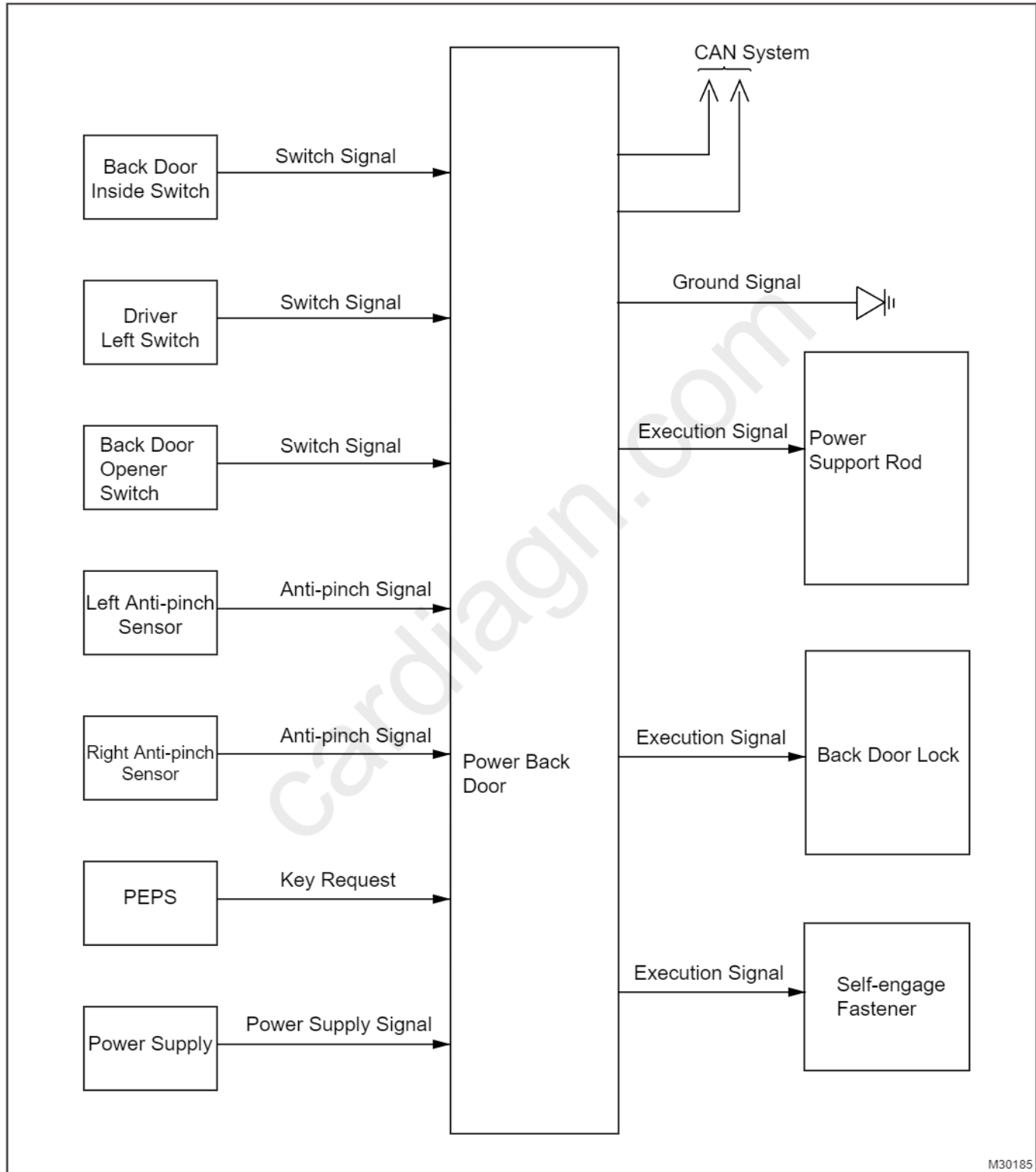


M30012

1	Back Door Sheet Metal Assembly	11	Back Door Upper Center Protector
2	Engine Hood Adjusting Block	12	Back Door Opening Driven Shaft
3	Back Door Hinge Assembly	13	Rear Trunk Lid Lower Left Bracket
4	Back Door Hinge Assembly	14	Power Gas Spring Upper Bracket
5	Left Back Door Protector	15	Back Door Opening Power Drive Shaft
6	Back Door Lower Protector	16	Rear Trunk Lid Lower Right Bracket
7	Back Door Protector Small Block Cover	17	Power Gas Spring Upper Bracket
8	Back Door Closer Switch	18	Power Back Door Module

9	Back Door Grip	19	Headlight Adjustment Switch
10	Right Back Door Protector		

3 System Schematic Diagram



Battery provides 12 V power supply to power back door module (PLG). Power back door module collects information of each sensor and switch command to perform back door action.

4 Function Overview

■ Back door opening function

Back door receives the external input signal (CAN signal or hard wire signal), back door unlocks and moves from closed position to opened position automatically. Back door opening function includes two basic actions, which are back door electric unlocking and back door electric opening.

■ Back door closing function

Back door receives the external input signal (CAN signal or hard wire signal), back door moves from opened position to closed position automatically and rear trunk lid lock is closed to fully locked.

■ Back door hovering function

Back door receives the external input signal (CAN signal or hard wire signal), and stops automatically at any position during movement of switch. Back door receives the external input signal (CAN signal or hard wire signal) at stop position, back door can continue to perform opening or closing action.

■ Back door opening height setting

The maximum opening angle of back door can be adjusted by related operations during back door factory configuration and user usage to meet user operation convenience. Perform back door opening height setting as follows:

- Factory initialization configuration
- Long press back door closing switch number
- Large screen button setting ght

■ Back door jam protection function

During opening or closing of power back door, it will stop automatically and move in reverse direction after encountering obstacle resistance, prevent surrounding person of rear trunk lid being jammed and crashed.

■ Follow-up function

Under hovering condition of back door, back door will complete opening or closing action automatically after dragging the back door to open or close for a certain distance manually.

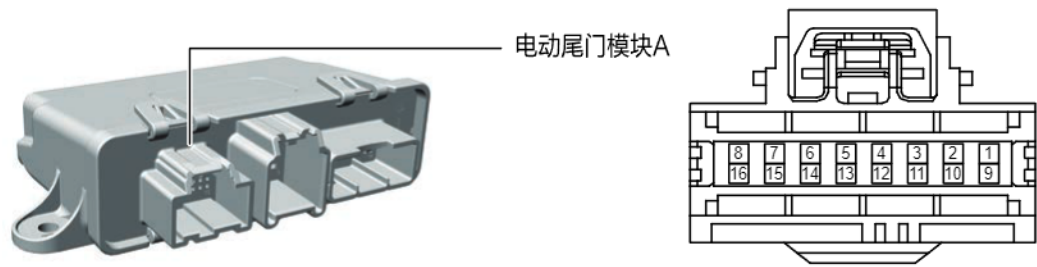
■ Polling function

Vehicle will poll whether it needs to open or close door, the request is sent via signal SATOReq, and PLG will respond after receiving the signal.

57.3 System Circuit Diagram

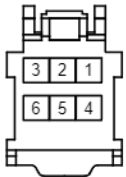
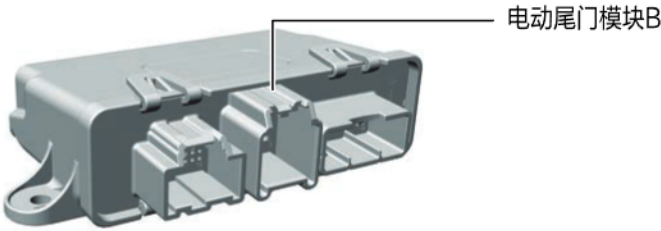
1 Module Terminal Definition

Power Back Door Module J1



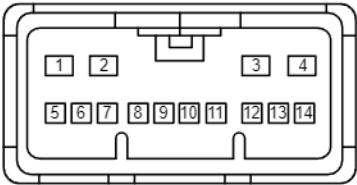
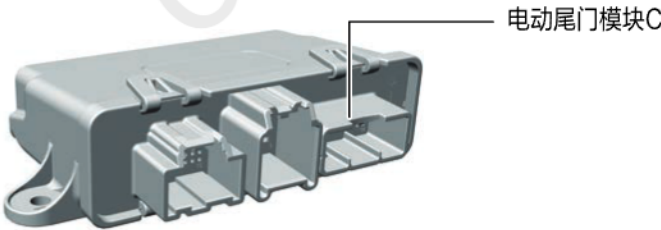
Terminal Inspection		Terminal Definition	Detection Condition	Measured Value
Multimeter Positive	Multimeter Negative			
1	Body ground	-	Power supply "ON"	/
2	Body ground	-	Power supply "ON"	/
3	Body ground	Back door closer switch	Power supply "ON"	/
4	Body ground	-	Power supply "ON"	/
5	Body ground	Half latch signal	Power supply "ON"	/
6	Body ground	Full latch signal	Power supply "ON"	/
7	Body ground	-	Power supply "ON"	/
8	Body ground	Right jam protection signal	Power supply "ON"	/
9	/	-	/	/
10	/	-	/	/
11	/	-	/	/
12	/	-	/	/
13	/	-	/	/
14	/	-	/	/
15	/	LIN	/	/
16	/	Signal ground	/	/

Power Back Door Module J2



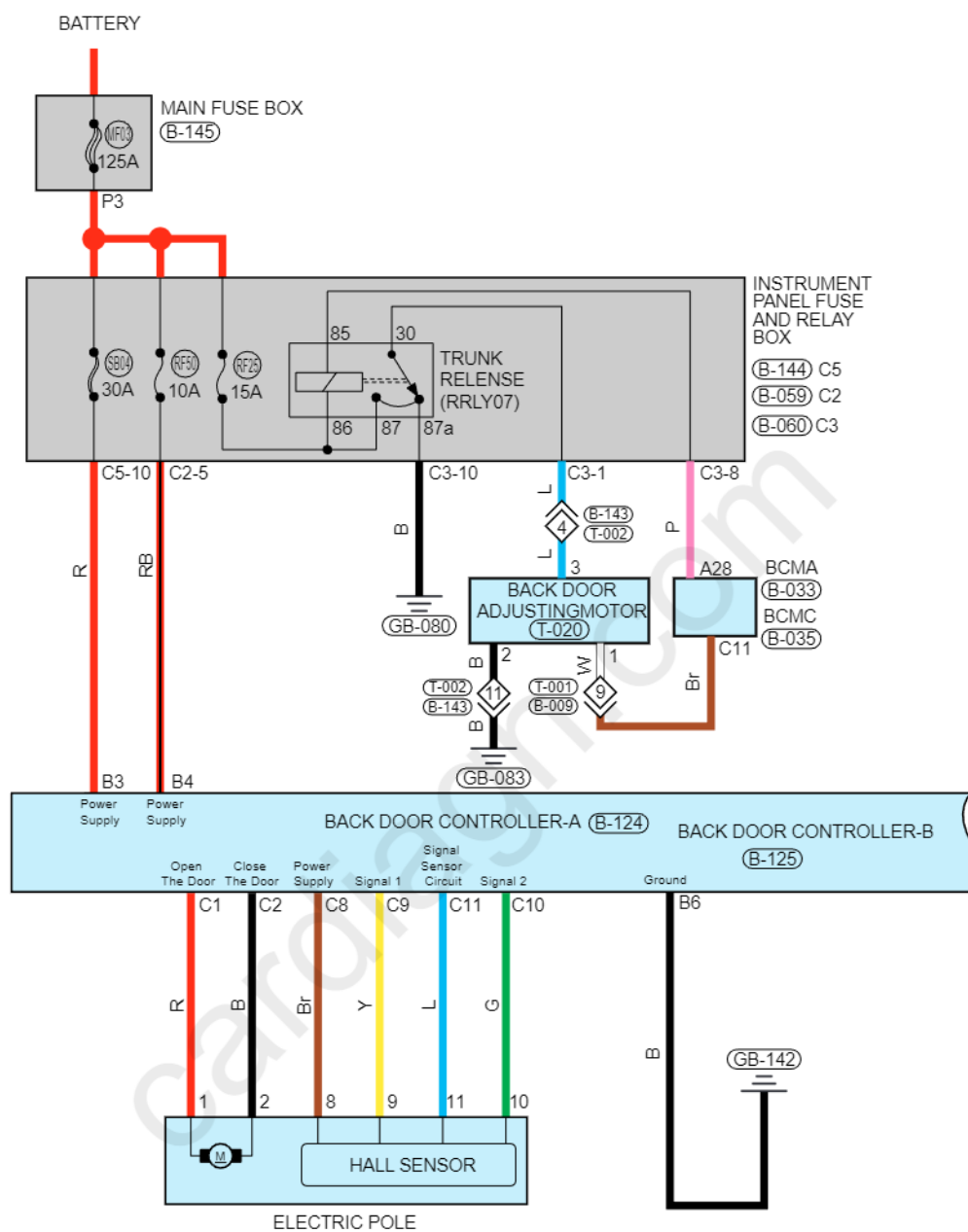
Terminal Inspection		Terminal Definition	Detection Condition	Measured Value
Multimeter Positive	Multimeter Negative			
1	Body ground	Back door lock motor 2	Power supply "ON"	3.8 V; Voltage changes during locking (3.8 V - 13 V - 3.8 V)
2	Body ground	Back door lock motor 1	Power supply "ON"	3.8 V; Voltage changes during locking (3.8 V - 13 V - 3.8 V)
3	Body ground	Power supply	Power supply "ON"	13 V
4	Body ground	10A power source input	Power supply "ON"	13 V
5	Body ground	-	Power supply "ON"	0.1 V; 7.9 V when buzzer sounds
6	Body ground	Ground	Power supply "ON"	0 V

Power Back Door Module J3

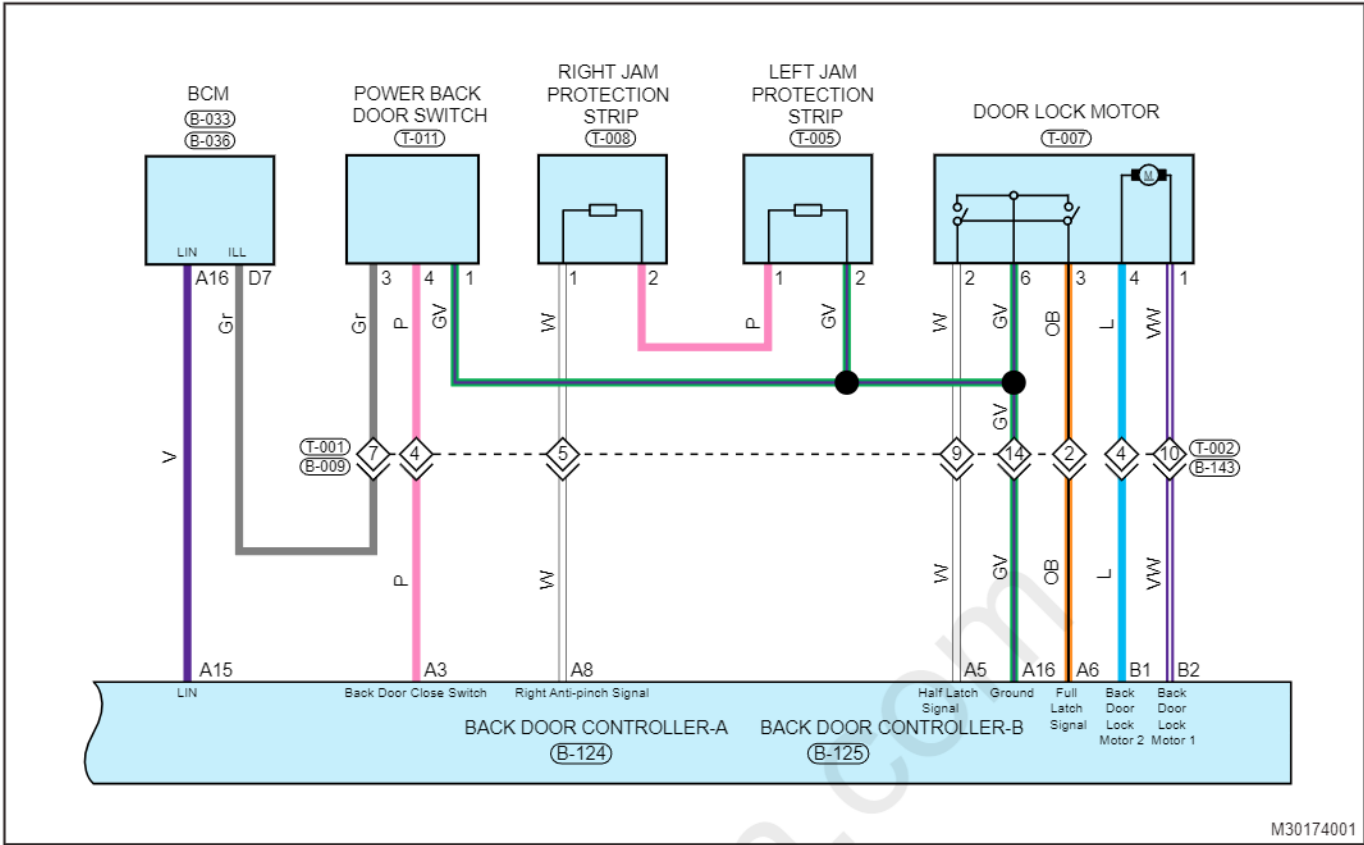


Terminal Inspection		Terminal Definition	Detection Condition	Measured Value
Multimeter Positive	Multimeter Negative			
1	Body ground	Support motor ON	Power supply "ON"	9.3 V; Changed between 4-5 V during back door opening; 0 V during closing;
2	Body ground	Support motor OFF	Power supply "ON"	9.3 V; 0 V during back door opening; Changed between 4-7 V during closing;
3	/	-	/	/
4	/	-	/	/
5	/	-	/	/
6	/	-	/	/
7	/	-	/	/
8	Body ground	"Hall sensor power supply" of electric support	Power supply "ON"	13 V
9	Body ground	"Hall signal 1" of electric support	Power supply "ON"	13 V (full opening) - 0 V (full closing) Varies according to position
10	Body ground	"Hall signal 2" of electric support	Power supply "ON"	13 V (full closing) - 0 V (full opening) Varies according to position
11	Body ground	"Hall sensor ground" of electric support	Power supply "ON"	0 V
12	/	-	/	/
13	/	-	/	/
14	/	-	/	/

2 Circuit Diagram



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57.4 Diagnostic Information and Steps

1 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 as necessary.

Power door lock control system:

Symptom	Suspected Area
Back door cannot be opened	Switch failed
	Main shaft motor is damaged
	Module is damaged
Back door jam protection failed	Main shaft motor is stuck
	Hall sensor is damaged
	Left/right anti-pinch strip is damaged
Back door cannot be closed	Door lock/pillar is deformed or damaged
	Door opening weatherstrip is not installed correctly
	Anti-pinch strip failed

2 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.

3 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.

4 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.

5 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.

6 Diagnosis Procedure

Hint:

Use following procedures to troubleshoot the PLG system.

1	Vehicle brought to workshop
---	-----------------------------

Next

2	Check battery voltage
---	-----------------------

Check if battery voltage is normal.

Standard Condition

Standard voltage: Not less than 12 V

Result

NG

Replace battery

OK

3	Customer problem analysis
---	---------------------------

Result

Result	Go to
No DTC	A
DTC is output	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 BSD 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

7 Diagnostic Trouble Code (DTC) Chart

■ Description

DTC	DTC Definition	Generation Condition	Possible Cause	Maintenance Advice
B14A0 - 11	Spindle Motor Shorted to Ground	ECU monitors that motor voltage is 0 V for 100 ms, when left main shaft motor is not operated.	Wire harness connector failure.	Check connecting wire (used to turn on and off motor) and main shaft motor pin voltages.
B14A0 - 12	Spindle Motor Shorted to Battery	ECU monitors that motor voltage is power supply voltage for 100 ms, when left main shaft motor is not operated.		
B14A0 - 13	Spindle Motor Open Circuit	ECU monitors that motor - 1 pin voltage is 0 V, motor - 2 pin voltage is approximately 9.6 V (value varies with power supply) for 100 ms, when left main shaft motor is not operated.		
B14A0 - 16	Supply Voltage Out of Range (Low)	Power supply voltage is less than 9 V for at least 9 ms.	1. Battery voltage is not stable; 2. Wire harness connector failure.	1. Check battery voltage; 2. Check wire harness connector.
B14A0 - 17	Supply Voltage Out of Range (High)	Power supply voltage is more than 16 V for at least 500 ms		
B14A2 - 39	Hall Sensor A1 Failed	ECU monitors A1 sensor for abnormalities within 1000 ms, when power back door is opened or closed.	1. Wire harness connector failure; 2. Main shaft motor failure.	1. Check wire and main shaft motor.
B14A3 - 39	Hall Sensor A2 Failed	ECU monitors A2 sensor for abnormalities within 1000 ms, when power back door is opened or closed.		2. Check wire and main shaft motor.
B14A2 - 41	Left Anti-pinch Sensor Shorted to Battery or Open	ECU detects that anti-pinch motor voltage is 5 V for 100 ms.	1. Wire harness connector failure; 2. Anti-pinch sensor failure.	1. Check wire; 2. Check anti-pinch sensor pin voltage.
B14A2 - 42	Left Anti-pinch Sensor Shorted to Ground	ECU detects that anti-pinch motor voltage is 0 V for 100 ms.		

DTC	DTC Definition	Generation Condition	Possible Cause	Maintenance Advice
B14A2 - 43	Right Anti-pinch Sensor Shorted to Battery or Open	ECU detects that anti-pinch motor voltage is 5 V for 100 ms.		
B14A2 - 44	Right Anti-pinch Sensor Shorted to Ground	ECU detects that anti-pinch motor voltage is 0 V for 100 ms.		
B14A8 - 11	Latch Motor Shorted to Ground	ECU monitors that motor voltage is 0 V for 100 ms, when latch motor is not operated.	1. Wire harness connector failure; 2. Latch motor failure.	1. Check connecting wire; 2. Check latch motor pin voltage.
B14A8 - 12	Latch Motor Shorted to Battery	ECU monitors that motor voltage is power supply voltage for 100 ms, when latch motor is not operated.		
B14A8 - 13	Latch Motor Open Circuit	ECU monitors that motor - 1 pin voltage is 0 V, motor - 2 pin voltage is approximately 9.6 V (value varies with power supply) for 100 ms, when latch motor is not operated.		
B14AA - 11	Speaker Shorted to Ground	ECU monitors that speaker current is more than 5 A for 100 ms, when speaker is operated.	1. Wire harness connector failure; 2. Speaker failure.	1. Check wire connector; 2. Check speaker and speaker pin voltage.
B14AA - 12	Speaker Shorted to Battery	ECU monitors that speaker voltage is power supply voltage for 100 ms, when speaker is not operated.		
B14AA - 13	Speaker Open Circuit	ECU monitors that speaker voltage is approximately 5.7 V for 100 ms, when speaker is not operated.		
U0100-87	Lost Communication With EMS	If EMS information is not received within 100 ms, this DTC will occur, if this information is received for 3	1. Control module is damaged; 2. Wire harness is damaged.	Refer to CAN network system for troubleshooting

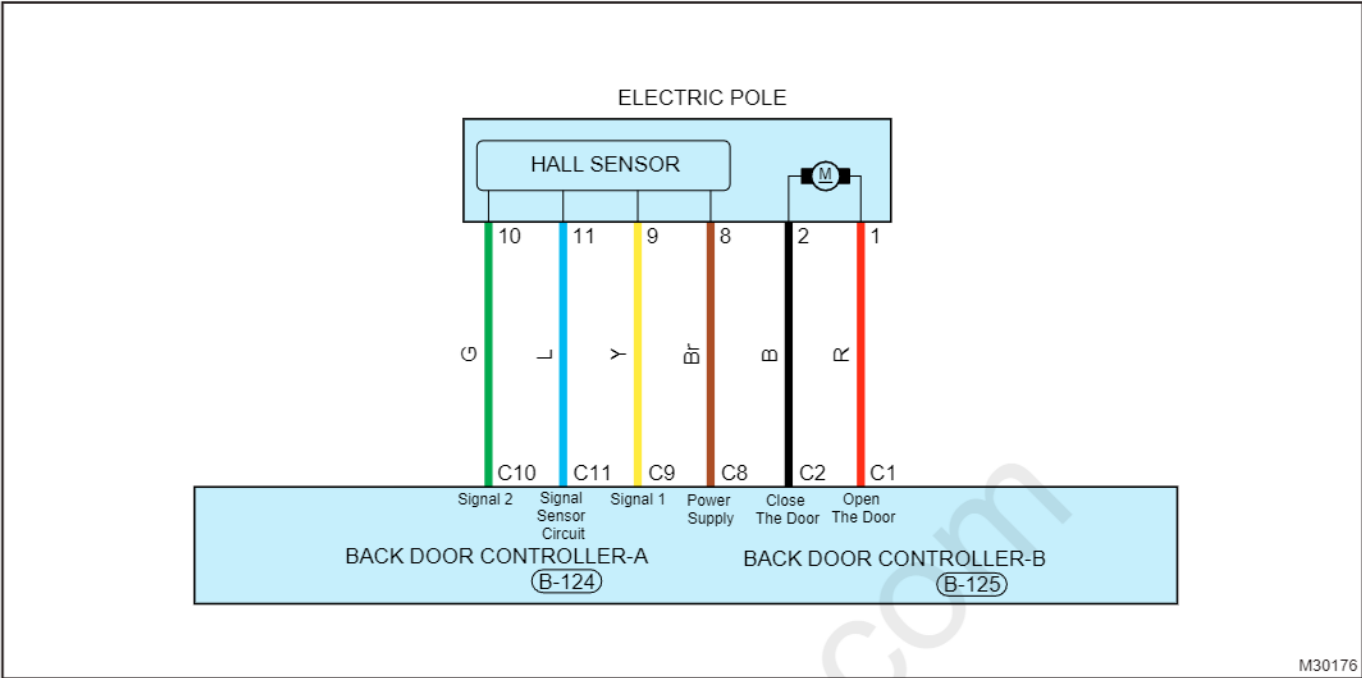
DTC	DTC Definition	Generation Condition	Possible Cause	Maintenance Advice
		consecutive times, DTC will be cleared		
U0101-87	Lost Communication With TCU	If TCU information is not received within 100 ms, this DTC will occur, if this information is received for 3 consecutive times, DTC will be cleared		
U0122-87	Lost Communication With ESC	If ESC information is not received within 100 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 100 ms, this DTC will occur, if this information is received for 3 consecutive times, DTC will be cleared		
U0155-87	Lost Communication With IPC	If IPC information is not received within 100 ms, this DTC will occur, if this information is received for 3 consecutive times, DTC will be cleared		
U0164-87	Lost Communication With CLM	If CLM information is not received within 100 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 100 ms, this DTC will occur, if this information is received for 3 consecutive times, DTC will be cleared		
U0401-81	Invalid Data Received from EMS	If incorrect data is received from EMS, this DTC will occur, the DTC will be		

DTC	DTC Definition	Generation Condition	Possible Cause	Maintenance Advice
		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		
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		
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		
U0423-81	Invalid Data Received from IPC	If incorrect data is received from IPC, this DTC will occur, the DTC will be cleared after data is normal		
U0424-81	Invalid Data Received from CLM	If incorrect data is received from CLM, this DTC will occur, the DTC will be cleared after data is normal		

8 DTC Diagnosis Procedure

DTC	DTC Definition
B1A90-11	Left Main Shaft Motor Shorted to Ground
B1A90-12	Left Main Shaft Motor Shorted to Battery
B1A90-13	Left Main Shaft Motor Open Circuit

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



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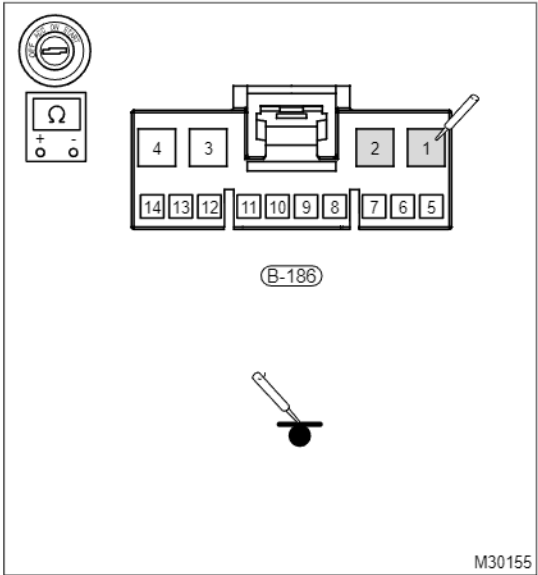
Confirm that battery voltage is not less than 12V before performing following procedures.

1

Check if left main shaft motor circuit is shorted to ground

- (a) Turn ENGINE START STOP switch to OFF.
- (b) Using a digital multimeter, measure resistance values between motor support B-186 (1), B-186 (2) and body ground.

Multimeter Connection	Condition	Specified Condition
B-186 (1) - Body ground	ENGINE START STOP switch "OFF"	∞
B-186 (2) - Body ground	ENGINE START STOP switch "OFF"	∞



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NG

Replace or check and repair wire harness

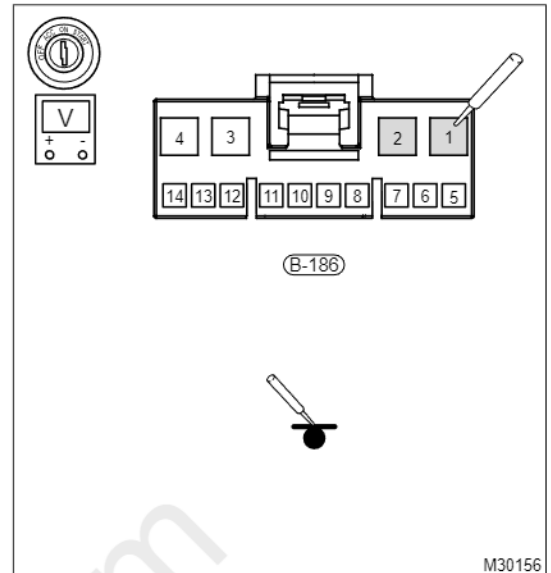
OK

2

Check if left main shaft motor circuit is shorted to battery

- (a) Turn ENGINE START STOP switch to ON.
- (b) Using a digital multimeter, measure voltage values between motor support B-186 (1), B-186 (2) and body power supply.

Multimeter Connection	Condition	Specified Condition
B-186 (1) - Body ground	ENGINE START STOP switch "ON"	0 V
B-186 (2) - Body ground	ENGINE START STOP switch "ON"	0 V



NG

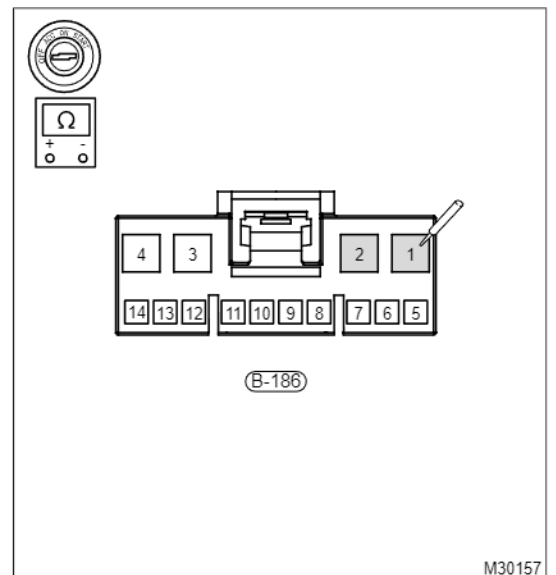
Replace or check and repair wire harness

OK

3 Check wire harness for open

- (a) Turn ENGINE START STOP switch to OFF.
- (b) Disconnect the negative battery terminal cable.
- (c) Disconnect the electric support connector B-186.
- (d) Using a digital multimeter, measure resistance value between connectors B-186 (1) and B-186 (2) to check wire harness for open.

Multimeter Connection	Condition	Specified Condition
B-186 (1) - B-186 (2)	ENGINE START STOP switch "OFF"	$> 0 \Omega$



OK

Replace power back door module assembly

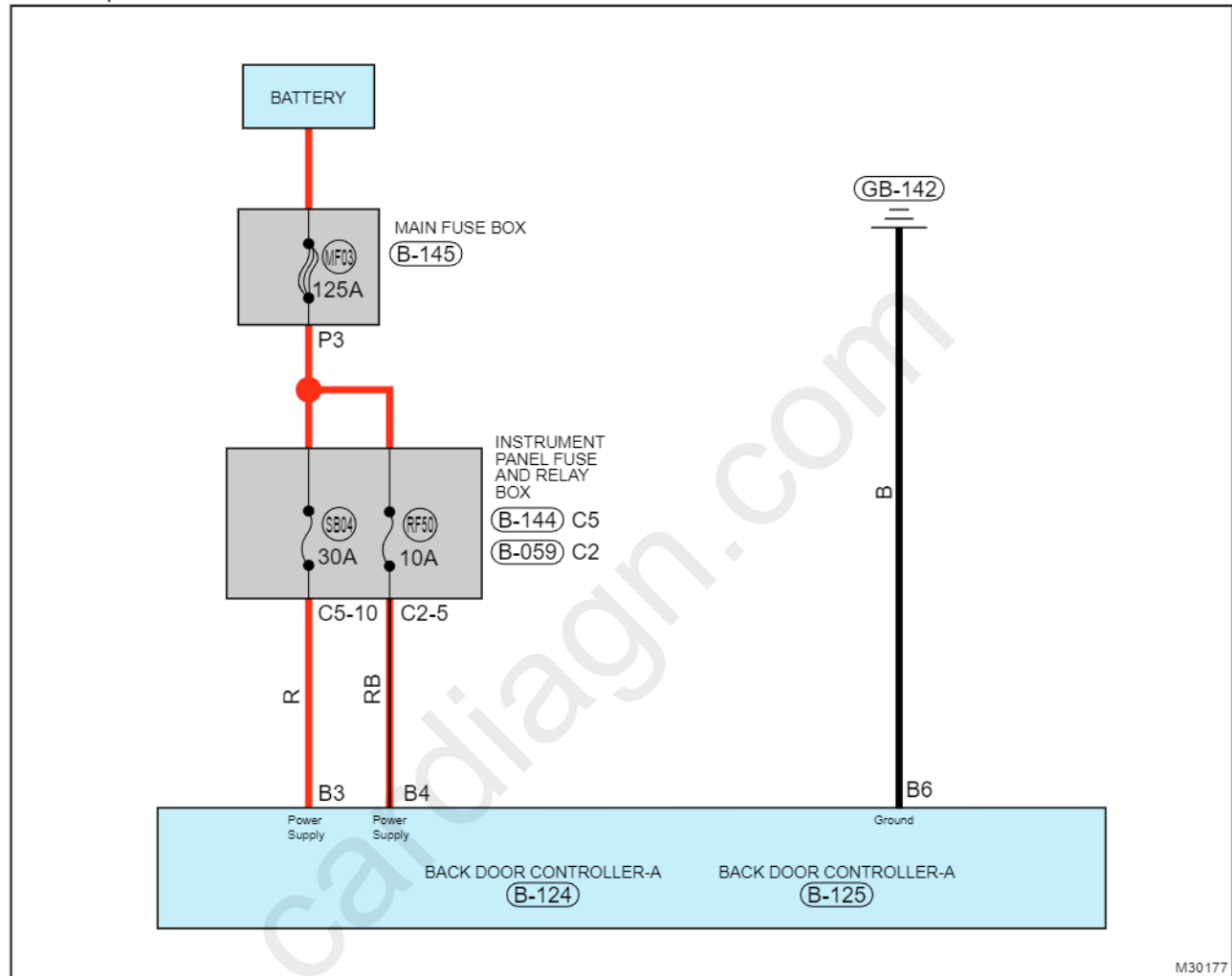
NG

Handle and repair related wire harness

DTC	DTC Definition
B14A0-16	Voltage Too Low
B14A0-17	Voltage Too High

Hint:

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



M30177

1	Check fuse
---	------------

(a) Check if fuses MF03, SB04 and RF50 are blown out.

NG	Replace fuse
----	--------------

OK

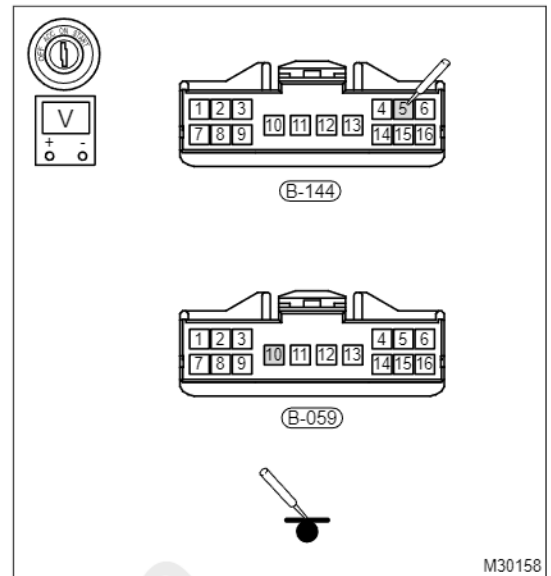
2	Check output voltage of instrument panel fuse and relay box
---	---

(a) Turn ENGINE START STOP switch to ON.

(b) Disconnect instrument panel fuse and relay box connectors B-144 and B-059.

- (c) Using a digital multimeter, measure voltage values between connector B-059 (5), B - 144 (10) and body ground.

Multimeter Connection	Condition	Specified Condition
B-059 (5) - Body ground	ENGINE START STOP switch "ON"	$\leq 12 \text{ V}$
B-144 (10) - Body ground	ENGINE START STOP switch "ON"	$\leq 12 \text{ V}$



NG

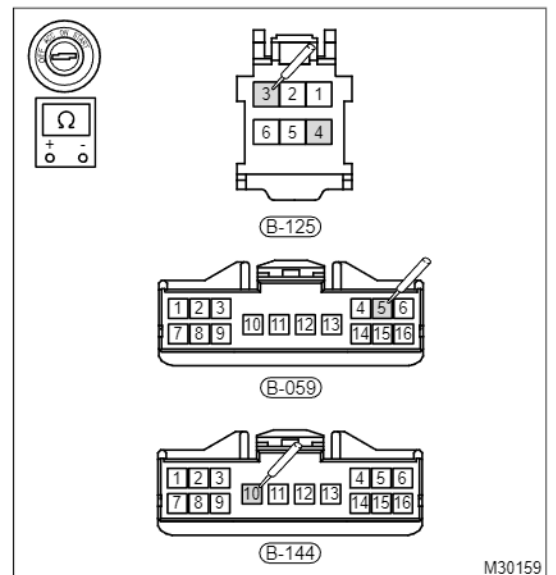
Replace instrument panel fuse and relay box assembly

OK

3 Check wire harness for open

- (a) Turn ENGINE START STOP switch to OFF.
 (b) Disconnect the negative battery terminal cable.
 (c) Disconnect power back door module connector B-125, and instrument panel fuse and relay box connectors B-144 and B-059.
 (d) Using a digital multimeter, measure resistance values between connectors B-125 (3) and B-144 (10), connectors B-125 (4) and B-059 (5) to check wire harness for open.

Multimeter Connection	Condition	Specified Condition
B-125 (3) - B-144 (10)	ENGINE START STOP switch "OFF"	$\leq 1 \Omega$
B-125 (4) - B-059 (5)	ENGINE START STOP switch "OFF"	$\leq 1 \Omega$



OK

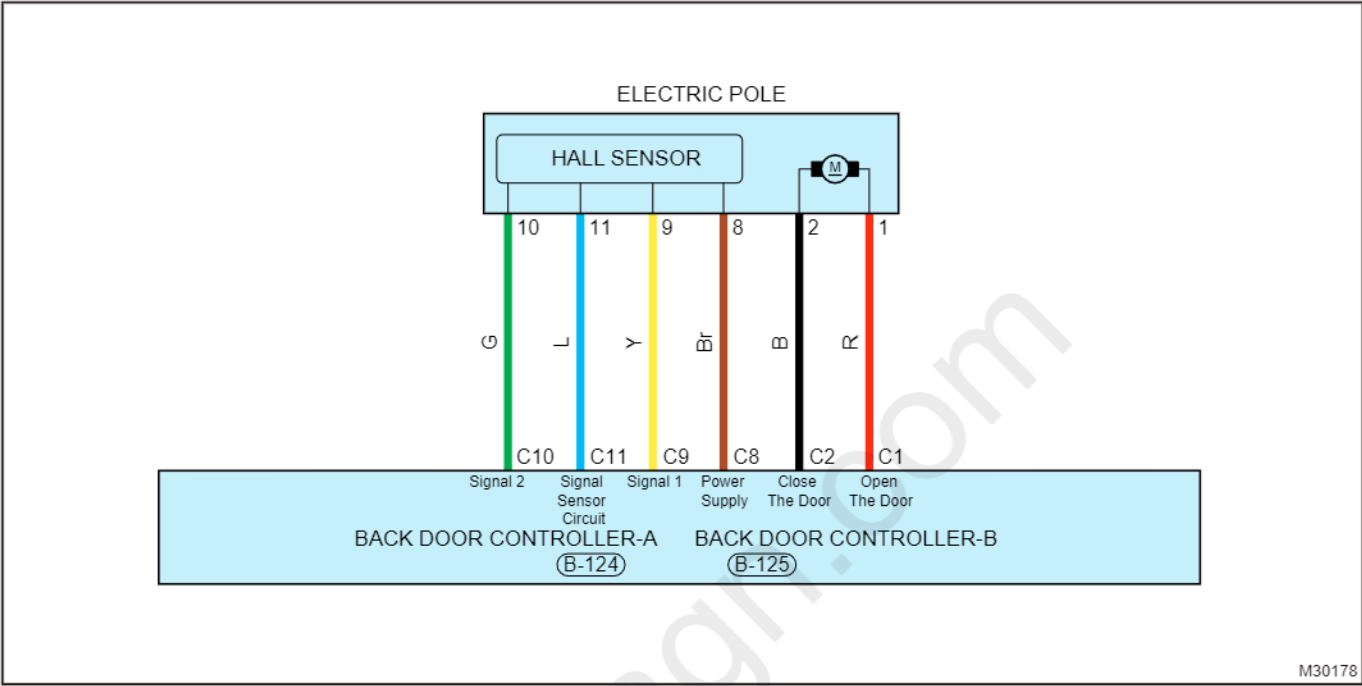
Replace PLG module assembly

NG

Handle and repair related wire harness

DTC	DTC Definition
B14A2-39	Hall Sensor A1 Failed
B14A8-11	Hall Sensor A2 Failed

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

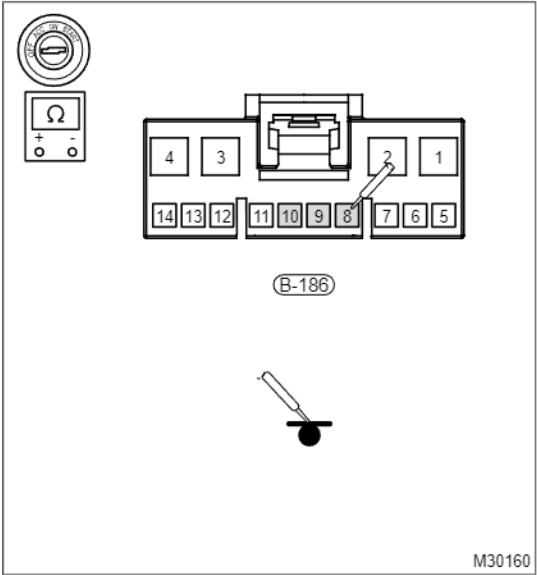


M30178

1 Check motor support signal circuit for open

- (a) Turn ENGINE START STOP switch to OFF.
- (b) Using a digital multimeter, measure resistance values between motor support B-186 (10/9/8) terminals and ground.

Multimeter Connection	Condition	Specified Condition
B-186 (10) - Body ground	ENGINE START STOP switch "OFF"	∞
B-186 (9) - Body ground	ENGINE START STOP switch "OFF"	∞
B-186 (8) - Body ground	ENGINE START STOP switch "OFF"	∞



M30160

NG

Check and repair motor support assembly

OK

2 Check if motor support sensor is normal

OK

Replace PLG module assembly

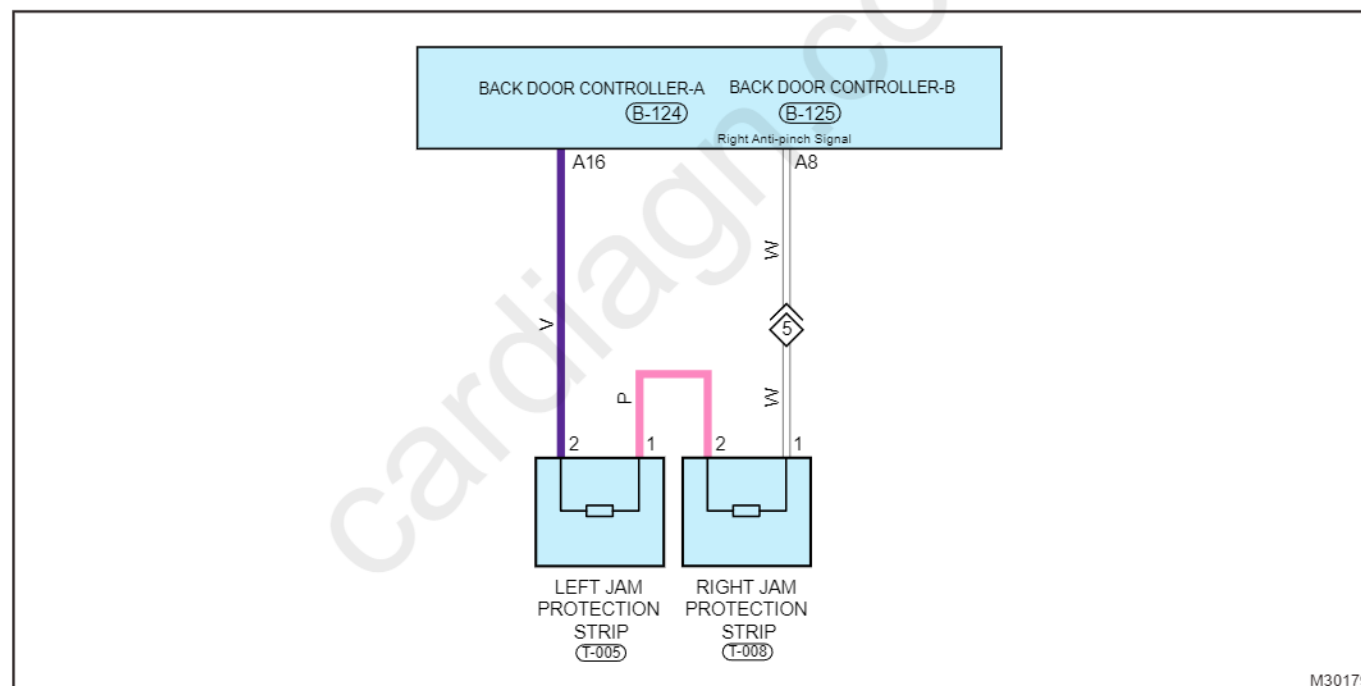
NG

Replace motor support assembly

DTC	DTC Definition
B14A2-41	Left Anti-pinch Strip Shorted to Battery or Open
B14A2-42	Left Anti-pinch Strip Shorted to Ground
B14A2-43	Right Anti-pinch Strip Shorted to Battery or Open
B14A3-39	Right Anti-pinch Strip Shorted to Ground

Hint:

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

- Turn ENGINE START STOP switch to OFF.
- Disconnect the negative battery terminal cable.
- Disconnect left anti-pinch strip connector T-005.
- Check wire harness, connector and terminal for deformation, bend or damage.

NG

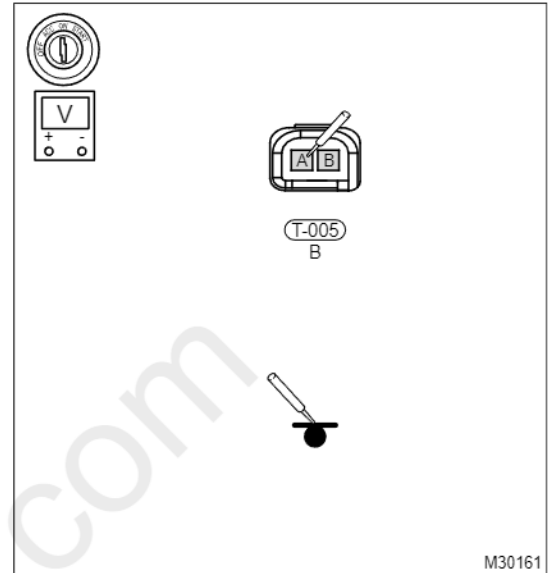
Repair or replace left anti-pinch strip wire harness

OK

2 Check left rod anti-pinch strip wire harness for short circuit

- (a) Turn ENGINE START STOP switch to ON.
- (b) Measure if left anti-pinch strip circuit is short to power supply.

Multimeter Connection	Condition	Specified Condition
T-005 (1) - Body ground	ENGINE START STOP switch "ON"	5 V
T-005 (2) - Body ground	ENGINE START STOP switch "ON"	≈ 0 V



NG

Repair or replace left anti-pinch strip wire harness

OK

3 Test left rod anti-pinch strip

- (a) Turn ENGINE START STOP switch to OFF.
- (b) Disconnect left anti-pinch strip wire harness connector and use digital multimeter to measure left rod anti-pinch strip internal resistance.

OK

System is normal

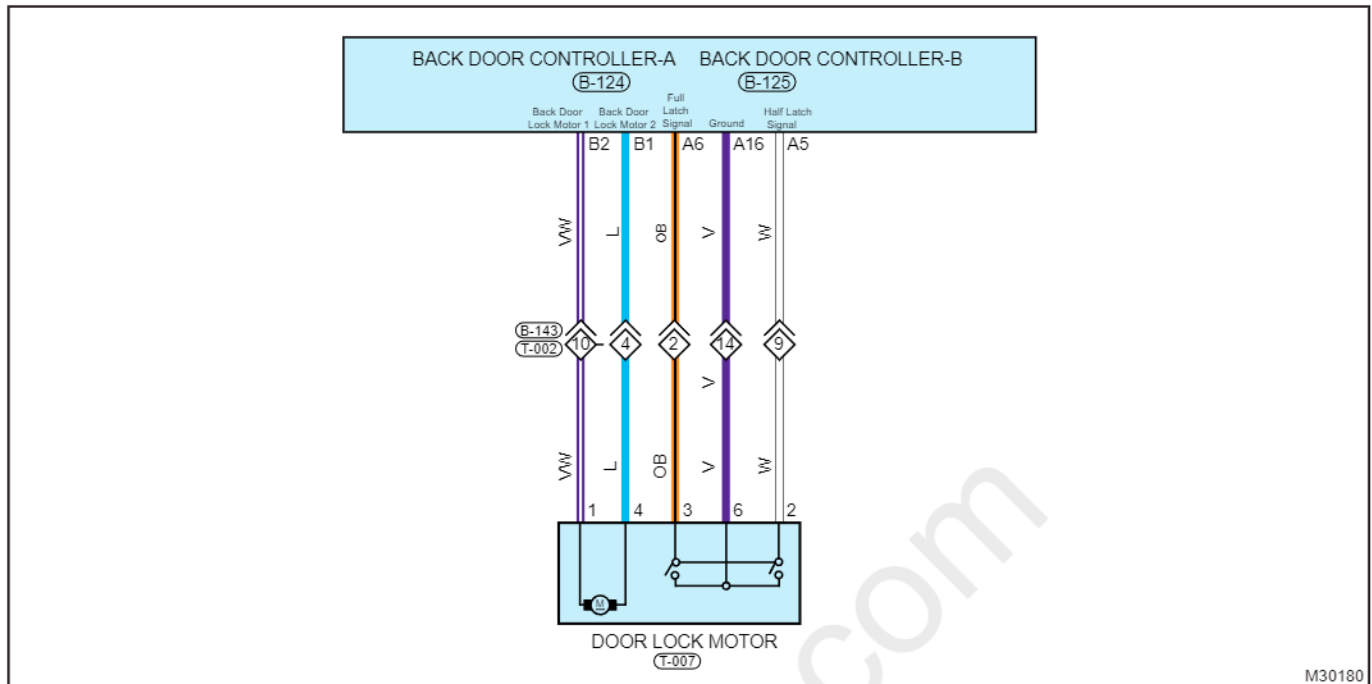
NG

Replace left rod anti-pinch strip

DTC	DTC Definition
B14A8-12	Lock Motor Shorted to Ground
B14A8-13	Lock Motor Shorted to Battery

Hint:

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



1 Check lock motor connector

- (a) Turn ENGINE START STOP switch to "OFF" .
 (b) Disconnect the connector T-007, and check terminals.

NG

Repair or replace motor wire harness

OK

2 Check lock motor driver

- (a) Turn ENGINE START STOP switch to "ON" .
 (b) Press back door switch and measure T-007 (1), (4) with 21 W test light. The test light should be on.

NG

Replace door lock motor assembly

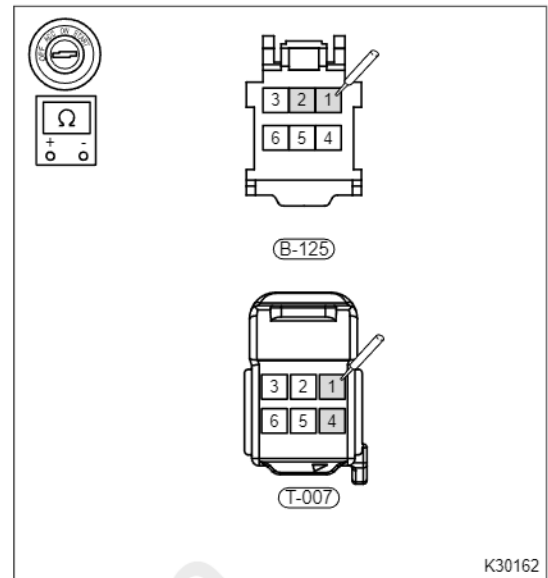
OK

3 Check lock motor wire harness

- (a) Turn ENGINE START STOP switch to "OFF" .
 (b) Disconnect self-engage and fastener connector T-007, and disconnect power back door connector B-125.

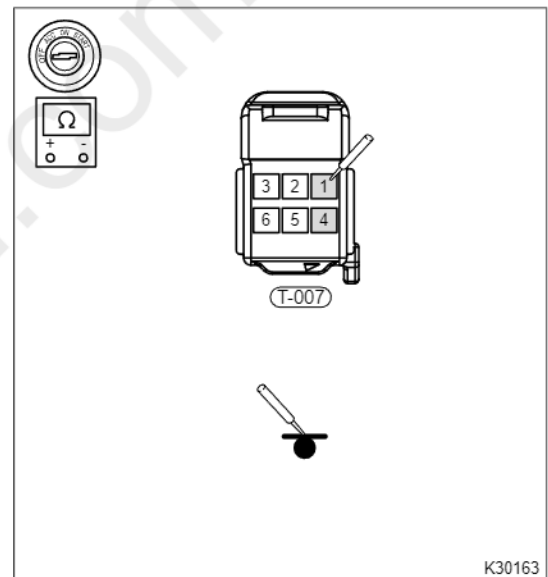
(c) Using multimeter, measure the continuity between T-007 (1) - B-125 (2) and T-007 (4) - B-125 (1).

Multimeter Connection	Condition	Specified Condition
T-007 (1) - B-125(2)	ENGINE START STOP switch "OFF"	$\leq 1 \Omega$
T-007 (4) - B-125 (1)	ENGINE START STOP switch "OFF"	$\leq 1 \Omega$



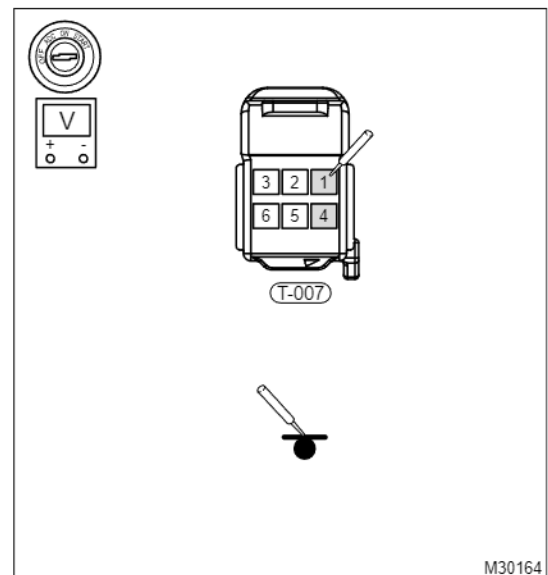
(d) Using multimeter, measure resistance values to ground of T-007 (1) and T-007 (4).

Multimeter Connection	Condition	Specified Condition
T-007 (1) - Body ground	ENGINE START STOP switch "OFF"	∞
T-007 (4) - Body ground	ENGINE START STOP switch "OFF"	∞



(e) Using multimeter, measure voltage values to ground of T-007 (1) and T-007 (4).

Multimeter Connection	Condition	Specified Condition
T-007 (1) - Body ground	ENGINE START STOP switch "ON"	Other than power supply voltage
T-007 (4) - Body ground	ENGINE START STOP switch "ON"	Other than power supply voltage



NG

Repair or replace motor wire harness

OK

4

Reconfirm DTCs

- (a) Connect all the connectors.
 (b) Connect the negative battery terminal cable.
 (c) Turn ENGINE START STOP switch to "ON" .
 (d) Use diagnostic tester (the latest software) to reread DTC in system.

OK

System is normal

NG

Replace fastener assembly

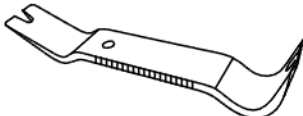
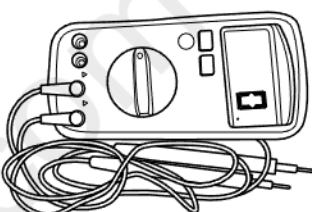
DTC	DTC Definition
U0100-87	Lost Communication With EMS
U0101-87	Lost Communication With TCU
U0122-87	Lost Communication With ESC
U0140-87	Lost Communication With BCM
U0155-87	Lost Communication With IPC
U0164-87	Lost Communication With CLM
U0248-87	Lost Communication With PEPS
U0401-81	Invalid Data Received from EMS
U0402-81	Invalid Data Received from TCU
U0416-81	Invalid Data Received from ESC
U0422-81	Invalid Data Received from BCM
U0423-81	Invalid Data Received from IPC
U0424-81	Invalid Data Received from CLM
U0426-81	Invalid Data Received from PEPS
U0546-81	Invalid Data Received from IHU
UIBOO-88	CAN Bus Off

1

Refer to "CAN" network system for troubleshooting

57.5 On-Vehicle Service

1 Tools

Tool Name	Tool Drawing
Interior crow plate	 S00020
Digital multimeter	 S00002

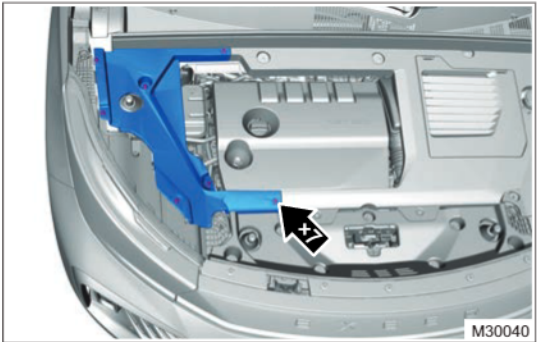
2 Replace Engine Compartment Trim Cover Assembly

2.1 Removal

 **Caution**

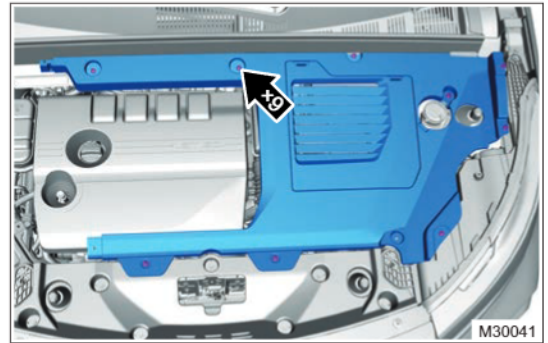
- **Be sure to wear safety equipment to prevent accidents, when removing engine compartment trim cover assembly.**

- (1) Remove 7 fixing clips from right engine compartment trim cover assembly.



- (2) Remove the right engine compartment trim cover assembly.

- (3) Remove 9 fixing clips from left engine compartment trim cover assembly.



- (4) Remove left engine compartment trim cover assembly.

2.2 Installation

⚠ Caution

- After installation, check whether the fastening is firm, and the buckle cannot be loose.

- (1) Install the left engine compartment trim cover assembly to a proper position of body.
- (2) Install 9 fixing clips on the left engine compartment trim cover assembly.
- (3) Install the right engine compartment trim cover assembly to a proper position of body.
- (4) Install 7 fixing clips on the right engine compartment trim cover assembly.

3 Replace Engine Hood Gas Spring

3.1 Removal

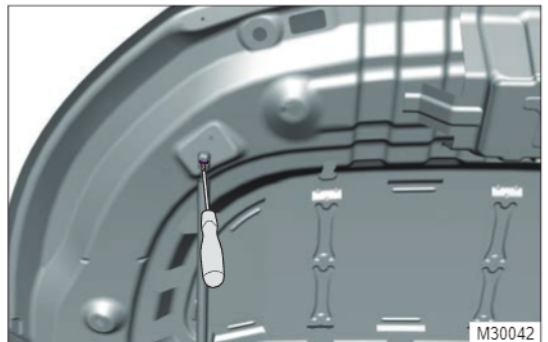
⚠ Caution

- Be sure to wear safety equipment to prevent accidents, when removing engine hood gas spring.
- When removing engine hood gas spring, an assistant is needed to hold engine hood. Try to prevent engine hood from falling down or closing suddenly during operation, resulting in accidents.
- There may be a certain starting force on gas spring when it is used firstly, although the supplier will run-in to solve this problem before leaving the factory, closing force may too strong after long term storage. For personal safety, it is necessary to close engine hood slowly at the first time, If it cannot be closed, it is necessary to replace gas spring. The gas spring is a product with internal high pressure storage. User is prohibited to approach the gas spring to the fire and heat sources; Never strike gas spring fiercely; Prevent explosion which will cause the unnecessary personal injury. It is forbidden absolutely to disassemble gas spring without site guidance of specialized person. Any small mis-operation during disassembly may lead to piston rod injection or cylinder burst, causing personal injury and accidents.
- Use same procedures for right and left sides, procedures listed below are for left side.

- (1) Insert a flat-head screwdriver into the slot between C-shaped snap spring and plastic ball socket, tilt C-shaped snap spring to a proper position, hold the area nearest to ball socket with a hand, and pull end of gas spring lightly in the opposite direction to remove it.

⚠ Caution

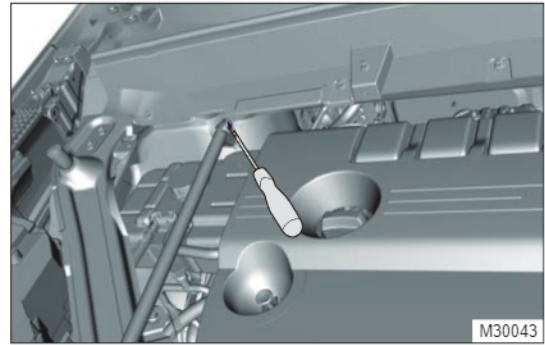
- When removing gas spring, avoid using tools to knock and removing forcibly.
- It is not allowed absolutely to hold center part of gas spring to remove it forcibly.



- (2) Insert a flat-head screwdriver into the slot between C-shaped snap spring and plastic ball socket, tilt C-shaped snap spring to a proper position, hold the area nearest to ball socket with a hand, and pull end of gas spring lightly in the opposite direction to remove it.

⚠ Caution

- When removing gas spring, avoid using tools to knock and removing forcibly.
- It is not allowed absolutely to hold center part of gas spring to remove it forcibly.



- (3) Remove the engine hood gas spring.

3.2 Installation

⚠ Caution

- When installing engine hood gas spring, an assistant is needed to hold engine hood. Try to prevent engine hood from falling down or closing suddenly during operation, resulting in accidents.
- Pay attention to the installation direction and installation sequence, clamp the piston rod end to engine hood gas spring left mounting bracket, and then clamp the cylinder end to engine hood, so that ball socket cannot slide out.

- (1) Apply grease to ball socket of gas spring body, and ensure appearance is not being affected, and then clamp the body to ball pin separately.
- (2) Install the C-shaped snap spring at the lower end of engine hood gas spring.
- (3) Install the C-shaped snap spring at the upper end of engine hood gas spring.

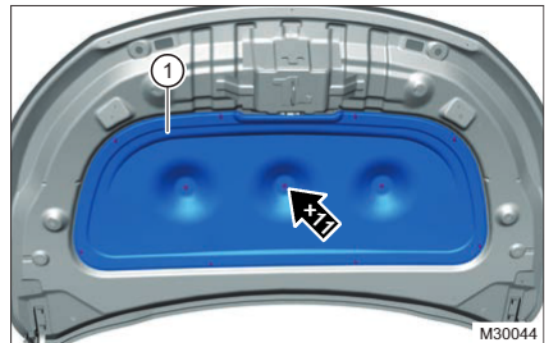
4 Replace Engine Hood Assembly

4.1 Removal

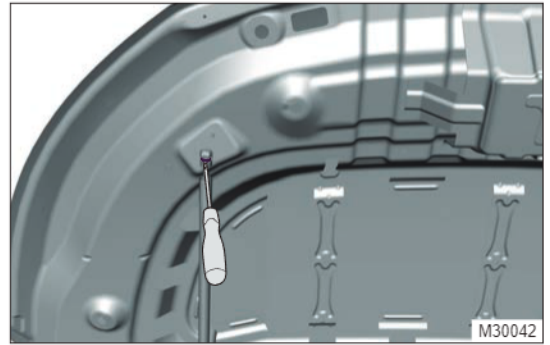
⚠ Caution

- 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.
- 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 clips from engine hood sound insulator pad, and remove the engine hood sound insulator pad (1).



- (2) Using a screwdriver wrapped with protective tape, pry off fixing clips at upper end of engine hood gas spring.



- (3) Remove 4 fixing nuts between engine hood assembly and engine hood both sides hinge assembly, and remove engine hood assembly.



4.2 Installation

- (1) Install the engine hood assembly, install and tighten 4 fixing nuts to engine hood.
- (2) Install the fixing clips at the upper end of engine hood gas spring.
- (3) Install the engine hood sound insulator pad, and install the fixing clips on the engine hood sound insulator pad.

5 Replace Engine Hood Hinge Assembly

5.1 Removal

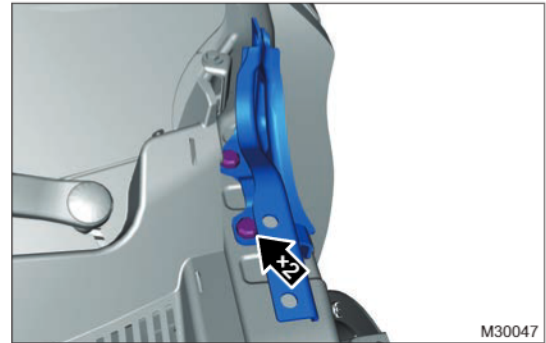
Caution

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

- (1) Remove the wing assembly.
- (2) Remove 2 fixing nuts between left hinge assembly and engine hood assembly.



- (3) Remove 2 fixing bolts between engine hood left hinge assembly and body.



- (4) Remove the engine hood left hinge assembly.

5.2 Installation

- (1) Install the engine hood left hinge assembly to a proper position of body.
- (2) Install 2 fixing bolts between engine hood left hinge assembly and body.
Torque: $22 \pm 1.0 \text{ N}\cdot\text{m}$
- (3) Install 2 fixing nuts between left hinge assembly and engine hood assembly.
Torque: $22 \pm 1.0 \text{ N}\cdot\text{m}$
- (4) Install the wing assembly.

6 Replace Back Door Protector Assembly

6.1 Removal

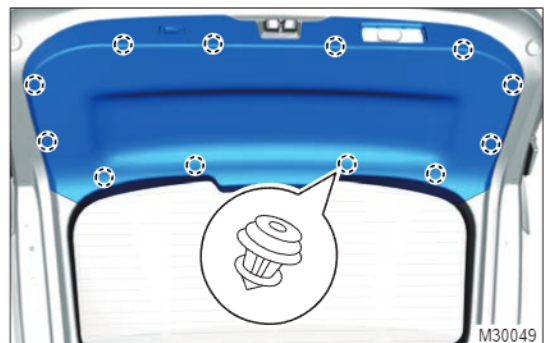
⚠ Caution

- 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.

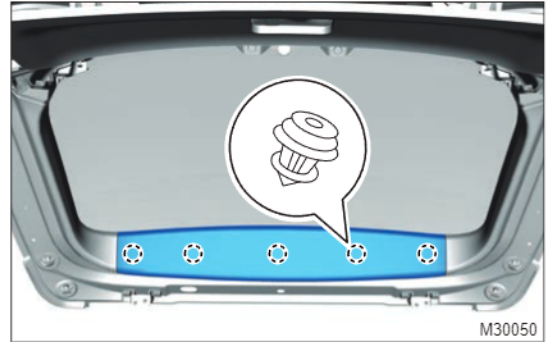
- (1) Turn off all electrical equipment and ENGINE START STOP switch.
- (2) Disconnect the negative battery cable.
- (3) Remove the fixing screw from grip box.



- (4) Remove the back door grip.
- (5) Using an interior crow plate, pry off fixing clips from back door lower protector.



- (6) Disconnect power back door switch assembly connector, and remove the back door lower protector.
- (7) Using an interior crow plate, pry off fixing clips from back door upper center protector carefully.



- (8) Remove the back door upper center protector.
- (9) Remove 3 plastic rivet from back door upper left protector (Use same procedures for right and left sides).



- (10) Remove the back door upper left protector.

6.2 Installation

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.**

- (1) Install the back door upper left protector to a proper position of body.
- (2) Install 3 plastic rivet on the back door upper left protector (Use same procedures for right and left sides).
- (3) Install the back door upper center protector to a proper position of body.
- (4) Install the back door lower protector to a proper position of body, and connect power switch assembly connector.
- (5) Remove the back door grip, and install the grip box screw.
- (6) Connect the negative battery cable.

7 Replace Back Door Assembly

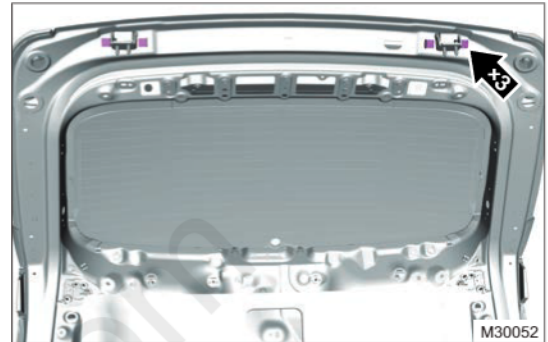
7.1 Removal

Caution

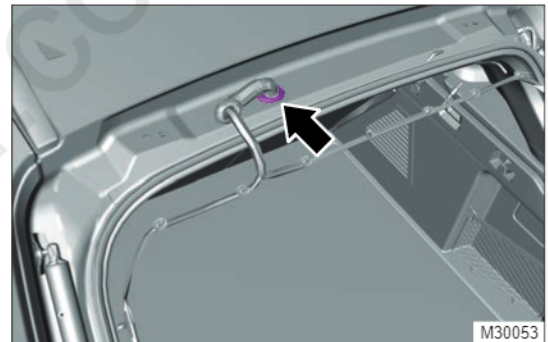
- **Be sure to wear safety equipment when removing back door assembly.**
- **Try to prevent body paint surface from being scratched, when removing back door assembly.**
- **When removing back door assembly, an assistant is needed to hold the trunk lid. Try to prevent trunk lid from falling down or closing suddenly during operation, resulting in accidents.**

- (1) Turn off all electrical equipment and ENGINE START STOP switch.
- (2) Disconnect the negative battery cable.

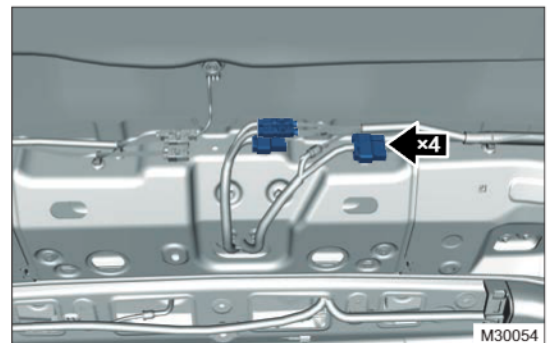
- (3) Remove the back door protector assembly.
- (4) Remove the back door wiper arm.
- (5) Remove the back door wiper motor assembly.
- (6) Remove the back door lock assembly.
- (7) Remove the rear combination B light body.
- (8) Remove the back door anti-pinch strip.
- (9) Remove the rear spoiler plate.
- (10) Remove the roof assembly.
- (11) Remove 4 fixing bolts from back door left and right hinges assembly.



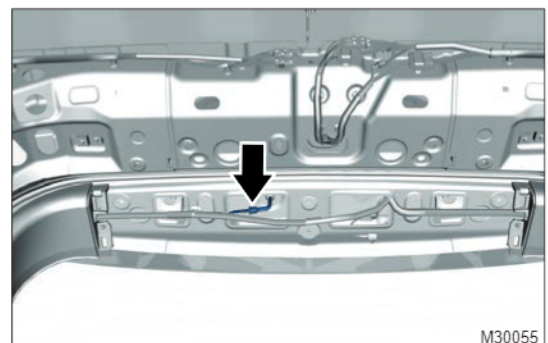
- (12) Using an interior crow plate, pry off the back door wire harness dust boot carefully.



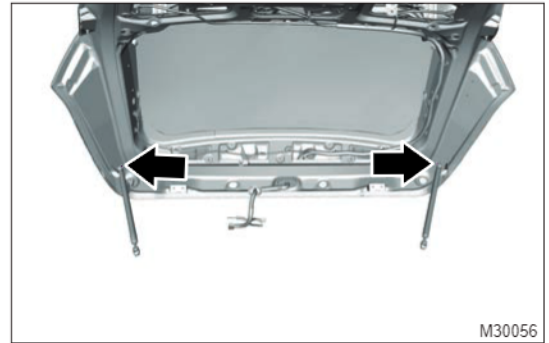
- (13) Disconnect back door wire harness assembly connector plug.



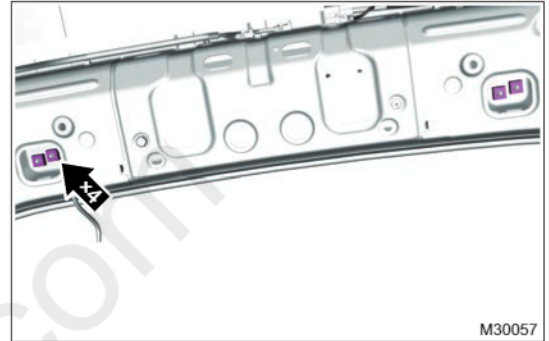
- (14) Disconnect back door wiper spraying pipe joint.



- (15) Using a screwdriver wrapped with protective tape, pry off the upper fixing clips between left electric support and right balance bar carefully.



- (16) Remove the back door assembly.
- (17) Remove 4 fixing nuts from back door left and right hinges assembly.



- (18) Remove the back door hinge assembly.

7.2 Installation

Caution

- When installing back door hinge assembly, an assistant is needed to hold back door. Try to prevent back door from falling down or closing suddenly during operation, resulting in accidents.
- 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.

- (1) Install the engine hood hinge assembly to a proper position of body.
- (2) Install 4 fixing nuts on the back door left and right hinges assembly.
Torque: $25 \pm 2 \text{ N}\cdot\text{m}$
- (3) Install the engine hood assembly to a proper position of body.
- (4) Install the electric support and right balance bar.
- (5) Connect back door wiper spraying pipe joint.
- (6) Connect back door wire harness assembly connector plug.
- (7) Install the back door wire harness dust boot.
- (8) Install 4 fixing bolts on the back door left and right hinges assembly.
Torque: $25 \pm 2 \text{ N}\cdot\text{m}$
- (9) Install the roof assembly.
- (10) Install the rear spoiler plate.
- (11) Install the back door anti-pinch strip.
- (12) Install the rear combination B light body.
- (13) Install the back door lock assembly.
- (14) Install the back door wiper motor assembly.
- (15) Install the back door wiper arm.

- (16) Install the back door protector assembly.
- (17) Connect the negative battery cable.

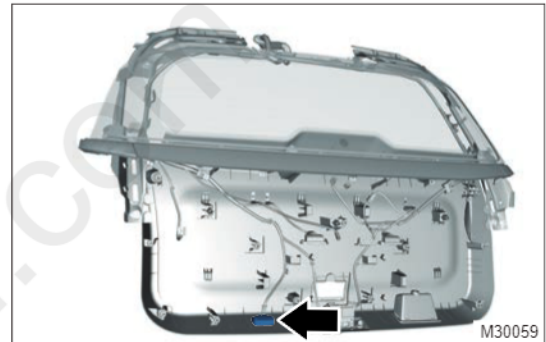
8 Replace Back Door Switch Assembly

8.1 Removal

Caution

- **Be sure to wear safety equipment to prevent accidents, when removing back door switch 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.
- (4) Using a screwdriver wrapped with protective tape, carefully pry off the back door switch assembly.
- (5) Disconnect connector on the back door switch assembly, remove the back door switch assembly.



8.2 Installation

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.**
- **After installing back door opener switch assembly, it is necessary to perform panoramic image calibration.**

- (1) Install the back door switch assembly to a proper position of back door.
- (2) Connect the connector on the back door switch assembly.
- (3) Press back door switch assembly tightly.
- (4) Install the back door lower protector.
- (5) Connect the negative battery cable.

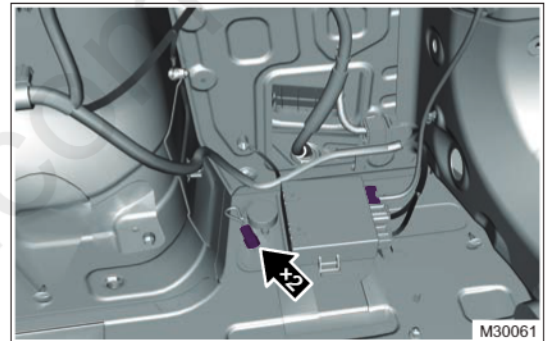
9 Replace Back Door Opening Power Drive Shaft

9.1 Removal

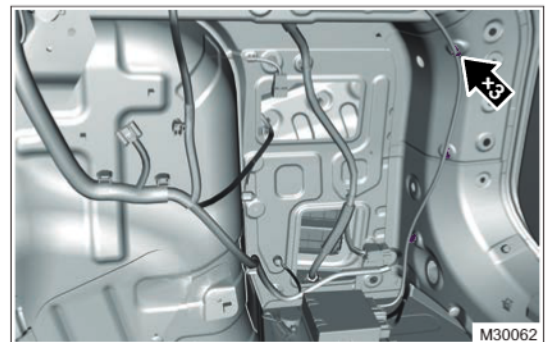
Caution

- Be sure to wear safety equipment to prevent accidents, when removing back door opening power drive shaft.
- When removing back door opening power drive shaft, pay attention not to bend electric support by lateral force and during removal, one assistance is needed to hold back door; Try to prevent back door from falling down or closing suddenly during operation, resulting in accidents.
- Remove the electric support assembly carefully and avoid it falling down. Once it falls down, internal mechanical damage may occur, which may cause it impossible to use.

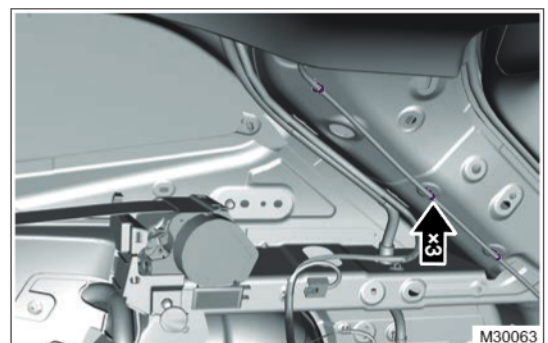
- (1) Turn off all electrical equipment and ENGINE START STOP switch.
- (2) Disconnect the negative battery cable.
- (3) Remove the left C-pillar upper protector.
- (4) Disconnect connection between back door opening power drive shaft wire harness and power back door module and buzzer.



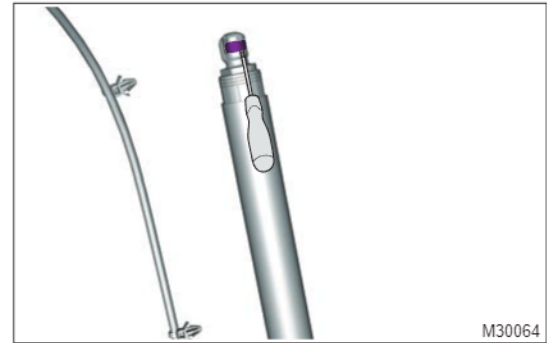
- (5) Disengage fixing clips of back door opening power drive shaft wire harness.



- (6) Disengage fixing clips of back door opening power drive shaft wire harness.



- (7) Using a screwdriver wrapped with protective tape, pry off fixing snap spring from lower part of back door opening power drive shaft.



- (8) Using a screwdriver wrapped with protective tape, pry off fixing snap spring from upper part of back door opening power drive shaft.



- (9) Remove the back door opening power drive shaft.

9.2 Installation

Caution

- Pay attention to the installation direction and installation sequence, clamp the thick end of ball socket to gutter channel side mounting bracket, and then clamp the thin end to back door bracket. Ball socket cannot slide out, it indicates that the matching is tight.
- It is necessary for wire harness grommet to be installed in place. If not, water leakage may occur at this area.
- After installing electric support ball socket of the gutter channel end, when installing the back door end, if the ball pin of back door bracket is not aligned with electric support ball socket, rotate the fixing end of electric support clockwise and insert ball socket into the ball pin of back door bracket when ball socket is aligned with ball pin. (This assembly method can ensure that the assembled electric support ball socket is tightened and not loose. If assembly is not in this order, it may cause electric support ball socket is loose during assembly.)

- (1) Apply grease to ball socket of electric support body, and ensure appearance is not being affected, and then clamp the body to ball pin separately.
- (2) Align the center of upper ball socket with the center of ball, and hit ball socket by hand.
- (3) Align the center of lower ball socket with the center of ball, and hit ball socket by hand.
- (4) Install the fixing clips of back door opening power drive shaft wire harness.
- (5) Connect back door opening power drive shaft wire harness and power back door module and buzzer.
- (6) Install the left C-pillar upper protector.
- (7) Connect the negative battery cable.

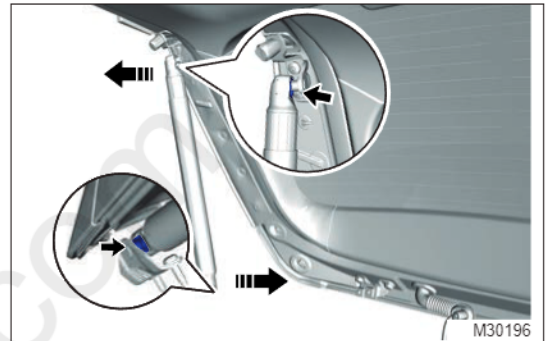
10 Replace Back Door Opening Driven Shaft

10.1 Removal

Caution

- Be sure to wear safety equipment to prevent accidents, when removing back door opening driven shaft.
- When removing back door opening driven shaft, one assistance is needed to hold back door; Try to prevent back door from falling down or closing suddenly during operation, resulting in accidents.

- (1) Turn off all electrical equipment and ENGINE START STOP switch.
- (2) Disconnect the negative battery cable.
- (3) Using a screwdriver wrapped with protective tape, pry off fixing snap springs from upper and lower parts of back door opening driven shaft.



- (4) Remove the back door opening driven shaft in direction of arrow.

10.2 Installation

Caution

- Pay attention to the installation direction and installation sequence, clamp the thick end of ball socket to gutter channel side mounting bracket, and then clamp the thin end to back door bracket. Ball socket cannot slide out, it indicates that the matching is tight.
- It is necessary for wire harness grommet to be installed in place. If not, water leakage may occur at this area.
- After installing balance bar ball socket of the gutter channel end, when installing the back door end, if the ball pin of back door bracket is not aligned with balance bar ball socket, rotate the fixing end of balance bar clockwise and insert ball socket into the ball pin of back door bracket when ball socket is aligned with ball pin. (This assembly method can ensure that the assembled balance bar ball socket is tightened and not loose. If assembly is not in this order, it may cause balance bar ball socket is loose during assembly.)

- (1) Apply grease to ball socket of support body, and ensure appearance is not being affected, and then clamp the body to ball pin separately.
- (2) Align the center of upper ball socket with the center of ball, and hit ball socket by hand.
- (3) Align the center of lower ball socket with the center of ball, and hit ball socket by hand.
- (4) Connect the negative battery cable.

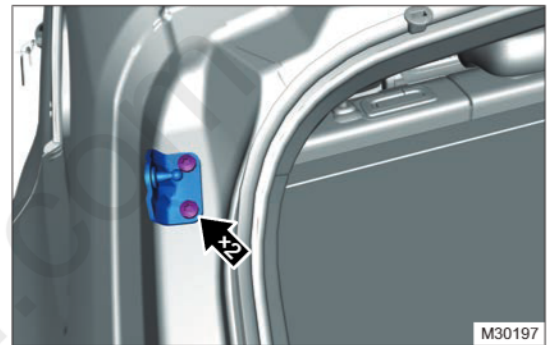
11 Replace Spring Upper Bracket

11.1 Removal

Caution

- Be sure to wear safety equipment to prevent accidents, when removing spring upper bracket.
- When removing back door opening driven shaft, one assistance is needed to hold back door; Try to prevent back door from falling down or closing suddenly during operation, resulting in accidents.
- Use the same procedures for spring upper bracket and rear trunk lid lower left bracket, procedures listed below are for spring upper bracket.

- (1) Turn off all electrical equipment and ENGINE START STOP switch.
- (2) Disconnect the negative battery cable.
- (3) Remove the back door opening driven shaft.
- (4) Remove 2 fixing screws from spring upper bracket.



- (5) Remove the spring upper bracket.

11.2 Installation

Caution

- When installing gutter channel mounting bracket, pay attention to the direction of ball pin and install it in opposite inward direction; When installing the gutter channel upper bracket, pay attention to left and right parts which left part has "L" mark and right part has "R" mark.
- It is necessary to pre-tighten the upper mounting hole and then pre-tighten the lower mounting hole when installing bolts. When installing bracket tightening bolt, pay attention to installation sequence of the upper and lower mounting holes (pre-tighten round hole first and then waist-shaped hole).
- For convenience installing, after bracket is aligned with the hole, pre-tighten bolt to 2-3 threads by hand, and then install, pre-tighten and re-tighten it with tools.

- (1) After installing spring upper bracket to the upper hole of gutter channel, pre-tighten 2 fixing bolts.
Torque: $5 \pm 1 \text{ N}\cdot\text{m}$
- (2) After pre-tightening, re-tighten them.
Torque: $25 \pm 3 \text{ N}\cdot\text{m}$
- (3) Install the back door opening driven shaft.
- (4) Connect the negative battery cable.

12 Replace Back Door Anti-pinch Strip Assembly

12.1 Removal

Caution

- Be sure to wear safety equipment to prevent accidents, when removing back door anti-pinch strip assembly.
- 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 ENGINE START STOP switch.
- (2) Disconnect the negative battery cable.
- (3) Remove the back door left protector assembly.
- (4) Disconnect the back door left anti-pinch strip connector.



- (5) Remove 3 fixing clips from back door left anti-pinch strip.



- (6) Remove 2 fixing screws from back door left anti-pinch strip.



- (7) Remove the back door anti-pinch strip assembly.

12.2 Installation

Caution

- Try to prevent body paint surface from being scratched, when installing back door anti-pinch strip assembly.

- (1) Install the back door anti-pinch strip assembly to a proper position of body.
- (2) Install 2 fixing screws on the back door left anti-pinch strip.
- (3) Install 3 fixing clips on the back door left anti-pinch strip.
- (4) Connect the back door left anti-pinch strip connector.
- (5) Install the back door left protector assembly.
- (6) Connect the negative battery cable.

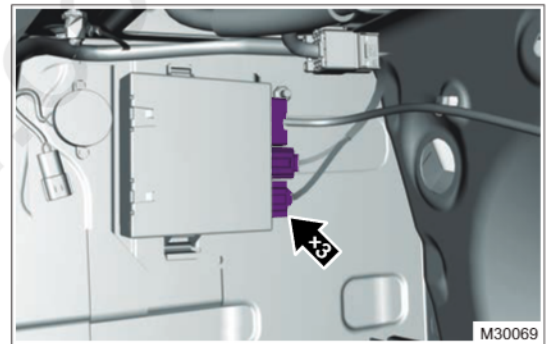
13 Replace Power Back Door Module Assembly

13.1 Removal

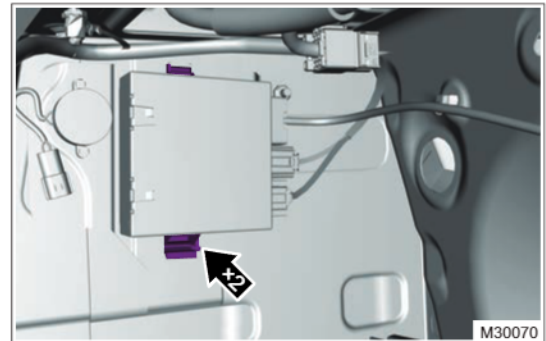
Caution

- **Be sure to wear safety equipment to prevent accidents, when removing power back door module assembly.**

- (1) Turn off all electrical equipment and ENGINE START STOP switch.
- (2) Disconnect the negative battery cable.
- (3) Remove the right luggage compartment wheel house assembly.
- (4) Disconnect the power back door module assembly wire harness connectors.



- (5) Disengage clips from power back door module.



- (6) Remove the power back door module assembly.

13.2 Installation

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.**

- (1) Install the power back door module assembly to a proper position of body.
- (2) Connect the power back door module assembly wire harness connector.
- (3) Install the right luggage compartment wheel house assembly.

- (4) Connect the negative battery cable.
- (5) Connect diagnostic tester, read and clear DTCs.

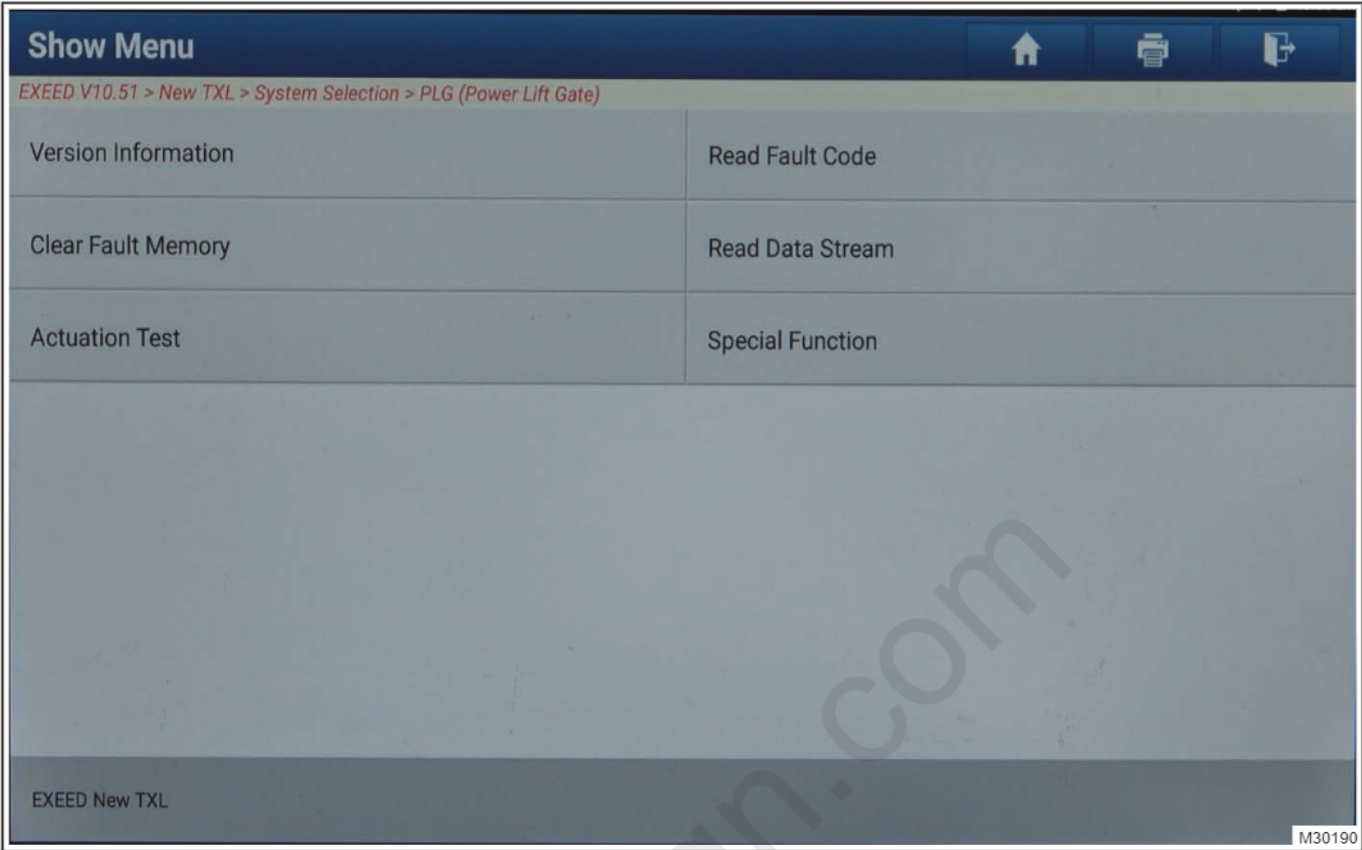
13.3 Self-learning

- (1) Turn ENGINE START STOP switch to OFF.
- (2) Connect the diagnostic tester (the latest software).
- (3) Turn ENGINE START STOP switch to ON.
- (4) Click "Traditional Diagnosis" .
- (5) Click "New TXL" .
- (6) Click "PLG (Power Lift Gate)" .

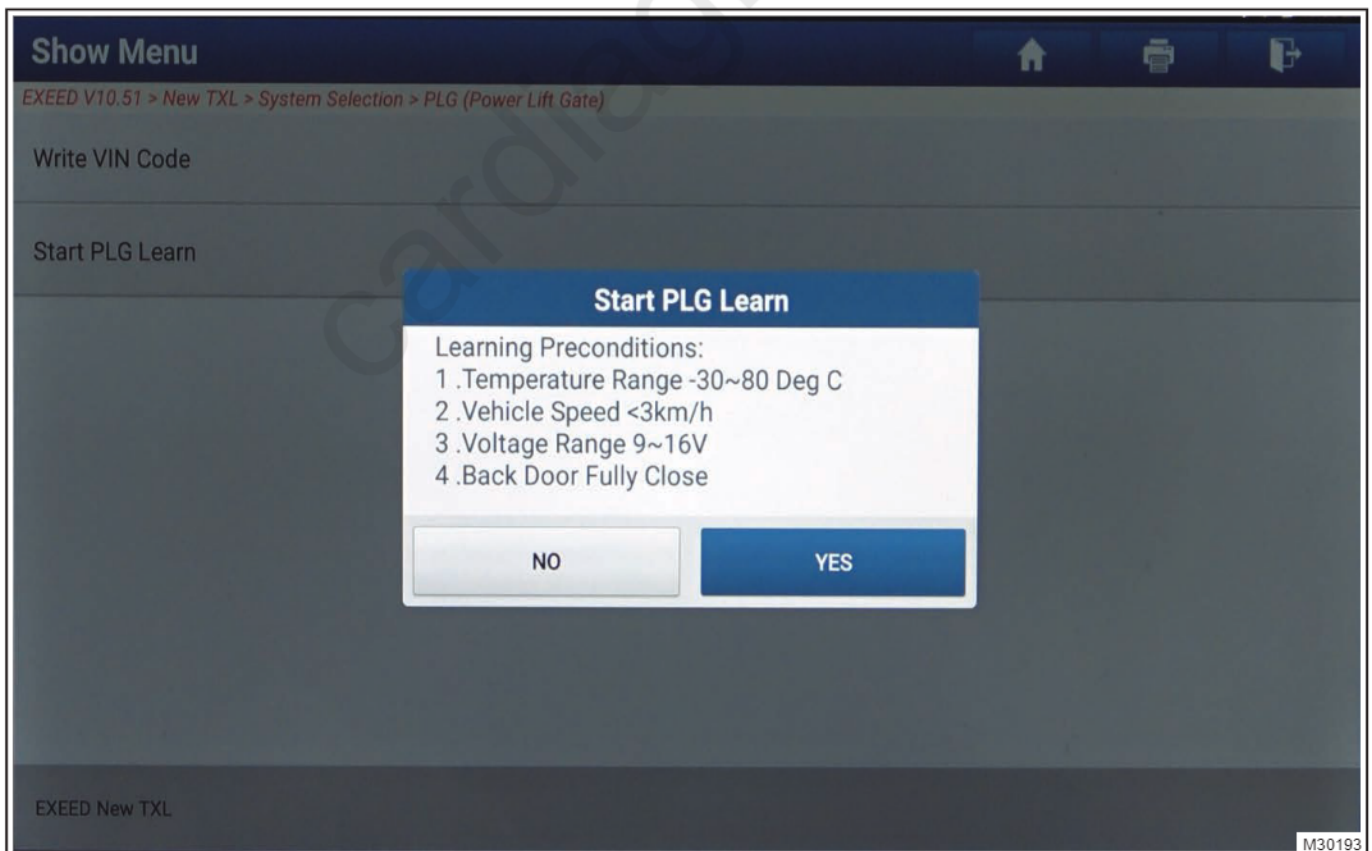
Show Menu	
EXEED V10.51 > New TXL > System Selection	
EGS (Press Key Type Electrical Gear Shifter)	TGW (Telematics Gateway)
VGW (Vehicle Gateway)	PLG (Power Lift Gate)
CWC (Cellphone Wireless Charger)	ACP (Audio Control Panel)
DVR (Driving Video Recorder)	SCU (Seat Control Unit)
ACM (Airbag Control Module)	AWD (All Wheel Drive)
SCM (Steering Column Module)	RLS (Rain Light Sensor)
DCM (Door Control Module)	
EXEED New TXL	

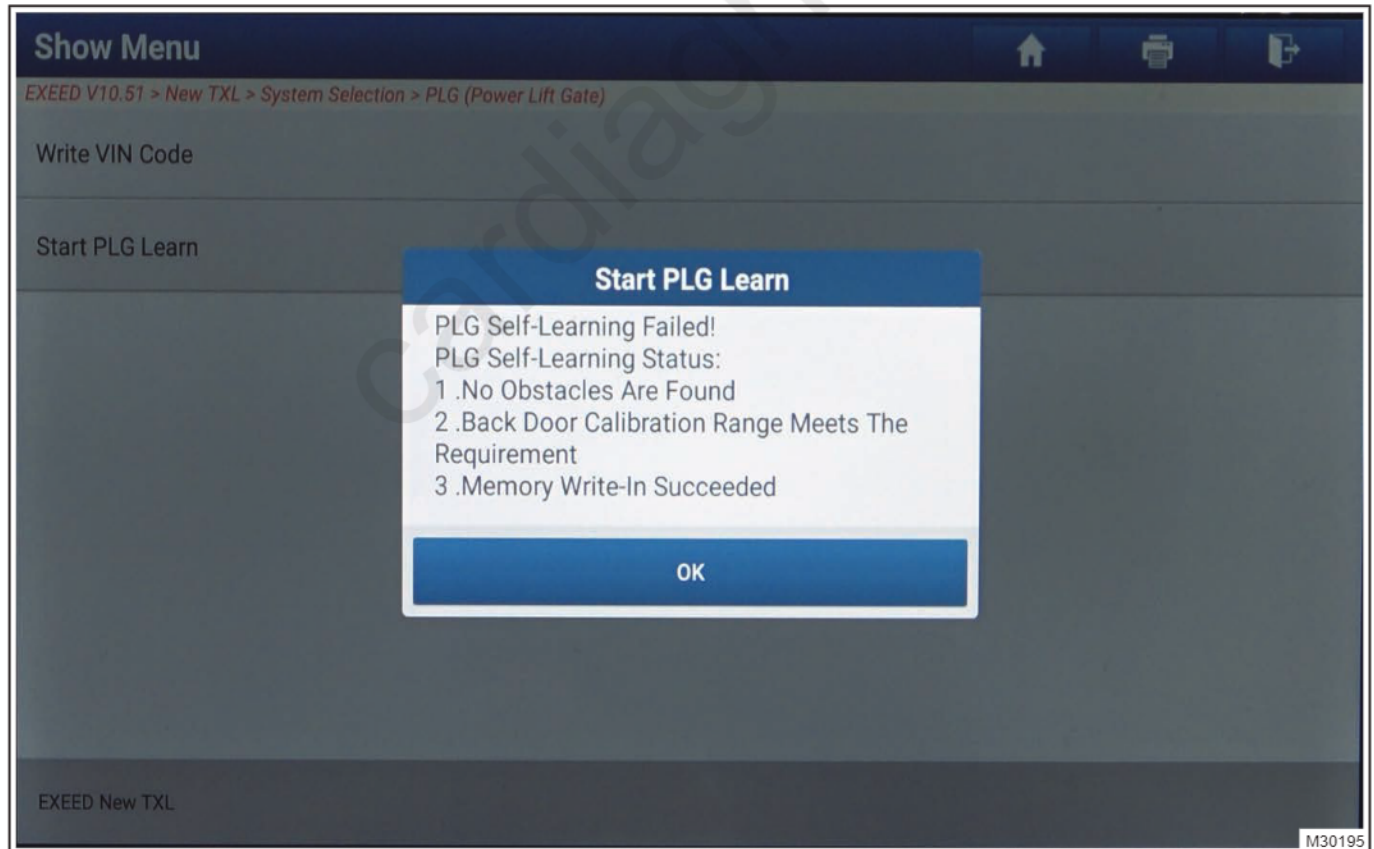
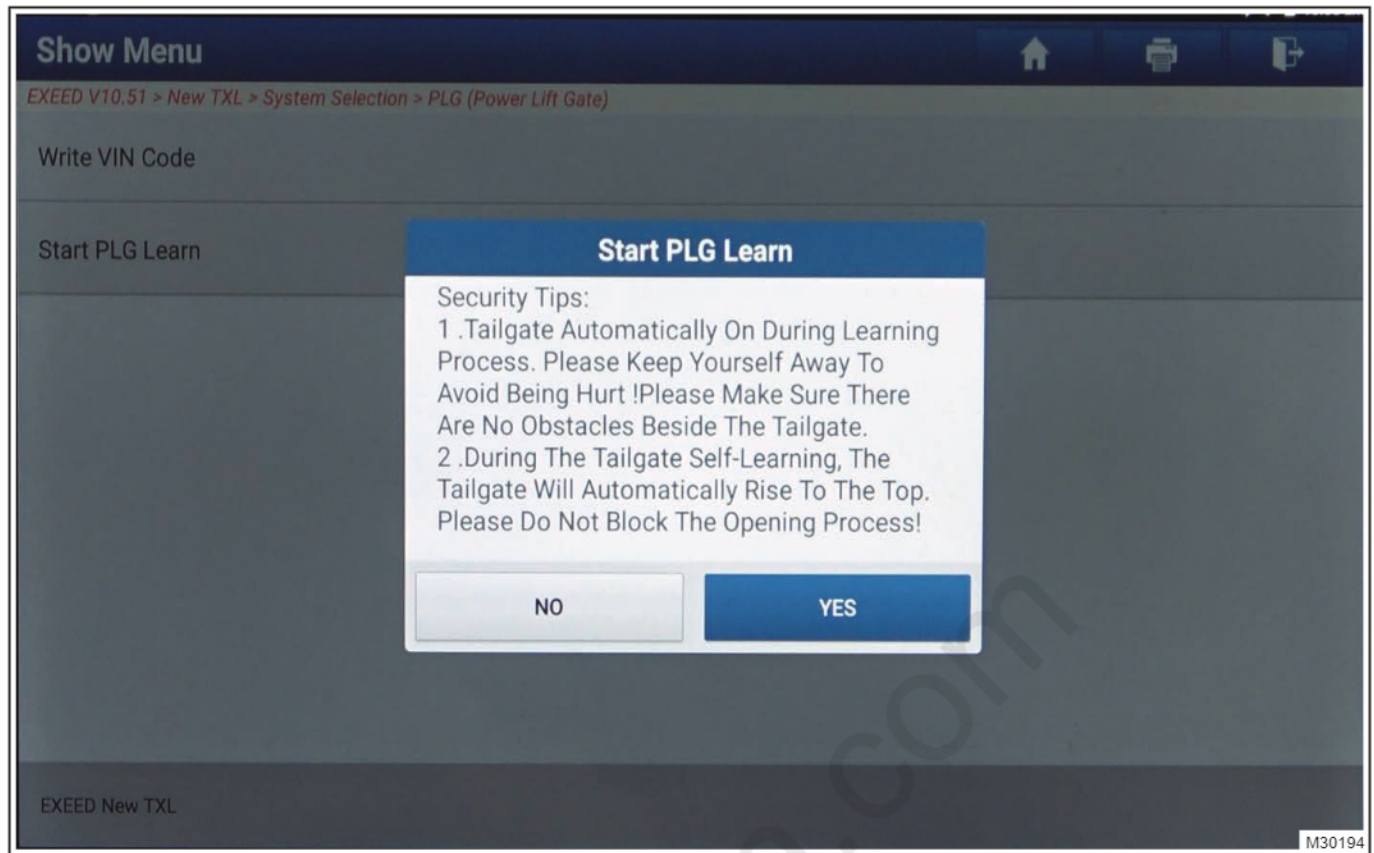
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(7) Click “Special Function” .



(8) Click "Start PLG Learn" .





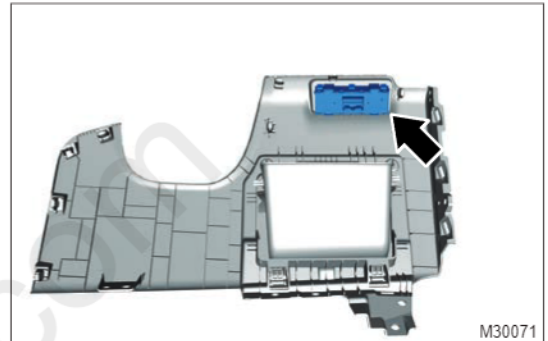
14 Replace Power Back Door Instrument Cluster Switch Assembly

14.1 Removal

Caution

- **Be sure to wear safety equipment to prevent accidents, when removing power back door instrument cluster switch assembly.**

- (1) Turn off all electrical equipment and ENGINE START STOP switch.
- (2) Disconnect the negative battery cable.
- (3) Remove the instrument panel lower left protector assembly.
- (4) Press the switch clip from the back, and push switch out of mounting hole of instrument panel lower left protector.



14.2 Installation

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.**

- (1) Install the power back door instrument cluster switch to a proper position of instrument panel lower left protector.
- (2) Install the instrument panel lower left protector assembly.
- (3) Connect the negative battery cable.