

DOOR LOCK

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دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



GENERAL INFORMATION

Overview

Description



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DL0000101

1 - Engine Hood Lock Assembly	2 - Front Right Door Lock Assembly
3 - Rear Right Door Lock Assembly	4 - Back Door Lock Assembly
5 - Rear Left Door Lock Assembly	6 - Front Left Door Lock Assembly

Safe Mode

1. Central lock/unlock

Lock and unlock operation are controlled by remote control key

- Turn off ENGINE START STOP switch;
- Four doors are closed;
- When lock command is received from remote control key;

Vehicle performs central lock operation, turn signal lights flash once, anti-theft indicator blinks frequency, and anti-theft horn/tweeter and woofer sounds.

- Any of four doors is not closed;
- ENGINE START STOP switch is not in "ACC"/"ON";
- Lock command is received from remote control key.

Vehicle performs a central lock operation, and then performs a central unlock operation; turn signal lights flash twice.

- Four doors are closed;
- Any of engine hood and back door is closed;
- ENGINE START STOP switch is not in "ACC"/"ON";
- Lock command is received from remote control key.

Vehicle performs central lock operation, and turn signal lights flash twice; If engine hood and back door are closed at this time, vehicle will not enter fortifying mode.

As long as unlock command is received from remote control key, vehicle performs central unlock operation once and left and right turn signal lights flash twice.

Under unfortified vehicle: Lock and unlock operation are controlled by central lock

- Press central lock switch with four doors closed to perform lock command;
- Press central unlock switch to perform unlock command;
- Press central lock switch with any of four doors not closed, it performs lock command firstly and then perform unlock command;

Auto unlock

- Turn off the ENGINE START STOP switch with vehicle locked and vehicle speed 0 to perform auto unlock operation.

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2. Remote control key operation

Lock button on remote control key

- Turn off the ENGINE START STOP switch;
- Four doors, engine hood and back door are closed;
- Lock command is received from remote control key;

Perform central lock operation, turn signal lights flash once, horn briefly sounds once and vehicle enters fortifying mode successfully.

- Turn off the ENGINE START STOP switch;
- One or more of four doors are not closed;
- Lock command is received from remote control key.

Doors unlock once after locking, turn signal lights blink twice, horn does not sound, and vehicle does not enter fortifying mode successfully.

Unlock button on remote control key

- Press unlock button on remote control key to perform central unlock operation, and turn signal lights flash twice.

Back door release button on remote control key

- Long press back door release button to release back door for 30 s with ENGINE START STOP switch "OFF" and four doors, engine hood, back door closed.

3. Anti-theft management

Fortifying mode

- ENGINE START STOP switch is in "IGN ON/ACC";
- Four doors, engine hood and back door are closed;
- Lock command is received from remote control key.

Doors unlock once after locking, turn signal lights blink twice, horn does not sound, and vehicle does not enter fortifying mode successfully.

Press lock button on remote control key with ENGINE START STOP switch in "OFF" and engine hood/back door not closed, vehicle performs central lock operation, and turn signal lights flash twice, horn does not sound, and vehicle does not enter fortifying mode successfully.

4. Fortifying deactivation mode

When unlock command is received from remote control key, vehicle exits fortifying mode, and turn signal lights come on twice at the same time.

With vehicle in fortifying mode, turn on the ENGINE START STOP switch and start engine. It will exit the fortifying mode after engine is started.

5. Back door opening mode

In fortifying mode, long press back door release button on remote control key to release back door, and open back door using back door opener switch. At this time, turn signal lights come on twice and anti-theft horn does not sound.

6. Alarm mode

In fortifying mode, if any of the following conditions occur:

- Engine hood is opened in a invalid manner (domestic models is not equipped with this function);

- Back door is opened in a invalid manner;
- Any of four doors is opened in a invalid manner.

Vehicle enters alarm mode, anti-theft horn sounds and turn signal lights come on, alarm will continue for 1 cycle and one trigger source may cause alarm to be triggered for up to 3 cycles.

If opened door/engine hood/back door is closed when alarm sounds, alarm will stop after this cycle is ended.

7. Alarm deactivation mode

If unlock command is received from remote control key when vehicle is in alarm mode, alarm deactivates and sound and light alarms stop.

8. Re-fortifying mode

When unlock button on remote control key is pressed with key removed, four doors, engine hood and back door closed and vehicle in fortifying mode, four doors will be locked and vehicle will enter fortifying mode again after 30 seconds if no further operations (open door, engine hood and back door) are performed, central lock operation is performed again.

Unlocking back door

- In central lock status, long press back door release button on remote control key to unlock door, then back door can be opened using its opener switch.
- In central unlock status, back door can be opened using its outside opener switch.
- In fortifying mode, back door outside opener switch cannot work.

Door, hood and back door status

- When any of doors, engine hood or back door is opened, corresponding display will be shown on instrument cluster display.

Collision unlock: collision unlock function is activated when the following conditions are met:

- Turn on ENGINE START STOP switch;
- BCM receives a collision signal sent from analog ABM;

After collision unlock function is activated, BCM performs unlock operation once and then performs once again after 1 second, while dome lights (with dome lights at DOOR position) and hazard warning lights turn on and then go off 30 minutes later.

Dome lights and hazard warning lights can be turned off immediately by performing following operations within 30 minutes after collision occurs: Turn the ENGINE START STOP switch to "OFF" from "ON", and then back to "ON" again.

Central lock function is disabled after collision occurs, but central unlock function can be performed. Central lock function can be recovered by performing following operations: Turn ENGINE START STOP switch to "OFF" from "ON".

9. Remote control key

Door lock/unlock control can be achieved using remote control key.

- Remote control key lock: With all doors fully closed, press lock button on remote control key, all doors will be locked and turn signal lights flash once. Security indicator will also blink normally to indicate that system is in armed state, and body anti-theft system is started. With any door open or not fully closed, press lock button on remote control key, all doors are locked immediately and then unlocked, turn signal lights flash twice to remind driver that vehicle is not fortified.

Remote control key unlock: Press unlock button on remote control key, all doors will unlock and turn signal lights flash twice, body anti-theft system is deactivated and security indicator turns off. After unlocking doors with remote control key, open any door within 30 seconds. If no door is opened within 30 seconds, doors will be locked again automatically.

Vehicle security system has 7 modes:

1. Fortifying mode

It will enter fortifying mode when following conditions are met:

- Four doors and back door are closed.
- All doors are locked with lock button on remote control key.

When vehicle is in fortifying mode, following conditions will occur:

- Turn signal lights flash once to indicate that vehicle is in fortifying mode.

- In fortifying mode, if any door does not open within 30 seconds after unlocking the door by remote control key, the doors will lock again automatically.

2. Fortifying failure mode

System will enter fortifying failure mode under following conditions:

- If any door or back door is not fully closed.

When vehicle is in fortifying failure mode, following conditions will occur:

- Turn signal lights flash twice. If four doors are not closed, central door lock performs "doors lock and then unlock" regardless of back door conditions.
- If four doors are closed while back door is not closed, four doors will be locked.

3. Fortifying deactivation mode

In intrusion model, fortifying will be deactivated if either of following conditions occur:

- Press unlock button on remote control key.
- Open doors with the key.

Features of fortifying deactivation mode (unlock doors using remote control key):

- Four doors are unlocked.
- Turn signal lights flash twice slowly, and anti-theft indicator stops blinking.

4. Refortifying mode

It will enter refortifying mode when following conditions are met:

- Fortifying will be deactivated by using remote control key button after entering fortifying mode.
- Four doors and back door condition do not change.

Features of refortifying mode:

- Four doors are locked, turn signal lights do not blink, which indicate that system enters refortifying mode again.

5. Alarm mode

When vehicle is in fortifying mode, the alarm will be triggered if any of the following condition occurs:

- Manually open any door, engine hood and back door.

When vehicle is in alarm mode, the following condition occurs:

- After alarm is triggered, turn signal lights will flash for 30 seconds. Blinking and sounding will occur again for 30 seconds at an interval of 5 seconds. This process will repeat for 3 times. If all doors/engine hood are fully closed or turn off the ENGINE START STOP switch in this process, all doors will be locked again automatically after completing current blinking for turn signal lights and 5 seconds have elapsed. At this time, body anti-theft system will be restarted.

6. Alarm deactivation mode

The following operations will deactivate the alarm:

- Press unlock button on remote control key.
- Open doors with the key.

7. Back door open mode

In fortifying mode, if back door release button on remote control key is pressed for 1.5 seconds, back door is unlocked and turn signal lights flashes twice at an interval of 1 second. Enter back door open mode.

- Opening back door will not trigger alarm mode.
- After back door is closed, system enters fortifying mode again without any sound or light feedback.
- If lock button on remote control key is pressed with back door open, system enters fortifying failure mode. If unlock button on remote control key is pressed, system enters fortifying deactivation mode.
- If any of four doors is opened, system will enter alarm mode, regardless of whether back door is closed or not.

Specifications

Torque Specifications

Description	Torque (N·m)
Engine Hood Lock Assembly Fixing Nut	9 ± 1
Front Door Lock Assembly Fixing Screw	9 ± 1
Front Door Key Cylinder Assembly Fixing Screw	5 ± 1
Front Door Lock Striker Assembly Fixing Screw	23 ± 2
Rear Door Lock Assembly Fixing Screw	9 ± 1
Rear Door Lock Striker Assembly Fixing Screw	23 ± 2
Back Door Lock Assembly Fixing Screw	10 ± 1
Back Door Lock Striker Assembly Fixing Screw	23 ± 2
Front Door Outside Handle Fixing Screw	5 ± 1
Front Door Glass Rear Lower Guide Rail Fixing Bolt	7 ± 1
Rear Door Glass Rear Lower Guide Rail Fixing Bolt	7 ± 1
Rear Foot Transition Duct Fixing Screw	1.5 ± 0.5
Gear Shift Control Mechanism Fixing Bolt	20 ± 3

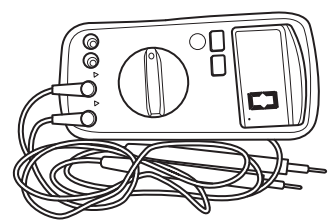
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Tools

Special Tool

Diagnostic Tester	 001
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General Tool

Digital Multimeter	 002
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DIAGNOSIS & TESTING

Diagnostic Content

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
All Door Lock/Unlock Functions do not Operate	Body Control Module (BCM) fuse
	Power door unlock/lock switch button
	Front left door lock assembly
	Other door lock assemblies
	Wire harness or connector
	Body Control Module (BCM)
Only Driver Side Door Lock/Unlock Function does not Operate	Power door unlock/lock switch button
	Front left door lock assembly
	Wire harness or connector
	Body Control Module (BCM)
Only front passenger side door lock/unlock function does not operate	Front right door lock assembly
	Wire harness or connector
	Body Control Module (BCM)
Only rear left door lock/unlock function does not operate	Rear left door lock assembly
	Wire harness or connector
	Body Control Module (BCM)
Only rear right door lock/unlock function does not operate	Rear right door lock assembly
	Wire harness or connector
	Body Control Module (BCM)
Only back door open/close function does not operate	Back Door Lock Assembly
	Wire harness or connector
	Body Control Module (BCM)

Wireless Door Lock Control System:

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

DTC Confirmation Procedure

Confirm that battery voltage before performing following procedures.

- Turn ENGINE START STOP switch to OFF.
- Connect diagnostic tester (the latest software) to Data Link Connector (DLC).
- Turn ENGINE START STOP switch to ON.
- Use diagnostic tester to record and clear DTCs stored in power door lock control system.
- Turn ENGINE START STOP switch to OFF and wait for a few seconds.
- Turn ENGINE START STOP switch to ON, and then select Read Code.
- If DTC is detected, it indicates current malfunction. Go to diagnosis procedure - Step 1.
- If no DTC is detected, malfunction indicated by the DTC is intermittent.

Intermittent DTC Troubleshooting

If malfunction is intermittent, perform the followings:

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

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Ground Inspection

Groundings are very important to entire circuit system, which are normal or not can seriously affect the entire circuit system. Ground connections are often exposed to moisture, dirt and corrosive elements.

Corrosion (rust) can increase resistance which will change the way in which a circuit works.

Electrical control circuits are very sensitive to proper grounding. A loose or corroded ground can affect the control circuit. Perform the followings to check ground connections:

1. Remove the ground nut.
2. Check all contact surfaces for tarnish, dirt and rust, etc.
3. Clean as necessary to ensure that contacting is in a good condition.
4. Reinstall the ground nut securely.
5. Check if add-on accessories interfere with ground circuit.
6. If several wire harnesses are crimped into one ground eyelet terminal, check if they are installed correctly. Make sure that all wire harnesses are clean and securely fastened while providing a good ground path.

Diagnosis Procedure

Hint:

Use following procedures to troubleshoot the door lock.

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

Result

Proceed to
Next

Next

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

Check if battery voltage is normal.

OK

Standard voltage: not less than 12 V.

Result

Proceed to
OK
NG

NG

Check and repair battery

OK

3

Customer problem analysis

Result

Proceed to
Next

Next

4

Check for DTCs (current DTC and history DTC)

Result

Proceed to
No DTC
Current DTC
History DTC

History DTC

5

Problem Repair (No DTC)

Result

Proceed to
Next

Next

Go to step 6

6

Current DTC repair

Result

Proceed to
Next

Next

Go to step 7

7

Troubleshoot according to Problem Symptoms Table

Result

Proceed to
Next

Next

8

Conduct test and confirm malfunction has been repaired

Result

Proceed to
Next

32

Next

End

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شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

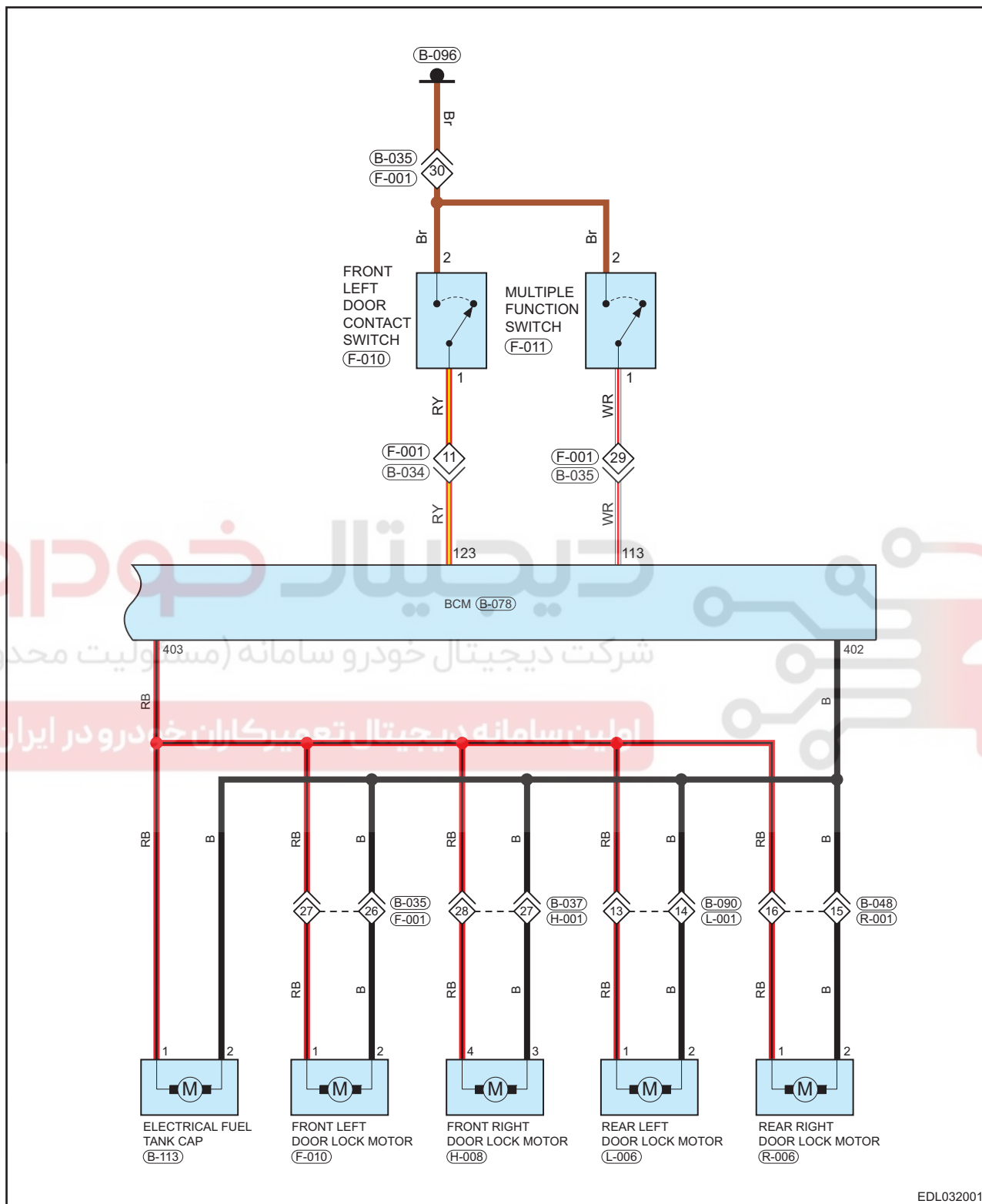
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All Door Lock/Unlock Functions do not Operate

Circuit Diagram

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EDL032001

Caution:

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

1 Using the diagnostic tester to perform active test

- (a) Use the diagnostic tester to perform active test (door lock).

Result

Proceed to
OK
NG

NG

Go to step 3

OK

32

2 Check driver side door lock/unlock operation

- (a) Using door control switch on window regulator main switch cannot immediately lock/unlock all doors.

Result

Proceed to
NG
OK

OK

Replace BCM assembly

NG

3 Check fuse

- (a) Turn ENGINE START STOP switch to ON.
(b) Check if BCM fuse power supply is normal with a multimeter.

Result

Proceed to
OK
NG

NG

Replace fuse

OK

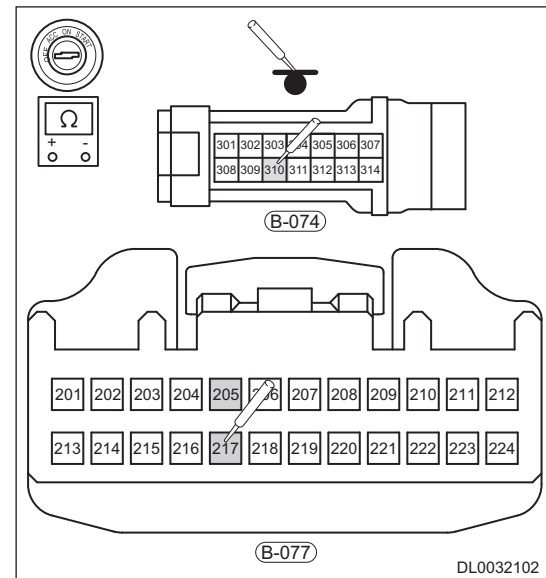
4 Check body control module connector

- (a) Disconnect negative battery cable, and turn ENGINE START STOP switch to OFF.
(b) Disconnect body control module connectors B-074 and B-077.

- (c) Using ohm band of multimeter, check for continuity between B-074 (310) - Ground, B-077 (217) - Ground and B-077 (205) - Ground.

OK

Multimeter Connection	Condition	Specified Condition
B-074 (310) - Ground	ENGINE START STOP switch OFF	∞
B-077 (217) - Ground	ENGINE START STOP switch OFF	∞
B-077 (205) - Ground	ENGINE START STOP switch OFF	∞



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Result

Proceed to
OK
NG

NG

Repair or replace body controller connector

OK

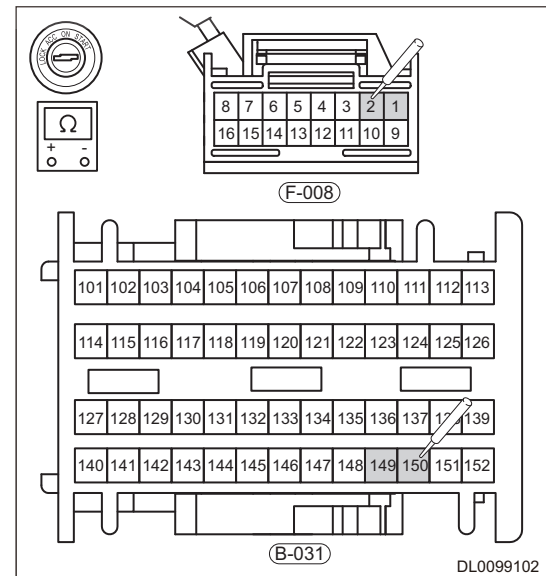
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Check center control switch

- (a) Turn ENGINE START STOP switch to OFF.
 (b) Disconnect BCM connector B-031 and front left glass regulator switch F-003.
 (c) Using ohm band of multimeter, check for continuity between B-031 (150) - F-003 (4) and B-031 (149) - F-003 (3).

Specified Condition

Digital Multimeter	Condition	Specified Condition
B-031 (150) - F-003 (4)	ENGINE START STOP switch OFF	$\leq 1 \Omega$
B-031 (149) - F-003 (3)		$\leq 1 \Omega$

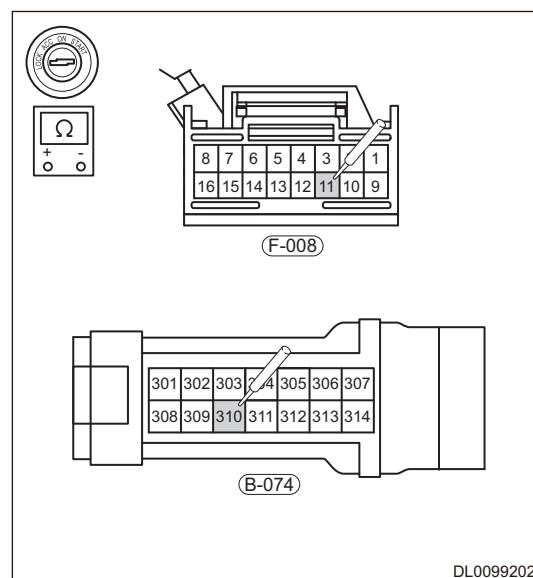


- (d) Using ohm band of multimeter, check for continuity between F-003(1) - B-083.

Digital Multimeter	Condition	Specified Condition
F-003 (1) - B-083	ENGINE START STOP switch OFF	$\leq 1 \Omega$

Result

Proceed to
OK
NG



NG

Repair or replace wire harness and connector

OK

6 Check central lock switch assembly

- (a) Turn ENGINE START STOP switch to OFF.
 (b) Disconnect central switch connector, and replace central switch assembly with a new one.
 (c) Press central switch manually, check if door lock operates.

Result

Proceed to
OK
NG

NG

Replace central switch assembly with a new one

OK

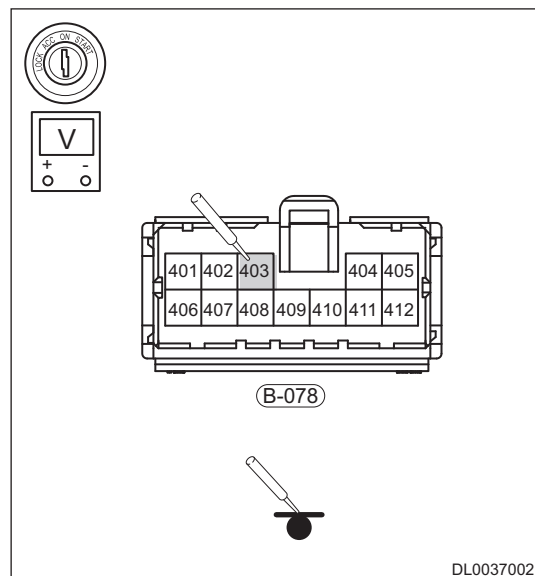
7 Check BCM terminals

- (a) Turn ENGINE START STOP switch to ON.
 (b) Disconnect the BCM connector B-078.

- (c) Press unlock and lock switches, check voltage between B-078 (403) terminal and ground with voltage band of multimeter.

Specified Condition

Digital Multimeter	Condition	Specified Condition
B-078 (403) - Ground	ENGINE START STOP switch ON	Not less than 12 V



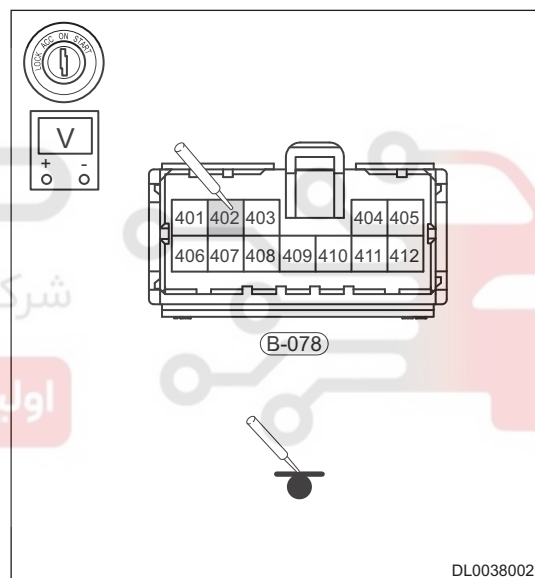
- (d) Connect the BCM connector B-078.
 (e) Press unlock and lock switches, check voltage between B-078 (402) terminal and ground with voltage band of multimeter.

Specified Condition

Digital Multimeter	Condition	Specified Condition
B-078 (402) - Ground	ENGINE START STOP switch ON	Not less than 12 V

Result

Proceed to
OK
NG



NG

Replace BCM

OK

8

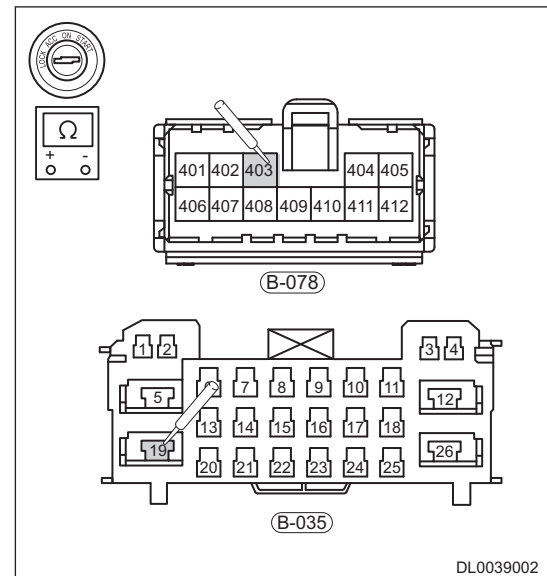
Check wire harness and connector

- (a) Turn ENGINE START STOP switch to OFF.
 (b) Disconnect the negative battery cable.
 (c) Disconnect BCM connector B-067 and body wire harness connector B-057.

- (d) Using voltage band of multimeter, check for continuity between B-078 (403) terminal and B-035 (27) terminal.

Specified Condition

Digital Multimeter	Condition	Specified Condition
B-078 (403) - B-035 (27)	ENGINE START STOP switch OFF	$\leq 1 \Omega$



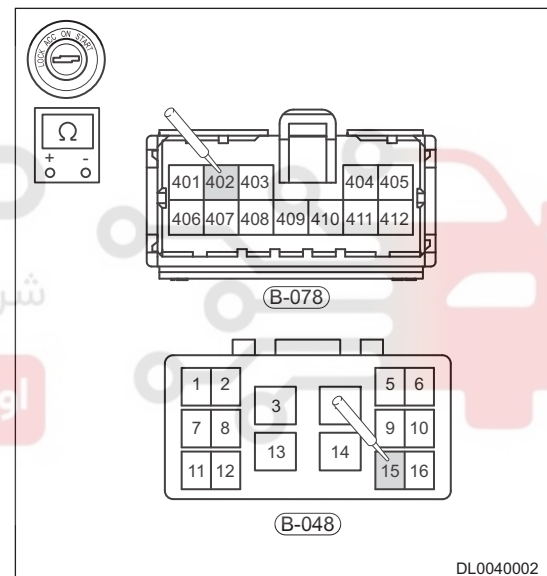
- (e) Disconnect BCM connector B-078 and body wire harness connector B-048.
 (f) Using voltage band of multimeter, check for continuity between B-078 (402) terminal and B-048 (15) terminal.

Specified Condition

Digital Multimeter	Condition	Specified Condition
B-078 (402) - B-048 (15)	ENGINE START STOP switch OFF	$\leq 1 \Omega$

Result

Proceed to
OK
NG



OK

Connector is normal

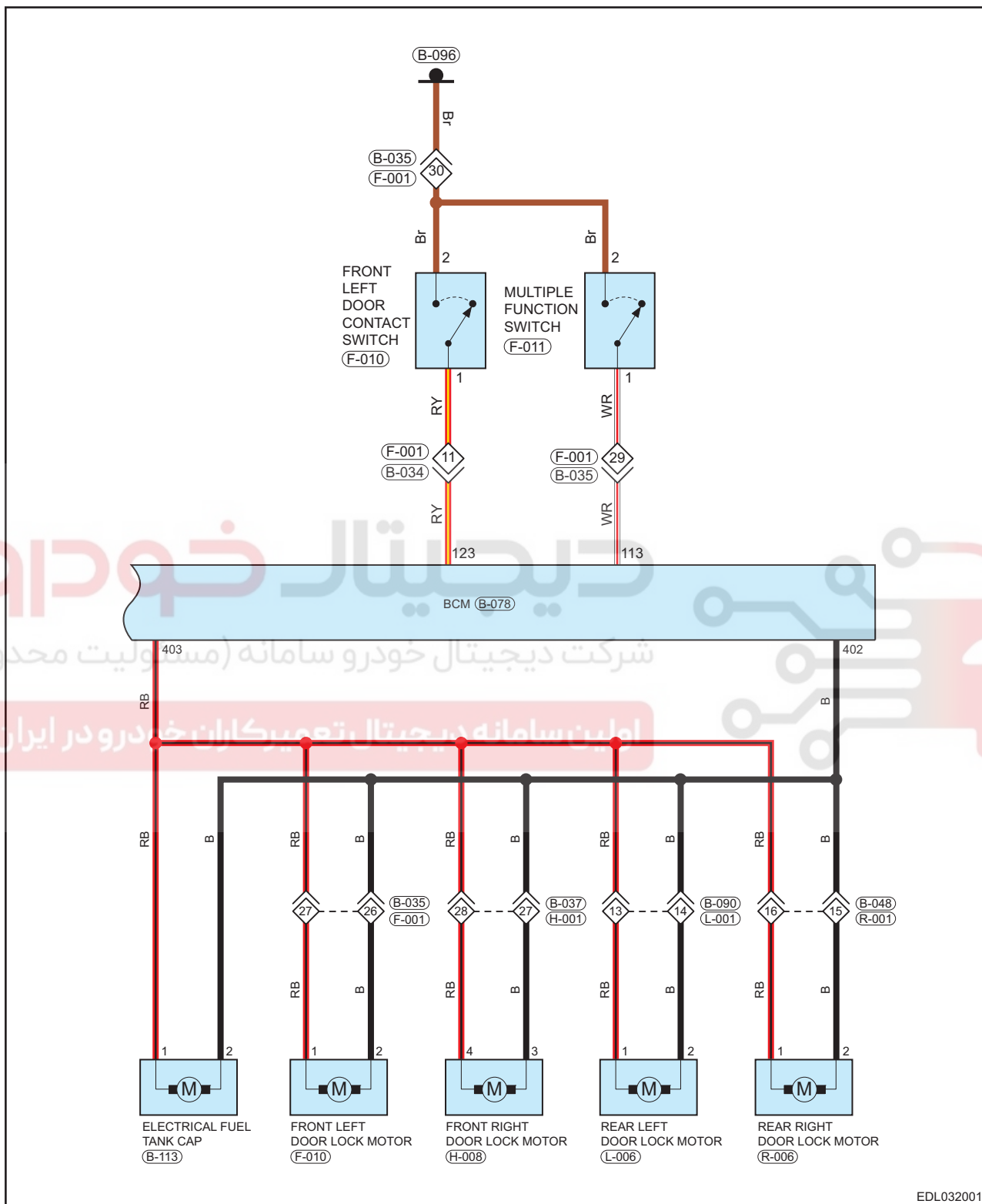
NG

Repair or replace wire harness and connector

Only Driver Side Door Lock/Unlock Function does not Operate

Circuit Diagram

32



Problem causes:

- Front left door lock assembly
- Wire harness or connector

Caution:

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

1 Check front left door lock motor

- Turn ENGINE START STOP switch to OFF.
- Disconnect the door lock motor connector.
- Apply voltage no less than 12 V to door lock motor, and check if door lock motor operates.

Result

Proceed to
OK
NG

NG

Replace front left door lock motor

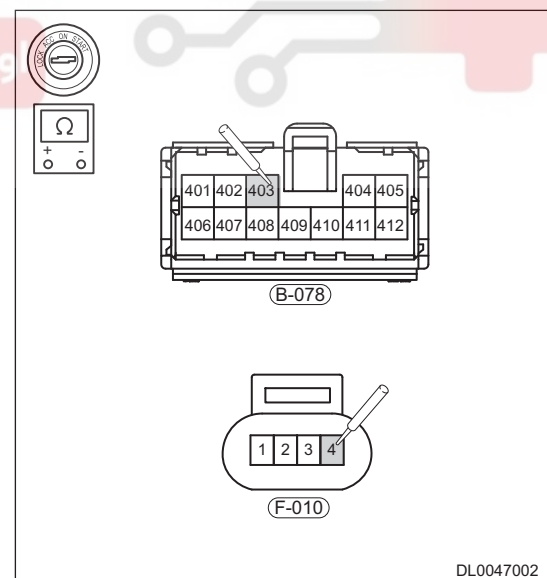
OK

2 Check front left door lock motor and wire harness connector

- Turn ENGINE START STOP switch to OFF.
- Disconnect the negative battery cable.
- Using ohm band of multimeter, check for continuity between front left door connector B-078 (403) and front left door lock motor connector F-010 (1).

OK

Digital Multimeter	Condition	Specified Condition
B-078 (403) - F-010 (1)	ENGINE START STOP switch OFF	$\leq 1 \Omega$



32-DOOR LOCK

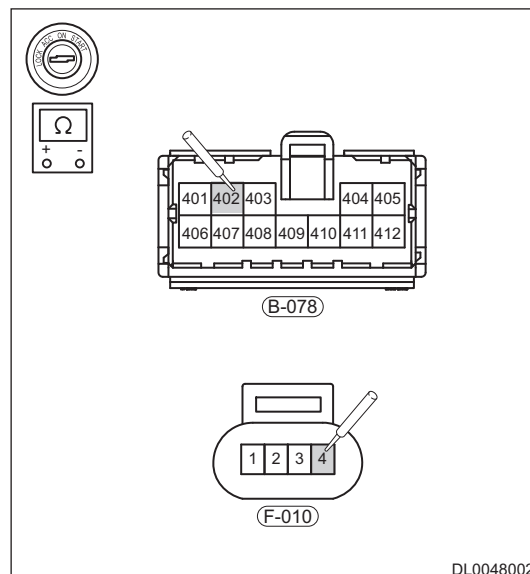
- (d) Using ohm band of multimeter, check for continuity between front left door connector B-078 (402) and F-010 (2).

OK

Digital Multimeter	Condition	Specified Condition
B-078 (402) - F-010 (2)	ENGINE START STOP switch OFF	$\leq 1 \Omega$

Result

Proceed to
OK
NG



OK

End

NG

Repair or replace front left door wire harness

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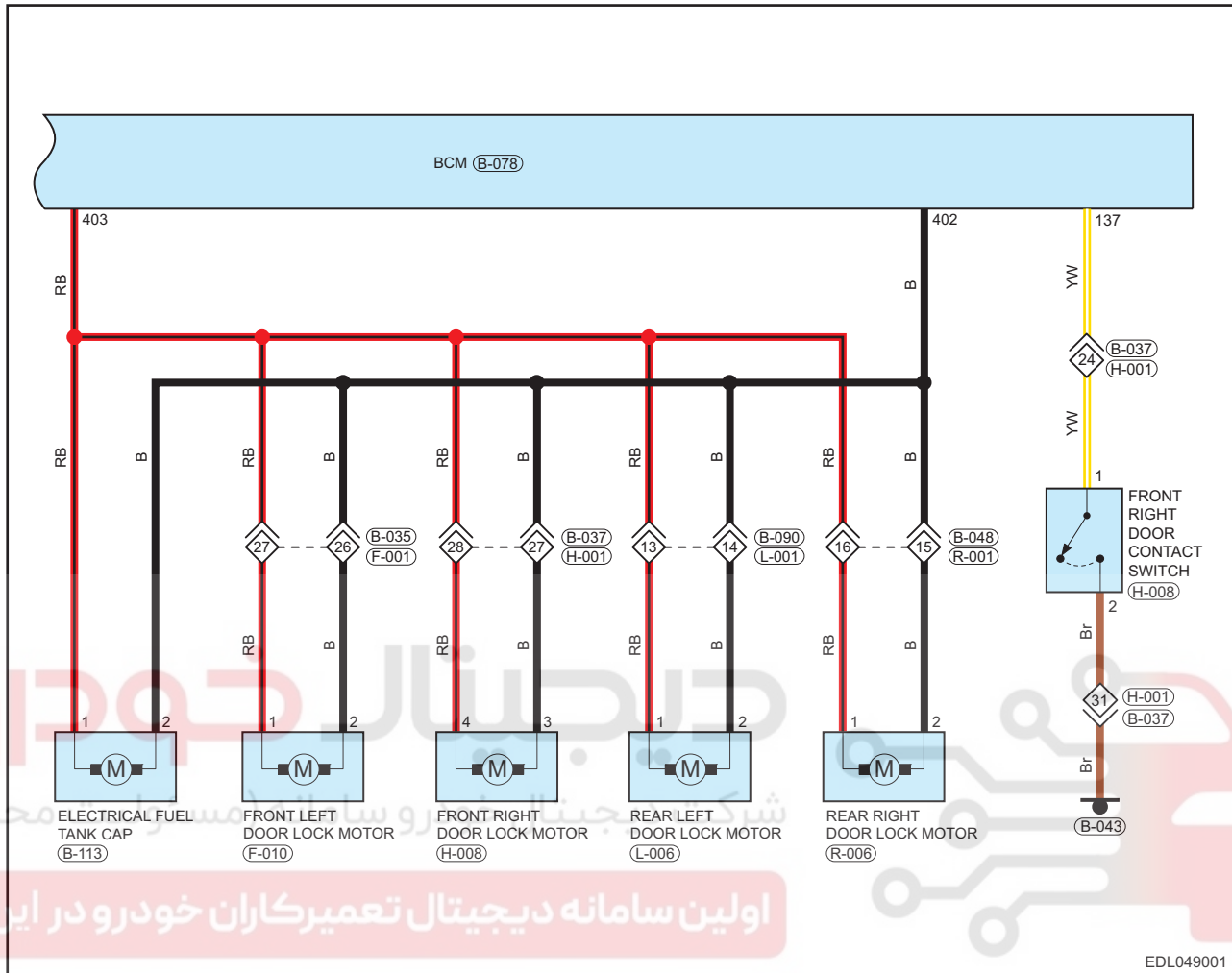
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Only Front Passenger Side Door Lock/Unlock Function does not Operate

Circuit Diagram



32

Problem causes:

- Front right door lock assembly.
- Wire harness or connector.

1 Check front right door lock motor

- Turn ENGINE START STOP switch to OFF.
- Disconnect the door lock motor connector.
- Apply voltage no less than 12 V to door lock motor, and check if door lock motor operates.

Result

Proceed to
OK
NG

NG

Replace front right door lock motor

OK

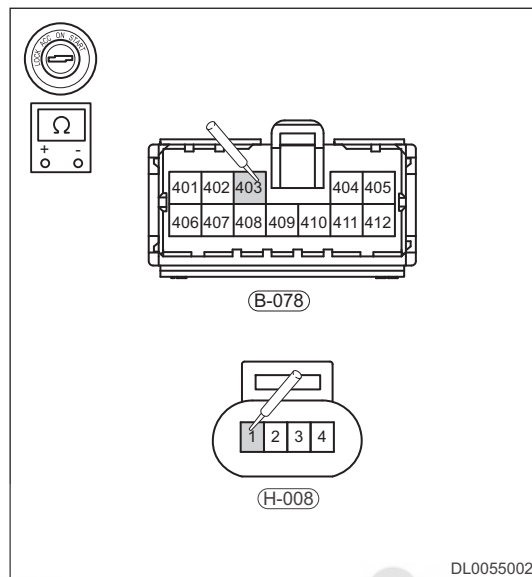
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Check front right door lock motor and wire harness connector

- (a) Turn ENGINE START STOP switch to OFF.
 (b) Disconnect the negative battery cable.
 (c) Using ohm band of multimeter, check for continuity between front right door connector H-008 (4) and BCM connector F-078 (403).

Specified Condition

Digital Multimeter	Condition	Specified Condition
B-078 (403) - H-008 (4)	ENGINE START STOP switch OFF	$\leq 1 \Omega$



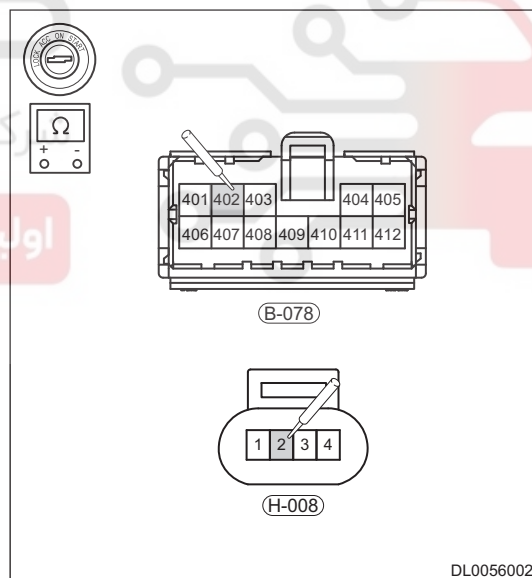
- (d) Using ohm band of multimeter, check for continuity between front right door connector H-008 (3) and BCM connector F-078 (402).

Specified Condition

Digital Multimeter	Condition	Specified Condition
B-078 (402) - H-008 (3)	ENGINE START STOP switch OFF	$\leq 1 \Omega$

Result

Proceed to
OK
NG



OK

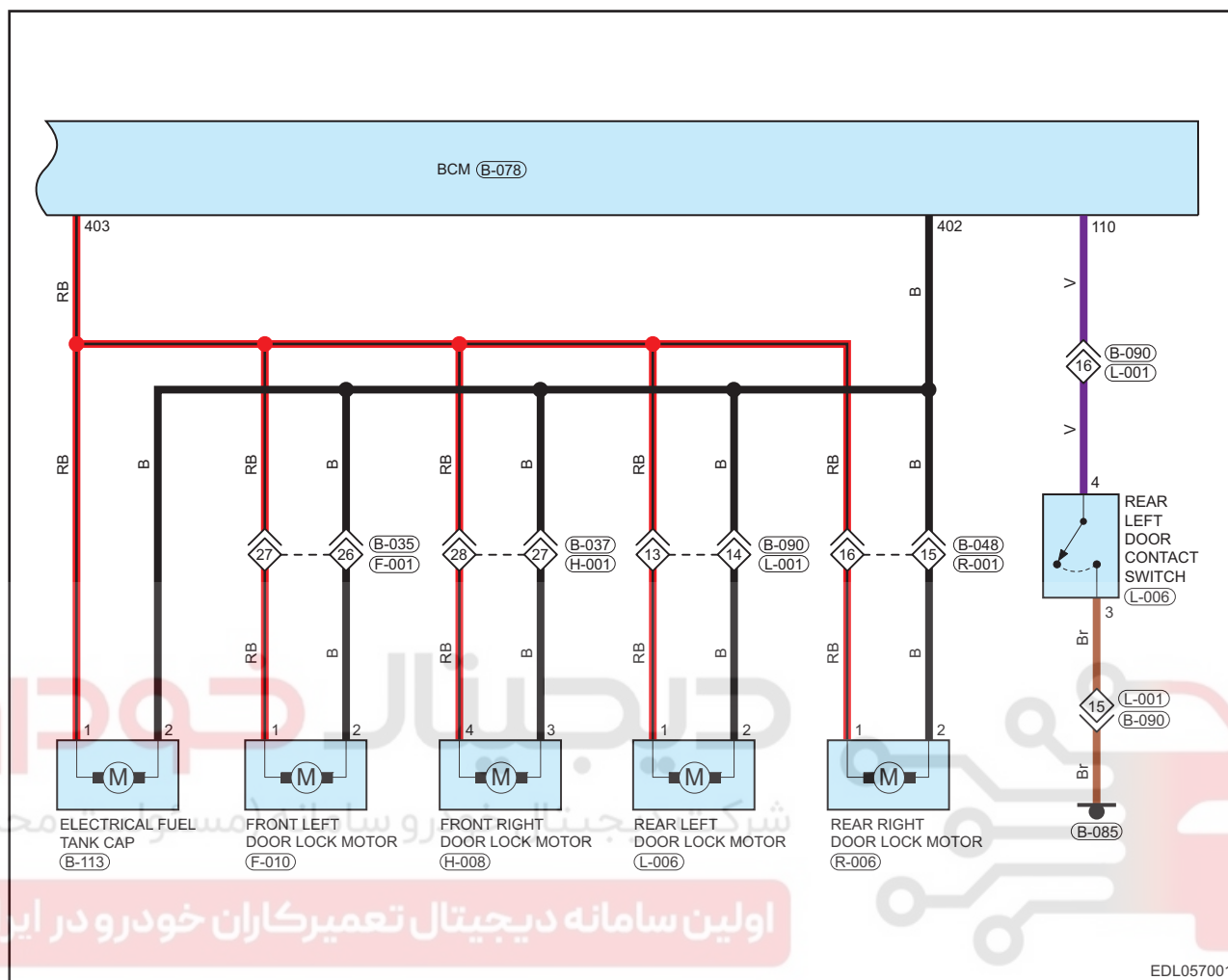
End

NG

Repair or replace front right door wire harness

Only Rear Left Door Lock/Unlock Function does not Operate

Circuit Diagram



Problem causes:

- Rear left door lock assembly
- Wire harness or connector

1 Check rear left door lock motor

- Turn ENGINE START STOP switch to OFF.
- Disconnect the door lock motor connector.
- Apply voltage no less than 12 V to door lock motor, and check if door lock motor operates.

Proceed to
OK
NG

NG

Replace rear left door lock motor

OK

2

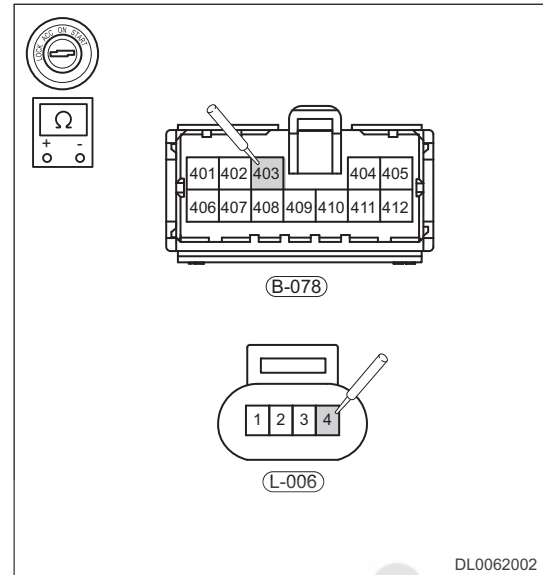
Check rear left door lock motor and wire harness connector

- (a) Turn ENGINE START STOP switch to OFF.
 (b) Disconnect the negative battery cable.
 (c) Using ohm band of multimeter, check for continuity between rear left door connector L-006 (1) and BCM connector F-078 (403).

Specified Condition

Digital Multimeter	Condition	Specified Condition
B-078 (403) - L-006 (1)	ENGINE START STOP switch OFF	$\leq 1 \Omega$

32



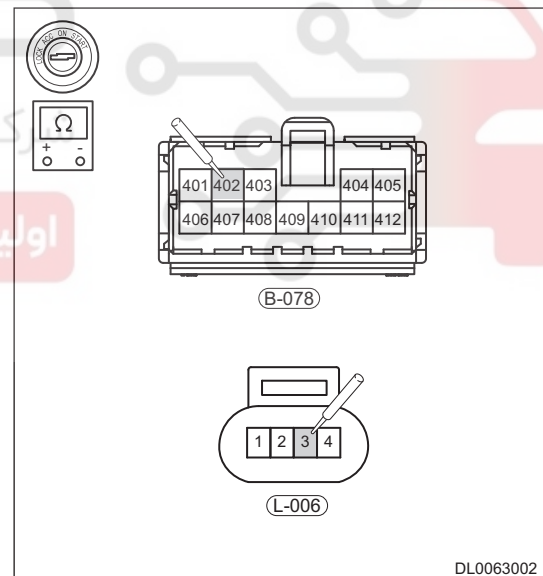
- (d) Using ohm band of multimeter, check for continuity between rear left door connector L-006 (2) and BCM connector F-078 (402).

Specified Condition

Digital Multimeter	Condition	Specified Condition
B-078 (402) - L-006 (2)	ENGINE START STOP switch OFF	$\leq 1 \Omega$

Result

Proceed to
OK
NG



OK

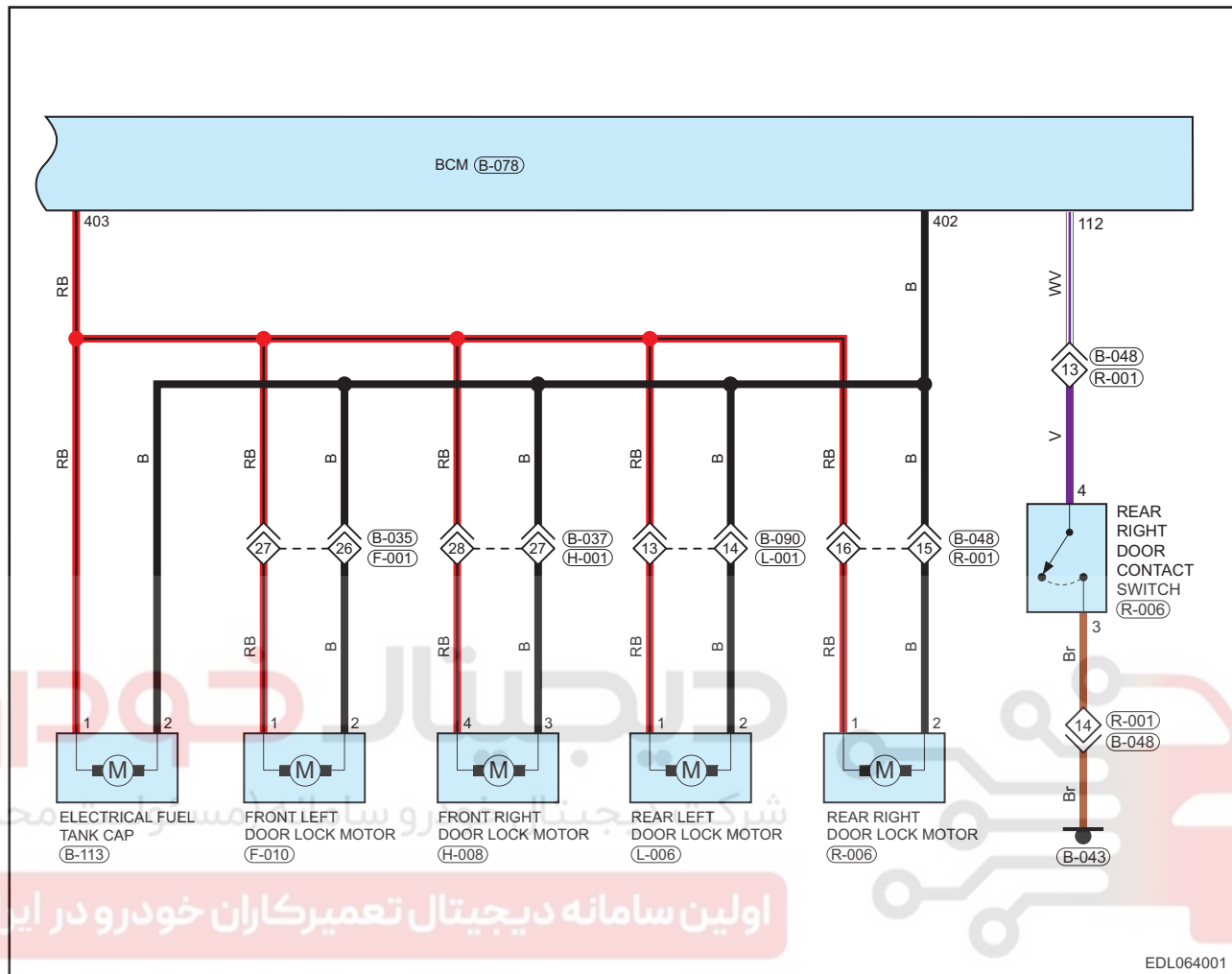
End

NG

Repair or replace rear left door wire harness

Only Rear Right Door Lock/Unlock Function does not Operate

Circuit Diagram



32

Problem causes:

- Rear right door lock assembly.
- Wire harness or connector.

1 Check rear right door lock motor

- Turn ENGINE START STOP switch to OFF.
- Disconnect the door lock motor connector.
- Apply voltage no less than 12 V to door lock motor, and check if door lock motor operates.

Result

Proceed to
OK
NG

NG

Replace rear right door lock motor

OK

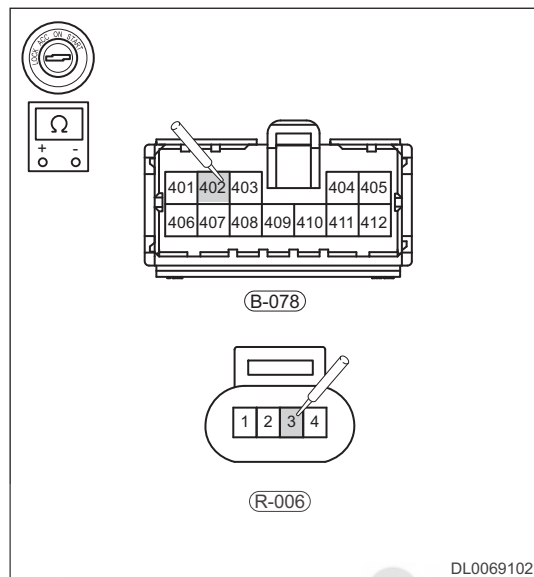
2

Check rear right door lock motor and wire harness connector

- (a) Turn ENGINE START STOP switch to OFF.
 (b) Disconnect the negative battery cable.
 (c) Using ohm band of multimeter, check for continuity between rear right door connector R-006 (1) and BCM connector F-078 (402).

Specified Condition

Digital Multimeter	Condition	Specified Condition
R-006 (1) - B-078 (402)	ENGINE START STOP switch OFF	$\leq 1 \Omega$



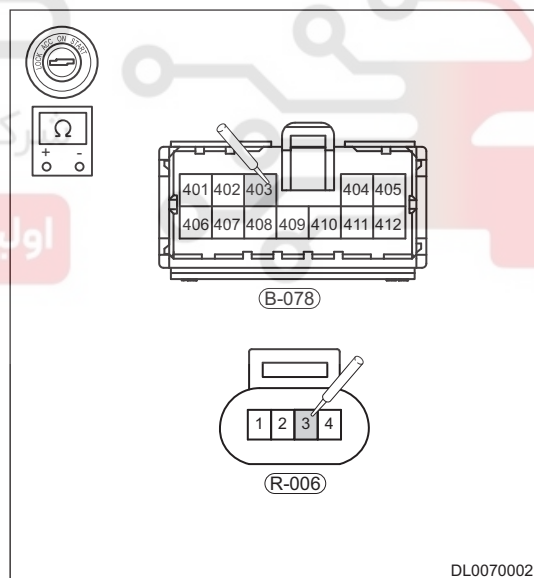
- (d) Using ohm band of multimeter, check for continuity between rear right door connector R-006 (2) and BCM connector F-078 (403).

Specified Condition

Digital Multimeter	Condition	Specified Condition
R-006 (2) - B-078 (403)	ENGINE START STOP switch OFF	$\leq 1 \Omega$

Result

Proceed to
OK
NG



OK

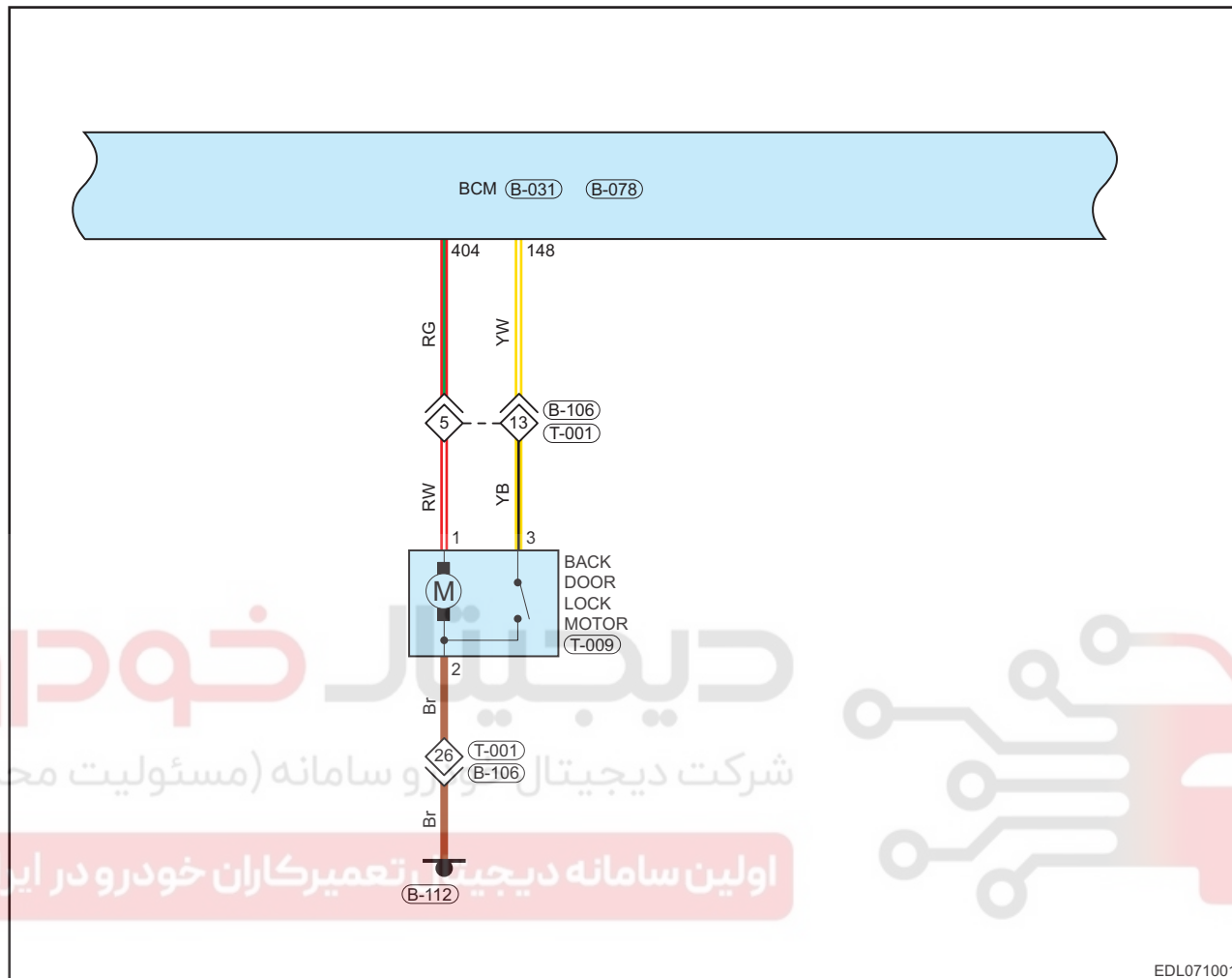
End

NG

Repair or replace rear right door wire harness

DTC	B1024-71	Trunk Lock Control Circuit
------------	-----------------	-----------------------------------

Circuit Diagram



Description

DTC	DTC Definition	DTC Detection Condition	Possible Cause
B1024-71	Trunk Lock Control Circuit	ENGINE START STOP switch ON	<ul style="list-style-type: none"> • Back Door Lock Assembly • Wire harness or connector • Body Control Module (BCM)

Caution:

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

Procedure

1	Check back door lock assembly
----------	--------------------------------------

(a) Check the back door lock assembly (See page 32-40).

Result

Proceed to
OK
NG

NG

Replace back door lock assembly

OK

2

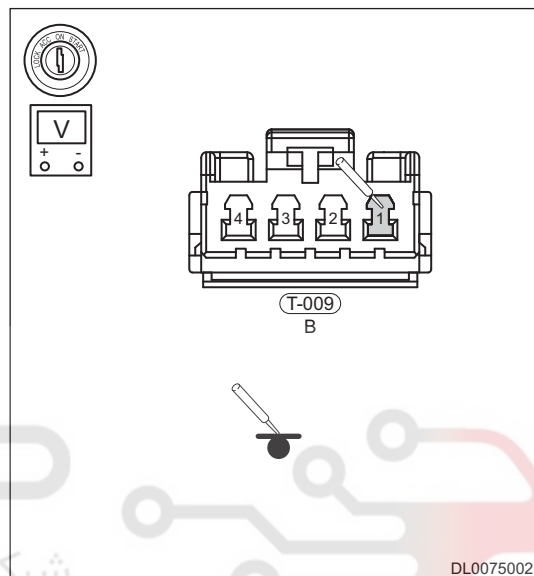
Check back door lock motor module and connector

Use circuit diagram as a guide to perform following procedures:

- Turn ENGINE START STOP switch to ON.
- Disconnect the BCM connector.
- Using voltage band of multimeter, check voltage between T-009 and ground respectively.

Specified Condition

Multimeter Connection	Condition	Specified Condition
T-009 - Ground	ENGINE START STOP switch ON	Not less than 12 V

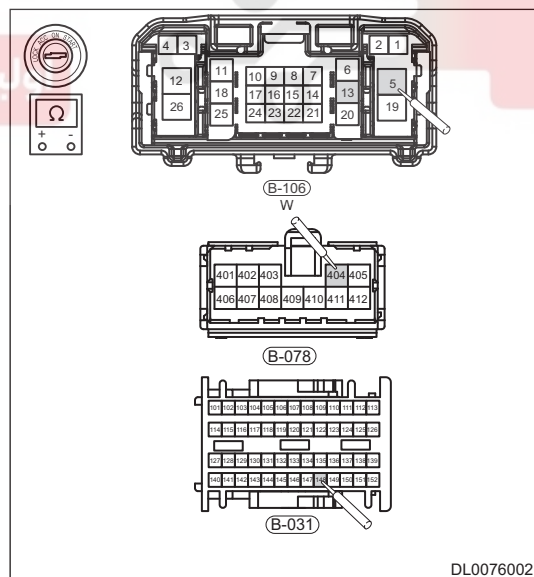


DL0075002

- Using ohm band of multimeter, check for continuity between B-031 (148) and B-106 (13), and continuity between B-078 (404) and B-106 (5).

Specified Condition

Multimeter Connection	Condition	Specified Condition
B-031 (148) - B-106 (13)	ENGINE START STOP switch OFF	$\leq 1 \Omega$
B-078 (404) - B-106 (5)	ENGINE START STOP switch OFF	$\leq 1 \Omega$

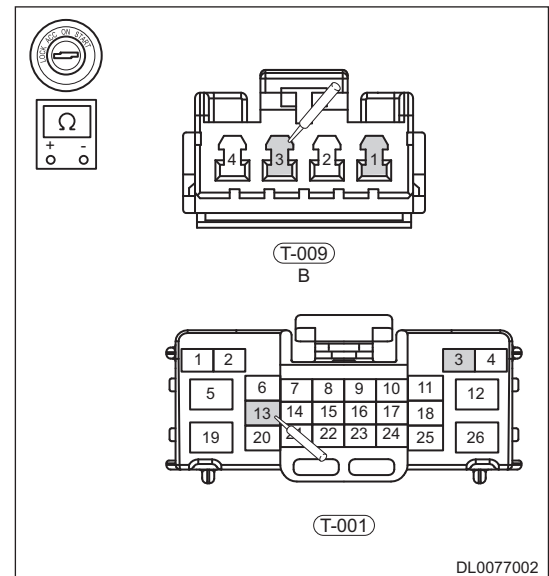


DL0076002

- (e) Using ohm band of multimeter, check for continuity between T-001 (13) and T-009 (3), and continuity between T-001 (5) and T-009 (1).

Specified Condition

Multimeter Connection	Condition	Specified Condition
T-001 (13) - T-009 (3)	ENGINE START STOP switch OFF	$\leq 1 \Omega$
T-001 (5) - T-009 (1)	ENGINE START STOP switch OFF	$\leq 1 \Omega$



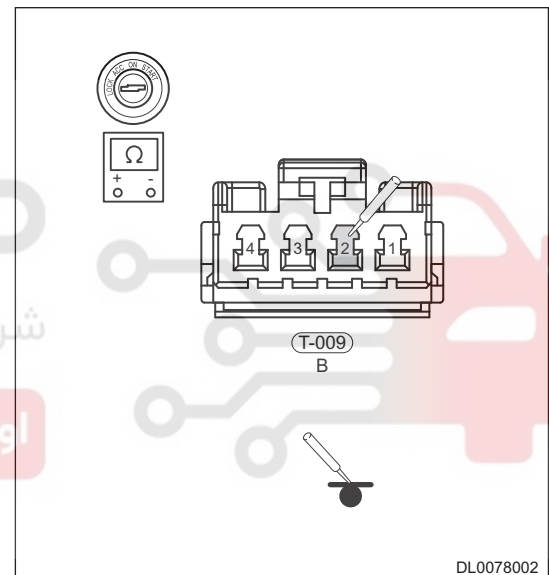
- (f) Using ohm band of multimeter, check for continuity between T-009 (2) terminal and ground B-112.

Specified Condition

Multimeter Connection	Condition	Specified Condition
T-009 (2) - B-112	ENGINE START STOP switch OFF	$\leq 1 \Omega$

Result

Proceed to
OK
NG



OK

End

NG

Replace back door lock motor module and connector

ON-VEHICLE SERVICE

Engine Hood Lock Assembly

Description

Removal

Warning\Caution\Hint

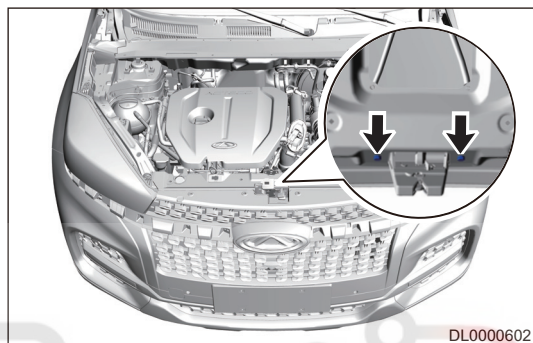
- Be sure to wear necessary safety equipment to prevent accidents, when removing engine hood lock assembly.
- Try to prevent body paint surface from being scratched when removing engine hood lock assembly.

1. Remove the engine hood lock assembly.

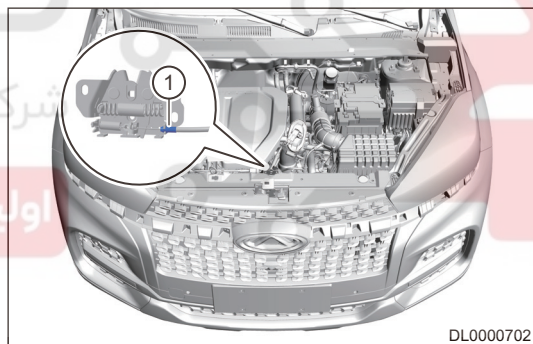
- (a) Remove 3 fixing nuts (arrow) from engine hood lock assembly.

Tightening torque

$9 \pm 1 \text{ N}\cdot\text{m}$



- (b) Disengage the engine hood cable assembly from slot and remove the engine hood lock assembly.



Installation

Warning\Caution\Hint

- Check if engine hood operates properly, after installing engine hood lock assembly.

1. Installation is in the reverse order of removal.

Front Door Lock Assembly

Removal

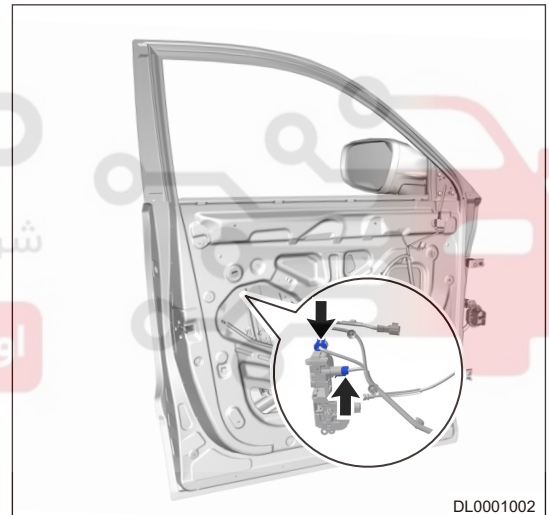
Warning/Caution/Hint

Caution:

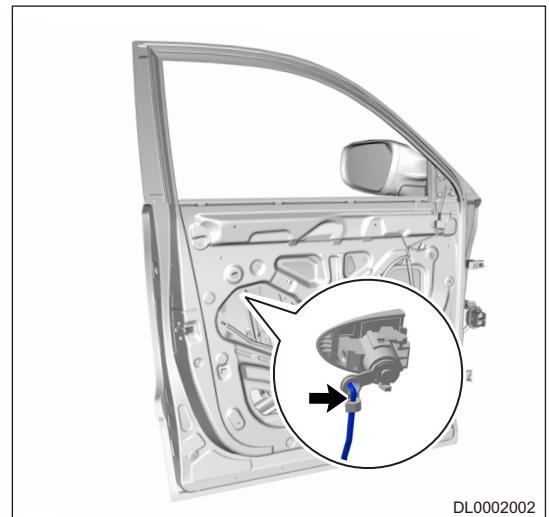
- Be sure to wear necessary safety equipment to prevent accidents, when removing front door lock assembly.
- Try to prevent interior and body paint from being scratched, when removing front door lock assembly.

Hint:

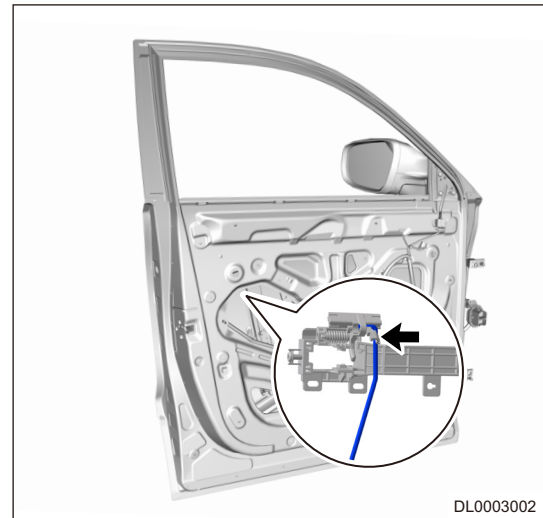
- Use same procedures for right and left sides.
 - Procedures listed below are for left side.
1. Turn off all electrical equipment and the ENGINE START STOP switch.
 2. Disconnect the negative battery cable.
 3. Remove the front left door inner protector assembly (See page 44-62).
 4. Remove the front left door metal bracket.
 5. Remove the front left door protective film assembly.
 6. Remove the front left door glass rear guide rail assembly (See page 40-86).
 7. Remove the front left door lock assembly.
 - (a) Disconnect the connector (arrow) from front door lock assembly.



- (b) Disengage the clip (arrow) between front door lock assembly and front door key cylinder lever.

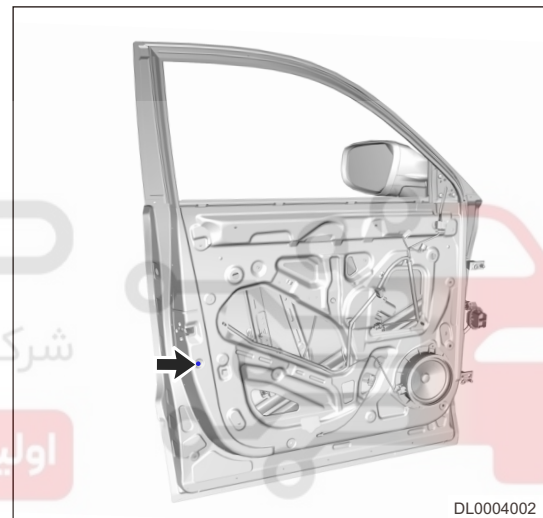


- (c) Disengage the front door outside handle cable (arrow) from the slot of front door handle base.



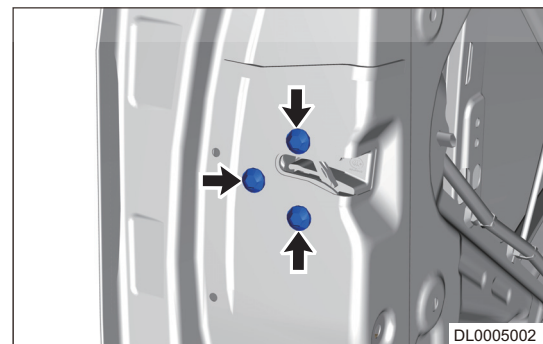
- (d) Disengage the clip from front door inside handle cable.
(e) Remove fixing bolt (arrow) from front door glass rear lower guide rail.

Tightening torque
 $7 \pm 1 \text{ N}\cdot\text{m}$



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

Tightening torque
 $9 \pm 1 \text{ N}\cdot\text{m}$



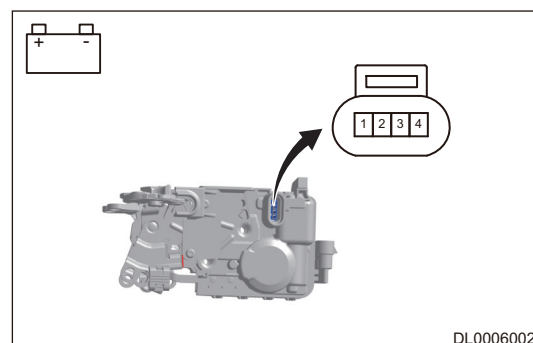
8. Remove the front left door lock assembly

Inspection

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

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

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



32

Installation

Warning\Caution\Hint

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

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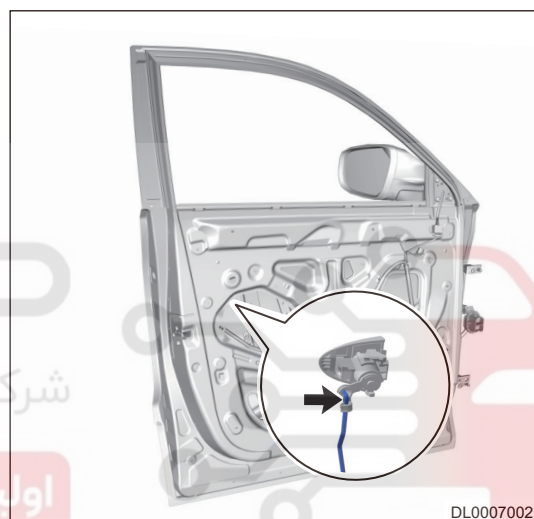


Front Door Key Cylinder Assembly

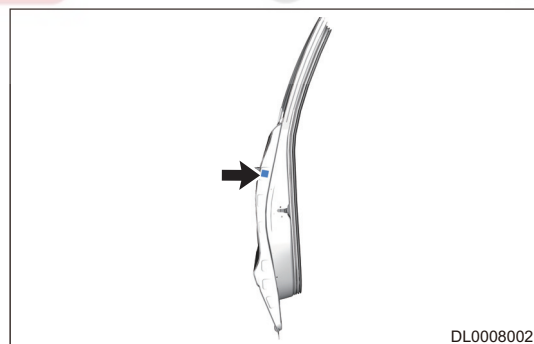
Removal

Warning/Caution/Hint

- Be sure to wear necessary safety equipment to prevent accidents, when removing front door key cylinder assembly.
 - Try to prevent body paint surface from being scratched, when removing front door key cylinder assembly.
1. Turn off all electrical equipment and the ENGINE START STOP switch.
 2. Disconnect the negative battery cable.
 3. Remove the front left door inner protector assembly (See page 44-62).
 4. Remove the front left door metal bracket.
 5. Remove the front left door protective film assembly.
 6. Remove the front left door key cylinder assembly.
 - (a) Disengage the clip (arrow) between front door lock assembly and front door key cylinder lever.



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



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

Tightening torque

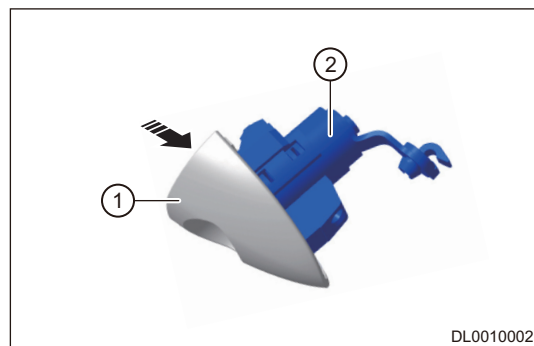
$5 \pm 1 \text{ N}\cdot\text{m}$

Hint:

- It is unnecessary to remove fixing screw from front door key cylinder assembly, because fixing screw is integrated with front door handle base.



- (d) Using a screwdriver wrapped with protective tape, disengage the claws (arrow) and separate the front door handle protective cover (1) from front door key cylinder assembly (2).



Installation

Warning\Caution\Hint

- Install the clip on the lever in place when installing front door key cylinder assembly.
 - Check if front door key cylinder operates properly, after installing front door key cylinder assembly.
1. Installation is in the reverse order of removal.

32

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Front Door Lock Striker Assembly

Removal

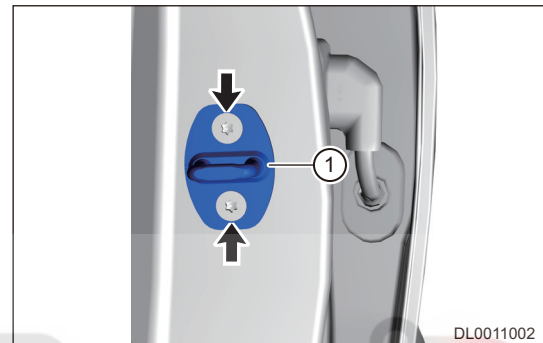
Warning\Caution\Hint

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

Hint:

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

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



Tightening torque

 $23 \pm 2 \text{ N}\cdot\text{m}$

Installation

Warning\Caution\Hint

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

1. Installation is in the reverse order of removal. اولین سامانه

Rear Door Lock Assembly

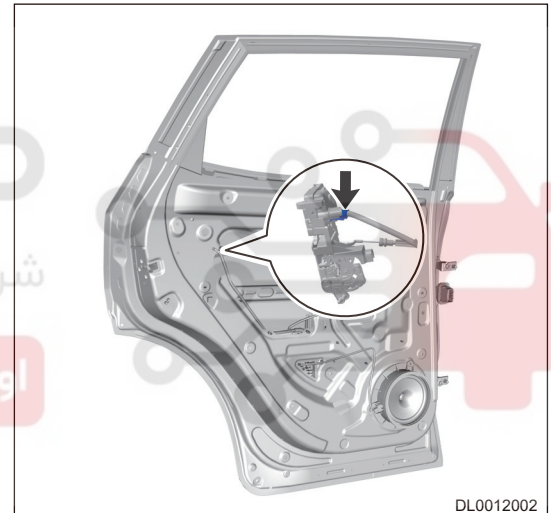
Removal

Warning/Caution/Hint

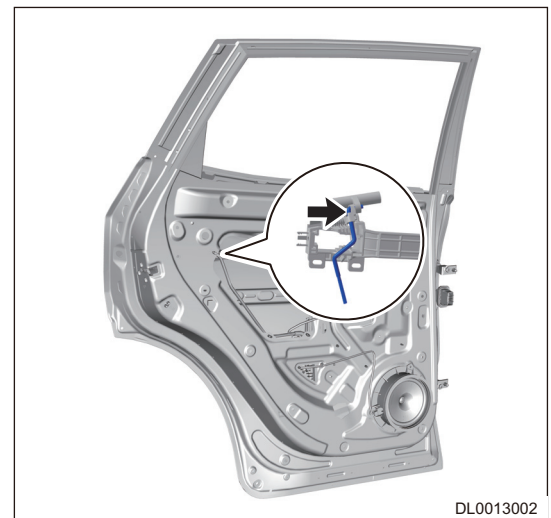
- Be sure to wear necessary safety equipment to prevent accidents, when removing rear door lock assembly.
- Try to prevent interior and body paint from being scratched, when removing rear door lock assembly.

Hint:

- Use same procedures for right and left sides.
 - Procedures listed below are for left side.
1. Turn off all electrical equipment and the ENGINE START STOP switch.
 2. Disconnect the negative battery cable.
 3. Remove the rear left door inner protector assembly.
 4. Remove the rear left door metal bracket.
 5. Remove the rear left door protective film assembly.
 6. Remove the rear left door glass rear guide rail assembly (See page 40-89).
 7. Remove the rear left door lock assembly.
 - (a) Disconnect the connector (arrow) from rear door lock assembly.

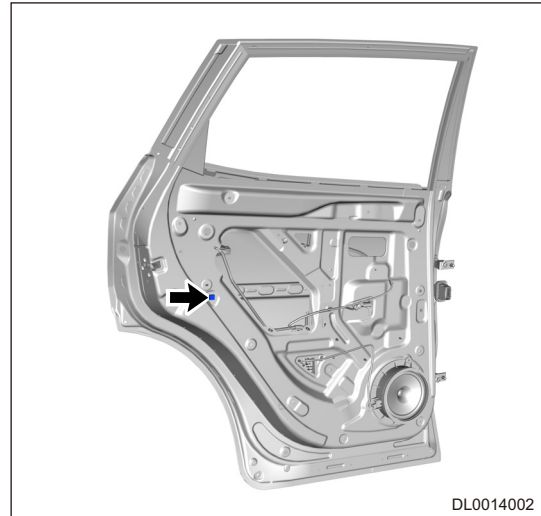


- (b) Disengage the rear door outside handle cable (arrow) from the slot of rear door handle base.



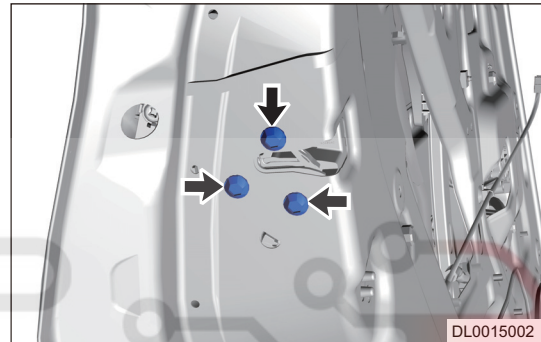
- (c) Remove fixing bolt (arrow) from rear door glass rear lower guide rail.

Tightening torque
 $7 \pm 1 \text{ N}\cdot\text{m}$



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

Tightening torque
 $9 \pm 1 \text{ N}\cdot\text{m}$



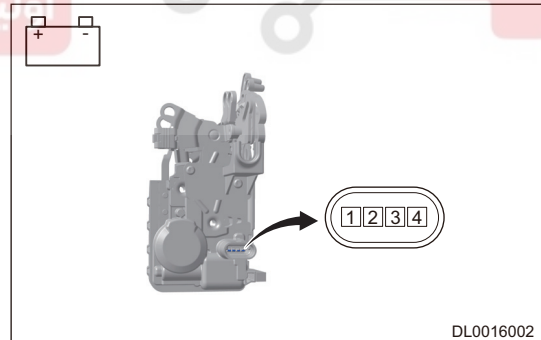
دیجیتال خودرو
شرکت دیجیتال خودرو سامانه (مسئولیت)

Inspection

1. Check the rear door lock assembly (fastener assembly)

- (a) Apply battery voltage to the terminals of rear door lock assembly (fastener assembly) connector and check the operation of rear door lock assembly according to the table below.

Measurement Condition	Status
Battery positive (+) - Terminal 1 Battery negative (-) - Terminal 2	Locking
Battery positive (+) - Terminal 2 Battery negative (-) - Terminal 1	Unlocking



Installation

Warning\Caution\Hint

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

1. Installation is in the reverse order of removal.

Rear Door Lock Striker Assembly

Removal

Warning/Caution/Hint

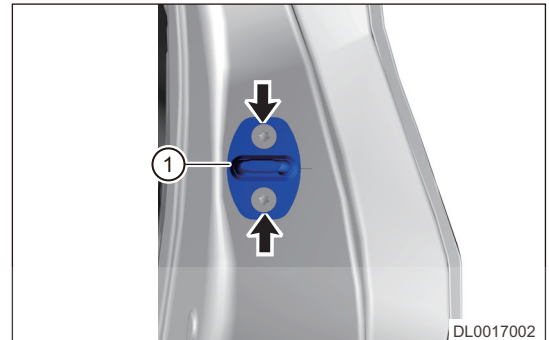
- Be sure to wear necessary safety equipment to prevent accidents, when removing rear door lock striker.
- Try to prevent body paint surface from being scratched, when removing rear door lock striker.

Hint:

- Use same procedures for right and left sides.
 - Procedures listed below are for left side.
1. Remove the rear left door lock striker assembly.
 - (a) Remove 2 fixing screws (arrow) from rear door lock striker, and remove the rear left door lock striker assembly (1).

Tightening torque

$23 \pm 2 \text{ N}\cdot\text{m}$



32

Installation

1. Installation is in the reverse order of removal.



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Luggage Compartment Door Lock Assembly

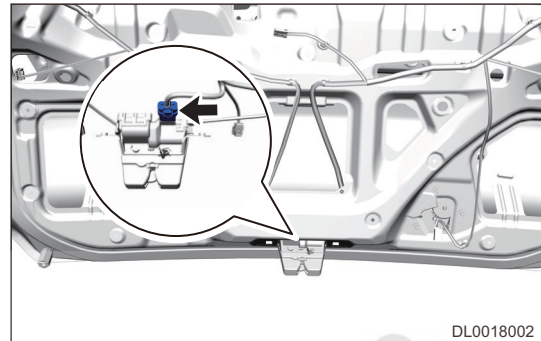
Removal

Warning\Caution\Hint

- Be sure to wear necessary safety equipment to prevent accidents, when removing back door lock assembly.
 - Try to prevent interior and body paint from being scratched, when removing back door lock assembly.
1. Turn off all electrical equipment and the ENGINE START STOP switch.
 2. Disconnect the negative battery cable.
 3. Remove the back door trim board assembly.
 4. Remove the back door lock assembly.

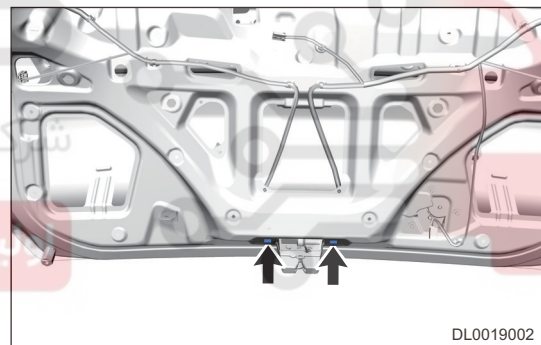
32

- (a) Disconnect the connector (arrow) from back door lock assembly.



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

Tightening torque

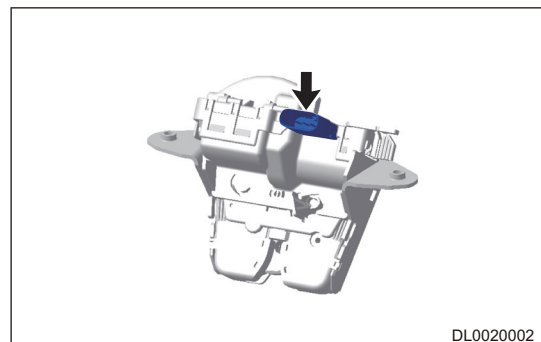
 $9 \pm 1.5 \text{ N}\cdot\text{m}$


Inspection

1. Check back door lock assembly
 - (a) Using a digital multimeter, check for continuity between terminals of back door lock assembly according to the table below.

Measurement Condition	Status
Terminal 1 - Terminal 2	Locking
Terminal 1 - Terminal 3	Unlock

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



Installation

Warning\Caution\Hint

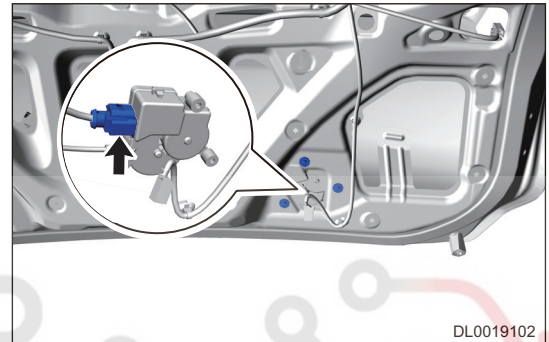
- Check if connector is installed correctly, when installing back door lock assembly.
 - Check if back door lock operates properly, after installing back door lock assembly.
1. Installation is in the reverse order of removal.

Back Door Lock Self Absorption Mechanism Assembly (If equipped)

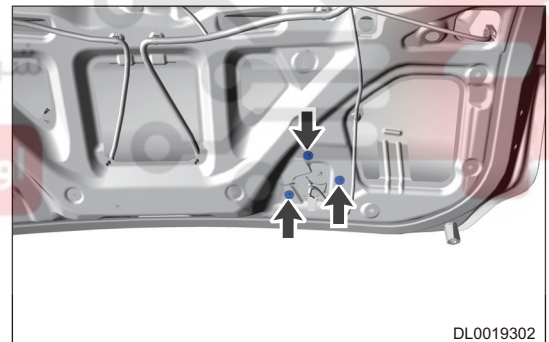
Removal

Warning\Caution\Hint

- Be sure to wear necessary safety equipment to prevent accidents, when removing back door lock self absorption mechanism assembly.
 - Try to prevent interior and body paint from being scratched, when removing back door lock self absorption mechanism assembly.
1. Turn off all electrical equipment and the ENGINE START STOP switch.
 2. Disconnect the negative battery cable.
 3. Remove the back door trim board assembly.
 4. Remove the back door lock assembly (See page 32-40).
 5. Remove the back door lock self absorption mechanism assembly.
 - (a) Disconnect the connector (arrow) from back door lock self absorption mechanism assembly.

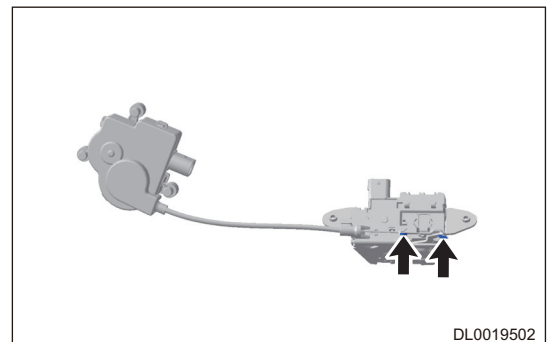


- (b) Remove 3 fixing bolts (arrow) from back door lock self absorption mechanism assembly, and remove the back door lock self absorption mechanism assembly and back door lock assembly.



Tightening torque
 1.5 ± 0.5

6. Separate back door lock self absorption mechanism assembly and back door lock assembly.
 - (a) Separate cable clamp joint and Z-shape end which installed on the lock body, and then remove dust boot clip.



Installation**Warning\Caution\Hint**

- Check if connector is installed correctly, when installing back door lock self absorption mechanism assembly.
 - Check if back door lock self absorption mechanism assembly operates properly, after installing back door lock self absorption mechanism assembly.
1. Installation is in the reverse order of removal.

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Back Door Lock Striker Assembly

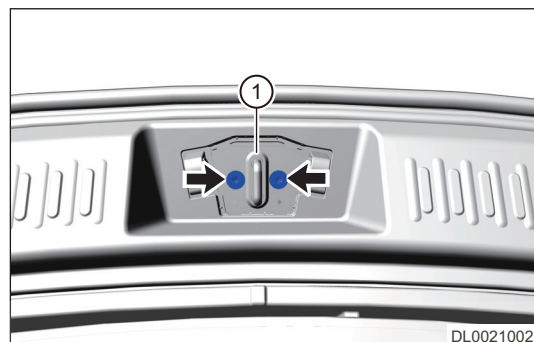
Removal

Warning\Caution\Hint

- Be sure to wear necessary safety equipment to prevent accidents, when removing back door lock striker assembly.
 - Try to prevent body paint surface from being scratched, when removing back door lock striker assembly.
1. Remove the back door doorsill pressure plate assembly.
 2. Remove the back door lock striker assembly.
 - (a) Remove 2 fixing screws (arrow) from back door lock striker assembly, and remove the back door lock striker assembly (1).

Tightening torque

23 ± 2 N·m



32

Installation

1. Installation is in the reverse order of removal.

شرکت دیجیتال خودرو (مسئولیت محدود)

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Induction Outside Handle

Induction Outside Handle Unlocking/Locking Principle

Door handle and key are certified by radio communication; Door handle induction is capacitive induction, finger touches induction area, and door handle triggers search key process after induction capacitance changes.

Warning:

1. Door handle antenna circuit short or open

Unlocking/Locking function for short or open circuit of side door handle fails, and PEPS will record the DTC at this time.

After the fault is eliminated, the function is recovered after remote control key is unlocked.

2. Water, dirt or snow in door handle induction area

Capacitance noise caused by water, dirt and snow interferes with the capacitance detection of door handle antenna, leading to antenna entering self-protection mode or shielding capacitance induction function, resulting in the decrease of unlocking/locking sensitivity and temporarily unable to use the unlocking/locking function under bad conditions.

Wipe the handle clean and wait for about 15 seconds for the function to return to normal automatically. If the handle is frozen or filled with water, it needs to be discharged.

3. In rainy days, when the door handle is continuously impacted by raindrops.

The induction capacitance of door handle will continuously sense the change of capacitance. In order to avoid triggering induction by mistake, the door handle antenna enters rain mode. In this mode, the induction time of locking increases and the sensitivity of unlocking induction decreases. When the raindrop impact disappears, the function will automatically return to normal after 3.5 minutes.

4. Electromagnetic interference or shielding

Radio communication will be affected by the same frequency interference and shielding effect. If the interference source exists, it will interfere with the normal communication between remote control key and antenna. Remote control key or door handle with trim cover containing metal component can weaken communication signals. In this case, the unlocking/locking function has potential failure risk.

After removing the shield from the interference source, the function can be automatically recovered.

Removal

Warning\Caution\Hint

- When installing low frequency antenna, low antenna clip should be well fitted with the antenna mounting bracket.
- Check if low frequency antenna functions properly after installation.

1. Installation is in the reverse order of removal.

Removal

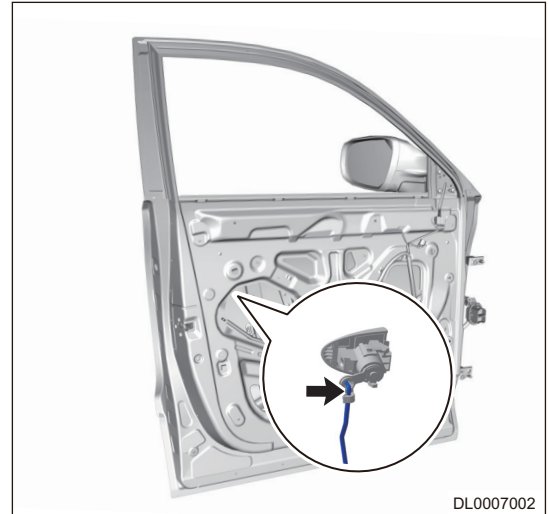
Warning\Caution\Hint

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

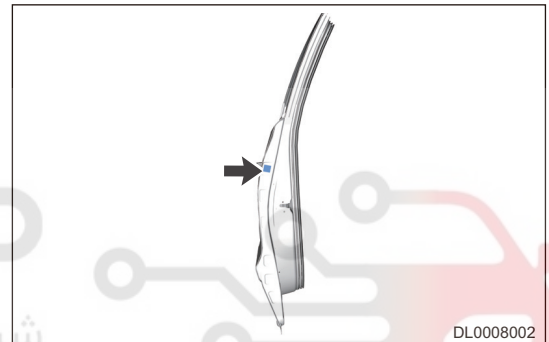
1. Turn off all electrical equipment and the ENGINE START STOP switch
2. Disconnect the negative battery cable
3. Remove the front left door inner protector assembly
4. Remove the front left door metal bracket
5. Remove the rear left door protective film assembly

6. Remove the left outside handle assembly (left side as an example)

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



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



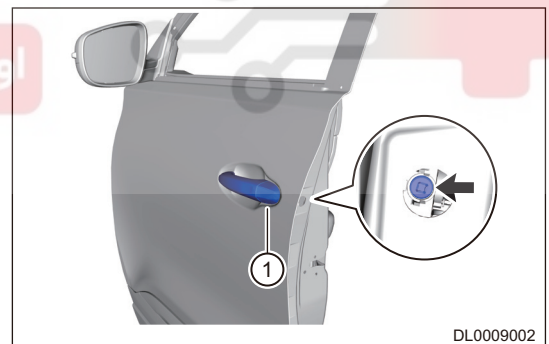
- (c) Loosen 1 fixing screw (arrow) from front door key cylinder assembly, and remove the front door key cylinder and protective cover assembly ①.

Tightening torque

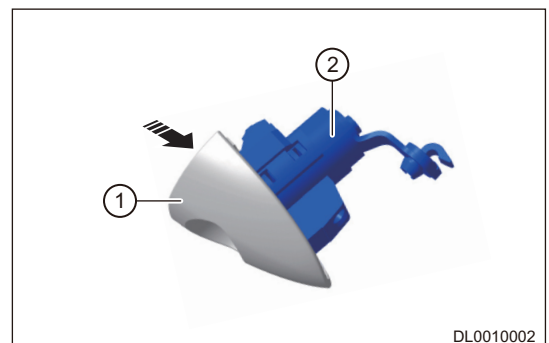
$5 \pm 1 \text{ N}\cdot\text{m}$

Hint:

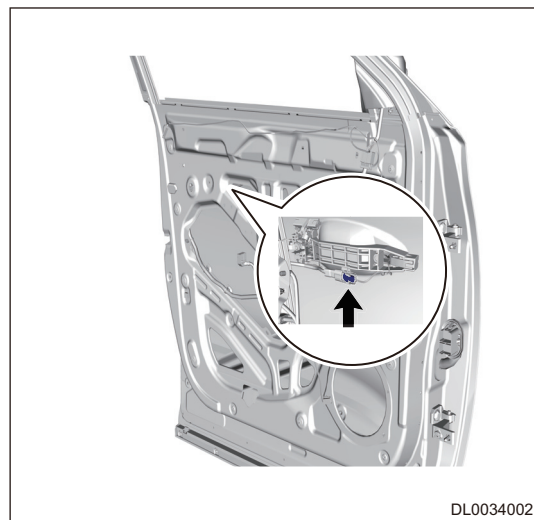
- It is unnecessary to remove fixing screw from front door key cylinder assembly. Fixing screw is integrated with front door handle base.



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



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



- (f) Remove the front left outside handle assembly.

Installation

1. Installation is in the reverse order of removal

دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



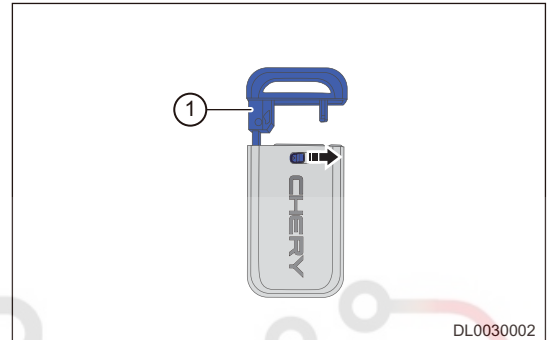
Wireless Key

Removal

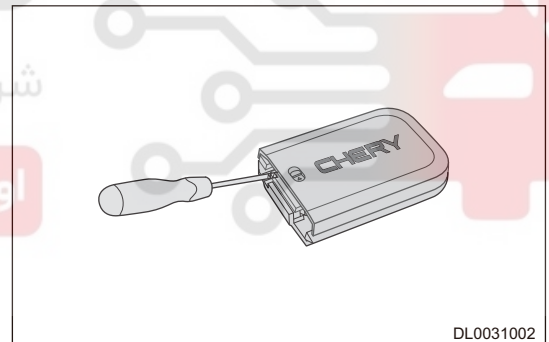
Warning\Caution\Hint

- DO NOT push the terminals with your hands, when removing wireless key cover.
- Make sure battery positive and negative are installed correctly, when removing wireless key cover.
- DO NOT pry up battery forcibly, after removing wireless key cover. Otherwise, terminals may be damaged.
- DO NOT touch battery with wet hands, after removing wireless key cover. Otherwise, water may cause rust.
- DO NOT touch or move any components inside transmitter, after removing wireless key cover. Failure to do so may interfere with proper operation.

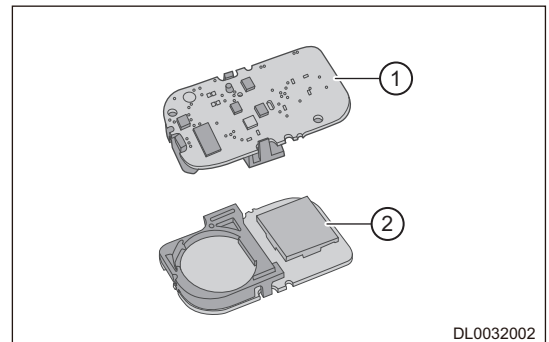
1. Remove the wireless key.
 - (a) Toggle mechanical key release part (arrow), and remove mechanical key (1).



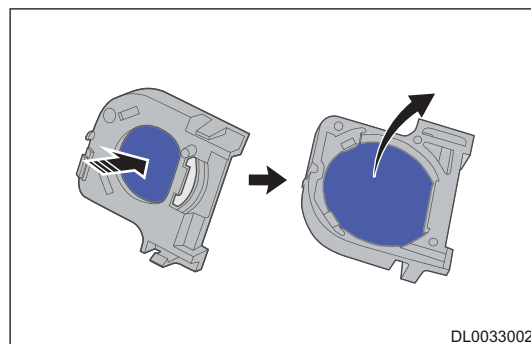
- (b) Separate smart key cover with a flat-blade screwdriver with a flat tip screwdriver wrapped with protective tape and remove the circuit board.



- (c) Remove battery holder from circuit board.



- (d) Remove battery from battery holder, and then install new battery with positive (+) facing up.



Installation

- Warning:**
Check that wireless key operates properly, after installing the wireless key.
1. Installation is in the reverse order of removal.

دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

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