



## 12- Electrical system

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# دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



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Defrosting

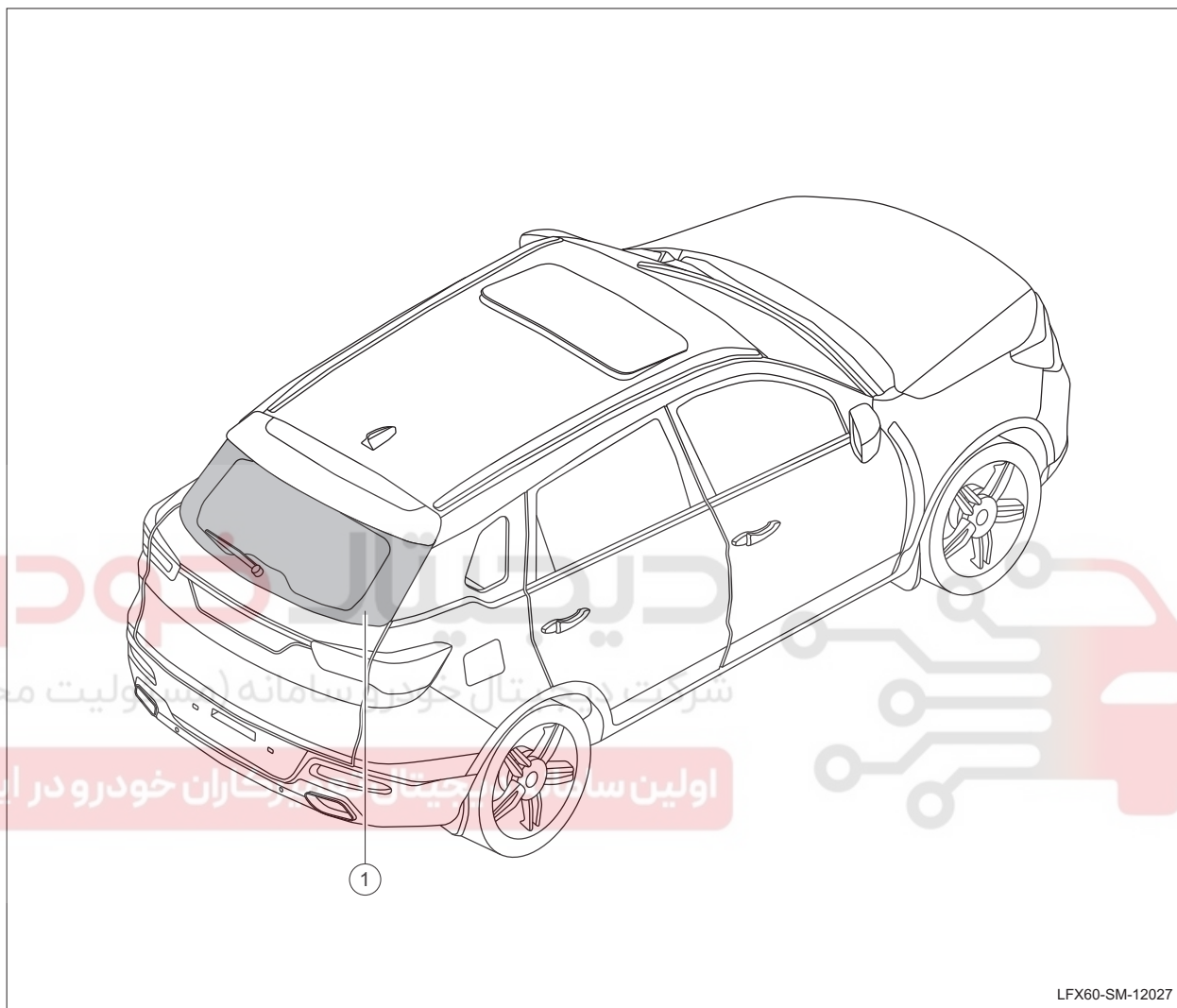


## Defrosting

### Structure and installation location

#### Component location plan

#### Rear windshield defroster



LFX60-SM-12027

No.	Part name
1	Rear windshield defroster

No.	Part name

12

12-1969



## Diagnosis information and procedures

### Diagnosis Instructions

Before the rear windshield defroster troubleshooting, must understand and familiarize its working principle, and then perform its diagnosis, so as to determine the correct fault diagnosis procedure in case of fault, and more importantly, to determine whether the situations described by the user are normal.

For any rear windshield defroster fault diagnosis, must inspect it firstly, and then guide the maintenance staff to take the next logical steps for fault diagnosis. Comprehend and correctly use the diagnostic flow chart to shorten the diagnosis time and avoid the misjudgement.

### General equipment

Name
Diagnostic equipment of vehicle
Digital multimeter

### Visual Inspection

#### ① Note:

Clean the windshield glass along the heating wire with a soft and dry cloth, to prevent damage to the heating wire.

#### ① Note:

Do not use detergent or glass cleaner with abrasive ingredients.

1. Confirm the problem raised by the customer.
2. Inspect whether there is any post installation that may affect the back door windshield defroster operation.
3. Check for the evident mechanical or electrical damage trace and collision deformation trace through the visual check.

### Visual inspection table

Mechanical section	Electrical section
<ul style="list-style-type: none"> <li>• Rear windshield</li> <li>• Rearview mirror</li> </ul>	<ul style="list-style-type: none"> <li>• Fuse</li> <li>• Rear defroster relay</li> <li>• Line</li> <li>• Rear windshield defroster</li> <li>• A/C control panel</li> </ul>

4. Check the system lines easy to see or can be seen.
5. If the observed or raised problem is the evident and the cause has been found, ensure to fix this fault before proceeding with the next step.
6. If no problem is found through the visual check, confirm the fault and refer to the fault symptom list.

**Fault symptoms table**

If there is a fault but the fault diagnosis code (DTC) is not stored in the control module and the fault causes can not be confirmed in the basic inspection, the fault diagnosis and troubleshooting should be performed according to the steps listed in the table below.

Symptom	Possible point of failure	Recommended measure
The rear windshield defroster is not operated	<ul style="list-style-type: none"> <li>• Battery voltage low</li> <li>• Fuse</li> <li>• Relay</li> <li>• Line fault</li> <li>• A/C control panel</li> <li>• Rear windshield defroster fault</li> </ul>	<b>Refer to: Rear windshield defroster out of operation diagnosis flow</b>
The power rearview mirror heating wire is not operated	<ul style="list-style-type: none"> <li>• Battery voltage low</li> <li>• Fuse</li> <li>• Relay</li> <li>• Line fault</li> <li>• A/C control panel</li> <li>• Power rearview mirror assembly fault</li> </ul>	<b>Refer to: Electric rearview mirror no heating diagnosis flow</b>
The rear windshield defroster is not operated	<ul style="list-style-type: none"> <li>• Rear windshield defroster fault</li> </ul>	<ul style="list-style-type: none"> <li>• Inspect and repair the rear windshield defroster or replace the rear windshield</li> </ul> <b>Refer to: Replacement of Back Door Windshield</b>

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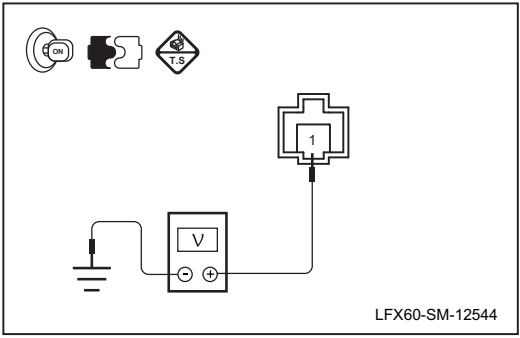
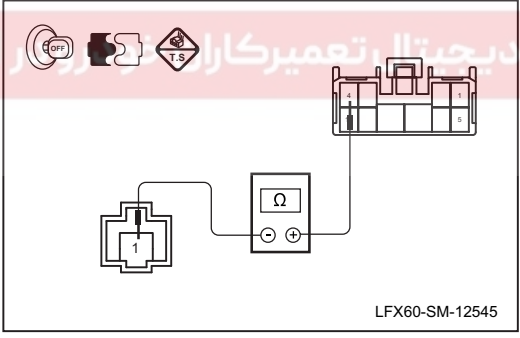


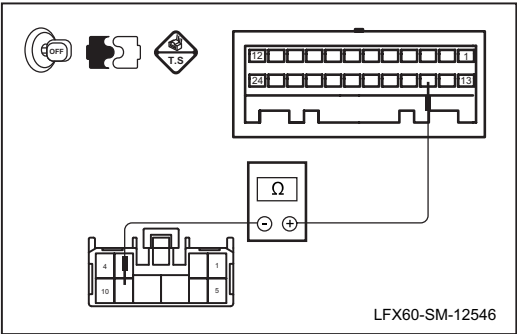
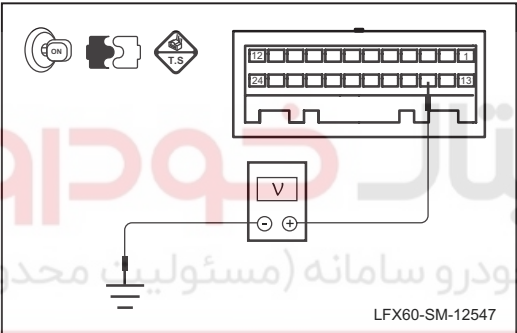
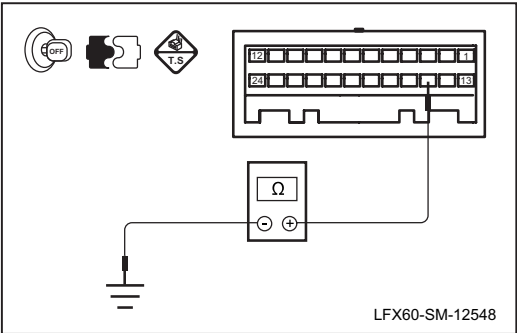
## Rear windshield defroster out of operation diagnosis flow

Test condition	Details/results/measures
1. General inspection.	
	A. Check the harness plug for breakage, loose contact, aging or looseness. B. Inspect the rear defroster heating wire for any fault. C. Inspect the air conditioning system for any fault. Is it OK after checking? → <b>Yes</b> To step 2. → <b>No</b> Repair the fault position.
2. Inspect the rear defroster fuse.	
	A. Check the rear defroster fuse FS25, FS32. <b>Fuse rated capacity: 20A, 30A</b> Inspect whether it is normal? → <b>Yes</b> To step 3. → <b>No</b> Rear defroster fuse.
3. Inspect the rear defroster relay.	
	A. Replace the rear defroster relay with the same type and inspect whether the defroster function is normal. Is the defroster function normal? → <b>No</b> To step 4. → <b>Yes</b> Replace the rear defroster relay.

## Defrosting



Test condition	Details/results/measures
4. Inspect the rear defroster power supply voltage.	
	<p>A. Operate the start switch to turn the power to OFF state.            B. Disconnect the rear defroster harness connector T02.            C. Connect the negative battery cable and operate the start switch to place the power mode under ON status.            D. Press the rear defroster switch and measure the voltage between Terminal 1 of the rear defroster wiring harness connector T02 and the reliable grounding point.  <b>Standard value: 11 ~ 14 V</b>            Is the measurement normal?            → <b>Yes</b>            To step 5.            → <b>No</b>            To step 6.</p>
5. Inspect the rear defroster grounding point.	
	<p>A. Inspect whether the rear defroster grounding point is normal.            B. Confirm whether the rear defroster grounding point is normal?            → <b>Yes</b>            To step 6.            → <b>No</b>            Inspect and repair the rear defroster grounding point fault.</p>
6. Inspect the rear defroster power line.	
	<p>A. Operate the start switch to turn the power to OFF state.            B. Disconnect the rear defroster harness connector T02.            C. Disconnect the wiring harness connector I06 from the dashboard wiring box.            D. Measure the resistance between Terminal 1 of the rear defroster wiring harness connector T02 and Terminal 4 of the wiring harness connector I06 in the dashboard wiring box.  <b>Standard value: Less than 5Ω</b>            Is the measurement normal?            → <b>Yes</b>            To step 7.            → <b>No</b>            Inspect and repair the rear defroster power line open circuit fault; if necessary, replace the wiring harness.</p>

Test condition	Details/results/measures
7. Inspect the rear defroster controller line continuity.	
	<p>A. Operate the start switch to turn the power to OFF state.  B. Disconnect the air conditioning control panel wiring harness connector A07 and dashboard wiring box wiring harness connector I06.  C. Measure the resistance between Terminal 15 of the air conditioning control panel wiring harness connector A07 and Terminal 9 of the dashboard wiring box wiring harness connector I06.  <b>Standard value: Less than 5Ω</b>  Is the measurement normal?  →<b>Yes</b>  To step 8.  →<b>No</b>  Inspect and repair the rear defroster control line open circuit fault; if necessary, replace the wiring harness.</p>
8. Inspect the rear defroster control line for short circuit to the power supply.	
	<p>A. Operate the start switch to turn the power to OFF state.  B. Disconnect the A/C control panel harness plug A07.  C. Connect the negative battery cable and operate the start switch to place the power mode under ON status.  D. Measure the voltage between Terminal 15 of the air conditioning control panel wiring harness connector A07 and the reliable grounding point.  <b>Standard value: 11 ~ 14 V</b>  Is the measurement normal?  →<b>Yes</b>  To step 9.  →<b>No</b>  Inspect and repair the short circuit fault between the rear defroster control line and the power supply; if necessary, replace the wiring harness.</p>
9. Inspect the rear defroster control line for short circuit to the grounding point.	
	<p>A. Operate the start switch to turn the power to OFF state.  B. Disconnect the A/C control panel harness plug A07.  C. Measure the resistance between the A/C control panel harness connector A07 terminal 15 and the fixed ground point.  <b>Standard value: 10MΩ or higher</b>  Is the measurement normal?  →<b>Yes</b>  To step 10.  →<b>No</b>  Inspect and repair the short circuit fault between the rear defroster control line and the grounding point; if necessary, replace the wiring harness.</p>



Defrosting



Test condition	Details/results/measures
10. Replace the A/C control panel.	
	A. Replace the A/C control panel. <b>Refer to: Replacement of Air Conditioning Control Panel.</b> Confirm the system is normal.

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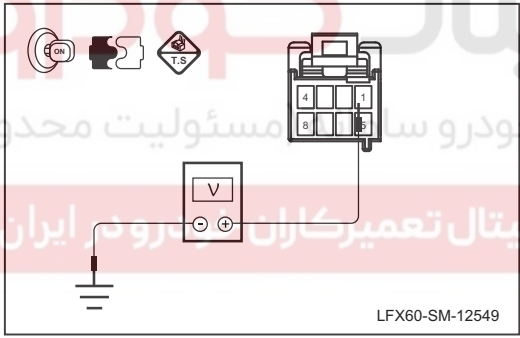
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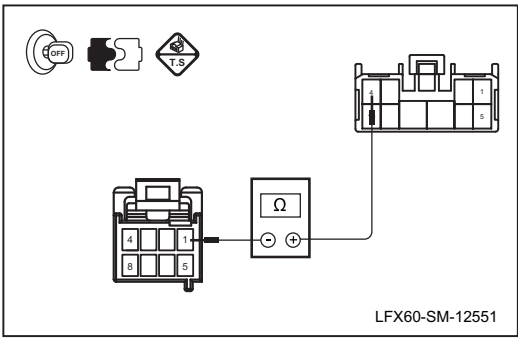
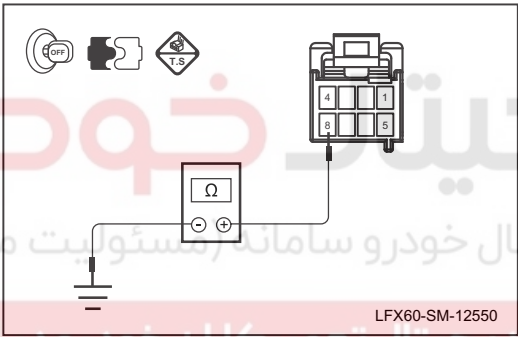
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## Electric rearview mirror no heating diagnosis flow

Test condition	Details/results/measures
1. General inspection.	
	A. Inspect the defroster wiring harness connector for damage, poor contact, aging, loosening or other signs. Is it OK after checking? → <b>Yes</b> To step 2. → <b>No</b> Repair the fault position.
2. Inspect whether the rear windshield defroster is normal.	
	A. Inspect whether the rear windshield defroster is normal. Is it normal? → <b>Yes</b> To step 3. → <b>No</b> Inspect and repair the rear windshield defroster. <b>Refer to: Diagnosis procedure about that the rear windshield defroster is not operated.</b>
3. Inspect the rearview mirror defroster power supply voltage (with the left outer rearview mirror as an example).	
	A. Operate the start switch to turn the power to OFF state. B. Disconnect the rearview mirror harness connector D03. C. Connect the negative battery cable and operate the start switch to place the power mode under ON status. D. Press the rear defroster switch and measure the voltage between Terminal 1 of the rearview mirror wiring harness connector D03 and the reliable grounding point. <b>Standard value: 11 ~ 14 V</b> Is the measurement normal? → <b>No</b> To step 4. → <b>Yes</b> To step 5.

## Defrosting



Test condition	Details/results/measures
4. Inspect the rear view mirror defroster power line continuity.	
	<p>A. Operate the start switch to turn the power to OFF state.          B. Disconnect the rearview mirror wiring harness connector D03 and the dashboard wiring box wiring harness connector I06.          C. Measure the resistance between Terminal 1 of the rearview mirror wiring harness connector D03 and Terminal 4 of the dashboard wiring box wiring harness connector I06.  <b>Standard value: Less than 5Ω</b>          Is the measurement normal?          → <b>Yes</b>          To step 5.          → <b>No</b>          Inspect and repair the rearview mirror defroster power line open circuit fault; if necessary, replace the wiring harness.</p>
5. Inspect the rearview mirror defroster grounding point.	
	<p>A. Operate the start switch to turn the power to OFF state.          B. Disconnect the rearview mirror harness connector D03.          C. Measure the resistance between Terminal 8 of the rearview mirror wiring harness connector D03 and the reliable grounding point.  <b>Standard value: Less than 5Ω</b>          Is the measurement normal?          → <b>Yes</b>          To step 6.          → <b>No</b>          Inspect and repair the rearview mirror defroster ground line open circuit fault; if necessary, replace the wiring harness.</p>
6. Replace the rearview mirror.	
	<p>A. Replace the rearview mirror.  <b>Refer to: Replacement of Power Rearview Mirror.</b>          Confirm the system is normal.</p>



## Removal and installation

### Replacement of Rear Windshield Grille.

#### Removal

1. **Remove the rear windshield grille.**
  - (a). Disconnect the battery negative connector.
  - (b). Remove the rear windshield grille; **refer to: Replacement of Back Door Glass.**

#### Installation

1. **Install the rear windshield grille.**
  - (a). The installation sequence is the reverse of the disassembly order.

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**Replacement of Rear Windshield Defroster Switch****Removal****1. Remove the rear windshield defroster switch.**

- (a). Disconnect the battery negative connector.
- (b). Remove the rear windshield defroster switch; refer to: **Replacement of Air Conditioning Control Panel.**

**Installation****1. Install the rear windshield defroster switch.**

- (a). The installation sequence is the reverse of the disassembly order.

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