

# HORN

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دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



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شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

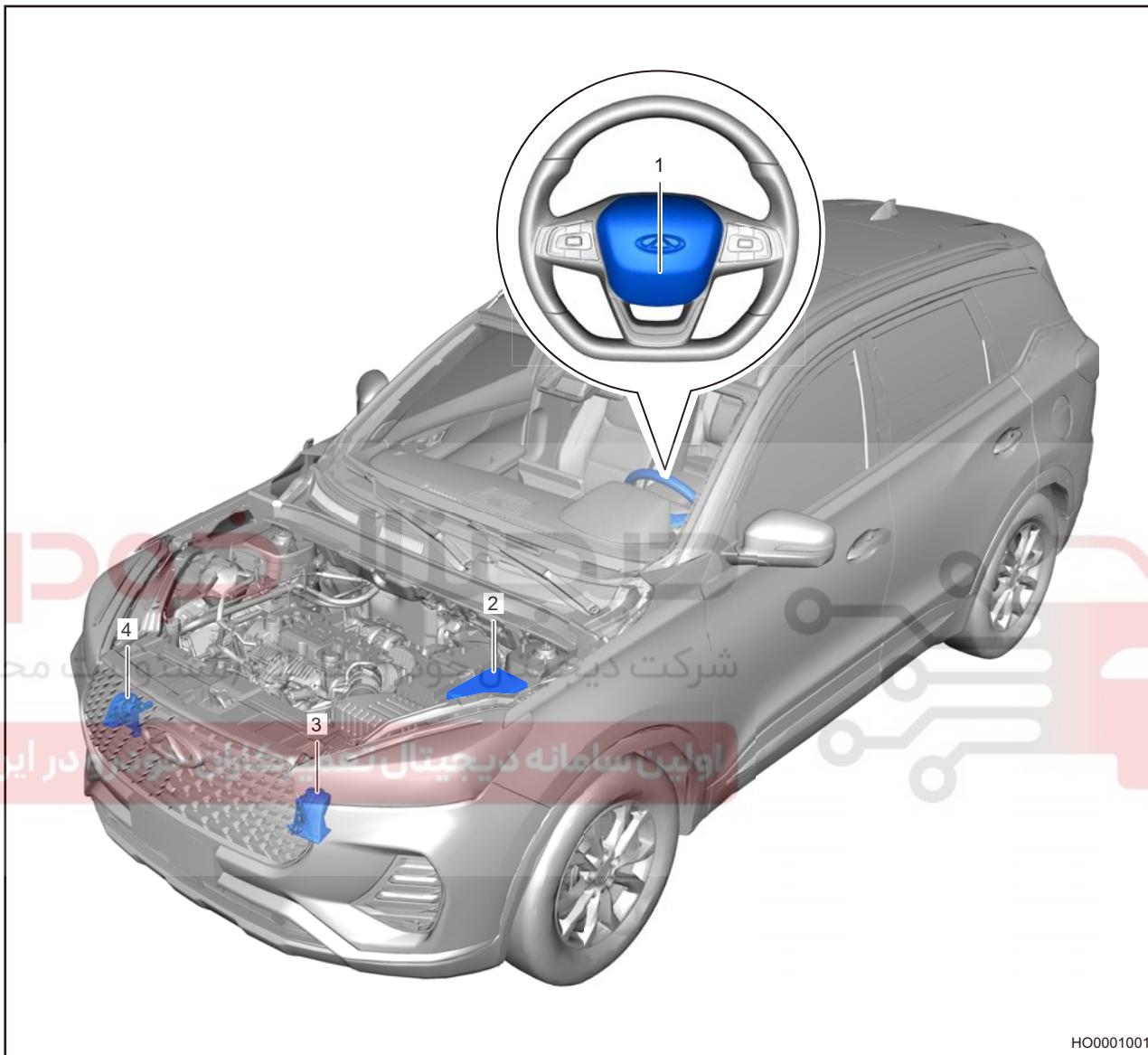
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# GENERAL INFORMATION

## Overview

### Description



HO0001001

1 - Horn Switch	2 - Engine Compartment Fuse and Relay Box
3 - High Pitched Horn	4 - Low Pitched Horn

This vehicle is equipped with high pitched and low pitched electronic horn system. Horn system consists of the following components:

- Horn: High pitched horn is installed in groove of front bumper crossmember left mounting plate, and low pitched horn is installed in groove of front bumper crossmember right mounting plate.
- Horn switch: Horn switch is installed on steering wheel.
- Horn fuse: Horn fuse is located in engine compartment fuse and relay box.
- Horn relay: It is located in engine compartment fuse and relay box.

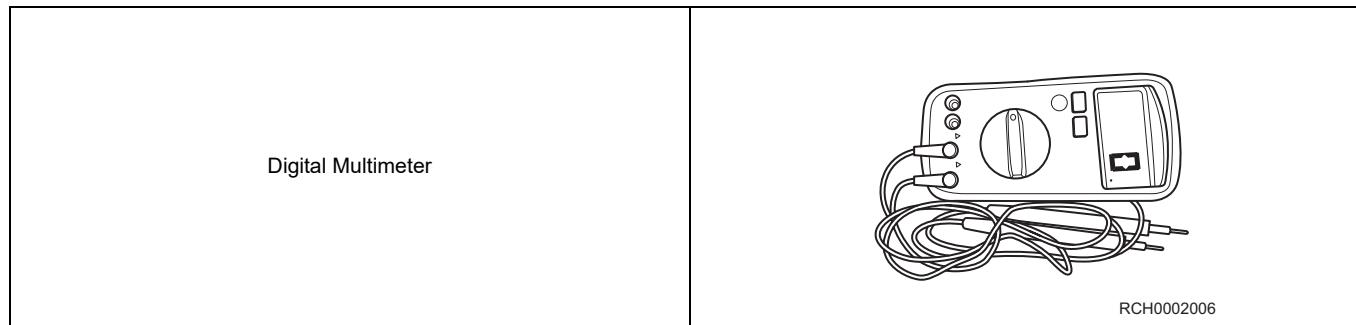
## Specifications

## Torque Specifications

Description	Torque (N·m)
Horn Bracket Fixing Nut	16 ± 2

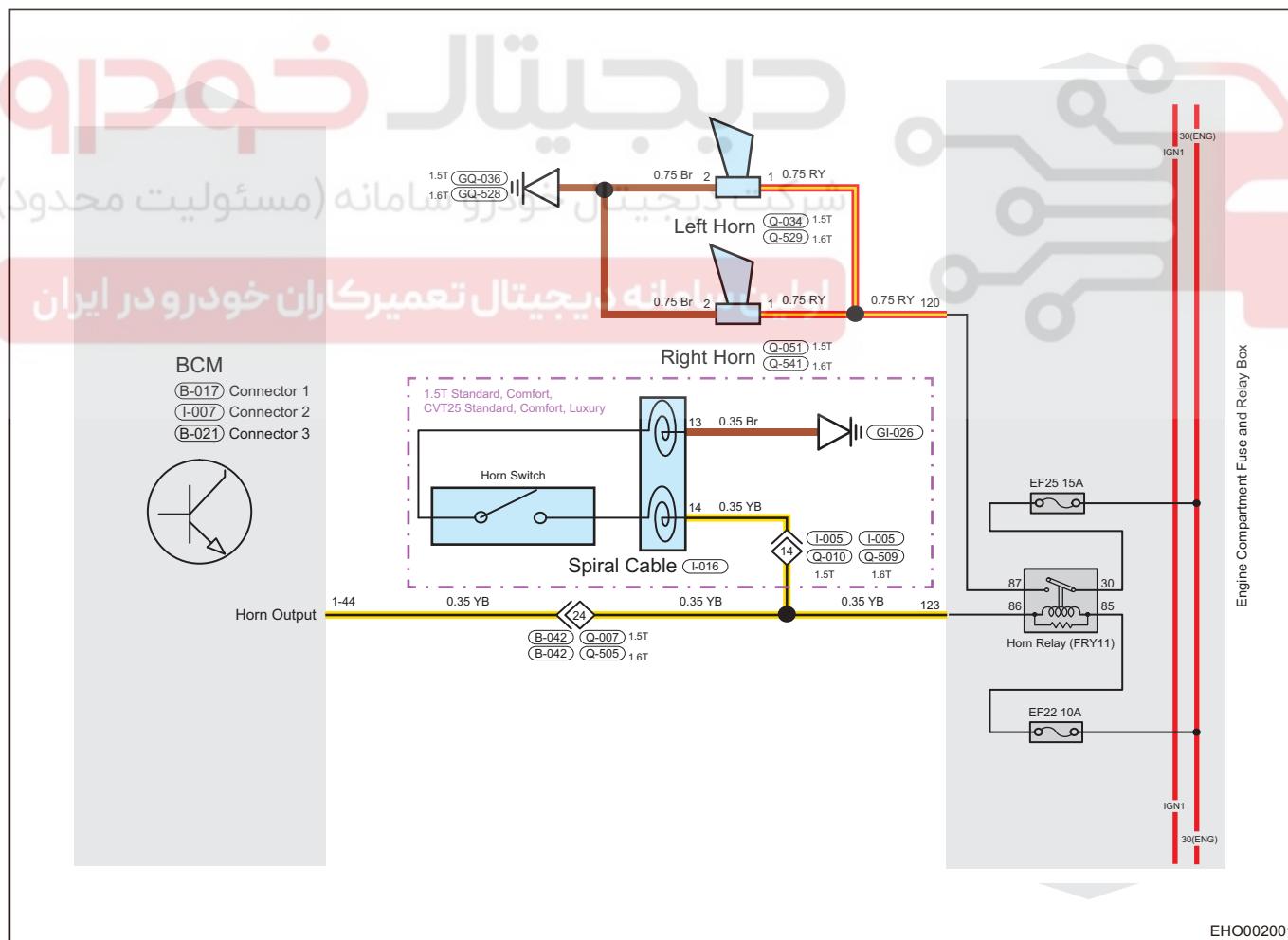
## Tool

## General Tool



## Circuit Diagram

Horn



# 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, replace or adjust faulty components as necessary.

Symptom	Suspected Area
Low pitched horn does not sound	Low pitched horn is damaged
	Wire harness is open
	Connector is loosen
High pitched horn does not sound	High pitched horn is damaged
	Wire harness is open
	Connector is loosen
Horn does not sound	Horn fuse (blown)
	Horn relay
	Horn switch (damaged)
	Spiral cable (damaged)
	Wire harness (short or open)

### Horn System Inspection

Press and release horn button

Treatment	Normal Result	Abnormal Result
Press and release horn button	When the horn button is pressed, horn sounds When the horn button is released, horn stops sounding	The horn cannot operate The horn sound is abnormal

The horn cannot operate or horn sound is abnormal

Trouble Symptom	Diagnostic Troubleshooting
Horn sound is hoarse	Check the battery or power supply circuit
Only high pitched horn or low pitched horn sounds	Check and repair wire harness of horn that does not sound or replace horn
High pitched horn and low pitched horn do not sound	Check horn fuse or relay box
Button horn sounds, but wireless door locking does not sound	Check if the audio setting is "only fortify light", and reset it to "fortify horn + light" if it is possible. If setting is correct and the fault still exists, check and repair BCM and line.
Button horn does not sound, but wireless door locking sounds	Check and repair horn button and line

### Troubleshooting steps for abnormal horn sound

- If the abnormal horn sound is obvious, perform the following routine inspection:
  - Check if the terminal is connected poorly; repair any poor connections that have been found;
  - Check the ground circuit; if there is poor contact, correct it;
  - Ensure that the horn assembly fixing bolt is tightened appropriately;
  - Ensure that the horn assembly does not contact with any other object; if it contacts with other objects, relocate the position of other object; bend the horn assembly bracket if necessary, operate the horn to determine whether that situation still exists.
- If it still exists, perform the following specific inspection:
  - Determine the type of horn sound quality;
    - Low pitch

- (2) Sharp pitch
- (b) If it is obvious low pitch, it indicates that the current is too high and the horn assembly must be replaced;
  - (c) If it is obvious sharp pitch, foreign matters may adhere to horn, remove horn assembly and check if foreign substances exist;
  - (d) Remove any adhered foreign matter, and reinstall horn assembly;

**Warning:**

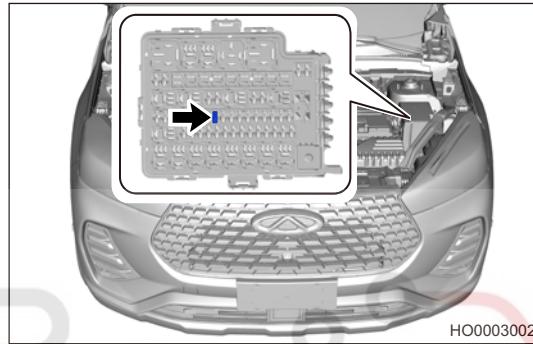
If no foreign matter is found, or the foreign matter cannot be removed, replace horn assembly.

**Check horn fuse**

1. Identify the horn fuse on engine compartment fuse and relay box.
2. Check the horn fuse.
  - (a) Using a fuse puller, remove the horn fuse EF25 (20A).
  - (b) Check if fuse is blown. Replace the fuse if it is blown.

**Caution:**

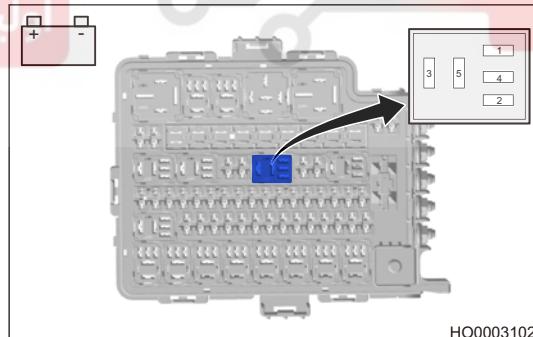
- Use a fuse with the same specification as original fuse to avoid affecting the normal usage of electrical equipment.

**Check horn relay**

1. Identify the horn relay on engine compartment fuse and relay box.
2. Check horn relay
  - (a) Remove the horn relay ERLY (11).

Multimeter Connection	Condition	Specified Condition
Terminal 3 - Terminal 5	When battery voltage is not applied between terminal 2 and terminal 1	$\infty$
Terminal 3 - Terminal 5	When battery voltage is applied between terminal 2 and terminal 1	$\leq 1 \Omega$

If result is not as specified, replace the relay.

**Check horn ground points**

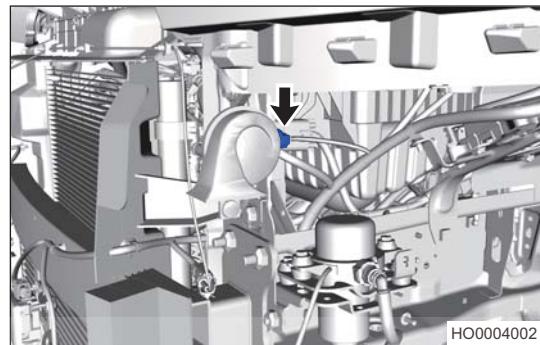
Ground position of horn is located in steering wheel, which is grounded through steering column and body, and the resistance cannot be greater than  $1 \Omega$ .

# ON-VEHICLE SERVICE

## Horn

### Removal

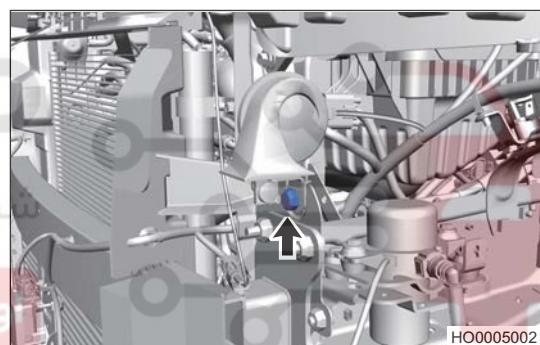
1. Turn off all electrical equipment and ENGINE START STOP switch
2. Disconnect the negative battery cable.
3. Remove the front bumper assembly (See page 61-6).
4. Remove the low pitched horn.
  - (a) Disconnect the low pitched horn wire harness connectors (arrow).



- (b) Remove the fixing nut (arrow) from low pitched horn bracket, and remove the low pitched horn.

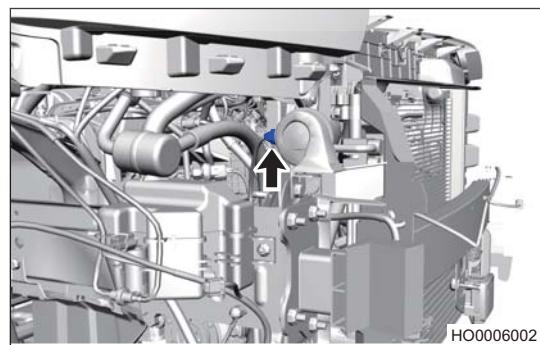
#### Tightening torque

$16 \pm 2 \text{ N}\cdot\text{m}$



5. Remove the high pitched horn.

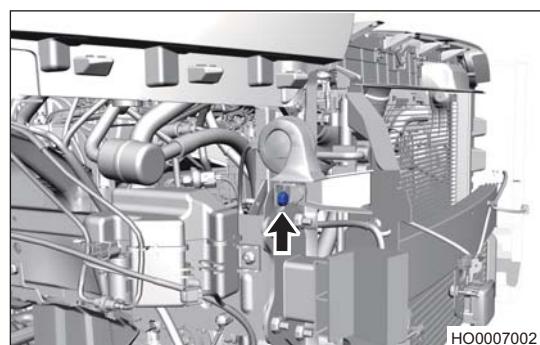
- (a) Disconnect the high pitched horn wire harness connector (arrow).



- (b) Remove fixing nut (arrow) from high pitched horn bracket, and remove pitched horn.

#### Tightening torque

$16 \pm 2 \text{ N}\cdot\text{m}$



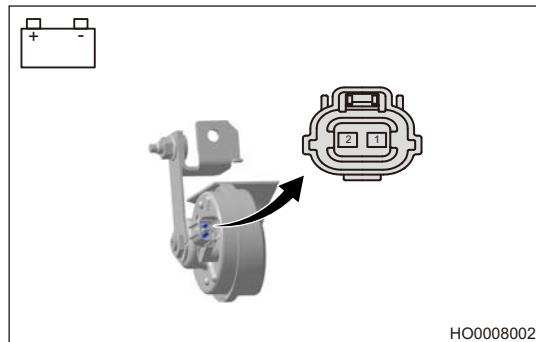
## Inspection

1. Check the high pitched horn.
  - (a) Apply battery voltage to high pitched horn and check the operation of high pitched horn.

Measurement Condition	Condition	Specified Condition
Battery positive (+) → Terminal 1	Always	Horn sounds
Battery negative (-) → Terminal 2		

**Hint:**

If result is not as specified, replace the high pitched horn.



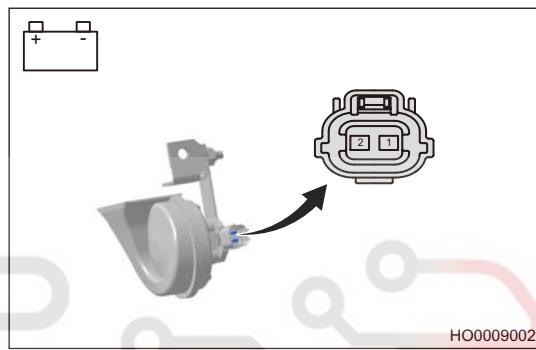
2. Check the low pitched horn.

- (a) Apply battery voltage to low pitched horn and check the operation of low pitched horn.

Measurement Condition	Condition	Specified Condition
Battery positive (+) → Terminal 1	Always	Horn sounds
Battery negative (-) → Terminal 2		

**Hint:**

If result is not as specified, replace the low pitched horn.



3. Check the wire harness.

Using a digital multimeter, check horn system wire harness for an open, short or ground failure. Replace them if necessary.

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### Installation

1. Installation is in the reverse order of removal.

**Caution:**

- Tighten fixing nut to the specified torque.
- Install connector in place.