

HORN SYSTEM

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دیجیتال خودرو

شرکت دیجیتال خودرو سامانه (مسئولیت محدود)

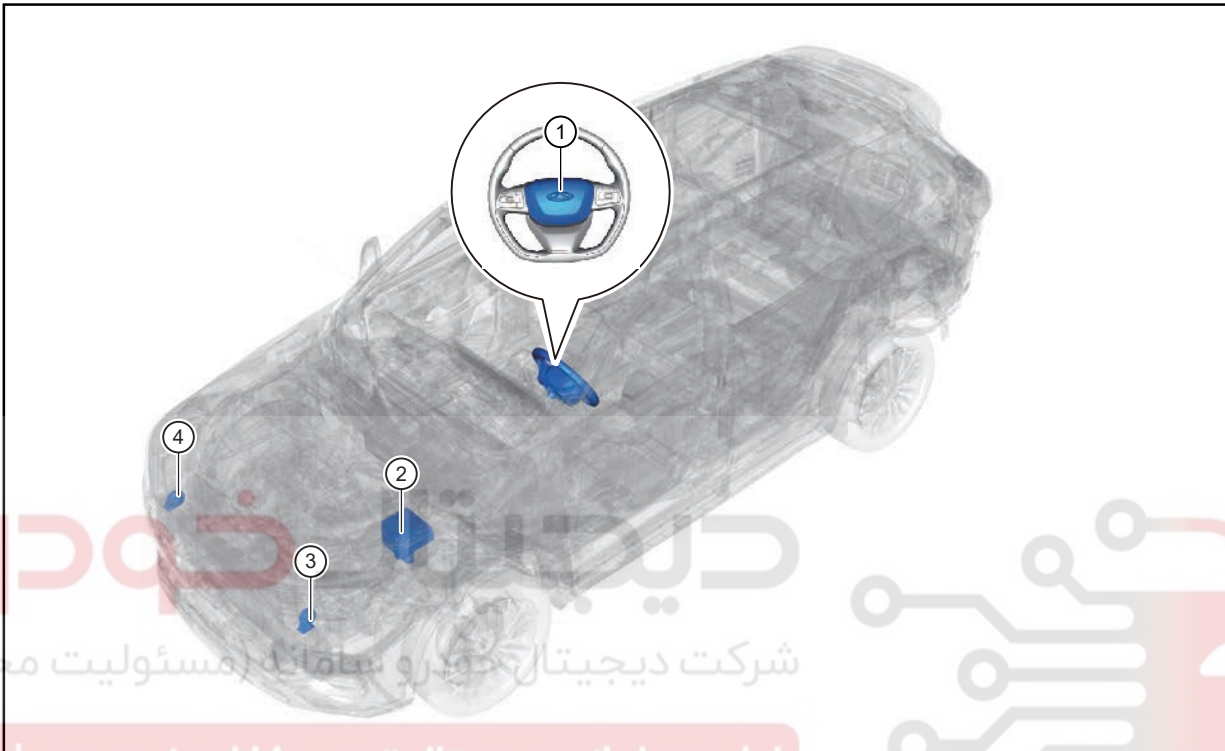
اولین سامانه دیجیتال تعمیرکاران خودرو در ایران



GENERAL INFORMATION

System Overview

Description

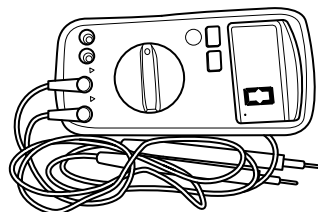


| | | | |
|---|-------------------|---|---------------------------------------|
| 1 | Horn Switch | 2 | Engine Compartment Fuse and Relay Box |
| 3 | High Pitched Horn | 4 | Low Pitched Horn |

This vehicle is equipped with dual electronic horn (high pitched, low pitched) system. Horn system consists of 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: Horn relay is located in engine compartment fuse and relay box.

Tool

| Tool Name | Tool Drawing |
|--------------------|---|
| Digital Multimeter |  RCH0002006 |

Torque specification

| Description | Torque (N•m) |
|-------------------------|--------------|
| Horn Bracket Fixing Nut | 16 ± 2 |

دیجیتال خودرو

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DIAGNOSIS & TESTING

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 (open) |
| | Connector (loose) |
| High pitched horn does not sound | High pitched horn is damaged |
| | Wire harness (open) |
| | Connector (loose) |
| 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 the horn button

| Measure | OK | NG |
|-----------------------------------|--|---|
| Press and release the horn button | Horn sounding when horn button is pressed, and horn stops sounding when horn button is released. | Horn does not sound and sounds abnormally |

Horn does not sound or sounds abnormally

| Symptom | Troubleshooting |
|--|---|
| Horn sounds hoarsely | 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 |
| Both high pitched and low pitched horns 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 |
| Horn does not sound when pressing button, and sounds when locking vehicle with remote controller | Check and repair horn button and its circuit |

Troubleshooting for Abnormal Horn Sound

1. If horn sound is obviously abnormal, perform the following routine inspection:
 - a. Check terminals for poor contact; repair any poor contact problem;
 - b. Check ground circuit; if there is poor contact, repair it;
 - c. Make sure horn assembly fixing bolt is properly fastened;
 - d. Make sure there is no contact between horn assembly and any other objects; if contact occurs, determine the correct position of other objects again, bend the horn assembly bracket if necessary, and operate horn to determine if the situation still exists.
2. If the situation is still obvious, perform the following specific inspection:
 - a. Determine the type of sound produced by horn: grave, sharp.
 - b. If it is obviously grave, it indicates that the current is too high and the horn assembly must be replaced.
 - c. If it is obviously sharp, foreign matters may attach to horn, remove horn assembly and check for foreign matters.
 - d. Remove any attached foreign matters and reinstall the horn assembly.

WARNING

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

Horn Fuse Inspection

1. Identify the horn fuse in engine compartment fuse and relay box.
2. Check the horn fuse.
 - a. Using a fuse puller, remove the horn fuse.
 - b. Check if fuse is blown. Replace fuse if it is blown.

CAUTION

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

Horn Relay Inspection

1. Identify the horn relay in engine compartment fuse and relay box.
2. Check the horn relay.
 - a. Remove the horn relay and press the multimeter to check.

| Multimeter Connection | Condition | Specified Condition |
|-------------------------|---|---------------------|
| Terminal 3 - Terminal 5 | When battery voltage is not applied between terminal 2 and terminal 2 | ∞ |
| 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 relay.

Horn Ground Point Inspection

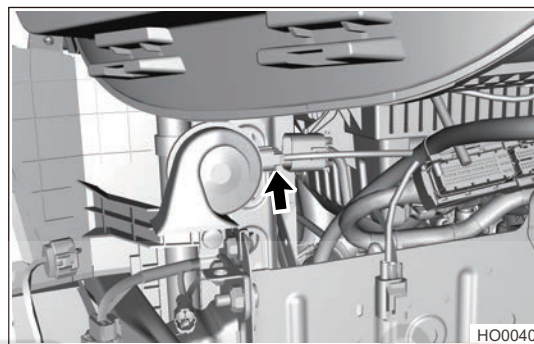
Ground position of horn is located in steering wheel, it is grounded over steering column and body, and the resistance cannot be greater than 1Ω .

ON-VEHICLE SERVICE

High Pitched Horn Assembly

Removal

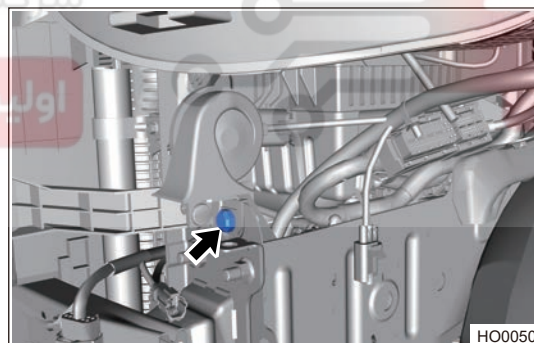
1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the front bumper assembly.
4. Disconnect the high pitched horn wire harness connector.



5. Remove high pitched horn fixing nut.

Tightening torque

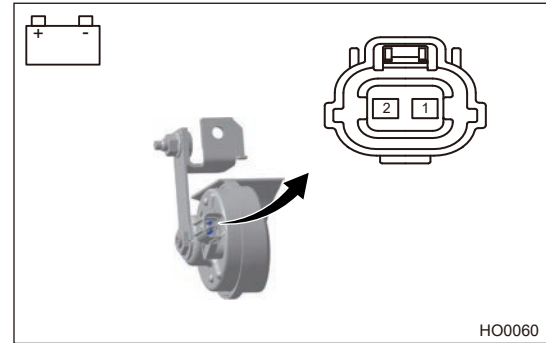
$16 \pm 2 \text{ N m}$



Inspection

1. Apply battery voltage to high pitched horn and check operation of high pitched horn.

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



Hint:

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

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

Installation

Caution

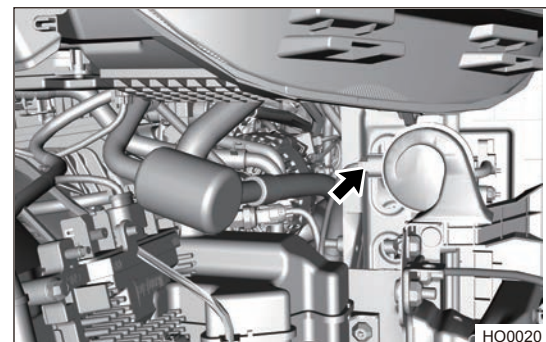
- Tighten the fixing nuts to the specified torque.
- Install connectors securely.

1. Installation is in the reverse order of removal.

Low Pitched Horn Assembly

Removal

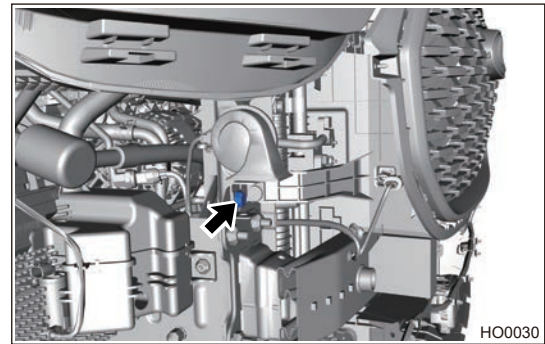
1. Turn off all electrical equipment and ENGINE START STOP switch.
2. Disconnect the negative battery cable.
3. Remove the front bumper assembly.
4. Disconnect the low pitched horn wire harness connector.



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- Remove low pitched horn fixing nut.

Tightening torque
 $16 \pm 2 \text{ N m}$



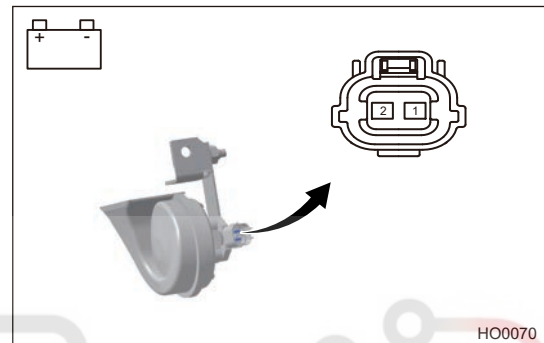
Inspection

- Apply battery voltage to low pitched horn and check operation of low pitched horn.

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

Hint:

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



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

Installation

Caution

- Tighten the fixing nuts to the specified torque.
- Install connectors securely.

- Installation is in the reverse order of removal.