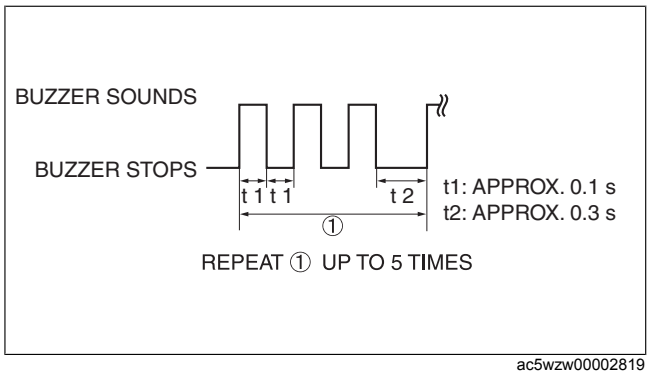
MALFUNCTION DETECTION SOUND ACTIVATED [PARKING SENSOR]

id0903z4829400

Note
- If there is any vehicle malfunction complaint lodged by a customer, perform FOREWORD [PARKING SENSOR] malfunction diagnosis according to the troubleshooting procedure.

Description
- Buzzer sounds after turning the parking sensor switch/indicator on.



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Possible malfunction
- Front ultrasonic sensor, front corner ultrasonic sensor, rear ultrasonic sensor, and rear corner ultrasonic sensor malfunction
  - — Dirt, damage (scratch, deformation), or freezing of sensor
  - — Connector connection malfunction
  - — Sensor malfunction
- Wiring harness malfunction
  - Front ultrasonic sensor and front corner ultrasonic sensor signal malfunction
    - — Open circuit or short to ground in wiring harness between parking sensor control module terminal I and front corner ultrasonic sensor (LH) terminal B
    - — Open circuit or short to ground in wiring harness between parking sensor control module terminal O and front corner ultrasonic sensor (RH) terminal B
    - — Open circuit or short to ground in wiring harness between parking sensor control module terminal K and front ultrasonic sensor (LH) terminal B
    - — Open circuit or short to ground in wiring harness between parking sensor control module terminal M and front ultrasonic sensor (RH) terminal B
  - Front ultrasonic sensor and front corner ultrasonic sensor ground system malfunction

    L.H.D.
    - — Open circuit in wiring harness between parking sensor control module terminal J and terminal A for each sensor

    R.H.D.
    - — Open circuit or short to ground in wiring harness between parking sensor control module terminal J and front corner ultrasonic sensor (LH) terminal A
    - — Open circuit or short to ground in wiring harness between parking sensor control module terminal P and front corner ultrasonic sensor (RH) terminal A
    - — Open circuit or short to ground in wiring harness between parking sensor control module terminal L and front ultrasonic sensor (LH) terminal A
    - — Open circuit or short to ground in wiring harness between parking sensor control module terminal N and front ultrasonic sensor (RH) terminal A
  - Rear ultrasonic sensor and rear corner ultrasonic sensor signal malfunction
    - — Open circuit or short to ground in wiring harness between parking sensor control module terminal E and rear corner ultrasonic sensor (LH) terminal B
    - — Open circuit or short to ground in wiring harness between parking sensor control module terminal G and rear corner ultrasonic sensor (RH) terminal B
    - — Open circuit or short to ground in wiring harness between parking sensor control module terminal A and rear ultrasonic sensor (LH) terminal B
    - — Open circuit or short to ground in wiring harness between parking sensor control module terminal C and rear ultrasonic sensor (RH) terminal B
  - Rear ultrasonic sensor and rear corner ultrasonic sensor ground system malfunction
    - — Open circuit in wiring harness between parking sensor control module terminal B and terminal A for each sensor
- Parking sensor control module malfunction

Diagnostic Procedure

Step	Inspection		Action
1	**IDENTIFY MALFUNCTION LOCATION** • Verify that the buzzer sounds from the parking sensor buzzer on either the front or rear. • Does the buzzer sound from the front parking sensor buzzer?	Yes	Go to the next step.
		No	Go to Step 7.
2	**VERIFY FRONT ULTRASONIC SENSOR CONDITION** • Visually inspect the front ultrasonic sensor condition. • Is there any dirt, damage (scratch, deformation), and freezing on the sensor?	Yes	Remove dirt, and then go to the next step.
		No	Go to the next step.
3	**INSPECT CONNECTOR CONNECTION CONDITION** • Verify the connector connection conditions of the parking sensor control module, front ultrasonic sensor short-cord, and front ultrasonic sensor. • Are the connection conditions normal?	Yes	Go to the next step.
		No	Repair or replace the malfunctioning part.
4	**INSPECT WIRING HARNESS BETWEEN PARKING SENSOR CONTROL MODULE AND FRONT ULTRASONIC SENSOR FOR OPEN CIRCUIT** • Switch the ignition off (LOCK). • Disconnect the negative battery cable. (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5 (WITHOUT i-stop)].) (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-D 2.2].) • Disconnect the connectors of the front ultrasonic sensor and parking sensor control module. • Inspect for continuity between the following wiring harnesses: **L.H.D.** — Parking sensor control module terminal I and front corner ultrasonic sensor (LH) terminal B — Parking sensor control module terminal O and front corner ultrasonic sensor (RH) terminal B — Parking sensor control module terminal K and front ultrasonic sensor (LH) terminal B — Parking sensor control module terminal M and front ultrasonic sensor (RH) terminal B — Parking sensor control module terminal J and terminal A for each sensor **R.H.D.** — Parking sensor control module terminal I and front corner ultrasonic sensor (LH) terminal B — Parking sensor control module terminal O and front corner ultrasonic sensor (RH) terminal B — Parking sensor control module terminal K and front ultrasonic sensor (LH) terminal B — Parking sensor control module terminal M and front ultrasonic sensor (RH) terminal B — Parking sensor control module terminal J and front corner ultrasonic sensor (LH) terminal A — Parking sensor control module terminal P and front corner ultrasonic sensor (RH) terminal A — Parking sensor control module terminal L and front ultrasonic sensor (LH) terminal A — Parking sensor control module terminal N and front ultrasonic sensor (RH) terminal A • Is there continuity?	Yes	Go to the next step.
		No	Repair for an open circuit in the wiring harness.

Step	Inspection		Action
5	**INSPECT WIRING HARNESS BETWEEN PARKING SENSOR CONTROL MODULE AND FRONT ULTRASONIC SENSOR FOR SHORT TO GROUND** • Inspect for continuity between the following wiring harnesses: — Parking sensor control module terminal I and ground — Parking sensor control module terminal O and ground — Parking sensor control module terminal K and ground — Parking sensor control module terminal M and ground • Is there continuity?	Yes	Repair or replace the wiring harness.
		No	Go to Step 10.
6	**VERIFY REAR ULTRASONIC SENSOR CONDITION** • Visually inspect the rear ultrasonic sensor condition. • Is there any dirt, damage (scratch, deformation), and freezing on the sensor?	Yes	Remove dirt, then go to the next step.
		No	Go to the next step.
7	**INSPECT CONNECTOR CONNECTION CONDITION** • Verify the connector connection conditions of the parking sensor control module, rear ultrasonic sensor short-cord, and rear ultrasonic sensor. • Are the connection conditions normal?	Yes	Go to the next step.
		No	Repair or replace the malfunctioning part.
8	**INSPECT WIRING HARNESS BETWEEN PARKING SENSOR CONTROL MODULE AND REAR ULTRASONIC SENSOR FOR OPEN CIRCUIT** • Switch the ignition off (LOCK). • Disconnect the connectors of the rear ultrasonic sensor and parking sensor control module. • Inspect for continuity between the following wiring harnesses: — Parking sensor control module terminal E and rear corner ultrasonic sensor (LH) terminal B — Parking sensor control module terminal G and rear corner ultrasonic sensor (RH) terminal B — Parking sensor control module terminal A and rear ultrasonic sensor (LH) terminal B — Parking sensor control module terminal C and rear ultrasonic sensor (RH) terminal B — Parking sensor control module terminal B and terminal A for each sensor • Is there continuity?	Yes	Go to the next step.
		No	Repair for an open circuit in the wiring harness.
9	**INSPECT WIRING HARNESS BETWEEN PARKING SENSOR CONTROL MODULE AND REAR ULTRASONIC SENSOR FOR SHORT TO GROUND** • Inspect for continuity between the following wiring harnesses: — Parking sensor control module terminal E and ground — Parking sensor control module terminal G and ground — Parking sensor control module terminal A and ground — Parking sensor control module terminal C and ground • Is there continuity?	Yes	Repair or replace the wiring harness.
		No	Go to the next step.
10	**DETERMINE IF MALFUNCTION CAUSE IS ULTRASONIC SENSOR OR PARKING SENSOR CONTROL MODULE** • Reconnect all the disconnected connectors. • Connect the negative battery cable. (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5].) (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-G 2.0, SKYACTIV-G 2.5 (WITHOUT i-stop)].) (See NEGATIVE BATTERY CABLE DISCONNECTION/CONNECTION [SKYACTIV-D 2.2].) • Switch the ignition ON (engine off or on). • Turn the parking sensor switch/indicator on. • Refer to the parking sensor control module inspection and verify the generated pulse for each sensor. (See PARKING SENSOR CONTROL MODULE INSPECTION.) • Can the generated pulse be verified?	Yes	Replace the parking sensor control module. (See PARKING SENSOR CONTROL MODULE REMOVAL/INSTALLATION.)
		No	Replace the ultrasonic sensor. (See FRONT ULTRASONIC SENSOR REMOVAL/INSTALLATION.) (See REAR ULTRASONIC SENSOR REMOVAL/INSTALLATION.)