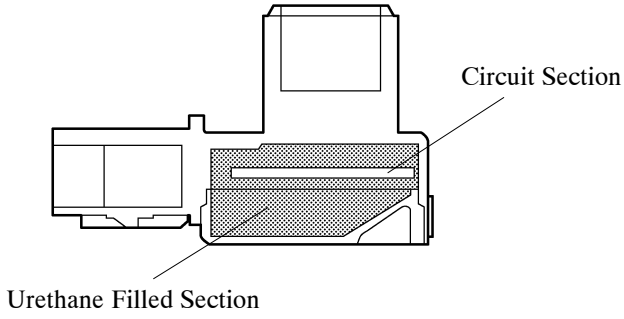
■CONSTRUCTION AND OPERATION

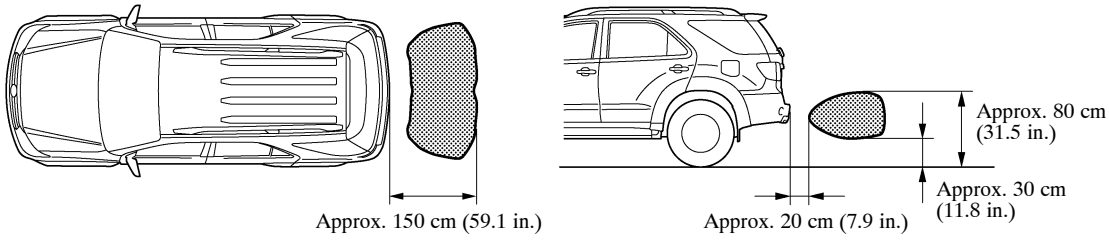
1. Ultrasonic Sensor

Two ultrasonic sensors are provided on the back of the vehicle. Each ultrasonic sensor consists of a sensor portion that transmits and receives ultrasonic waves and a circuit section that amplifies them. The ultrasonic sensor outputs the ultrasonic transmission and reception signals to the clearance warning ECU.



00JBE08Y

▶ Detection Range ◀



00MBE32Y

BE

2. Clearance Warning Buzzer

- The clearance warning buzzer is controlled by the clearance warning ECU.
- As the table below indicates, the clearance warning buzzer and the indicator light operate in the same cycle in accordance with the distance to the obstacle, in order to inform the driver of the distance between the vehicle and the obstacle.

Obstacle Distance [cm (in.)]	Clearance Warning Buzzer	
	ON Time (ms)	OFF Time (ms)
Approx. 150 (59.1) ~ 100 (39.4)	150	150
Approx. 100 (39.4) ~ 50 (16.7)	75	75
Approx. 50 (16.7) or less	Continuous	0

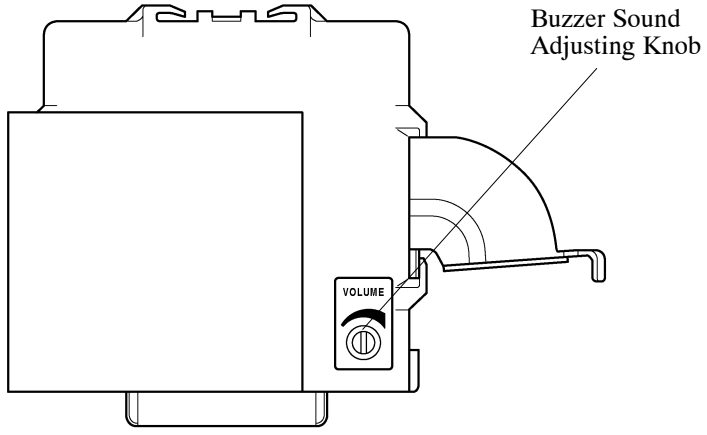
3. Clearance Warning ECU

General

The clearance warning ECU provides the following functions:

- Switching the transmission and reception of ultrasonic signals.
- Processing received signals.
- Determining the presence absence of obstacles.
- Controlling the actuation of the clearance warning buzzer and indicator light.
- Detecting whether there is an open circuit in the ultrasonic sensors.

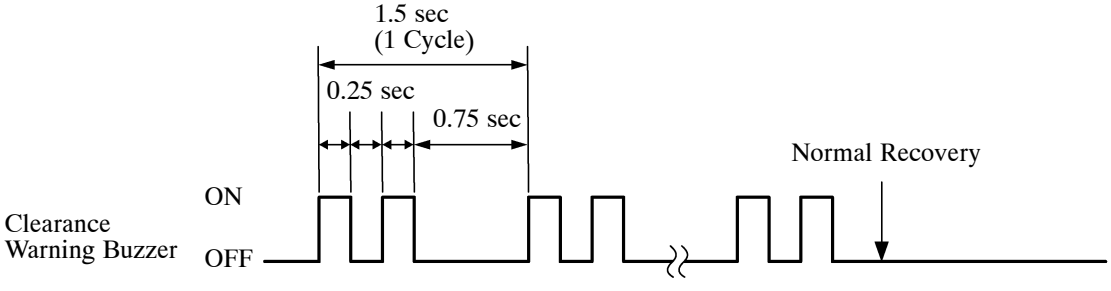
In addition, it contains a buzzer sound adjusting knob through which the sound volume of the clearance warning buzzer can be adjusted as desired. The sound volume is set at the maximum level as the default.



00MBE31Y

Initial Check (Self-diagnosis)

- After the TOYOTA parking assist-sensor system has started its activation, it sounds the buzzer for 1.0 second, while checking for malfunction in the ultrasonic sensors.
- If the system cannot activate its detection function due to a malfunction in an ultrasonic sensor, it alerts the driver of the malfunction by sounding the clearance warning buzzer until the malfunction of the ultrasonic sensor is eliminated.



D008BE20