

SYSTEM DESCRIPTION

1. GENERAL

- (a) This system uses ultrasonic sensors to detect any obstacles at the corners, the front or the rear of the vehicle. The system then informs the driver of the distance between the sensors and the obstacles, as well as their positions by displaying them on the multi-information display in the combination meter and by sounding a buzzer. This information also appears on the multi-display on the models equipped with a LEXUS navigation system.

2. FUNCTIONS OF COMPONENTS

Components	Function
Ultrasonic Sensor	Ultrasonic sensor consists of a sensor portion that transmits and receives ultrasonic waves and a pre-amplifier that amplifies them. The ultrasonic sensor outputs the ultrasonic transmission and reception signals to the clearance warning ECU Assy.
Clearance Sonar Main Switch	Turns the clearance sonar system on and off.
Buzzer (No.1 & No.2)	Emits an intermittent sound to inform the driver that the ECU has detected an obstacle within a prescribed range.
Clearance Warning ECU Assy	Judges the approximate distance between the vehicle and the obstacle based on the signals from the ultrasonic sensors and sends the display signal to the display panel and buzzer signal to the buzzer.
Gateway ECU	Sends the display signal of the clearance warning ECU Assy to the combination meter and the multi-display. The signal for the multi-display is output by converting it to an AVC-LAN signal.
Combination Meter (Multi-information Display) & Multi-display	Displays the location of the obstacle and the approximate distance between the vehicle and the obstacle. On the multi-display, the sound volume, buzzer sounding distance, and sensor operating condition can be set on the setup screen for this system.

3. OPERATION EXPLANATION

- (a) The clearance warning ECU Assy determines whether the clearance sonar system should be operated or not based on the clearance sonar main switch, the shift position, the vehicle speed and the engine speed signals.
- (b) When the system operates, the clearance warning ECU transmits ultrasonic waves from the ultrasonic sensor. If these waves encounter an obstacle within the sensor's range, the waves are reflected back to the sensor, which transmits them to the clearance warning ECU Assy.
- Based on this information, the clearance warning ECU Assy sends signals to the multi-information display, the multi-display and the clearance warning buzzer. The appropriate distance between the vehicle and the obstacle is then displayed, and the buzzer sounds.

HINT:

Refer to "OPERATION CHECK" for detailed operation (see page 05-2218).