

# OWNER'S MANUAL

## 1.0 INTRODUCTION

Microsensors are the 'Third Generation' of ultrasonic sensors that are 19mm in diameter making it the smallest today. The 'Third Generation Microsensor' utilises the most advanced ultrasonic ASYMMETRICAL sensing technology used in the latest Mercedes Benz. The microsensor has super-wide detecting capabilities that senses an extra wide angle of 160 degrees horizontally and 60 degrees vertically. This technology increases the detection angle by 100% compared with other conventional systems. The micro-sized sensors are designed to blend into all cars and can be spray painted for that original factory fitted look.

## 2.0 PRODUCT FUNCTIONS

The device has a choice of two or four ultrasonic sensors which is fitted at the rear bumper. The system will only be activated when the reverse gear is engaged and indicated by a single audible tone. The frequency of the audible beeping tone will alert the driver of the any presence of object/s and the distance behind the vehicle.

## 3.0 BENEFITS AND ADVANTAGES

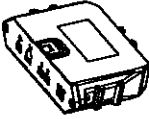





The microsensor over other systems in the market is that the microsensor work in ultrasonic ASYMMETRICAL sensing technology.

- i) Asymmetrical detection technology.
- ii) Small sensor diameter of 19mm.
- iii) Flush and paint able sensor surface area.
- iv) Prevents and Reduces accidents.
- v) Reduces stress when reversing.
- vi) Helps getting in and out of tight parking spots.

## 4.0 SPECIFICATIONS

Power requirement	: DC 10V ~ 25V
Max. power consumption	: 0.5W
Max. current consumption	: 20mA
Operating temperature	: -20°C ~ 70°C
Storage temperature	: -30°C ~ 80°C
Operating humidity	: Up to 95%
Detection distance	: Up to 5.5 Ft.
Transmitting frequency	: 40 kHz
Buzzer frequency	: 1 kHz
Buzzer sound pressure level	: 80db at 10cm
System response time	: 0.12 sec

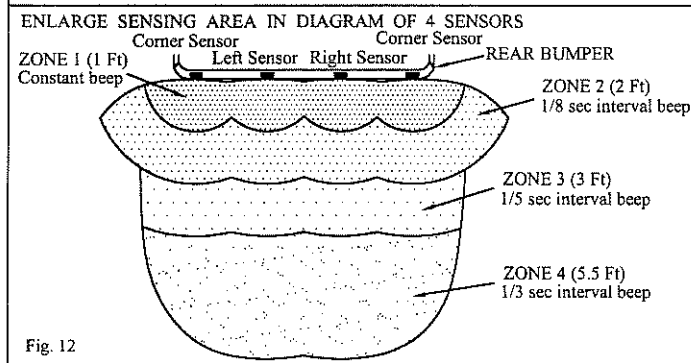
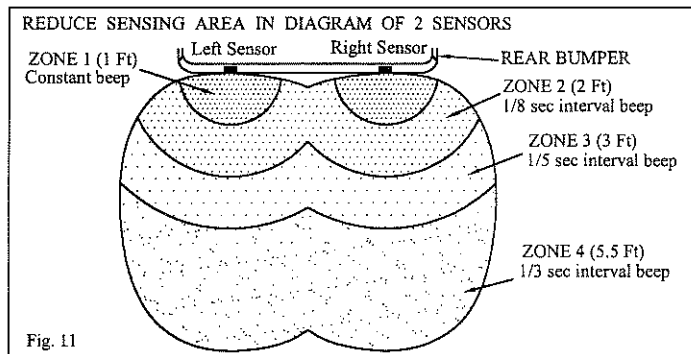
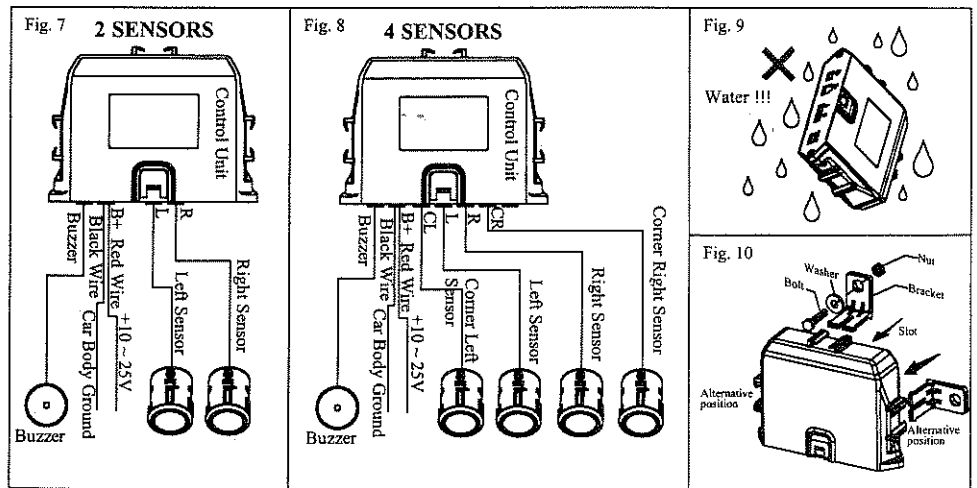
## 5.0 PART LISTING

Part Name: Control Unit  Fig. 1	Part Name: Power Cable  Fig. 2	Part Name: Buzzer Unit  Fig. 3
Part Name: Sensor Unit  Fig. 4	Part Name: Micro Sensor Bracket (optional)  Fig. 5	Part Name: Module Bracket, Screw, Nut & Cable Ties  Fig. 6

## 6.0 Reverse Audible Warning Status :

<u>Zone</u>	<u>Obstacle Distance</u>	<u>Tone</u>
Zone 4 :	distance between 3 Ft to 5.5 Ft	3 beeps / sec.
Zone 3 :	distance between 2 Ft to 3 Ft	5 beeps / sec.
Zone 2 :	distance between 1 Ft to 2 Ft	8 beeps / sec.
Zone 1 :	distance between 0.1 Ft to 1 Ft	non-stop (constant) beep

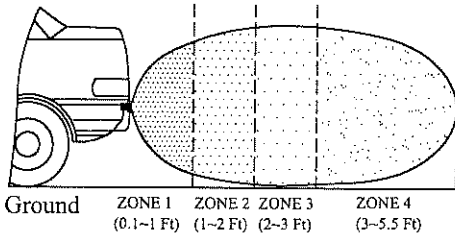
7.0 WIRING DIAGRAM



NOTE: Square object is used to test the Horizontal coverage area of the sensor.  
 The dimensions of the square object is 10cm X 100cm.  
 Small and fine objects with poor reflectance may not be detected.

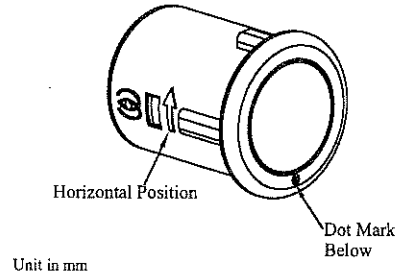
**VERTICAL SENSING AREA**

Fig. 13



**Micro Sensor Side View Dimensions**

Fig. 14



**A) 2 SENSORS INSTALLATION**

Power Cable :  
 i) Red (+) to reverse lamp positive terminal  
 ii) Black (-) to ground (Car body)

**B) 4 SENSORS INSTALLATION**

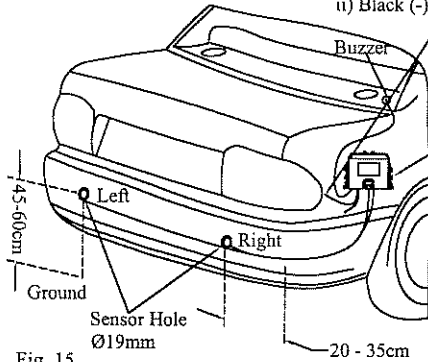


Fig. 15

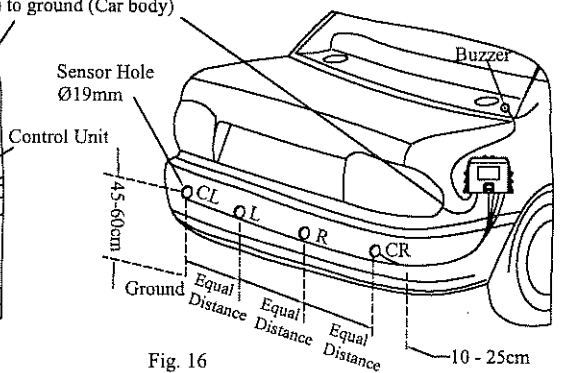


Fig. 16

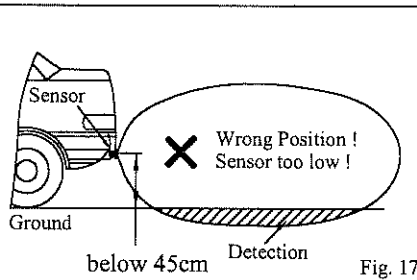


Fig. 17

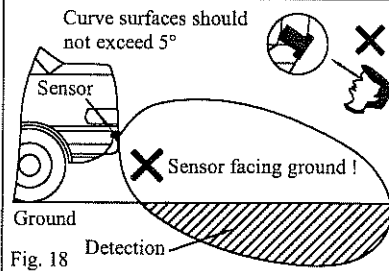


Fig. 18

For Fig. 17, 18 & 20. False alarm will occur if the sensors are installed lower than 45cm causing the sound wave to detect the ground.

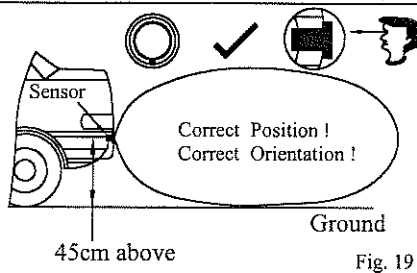


Fig. 19

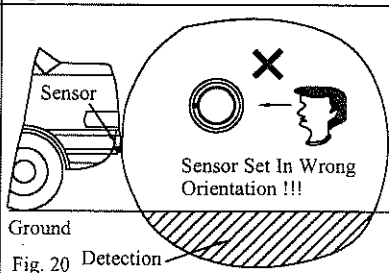
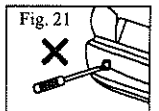


Fig. 20



Do not apply strong force to the sensors !

### 8.0 FOR 2 SENSORS UNIT INSTALLATION PROCEDURES

Procedures on the positioning and mounting of sensors depends on the types of cars and shape of rear bumpers.

1. Measure from both corners of the rear bumper and mark a horizontal distance of 20cm ~ 35cm for both left and right sensors. (Fig. 15)
2. Measure from the ground level a distance of 45cm ~ 60cm to indicate the final position of the sensors. (Fig. 15)

**Important !** The preset of the sensitivity for the sensor height is 45cm above the ground.  
To avoid false alarm, please install the sensors above 45cm from ground.  
(Fig. 17 & Fig.19)

3. Ensure that the bumper surface where the sensors are to be mounted is flat. If not, the curve surface should not be more than 5 degrees facing to the ground. (Fig. 18)
4. Drill two 19mm diameter through holes on the bumper markings. (Fig. 15)
5. Insert the left and right sensors into the 19mm diameter sensor holes respectively. (Fig. 15)

**Important !** Ensure that the sensors are mounted at the correct position. The dot mark of the sensor should always be in the bottom position as shown in Fig. 19

6. Use cable tie to secure and route the sensor cables along the internal bumper wall. When routing the sensor cables, avoid sharp bends, edges and loose routings.
7. Insert the sensor cable connectors to the control unit headers respectively. Do not swop the sensor cable connection. (Fig. 7)

### 9.0 FOR 4 SENSORS UNIT INSTALLATION PROCEDURES

Procedures on the positioning and mounting of sensors depends on the types of cars and shape of rear bumpers.

1. Measure from both corners of the rear bumper and mark a horizontal distance of 10cm ~ 25cm for both corner sensors CL and CR right ( Fig. 16)
2. Mark sensor left (L) and sensor right (R) which have equal distance as shown in Fig. 16.
3. Measure from the ground level a distance of 45cm ~ 60cm to indicate the final position of the sensors. (Fig. 16)

**Important !** The preset of the sensitivity for the sensor height is 45cm above the ground.  
To avoid false alarm, please install the sensors above 45cm from ground.  
(Fig. 17 & Fig.19)

4. Ensure that the bumper surface where the sensors are to be mounted is flat. If not, the curve surface should not be more than 5 degrees facing to the ground. (Fig. 18)
5. Drill four 19mm diameter through holes on the bumper markings.
6. Insert the left, right, corner left and corner right sensors into the 19mm diameter sensor holes respectively. (Fig.16)

**Important !** Ensure that the sensors are mounted at the correct position. The dot mark of the sensor should always be in the bottom position as shown in Fig. 19

7. Use cable tie to secure and route the sensor cables along the internal bumper wall. When routing the sensor cables, avoid sharp bends, edges and loose routings.
8. Insert the sensor cable connectors to the control unit headers respectively. Do not swop the sensor cable connection. (Fig. 8)

## 14.0 MICRO SENSOR BRACKETS INSTALLATION PROCEDURES (For 2 Sensors Only)

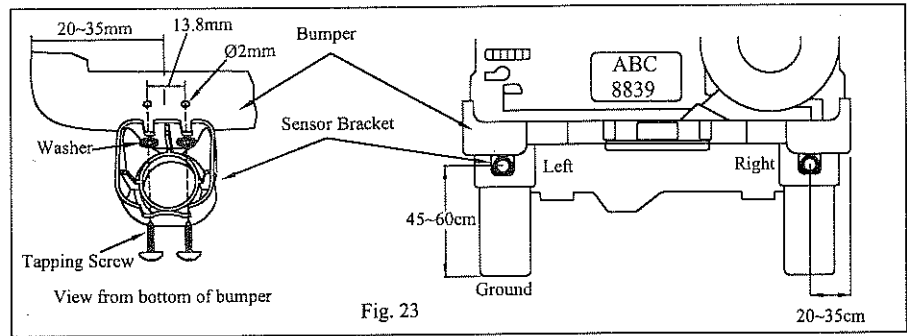


Fig. 23

Procedures on the positioning and mounting of sensor brackets depends on the types of cars and rear bumpers.

1. Measure from both corners of the rear bumper and mark a horizontal distance of 20cm ~ 35cm for both left and right sensors. (Fig. 23)
2. Measure from the ground level a distance of 45cm ~ 60cm to indicate the final position of the sensors. (Fig. 23)

**Important !** The preset of the sensitivity for the sensor height is 45cm above the ground. To avoid false alarm, please install the sensors above 45cm from ground. (Fig. 17 & Fig.19)

3. Ensure that the bumper surface where the sensors are to be mounted is flat and horizontal. Otherwise the sensor brackets must be installed 8 degrees facing up from the ground. (Fig. 25)
4. Drill two 2mm diameter through holes on the bumper marking. The distance between the holes is 13.8mm. (Fig. 23)
5. Use tapping screws to secure the sensor brackets to the rear bumper. (Fig. 23)
6. Insert the left and right sensors into the sensor brackets respectively. (Fig. 23 & Fig. 24)

**Important !** Ensure that the sensors are mounted at the correct position. The dot mark of the sensor should always be in the horizontal position as shown in Fig. 18

7. Use cable tie to secure and route the sensor cables along the internal bumper wall. When routing the sensor cables, avoid sharp bends, edges and loose routings.
8. Connect the sensor cable connectors to the control unit headers respectively. Do not swop the sensor cable connection. (Fig. 7)

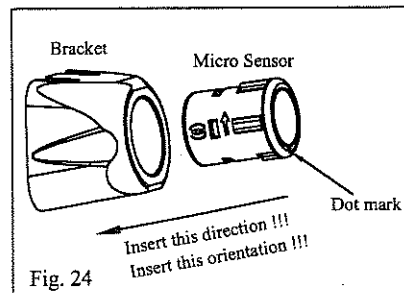


Fig. 24

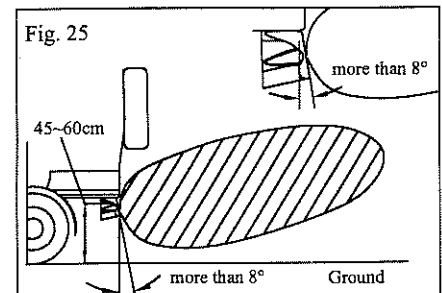


Fig. 25

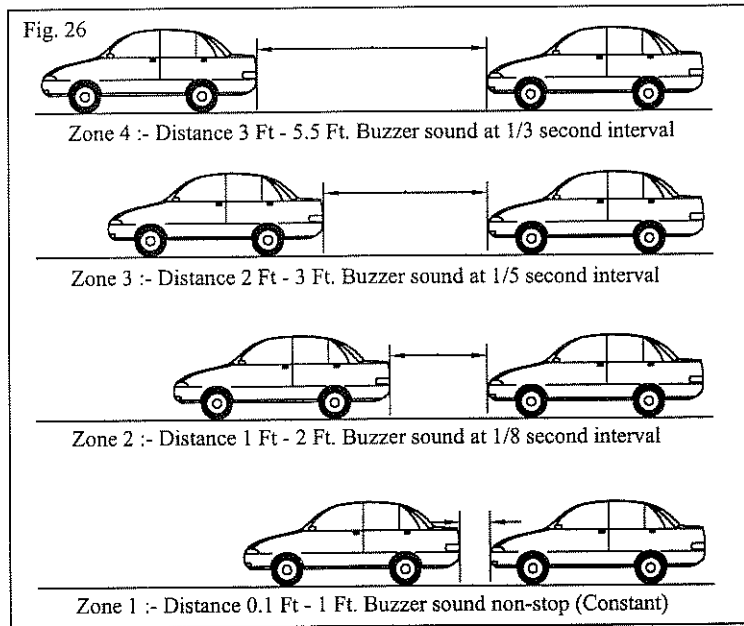
Note : It is not recommended to use the brackets if the bottom edge of the bumper is less than 45cm above the ground.

## 15.0 OPERATION AND TESTING

1. Reverse your car towards another car/wall to a distance about 7 ft apart.
2. Engage reverse gear, a single audible beep should be heard indicating the system is activated.
3. Reverse your car slowly towards the car/wall.
4. When the car/wall is within the outermost detection zone, the buzzer sound 3 beeps / sec indicating the car/wall behind your car is within 3ft to 5.5ft.  
Note: Small and fine objects may not be detected at this zone.
5. When the distance apart is within 2ft to 3ft, the buzzer sound 5 beeps / sec.
6. When the distance apart is within 1ft to 2ft, the buzzer sound 8 beeps / sec.
7. Continue to reverse your car until you hear a continuous BEEP, stop your car immediately as the distance apart is less than 1ft.

Note : Maintain a low speed below 5 km/hr when approaching obstacle/s.

Fig. 26



### Important (Special Note To Owner)

- This device is designed to aid drivers when reversing and during reverse parking. It should not be considered as a safety device for any other purpose. Proper driving technique and the use of mirrors are always essential.
- The manufacturer, distributor and dealer shall not be held liable for any unforeseen accident.
- Detection of human beings and animals are not advisable.

NOTE : ALL SPECIFICATIONS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE