

REAR OBSTACLE SENSING SYSTEM (ROSS™)

INSTALLATION INSTRUCTIONS STANDARD SENSITIVE



CONTENTS

Parts List.....	2
Parts Diagram.....	2
Before You Start.....	3
Installation Overview.....	3
Application Guide.....	8
Vehicle Application Instructions.....	10

INSTALLATION INSTRUCTIONS (PART A)

Additional Vehicle Application Instructions available in Form #4527: Installation Instructions (PART B)

PARTS LIST

Item	Quantity	Part Number	Description
1	1	250-2304	Sensor/Module Assembly- 250-1594/250-1665
1	1	250-2305	Sensor/Module Assembly- 250-1594A/250-1665A
2	1	250-2276	Audio Control Module
3	1	250-2277	LED Extension Harness
4	1	250-2278	LED Assembly
5	1	250-2279	Hardware Package; Cable Ties, Screw, Washer, Nut, Scotch Lock, Bolts.....
6	1	250-4312	Audio Control Extension Harness

PARTS DIAGRAM

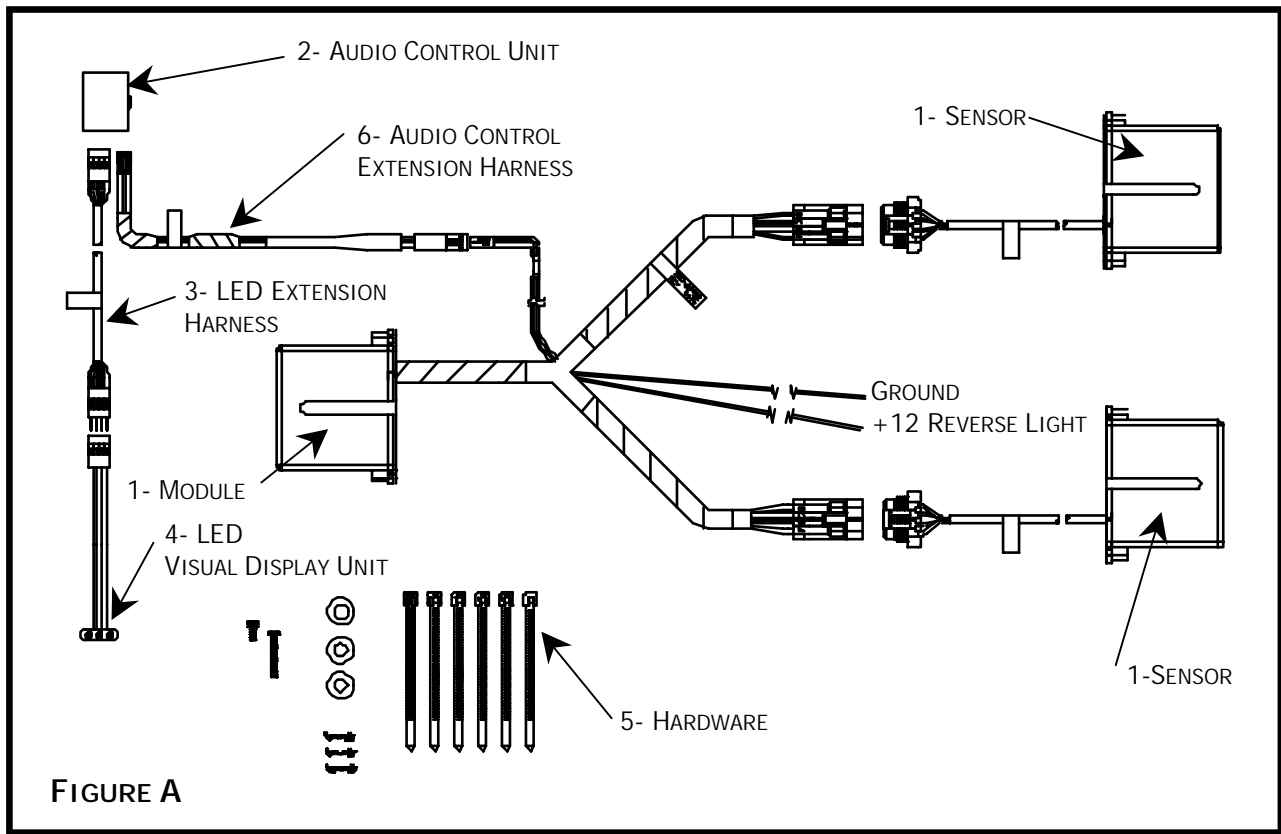


FIGURE A

BEFORE YOU START

1. **Before beginning installation** familiarize yourself with the installation instructions and the obstacle sensing system components.

To ensure your safety:

- A) Make sure your vehicle is in "PARK".
- B) Apply the emergency brake.
- C) Place wheel blocks behind the rear tires.
- D) If you lift the vehicle, ensure that you use jack stands and follow the vehicle's manufacturer lifting instructions.
- E) Read this manual before starting.

INSTALLATION OVERVIEW

To install the (ROSS™), you will need to do the following steps:

Step 1: Sensor location.

Step 2: Sensor Mounting.

Step 3: Module Mounting. Mount the ROSS™ module near the rear bumper of the vehicle.

Step 4: Wiring harness routing. Connect each sensor wiring harness to the module wiring Harness mating connector.

Step 5: Audio Control Unit Mounting. Mount the audio control unit inside the vehicle near the Partial shelf or near the rear window (Audio Control Extension Part No. is 250-4312 – **this is an additional accessory**).

Step 6: (LED) Display Mounting. Mount the LED display unit near or on the right side of the rear window of the vehicle (LED Extension Part Number is 250-2277– **this is an additional accessory**).

Step 7: Testing and troubleshooting the system.

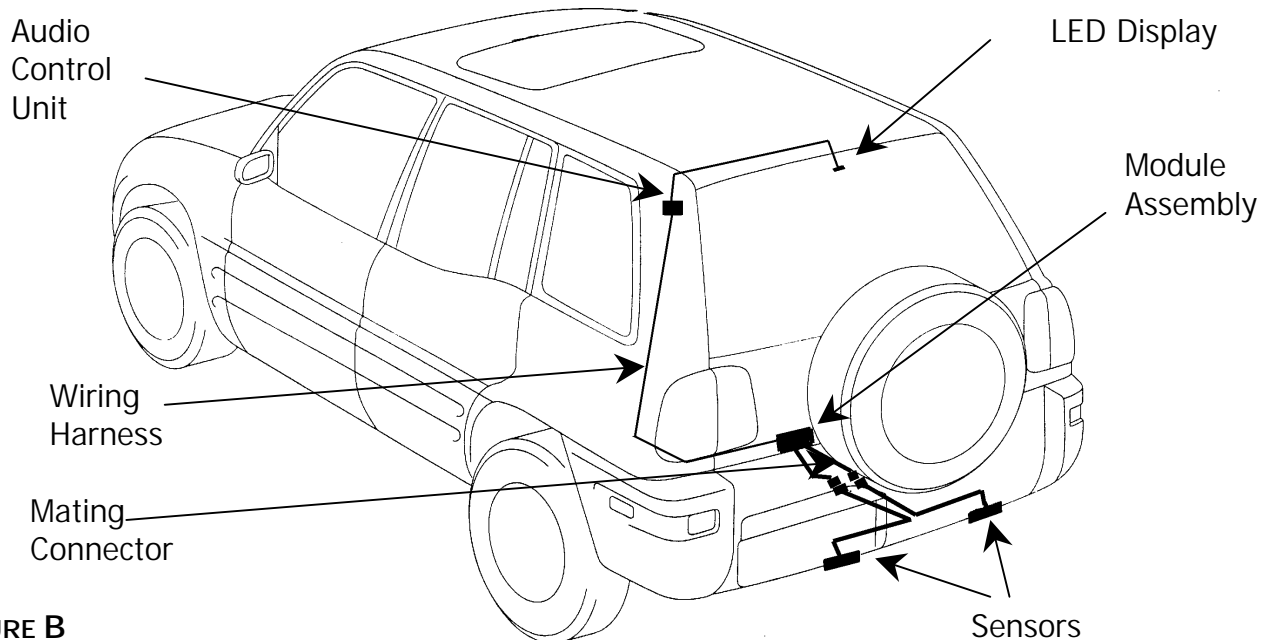


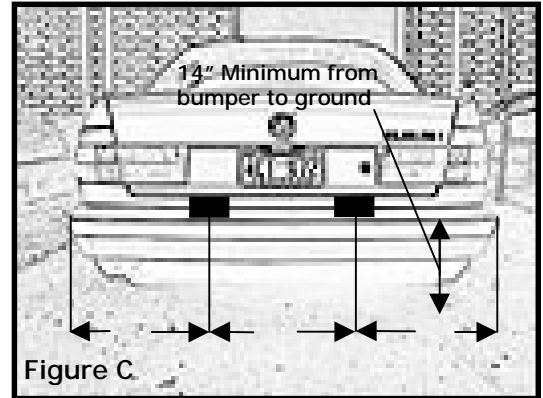
FIGURE B

INSTALLATION OVERVIEW

To install the (ROSS™), you will need to do the following steps:

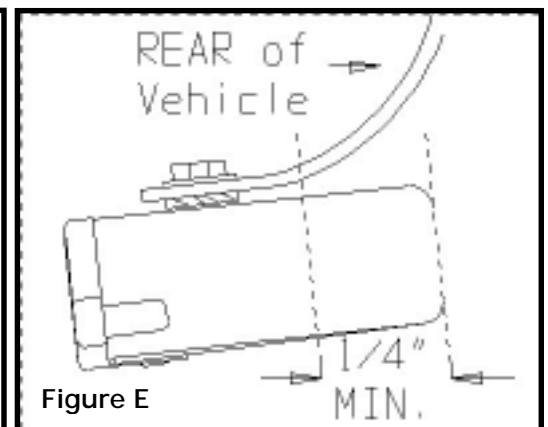
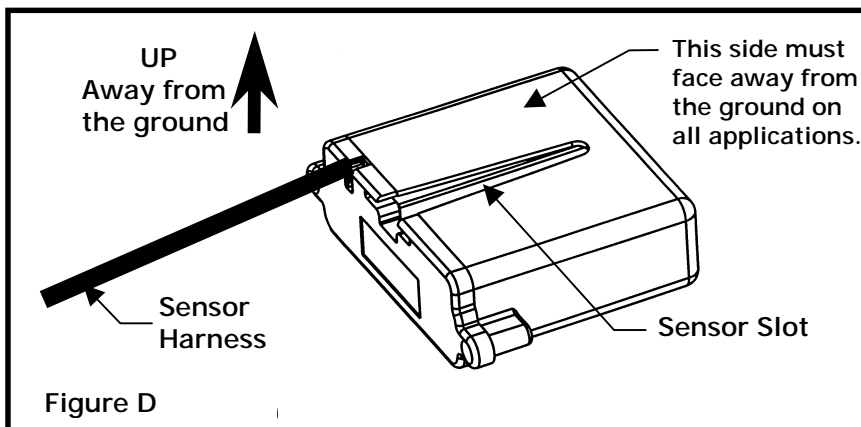
Step 1: Sensor location.

1. The optimal mounting location for sensors, is to place the sensors at 1/3 increments as shown in **Figure C**.
2. Before installing the ROSS™, make sure the vehicle's rear bumper is more than 14" above the ground.
3. The sensors should be mounted parallel to the ground surface and facing the rear of the vehicle. For vehicles equipped with a hitch, it is not recommended to mount the sensors below the hitch. Mounting the sensors below the hitch could cause damage to the sensors.
4. Mount the sensors at least 5" away from the muffler tailpipe and/or vehicle's moving components. Moving items will cause false alarms.
5. Be aware that if the sensor face extends too much past the bumper fascia, damage to the sensors may occur.



Step 2: Sensor Mounting.

1. Sensors must be mounted with the slot up. **Figure D**.
2. For under bumper installations, the face of the sensor must extend at least 1/4" or more past the point of sensor/bumper contact (**Figure E**).
3. At all times, make sure the sensor is firmly tightened and cannot be moved or rotated. Use two bolts if necessary. Use the bolt attachment method or the bracket attachment method to secure sensors to bumper (**Figures 1 and 2** on page 5).
4. Refer to the application guide for vehicle specific installation methods. Always use prescribed methods where available.
5. For behind the bumper applications make sure the sensor face is past the metal support beam of the plastic fascia.



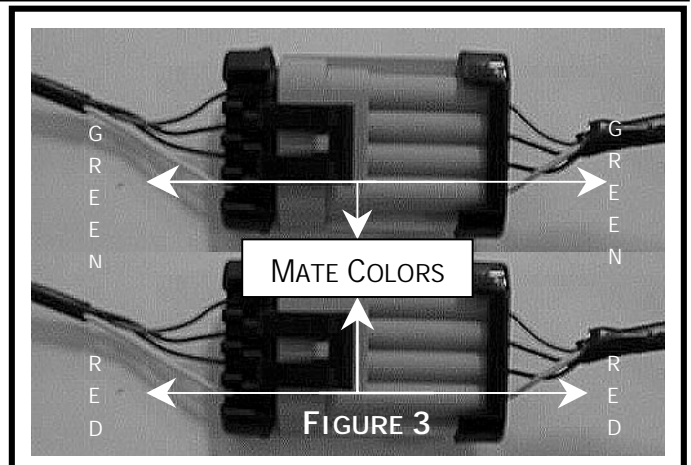
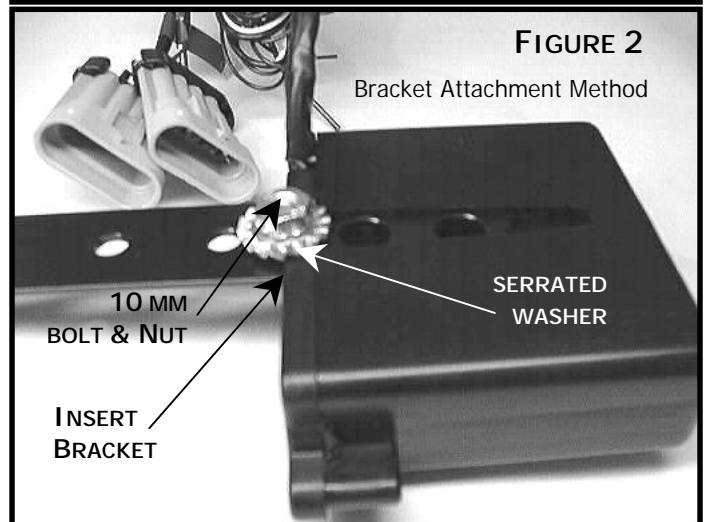
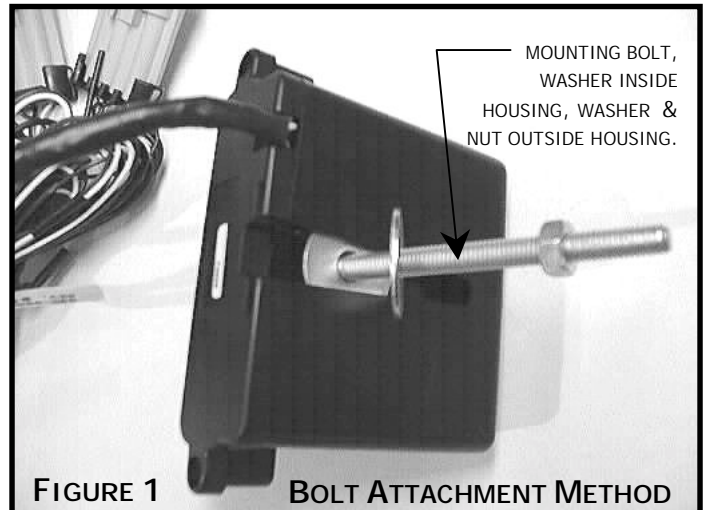
INSTALLATION

STEP 3: MODULE MOUNTING

Objective: Mount module assembly under vehicle near rear bumper.

Tasks:

- 1- The module is a waterproof assembly, so it could be mounted outside the vehicle near an existing hole at the rear of the vehicle.
- 2- Locate an existing hole behind the bumper area or drill $\frac{1}{4}$ " hole behind the bumper and secure module assembly using the bolt attachment method or the bracket attachment method to install the module (Figures 1 & 2).
- 3- Position the Module Assembly with the bracket or the bolt over an existing hole or the bumper metal beam using the enclosed self-tapping/drilling screws supplied in hardware kit.
- 4- Connect the sensor harness 4-pin connector to the module mating connector. Make sure to mate the connector with the same colors together. GREEN to GREEN tape marked connector and RED to RED tape marked connector as shown in Figure 3.
- 5- Secure all harnesses with cable ties
- 6- Route the 2-pin connector from the module/harness assembly to inside the vehicle and connect it to the audio control unit.



NOTE: WHEN CONNECTING THE SENSOR HARNESS TO THE MODULE HARNESS, MAKE SURE TO MATE THE HARNESS WITH THE SAME COLOR TAPE, **RED TO RED AND GREEN TO GREEN.**

NOTE: KEEP MODULE HARNESS AWAY FROM SHARP, HOT OR MOVING OBJECTS.

INSTALLATION

STEP 4: WIRING HARNESS ROUTING

Objective: Connect the remaining two wires from the module to the vehicle tail light wiring.

Tasks:

1. Using a voltmeter, locate the +12 volt wire connected to the reverse lights when the vehicles reverse lights are on. If the reverse light assembly has 2 wires, locate the ground wire. If the reverse light assembly does not have 2 wires, locate a good chassis ground.
2. Route the main harness from the Module Assembly along the vehicle bumper to the vehicle's rear light assembly that includes the reverse light.
3. Using a scotch lock provided in the installation kit, connect the **BLACK WIRE** to ground.
4. Using a scotch lock provided in the installation kit, connect the **BLUE WIRE** from the wiring harness to the +12 volt wire at the reverse lights.
5. Secure with cable ties supplied in the installation kit.

WARNING: DO NOT APPLY POWER TO UNIT WITH SENSORS NOT ATTACHED.

NOTE: KEEP SENSOR HARNESS AWAY FROM SHARP, HOT OR MOVING OBJECTS.

STEP 5: AUDIO CONTROL UNIT MOUNTING

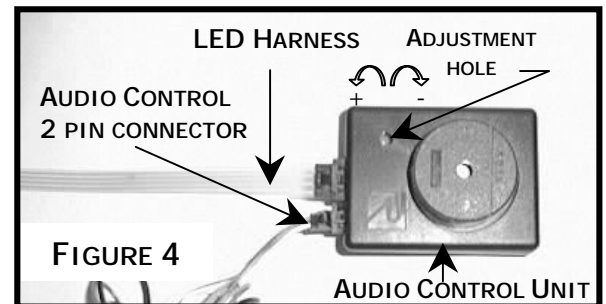
Objective: To mount the Audio Control Unit.

Tasks:

- 1- Find a suitable location for the audio control unit in the

inside rear of the vehicle. It must be mounted in a location that will permit the driver to hear the audio alert. Potential mounting sites are: the rear shelf, near the rear speakers (for passenger vehicles only), or inside a vented panel for Sport Utility Vehicles (**Figure B**).

- 2- Connect the 2-pin connector harness from the module assembly to the audio control unit. (**Figure 4**).



NOTE: YOU CAN ADJUST THE VOLUME OF THE ALARM SOUND (PIEZO) TO YOUR COMFORT BY TURNING THE POTENTIOMETER WITH A PHILLIPS SCREWDRIVER.

NOTE: FOR PICK-UP TRUCKS AND SOME VANS, IT MAY BE NECESSARY TO EXTEND THE TWO WIRES TO THE 2-PIN CONNECTOR, OR USE 250-4312: AUDIO CONTROL UNIT EXTENSION HARNESS.

INSTALLATION

STEP 6: (LED) DISPLAY MOUNTING

Objective: Mount the LED display in the rear of the vehicle where the driver can easily view it when operating the vehicle in reverse.

Tasks:

1. Connect the lead from the LED unit to the audio control unit module (Figure 4).
2. Some possible locations include: the center or the right inside lower corner of the rear window from the inside or above the third brake light.
3. For the rear window mounting method, clean window first with **ALCOHOL** then peel the protective tape off of the adhesive strip on the back of the LED display; place LED display.
4. If the wire connecting the audio and LED units is too short, use the LED extension harness in which it could be ordered separately. **Use part #250-2277.**

WHEN INSTALLING THE LED, CLEAN THE LOCATION AREA WITH ALCOHOL. MAKE SURE THE LED IS PLACED IN THE CORRECT LOCATION. TRYING TO REMOVE LED, CAN CAUSE DAMAGE TO THE LED DISPLAY.

NOTE: THE LED DISPLAY MUST BE IN VIEW OF THE DRIVER, IT IS SUGGESTED THAT THIS DEVICE BE PLACED IN THE REAR OF THE VEHICLE SO WHEN TURNING AROUND TO BACK UP THE VEHICLE, THE DISPLAY CAN BE SEEN.

STEP 7: TESTING PROCEDURE

Objective: Test to ensure that the ROSS™ is operating properly. If, at any point, the ROSS™ does not operate properly, refer to the troubleshooting guide in the owner's manual.

THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY RADIO OR TV INTERFERENCE CAUSED BY UNAUTHORIZED MODIFICATIONS TO THIS EQUIPMENT. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

ROSS™ DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRE OPERATION.