



CA-5010.II Rear Parking Assist System with LED Display



INSTALLATION INSTRUCTIONS:

The CA-5010.II is an ultrasonic parking assist system designed for use on the rear bumper of most cars and trucks. This system detects any people or objects behind the vehicle using (4) ultrasonic sensors that are mounted in the rear bumper and warns the driver of the distance to the objects through a color-coded LED display and audible tones. The driver can then judge the distance and use caution when backing up the vehicle.

FEATURES:

- (4) Ultrasonic sensors with quick disconnect waterproof connectors
- 4-Color LED display with numerical read-out and audible tones
- 4 separate read-outs for all four sensors
- Multiple beeping tones to alert the driver of the distance to an object
- Intelligent detection switch to adjust the sensor sensitivity for vehicles with spare tire racks or tow hitches on the rear bumper
- Sensors can be painted to match the color of the vehicle
- Four-stage audible obstruction warning
- Shallow vertical sensing are (Sensors can be mounted on vehicles that have lower bumpers or body kits)
- Special metal bumper sensors (MBS) available for trucks that have metal bumpers
- Includes hole saw bit and 3M tape for installation

INSTALLATION

INSTALLING THE SENSORS

The CA-5010.II can be installed with (2) sensors or (4) sensors on the rear bumper of the vehicle. (4) Sensors are recommended for the best coverage behind the vehicle.

1. Measure out the distance across the bumper and try to space the sensors equally apart. Space the sensors at least 1 -1.5 feet apart from each other if you are installing (4) sensors and 2-2.5 feet apart from each other if you are installing (2) sensors. The height of the sensors should be at least 1.5 – 2.5 feet from the ground to the sensor but no less than 1.5 feet. **(See FIGURE 1)** If your measurements come in a little over the specified height or width than that's fine just as long as the sensors are not space too close together or too close to the ground.
2. For trucks with uneven bumper space such as pick-up trucks with a center step or and license plate in the middle, you can space the sensors evenly on both side of the center step in the bumper. **(See FIGURE 2)** Some truck bumpers may be a little higher than 2.5 feet. This is not a problem and will not inhibit the system from working. The kit comes included with plastic mounting shims which will angle the sensors down a little bit if you have to mount them higher up on the bumper. For trucks with metal bumpers, we recommend using a kit called the CA-5010.II.MBS. This system is the exact same but comes with sensors specifically designed for use with metal bumpers.

NOTE: Use masking tape or electrical tape to mark your measurements on the bumper for the sensors. Make sure that your measurements are straight all the way across the bumper and that the sensors have been spaced evenly before you begin drilling.

3. Use the provided hole saw bit to drill the holes in the bumper. This hole saw bit should give you an adequate sized hole to fit the sensor perfectly. Once you have the holes drilled, route the sensor cables through the holes and snap the sensors into place. **(See FIGURE 3)**

NOTE: If the sensor fits too tightly into the hole then try to drill the hole just a little bit wider but not wide enough to where the sensor is very loose. If the sensor is too tight, the system may not function properly. If the sensor is loose, DO NOT apply any kind of adhesive or silicon to hold it in place. See our troubleshooting section for more details.

4. When placing the sensors into the bumper, it is important to note how they should fit into place. Always try to put the sensors on the flattest part of the bumper surface aiming straight out behind the vehicle. If the sensors are angle slightly downward on the bumper than that is okay just as long as they are not angled extremely up or down in direction. If the sensors are angled too far downward, then they will pick up the ground the system is on and cause false warnings. If the sensors are angled too far upward, then they will not pick up anything because they are aiming at the sky and this will cause the system to fail.

NOTE: If you run into an issue during the install where you need the sensors to be angled back up or down or the bumper surface is slightly curved or uneven, then you can use the provided plastic shims to angle the sensors the way you need them or to compensate for the uneven bumper surface. **(See FIGURE 4)**

FIGURE 1

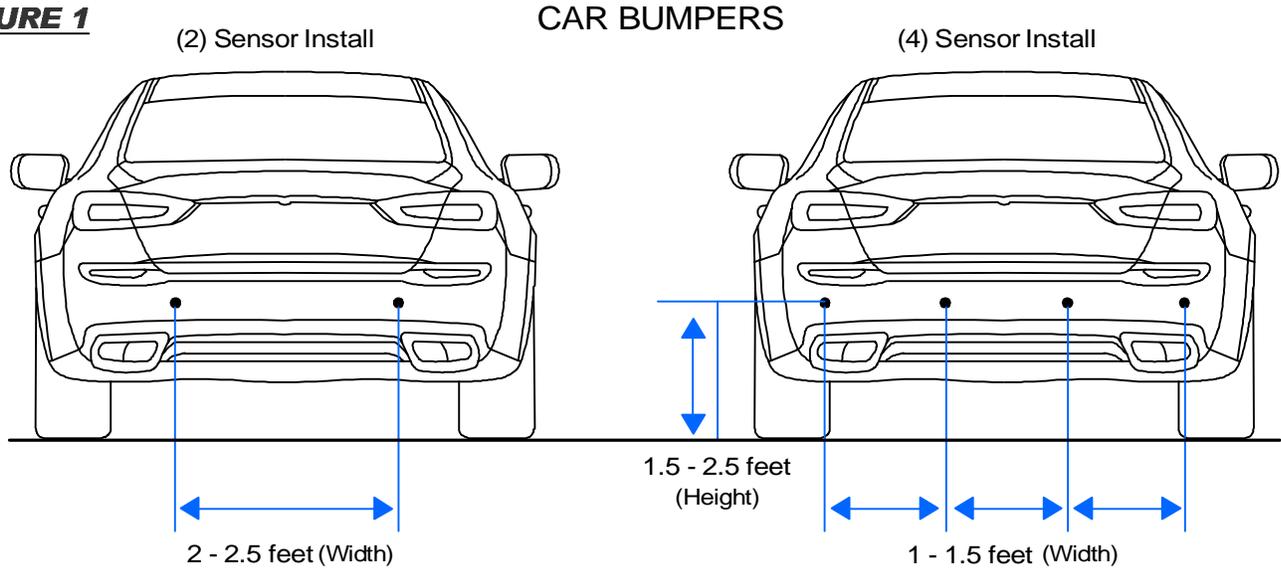


FIGURE 2

TRUCK BUMPERS

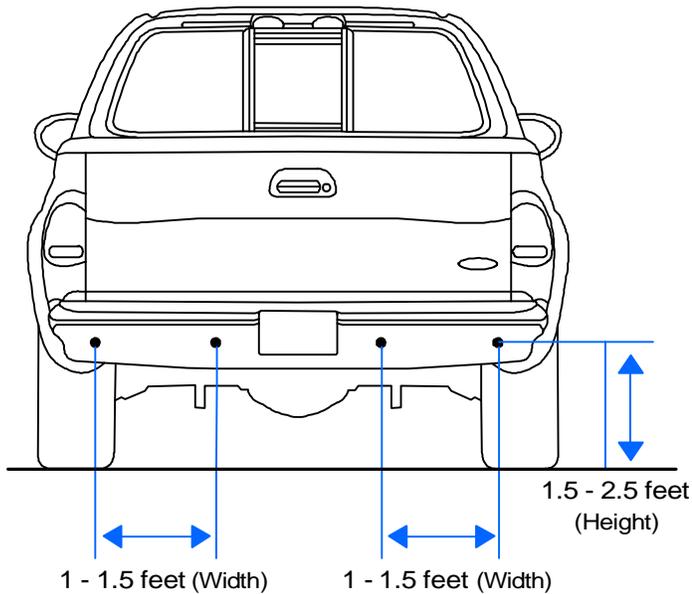
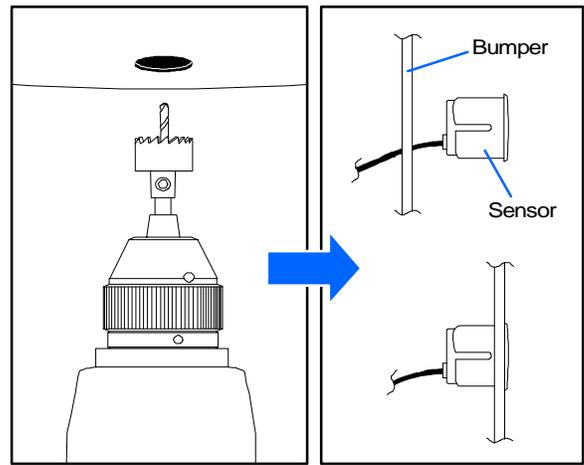


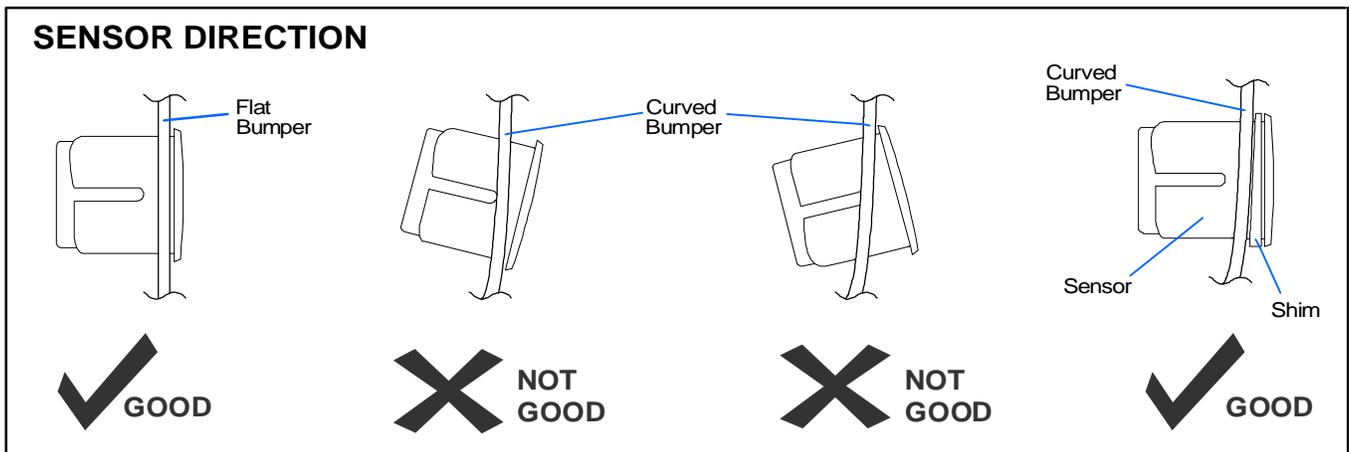
FIGURE 3

Use the provided hole saw bit to drill sensor holes



Route the sensor cables through the hole and snap the sensor into place on the bumper

FIGURE 4



Install the sensors onto a flat bumper surface. Make sure that the angle is not too extreme up or down. If the angle is too extreme, the sensors may not work correctly. If you need to angle the sensors back up or down or you have a curved bumper surface, please use the provided plastic shims to adjust the angle

INSTALLATION

INSTALLING THE SENSOR CABLES

1. Route the cables into the trunk panels of the vehicle either by drilling and hole or using a pre-existing rubber grommet. If you have the drill a hole, make sure to seal the hole once the installation is complete to prevent leaks and keep out any other weather elements. If installing on a truck, route the cables underneath the bed of the truck. Please make sure to avoid any moving parts like the suspension or axels. You may be able to locate a factory wire harness that you can zip-tie the cables to and route them the whole length of the truck following the factory wire harness.
2. Zip-tie the sensor cables together the run them down the length of the vehicle. **(See FIGURE 5)**

NOTE: Try to avoid running the sensor cables next to any high-current power wires or electrical devices in the vehicle as this may cause false sensor warnings during operation of the system.

INSTALLING THE CONTROL MODULE

1. Mount the control module under the vehicle dash board or behind the trunk panels in the rear of the car somewhere out of the way. There are two methods of installing the control module. One way is by using the provided metal mounting bracket which snaps into the side of the any one of the 3 claps on the side of the module. **(See FIGURE 6)** The other method is to use the supplied 3M double side tape and stick the module down to the surface. **(See FIGURE 7)** If using the 3M tape method, make sure to clean any dust or dirt from the mounting surface before applying the tape.

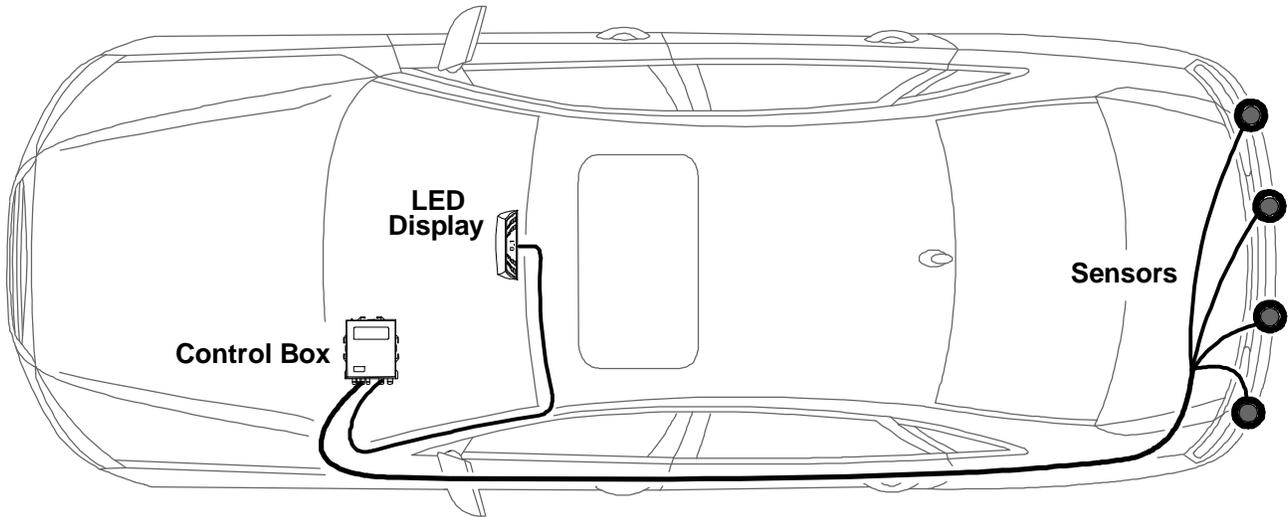
NOTE: Some installers prefer to mount the control module in the trunk panels instead of underneath the dash board. This is okay to do, but please make sure that the module is clear of any moisture or excessive vibration in the trunk. If installing the module under the dash, please make sure to keep it clear of any moving parts such as the steering column or pedals. This way you can avoid getting the sensor and display cables caught or pinched after the installation is complete.

2. Connect the sensor cables into the control module. The sensor ports on the module are labeled A, B, C and D which corresponds to the sensors which are also marked A, B, C and D. Please make sure to plug in the correct sensor to the corresponding sensor port.

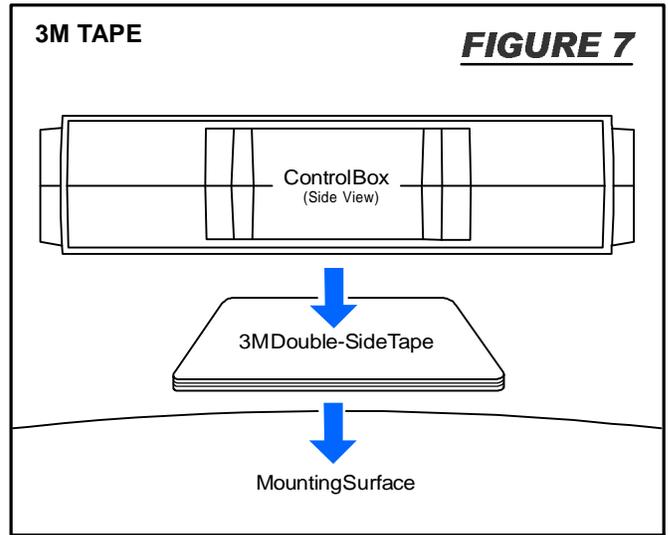
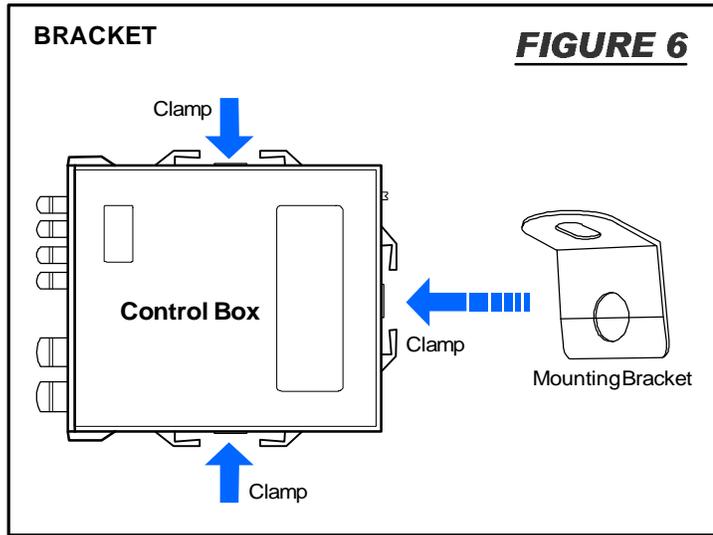
INSTALLING THE LED DISPLAY

1. Use the provided 3M double sided tape to mount the LED display in the vehicle. **(See FIGURE 8)** You can mount the display almost on the vehicle dash board, center console or up on top of the rear view mirror. Route the cable from the display's mounting location and plug it into the control module
2. The two most popular choices for the display location are either on the dash board next to the A pillar or up on the top side of the rear view mirror. **(See FIGURE 9)** Most people prefer the rear view mirror since that are looking there when reversing anyway.

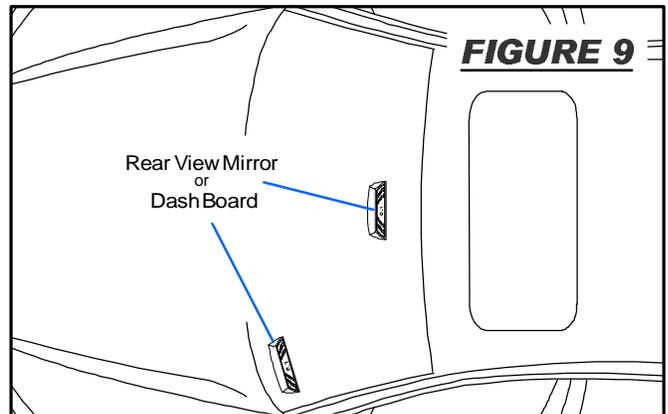
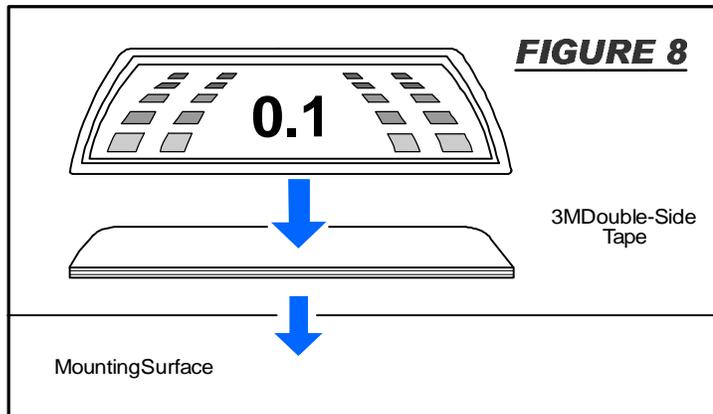
FIGURE 5



CONTROL MODULE MOUNTING



LED DISPLAY MOUNTING



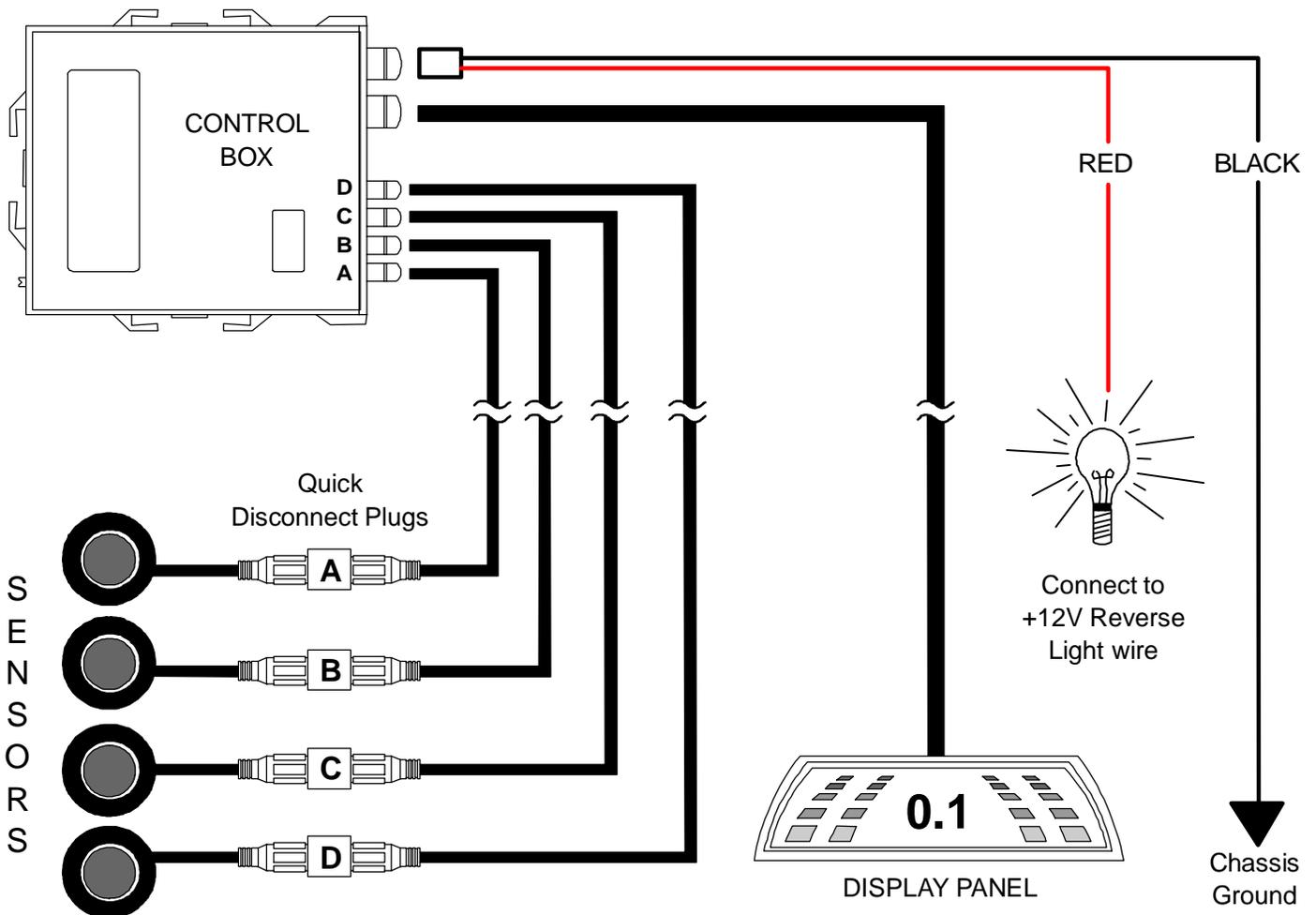
NOTE: Again, please make sure when routing the sensor and LED display cables to the control module to avoid any moving parts (Steering column or pedals) or removable brackets or panels. This will help you to avoid any tangled or pinch cables once the installation is complete.

INSTALLATION

WIRING

1. Connect the sensor cables into the control module. The sensor ports on the module are labeled A, B, C and D which corresponds to the sensors which are also marked A, B, C and D. Please make sure to plug in the correct sensor to the corresponding sensor port. (See **FIGURE 10**)
2. Plug the LED display cable into the DISP port on the control module. (See **FIGURE 10**)
3. For the power connector, connect the RED wire to the +12 volt reverse light wire of the vehicle and connect the BLACK wire to chassis ground. (See **FIGURE 10**)

FIGURE 10



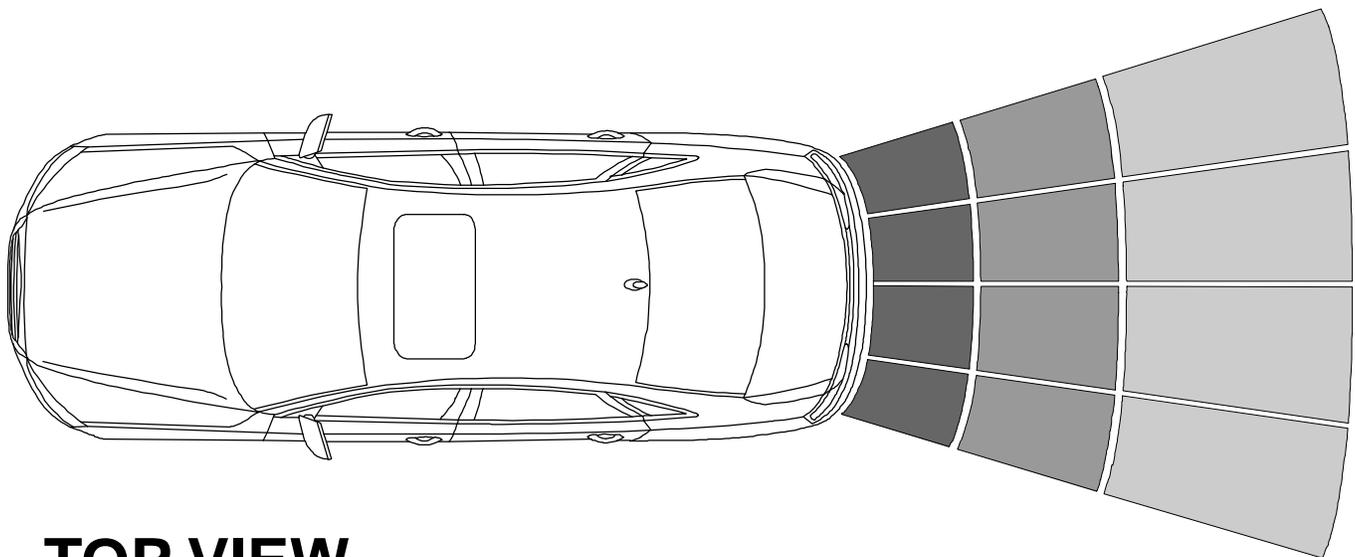
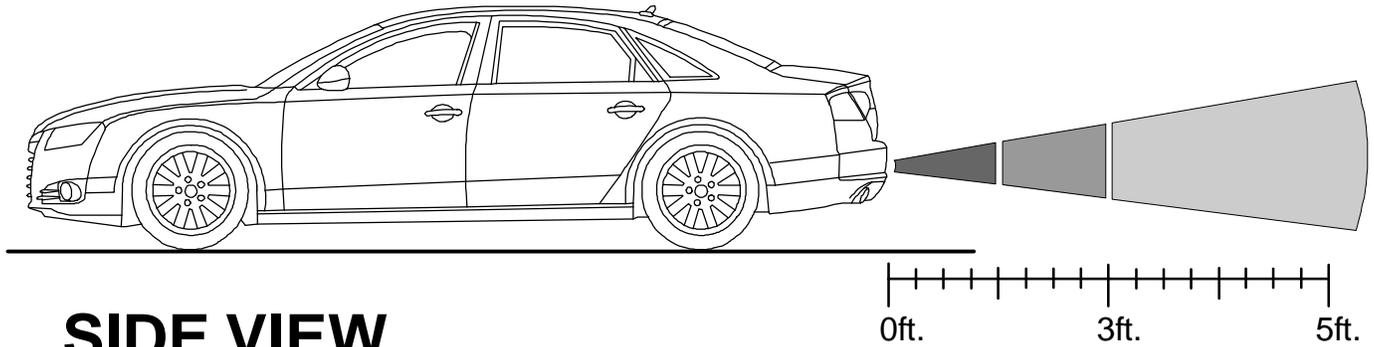
NOTE: On some vehicles, the reverse light system is part of a huge lighting circuit with many other lights in the vehicle tied into the circuit. This can sometimes cause a back-feed into the Backstopper system and cause false warnings making the system work incorrectly or not at all. Please see our troubleshooting section for tips on how to solve this issue.

OPERATION

DETECTION RANGE

When the vehicle is shifted into reverse, the system will activate. The LED display will illuminate and sound off to let you know the system is active. The system will not sound or display again until sensors pick up any objects or people that come into the detection range.

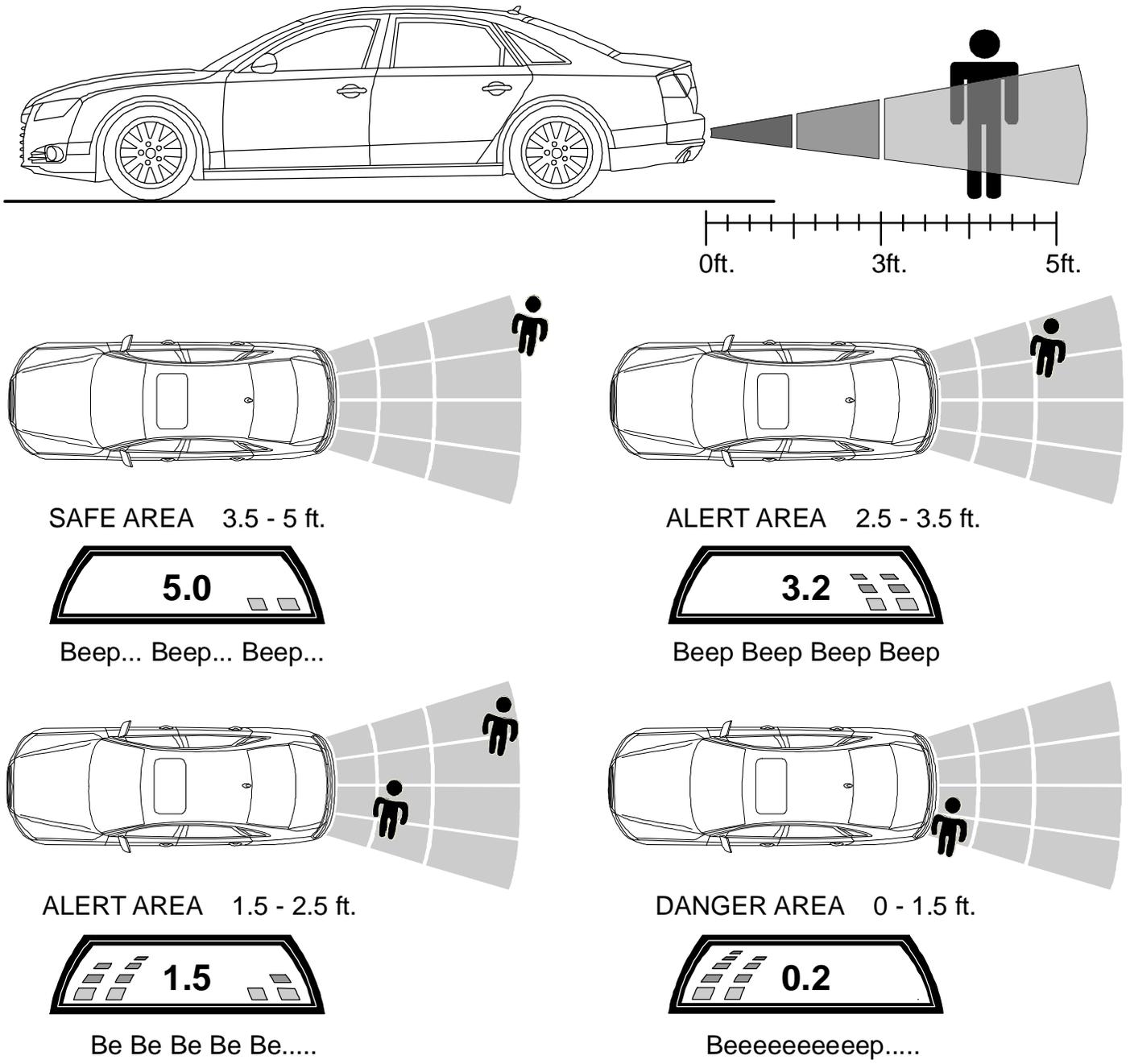
FIGURE 11



- The maximum detection range of the CA-5010.11 system is over 5 feet behind the vehicle and the closer the object is to the vehicle, the more warnings the system will give to the driver. **(See FIGURE 11)**
- As the object comes closer to the sensors, the system will alert the driver using different audible tones and distance display readings which will increase to tell the driver the object is coming closer and to be cautious. **(See FIGURE 12)**

NOTE: Certain weather elements, road conditions and other electrical equipment in or around the vehicle may affect the system's operation. Please see the troubleshooting section for details.

FIGURE 12



DISTANCE	AWARENESS	DISPLAY	SOUND
>5.0 feet	Safe Area	Dark	Silence
5.0 feet	Safe Area	Blue	Beep.. Beep.. Beep..
4.5 feet	Safe Area	Blue	Beep.. Beep.. Beep..
4.0 feet	Safe Area	Blue+Green	Beep.. Beep.. Beep..
3.5 feet	Alert Area	Blue+Green	Beep Beep Beep
3.0 feet	Alert Area	Blue+Green+Yellow	Beep Beep Beep
2.5 feet	Alert Area	Blue+Green+Yellow	Be Be Be Be Be Be
2.0 feet	Alert Area	Blue+Green+Yellow+Red	Be Be Be Be Be Be
1.5 feet	Alert Area	Blue+Green+Yellow+Red	Be Be Be Be Be Be
<1.5 feet	Danger Area	Blue+Green+Yellow+2Red	Beeeeeeeeeeep....

OPERATION

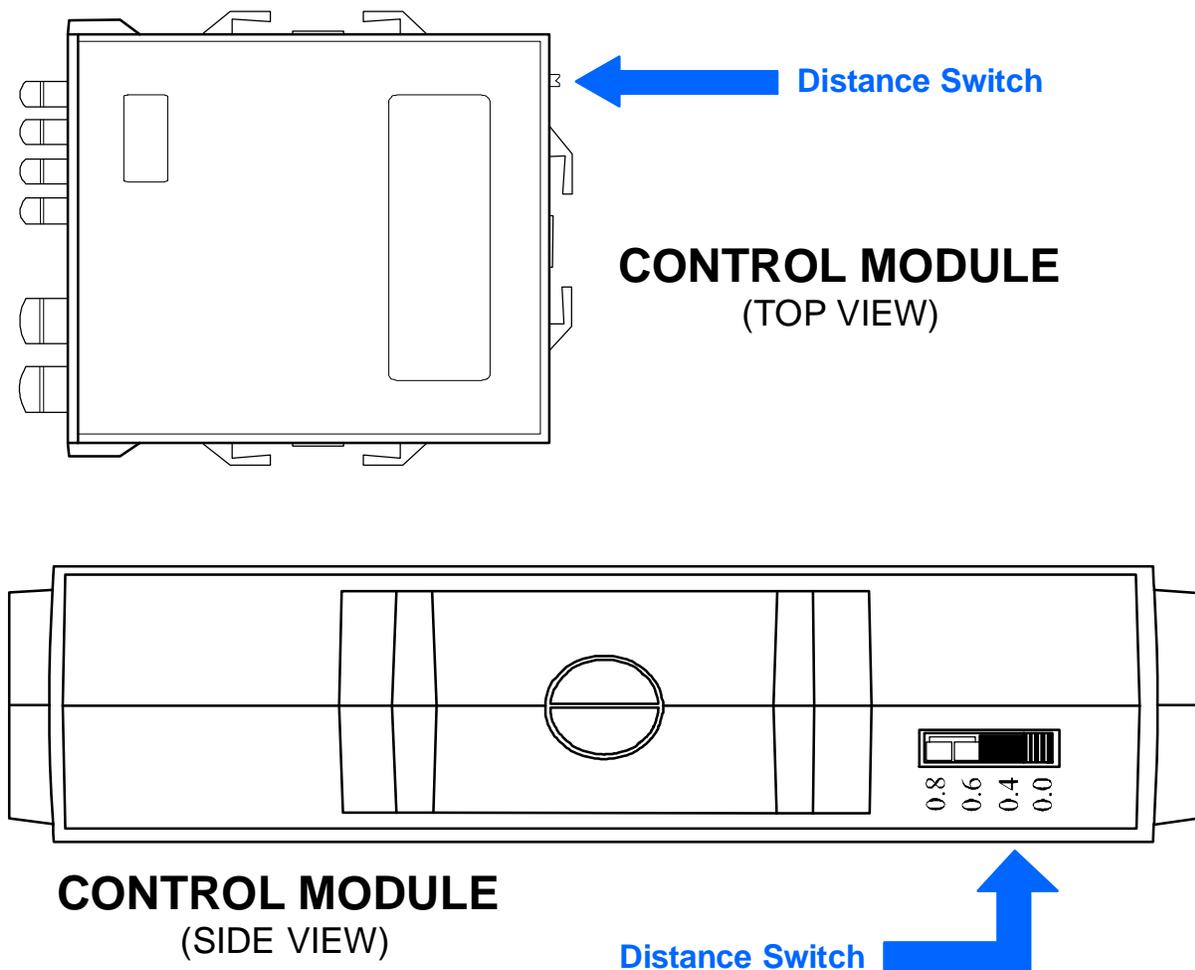
INTELLIGENT DETECTION

Some vehicles such as trucks or SUVs may have spare tire racks or tow hitches on the back of the vehicle which protrude out over the rear bumper. This can sometimes cause the Backstopper system to interpret these objects as obstructions behind the vehicle and give the driver a false alert. To solve this problem, the CA-5010.II has an intelligent detection setting switch on the side of the module. (See **FIGURE 13**)

The 0.0 setting is for vehicles that do not have the spare tire rack or trailer hitch. If your vehicle does not have any of this equipment then you can leave the adjustment at 0.0.

If your vehicle does have a spare tire rack or a trailer hitch then you can move the adjustment switch up from 0.0-0.8 depending on how far these items stick out from the vehicle. Each number tells the system to start sensing objects another 0.5-1.0 feet out from the bumper thus making the sensors look past the tow hitch or spare tire rack. Adjust the number accordingly until the sensors do not false-trigger any longer. After the sensitivity is selected on the switch, power the system down and back up to recalibrate the sensors and test the system for proper functionality.

FIGURE 13



INSTALLER NOTES

After the installation of the system is complete, make sure to adjust the direction of the sensors to correct any range problems you might be experiencing such as false alerts or no alerts at all. If need be, the provided plastic shims can be used to adjust the angle of the sensors on the bumper. Also make sure to adjust the intelligent detection switch if the vehicle has a spare tire rack or tow hitch and the unit is giving false alerts due to this equipment.

1. When installing the system, the car should be completely powered off. It might be a good idea to remove the negative battery terminal in some vehicles prior to installation.
2. The operation of the system may be affected by certain conditions such heavy rain, gravel roads, sloping surfaces, bushes, extreme hot or cold weather or if the sensors are covered by snow, ice, mud, etc.
3. Other ultrasonic or electronic fields such as other electrical devices or high current power wires in the vehicle may effect the operation of the sensors.
4. The sensors should not be installed too tightly or too loose in the bumper
5. Do not install the control module any other high current electrical devices or wires under the dash board or in the truck. If installing in the trunk, make sure the control module is away from any moisture or weather elements.
6. Bench test the system first to make sure the operation is good before drilling the holes in the bumper. Once tested and installed, make sure to practice test the system in a parking lot before actual use.
7. The 3M double side tape for the control module and display cannot be used twice. Use an alcohol wipe to make sure the mounting surface is clean before use. If sticking to a vinyl or color surface, be cautious when using alcohol wipes to make sure the surface does not become damaged or discolored.
8. Use only the provided hole saw bit to drill the holes for the sensors.

TECH SUPPORT: (800) 998-6880

SPECIFICATIONS:

Supply Voltage:	DC 12 Volt
Operational Voltage:	10.5 ~ 16 Volts DC
Current Consumption:	20mA ~ 220mA
Detection Distance:	5" ~ 5'2" behind the vehicle
Ultrasonic Frequency:	40 KHz
Working Temperature:	-22°F - 176°F
Control Module Dimensions (MM):	72 (L) × 85 (W) × 26 (D)
Display size (MM):	20.7 (L) × 77.2 (W) × 30.9 (D)
Hole-Saw Size (MM):	21

TROUBLESHOOTING

Please read the following helpful tips if you run into any trouble installing this system into the vehicle. These tips may also be useful if the operation of the system is not functioning properly. Please make sure that the system is powered up and working properly before reading through these tips. For normal operation, the unit should activate as soon as the system is shifted into reverse. The Display should emit a sound and the radix point will illuminate to let you know the unit is powered on.

NO OPERATION:

1. If you don't hear a sound when the system is powered on or if you know there is an object behind the vehicle when it is powered on and there is still no sound, check the power and ground connections to make sure they are connected correctly.
2. Solder the power connection to the reverse light wire if you can. If you have to use a crimp connector, make sure the connector is clamped tightly around the wire and that the spade connector is fitted tightly into place. Also, make sure your ground connection is clean. If using your own screw and ring terminal for ground, clean the surface thoroughly of paint, rust and dirt to assure the best connection

NO SOUND OR DISPLAY:

1. Double check to make sure the LED display is plugged into the system and that the connection is not loose.
2. Check the display cable and make sure it is not spliced, pinched or kinked.
3. Check to make sure sensor cables are connected properly and that the wires are not pinched or spliced anywhere
4. Check to make sure the sensors are not angled too far up toward the sky. If need be, use the provided shims to angle the sensors back down
5. Check the power and ground connections

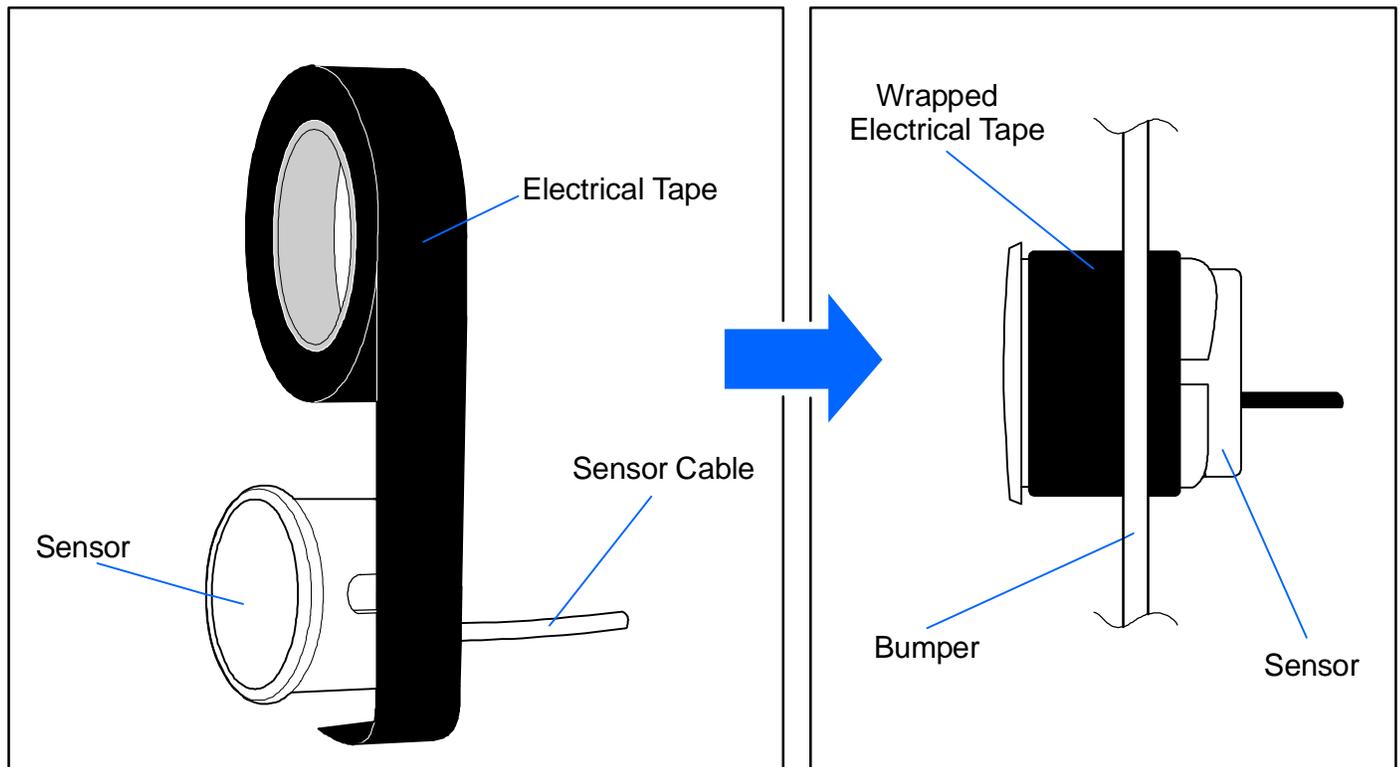
CONTINUOUS / INTERMITTENT SOUND & ILLUMINATION ON DISPLAY:

1. Shift the car out of the reverse and then back into reverse to power the system back up. This can sometimes recalibrate the system.
2. Unplug each sensor one-by-one to check if the sensors are bad. The sensors are marked A, B, C and D. Un-plug each one and shift the system into reverse with only one sensor plugged in. The system should pick up any object at least 3 feet behind the vehicle with one sensor plugged in. Check to make sure all sensors work when vehicle is shifted into reverse.
3. Check to make sure that are no protrusions hanging off of the bumper behind the vehicle. If there is, you can use the intelligent detection switch to adjust the unit to look beyond these protrusions. (See INTELLIGENT DETECTION Section)

TROUBLESHOOTING Cont.

4. Check to make sure the sensors are not dirty or have any mud, ice or film over them.
5. Make sure the sensor cables are not installed or ran next to any high current power wires or electrical devices such as an amplifier or any other lighting or control modules in the vehicle. Also check to make sure the Backstopper control module is not next to any high current devices.
6. Remove sensors, rotate them 90° and place them back into the bumper. This will sometimes redirect the sensors and fix the problem
7. Check to make sure the sensors are not installed too tightly into the bumper. If they are installed too tightly, drill the hole a little wider and then reset the sensors into the bumper. If the sensors are installed and are too loose in the bumper, **DO NOT** apply any kind of silicon or glue to hold them in place. The best thing to do is to remove the sensor and wrap the inside part of the sensor with a few loops of electrical tape and then place it back into the bumper to see if it fits more snug. The electrical tape will not cause any interference and is easy to remove in the future if need be. **(See FIGURE 14)**

FIGURE 14

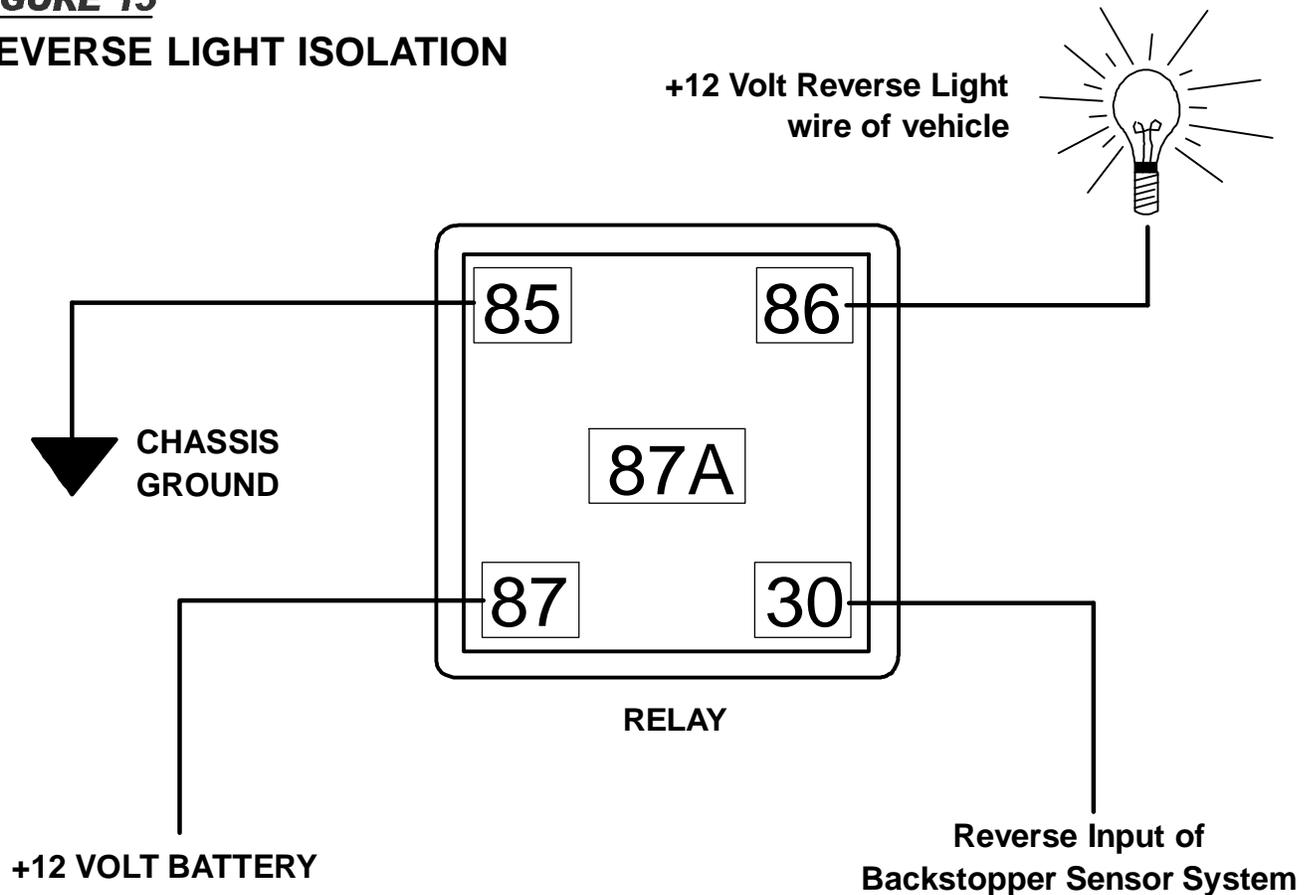


8. Sometimes the reverse light circuit in the vehicle may be a huge circuit with multiple lights tied into the circuit. This can sometimes cause feed back into the Backstopper system when the reverse light circuit is tied into it. To fix this problem, you can add an external relay between the reverse input of the system and the reverse light wire in the car to isolate the system from the reverse light circuit. Use the following diagram **(See FIGURE 15)** to wire in the relay.

TROUBLESHOOTING Cont.

FIGURE 15

REVERSE LIGHT ISOLATION



9. The sensors may be picking up the ground. Use the supplied shims to angle the sensors back up a little bit to direct them away from the ground. **(See FIGURE 4)**
10. If you are installing on a vehicle with a metal bumper (Most likely a truck) then you may need to use a specific system for that vehicle called a CA-5010.II.MBS. This kit is the exact same system but comes with sensors specifically designed for use on metal bumpers.

Please note that certain weather or road conditions can sometimes have an effect on the system's operation as well. Heavy rain, hail, ice and snow can cause the unit to give false readings as well as extreme hot or cold weather. False warnings due to weather conditions are rare but can sometimes happen.

Other things that can cause false warnings are smooth sloped surfaces, bushes, gravel roads or uneven bumpy road surfaces. Although false readings due to these types of situations are also rare, they have been know to happen and can sometimes occur.

DISCLAIMER:

Under no circumstances shall the manufacturer or distributor of the Backstopper™CA-5010.II system be held liable for consequential or incidental damages sustained in connection with the use of the Backstopper™ CA-5010.II Rear Parking Assist System. The Backstopper™ CA-5010.II is designed as a safety enhancement device and is in no way intended as a replacement for rear-view mirrors, side-view mirrors or physically checking the surroundings when backing a vehicle. Always check surroundings for safety when backing up! Objects on the monitor are closer than they appear. For the installation, modification of the vehicle bumper is required. It is the sole responsibility of the vehicle owner to check and verify any and all State or Federal Motor vehicle codes with regards to modifications of vehicle bumper or any systems in the vehicle. The manufacturer of the Backstopper™ CA-5010.II assumes no liability or responsibility whatsoever with regards modifications of the vehicle bumper or any other equipment in the vehicle.

The logo for Crimestopper, featuring the word "CRIMESTOPPER" in a bold, black, sans-serif font. The letters are white with a black outline, and the text is set against a solid black rectangular background.

www.crimestopper.com
email@crimestopper.com
Phone (800) 998-6880
FAX (805) 581-9500

© 2013 Crimestopper Security Products