

INSTALLATION & OPERATION MANUAL



Long Version

WingMan™



Short Version



WingMan™ CHEVROLET IMPALA REAR DECK LIGHT BAR

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For future reference record your product's serial no. here _____

IMPORTANT:

Read all instructions and warnings before installing and using.

INSTALLER:

This manual must be delivered to the end user of this equipment.

Introduction

The WingMan™ is an interior LED lighting system that fits in the rear deck area behind the rear seat. It delivers a slim powerful warning signal to the rear of the vehicle without obstructing the driver's rear vision.

The WingMan is designed on a modular basis, which means that the light bar can be customized to meet most any requirements. The WingMan has room for up to eight LED lighthead. Each lighthead is individually wired for any flash pattern or combination of flash patterns required.



The use of this or any warning device does not ensure that all drivers can or will observe or react to an emergency warning signal. Never take the right-of-way for granted. It is your responsibility to be sure you can proceed safely before entering an intersection, driving against traffic, responding at a high rate of speed, or walking on or around traffic lanes.

The effectiveness of this warning device is highly dependent upon correct mounting and wiring. Read and follow the manufacturer's instructions before installing or using this device. The vehicle operator should insure daily that all features of the device operate correctly. In use, the vehicle operator should insure the projection of the warning signal is not blocked by vehicle components (i.e.: open trunks or compartment doors), people, vehicles, or other obstructions.

This equipment is intended for use by authorized personnel only. It is the user's responsibility to understand and obey all laws regarding emergency warning devices. The user should check all applicable city, state and federal laws and regulations.

Code 3, Inc., assumes no liability for any loss resulting from the use of this warning device.

Proper installation is vital to the performance of this warning device and the safe operation of the emergency vehicle. It is important to recognize that the operator of the emergency vehicle is under psychological and physiological stress caused by the emergency situation. The warning device should be installed in such a manner as to: A) Not reduce the output performance of the system, B) Place the controls within convenient reach of the operator so that he can operate the system without losing eye contact with the roadway.

Emergency warning devices often require high electrical voltages and/or currents. Properly protect and use caution around live electrical connections. Grounding or shorting of electrical connections can cause high current arcing, which can cause personal injury and/or severe vehicle damage, including fire.

PROPER INSTALLATION COMBINED WITH OPERATOR TRAINING IN THE PROPER USE OF EMERGENCY WARNING DEVICES IS ESSENTIAL TO INSURE THE SAFETY OF EMERGENCY PERSONNEL AND THE PUBLIC.

Unpacking & Pre-installation

Carefully remove the WingMan™ and place it on a flat surface, taking care not to scratch the lenses or damage the cable coming out of the bottom. Examine the unit for transit damage, etc. Report any damage to the carrier and keep the shipping carton.

Standard light bars are built to operate on 12 volt D.C. negative ground (earth) vehicles. If you have an electrical system other than 12 volt D.C. negative ground (earth), and have not ordered a specially wired light bar, contact the factory for instructions.

Test the unit before installation. To test, touch the black wire to the ground (earth) and the other wires to +12 volts D.C., in accordance with the instructions attached to the cable (an automotive battery is preferable for this test). Some units may be factory wired for control by a LED flasher or an ArrowStik Controller in which case the cable's wire tag should be consulted. A battery charger may be used, but please note that some electronic options (flashers, stingrays, etc.) may not operate normally when powered by a battery charger. If problems occur at this point, contact the factory.

Installation & Mounting



Utilizing non-factory supplied screws and/or mounting brackets and/or the improper number of screws may result in loss of warranty coverage on the equipment.

Mounting Hardware - All mounting hardware is packed in a small box inside the main carton. There are two brackets and two mounting plates used to mount the WingMan™ to the vehicle. These are discussed in detail later.

Installation Instructions-

Step 1 Locate and remove the two template halves from the center page area of this manual. Cut out the two halves of the paper template. (see figure 1)



FIGURE 1

Step 2 Align the two halves of the template and tape the template together at the tape lines (see figure 2 and 3)
Note: It is helpful to tape one side of the template down to a flat surface to hold it in place while you tape the other side to it.



FIGURE 2

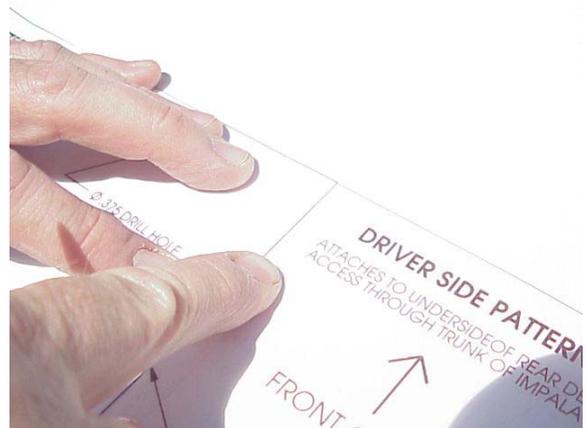


FIGURE 3

Step 3 Remove the spare tire and place a piece of plywood or boards over the spare tire well (see figure 4). This will provide a more comfortable position for mounting the template and drilling the mounting holes and the cable hole.

Step 4 Align the cutout corners of the template with the slotted opening in the under side of the trunk of the Impala (see figure 5) and tape the template in place to keep it from moving (see figure 6 and 7)



FIGURE 4

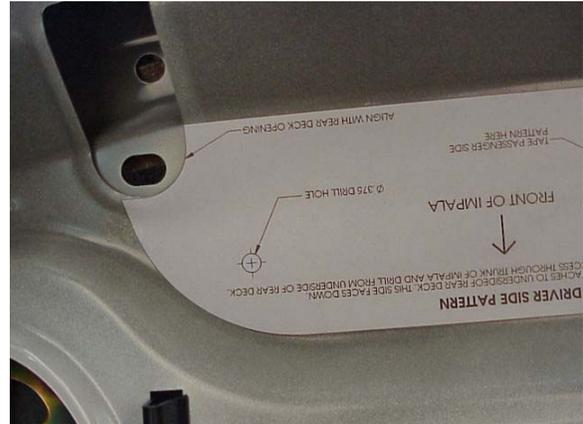


FIGURE 5



FIGURE 6



FIGURE 7

Step 5 With a center punch and a hammer dimple the hole locations to keep the drill from walking off location (see figure 8).

Step 6 Drill the two mounting holes with a 3/8" drill (see figure 9).



FIGURE 8



FIGURE 9

Step 7 Using a 3/8" drill, locate and drill the the hole for the cable in line with the edge of the large rectangular opening in the trunk of the Impala and in line with the center of the paper template (see figure 10) **Note: It is easier and less damaging if the gray insulation is pulled down out of the way while drilling the hole for the cable.**

Step 8 Insert the 1/4-20 x 1.50 long carriage bolts through the square holes the the mounting brackets (as shown in figure 11).

Step 9 Install the mounting brackets (as shown in figure 12) and thread (2) fender washers and a 1/4-20 locking nut onto each of the carriage bolts from inside the Impala's trunk. Leave the nuts very loose at this time.

Step 10 Tighten the mounting bracket nuts from inside the trunk of the Impala (as shown in figure 18).

Note: Only tighten the brackets tight enough to draw them down into the fabric or the rear deck but not so tight that the brackets cannot be turned slightly as needed to center the WingMan bar in the rear window and align the mounting bolts.

Step 11 Feed the WingMan's cable through the cable hole and into the trunk (see figure 13).



FIGURE 10



FIGURE 11



FIGURE 12



FIGURE 13

Step 12 Install the WingMan rear bar by positioning one end in the far back corner of the rear window and carefully bring the other end down along the roof pillar and towards the back of the car and into position over the mounting brackets (see figure 14 and 15). You will have to continue feeding the cable through the hole simultaneously while positioning the bar.



FIGURE 14



FIGURE 15

Step 13 As soon as the outer panel mounting plate holes can be lined up with the holes in the mounting brackets and the mounting holes in the WingMan Bar, insert the (4) supplied 1/4-20 x 1/2" bolts and internal tooth lock washers (see figure 16). Leave the (4) bolts finger tight at this time.

Step 14 Center the light bar in the rear window of the Impala by using a tape measure and adjust the brackets and mounting plates so that they line up with each other.

Step 15 Tighten the 1/4-20 x 1/2" bolts with a phillips screwdriver (see figure 17).



FIGURE 16



FIGURE 17

Step 16 Tighten the mounting bracket nuts from inside the trunk of the Impala (as shown in figure 18).

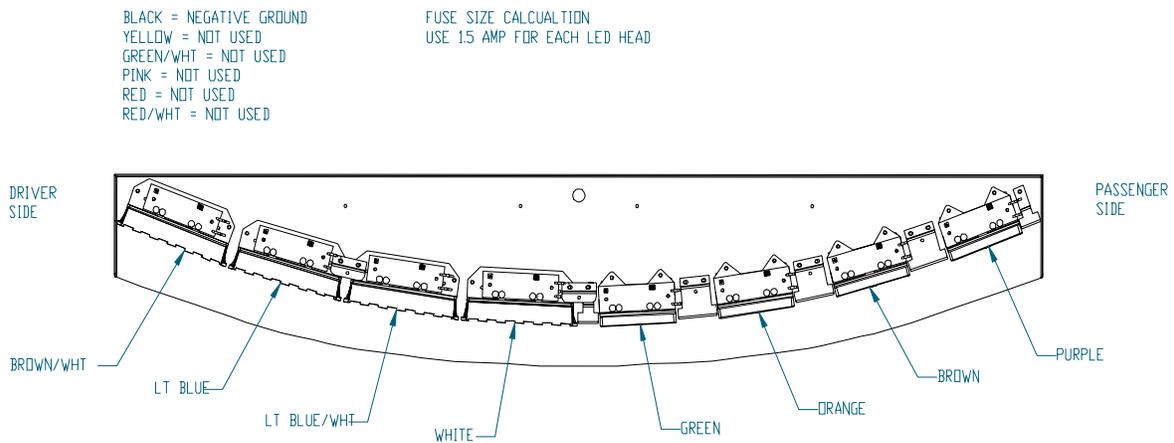


FIGURE 18

The bracket fasteners shown in figure 16 and 17 make excellent hard mounting points for radar guns, video cameras, and etc.

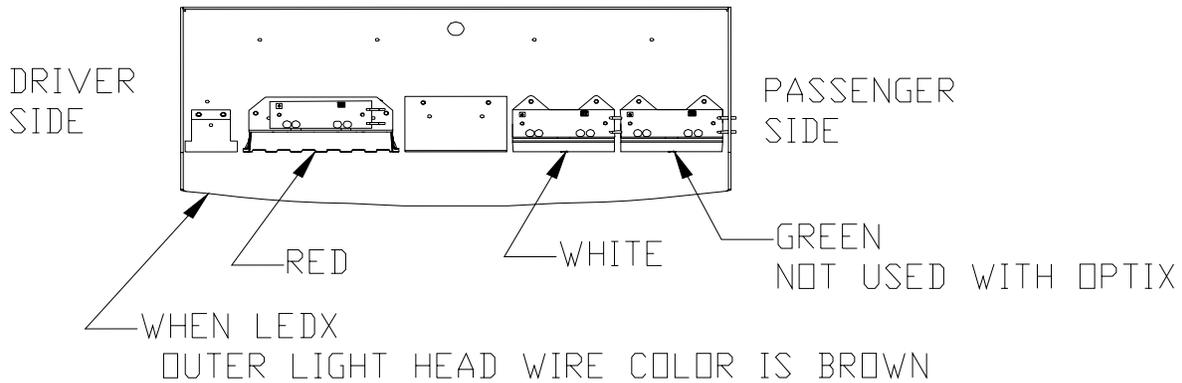
Caution:Drilling into the housing of the light bar could damage wiring or other internal components.

Wiring Diagram



LONG VERSION

BLACK=NEGATIVE GROUND



Wiring Diagram

SHORT VERSION

Wiring Instructions

It is advisable to leave an extra loop of cable when installing the light bar to allow for future changes or reinstallations. Connect the black lead to a solid frame ground (earth), preferably, the (-) or ground (earth) side of the battery, and the remaining power wires to the +12V terminal of the battery, power switches, siren or RLS controller. Each light head is wired independently to allow complete flexibility of control.



WARNING!

Larger wires and tight connections will provide longer service life for components. For high current wires it is highly recommended that terminal blocks or soldered connections be used with shrink tubing to protect the connections. Do not use insulation displacement connectors (e.g. 3M[®] Scotchlock type connectors). Route wiring using grommets and sealant when passing through compartment walls. Minimize the number of splices to reduce voltage drop. High ambient temperatures (e.g. underhood) will significantly reduce the current carrying capacity of wires, fuses, and circuit breakers. Use "SXL" type wire in engine compartment. All wiring should conform to the minimum wire size and other recommendations of the manufacturer and be protected from moving parts and hot surfaces. Looms, grommets, cable ties, and similar installation hardware should be used to anchor and protect all wiring. Fuses or circuit breakers should be located as close to the power takeoff points as possible and properly sized to protect the wiring and devices. Particular attention should be paid to the location and method of making electrical connections and splices to protect these points from corrosion and loss of conductivity. Ground terminations should only be made to substantial chassis components, preferably directly to the vehicle battery. The user should install a fuse sized to approximately 125% of the maximum Amp capacity in the supply line to protect against short circuits. For example, a 30 Amp fuse should carry a maximum of 24 Amps. **DO NOT USE 1/4" DIAMETER GLASS FUSES AS THEY ARE NOT SUITABLE FOR CONTINUOUS DUTY IN SIZES ABOVE 15 AMPS.** Circuit breakers are very sensitive to high temperatures and will "false trip" when mounted in hot environments or operated close to their capacity.

LED MODULES

Operating Specifications for directional module:

Operating Voltage: 10-16 VDC, Reverse Polarity Protection

Current Draw : Flashing Module

Red/Amber - .25A avg @ 12.8 Volts

Blue/White - .4A avg @ 12.8 Volts

Steady Burn Module

Red/Amber - .5A avg @ 12.8 Volts

Blue/White - .8A avg @ 12.8 Volts

Available Colors - Red , Blue, Amber, and White

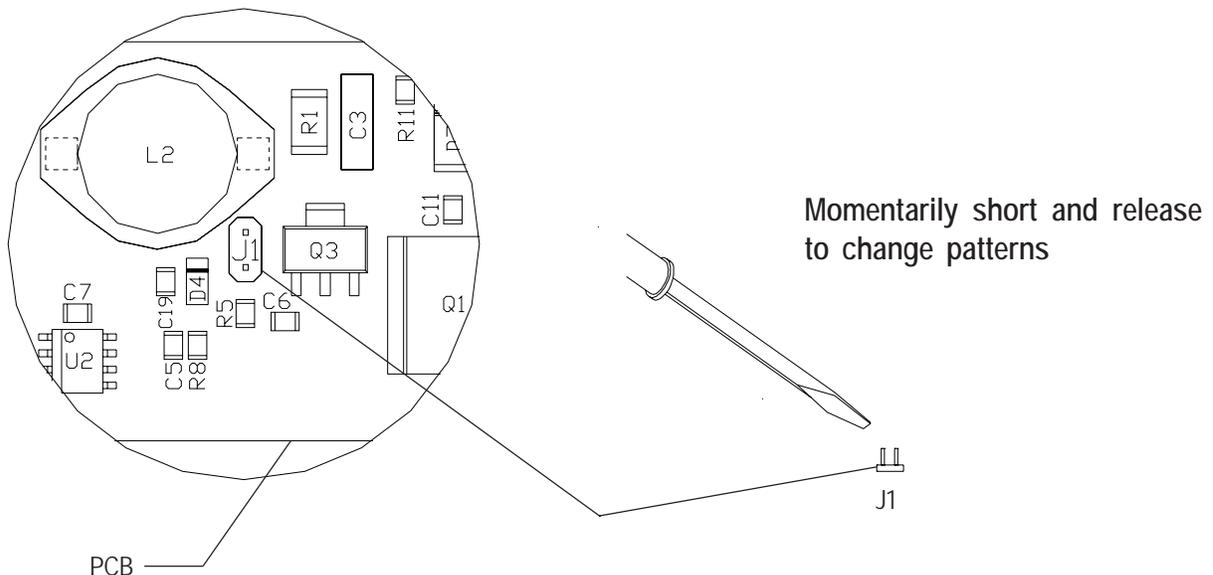
LED Light Head Flash Pattern

Place the unit on a clean work surface and remove the outer cover. With the chassis facing up, locate each lighthouse module circuit board. To change the flash patterns of the LED Light Heads, touch both posts of the J1 header simultaneously with an electrically conductive tool such as a screw driver blade (see figure 19 below). Repeating this procedure allows the operator to cycle through the numerous flash patterns offered until the desired pattern is achieved.

Directional module Flash Pattern - Table 2

CycleFlash (DEFAULT)
NFPA QuadFlash75
Steadyburn
ModelFlash
ActiveFlash
FiveFlash70
QuadFlash70
TripleFlash70
DoubleFlash70
SingleFlash75

Quad Pop Flash75
Triple Pop Flash75
SingleFlash375
SingleFlash250
SingleFlash150
FiveFlash150
QuadFlash150
DoubleFlash150
TripleFlash150



Flash Pattern Header for OPTIX/LEDX

LED Fusing Considerations

Although the average current draw per module is very low, due to the type of circuit used to power each module, the instantaneous peak current to a module can be significantly higher during low voltage conditions. To avoid prematurely blowing ATO style fuses or tripping breakers it is recommended the following rule-of-thumb be used to size fuses or breakers. This is especially important in light bars with many LED modules running off a single fused source,

Minimum fuse size calculation:

For LED 12 volt electrical current

1.5 x (number of modules being fused)

Example: 2 intersection modules and 6 directional modules.
 Minimum fuse requirement for single fuse - 1.5 (8) = 12 A

Product Features

LED lighthouse options: Red, Blue, Amber; Directional or Spreading; Flashing or Steady Burn Control

LED lighthouse types: LED-X, Optix, LCLED

Size: 49.875" long x 2.00" tall x 7.25" deep

Weight: 7.5lb

NarrowStik Version

The WingMan can be factory configured as a traffic director and operated using an NarrowStik Control Head. Please refer to the Narrowstik Control Head Manual for installation, wiring connections, and operation of the Control Head.

Wiring

Refer to the Narrowstik wiring on page 11 for wire designations. For models with independently flashing red/blue heads located on each end, the Blue and Brown wires will be used to control these heads. The Blue wire is connected to +12V and the Brown to Ground. Refer to the Control Head manual for operation with the Control Head.

WARNING!



This Product contains high intensity LED devices. To prevent eye damage, DO NOT stare into light beam at close range.

Troubleshooting

All WingMan Rear Bars are thoroughly tested prior to shipment. However, should you encounter a problem during installation or during the life of the product, follow the guide below for information on repair and troubleshooting. Additional information may be obtained from the factory technical help line at 314-426-2700 ext. 2131.

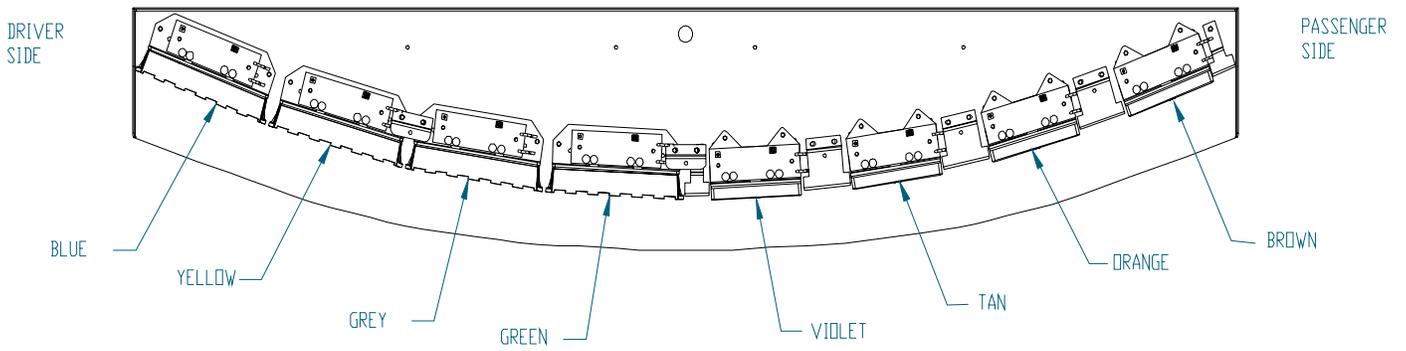
TROUBLESHOOTING GUIDE

Note: LED modules must be replaced as a module. There are no user serviceable parts.

PROBLEM	QUESTIONS	POSSIBLE CAUSE	SOLUTION
LED module not operating when powered.	N/A	a. Bad power/ground connection. b. Defective module.	a. Fix connection. b. Replace module

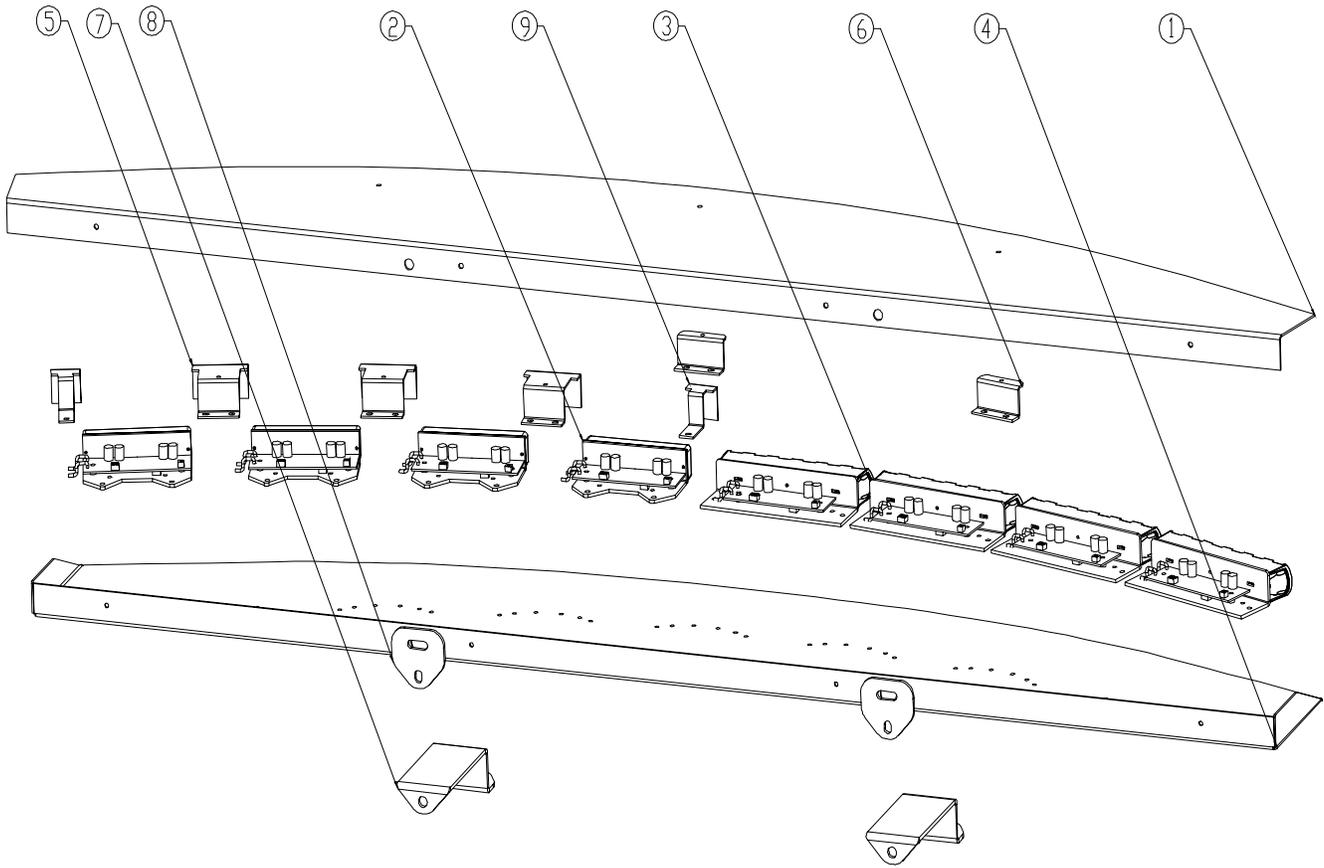
RED = POWER, +12VDC
RED/WHT = POWER, +12VDC
WHITE WIRE = DIM MODE

LEDX or OPIX Narrowstik Versions



Narrowstik Wiring Designations

Parts List



<u>Reference Number</u>	<u>Part Description</u>	<u>Part Number</u>
1	Outer Panel Long Version	T09651
	Outer Panel Short Version	T06590
2	*LED Module	*Contact Code 3, Inc for P/N
3	*OPTIX Module	*Contact Code 3, Inc for P/N
4	Chassis Long Version	T09650
	Chassis Short Version	T06589
5	Outer Panel Support Brkt LEDX	T09643
6	Outer Panel Support Brkt OPTIX	T09645
7	Mounting Brkt. Impala	T09653
8	Mounting Plate Impala	T09652
9	Outer Panel Filler Brkt Small LEDX	T09644

2006 Installation Instructions



Observe position of mounting holes.
Shown in figure A.

FIG. A

FIG. B

Drill the 2 mounting holes through the rear deck.
Shown in figure B.
Choose a location and drill a third hole for
routing the cable (if desired).



NOTE:
REFER TO THE 2005 INSTRUCTIONS FOR WIRING AND PROGRAMMING DETAILS.

2006 Installation Instructions cont.

NOTE: FINGER TIGHTEN ALL HARDWARE.



FIG. C

Insert the carriage bolt through the mounting foot and rear deck. Place the fender washer and lockwasher on the bolt and finger tighten. Some compression of the rear deck may be required for the carriage bolt to clear the hole. Repeat for the second foot.
(Figure C shows the bar mounted with the feet and brackets attached)

FIG. D

As shown in figures C & D, place the WingMan™ on the mounting feet, lining up the protruding screws (on the WingMan bottom), with the clearance holes on the mounting feet. Attach a flat mounting bracket to the mounting foot, using the supplied 1/4"x20 hardware. Repeat for the second bracket. Attach the WingMan™ to the brackets, using the remaining two 1/4"x20 screws. Fully tighten all hardware.



Notes

WARRANTY

Code 3[®], Inc.'s emergency devices are tested and found to be operational at the time of manufacture. Provided they are installed and operated in accordance with manufacturer's recommendations, Code 3[®], Inc. guarantees all parts and components except the lamps to a period of 1 year, LED Lighthouse modules to a period of 5 years (unless otherwise expressed) from the date of purchase or delivery, whichever is later. Units demonstrated to be defective within the warranty period will be repaired or replaced at the factory service center at no cost.

Use of lamp or other electrical load of a wattage higher than installed or recommended by the factory, or use of inappropriate or inadequate wiring or circuit protection causes this warranty to become void. Failure or destruction of the product resulting from abuse or unusual use and/or accidents is not covered by this warranty. Code 3[®], Inc. shall in no way be liable for other damages including consequential, indirect or special damages whether loss is due to negligence or breach of warranty.

CODE 3[®], INC. MAKES NO OTHER EXPRESS OR IMPLIED WARRANTY INCLUDING, WITHOUT LIMITATION, WARRANTIES OF FITNESS OR MERCHANTABILITY, WITH RESPECT TO THIS PRODUCT.

PRODUCT RETURNS

If a product must be returned for repair or replacement*, please contact our factory to obtain a Return Goods Authorization Number (RGA number) before you ship the product to Code 3[®], Inc. Write the RGA number clearly on the package near the mailing label. Be sure you use sufficient packing materials to avoid damage to the product being returned while in transit.

*Code 3[®], Inc. reserves the right to repair or replace at its discretion. Code 3[®], Inc. assumes no responsibility or liability for expenses incurred for the removal and /or reinstallation of products requiring service and/or repair.; nor for the packaging, handling, and shipping; nor for the handling of products returned to sender after the service has been rendered.

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