

INSTALLATION & OPERATION MANUAL



FOR RMX™ LIGHTBAR
WITH PRIZM II™ LIGHT HEADS



RMX™ LIGHT BAR

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For future reference record your lightbar'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 RMX™ Lightbar is approximately 5.4" high and delivers 360° of unobstructed warning signal. PriZm II™ reflector technology means more signal power and versatility than any other lightbar of its size.

The aerodynamic lines reduce air drag, which results in fuel savings and stability at high speeds. This lightbar has a strong extruded internal frame, shock-resistant polycarbonate lenses, and warning signals that exceed SAE standards.

The RMX has room for numerous LED options. While we do not recommend a light installed in every location, the design of the RMX offers the ultimate flexibility in the location of warning and auxiliary lights.



WARNING!

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.

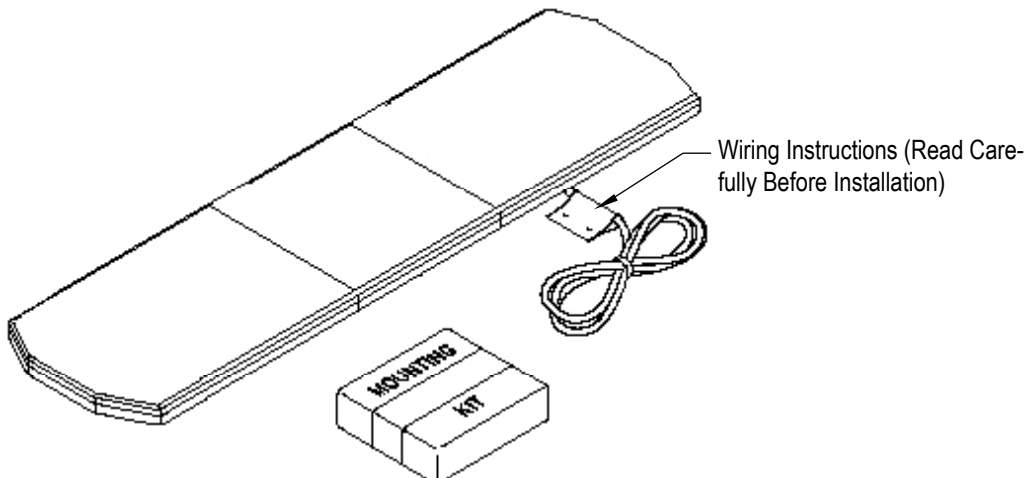
This equipment is intended for use by authorized personnel only. It is the user's responsibility to understand and obey all laws regarding emergency warning devices. The user should check all applicable city, state and federal laws and regulations.

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 ENSURE THE SAFETY OF EMERGENCY PERSONNEL AND THE PUBLIC.



Unpacking & Pre-Installation

Carefully remove the lightbar 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, broken lamps, etc. Report any damage to the carrier and keep the shipping carton.

Standard lightbars 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 lightbar, 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). A battery charger may be used, but please note that some electronic options (flashers, 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 - Mounting hardware is usually packed in a small box inside the main carton although some mounting kits may be shipped separately. Refer to the Installation Manual included in the mounting kit for mounting instructions. **Note: Hook-on mounting for "gutterless" type vehicles will require a special hook for mounting. Several special application hooks are available. Contact the factory for details.**

Wiring Instructions



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.

Before attempting to connect wiring, refer to wire tag attached to the lightbar's main cable. Each wire in the cable controls a separate lightbar function as described in the wire tag.

Route the wiring cable into the engine or passenger compartment, taking care to use grommets and to apply sealant around openings to keep water out. It is advisable to leave an extra loop of cable when installing the lightbar 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 bring the other wires to the control head or switches. Connect the wires as directed by the wiring instructions on the cable.

OPTIONS & SPECIFICATIONS

Many options are available for the RMX™. This section is designed to describe the function of the various options.

DIMENSIONS

The RMX measures 5.4" high and is 12.25" front to back. It is available in the following lengths:

18"
36"
47"
58"
69"
80"
91"

LED WARNING MODULES



WARNING!

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

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 lightbars with many LED modules running off a single fused source.

Minimum fuse size calculation:

1.5 x (number of modules being fused)

Example:

RMX Lightbar with 2 corner modules (2 per module) and 14 directional modules.

Minimum fuse requirement for single fuse - $1.5 (2+2+14) = 27A$ minimum

Code 3® PriZm II™ LED Reflector 360° Corner Modules

The RMX Lightbar is equipped with Code 3® PriZm II™ LED Reflector 360° corner LED modules that provide a full 360° of warning. The lighthouse has been designed to exceed all applicable requirements for 360° warning devices in Red, Blue, Amber and White.

Operating Specifications for 360° module:

Operating Voltage: 10-16 VDC, Reverse Polarity Protection

Current Draw : Red/Amber - .5A avg @ 12.8 Volts

Blue/White - .8A avg @ 12.8 Volts

Available Colors - Red, Blue, Amber and White

Master/Slave Operation (See Directional Modules section below if so equipped)

Some 360 degree corner modules consist of a "master" and a "slave" driver circuit board and LED light engines with a single integrated heatsink bracket. The "master" circuit board (rear position) must always be powered for the "slave"(front position) to flash. The "master" is always located in the rear position of the module. The lightbar is wired to allow running only the rear facing LED on each module by removing power to the front facing "slave" module. This gives a "front-cutoff" function. The flash pattern for each corner pair can be selected by shorting together the 2-pin header J1, on the "master" momentarily and releasing. The module is set-up for "Cycle Flash" as a standard. Holding down the 2-pin header for 5 seconds, or longer, and releasing will return the pattern to Cycle Flash. The following chart describes the available patterns and order **(Both heads will be in the mode selected. Both heads will flash together unless in Front Cut-off mode)**:

360 Degree Module Flash Pattern - Table 1 (If so equipped)

See Figure 1, for 2-pin header location.

Flash Pattern

- Cycle Flash (default)
- Quad Flash70
- Mode Flash
- NFPA Quad Flash75
- Five Flash70
- Triple Flash70
- Quad Pop Flash70

LED DIRECTIONAL MODULES

In addition to the 360 degree warning modules the lightbar may be equipped with a number of single head front-rear warning LED modules. These modules are available in either the, PriZm II LED REFLECTOR Module or PriZm II 3-LED REFLECTOR in steady-burn and flashing versions. The steady-burn versions can be flashed by connecting the module(s) to any flasher that does not require ground through the load (example: Code 3® 900 series flasher). The flashing modules will have "Cycle Flash" as the standard pattern. The flash pattern can be changed by shorting the 2-pin header, J1 as shown in Figure 1, momentarily then releasing. Table 2 shows the available patterns and the order when stepping through patterns. The module can be reset to "Cycle Flash" by shorting the header for greater than 5 seconds and releasing.

Operating Specifications for front-rear 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 TAKEDOWN & ALLEY MODULES

In addition to the LED warning modules the lightbar may be equipped with optional LED Takedown and Alley modules. These modules provide equivalent performance to standard 50W MR16 Halogen lamps. Lamp replacement is not required due to the long life of LEDs.

Operating Specifications for LED Takedown & Alley modules:

Operating Voltage: 10-16 VDC, Reverse Polarity Protection

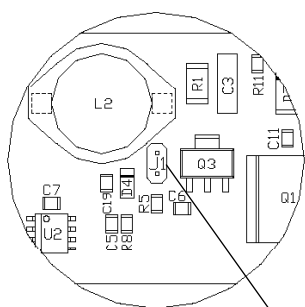
Current Draw: 1.5A

Available Colors: White

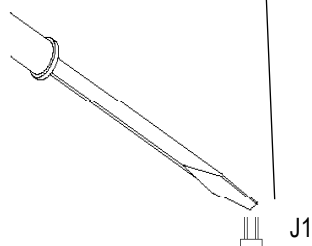
Directional module Flash Pattern - Table 2

| Flash Pattern | Description |
|-----------------------------|---|
| 1. Cycle Flash (DEFAULT) | Cycles through various patterns @ 70 fpm |
| 2. NFPA Quad Flash 80 FPM | Four Pulses per flash @ 80 fpm |
| 3. Steadyburn | Steady-Burn |
| 4. Five Flash 150 FPM | Five Pulses per flash @ 150 fpm |
| 5. Quad Flash 150 FPM | Four Pulses per flash @ 150 fpm |
| 6. Triple Flash 150 FPM | Three Pulses per flash @ 150 fpm |
| 7. Double Flash 150 FPM | Two Pulses per flash @ 150 fpm |
| 8. Single Flash 150 FPM | One Pulse per flash @ 150 fpm |
| 9. Single Flash 250 FPM | One Pulse per flash @ 250 fpm |
| 10. Single Flash 375 FPM | One Pulse per flash @ 375 fpm |
| 11. Triple Pop Flash 75 FPM | Three Pulses per flash (2 equal, 1 extended) @ 75 fpm |
| 12. Quad Pop Flash 75 FPM | Four Pulses per flash (3 equal, 1 extended) @ 75 fpm |
| 13. Single Flash 75 FPM | One Pulse per flash @ 75 fpm |
| 14. Double Flash 75 FPM | Two Pulses per flash @ 75 fpm |
| 15. Triple Flash 70 FPM | Three Pulses per flash @ 70 fpm |
| 16. Quad Flash 70 FPM | Four Pulses per flash @ 70 fpm |
| 17. Five Flash 70 FPM | Five Pulses per flash @ 70 fpm |
| 18. Mod Flash | |
| 19. Action Flash | |

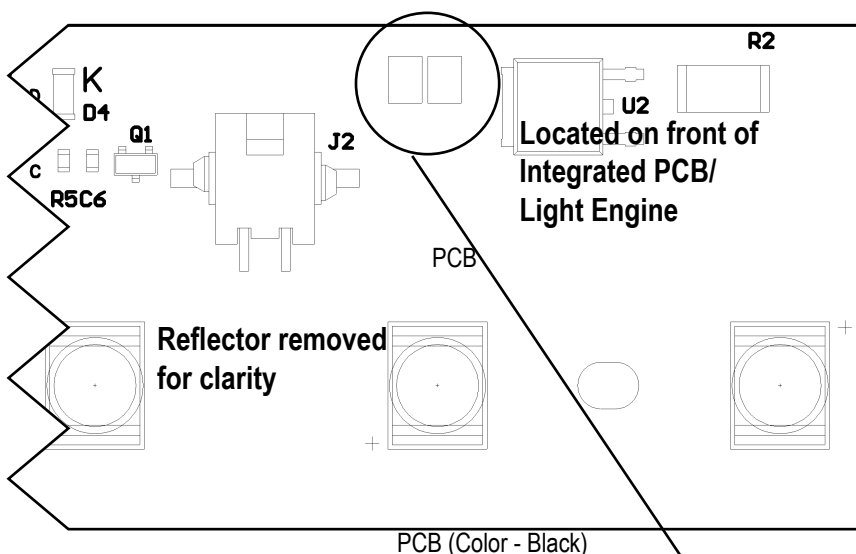
Located on rear of PCB



PCB (Color - Green)



FOR APPLICATIONS USING SEPARATE PCB & LIGHT ENGINES



PCB (Color - Black)

FOR APPLICATIONS USING INTEGRATED PCB/LIGHT ENGINE (ONE-PIECE)

Momentarily short and release to change patterns

Flash Pattern Header for OPTIX/PriZm II

FIGURE 1

Maintenance

Lens Cleaning

Use plain water and a soft cloth, or Code 3® lens polish and a very soft paper towel or facial tissue. Because plastic scratches easily, cleaning is recommended only when necessary (about every six months). Do not subject the lenses to car washes that use brushes, as these will scratch the lenses.

Lens Removal

First, disengage the lens clips (4 per lens) as shown in Figure 2. Finally, insert a screwdriver into the small slot in the lens clip pocket or the lens edge, and twist the screwdriver to lift the lens.

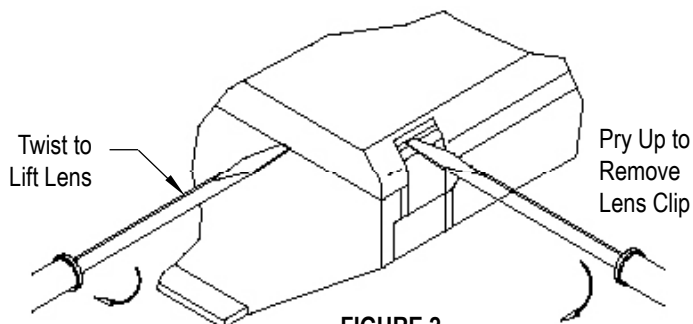


FIGURE 2



Lamps are extremely hot! Allow to cool completely before attempting to remove. Gloves and eye protection should be worn when handling halogen lamps as they are pressurized and accidental breakage can result in flying glass.

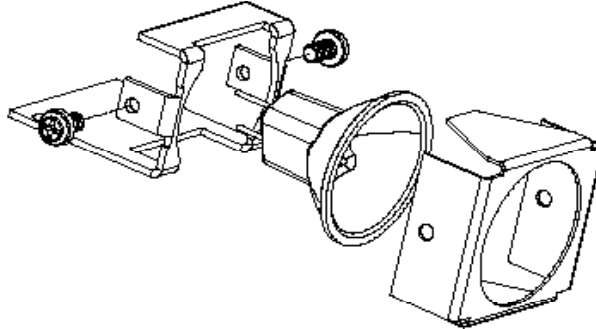
Lamp Replacement

Remove the lens as outlined above. Next, inspect the lamp and refer below to replace the lamp.

Note: Make sure lamp is cool before attempting to change it. Also, when installing a new lamp, be sure not to touch the glass with fingers. If contact is made, clean the glass with a soft cloth after inspection.

MR-11 Style Assembly

For MR-11 style alley light assemblies refer to Figure 3 for lamp replacement. Remove the lamp assembly by removing the appropriate fasteners, remove fasteners sandwiching MR-11 in bracket, and remove lamp. Replace the lamp and reassemble.



MR-11 ALLEY ASSEMBLY
FIGURE 3

H-3 55w Style Assembly

Caution: Extreme care must be taken when removing halogen lamps to prevent burns and bursting of glass.

Step 1 Remove the H-3 55w lighthouse from the lightbar by removing the appropriate fasteners and disconnecting the wiring.

Step 2 With the lighthouse assembly placed on a work surface with the lighthouse up, remove the four screws that attach the lighthouse to the lightbar mounting bracket (See Figure 4). It is not necessary to remove the heat shield.

Step 3 Remove the two lamp mounting screws with a Phillips screwdriver (see Figure 5) and remove the lamp.

Step 4 Replace the lamp and reinstall the two lamp mounting screws making sure to replace and attach the black ground wire with one of the lamp mounting screws.

Note: Replacement H-3 55 watt lamps are available from Code 3®, Inc. or you may obtain the lamp from your local auto parts store. If you obtain the lamp from your local auto parts store it may be necessary to change the terminal on the power wire to mate with the new lamp's terminal (depending on the lamp manufacturer). This terminal (fully insulated 1/4" female quickslide) is also available at your local auto parts or hardware store.

Step 5 Reinstall the 55w lighthouse to the lightbar mounting bracket with the four screws previously removed.

Step 6 Remount the 55w lighthouse assembly in the lightbar and reconnect the wiring.

Use the same procedure to replace the lamp for the 55w Dual Lighthouse assembly (see Figure 6) .

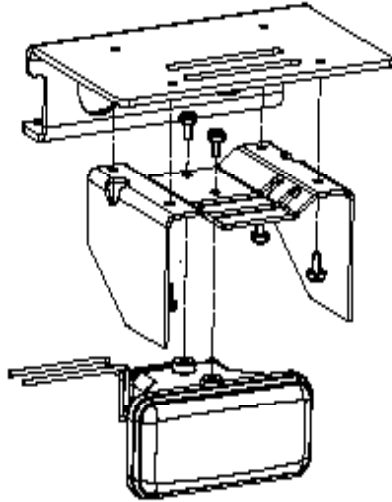


FIGURE 4

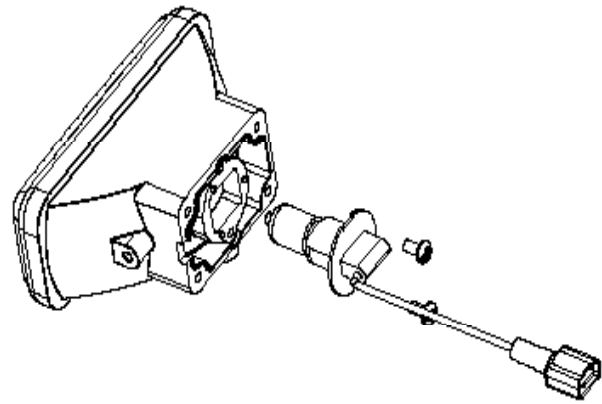


FIGURE 5

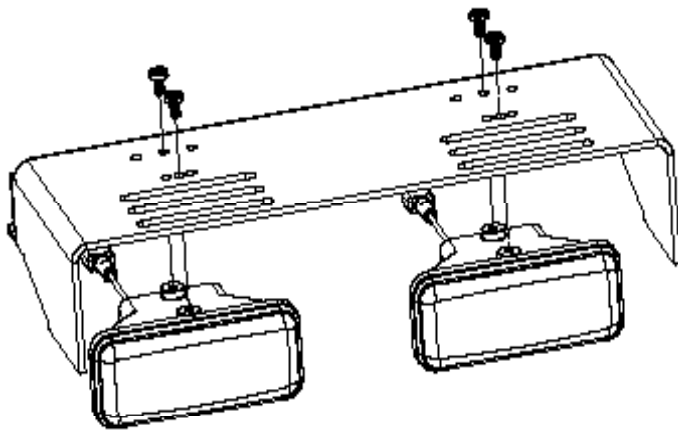
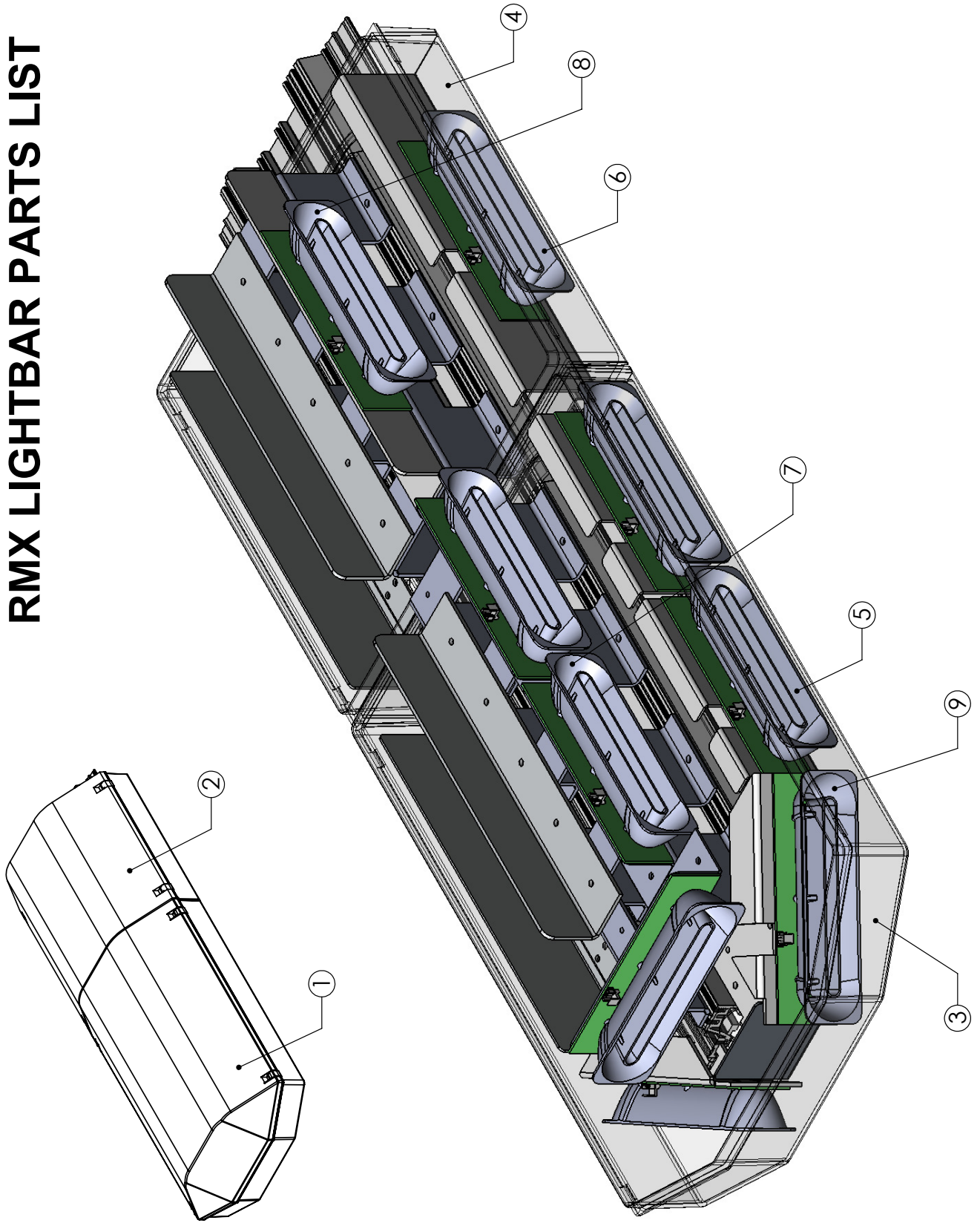


FIGURE 6

RMX LIGHTBAR PARTS LIST



Parts List

(Reference numbers identify items shown in Figure 7)

| Ref No. | Description | Part No. | |
|------------------|---|--------------------------------------|--------|
| 1 | Outboard Lens Cover Clear Red Blue Amber | T02101 T02102 T02103 T02104 | |
| 2 | Center Lens Cover Clear Red Blue Amber | T02131 T02132 T02133 T02134 | |
| 3 | Bottom Outboard Lens - Clear | S24320M | |
| 4 | Bottom Center Lens - Clear Lens Clip | T09959 T01777 | |
| 5 | PriZm II LED Reflector Light head - Outboard (Lower level) Red Blue Amber | CALL FACTORY TO ORDER | |
| 6 | PriZm II LED Reflector Light head - Center Section (Lower level) Red Blue Amber | | |
| 7 | PriZm II LED Reflector Light head - Outboard (Upper level) Red Blue Amber | | |
| 8 | PriZm II LED Reflector Light head - Center Section (Upper level) Red Blue Amber | | |
| 9 | PriZm II Corner LED Reflector Light head Single/Dual Driver Side Red Blue PriZm II Corner LED Reflector Light head Single/Dual Passenger Side Red Blue | | |
| NOT SHOWN | | | |
| 10 | 3-LED Reflector Light head Red Blue Amber | | |
| 11-1 | Main Cable | | T09930 |
| 11-2 | Outboard Lighthouse harness | | T16481 |
| 11-3 | Center Section Lighthouse harness | T16482 | |
| 11-4 | Harness for White lighthouses | T16483 | |
| 12-1 | 55W Stationary Module | S27251M | |
| 12-2 | 55W Dual Stationary Module | S27295M | |
| 12-3 | LED Dual Take Down Module | S27365M | |
| 12-1 | MR11 35W Alley Module | S22513M | |
| 12-2 | LED Alley Module | S27367M | |

Troubleshooting

All RMX™ Lightbars 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 314-996-2800.

LED MODULE TROUBLESHOOTING GUIDE

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

| PROBLEM | QUESTIONS | POSSIBLE CAUSE | SOLUTION |
|---|--|---|---|
| LED directional or entire corner module not operating when powered. | Are both heads on a corner module or a single head on a directional module out? Yes No | a. Bad power/ground connection. b. Defective module. a. See next | a. Fix connection. b. Replace module. |
| LED corner module has one head out. | Is the rear head flashing and the front head out? Yes No | a. In front cut-off mode. Proper functioning. b. Check white wire between master/slave modules for damage or disconnection. c. Check power and ground of front module. a. See next | a. No problem b. Fix white wire/connection. c. Fix power/ground connection. |
| LED corner module has one head out. | Is the front head steady burning and the rear head out? Yes No | a. No power to master. Master(Rear) must be powered for slave(front) to operate. b. Failed master. | a. Check power/ground connections. b. Replace entire 360 module. |
| Dimming does not operate. | N/A | a. White wire on module not connected to source of +12V. | a. Connect white wire to +12V source. |

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 for a period of 1 year, LED Lighthouse modules for 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.

For Technical Support / Service, please call 314-996-2800.



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