

INSTALLATION AND MAINTENANCE INSTRUCTIONS
FOR
JLX 48", 54" AND 60" SERIES LED JET LIGHTBARS WITH ROC™ TECHNOLOGY

SAFETY MESSAGE TO INSTALLERS
OF
FEDERAL SIGNAL LIGHT SYSTEMS



People's lives depend on your safe installation of our products. It is important to read, understand and follow all instructions shipped with the products. In addition, listed below are some other important safety instructions and precautions you should follow:

- To properly install a light assembly: you must have a good understanding of automotive electrical procedures and systems, along with proficiency in the installation and use of safety warning equipment.
- When drilling into a vehicle structure, be sure that both sides of the surface are clear of anything that could be damaged.
- A light system is a high current device. In order for it to function properly, a separate ground connection must be made. If practical, it should be connected to the negative battery terminal. At a minimum, it may be attached to a solid metal body or chassis part that will provide an effective ground path as long as the light system is to be used.
- Locate light system controls so the VEHICLE and CONTROLS can be operated safely under all driving conditions.
- This product contains high intensity LED devices. To prevent permanent eye damage, DO NOT stare into the light beam at close range.
- You should frequently inspect the light system to ensure that it is operating properly and that it is securely attached to the vehicle.
- File these instructions in a safe place and refer to them when maintaining and/or re-installing the product.

Failure to follow all safety precautions and instructions may result in property damage, serious injury, or death to you or others.

I. UNPACKING.

After unpacking the lightbar, inspect it for damage that may have occurred in transit. If the unit has been damaged, file a claim immediately with the carrier, stating the extent of damage. Carefully check all envelopes, shipping labels and tags before removing or destroying them.

II. INSTALLATION.

The basic lightbar is completely wired at the factory and does not require any additional internal wiring. All the conductors necessary for control of any and all basic and optional functions are contained in the cable. Installation of options will require additional wiring in the lightbar.

A user supplied control assembly must control the basic light functions of the unit.

Before proceeding, ensure that the lightbar has been installed on the vehicle roof in accordance with the instructions packed with the mounting kit. Route the lightbar cable as described below.



Light system controls must be located so that VEHICLE and CONTROLS can be operated safely under all driving conditions.



When installing equipment inside air bag equipped vehicles, the installer MUST ensure that the equipment is installed ONLY in areas recommended by the vehicle manufacturer.

Failure to observe this warning will reduce the effectiveness of the air bag, damage the air bag, or potentially damage or dislodge the equipment, causing serious injury or death to you or others.

A. Route the control cable into the vehicle and under the dash, near the eventual location of the user-supplied control head.

B. For proper light operation, the control cable must be properly terminated inside the user-supplied control head. Switch current capacities should be at least 15 amps.

NOTE

Any of the lightbar functions can be activated by applying 12VDC to the appropriate control line.



The lightbar WILL NOT light up or flash if improperly grounded. Be sure that the device is attached to a good vehicle ground.

C. Connect the black lead to a good battery/chassis ground.



If wires are shorted to the vehicle frame or each other, high current conductors can cause hazardous sparks resulting in electrical fires and molten metal.

Verify that no short circuits exist before connecting to the Positive (+) battery terminal.

DO NOT connect this system to the vehicle battery until ALL other electrical connections are made and mounting of all components is complete.

Failure to observe this WARNING will result in fire, burns and blindness.

D. Connect the lightbar's red power lead to a switch or relay rated at 30 amperes. Connect the other side of the fuse /circuit breaker to the +12VDC supply.

NOTE

The front and rear of the lightbar are individually and internally fused with a 15-ampere fuse located on the PC board next to the power terminals.

E. *Electrical Control Wires.*

All of the lightbar controls are integrated in the ROC PC board. Units are manufactured with either a 9-Conductor cable or a 11-Conductor cable.

1. Lightbar Control via 9-Conductor Cable.

The 9-conductor cable controls wires control the bar as shown in table 1.

2. Lightbar Control via 11-Conductor Cable

The 11-conductor cable controls wires control the bar as shown in table 2.

3. Signalmaster Wire Connections for 60" Lightbar Only.

GREEN Signalmaster Center out

GRAY & GRN Signalmaster Left

RED/WHT & GRN Signalmaster Right

F. *White Light Cutoff.*

The white light cutoff feature is set at the factory with dip switches on the controller board. The white light cutoff feature is activated by applying +12VDC to the Yellow wire. Once +12VDC is applied to yellow wire, the white lights will start to flash in the same flash pattern as the rest of the lightbar. When +12VDC is removed from the Yellow wire, the white lights will turn off.

G. *Front Light Cut-Off / Rear Light Cut-Off.*

NOTE

If the lightbar is equipped with a SignalMaster option, then this function is not available.

The lightbar may be equipped to shut off the front of the lightbar, or the rear of the lightbar, while the rest of the lightbar is still flashing. When +12VDC applied to the Green wire is removed, the lights will shut off. Lights will flash again when +12VDC is applied to the Green wire.

H. *Flash Pattern.*

The lightbar will normally flash in a preselected flash pattern. The preselected flash patterns are chosen from the 40 factory programmed patterns provided with each lightbar. See table 3. It is recommended that the preselected flash pattern for both Primary Mode and Secondary Mode are determined and programmed during installation.

The default pattern for the lightbar in Primary Mode is Pattern 1, Alternating Quad Flash 76QFPM. The default pattern for the lightbar in Secondary Mode is Pattern 2, Overlapping Penta Flash 87FPFM. The JLX ROC lightbar includes a choice of 40 flash patterns. Table 1 lists the available flash patterns.

Table 1. 9-Conductor Cable.

Wire Color	Function
RED	+12V – Activates the lightbar in Primary Mode.
BLACK	GND (-) Connect to a good battery/chassis ground.
GRAY	Takedown / TCL / Work Light
GREEN	Front light cut-off or Rear light cut-off
BLUE	MODE SELECT – Applying +12V changes the pattern of bar from to the pattern selected for secondary mode. Only active if light is normally flashing in Primary Mode.
ORANGE	PROGRAM – Applying GND (-) will increment the light bar to the next pattern. (See table 3.)
YELLOW	WHITE LIGHT CUTOFF – Used only in lights that have white light in the front positions. White lights flash with the rest of the bar when +12V is applied to the Yellow wire. White lights are cutoff when disconnected/power is removed
BROWN	Driver Side Alley
BROWN/WHITE	Passenger side Alley

Table 2. 11-Conductor Cable.

Wire Color	Function
RED	+12V – Activates the lightbar in Primary Mode.
BLACK	GND (-) Connect to a good battery/chassis ground.
GRAY	Takedown / TCL / Work Light
GREEN	Front light cut-off or Rear light cut-off
BLUE	MODE SELECT – Applying +12V changes the pattern of bar from to the pattern selected for secondary mode. Only active if light is normally flashing in Primary Mode.
ORANGE	PROGRAM – Applying GND (-) will increment the light bar to the next pattern. (See table 3.)
YELLOW	WHITE LIGHT CUTOFF – Used only in lights that have white light in the front 3 positions. White lights flash with the rest of the bar when +12V is applied to the Yellow wire. White lights are cutoff when disconnected/power is removed.
BROWN	Driver side Brake/Turn or Alley
BROWN/WHITE	Passenger side Brake/Turn or Alley
BLACK/WHITE	Tail lights

I. *Changing the Flash Pattern (see table 3).*

Changing the flash pattern of the J LX ROC is accomplished in one of two ways as follows:

1. There is a programming push button that is accessed by removing the lightbar's passenger side end dome. After the end dome is removed, apply power to flash the light in Primary Mode. The pattern can be changed by pressing down on the programming button located on the underside of the passenger side end PCB. The lightbar will turn off momentarily and begin to flash the next pattern. After the pattern of the lightbar changes, observe the the lightbar's current pattern. If another pattern is desired, press down on the programming button again until the lightbar again changes patterns. This can be repetitively done until the desired flash pattern is achieved. Allow the pattern to run for 15-seconds and it is now programmed to flash that pattern.

2. An (Orange) PROGRAM wire is available in the 9-conductor cable and 11-conductor cable. The pattern can be changed by applying GND (-) to the Orange wire (see table 1 and table 2). Once the pattern of the lightbar changes, disconnect the Orange wire for a few seconds and observe the lightbar's current pattern. If another pattern is desired, again apply GND (-) to the Orange wire until the

lightbar again changes patterns. This can be repetitively done until the desired flash pattern is achieved. Allow the pattern to run for 15-seconds and it is now programmed to flash that pattern.

Secondary Mode can also be programmed. Apply +12VDC to both the Primary (RED) and Secondary (Blue) Mode wires to turn the light on in Secondary Mode. Program the Secondary Mode Pattern in the same way the Primary Mode was programmed.

NOTE

If it is desired to return to the default pattern while changing the flash patterns, either hold the programming button down or apply GND (-) to the orange wire for 5 seconds. The controller will reset to the default pattern for that mode.



To provide safe operation, the user supplied power control switch and wiring must be capable of handling the rated current of the fuse at the source.

Table 3. Flash Patterns.

JLX ROC Flash Pattern	Description
Pattern 1	Alternate Quad Flash – 76QFPM *
Pattern 2	Overlapping Penta Flash 87FPM *
Pattern 3	Overlapping Alternating 95 FPM *
Pattern 4	175 Alternating Single *
Pattern 5	Simultaneous/Overlapping Triple/Nine *
Pattern 6	Alternating Single
Pattern 7	640 FPM Overlapping With overlap 5/2
Pattern 8	2 @ 60FPM 4 Pulse Alternating then 2 @ 60FPM 2 Pulse Simultaneous
Pattern 9	Driver Side End Rear Alt with Passenger Side End Rear - 120 Single FPM
Pattern 10	Driver Side End Rear Alt with Passenger Side End Rear - 90 Single FPM
Pattern 11	Driver Side End Rear Alt with Passenger Side End Rear Alternate with Center Rear - 80 Double FPM
Pattern 12	Driver Side / Passenger Side Center Rear Alternate with Center Rear/Driver & Passenger Ends - 80 Double FPM
Pattern 13	Heads Oscillate In/Out
Pattern 14	Driver and Passenger Front Ends Alt with Center Front
Pattern 15	Driver and Passenger Front Ends Alt with Center Front Followed by Center Front Alt with Driver and Passenger Front Ends – 80 Double FPM
Pattern 16	Wraparound Inside to Outside
Pattern 17	Wraparound Inside to Outside to Inside Followed by Wig/Wag Alt Flash
Pattern 18	Wig/Wag Driver Side Front Alt with Passenger Side Front
Pattern 19	In Tow Mode Pattern 1 – Mode 2, Pattern 1
Pattern 20	In Tow Mode Pattern 2 – Mode 2, Pattern 2
Pattern 21	In Tow Mode Pattern 3 – Mode 2, Pattern 3
Pattern 22	Flash - Mode 2, Pattern 4
Pattern 23	Quad - Wraparound In-Out – Full Quad
Pattern 24	Wraparound In-Out – 40mS Per Head
Pattern 25	Wig/Wag Driver Side Front Alt with Passenger Side Front Followed by Alt Flash
Pattern 26	Quad Flash
Pattern 27	Wraparound Inside to Outside to Inside Followed by Wig/Wag Alt Flash Followed by Full Quad Flash
Pattern 28	Wraparound Inside to Outside to Inside Followed by a Quad Flash
Pattern 29	Double Flash of Pairs Followed by a Quad Flash of Pairs and End caps
Pattern 30	Quadrant Flash Followed by Wraparound Inside to Outside Followed by a Triple Full Flash
Pattern 31	Increasing Rate Alt Flash Followed by a Triple Full Flash
Pattern 32	Alternate Triple Flash of Entire Bar
Pattern 33	Double Flash Driver and Passenger Front with Driver and Passenger Rear
Pattern 34	Double Flash Driver and Passenger Front with Driver and Passenger Rear Followed by Wraparound Inside to Outside
Pattern 35	Double Flash Driver and Passenger Front Wraparound In-Out Followed by Double Flash of Driver and Passenger Rear Wraparound Out-in
Pattern 36	Wraparound In-Out, Alt Double Flash, Wraparound Out-In, Full Quad Flash
Pattern 37	Full Quad Flash, Wraparound Out-In, Alt Double Flash, Wraparound In-Out
Pattern 38	Alternate Triple Flash Entire Bar Twice, Wraparound In-Out, Alt Double Flash, Wraparound In-Out
Pattern 39	Alternating 90 FPM *
Pattern 40	Test Pattern – Rotate Entire Bar 750mS Per Head
	* Denotes Pattern is SAE Compliant

III. BASIC MAINTENANCE.

A. *Cleaning the Plastic Domes.*

Ordinary cleaning of the plastic domes can be accomplished by using mild soap and a soft rag. Should fine scratches or a haze appear on the domes, they can ordinarily be removed with a non-abrasive, high quality, automotive paste wax.

The most effective product you can use for cleaning, protecting, and polishing clear and colored plastics is Plexus. Plexus is available through Federal Signal Corporation, Emergency Products in either 7-ounce cans (PX7) or 13-ounce cans (PX13).

Over time, exposure to heat, sunlight, smog, etc. will cause plastic to fade, discolor, scratch, or become brittle. Plexus seals the pores of the plastic making the domes easier to clean, improving scratch resistance, and increased product longevity.

CAUTION

The use of other materials such as strong detergents, solvents, petroleum products, etc. can cause crazing (cracking) of the plastic domes.

B. *Cleaning J LX ROC Reflectors.*

Use a soft tissue to clean the reflector. Avoid heavy pressure and the use of caustic or petroleum base solvents, which will scratch or dull the surface.

C. *Halogen Lamp Replacements.*

CAUTION

Service life of lamp will be shortened if glass portion is touched. If glass has been handled, clean carefully with a grease solvent.

a. Work lamps: See figure 1. To replace the lamp, twist to unlock and then pull the defective lamp out of the socket. Install a new lamp of the same type in the socket.

WARNING

A serious injury may result if the lamp is touched when hot. Always allow lamp to cool before removing. Halogen lamps are pressurized and if broken can result in flying glass. Always wear gloves and eye protection when handling lamps.

CAUTION

Service life of the lamp will be shortened if the glass portion is touched. If the glass has been handled, clean carefully with a grease solvent.

b. Takedown lamps: See figures 1 and 2. Remove the four PCB screws and invert the PCB to access the lamp.

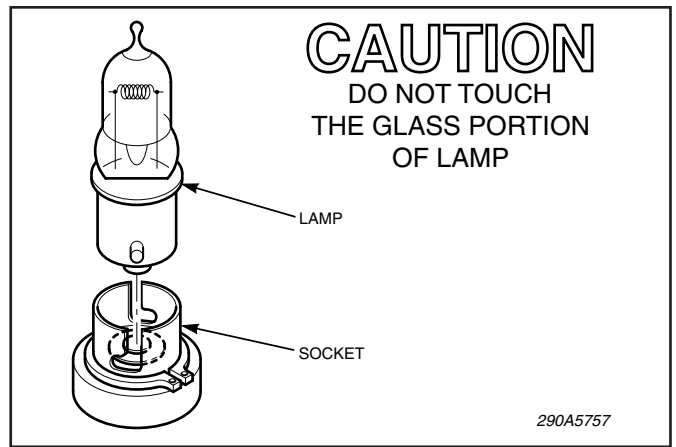


Figure 1.

See the replacement parts list and replace the defective lamp with an exact replacement only. Assemble in reverse order. Do not overtighten nuts.

c. Alley lamps: See figure 3. Remove the 8 PCB screws and invert PCB to access the lamp. Using a 1/16" hex key, remove the lamp retaining screws and clamps. Slide lamp and socket from housing just far enough to grasp socket (it may be necessary to unplug connector to gain adequate slack in leads). Holding socket firmly, unplug lamp. See the replacement parts and replace the defective lamp with an exact replacement only. Assemble in reverse order. Do not overtighten screws and nuts.

D. *Halogen Lamp Adjustment (See figure 4).*

CAUTION

Do not overtighten screws/nuts.

Remove the appropriate end dome. The halogen lamps are adjustable horizontally +/- 8 degrees and vertically +2 degrees/-5 degrees.

a. Horizontal adjustment: Loosen the lock nut with a 3/8" wrench while holding the adjusting screw with a small screwdriver. Move lamp aim to desired position, then carefully tighten locknut with the wrench while holding adjusting screw with screwdriver.

b. Vertical adjustment: Loosen the lock nut with a 3/8" wrench while holding the adjusting screw with a small screwdriver. Turn adjusting screw clockwise to lower

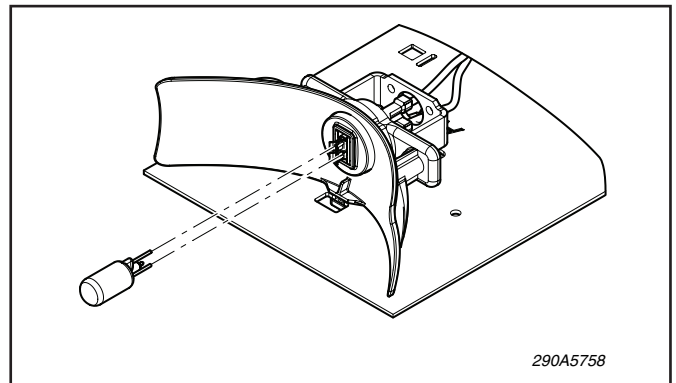


Figure 2.

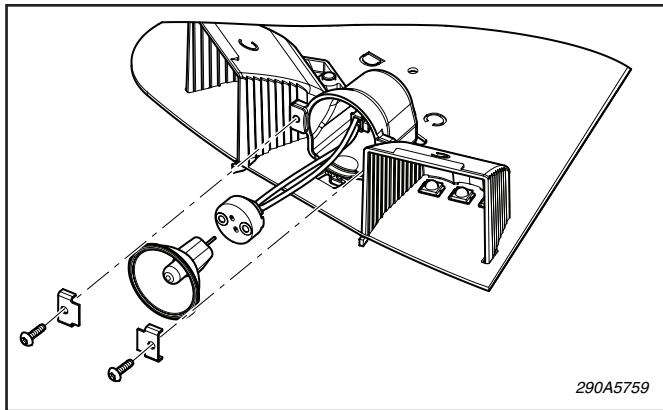


Figure 3.

point of aim, counter-clockwise to raise point of aim. Once positioned, carefully tighten locknut with wrench while holding adjusting screw with screwdriver.

E. Cleaning Halogen Reflector Assemblies.

Use a soft tissue to clean reflectors. Avoid heavy pressure and the use of caustic, abrasive, or petroleum-base cleaners, which will scratch or dull the surface.

F. PCB Controller Replacement and Halogen / LED Head Fuse Access.

1. Remove the passenger side or driver end dome. Remove the PCB ground nut from the end PCB, and invert PCB, noting ground lead placement on ground bracket.
2. Note and record connections, then disconnect wires and harnesses.
3. Loosen the six screws securing the controller and remove the screws from the controller.
4. Assembly is the reverse of disassembly. Ensure ground leads are in place. Do not overtighten nuts.

G. PCB Replacement.

1. Remove dome screws, name plate, dome, and eight PCB screws, and invert PCB.
2. Note and record connections, then disconnect wires and harnesses. Do not overtighten nuts.

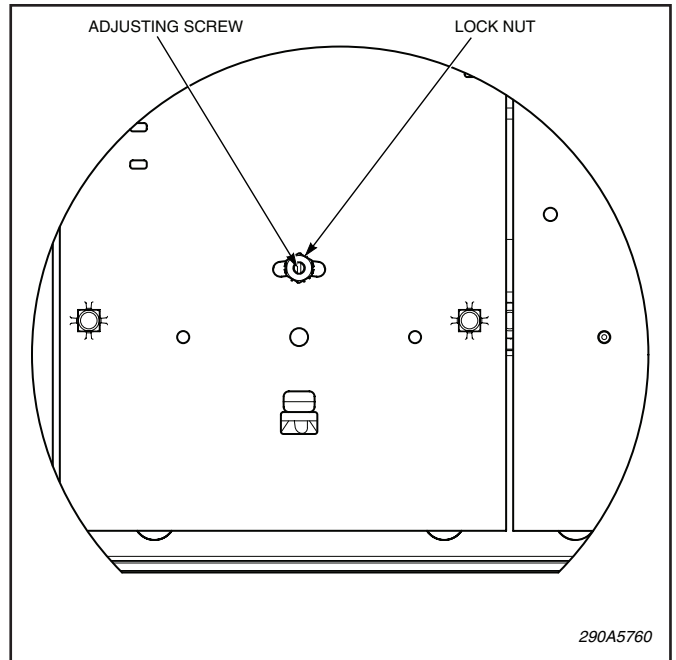


Figure 4.

H. Service.

The Federal factory will service your equipment or provide technical assistance with any problems that cannot be handled locally.

Any units returned to Federal Signal for service, inspection, or repair must be accompanied by Return Material Authorization. This R.M.A. can be obtained from a local Distributor or Manufacturer's Representative.

At this time a brief explanation of the service requested, or the nature of the malfunction, should be provided.

Address all communications and shipments to:

Federal Signal Corporation
 Emergency Products Division
 Service Department
 2645 Federal Signal Drive.
 University Park, IL 60466-3195
 800-433-9132

Copyright 2007 Federal Signal Corporation

