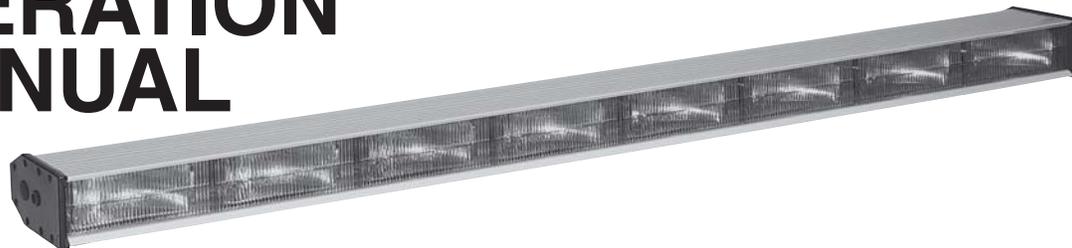


INSTALLATION & OPERATION MANUAL



AS-10/AS-847/AS-839
ARROWSTIK®

Code 3, Inc., a subsidiary of
Public Safety Equipment, Inc.

CODE 3[®]
PUBLIC SAFETY EQUIPMENT, INC.

MODELS AS-10, AS-847, AS-839, AS6FL AND SPLIT ARROWSTIK® SYSTEMS

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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 ArrowStik® is a traffic directing device that will mount in many locations including the back of a lightbar or rear panel of a truck. The ArrowStik is a series of lights that point traffic away from the scene of an accident or work site.

The ArrowStik uses standard 1156 incandescent lamps for operation. The lamp and reflector assembly are mounted into the sliding track of the painted aluminum extrusion for easy maintenance.

The ArrowStik control box delivers four (4) distinct warning patterns: arrow left, arrow right, center out, and alternating flash. An Arrowstik controller with fast speed, night light dimming, and an auxiliary 12 amp switched output is also available.

The ArrowStik draws a maximum of twenty (20) amps during its cycle, while averaging less than ten (10) amps.



WARNING!

The use of this or any warning device does not insure 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.

Public Safety Equipment, 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

After unpacking the items, carefully inspect the unit and its associated parts for any damage that may have been caused in transit. Report any damage to the carrier immediately.

Installation & Mounting

The ArrowStik was designed with a flexible mounting system to allow its use with as many lightbars as possible. The following installation instructions provide direction for mounting the ArrowStik to the Code 3® XL 5000™ Series and LP 6000™ Series Lightbar frames. Information is given, however, that mounting on other lightbar systems should be possible. Questions about a specific application should be directed to the Technical Hotline number given on the last page of this manual.

Permanent Mounting

Prior to mounting, consideration must be given to cable location and lamp replacement. The cable should exit the endcap on the driver's side unless otherwise specified. Lamp replacement requires 48" of clearance on the cable side to remove the light head assembly.

LP 6000™ Series Frame:

- 1) If an LP lightbar is currently mounted on the vehicle, remove the lightbar from the vehicle roof and turn it upside down. Rest it on cloth or some other soft surface. It is not necessary to disconnect the wiring.
- 2) Determine whether you have an early or late model LP 6000™ Series frame. Early models are fairly smooth along the bottom (Figure 2). Late models have a depressed trough in the center of the base. (Figure 3).
- 3) Mount the ArrowStik® bracket on the front or rear of the LP 6000 Series frame as desired. If you have an early model LP frame, refer to Figure 2. If you have a late model LP frame, use of the plastic shims supplied in the parts bag will ensure level mounting of the ArrowStik (refer to Figure 3). In either case, leave the mounting bolts loose until step 7.
- 4) Turn the lightbar right side up and attach the ArrowStik to its mounting bracket as shown in Figure 4. Leave the mounting bolts loose so the ArrowStik can be moved from side to side.
- 5) Put the lightbar on the vehicle roof making sure not to scratch the vehicle. Check for clearance below the lightbar as you proceed.
- 6) Reposition the lightbar and secure it to the vehicle.
- 7) Tighten the bolts that hold the ArrowStik mounting bracket to the lightbar, checking that the brackets are aligned with each other.
- 8) Position the ArrowStik in the center of the vehicle and tighten the bolts that hold it to the mounting bracket.

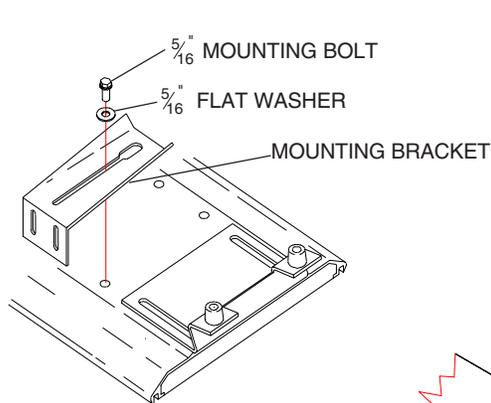


FIGURE 2
LP 6000 SERIES
(EARLY MODEL)

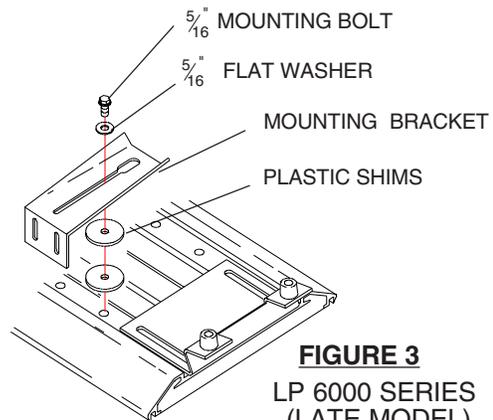


FIGURE 3
LP 6000 SERIES
(LATE MODEL)

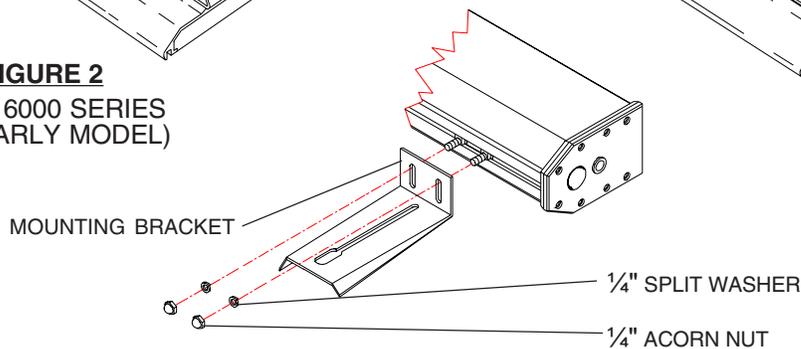


FIGURE 4

XL 5000™ Series Frame:

- 1) If an XL Series Lightbar is already mounted on the vehicle, remove the speaker cover and then the lens from one end of the lightbar by removing the six (6) screws holding it in place. Figure 5 illustrates three of the screws on one side.
- 2) Remove the lightbar from the vehicle roof and turn it upside down. Rest it on cloth or some other smooth surface. It is not necessary to disconnect the wiring.
- 3) At the same end, mark the location of the "U" bracket assembly on the lightbar frame (see Figure 5).
- 4) Remove the "U" bracket assembly by loosening the nuts and sliding it off the lightbar base.
- 5) If the ArrowStik is to be front mounted, slide the two carriage bolts into the front groove as shown in Figure 6. Otherwise, slide both carriage bolts into the rear groove.
- 6) Re-secure the "U" bracket assembly in the position marked in Step 3 and replace the lens.

- 7) Loosely mount the ArrowStik® bracket to the lightbar as shown in Figure 6.
- 8) Loosely mount the ArrowStik to the bracket as shown in Figure 4.
- 9) Put the lightbar on the vehicle roof making sure not to scratch the vehicle. Check for clearance below the lightbar as you proceed.
- 10) Reposition the lightbar and secure it to the vehicle.
- 11) Tighten the bolts that hold the ArrowStik mounting bracket to the lightbar, checking that they are in the same position front to back with respect to the mounting bracket.
- 12) Position the Arrowstik in the center of the vehicle and tighten the bolts that hold it to the mounting bracket.

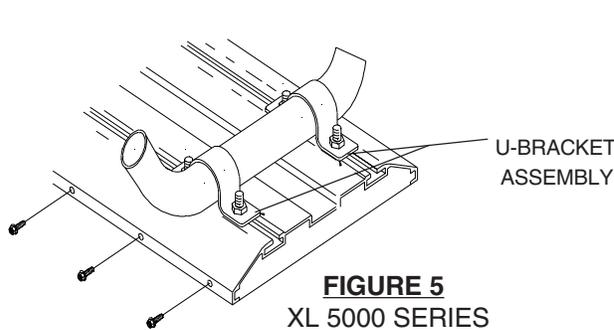


FIGURE 5
XL 5000 SERIES

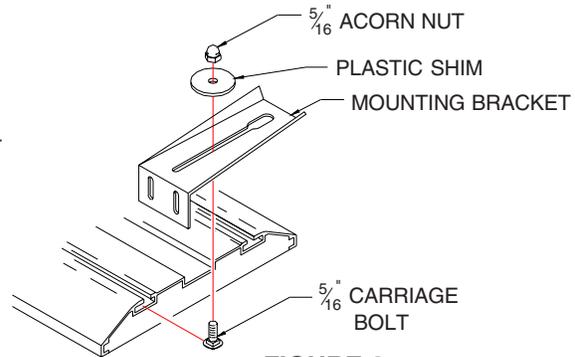


FIGURE 6
XL 5000 SERIES

Wiring Instructions



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.

Circuitbreakers are very sensitive to high temperatures and will "false trip" when mounted in hot environments or operated close to their capacity.

Note: See Special wiring instructions for 9 wire cable and AS6FL.

Refer to Figure 7 for control head installation.

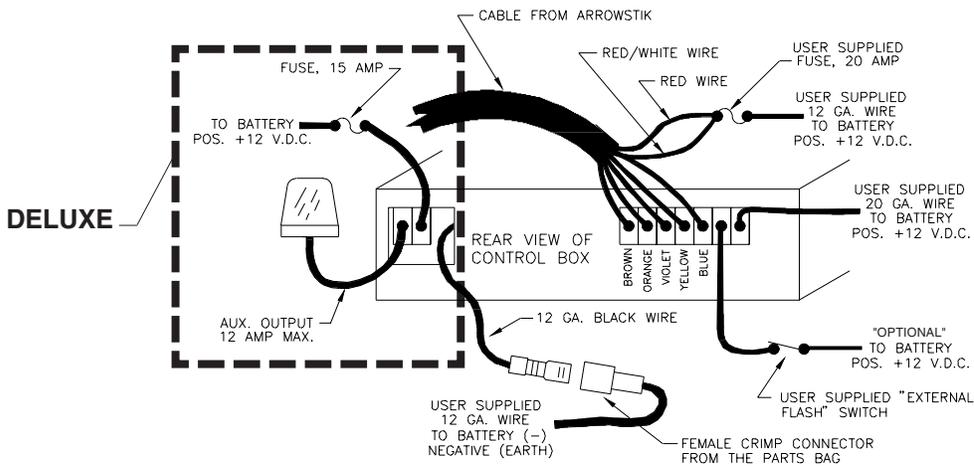
1. After installing the ArrowStik lighthouse, route the cable into the vehicle to where the Arrowstik control head will be mounted.
2. Cut the cable to length and strip back the cable insulation on the seven (7) wires.
3. Remove the plug from the back of the control head. Connect the colored control wires to the plug as shown on the control head decal.
4. Route a user supplied 12 gauge black wire to the battery ground (earth) (negative). Use the crimp connector in the parts bag and connect to the black 12 gauge wire on the ArrowStik control head.

5. Route a 20 gauge wire from the first position of the ArrowStik® control head plug to the +12Vdc (positive) of the battery. Use a 5 amp fuse or breaker to protect the control head from over current conditions.
6. Check all connections for frayed or shorted wires. Insert the plug back into the ArrowStik control head.
7. Connect the red and red/white wires of the seven (7) wire cable to the +12Vdc (positive) of the battery through a user supplied 20 amp fuse or breaker. If the red and red/white wires are terminated at the controller, use a 12 gauge wire and heavy duty connector to connect the wires.

External Flash Wiring

Connect the second position of the control head plug to the user supplied switch with 20 gauge wire, use the decal on the back of the controller as a guide. Route the switch positive lead to the +12Vdc battery (positive). Use a 5 amp fuse or breaker for the circuit.

Male crimp connector and 7 position plug are attached to the control head and should be removed before attaching wires to them. After wires are attached, reconnect plug and connector.



Note: Use diagram on right to assist in wiring plug. Damage may occur to Control Head if wired incorrectly.

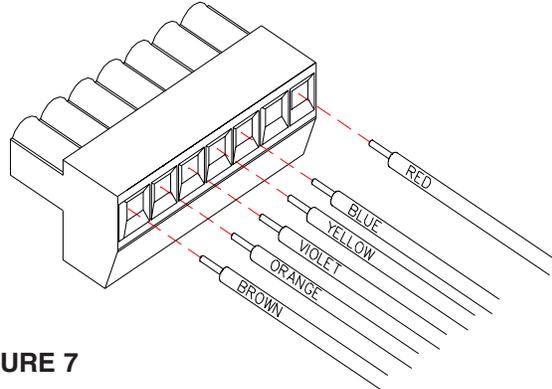


FIGURE 7

Special Wiring Instructions

Front Facing ArrowStik® Systems, or Passenger's Side Cable

Wiring order must be changed on front facing ArrowStik systems. The wiring order is listed below:

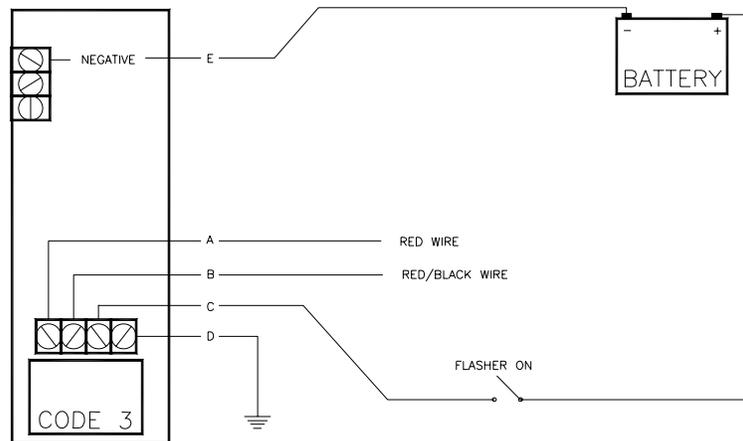
Rear Facing (Standard Operation)	Front Facing or Pass. Side
Brown	Blue
Orange	Yellow
Violet	Violet
Yellow	Orange
Blue	Brown

Wiring directions for AS6FL (9 wire cable)

The AS6FL 9 wire cable has different wire colors than the standard Arrowstik. The six center lamps are used as an ArrowStik® while the two outboard lamps are connected to a 700 alternating flasher.

The red wire goes to the passenger side outboard lamp and the red/black wire goes to the driver side outboard lamp. Connect these wires to the 700 flasher according to the flasher wiring instructions below. Note that terminal D is connected to Ground. Connect the black wire of the cable to the +12 VDC (positive) side of the battery through a user supplied 20 amp fuse or circuit breaker. If the black wire is terminated at the controller, use a 12 gauge wire and heavy duty connector to connect the wires. Use the following chart to correctly wire the remaining wires to the ArrowStik control head.

Standard Arrowstik Cable	AS6FL 9 Wire Cable
Brown Orange Violet Yellow Blue	Yellow/Black Orange White Yellow Blue Blue/Black-not used



Operations

The different signaling modes are controlled by the rotary switch on the control head. Changing the rotary switch controls the signal direction. The ArrowStik face plate is shown in Figure 8.

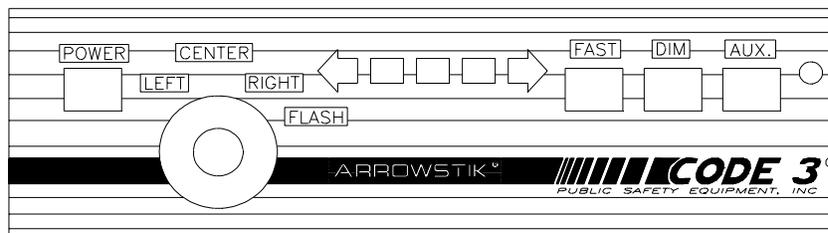


FIGURE 8

The light emitting diodes (LED) on the control head indicate the signal pattern of the ArrowStik lighthouse. If the Arrowstik is not functioning correctly, refer to the TROUBLE SHOOTING GUIDE for assistance.

NOTE: In the Left Arrow mode, the right most lamp and LED will not light.
In the Right Arrow mode, the left most lamp and LED will not light

Options & Specification

AS-839 / AS-847 / AS-10

AS-10/ AS-847 Size: 47¼" L, 4¼" W, 2¾" H

AS-839 Size: 39 1/4"L, 3 1/4" W, 2 3/4" H

Weight: 10 lb

The following are optional features that may or may not be included in your control head depending upon which model you've purchased.

"Fast Speed" Mode: Pushing the button marked "Fast" will cause each of the 4 patterns of the ArrowStik® to operate at a faster rate, with the same amount of light intensity.

"Dim" Mode: Pushing the button marked "Dim" will cause each of the 4 patterns of the ArrowStik to operate at a lower intensity level. This is for use during night operation when 100% intensity is too much, or daytime use when current draw needs to be reduced.

"Aux" mode: Pushing the button marked "Aux" will activate the control head relay. This will switch +12Vdc to the terminal marked "Aux Output" in Figure 7. The LED on the front panel will light indicating that the auxiliary switch is activated. This auxiliary output is limited to 12Amps at 12.8 Vdc nominal.

External Flash Operation

Connect the "External Flash" input of the 7 position connector to +12 Vdc through a user supplied switch, as shown in Figure 7. When this switch is closed, the ArrowStik will operate in the "Flash" mode, unless another traffic directing pattern is already selected.

AS3P SECTION SPLIT ARROWSTIK & ASSP 4 SECTION SPLIT ARROWSTIK SUPPLEMENTAL INSTRUCTIONS

Following are supplemental instructions for the model ASSP and AS3SP split ArrowStik systems. This unit requires the use of a special control box (S81014).

- 1) Mount each half of the split ArrowStik to the vehicle according to the "Installation and Mounting" section of the user manual. Be sure to mount the unit marked "Driver" on the drivers side of the vehicle and the unit marked "Passenger" on the passenger side of the vehicle. The cable should exit on the OUTBOARD side of each unit.
- 2) Route the cable for each half of the ArrowStik through the vehicle to the location of the control head. Be sure to leave the driver and passenger designations on each cable for proper wiring of the unit in the steps that follow.
- 3) Refer to the "Wiring instructions" section of this user instruction manual, page 5. Beginning with the cable marked "Driver", connect each of the colored wire as shown in Figure 7, to the control head: however DO NOT USE THE RED/WHITE, BROWN OR ORANGE WIRES in this cable. Cut these wires back to the black jacket of the 7 wire cable.
- 4) With the cable marked "Passenger", connect each of the colored wires, as shown in Figure 7 of the user manual, to the control head: DO NOT USE THE RED/WHITE, YELLOW OR BLUE WIRES in this cable. Trim these wires back to the jacket of the 7 wire cable.
- 5) Complete the wiring and installation of the ArrowStik and control head according to the user instruction manual.

Maintenance

The ArrowStik requires minimal routine maintenance. Occasional cleaning of the lens is all that is required to sustain maximum light output. Water or *Code 3*® lens polish and a very soft cloth is needed for cleaning. The plastic scratches easily, so cleaning is recommended only when necessary. The lens should not be removed at any time.



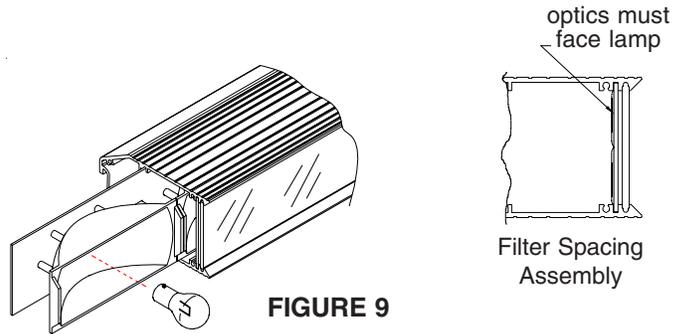
The lamp bracket assembly is at +12Vdc/ +24Vdc. Power must be disconnected for maintenance.



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.

Changing the Lamps or Optic Filters

- 1) Disconnect power at the power source before changing lamps. If necessary, remove the lighthouse from its mounting.
- 2) Remove the four (4) screws from the end cap at the **cab**le end of the ArrowStik® lighthouse.
- 3) Slide the light assembly out of the extrusion to expose the defective lamp.
- 4) Replace the lamp with 27 watt incandescent lamp (PSE part no.T01538).
- 5) If replacing the optic filters, the raised surface must face the lamp.
- 6) Re-assemble the unit by reversing Steps 1 - 3.



Trouble Shooting Guide

PROBLEM	CAUSE	REMEDY
ArrowStik does not function when turned on.	Plug in rear of control box is loose or disconnected. Faulty ground (earth) connection. Faulty power connection. Control box is damaged.	Reconnect plug. Verify ground (earth) connection. Verify +12Vdc connections. Check connections. If problem still exists, call Technical Hotline.
One or more lamps do not light and LED's on control box function correctly.	Lamp(s) have failed. Bad wiring connection.	Replace lamp(s). Verify connections.
One or more lamps do not light and LED's on control head do not function.	Control box is damaged.	Return control head to Code 3® or call Technical Hotline.
LED's on control box burn continuously.	Control box is damaged.	Return control head to Code 3® or call Technical Hotline.
Right most lamp does not come on in Arrow Left mode or left most lamp does not come on in Arrow Right mode.	Normal operation.	None.
Light output appears dim.	Low voltage. Faulty ground (earth) connection. Product is in "Dim" Mode.	Check connections or battery. Verify ground (earth) connections. Select appropriate mode.

Parts List & Exploded View_{AS-839}

AS-10

AS-847

<u>Ref No.</u>	<u>Description</u>	<u>Part No.</u>	<u>Qty.</u>	<u>Part No.</u>	<u>Qty.</u>	<u>Part No.</u>	<u>Qty.</u>
1	#6 x 1/2" SMS, pan head	T02797	8	T02797	8	T02797	8
2	Hole plug	T05431	1	T05431	1	T05431	1
3	End cap	T05428	2	T05428	2	T05428	2
4	End cap gasket	T05429	2	T05429	2	T05429	2
5	Aluminum extrusion	S82552	1	S81147	1	S81147	1
6	.100 dia. rope gasket	T07005	2	T07005	2	T07005	2
7	Lighthouse Lens	T09094	1	T05425	1	T05425	1
8	Small lighthouse optic filter	T02344	8	T02354	10	T02344	8
9	Lamp bracket	S95922	1	S95863	1	T08685	1
10	ArrowStik® reflector	T05526	8	T05526	10	T05526	8
11	#1156 27 watt incandescent lamp	T01538	8	T01538	10	T01538	8
12	Lampholder & Bracket	T05322	8	T05322	10	T05322	8
13	ArrowStik Jumper-Green	T09314	3	T09314	5	T09314	3
14	ArrowStik Jumper-Green/Black	T09315	6	T09315	8	T09315	10
15	Cable	T05438	1	T05438	1	T05438	1
	Cable - 50ft	T04485	1	T04485	1	T04485	1
	Cable - 70ft	T04486	1	T04486	1	T04486	1
16	Strain relief bushing	T05861	1	T05861	1	T05861	1

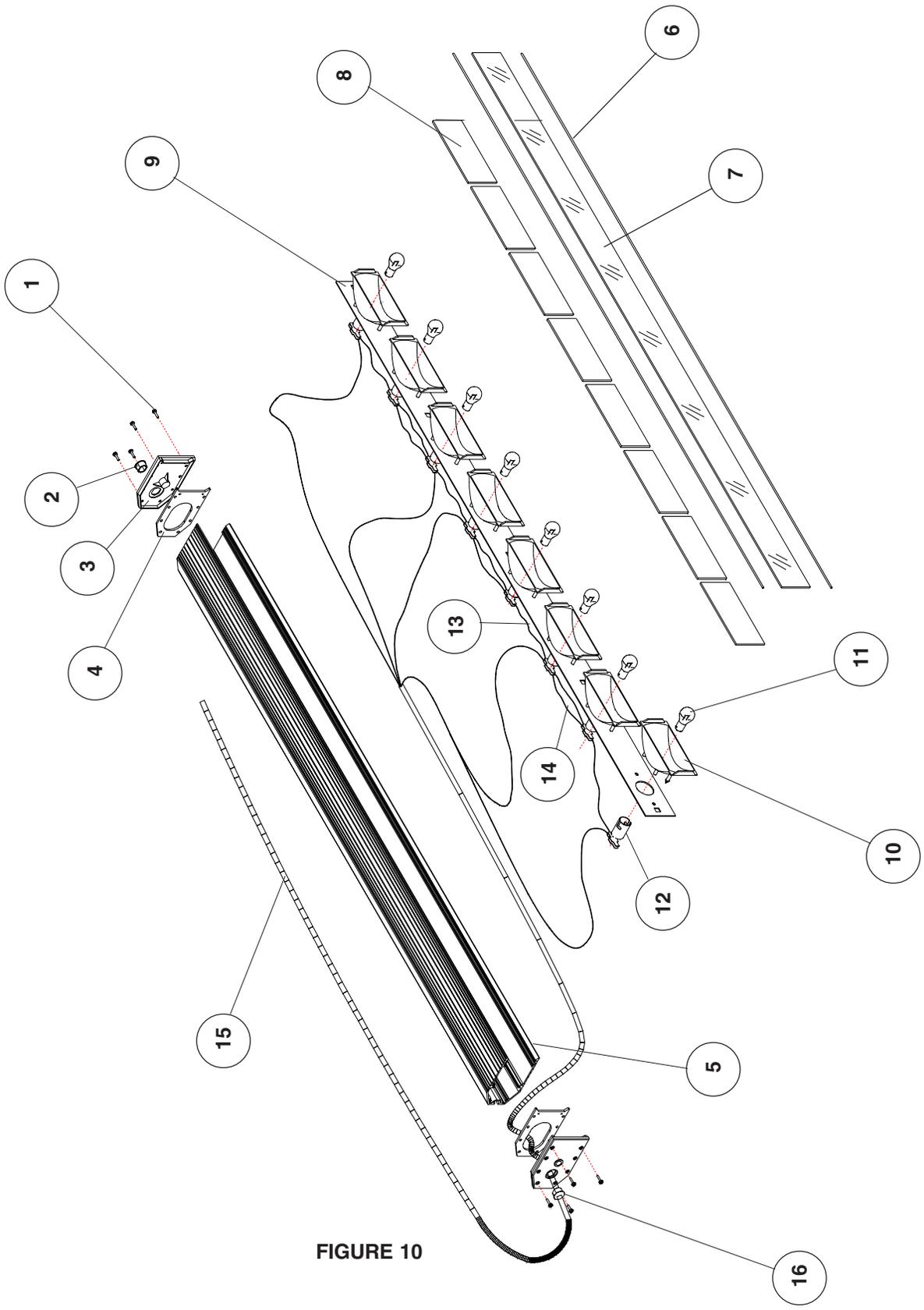


FIGURE 10

Notes:

WARRANTY

This product was tested and found to be operational at the time of manufacture. Provided this product is installed and operated in accordance with the manufacturer's recommendations, Code 3[®] guarantees all parts and components except the lamps for a period of 1 year 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 a 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

In order to provide you with faster service, if you are going to return a product 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[®]. 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 product at its discretion and assumes no responsibility or liability for expenses incurred for the removal and/or reinstallation of products requiring service and/or repair.

PROBLEMS OR QUESTIONS? CALL OUR ASSISTANCE HOTLINE (314) 996-2800

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