



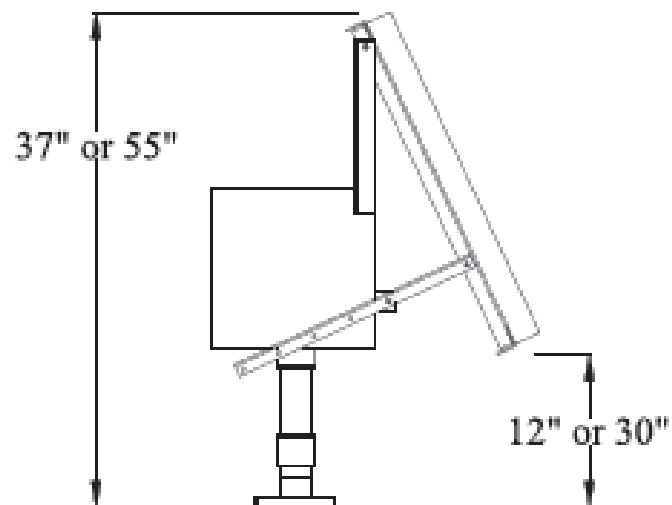
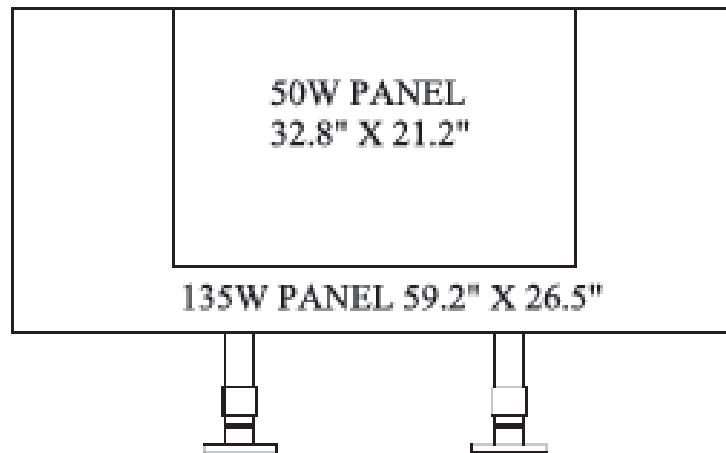
Hali-Brite®

Installation and Maintenance Manual

SPS Solar Power Supply



Hali-Brite® Inc.
1119 Madison St
Brainerd, MN 56401
Tel: 800.553.6269
Fax: 218.454.0972
www.halibrite.com



Anchor Assembly Top View

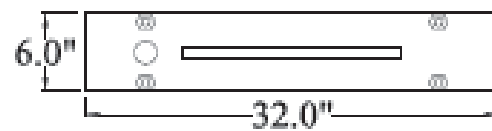


Table of Contents

| | | |
|-----|--------------------------------------|----|
| 1 | Introduction..... | 4 |
| 1.1 | About this Manual..... | 4 |
| 1.2 | Model Configurations | 4 |
| 1.3 | Warranty | 4 |
| 1.4 | Disclaimers | 5 |
| 2 | Safety Precautions..... | 6 |
| 2.1 | Safety Statements..... | 6 |
| 2.2 | General Practices | 6 |
| 2.3 | Electrical Practices..... | 7 |
| 2.4 | Qualified Personnel..... | 8 |
| 2.5 | Proper Usage..... | 8 |
| 3 | Specifications..... | 9 |
| 3.1 | Electrical Specifications..... | 9 |
| 3.2 | Physical Specifications | 9 |
| 3.3 | Environmental Specifications | 9 |
| 4 | Installation..... | 10 |
| 4.1 | Unpacking | 10 |
| 4.2 | Tools and Supplies Needed..... | 10 |
| 4.3 | Installation..... | 11 |
| 5 | Maintenance | 19 |
| 5.1 | Maintenance Schedule | 19 |
| 6 | Repair..... | 20 |
| 6.1 | Battery Replacement..... | 20 |
| 6.2 | Fuse Replacement | 20 |
| 6.3 | Solar Panel Replacement | 21 |
| 6.4 | Charge Controller Replacement..... | 22 |
| 6.5 | Frangible Coupling Replacement | 23 |
| 6.6 | Solar Panel Angle Adjustment..... | 25 |
| 6.7 | Photocell Replacement..... | 25 |
| 7 | Replacement Parts..... | 26 |

1 Introduction

1.1 *About this Manual*

The information in this manual is provided to assist installation and maintenance personnel in the proper installation, upkeep, and maintenance of the SPS Solar Power Supply.

1.2 *Model Configurations*

SPS-135-2-12: 135 watt panel, 2 batteries, short legs

SPS-135-2-30: 135 watt panel, 2 batteries, tall legs

SPS-135-3-12: 135 watt panel, 3 batteries, short legs

SPS-135-3-30: 135 watt panel, 3 batteries, tall legs

SPS-50-2-12: 50 watt panel, 2 batteries, short legs

1.3 *Warranty*

Solar Panel: The solar panel warranty is offered by the manufacturer, BP Solar. Please refer to the warranty materials included with this manual, and contact the manufacturer directly for warranty claims.

Batteries: The battery warranty is offered by the manufacturer, Concorde Battery Corporation. Please refer to the warranty materials included with this manual, and contact the manufacturer directly for warranty claims.

The warranty for the other components of the SPS is offered by Hali-Brite® as follows:

Hali-Brite® products are guaranteed against mechanical, electrical, and physical defects (excluding lamps) for a period of one year from the date of installation or a maximum of two years from the date of shipment and are guaranteed to be merchantable and fit for the ordinary purposes for which such products are made. Hali-Brite® will correct by repair or replacement, at its option, equipment or parts which fail because of mechanical, electrical or physical defects, provided that the goods have been properly handled and stored prior to installation, properly installed and properly operated after installation, and provided further that Buyer gives Hali-Brite® written notice of such defects after delivery of the goods to Buyer. Hali-Brite® reserves the right to examine goods upon which a claim is made. Said goods must be presented in the same condition as when the defect therein was discovered. Hali-Brite® further reserves the right to require the return of such goods to establish any claim. Hali-Brite's obligation under this guarantee is limited to making repair or replacement within a reasonable time after receipt of such written notice and does not include any other costs such as the cost of removal of defective part, installation of repaired product, labor or consequential damages of any kind, the exclusive remedy being to require such

new parts to be furnished. Hali-Brite's liability under no circumstances will exceed the contract price of goods claimed to be defective. Any returns under this guarantee are to be on a transportation charges prepaid basis. For products not manufactured by, but sold by Hali-Brite®, warranty is limited to that extended by the original manufacturer. This is Hali-Brite's sole guarantee and warranty with respect to the goods; there are no express warranties or warranties of fitness for any particular purpose or any implied warranties of fitness for any particular purpose or any implied warranties other than those made expressly herein. All such warranties being expressly disclaimed. Details and values given in this manual are average values and have been compiled with care. They are not binding, however, and Hali-Brite® disclaims any liability for damages or detriments suffered as a result of reliance on the information given herein or the use of products, processes or equipment to which this manual refers. No warranty is made that the use of the information or of the products, processes or equipment to which this manual refers will not infringe any third party's patents or rights. The information given does not release the buyers from making their own experiments and tests.

1.4 Disclaimers

This manual is published for informational purposes only and the information provided should not be considered as all-inclusive or covering all contingencies. If further information is required, Hali-Brite® Inc. should be contacted. Sale of the product shown in this manual is subject to Hali-Brite's terms and conditions including, but not limited to, the Hali-Brite® Warranty. Such terms and conditions are available upon request. Hali-Brite's warranty will not apply to any products which have been "so repaired or altered outside the manufacturer's plants as, in the manufacturer's judgment, to affect its reliability and performance."

No warranties, express or implied, including warranties of fitness for a particular purpose or merchantability, or warranties arising from course or dealing or usage of trade, are made regarding the information, recommendations, and descriptions contained herein. The manufacturer is not responsible and will not be held liable in contract or in tort (including negligence) for any special, indirect or consequential damages, including injury or damage caused to vehicles, contents or persons, by reason of the installation of any Hali-Brite® product or its mechanical or electrical failure.

2 Safety Precautions

To help you install and maintain this equipment safely and efficiently make sure you read and understand all safety information in this manual prior to performing any procedure. Failure to do so may result in personal injury, property damage, or possible death.

2.1 Safety Statements

The following safety statements are used throughout this manual. They will alert you to possible safety hazards and conditions that could result in personal injury, death, or property and equipment damage.

CAUTION: Indicates hazards or unsafe practices that could result in minor personal injury, product, or property damage.

WARNING: Indicates hazards or unsafe practices that could result in severe personal injury or death.

DANGER: Indicates immediate hazards that will result in severe personal injury or death.

2.2 General Practices

Read and become familiar with the general safety instructions provided in this section of the manual before installing, operating, maintaining, or repairing this equipment.

- Do not attempt to assemble or install this equipment if it has been damaged from shipping.
- Do not attempt to install or maintain this equipment if you or the equipment is standing in water.
- Only qualified personnel should perform maintenance on this equipment.
- Always use proper tools (as mentioned in this manual) to perform installation and maintenance.
- Use proper hand and eye protection as needed when installing or maintaining this equipment.
- Make sure you have adequate first aid supplies available when installing this equipment.

- Do not modify this equipment as this could create a safety hazard and void your Hali-Brite® warranty.
- Use only Hali-Brite® replacement parts.
- Read and carefully follow the instructions given throughout this manual for performing specific tasks and working with specific equipment.
- Follow all applicable safety procedures required by your company, industry standards, and government or other regulatory agencies.
- Make sure all equipment is rated and approved for the environment in which you are using it.
- Follow all instructions for installing components and accessories.
- Protect components from damage, wear, and harsh environment conditions.
- Allow ample room for maintenance, wiring accessibility, and cover removal.

2.3 Electrical Practices

- Do not attempt to make electrical connections with the power on.
- Disconnect and lock out electrical power before touching any electrical connections.
- Install all electrical connections to local code.
- Use only electrical wire of sufficient gauge and insulation to handle the rated current demand. All wiring must meet local codes.
- Route electrical wiring along a protected path. Make sure moving equipment will not damage it.
- Protect equipment with safety devices as specified by applicable safety regulations.
- If safety devices must be removed for installation, install them immediately after the work is completed and check them for proper functioning.
- Always use rated electrical tools when performing electrical work.
- Always make sure electrical connections are tight.
- Make sure electrical covers are in place after installation.

- Do not touch hot lamps with bare hands.

2.4 Qualified Personnel

Qualified personnel are those that are trained and experienced with installing or maintaining Hali-Brite® equipment. Only qualified personnel should install or maintain Hali-Brite® equipment and auxiliary features.

No one should:

- Attempt to install or perform maintenance on this or any Hali-Brite® equipment if they are physically impaired or under the influence of alcohol or non-prescription drugs.
- Maintain or install this equipment without correct training, supervision or experience in mechanical or electrical equipment.
- Attempt to maintain or install this equipment without the correct tools as specified in this manual.

2.5 Proper Usage

Always use this equipment as specified in this manual. Improper usage may result in serious personal injury, property damage, or possible death.

- Do not make any modifications that have not been recommended by Hali-Brite®.
- Do not use any replacement parts that are not purchased from Hali-Brite®.
- Hali-Brite® cannot be responsible for injuries or damages resulting from nonstandard, unintended applications of its equipment. This equipment is designed and intended only for the purpose described in this manual. Uses not described in this manual are considered unintended uses and may result in serious personal injury, death, or property damage.

3 Specifications

3.1 Electrical Specifications

| | |
|-------------------------|--|
| Batteries..... | (2) or (3) 12 VDC, 100 A-hr |
| Type..... | AGM |
| Life..... | 4000 charge/discharge cycles, typical |
| Charge Controller..... | Temperature compensated, maximum power point tracking |
| Status Indicators..... | Battery state of charge, charging, system status |
| Light Control..... | Photocell, ETL certified |
| Photovoltaic Panel..... | 50 or 135 watt |
| Load..... | 8-13 watts |
| Autonomy..... | 10 days typical |

3.2 Physical Specifications

| | |
|-----------------------|--|
| Dimensions | |
| Height..... | 37-55 inches (94-140 cm) |
| Width..... | 59 or 33 inches (150 or 84 cm) |
| Mounting | (2) frangible couplings and flanges to a 6 x 32 inch anchor assembly with (4) 5/8 inch mounting bolts. |
| Product Weight..... | 196-278 lb. (87-126 kg) |
| Shipping Weight | 276-398 lb. (125-180 kg) |

3.3 Environmental Specifications

| | |
|-----------------------------|-----------------------------------|
| Operating Temperature | -40°C (-40°F) to +55°C (+131°F) |
| Humidity | 0% to 100% |
| Altitude | Sea level to 10,000 feet (3000 m) |
| Wind..... | 120 mph minimum |

4 Installation

WARNING: Allow only qualified personnel to perform the following tasks. Observe and follow the safety instructions in this document and all other related documentation.

4.1 Unpacking

Handle the equipment very carefully to prevent component damage. Note any exterior damage to the carton/crate that might lead to detection of equipment damage. If you note any damage to any equipment, file a claim with the carrier immediately. The carrier may need to inspect the equipment. A typical shipping crate (including an L-806 wind cone) is shown below:

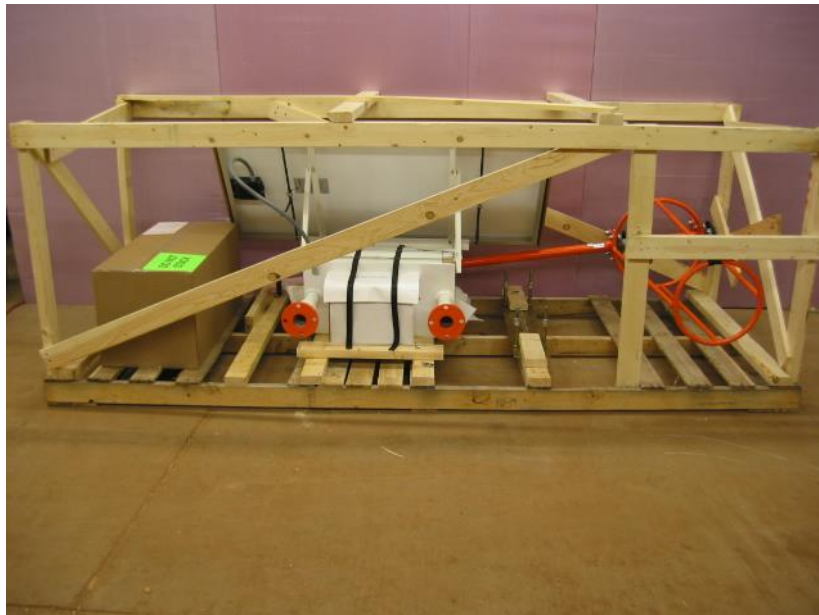


Figure 1

Note: To prevent damage to the equipment, transport the pallet to the installation site before removing the SPS components from the pallet. The anchor assembly may be removed earlier for preparing the mounting base.

4.2 Tools and Supplies Needed

Equipment Required But Not Supplied

Wrenches
Set of Screwdrivers
Set of Pliers

Level
2 Pipe Wrenches
Liquid Glass Cleaner
1 inch conduit, as needed to connect the wind cone to the SPS
Concrete and materials to construct the mounting base

4.3 Installation

The following procedure describes the site preparation, construction of the mounting base, and final wiring and checkout of the SPS.

4.3.1 Site Planning

The wind cone and SPS locations and mounting bases must be properly planned prior to construction. Full sun exposure is critical to proper operation of the SPS. Therefore, the SPS must be located on the south side of the wind cone in the northern hemisphere, and on the north side of the wind cone in the southern hemisphere. **The front of the solar panel must face the equator.**

The SPS shall be located 8 to 15 feet from an L806 or L807 Size 1 wind cone, and 12 to 15 feet from an L807 Size 2 wind cone.

Electrical cable to connect the wind cone to the SPS is supplied with the wind cone (additional cable may be required). This cable is not suitable for direct burial. The following instructions assume this cable is contained in 1 inch conduit between the wind cone and the SPS, with 1 inch conduit elbows at each end.

Refer to the Installation Manual supplied with the wind cone for wind cone installation procedures.

4.3.2 Construct the Mounting Base

Figure 2 illustrates the completed SPS installation, mounted on a concrete slab.

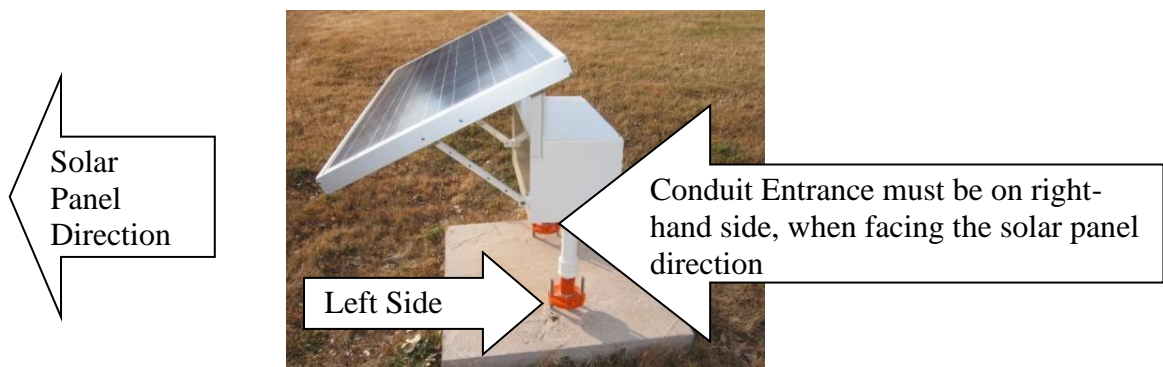


Figure 2. Completed Installation

Note the location of the conduit entrance in Figures 2 and 3. **If the conduit is installed on the wrong side, the solar panel will be facing the wrong direction.**

Refer to Figure 3 to guide construction of the SPS mounting base. Perform the following steps:

1. Locate the anchor assembly included with the SPS.
2. Orient the anchor assembly as shown in Figure 3.
3. Trench and bury the 1 inch conduit from the wind cone location to the SPS location.
4. Construct concrete forms as shown in Figure 3. The concrete base should be a minimum of 40 inches square, and at least 3 ½ inches thick.
5. Orient the SPS anchor assembly in the center of the base, with the conduit entrance as shown. Place blocks under anchor assembly as needed to ensure the anchor bolts will protrude about 4 inches above the top of the finished concrete surface. Make sure the 2 mounting nuts and washer on each anchor bolt will be above the top surface of the concrete.
6. Ensure the conduit will protrude 2-3 inches above the top of the finished concrete surface.
7. Pour the concrete, allow it to cure, and remove the forms.

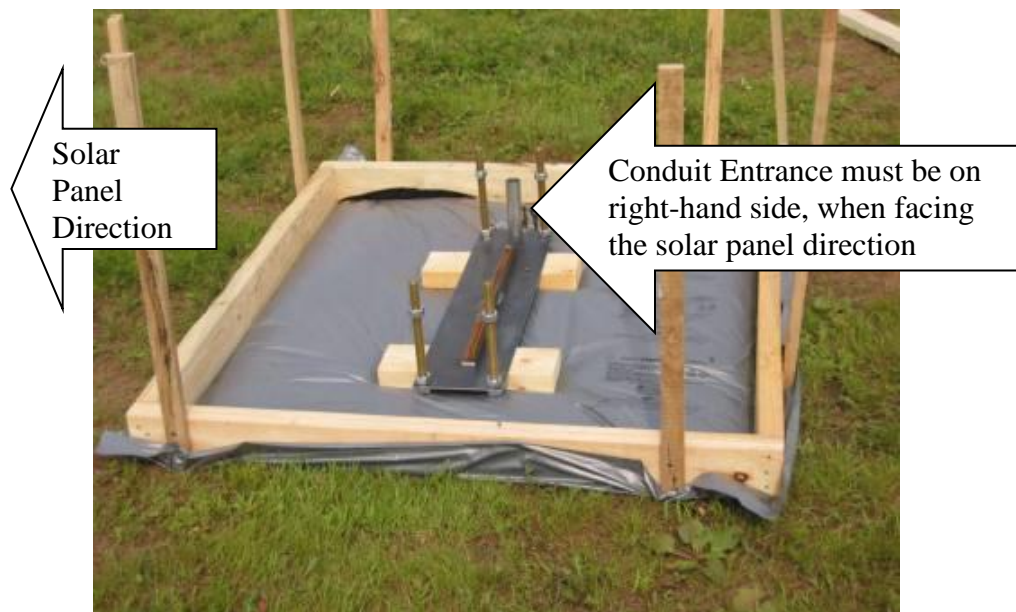


Figure 3. Mounting Base Layout

4.3.3 Install the SPS to the Mounting Base

Proceed as follows to install the SPS to the mounting base:

1. Pull the electrical cable from the wind cone, through the conduit, and through the conduit elbow in the SPS mounting base.
2. Bring the SPS, on its shipping pallet, to the installation site.
3. Remove the top boards from the pallet, and position the pallet next to the mounting base, as shown in Figure 4.
4. On some SPS models the 2 mounting legs are factory installed, and on some models these legs are installed in the field. If this unit does not have mounting legs installed, locate and install them. Tighten them securely with pipe wrenches.



Figure 4. Cable Installation

5. **Note: Do not remove the protective cover from the solar panel until instructed to do so.**
6. Remove the cover from the SPS battery enclosure.
7. Feed the electrical cable through the mounting leg of the SPS, and into the battery enclosure.
8. Remove the top nut and lock washer from each of the 4 anchor bolts. One nut should remain on each of the 4 bolts.
9. **Caution: The following step should be performed by 2 people:** Lift the SPS from the pallet, and guide the mounting legs on to the 4 mounting bolts. Install a lock washer and nut on to each of the 4 mounting bolts.
10. The bottom nuts on the mounting bolts are used to level the SPS. Place a level on the top surface of the battery compartment, and adjust the 4 bottom nuts until the battery compartment is level in all directions.
11. Tighten the top nut on each of the 4 mounting bolts to secure the SPS to the mounting base.

4.3.4 Connect the Power Cable from the Wind Cone to the SPS

Proceed as follows to connect the wind cone power cable to the SPS:

1. Locate the power cable from the wind cone, inside the battery enclosure, as shown in Figure 5.
2. Locate the red and black wires with wire nuts attached to each end.

3. Remove the wire nut from the black wire, and use this wire nut to connect this black wire to the black wire from the wind cone power cable.
4. Remove the wire nut from the red wire, and use this wire nut to connect this red wire to the white wire from the wind cone power cable.

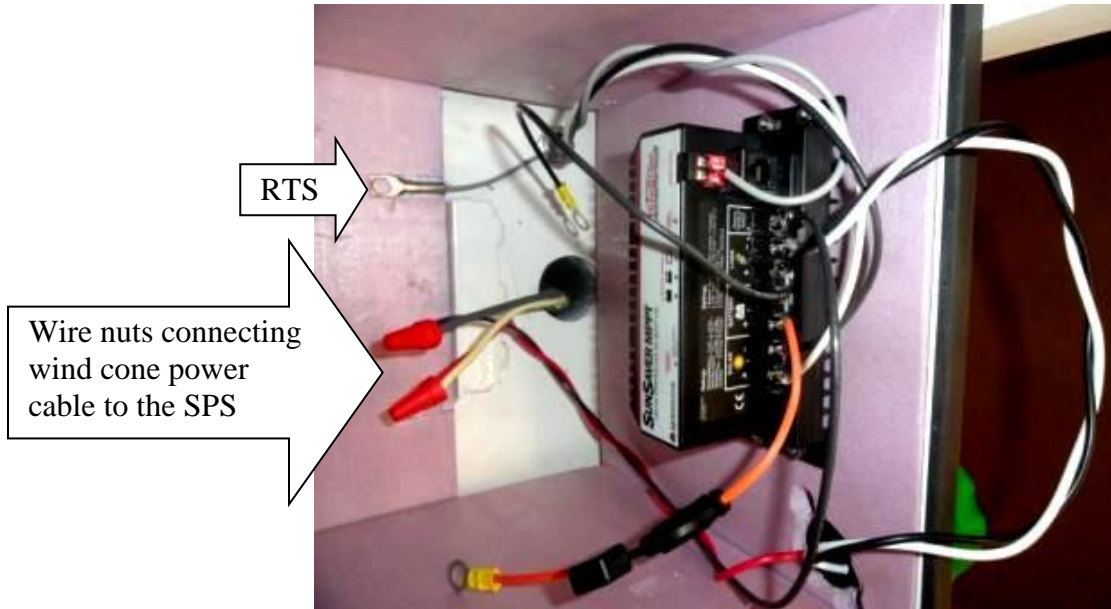


Figure 5. Power Cable Wiring

4.3.5 Install the Batteries

Proceed as follows to install the batteries:

1. Locate the battery connection wires and fuses (packed with this manual).
2. **Caution-The fuses are not installed in the inline fuseholders. Do not install the fuses until instructed to do so.**
3. Unpack the batteries from their packing materials. Locate the battery terminal bolts and washers, shipped with each battery.
4. Place the batteries in the battery enclosure, with the battery connection posts towards the charge controller, as shown in Figure 6. The batteries are installed as close as possible to the charge controller, snugly against the battery stop in the floor of the battery enclosure.
5. The batteries are wired to the charge controller as described in the following steps. Use the bolts supplied with the batteries, and loosely hand-tighten the bolts as you make the connections. The battery bolts will be tightened with a wrench after all the connections are in place.



Figure 6. Battery Installation

6. Locate the orange wire with the inline fuseholder connected to the charge controller. Connect this wire to the positive terminal of the first (closest) battery.
7. Connect another orange wire with fuseholder from the positive terminal of the first battery to the positive terminal of the second battery.
8. If a third battery is supplied with the product, connect another orange wire with fuseholder from the positive terminal of the second battery to the positive terminal of the third battery.
9. Locate the black battery wire. One end is connected to the charge controller.
10. Connect this black wire to the negative terminal of the first battery.
11. Connect another black wire to the negative terminal of the first battery.
12. Connect the black wire from the first battery to the negative terminal of the second battery, as shown in Figure 6.
13. If a third battery is supplied with the product, connect another black wire from the negative terminal of the second battery to the negative terminal of the third battery.
14. Inspect all battery connections for proper wiring. Tighten each battery terminal bolt securely with a wrench.

4.3.6 Install the Fuses and Photocell

Proceed as follows to install the fuses:

1. This product has one 30 ampere fuse for each battery. Locate the fuses (shipped with this manual).

2. Figure 7a illustrates a typical inline fuseholder. Install a fuse in each fuseholder. Note: When the fuse is installed for the battery closest to the charge controller, the system will start to operate, and some of the LEDs on the charge controller will illuminate.

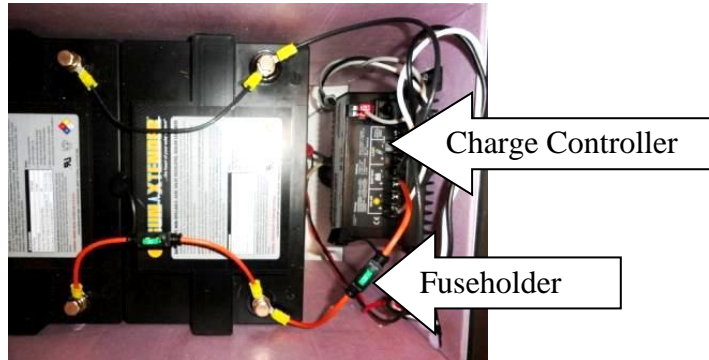


Figure 7a. Fuse Installation

3. **Be sure to install 1 fuse for each battery. If fuses are not installed for every battery, the unit will operate, but will not have full battery capacity.**
4. Snap the fuseholder cover over each fuse.

Proceed as follows to install the photocell:

1. Refer to Figure 7b. The photocell is installed in a receptacle.



Figure 7b. Photocell

2. Position the photocell near the receptacle, with the photocell window facing away from the solar panel.
3. Insert the photocell into the receptacle, and turn it clockwise 1/8 turn.

4.3.7 Electrical Checkout

Inspect the SPS for proper electrical operation, as follows:

1. The SPS should now be operating. Locate the charge controller, as shown in Figure 7.
2. On the top surface of the charge controller, locate the three "Battery Status" LEDs.
3. The Battery Status green LED will illuminate, indicating a full battery charge, or the yellow LED will illuminate, indicating a partial charge. (A partial charge is OK.)
4. Locate the "Charging Status" LED on the top surface of the charge controller.
5. The Charging Status LED should flash green briefly every 5 seconds. This indicates the charging system is in Night Mode, since the solar panel is still covered.
6. Inspect the wind cone light. If this installation is being done during the day, with sufficient sunlight, the wind cone light should be off. If the wind cone light is off, proceed to Step 8.
7. Note: If the wind cone light is on, it may be dark enough to cause the system to be in Night Mode. Locate the green photocell on the side of the battery enclosure. Shine a flashlight beam in the photocell light entrance, to simulate normal daylight. If this causes the wind cone light to turn off, it is too dark to perform these tests. Stop this test, and repeat it in normal daylight.
8. Remove the protective cover from the solar panel. Assuming daylight is available, the Charging Status LED will become steady green, and flash off briefly every 5 seconds. This indicates the charging system is in Day Mode, and the solar panel is charging the batteries.
9. Locate the green photocell mounted on the side of the battery enclosure.
10. The photocell has a light entrance opening in the side. Cover this entrance to block light from entering the photocell. The wind cone light should turn on.
11. Uncover the light entrance on the photocell. After a few seconds, the wind cone light should turn off.
12. **Check to be sure 1 fuse is installed for each battery, and that each fuse is not blown. If good fuses are not installed for every battery, the unit will operate, but will not have full battery capacity.**
13. If the product performs as stated above, it is functioning correctly. If any of the Status LEDs are red, or if the wind cone light does not function correctly, contact Hali-Brite® for assistance.

4.3.8 Install Battery Enclosure Cover

Install the battery enclosure cover as follows:

1. Inspect the black weather seal around the top edge of the battery enclosure, to make sure it was not damaged during this installation process.

2. Locate the enclosure cover vent, as shown in Figure 8a. Orient the enclosure cover as shown, positioning the vent next to the enclosure wall opposite the photocell.



Figure 8a. Cover Installation

3. Place the cover on the enclosure, as shown in Figure 8a, aligning the mounting holes in the cover with the holes in the enclosure.
4. Install the 10 mounting screws in the cover, but do not tighten.
5. Tighten the screws evenly and equally around the cover, until the weather seal is compressed to about half of its original height.
6. Install the shade to the 4 mounting posts on the enclosure cover, as shown in Figure 8b, using the 4 bolts provided. Tighten each bolt securely.
7. Clean the glass on the face of the solar panel.
8. Installation of the SPS is now complete.



Figure 8b Shade Installation

5 Maintenance

5.1 Maintenance Schedule

| <u>Interval</u> | <u>Task</u> |
|-----------------|---|
| Daily | Inspect the wind cone for proper lamp operation. |
| As Needed | Clean the solar panel glass. Make sure vegetation is not obstructing the solar panel. |
| Annually | Remove the battery enclosure cover, and inspect all electrical connections. |

6 Repair

Note: Be sure you have correctly identified the faulty component prior to making any repairs. Troubleshooting SPS problems can be complex. Contact Hali-Brite® for troubleshooting assistance.

6.1 Battery Replacement

Batteries are replaced as follows:

1. Install a temporary cover on the solar panel, to prevent battery charging.
2. Remove the battery enclosure cover, by reversing the procedure described in Section 4.3.8.
3. Remove the battery fuses, by reversing the procedure described in Section 4.3.6.
4. Remove the batteries, by reversing the procedure described in Section 4.3.5.
5. Install the new batteries, using the procedure described in Section 4.3.5.
6. **Note: The new batteries must be the same model as the original, to ensure adequate performance. All batteries must be replaced at the same time.**
7. Install the fuses, using the procedure described in Section 4.3.6.
8. Remove the temporary cover from the solar panel.
9. Perform the electrical checkout as described in Section 4.3.7.
10. Install the battery enclosure cover, using the procedure described in Section 4.3.8.

6.2 Fuse Replacement

The fuses are replaced as follows:

1. Install a temporary cover on the solar panel, to prevent battery charging.
2. Remove the battery enclosure cover, by reversing the procedure described in Section 4.3.8.
3. Remove the battery fuses, by reversing the procedure described in Section 4.3.6.
4. Acquire the proper replacement fuses.
5. Install the fuses, using the procedure described in Section 4.3.6.
6. Remove the temporary cover from the solar panel.
7. Perform the electrical checkout as described in Section 4.3.7.
8. Install the battery enclosure cover, using the procedure described in Section 4.3.8.

6.3 Solar Panel Replacement

To replace the solar panel:

1. Install a temporary cover on the solar panel, to prevent battery charging.
2. Remove the battery enclosure cover, by reversing the procedure described in Section 4.3.8.
3. Remove the battery fuses, by reversing the procedure described in Section 4.3.6.
4. The solar panel is attached to its mount with 4 bolts. Refer to Figures 9 and 10 to locate the bolts, and remove them. Carefully lower the solar panel on to a supporting surface.



Figure 9. Lower Solar Panel Mounting Bolts



Figure 10. Upper Solar Panel Mounting Bolts

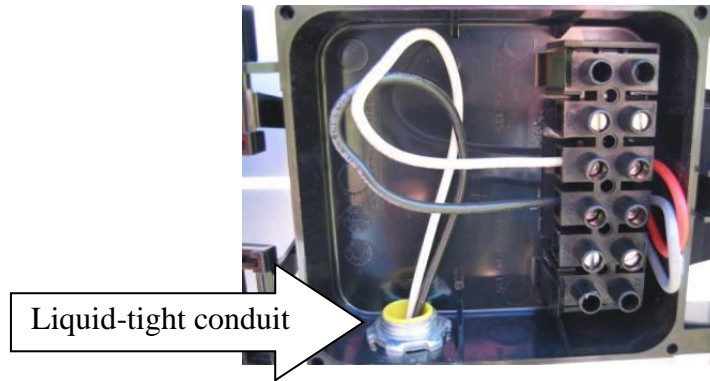


Figure 11. Solar Panel Junction Box

5. Locate the solar panel junction box on the rear surface of the solar panel. Remove the junction box cover, as shown in Figure 11.
6. Locate the black and white wires entering the junction box from the liquid-tight conduit. Note their location on the terminal block, for later reassembly. Remove the black and white wires from the terminal block.
7. Remove the liquid-tight conduit connector from the wall of the junction box.
8. Remove the defective solar panel, and position the replacement solar panel for reassembly.
9. Reassemble the liquid-tight connector to the wall of the solar panel junction box.
10. Reattach the black and white wires to the terminal block as shown in Figure 11.
11. Reinstall the cover on the solar panel junction box.
12. Attach the solar panel to the mounting brackets with the 4 mounting bolts, and tighten securely.
13. Install the fuses, using the procedure described in Section 4.3.6.
14. Perform the electrical checkout as described in Section 4.3.7.
15. Reinstall the battery enclosure cover.

6.4 Charge Controller Replacement

Perform the following steps to replace the charge controller:

1. **Note: The charge controller is custom-programmed by Hali-Brite®. Do not install a controller purchased elsewhere, it will not operate properly. Acquire a new charge controller before continuing this procedure.**
2. Install a temporary cover on the solar panel, to prevent battery charging.
3. Remove the battery enclosure cover, by reversing the procedure described in Section 4.3.8.
4. Remove the battery fuses, by reversing the procedure described in Section 4.3.6.

5. Locate the charge controller, as shown in Figure 12.

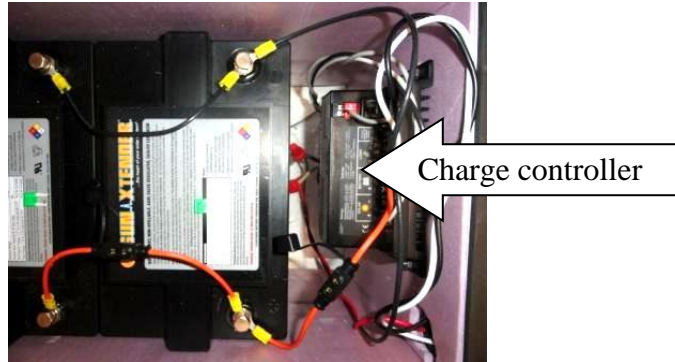


Figure 12. Charge Controller

6. Position the new charge controller near the old one. Remove the wires from the terminal block on the old charge controller, one at a time, and secure them to the same terminal on the new charge controller.
7. Remove the 4 mounting bolts from the old charge controller, and remove it from the battery enclosure.
8. Attach the new charge controller to the battery enclosure with the 4 mounting bolts, and tighten securely.
9. Install the fuses, using the procedure described in Section 4.3.6.
10. Remove the temporary cover from the solar panel.
11. Perform the electrical checkout as described in Section 4.3.7.
12. Reinstall the battery enclosure cover.

6.5 Frangible Coupling Replacement

To replace the frangible couplings, perform the following steps:

1. **Note: Always replace both frangible couplings at the same time. The frangible couplings are unique for this product, and must be obtained from Hali-Brite®.**
2. Remove the battery enclosure cover, by reversing the procedure described in Section 4.3.8.
3. Remove the battery fuses, by reversing the procedure described in Section 4.3.6.
4. Disconnect the wind cone power cable, by reversing the procedure described in Section 4.3.4.
5. Refer to Figure 13 to locate the frangible couplings and flanges.

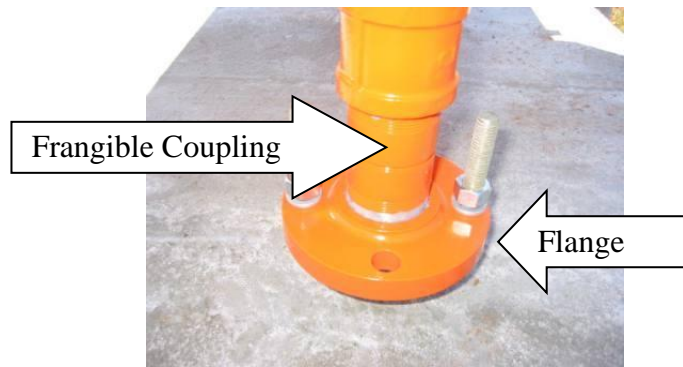


Figure 13. Frangible Coupling

6. **Caution: The following steps should be performed by 2 people.**
7. One person should support the SPS while the other person removes the 4 bolts attaching the SPS to the mounting base.
8. Lift the SPS off of the mounting base bolts, and support the SPS on the mounting base, next to the bolts.
9. Pull the wind cone power cable out of the SPS mounting leg.
10. Using a pipe wrench, remove the frangible coupling from each of the 2 SPS legs.
11. Using pipe wrenches, separate the 2 flanges from each of the frangible couplings. Discard the old frangible couplings.
12. Thread a new frangible coupling on to each of the 2 mounting legs.
13. Thread a flange on to each of the 2 frangible couplings.
14. Tighten each flange and frangible coupling to each mounting leg. After tightening, make sure the holes in each flange align with the bolts on the mounting base.
15. Reinstall the wind cone power cable through the mounting leg, and into the battery enclosure.
16. Lift the SPS on to the mounting base, while guiding the mounting legs on to the 4 mounting bolts. Install a lock washer and nut on to each of the 4 mounting bolts.
17. The bottom nuts on the mounting bolts are used to level the SPS. Place a level on the top surface of the battery compartment, and adjust the 4 bottom nuts until the battery compartment is level in all directions.
18. Tighten the top nut on each of the 4 mounting bolts to secure the SPS to the mounting base.
19. Reconnect the wind cone power cable, using the procedure described in Section 4.3.4.
20. Install the fuses, using the procedure described in Section 4.3.6.
21. Reinstall the battery enclosure cover.

6.6 Solar Panel Angle Adjustment

The angle of the solar panel is factory set for the installation location. No further adjustment is necessary. However, if adjustment is required, proceed as follows:

1. Refer to Figure 14. A series of holes located in each of the two solar panel side brackets are used to select the solar panel angle. The 5 holes in each side bracket allow the elevation angle to be set to 25, 35, 45, 55 or 65 degrees above horizontal.
2. Determine the geographic latitude of the installation location.
3. The desired solar panel elevation angle is the latitude plus 15 degrees.

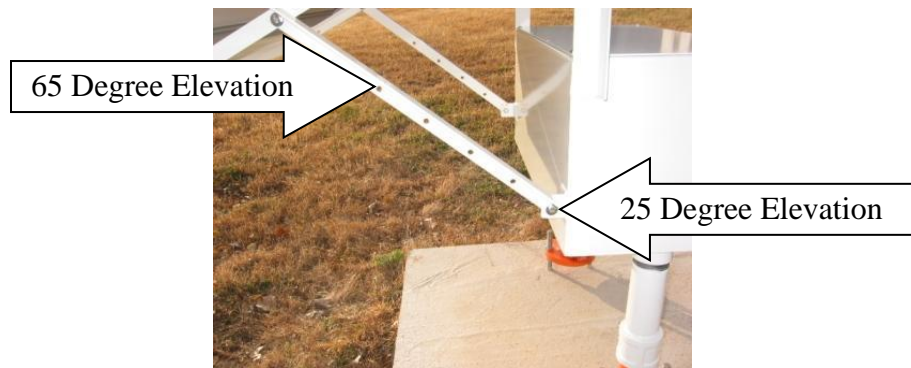


Figure 14. Solar Panel Angle Adjustment

4. Choose the mounting holes which will result in an elevation angle closest to the desired elevation angle.
5. If it is necessary to change the angle, remove the bolt from each side bracket, reposition the solar panel, reinstall the bolts, and tighten securely.

6.7 Photocell Replacement

4. Refer to Figure 15. The photocell is installed in a receptacle. Grasp the photocell, rotate it 1/8 turn counter-clockwise, and pull it out of the receptacle.



Figure 15. Photocell

5. Position the replacement photocell near the receptacle, with the photocell window facing away from the solar panel.
6. Insert the photocell into the receptacle, and turn it clockwise 1/8 turn.

7 Replacement Parts

| Part Number | Description |
|-------------|---------------------------------|
| 2300-0024 | Fuse, MINI 30 amp 32 volt |
| 1300-0081 | Battery, PVX-840T |
| 1800-0036 | Frangible Coupling |
| 7800-0006 | Photocell |
| 4500-0020 | Charge Controller |
| 1067-0002 | Mounting Flange |
| 7300-0022 | Weatherstrip, Battery Enclosure |
| 1049-0015 | Anchor Assembly |
| 7800-0005 | Solar Panel, 130 or 135 Watt |
| 7800-0004 | Solar Panel, 50 Watt |



— **Hali-Brite®** —

Installation and Maintenance Manual

Wind Cones L-807, L807(L), L-806, L-806(L) Wind Cones

Hali-Brite®, Inc.
1119 Madison St
Brainerd, MN 56401

1-800-553-6269
www.halibrite.com

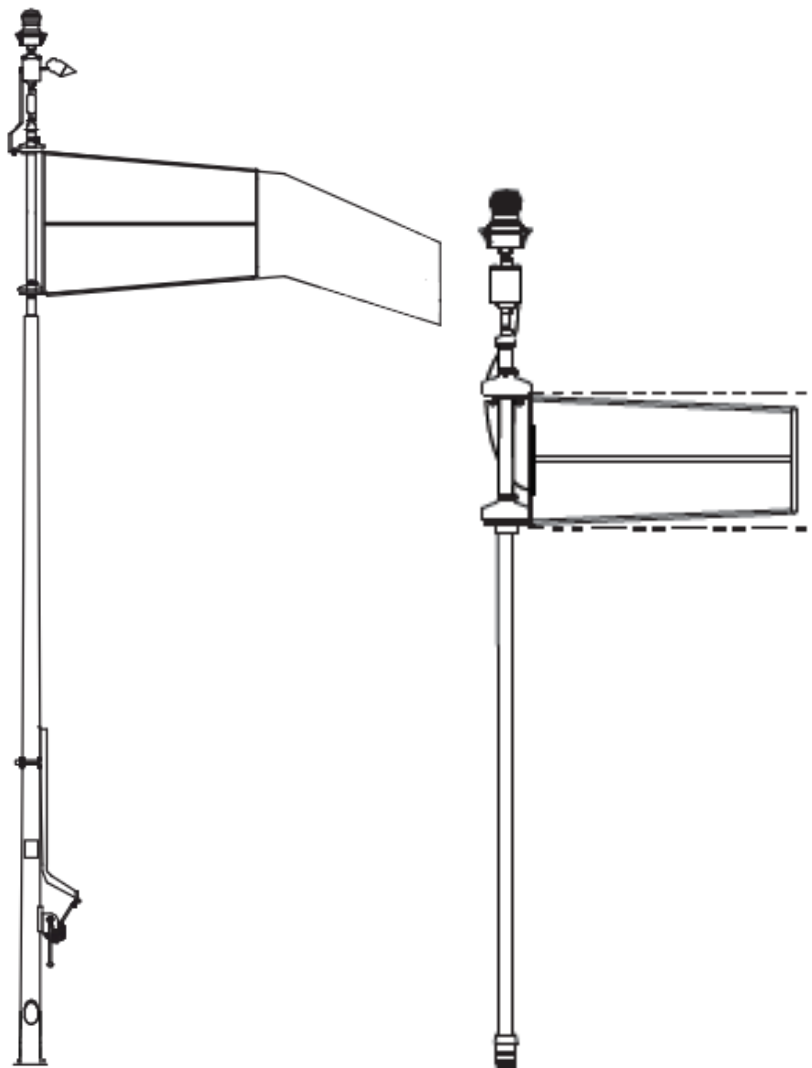


Table of Contents

CHAPTER 1

Introduction

| | |
|----------------------------|---|
| About This Manual | 4 |
| Model Configurations | 4 |
| Reference Material | 5 |
| Warranty | 5 |
| Disclaimers | 6 |

CHAPTER 2

Safety Precautions

| | |
|----------------------------|----|
| Safety Statements | 7 |
| General Practices | 8 |
| Electrical Practices | 9 |
| Qualified Personnel | 9 |
| Proper Usage | 10 |

CHAPTER 3

Specifications

| | |
|---------------------------------|----|
| Electrical Specifications | 11 |
| Physical Specifications | 11 |

CHAPTER 4

Getting Started

| | |
|---------------------------------|----|
| Shipping and Unpacking | 14 |
| Taking Inventory | 15 |
| Tools and Supplies Needed | 17 |

CHAPTER 5

Installing the L-807 Wind Cone

| | |
|--|----|
| Installing the L-807 Wind Cone Anchor | 19 |
| Positioning the Swing Arm | 22 |
| Placing the Base of the Pole onto the Anchor | 22 |
| Attaching the Basket to the Pole | 24 |
| Installing Lights | 25 |
| <i>Installing the External Lighting Kit</i> | 25 |
| <i>Installing the Internal Lighting Kit</i> | 27 |
| Wiring the Lights to the Power Source | 28 |
| Installing the Wind Sock to the Basket | 29 |
| Raising the Top Half of the Pole | 29 |

CHAPTER 6

Installing the L-806 Wind Cone

| | |
|---|----|
| Installing Lights | 31 |
| <i>Installing the External Lighting Kit</i> | 32 |
| <i>Installing the Internal Lighting Kit</i> | 33 |
| Installing the Wind Sock to the Basket | 34 |
| Assembling the Pole to the Baseplate | 35 |
| Wiring the Lights to the Power Source | 35 |
| Attach the Pole Assembly to the Base Can | 36 |

CHAPTER 7

Maintaining and Servicing the Wind Cones

| | |
|---|----|
| Tools Required | 37 |
| Lowering the Top of the L-807 Pole | 37 |
| Inspecting Wind Cone Components | 38 |
| Replacing Lamps | 39 |
| Replacing an Internal Floodlight Lamp | 40 |
| Replacing an External Floodlight Lamp | 40 |
| Replacing an Obstruction Lamp | 41 |

CHAPTER 8

Spare Parts

| | |
|-------------------------------|----|
| How to Order Parts | 42 |
| Recommended Spare Parts | 42 |

CHAPTER 9

Wiring Diagrams

CHAPTER 1

Introduction

About This Manual

The information in this manual is provided to assist installation and maintenance personnel in the proper installation, upkeep, and maintenance of the L-806, L-806(L), L-807 and L-807(L) Wind Cones. The (L) suffix denotes models with LED lamps. This manual also includes installation and maintenance instructions for all equipment sold as options to the basic unit.

Model Configurations

This manual covers the models listed below:

TABLE 1. Wind Cone Models

| L-807 and L-807(L) Models | L-806 and L-806(L) Models |
|----------------------------------|----------------------------------|
| L807-S1-UN-NON-ON-N | L806-S1-UN-NON-ON-N |
| L807-S1-EX-120-ON-5 | L806-S1-EX-120-ON-5 |
| L807-S1-EX-230-ON-5 | L806-S1-EX-230-ON-5 |
| L807-S1-EX-66A-ON-5 | L806-S1-EX-66A-ON-5 |
| L807-S1-IN-120-ON-5 | L806-S1-IN-120-ON-5 |
| L807-S1-IN-230-ON-5 | L806-S1-IN-230-ON-5 |
| L807-S1-IN-12-ON-5 | L806-S1-IN-12-ON-5 |
| L807-S1-IN-120-ON-N | L806-S1-IN-120-ON-N |
| L807-S1-EX-12-ON-5 | L806-S1-EX-12-ON-5 |
| L807-S1-IN-66A-ON-5 | L806-S1-IN-66A-ON-5 |
| L807-S2-UN-NON-ON-N | |
| L807-S2-IN-120-ON-5 | |
| L807-S2-IN-230-ON-5 | |
| L807-S2-IN-12-ON-5 | |
| L807-S2-EX-120-ON-5 | |
| L807-S2-EX-230-ON-5 | |
| L807-S2-EX-66A-ON-5 | |
| L807-S2-IN-120-ON-N | |
| L807-S2-EX-12-ON-5 | |
| L807-S2-IN-66A-ON-3 | |

Reference Material

- Store this manual or any reference material within easy reach of personnel installing, operating, maintaining, or repairing this equipment.
- Refer to the FAA Advisory Circular AC 150/5340-26, Maintenance of Airport Visual Aids Facilities, for instructions on safety precautions.

Warranty

Hali-Brite® products are guaranteed against mechanical, electrical, and physical defects (excluding lamps) for a period of one year from the date of installation or a maximum of two years from the date of shipment and are guaranteed to be merchantable and fit for the ordinary purposes for which such products are made. In addition, Hali-Brite® products which are FAA certified to Engineering Brief 67D shall have a four year warranty, from date of installation, on the LED lamp(s) and the associated power supply. Hali-Brite® will correct by repair or replacement, at its option, equipment or parts which fail because of mechanical, electrical or physical defects, provided that the goods have been properly handled and stored prior to installation, properly installed and properly operated after installation (left in upright position at all times except for service), and provided further that Buyer gives Hali-Brite® written notice of such defects after delivery of the goods to Buyer. Hali-Brite® reserves the right to examine goods upon which a claim is made. Said goods must be presented in the same condition as when the defect therein was discovered. Hali-Brite® further reserves the right to require the return of such goods to establish any claim. Hali-Brite's obligation under this guarantee is limited to making repair or replacement within a reasonable time after receipt of such written notice and does not include any other costs such as the cost of removal of defective part, installation of repaired product, labor or consequential damages of any kind, the exclusive remedy being to require such new parts to be furnished. Hali-Brite's liability under no circumstances will exceed the contract price of goods claimed to be defective. Any returns under this guarantee are to be on a transportation charges prepaid basis. For products not manufactured by, but sold by Hali-Brite®, warranty is limited to that extended by the original manufacturer. This is Hali-Brite's sole guarantee and warranty with respect to the goods; there are no express warranties or warranties of fitness for any particular purpose or any implied warranties of fitness for any particular purpose or any implied warranties other than those made expressly herein. All such warranties are expressly disclaimed.

Details and values given in this manual are average values and have been compiled with care. They are not binding, however, and Hali-Brite® disclaims any liability for damages or detriments suffered as a result of reliance on the information given herein or the use of products, processes or equipment to which this manual refers. No warranty is made that the use of the information or of the products, processes or equipment to which this manual refers will not infringe any third party's patents or rights. The information given does not release the buyer from making their own experiments and tests.

Disclaimers

This manual is published for informational purposes only and the information provided should not be considered as all-inclusive or covering all contingencies. If further information is required, Hali-Brite Inc. should be contacted.

Sale of the product shown in this manual is subject to Hali-Brite's terms and conditions including, but not limited to, the Hali-Brite® Warranty. Such terms and conditions are available upon request.

Hali-Brite's warranty will not apply to any products which have been "so repaired or altered outside the manufacturer's plants as, in the manufacturer's judgment, to affect its reliability and performance."

No warranties, express or implied, including warranties of fitness for a particular purpose or merchantability, or warranties arising from course or dealing or usage of trade, are made regarding the information, recommendations, and descriptions contained herein. The manufacturer is not responsible and will not be held liable in contract or in tort (including negligence) for any special, indirect or consequential damages, including injury or damage caused to vehicles, contents or persons, by reason of the installation of any Hali-Brite® product or its mechanical or electrical failure.

CHAPTER 2

Safety Precautions

To help you install and maintain this equipment safely and efficiently make sure you read and understand all safety information in this manual prior to performing any procedure. Failure to do so may result in personal injury, property damage, or possible death.

Safety Statements

The following safety statements are used throughout this manual. They will alert you to possible safety hazards and conditions that could result in personal injury, death, or property and equipment damage.



CAUTION: Indicates hazards or unsafe practices which could result in minor personal injury, product, or property damage.



WARNING: Indicates hazards or unsafe practices which could result in severe personal injury or death.



DANGER: Indicates immediate hazards which will result in severe personal injury or death.

General Practices

Read and become familiar with the general safety instructions provided in this section of the manual before installing, operating, maintaining, or repairing this equipment.

- Do not attempt to assemble or install this equipment if it has been damaged from shipping.
- Do not attempt to install or maintain this equipment if you or the equipment is standing in water.
- Only qualified personnel should perform maintenance on this equipment.
- Always use proper tools (as mentioned in this manual) to perform installation and maintenance.
- Use caution when cranking the winch. Always crank slowly and grasp the handle securely.
- Use proper hand and eye protection as needed when installing or maintaining this equipment.
- Make sure you have adequate first aid supplies available when installing this equipment.
- Do not modify this equipment as this could create a safety hazard and void your Hali-Brite® warranty.
- Only use Hali-Brite® replacement parts.
- Read and carefully follow the instructions given throughout this manual for performing specific tasks and working with specific equipment.
- Follow all applicable safety procedures required by your company, industry standards, and government or other regulatory agencies.
- Make sure all equipment is rated and approved for the environment in which you are using it.
- Follow all instructions for installing components and accessories.
- Protect components from damage, wear, and harsh environment conditions.
- Allow ample room for maintenance, wiring accessibility, and cover removal.

Electrical Practices

- Do not attempt to make electrical connections with the power on.
- Disconnect and lock out electrical power before touching any electrical connections. Refer to FAA Advisory Circular AC 150/5340-26.
- Install all electrical connections to local code.
- Use only electrical wire of sufficient gauge and insulation to handle the rated current demand. All wiring must meet local codes.
- Route electrical wiring along a protected path. Make sure it will not be damaged by moving equipment.
- Protect equipment with safety devices as specified by applicable safety regulations.
- If safety devices must be removed for installation, install them immediately after the work is completed and check them for proper functioning.
- Always use rated electrical tools when performing electrical work.
- Always make sure electrical connections are tight.
- Make sure electrical covers are in place after installation.
- Do not touch hot lamps with bare hands.

Qualified Personnel

Qualified personnel are those that are trained and experienced with installing or maintaining Hali-Brite® equipment. Only qualified personnel should install or maintain Hali-Brite® equipment and auxiliary features.

No one should:

- Attempt to install or perform maintenance on this or any Hali-Brite® equipment if they are physically impaired or under the influence of alcohol or non prescription drugs.
- Maintain or install this equipment without correct training, supervision or experience in mechanical or electrical equipment.
- Attempt to maintain or install this equipment without the correct tools as specified in this manual.

Proper Usage

Always use this equipment as specified in this manual. Improper usage may result in serious personal injury, property damage, or possible death.

- Do not modify any equipment that has not been recommended by Hali-Brite®.
- Do not use any replacement parts that are not purchased from Hali-Brite®.
- Hali-Brite® cannot be responsible for injuries or damages resulting from non-standard, unintended applications of its equipment. This equipment is designed and intended only for the purpose described in this manual. Uses not described in this manual are considered unintended uses and may result in serious personal injury, death, or property damage.

CHAPTER 3

Specifications

| Part Number | See Notes | FAA Size | FAA Style | Power Source | Lamp Type | VA | Watts | Weight (pounds) |
|---------------------|-----------|----------|--------------|--------------|-----------|-----|-------|-----------------|
| L806-S1-UN-NON-ON-N | | 1 | II Unlighted | none | None | 0 | 0 | 45 |
| L806-S1-EX-120-ON-5 | | 1 | I-A External | 120 VAC | LED | 15 | 14 | 58 |
| L806-S1-EX-230-ON-5 | 2 | 1 | I-A External | 230 VAC | LED | 15 | 14 | 58 |
| L806-S1-EX-66A-ON-5 | 3 | 1 | I-A External | 6.6 AMP | LED | 58 | 52 | 57 |
| L806-S1-IN-120-ON-5 | | 1 | I-B Internal | 120 VAC | LED | 32 | 19 | 59 |
| L806-S1-IN-230-ON-5 | 2 | 1 | I-B Internal | 230 VAC | LED | 40 | 21 | 59 |
| L806-S1-IN-120-ON-N | 2 | 1 | I-B Internal | 120 VAC | Halogen | 316 | 316 | 57 |
| L806-S1-EX-12-ON-5 | | 1 | I-A External | 12 VDC | LED | 6 | 6 | 57 |
| L806-S1-IN-12-ON-5 | 2 | 1 | I-B Internal | 12 VDC | LED | 6 | 6 | 57 |
| L806-S1-IN-66A-ON-5 | 3 | 1 | I-B Internal | 6.6 AMP | LED | 72 | 65 | 57 |
| L807-S1-UN-NON-ON-N | | 1 | II Unlighted | None | None | 0 | 0 | 187 |
| L807-S1-EX-230-ON-5 | 2 | 1 | I-A External | 230 VAC | LED | 15 | 14 | 198 |
| L807-S1-EX-66A-ON-5 | 3 | 1 | I-A External | 6.6 AMP | LED | 58 | 52 | 197 |
| L807-S1-IN-120-ON-5 | | 1 | I-B Internal | 120 VAC | LED | 32 | 19 | 200 |
| L807-S1-IN-230-ON-5 | 2 | 1 | I-B Internal | 230 VAC | LED | 40 | 21 | 200 |
| L807-S1-EX-120-ON-N | 2 | 1 | I-A External | 120 VAC | Halogen | 191 | 191 | 196 |
| L807-S1-IN-120-ON-N | 2 | 1 | I-B Internal | 120 VAC | Halogen | 316 | 316 | 198 |
| L807-S1-EX-12-ON-5 | | 1 | I-A External | 12 VDC | LED | 6 | 6 | 197 |
| L807-S1-IN-12-ON-5 | 2 | 1 | I-B Internal | 12 VDC | LED | 6 | 6 | 197 |
| L807-S1-IN-66A-ON-5 | 3 | 1 | I-B Internal | 6.6 AMP | LED | 72 | 65 | 198 |
| L807-S2-UN-NON-ON-N | | 2 | II Unlighted | None | None | 0 | 0 | 199 |
| L807-S2-IN-120-ON-5 | | 2 | I-B Internal | 120 VAC | LED | 60 | 32 | 212 |
| L807-S2-IN-230-ON-5 | 2 | 2 | I-B Internal | 230 VAC | LED | 76 | 36 | 212 |
| L807-S2-EX-230-ON-5 | 2 | 2 | I-A External | 230 VAC | LED | 22 | 21 | 210 |
| L807-S2-EX-66A-ON-5 | 3 | 2 | I-A External | 6.6 AMP | LED | 58 | 52 | 209 |
| L807-S2-EX-120-ON-N | 2 | 2 | I-A External | 120 VAC | Halogen | 191 | 191 | 208 |
| L807-S2-IN-120-ON-N | 2 | 2 | I-B Internal | 120 VAC | Halogen | 516 | 516 | 210 |
| L807-S2-EX-12-ON-5 | | 2 | I-A External | 12 VDC | LED | 10 | 10 | 210 |
| L807-S2-IN-12-ON-5 | 2 | 2 | I-B Internal | 12 VDC | LED | 10 | 10 | 210 |
| L807-S2-IN-66A-ON-3 | 4 | 2 | I-B Internal | 6.6 AMP | LED | 95 | 88 | 210 |

Notes:

1. Power consumption specifications include the L-810 obstruction light
2. This FAA Style is not ETL certified
3. Requires 100 watt L-830 transformer, sold separately.
4. Requires 200 watt L-830 transformer, sold separately.

Additional Specifications:

1. Wind Sock
 - a. Size 1 dimensions: 18 inch throat diameter, 8 foot length
 - b. Size 2 dimensions: 36 inch throat diameter, 12 foot length
 - c. Color: International Orange
2. Pole Material: Steel tubing
3. Temperature Range: -55C to +55C (-67F to +131F)
4. Wind Indication
 - a. Indicates true direction when wind velocity exceeds 3 knots
 - b. Wind sock full extension when wind velocity exceeds 15 knots
5. Dimensions
 - a. Type L-806 and L-806(L): see Figure 2
 - b. Type L-807 and L-807(L): see Figure 1

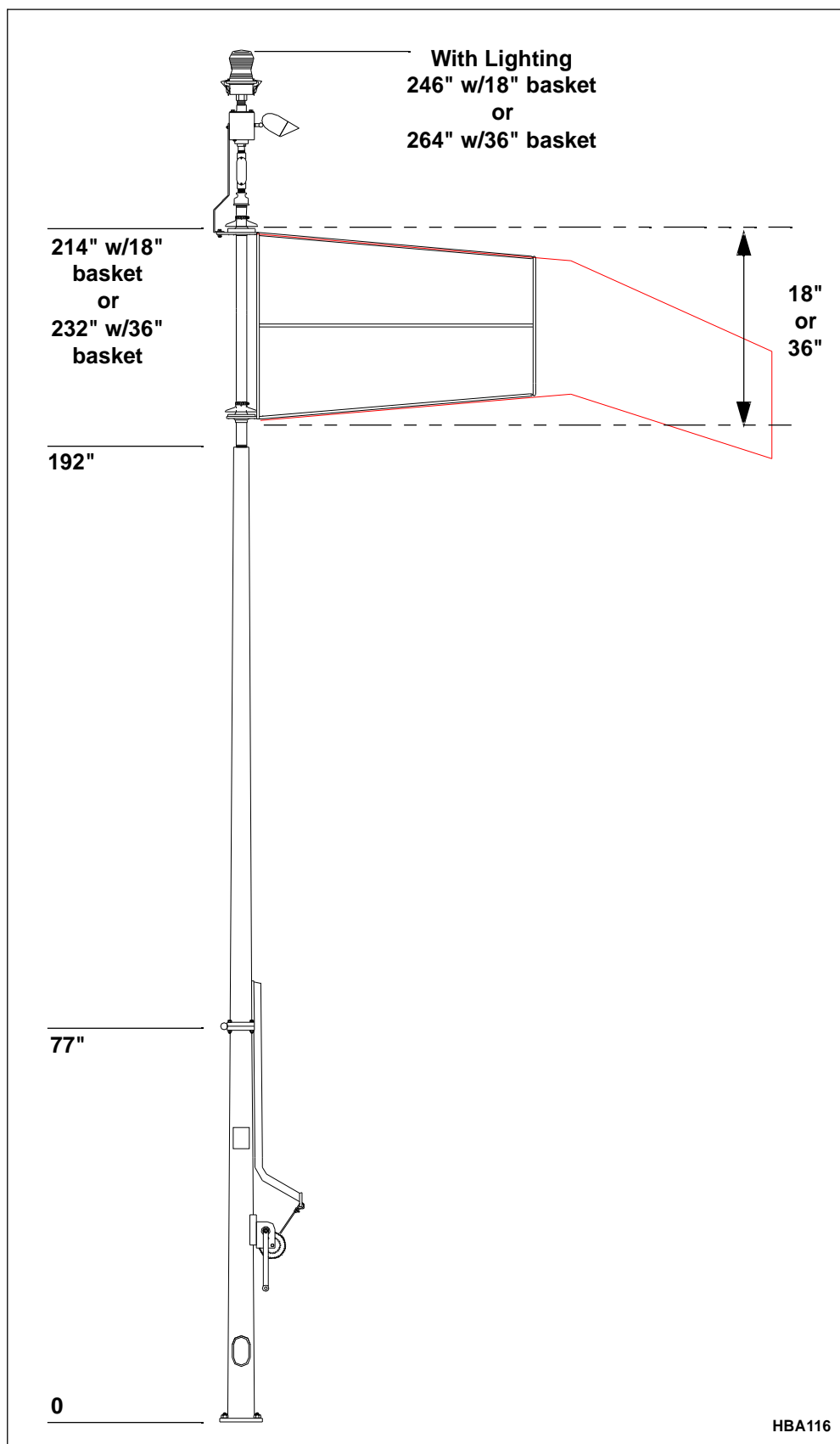


Figure 1. L-807 Dimensions

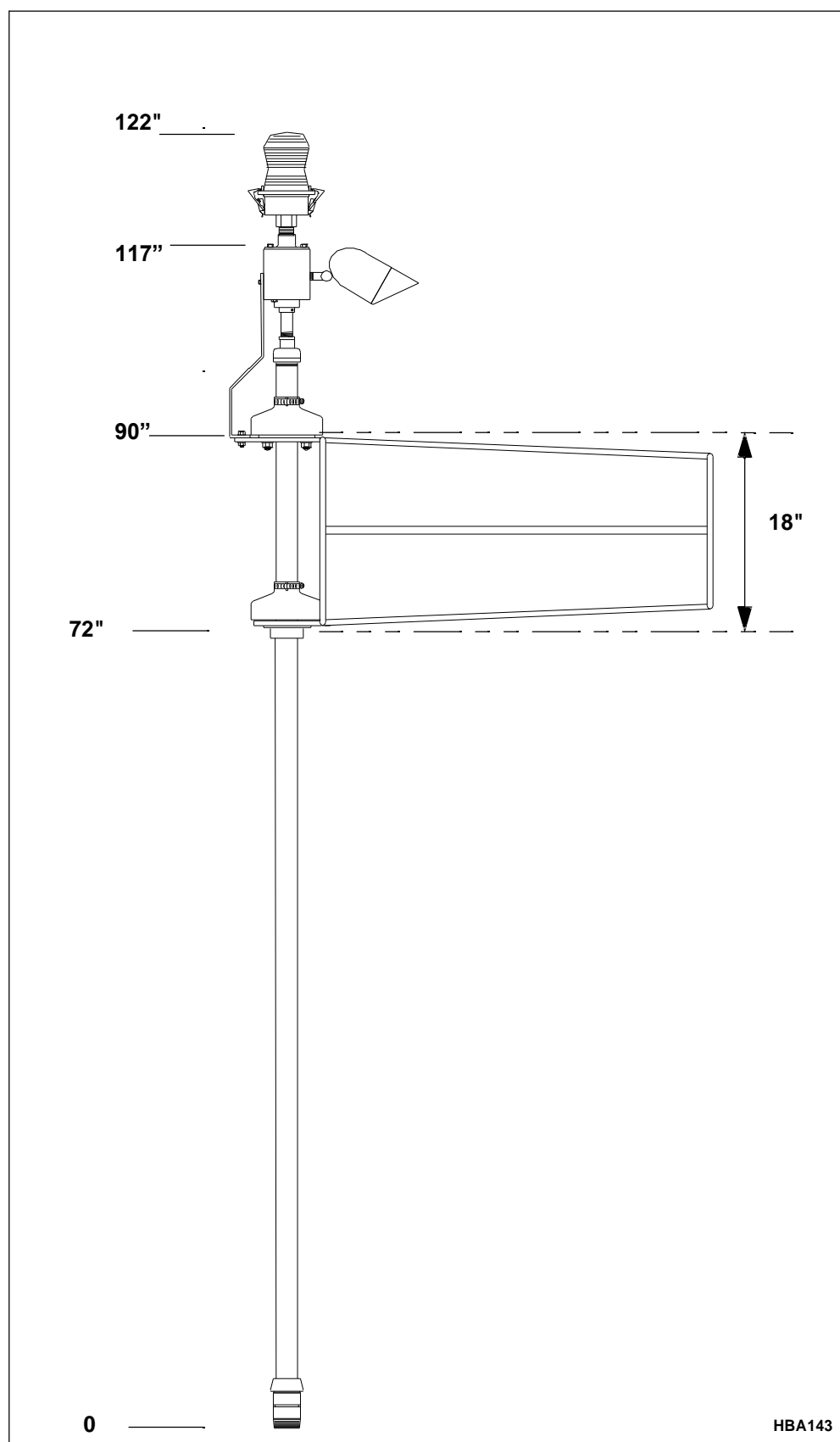


Figure 2. L-806 Dimensions

CHAPTER 4

Getting Started

Shipping and Unpacking

All components needed for assembly and installation of the L-807, L-807(L), L-806 and L-806(L) are shipped on a standard 10 ft pallet. If additional components or more than one unit is ordered the shipping pallet may be larger. All components are fastened to the shipping pallet, tools will be needed to unfasten these components prior to installation.

After unfastening all the components from the pallet inspect them for damage. If you find components that have been damaged from shipping please report them to the shipping company and file a claim.

NOTE: You may want to photograph the damaged components in place on the shipping pallet. This will help you in placing a claim with the shipping company.



CAUTION: Some components are very heavy. Always use correct lifting practices when removing these components from the shipping pallet. If components are too heavy find additional help in removing these components.

If excessive damage has occurred, not allowing assembly of the wind cone, contact Hali-Brite® for replacement parts.

Taking Inventory

Inventory all components prior to installation. Verify that you have everything required to assemble and install the L-807 or L-806 Wind Cone. If there are any missing components contact Hali-Brite®.



CAUTION: Always take care in handling individual components to prevent damage or injury.

The following components are standard or optional components shipped with an L-807 wind cone.

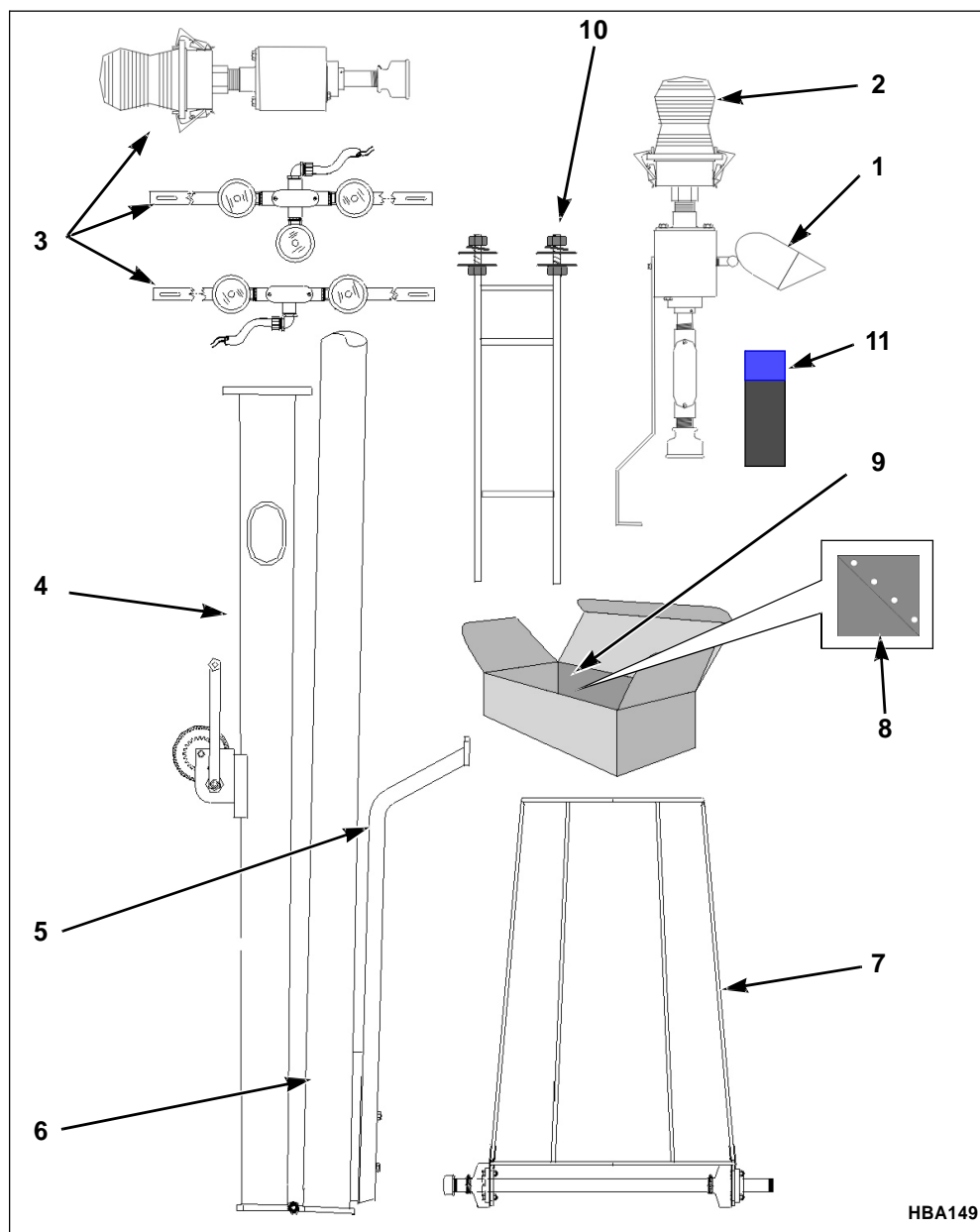


Figure 3. L-807 Wind Cone Components

| | | | |
|----|------------------------------------|-----|---|
| 1. | Exterior Floodlights (optional) | 8. | Wind Sock |
| 2. | Obstruction Light | 9. | Cable Straps (placed in box) |
| 3. | Interior Floodlight Kit (optional) | 10. | Anchor Bar with: 3/4" Lock Washers (4) 3/4" Flat Washers (8) 3/4" Nuts (8) |
| 4. | Pole (bottom half) | | |
| 5. | Swing Arm | | |
| 6. | Pole (top half) | | |
| 7. | 18" or 36" Basket | 11. | Touch-Up Paint |

The following components are standard or optional components shipped with an L-806 wind cone.

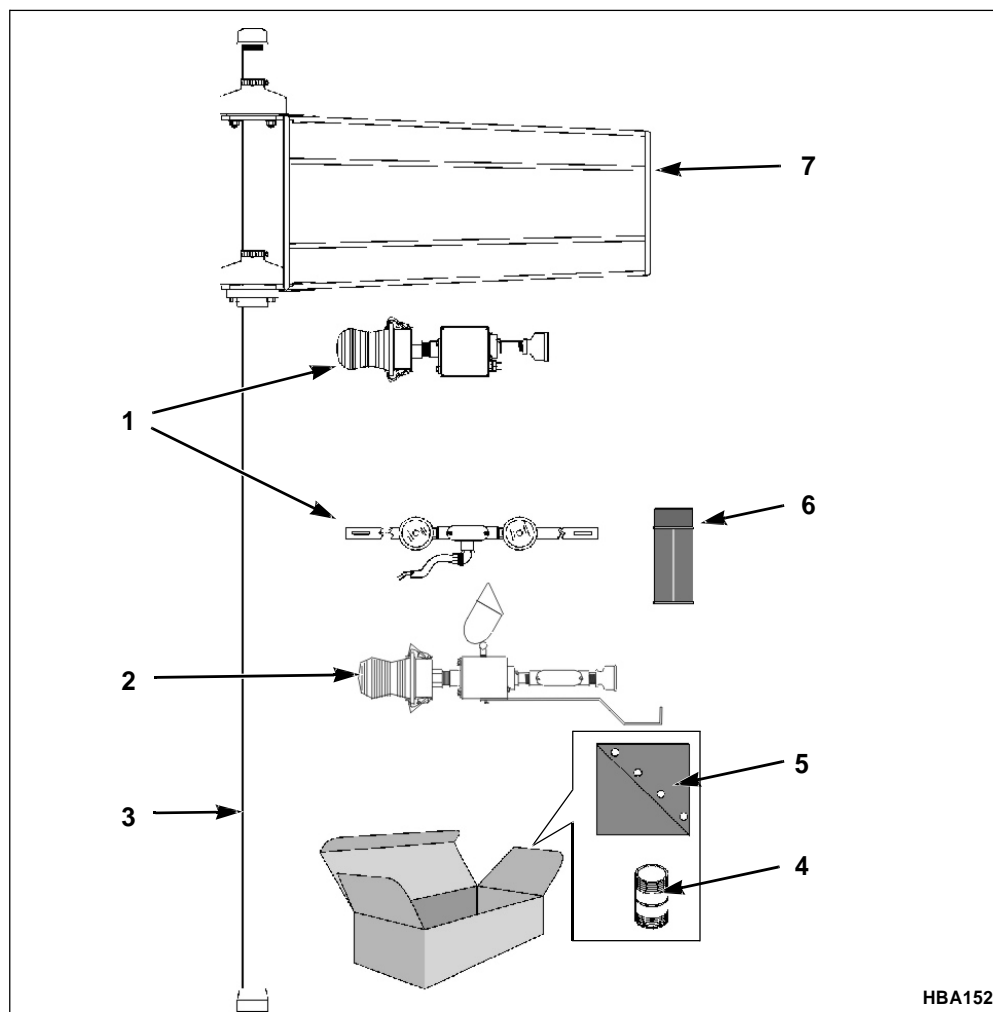


Figure 4. L-806 Wind Cone Components

| | | | |
|----|--|----|----------------|
| 1. | Interior Floodlight Kit consisting of: * Light pole assembly w/obstruction light * 2-light configuration (optional) | 5. | Wind Sock |
| 2. | Exterior Floodlights (optional) | 6. | Touch-Up Paint |
| 3. | Pole | 7. | 18" Basket |
| 4. | Frangible Coupling | | |

Tools and Supplies Needed

After all components on the shipping pallet have been inventoried you will need to accumulate the following tools. These tools are required for assembling the L-807 or L-806 wind cone.

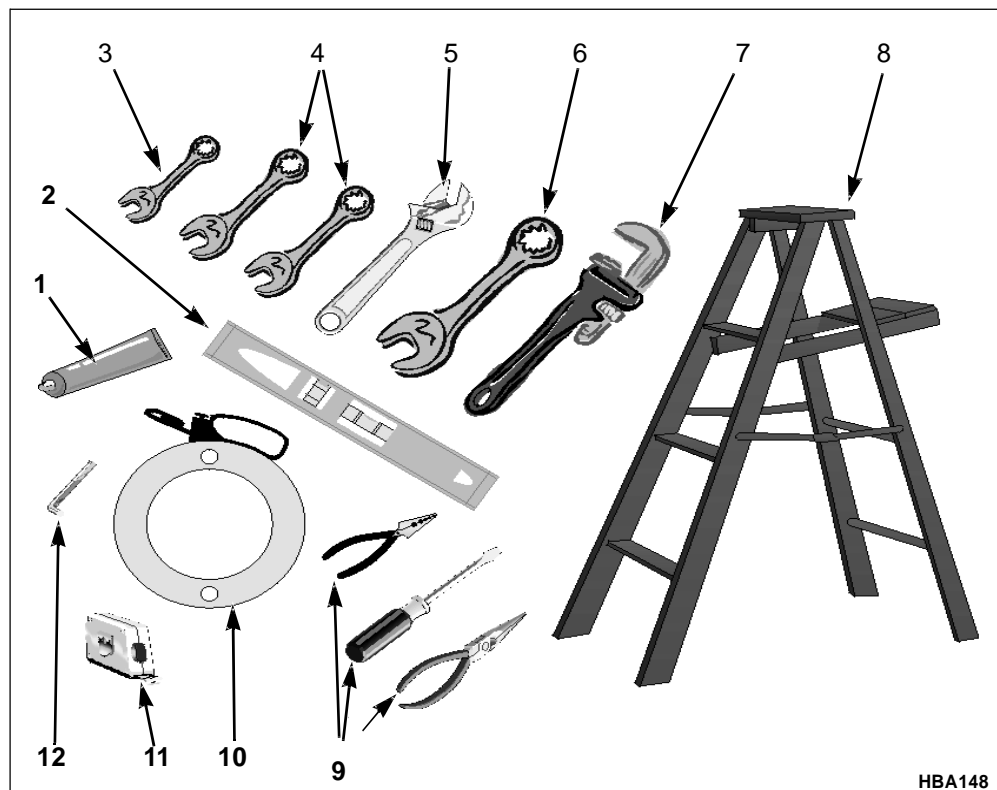


Figure 5. Required Tools

| | | | |
|----|---|-----|---|
| 1. | Anti-Locking Compound (Used to prevent threaded components from seizing) | 7. | 18" Pipe Wrench (Used to secure external light kit to the pole) |
| 2. | 12" or larger Carpenter Level (Used to level the anchor) | 8. | 6 ft Ladder (Used to access hinge on pole) |
| 3. | 9/16" Open End Wrench (Used to install the swing arm bolts) | 9. | Electrician Tools (Used to wire lighting kit to power source) |
| 4. | Two 5/8" Open End Wrenches (Used to secure the hinge bolts) | 10. | 50 ft Fishtape (Used to route lighting cable to base of pole) |
| 5. | Large Crescent Wrench (Used to tighten nuts to the anchor bracket) | 11. | Tape Measure (Used to set anchor height) |
| 6. | 1-1/16" Open End Wrench (Used to level the anchor nuts) | 12. | 3/16" Allen Hex Wrench (to remove electrical access cover plate) |

CHAPTER 5

Installing the L-807 Wind Cone

In order to simplify the installation of the L-807 wind cone, the process can be broken down into the following subtasks. Perform them in the order they are listed below.

1. “Installing the L-807 Wind Cone Anchor” on page 19
2. “Positioning the Swing Arm” on page 22
3. “Placing the Base of the Pole onto the Anchor” on page 22
4. “Attaching the Basket to the Pole” on page 24 or
5. “Installing Lights” on page 25
6. “Wiring the Lights to the Power Source” on page 28
7. “Installing the Wind Sock to the Basket” on page 29
8. “Raising the Top Half of the Pole” on page 29

Installing the L-807 Wind Cone Anchor

The installation process begins with creating a firm base to which the pole assembly will be mounted. The installation contractor is responsible for the design of the base according to local codes and conditions. The following procedure is only provided as a general guideline for installing the anchor. You may have to modify this procedure to accommodate your location and conditions.

To install the anchor, perform the following steps.

1. Remove the anchor from the shipping pallet.
2. Remove the nuts and washers from each of the anchor's four threaded corner posts.
3. Acquire four 1/2" x 5 ft pieces of rebar.

NOTE: Rebar is not supplied by Hali-Brite®.

4. Use wire to tie each 5 ft piece of rebar to each of the four corner posts, see Item #6 in Figure 7 on page 21.
5. Dig a hole deep enough to accommodate the anchor and attached rebar legs. The hole should be approximately 7.5 ft deep.
6. Lower the anchor assembly into the hole.
7. Acquire a 1/2" piece of conduit approximately 4 ft long.

NOTE: Conduit is not supplied by Hali-Brite®.

8. Place a 90 degree bend approximately 20" from one end of the conduit, see Item #7 in Figure 7.
9. Place this end of the conduit between the four corner posts and 18" below grade. If possible wire the conduit in place, see Figure 7 on page 21.
10. Position the anchor assembly to ensure the anchor threads will protrude 4-5" above the grade of the finished concrete.
11. Fill the hole with concrete. Concrete specifications are to be determined by the installation contractor.
12. Use a carpenter level to level the anchor in all directions, see Figure 6. Check this several times as the concrete is curing.
13. After the concrete has cured, turn a 3/4" nut onto each of the four threaded corner posts. The nut must be turned down as far as it will go.
14. Place a level across two of the 3/4" nuts, see Item #2 in Figure 6. Raise or lower the nuts until they are level, in all directions. This ensures that the post will be level when placed onto the anchor.
15. Place a flat washer on top of each of the four 3/4" nuts, see Figure 6.

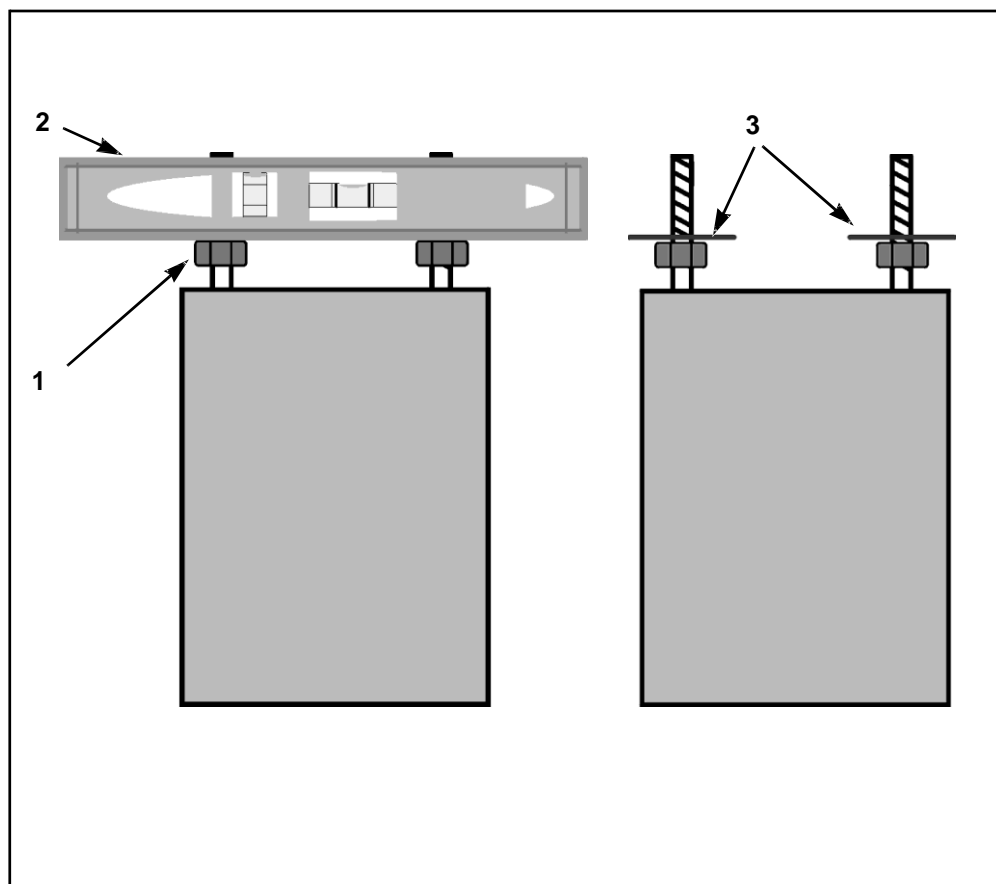


Figure 6. Leveling the Anchor Nuts for the L-807 Wind Cone

| | |
|----|------------------|
| 1. | 3/4" Nut |
| 2. | Carpenter Level |
| 3. | 3/4" Flat Washer |

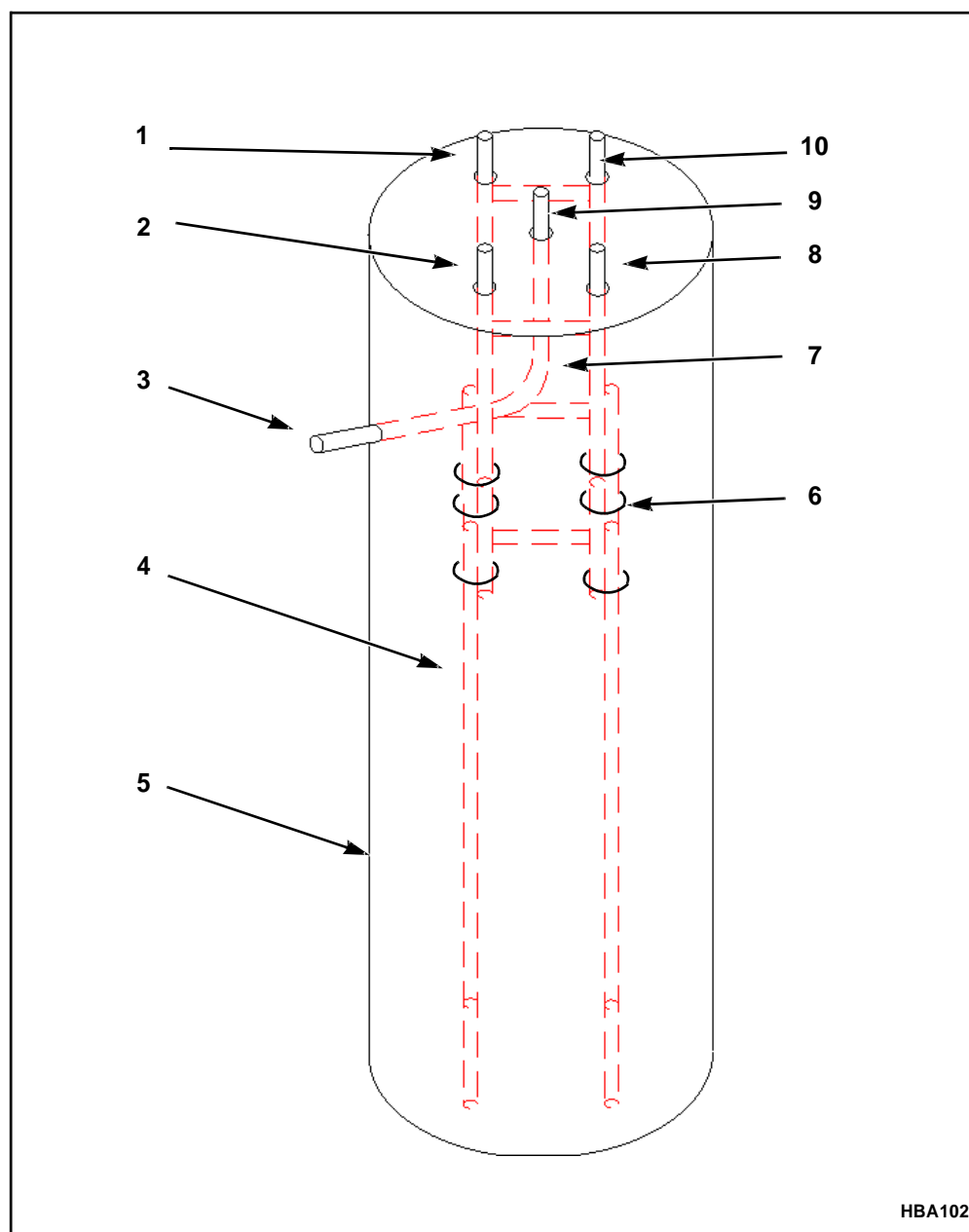


Figure 7. L-807 Anchor Assembly

| | | | |
|----|---|-----|--|
| 1. | Threaded corner post | 6. | Wire ties |
| 2. | Threaded corner post | 7. | 90 Degree bend in conduit |
| 3. | 1/2 in. conduit, 18" below grade | 8. | Threaded corner post |
| 4. | 1/2 in. x 5 ft rebar legs wired to anchor | 9. | 1/2 inch conduit 2 inches above concrete |
| 5. | Concrete Base 7.5 ft deep | 10. | Threaded corner post |

Positioning the Swing Arm

After installing the anchor, the swing arm must be correctly positioned. This is done by performing the following steps.

1. Using a 9/16" wrench, remove the bottom swing arm bolt and loosen the top swing arm bolt, see Figure 8.

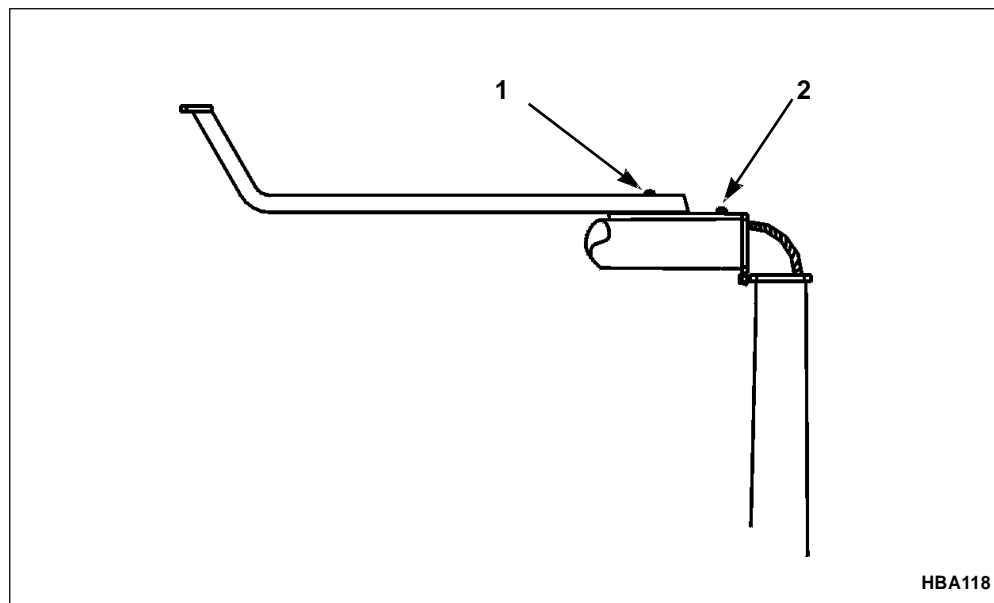


Figure 8. Positioning the Swing Arm

| | |
|----|-----------------------|
| 1. | Top Swing Arm Bolt |
| 2. | Bottom Swing Arm Bolt |

2. Rotate the swing arm to position as shown in Figure 9.
3. Place the bottom bolt back through the swing arm.
4. Tighten both swing arm bolts.
5. Place the base of the pole onto the anchor, see the following procedure.

Placing the Base of the Pole onto the Anchor

After the swing arm has been positioned, attach the pole to the anchor by performing the following steps.

1. Verify that the anchor has a 3/4" nut turned onto each of the anchor's four corner posts and that they have been leveled, see Figure 6. The four bottom nuts are used to level the pole. These nuts must be leveled prior to mounting the pole, see "Installing the L-807 Wind Cone Anchor" on page 19.

2. Verify that a flat washer has been placed on top of each 3/4" nut, see Figure 6.



CAUTION: *The following step requires two or more individuals. Use proper lifting techniques when raising or lowering heavy components.*

3. Position one person at the top half of the pole and one at the bottom half of the pole.
4. With both people lifting at the same time, lift the base of the pole over the top of the four corner posts, see Figure 9.
5. With the base of the pole on top of the four corner posts, place a 3/4" flat washer on top of each corner post, see Figure 9.
6. Place a 3/4" lock washer on top of each flat washer, see Figure 9.
7. Screw a 3/4" nut onto each corner post and tighten nuts using a 1-5/8" wrench until base of pole is secure, see Figure 9.

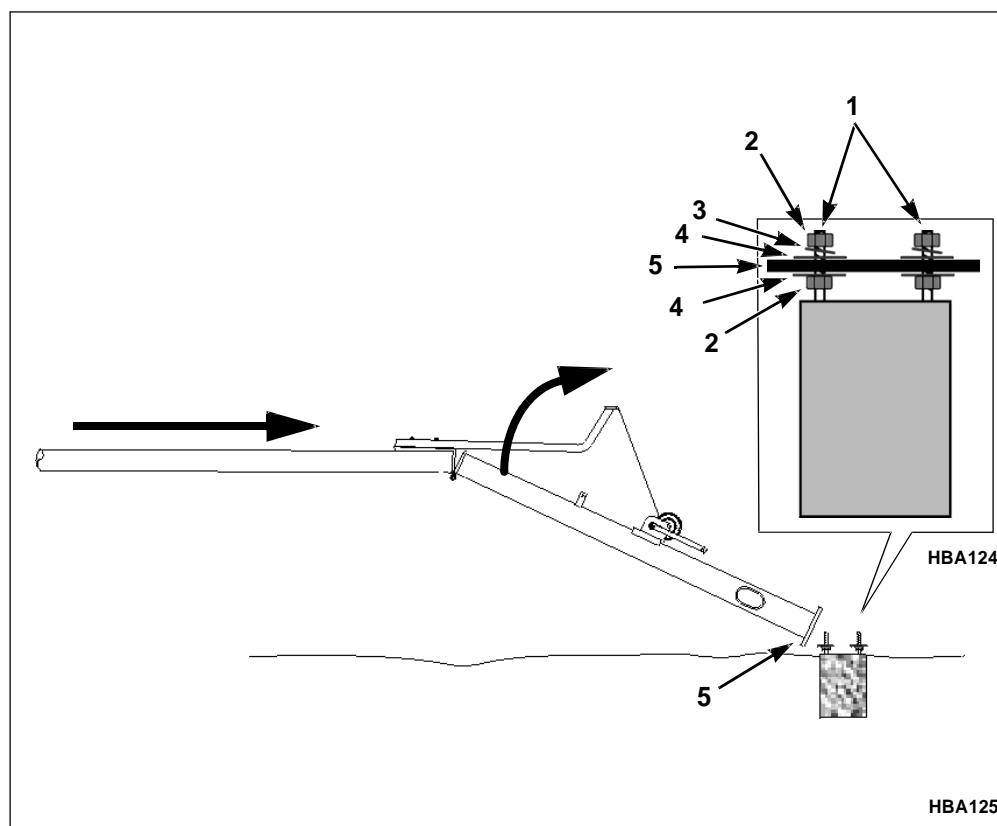


Figure 9. Fastening the Base to the Pole

| | | | |
|----|---------------------------|----|----------------------|
| 1. | Threaded Corner Posts (4) | 4. | 3/4" Flat Washer (8) |
| 2. | 3/4" Nut (8) | 5. | Base of Pole |
| 3. | 3/4" Lock Washer (4) | | |

8. Crank the top half of the pole to a comfortable working position.
9. Attach the basket to the pole, see the following procedure.

Attaching the Basket to the Pole

After the swing arm has been correctly positioned and the pole has been attached to the anchor, attach the basket to the pole.

1. Remove the basket from the shipping pallet.
2. Rotate the basket so the raincaps are pointed away from the pole, see Figure 10.

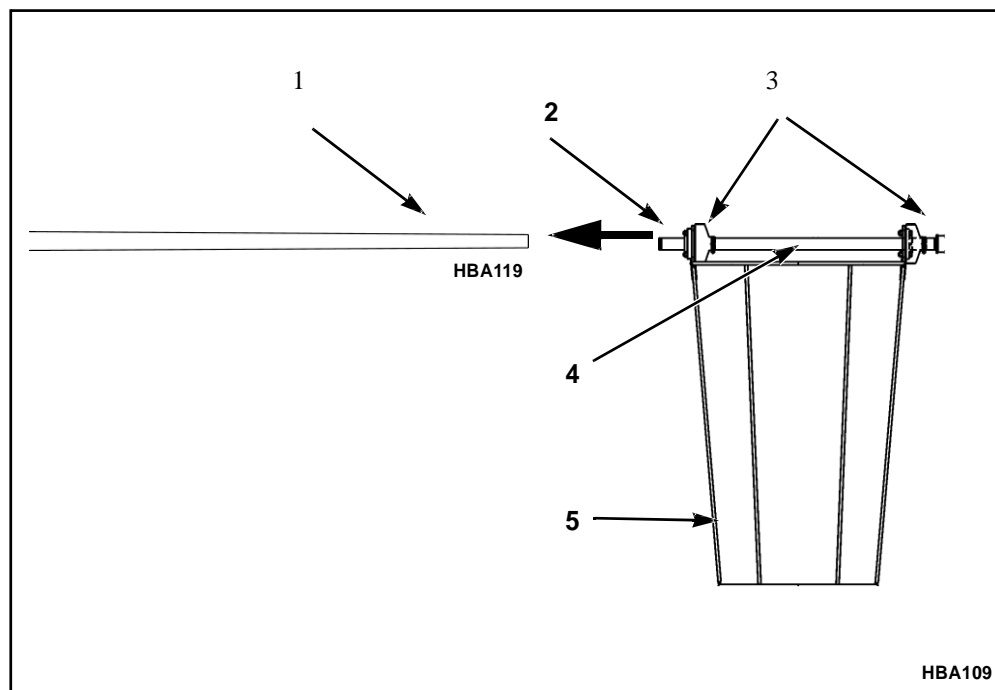


Figure 10. Positioning the Basket

| | |
|----|----------------------------------|
| 1. | Top End of Pole |
| 2. | Anti-locking Compound to Threads |
| 3. | Rain Caps |
| 4. | Basket Support Pipe |
| 5. | Correctly Positioned Basket |

3. Apply anti-locking compound to the threads of basket support pipe, see Figure 10.
4. Screw the basket to the top of the pole.
This is done by placing an 18" pipe wrench or larger around the basket support pipe. Tighten until secure.
5. Inspect the entire assembly for nicks or other damage to painted surfaces. Apply the supplied paint to these areas.
6. Attach the lights to the basket, see the following procedure "Installing Lights" on the following page. If the wind cone is unlighted, proceed to "Installing the Wind Sock to the Basket" on page 29.

Installing Lights

Perform one of the following:

- a. If external lights are required: continue with “Installing the External Lighting Kit” below.
- b. If internal lights are required: continue with “Installing the Internal Lighting Kit” on page 27.

Installing the External Lighting Kit

After the basket has been attached to the pole, you can install the external lighting kit. See Figure 12 for details.

1. Remove the access hole cover at the base of the pole, see Figure 12.
2. Push a fishtape into the access hole and up to the hinge at center of pole.
3. Insert the fishtape through the eyebolt welded to the inside of the upper pole.
4. Push the fishtape wire through the eyebolt and then through the top half of the pole.
5. Remove the end of the fishtape from the top of the pole.
6. Remove the lighting kit from the pallet and place it on the ground near the top of the basket.
7. Remove cable straps, used for shipping, from the electrical cable.
8. Attach the ends of the wire cable to the end of the fishtape.

NOTE: This requires that you wrap the ends of the wire and fishtape with black electrical tape to prevent the wires from coming loose when pulling the cable down to the access hole.

9. Using the fishtape, pull the wire cable through the top of the pole, then the eyebolt, then the bottom of the pole and finally out the access hole, see Figure 12.
10. Disconnect the wire from the fishtape. Pull all excess cable out of the access hole.
11. Place anti-locking compound onto the threads at the top of the basket support pipe. Make sure all threads have been covered thoroughly.
12. Mount the lighting kit onto the basket support pipe using a pipe wrench.
13. Refer to Figure 11. Remove the bolt, flat washer and lock washer from the upper bracket attachment. Remove the nut, flat washer and lock washer from the lower bracket attachment. Place the light support bracket on the upper and lower bracket attachment points as shown in Figure 11, with the slotted end of the light support bracket towards the wind cone lamp. Reinstall the upper bracket bolt and washers and the lower bracket nut and washer, but only finger-tight.

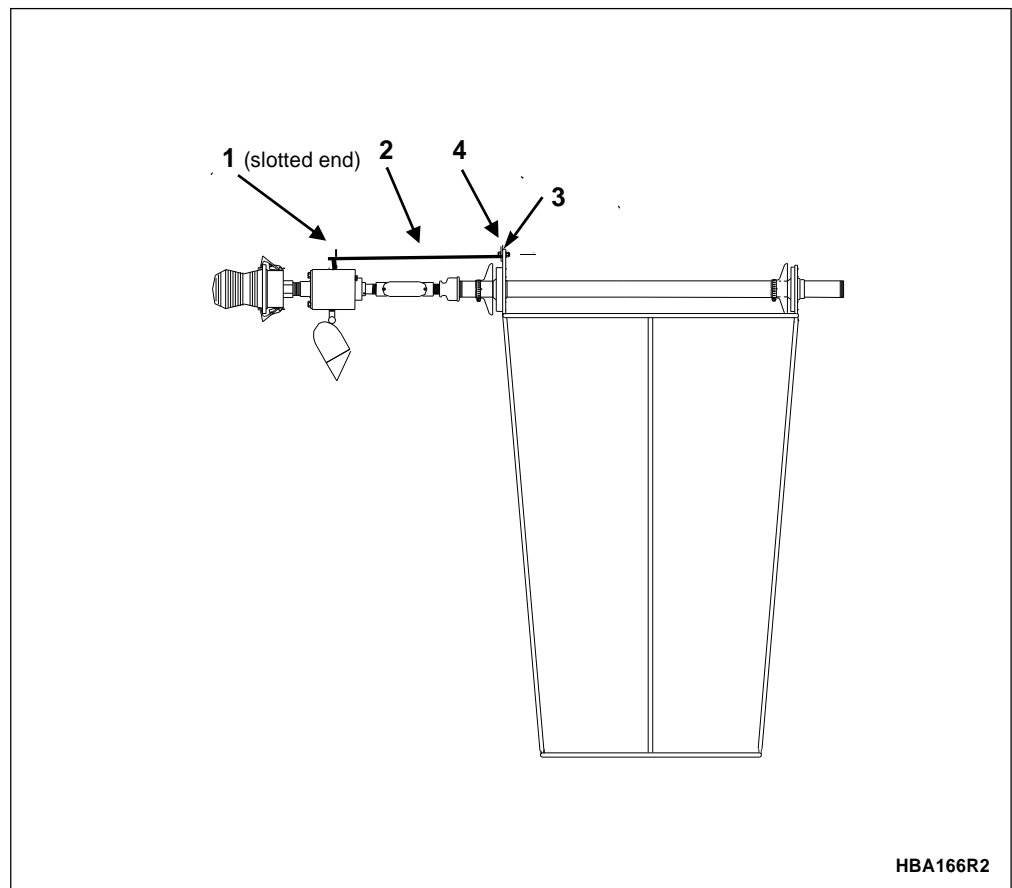
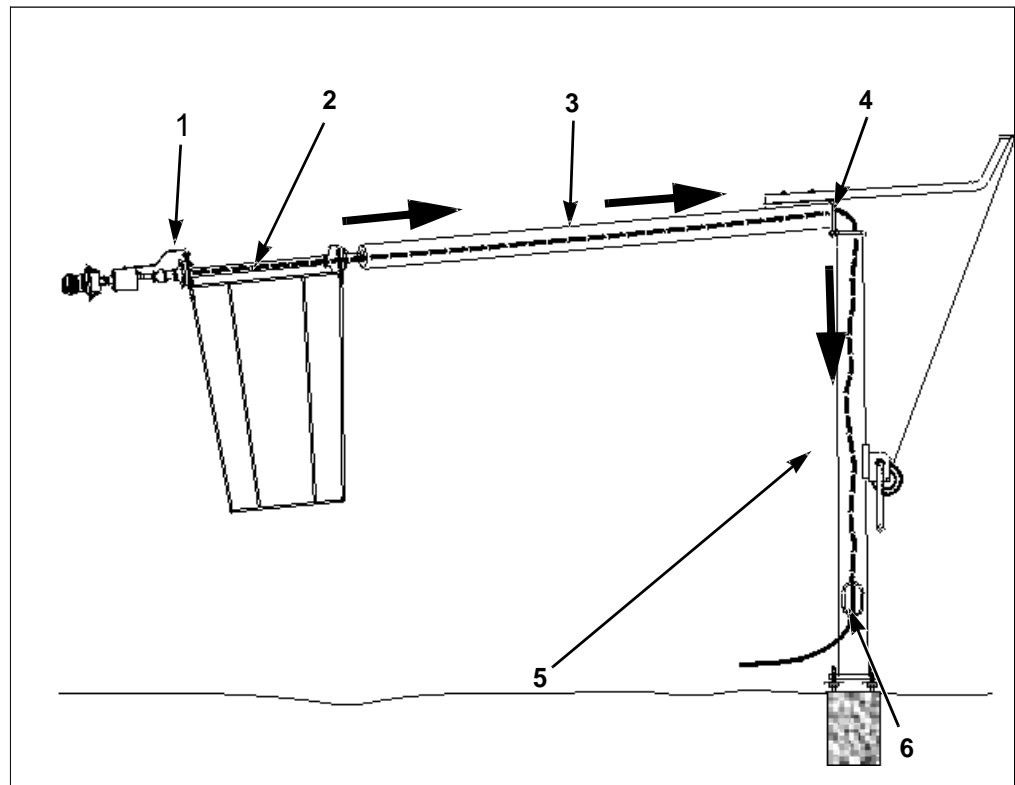


Figure 11. Installing the External Lighting Kit

| | |
|----|--------------------------|
| 1. | Upper Bracket Attachment |
| 2. | Light Support Bracket |
| 3. | Basket Bracket |
| 4. | Lower Bracket Attachment |

14. Tighten the fasteners on both ends of the light support bracket, see Figure 11.
15. Crank the top of the pole to its lowest position.
16. Wire and test the lights, see “Wiring the Lights to the Power Source” on page 28.
17. Install the wind sock, see “Installing the Wind Sock to the Basket” on page 29.



HBA163

Figure 12. Feeding the Electrical Cable

| | |
|----|---|
| 1. | Feed end of cable into top of basket support pipe |
| 2. | Pull cable through basket support pipe |
| 3. | Pull cable through top half of pole |
| 4. | Pull cable through eyebolt |
| 5. | Pull cable down through bottom half of pole |
| 6. | Pull cable out access hole |

Installing the Internal Lighting Kit

After the basket has been attached to the pole, install the internal lighting kit. This is done by performing the following steps.

1. Remove the internal lighting kit components from the shipping pallet.
2. Remove the two U-bolts from the lightbar, see Figure 13.
3. **NOTE: Place the lightbar across the center of the large end of the basket, see Figure 13. The floodlights must point into the basket. Position the bar horizontally, (parallel to the ground).**
4. Place the two U-bolts around the basket frame and back through the holes in the lightbar, see Figure 13.
5. Tighten the U-bolts to the basket frame.
6. Place anti-locking compound on the basket support pole threads.

7. Tighten the lighting kit to the basket support pipe.
8. Wire and test the lights, see “Wiring the Lights to the Power Source” on page 28.

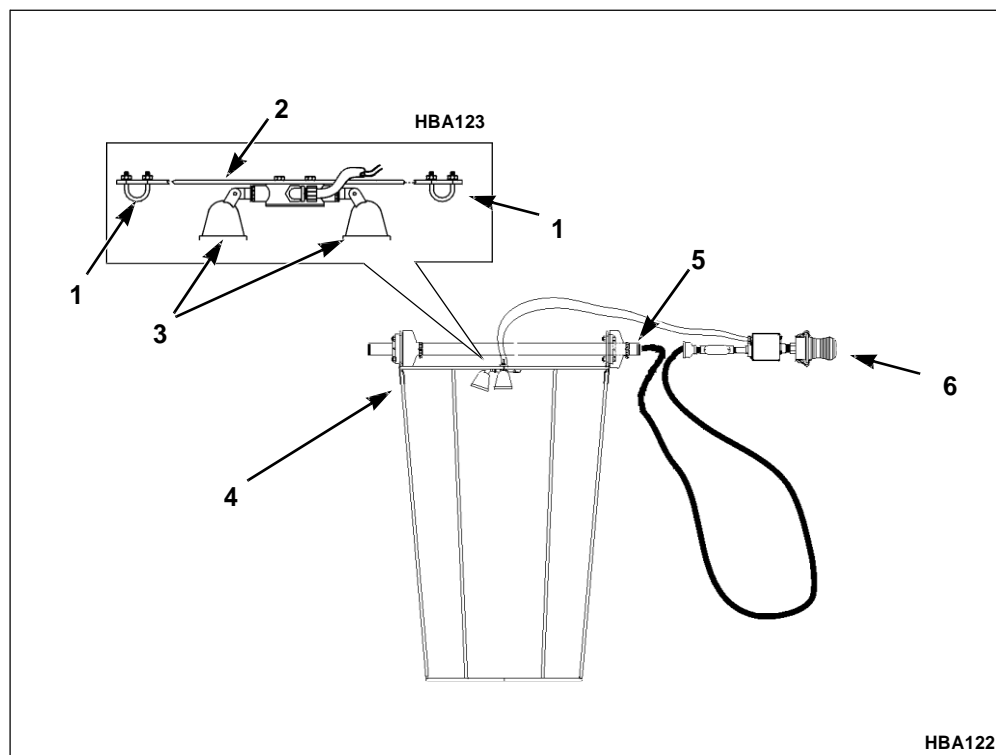


Figure 13. Installing the Internal Lighting Kit

| | |
|----|-----------------------------|
| 1. | U-Bolts |
| 2. | Lightbar |
| 3. | Internal Floodlights |
| 4. | Basket Frame |
| 5. | Apply Anti-locking Compound |
| 6. | Obstruction Light |

Wiring the Lights to the Power Source

After the electrical cable has been pulled through the pole you can wire the lights to the power source and test them. See “Wiring Diagrams” on page 43.

NOTE: *Attach a suitable earth ground to the grounding lug located inside the pole access cover.*

If all lights illuminate and appear to be in working order you can then install the wind sock, see “Installing the Wind Sock to the Basket” on page 29.

Installing the Wind Sock to the Basket

After the basket has been attached to the top of the pole and any optional lighting kits installed, you can install the wind sock by performing the following steps.

1. Remove the wind sock from the shipping pallet.
2. One end of the sock has eyelets, open this end and slide the sock over the small end of the basket, see Figure 14.
3. Slide the sock over the basket until the entire basket is covered, see Figure 14.
4. Locate the group of cable straps on the shipping pallet.
5. Place a cable strap through each eyelet and around the basket frame.
6. Tighten each cable strap and clip off any excess portion of each cable strap.

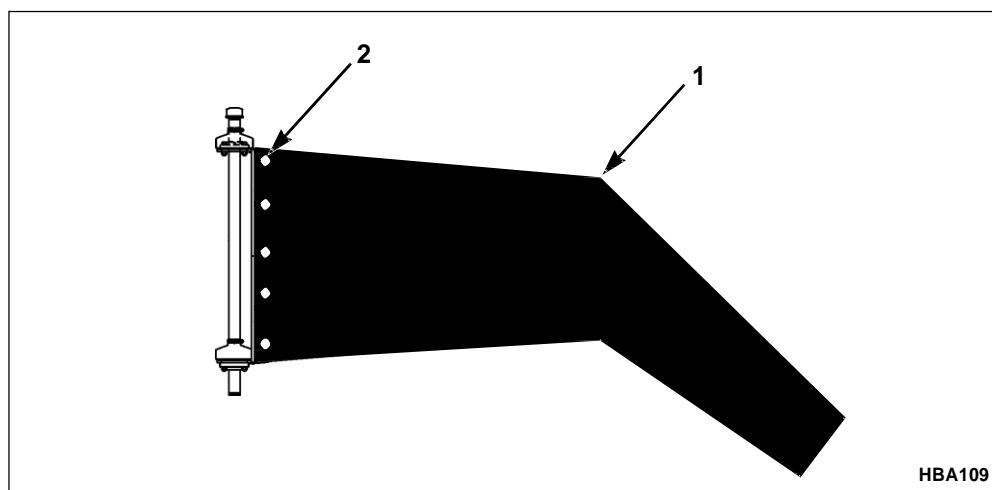


Figure 14. Installing the Wind Sock

| | |
|----|-----------|
| 1. | Wind Sock |
| 2. | Eyelets |

7. Raise the top half of the pole, see the following procedure.

Raising the Top Half of the Pole

After the wind sock has been installed, raise the top half of the pole into position.



CAUTION: Disconnect power going to the lights before raising the pole.

1. Using the handcrank on the winch, raise the pole until the hinge is closed, see Figure 15.

2. Place a bolt into each of the four holes in the hinge located at the center of the pole, see Figure 15.
3. Secure the four bolts and nuts.

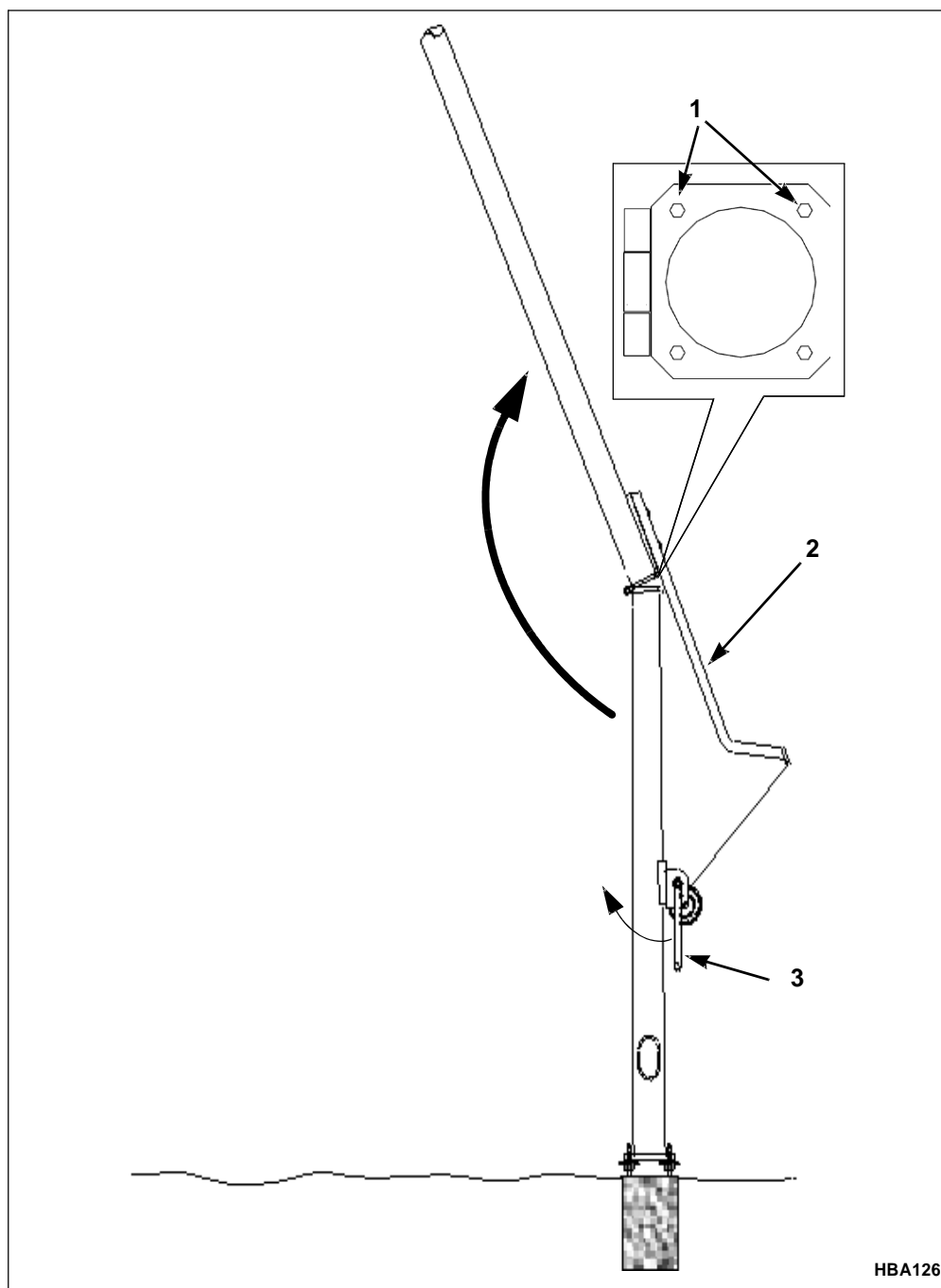


Figure 15. Raising the Top Half of the Pole

| | |
|----|-----------------------|
| 1. | 7/16" Hinge Bolts (4) |
| 2. | Swing Arm |
| 3. | Winch Handle |

CHAPTER 6

Installing the L-806 Wind Cone

In order to simplify the installation of the L-806 wind cone the process can be broken down into the following subtasks. Perform them in the order they are listed below.

1. “Installing Lights” on page 31
2. “Installing the Wind Sock to the Basket” on page 34
3. “Assembling the Pole to the Baseplate” on page 35
4. “Wiring the Lights to the Power Source” on page 35
5. “Attach the Pole Assembly to the Base Can” on page 36

Installing Lights

Perform one of the following:

- a. If no lights are required: continue with “Installing the Wind Sock to the Basket” on page 34.
- b. If external lights are required: continue with “Installing the External Lighting Kit” on page 32.
- c. If internal lights are required: continue with “Installing the Internal Lighting Kit” on page 33.

Installing the External Lighting Kit

Install the external lighting kit by performing the following steps.

1. Remove the external lighting kit from the pallet and place it on the ground near the top of the basket.
2. Remove cable straps, used for shipping, from the electrical cable.
3. Push the wire cable through the basket support pipe, down through the pole, and out the bottom, see Figure 16.
4. Place anti-locking compound onto the threads at the top of the basket support pipe, see Figure 16. Make sure all threads have been covered thoroughly.
5. Tighten the lighting kit onto the basket support pipe.
6. Refer to Figure 11. Remove the bolt, flat washer and lock washer from the upper bracket attachment. Remove the nut, flat washer and lock washer from the lower bracket attachment. Place the light support bracket on the upper and lower bracket attachment points as shown in Figure 11, with the slotted end of the light support bracket towards the wind cone lamp. Reinstall the upper bracket bolt and washers and the lower bracket nut and washer, but only finger-tight.
7. Tighten the fasteners on both ends of the light support bracket, see Figure 11.
8. Install the wind sock, see “Installing the Wind Sock to the Basket” on page 34.

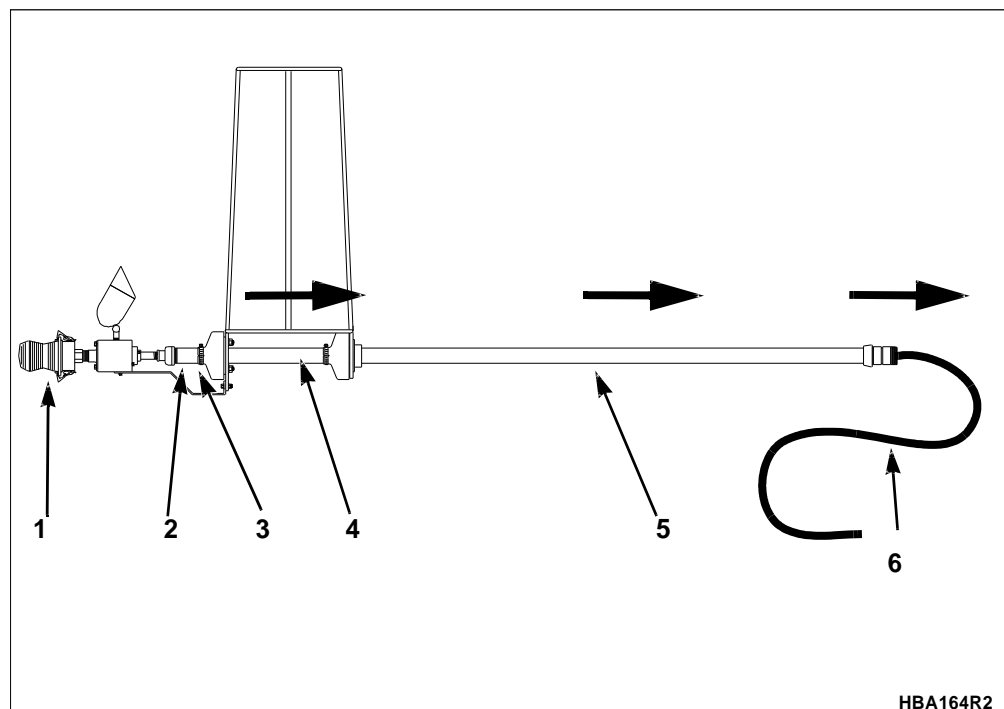


Figure 16. Feeding the Electrical Cable

| | |
|----|---|
| 1. | Place lights on ground |
| 2. | Feed end of cable into top of basket support pipe |
| 3. | Place anti-locking compound on threads |
| 4. | Pull cable through basket support pipe |
| 5. | Pull cable through pole |
| 6. | Pull excess cable out bottom of pole |

Installing the Internal Lighting Kit

Install the internal lighting kit by performing the following steps.

1. Remove the internal lighting kit from the shipping pallet.
2. Remove the two U-bolts from the light bar, see Figure 17.
3. **NOTE: Place the lightbar across the center of the large end of the basket, see Figure 17. The floodlights must point into the basket. Position the bar horizontally (parallel to the ground).**
4. Place the two U-bolts around the basket frame and back through the holes in the light bar, see Figure 17.
5. Tighten the U-bolts to the basket frame, see Figure 17.
6. Place anti-locking compound on the basket support pipe threads.
7. Screw the lighting kit to the basket support pipe.
8. Install the wind sock, see “Installing the Wind Sock to the Basket” on page 34.

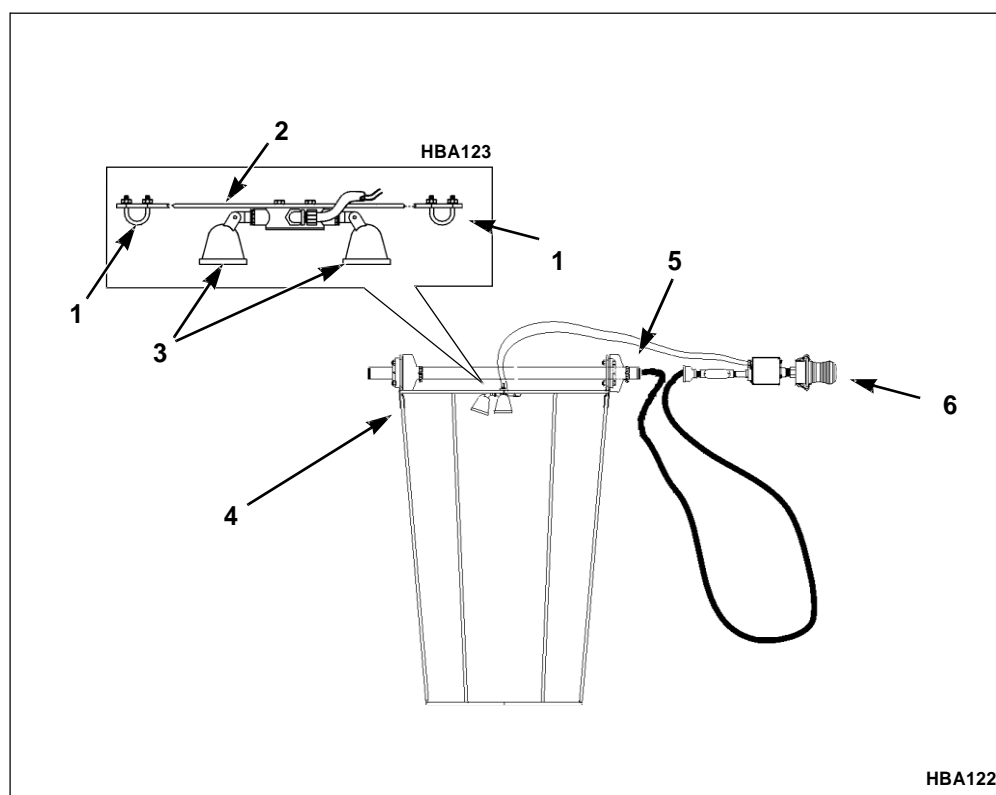


Figure 17. Installing the Internal Lighting Kit

| | |
|----|-----------------------------|
| 1. | U-Bolts |
| 2. | 18" Light Bar |
| 3. | Internal Floodlights |
| 4. | Basket Frame |
| 5. | Apply Anti-locking Compound |
| 6. | Obstruction Light |

Installing the Wind Sock to the Basket

After the basket has been attached to the top of the pole and any lighting kit installed, you can install the wind sock by performing the following steps.

1. Remove the wind sock from the shipping pallet.
2. One end of the sock has eyelets, open this end and slide the sock over the small end of the basket, see Figure 18.
3. Slide the sock over the basket until the entire basket is covered, see Figure 18.
4. Remove the group of cable straps from the shipping pallet.
5. Place a cable strap through each eyelet and around the basket frame.
6. Tighten each cable strap and clip off any excess portion of each cable strap.

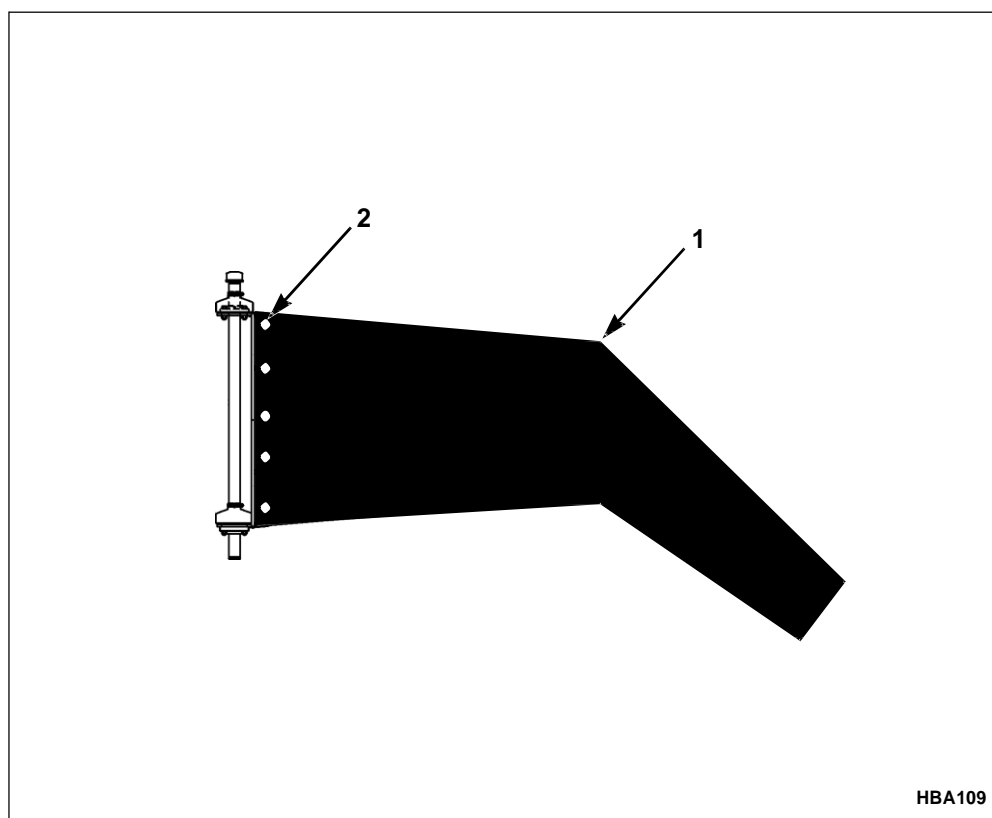


Figure 18. Installing the Wind Sock

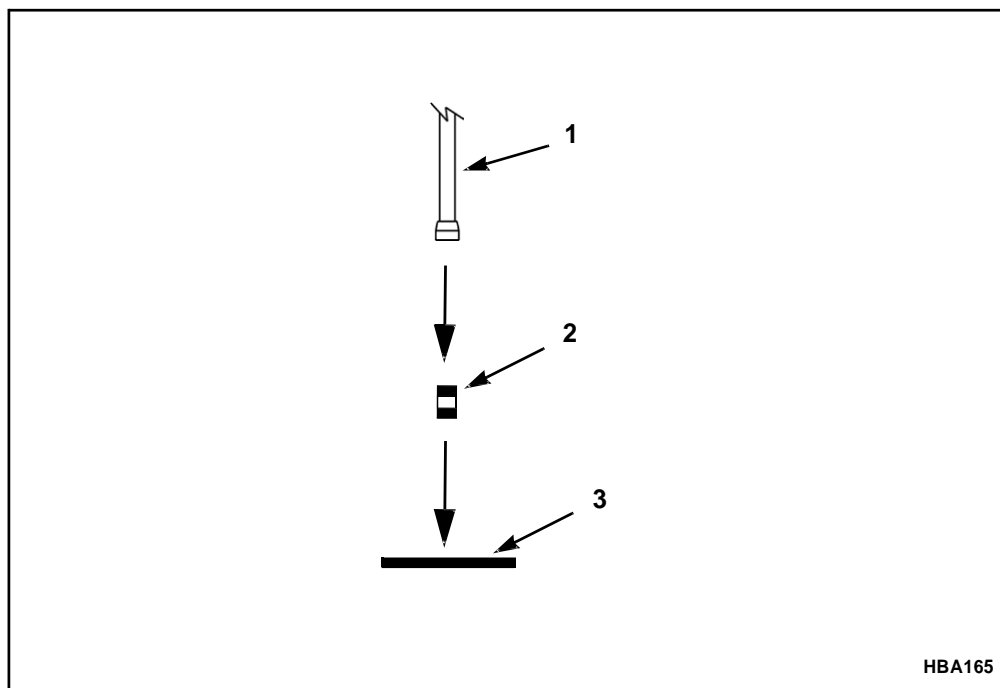
| | |
|----|-----------|
| 1. | Wind Sock |
| 2. | Eyelets |

7. Inspect the entire assembly for nicks or other damage to painted surfaces. Apply the supplied paint to these areas.
8. Assemble the pole to the baseplate, see “Assembling the Pole to the Baseplate” on page 35.

Assembling the Pole to the Baseplate

Before the pole assembly can be erected you need to attach the pole and basket to the baseplate. This can be done by performing the following steps.

1. Remove the frangible coupling from the shipping pallet and screw it into the baseplate, see Figure 19.
2. Screw the pole assembly to the frangible coupling.
3. Wire the lights to the power source, see the following procedure.



HBA165

Figure 19. Attaching the Pole

| | |
|----|--------------------|
| 1. | Pole |
| 2. | Frangible Coupling |
| 3. | Baseplate |

Wiring the Lights to the Power Source

After the pole has been assembled to the baseplate, wire the lights to the power source and test them. See “Wiring Diagrams” on page 43.

If all lights illuminate and appear to be in working order you can then attach the pole to the base can, see the following procedure.

Attach the Pole Assembly to the Base Can

To attach the completed pole assembly to the base can grasp the pole assembly near the bottom of the basket and stand the pole assembly upright. Move the baseplate on top of the base can and bolt in place.

CHAPTER 7

Maintaining and Servicing the Wind Cones

NOTE: Always perform maintenance based on frequency as established by airport policies and procedures and by FAA Advisory Circular AC 150/5340-26.

Tools Required

Tools needed to service the L-807 and L-806 Wind Cones are listed in “Tools and Supplies Needed” on page 17.

Lowering the Top of the L-807 Pole

To perform maintenance on the top half of the L-807 pole you must lower it nearer to the ground. This is done by performing the following steps.

1. Remove the four hinge bolts from the hinge at the center of the pole, see Figure 20 on page 38.
2. Using the winch slowly crank the pole down. Lower the pole to an easy working height, see Figure 20 on page 38.



CAUTION: Do not support the pole on the basket. Use a sawhorse, or other suitable support.

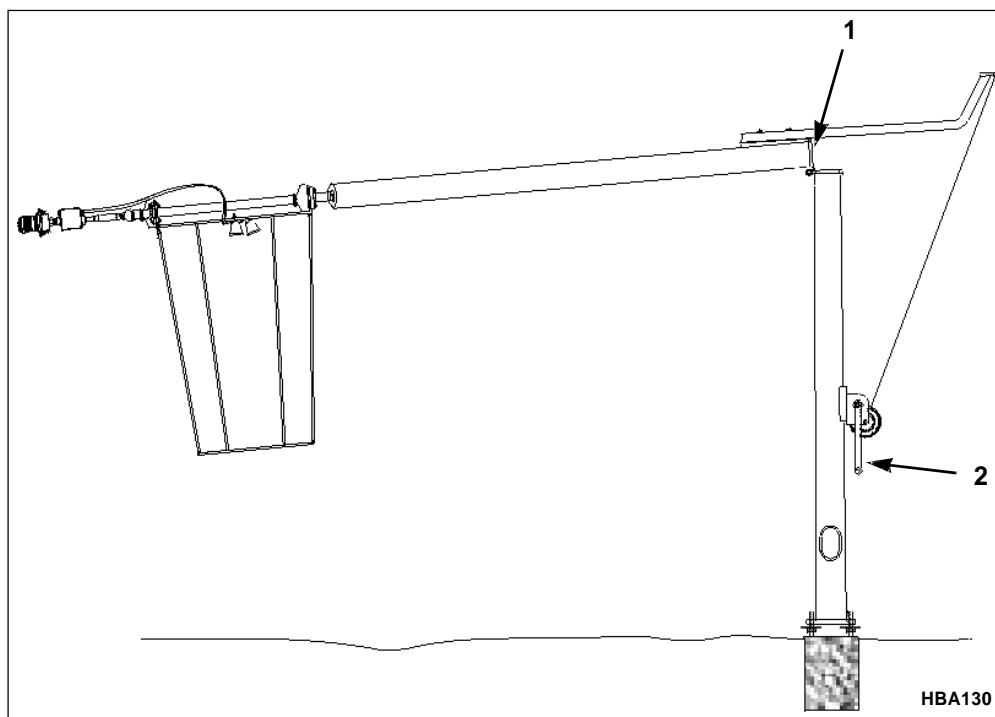


Figure 20. Lowering the Basket

| | |
|----|-----------------|
| 1. | Hinge bolts (4) |
| 2. | Winch handle |

Inspecting Wind Cone Components

The following tables list the inspections that must be performed on a regular basis.

TABLE 2. Daily Maintenance Recommendations

| Component | Action |
|----------------------------|--|
| Check lamps for operation. | Replace faulty lamps. Always clean globes inside and outside when replacing lamps. |

TABLE 3. Monthly Maintenance Recommendations

| Component | Action |
|--|---------------------------------------|
| Check wind sock for frayed edges. | Replace if torn. |
| Check pole for cracks. | Replace cracked pole. |
| Check structure for bird nests or insect problems. | Remove from structure. |
| Check for paint damage. | Apply touch-up paint as required. |
| Check wind sock for missing cable straps. | Replace missing or worn cable straps. |

TABLE 3. Monthly Maintenance Recommendations (Continued)

| Component | Action |
|--|-------------------------------|
| Check lights for dirty lenses. | Clean with a soft damp cloth. |
| Check base of pole for excessive vegetation growth. | Remove vegetation. |
| Check winch cable for fraying or corrosion (L-807 Only). | Replace if needed. |

TABLE 4. Semi-Annual Maintenance Recommendations

| Component | Action |
|--|--|
| Check wiring for cracked insulation. | Call a qualified electrician, repair as necessary. |
| Check wind sock for missing eyelets. | Replace sock. |
| Check wind sock for fading. | Replace sock. |
| Make an insulation reading and compare results with standards and previous readings. | Replace if needed. |
| Check winch for proper operation. | Replace if inoperative. |
| Check bearing lubrication | Lubricate basket bearings |

Replacing Lamps

The following table lists the halogen replacement lamps. **All models with LED lamps have a rated lamp life of 50,000 hours. All LED lamps are repaired by replacing the entire housing assembly. Contact Hali-Brite® for LED lamp replacements.**

NOTE: If a lamp has burned out always replace all of the lamps at the same time. This will reduce maintenance costs.

TABLE 5. Halogen Replacement Lamps

| Power | Replacement Lamp | Rated Lamp Life |
|--------------|-----------------------------|------------------------|
| | Obstruction Light | |
| 120 Volt | 116 W, TS 120 V | 8000 hrs |
| | Internal Flood Light | |
| 120 Volt | Halogen 100 W, 120 V | 2000 hrs |
| | External Flood Light | |
| 120 Volt | Halogen 75W PAR16 | 2000 hrs |

NOTE: See Table 6 on page 42 for part number information.

Replacing a 120 VAC Internal Halogen Lamp

1. Remove the lamp cover by twisting it counterclockwise.
2. Remove the lamp from the socket.
3. Using a glove, push a new lamp back into the socket.



CAUTION: Do not touch the lamp glass with fingers. Oil on skin may shorten the life of the lamp.

4. Replace the lamp cover.

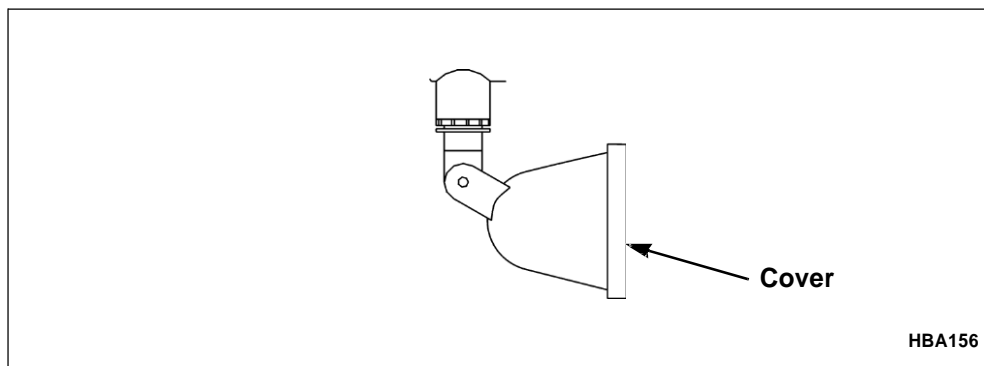


Figure 21. Replacing Internal Halogen Lamps

Replacing a 120 VAC External Halogen Lamp

1. Loosen the retaining screw on the bottom of the lamp housing.
2. Pull off the Lamp Housing Cover.
3. Unscrew the old lamp and install the replacement.
4. Install the Lamp Housing Cover and tighten the retaining screw.

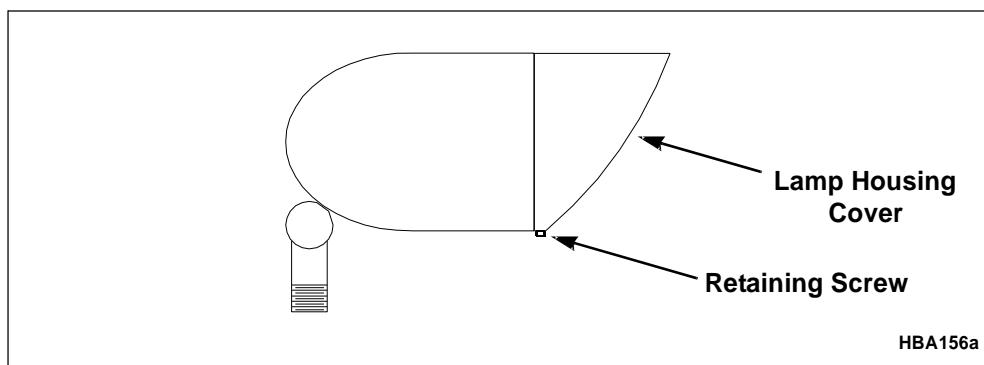


Figure 22. Replacing 120 VAC External Halogen Lamps

Replacing a Halogen Obstruction Lamp

1. Release the two clasps that attach the red lens to the light housing.
2. Remove the old lamp.
3. Using a glove, install a new lamp into the lamp socket.



CAUTION: *Do not touch the lamp glass with fingers. Oil on skin may shorten the life of the lamp.*

4. Replace the lens.

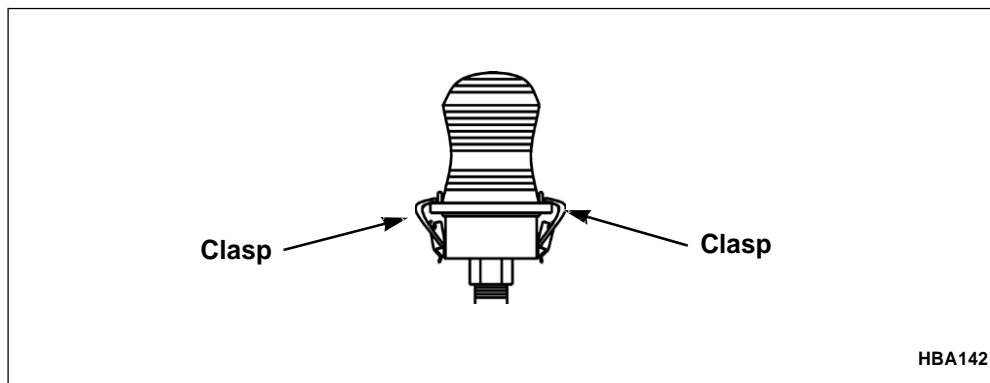


Figure 23. Removing the Obstruction Light Cover

CHAPTER 8

Spare Parts

How to Order Parts

Spare or replacement parts can be ordered by:

- Calling Hali-Brite® at 1-800-553-6269.
- Faxing your order to us at 1-218-546-6854.

Recommended Spare Parts

TABLE 6. Recommended Spare Parts List for L-806 and L-807

| Description | Part Number | Quantity |
|---------------------------------------|-----------------|----------|
| Lamp, 120 V External Halogen | 3400-0122 | 2 |
| Lamp, 120 V Internal Halogen | 3400-0100Regent | 3 |
| Lamp, 120 V Halogen Obstruction Light | 3400-116TS120 | 1 |
| Wind Sock, 36" x 12', Orange Nylon | 7400-0002 | 1 |
| Wind Sock, 18" x 8', Orange Nylon | 7400-0000-1 | 1 |
| L806 Frangible Coupling | 1800-0025 | 1 |
| Lens, L810 Halogen Obstruction Light | 2700-0004 | 1 |
| Lamp, 6.6Amp Internal Size 2 LED | 9200-0031 | 1 |
| Lamp, 120V External Size 1 LED | 9200-0032 | 1 |
| Lamp, 12VDC External Size 1 LED | 9200-0033 | 1 |
| Lamp, 6.6Amp External Size 1 LED | 9200-0034 | 1 |
| Lamp, 120V External Size 2 LED | 9200-0035 | 1 |
| Lamp, 12VDC External Size 2 LED | 9200-0036 | 1 |
| Lamp, 6.6Amp External Size 2 LED | 9200-0037 | 1 |
| Lamp, 120V Internal Size 1 LED | 9200-0038 | 1 |
| Lamp, 6.6Amp Internal Size 1 LED | 9200-0039 | 1 |
| Lamp, 120V Internal Size 2 LED | 9200-0040 | 1 |
| Lamp, 12VDC Internal Size 1 LED | 9200-0041 | 1 |
| Lamp, 12VDC Internal Size 2 LED | 9200-0042 | 1 |
| Lamp, 230V External Size 2 LED | 9200-0043 | 1 |
| Lamp, 230V External Size 1 LED | 9200-0044 | 1 |
| Lamp, 230V Internal Size 1 LED | 9200-0045 | 1 |
| Lamp, 230V Internal Size 2 LED | 9200-0046 | 1 |

CHAPTER 9

Wiring Diagrams

The following wiring diagrams are for the internal and external lights on the L-806 or L-807 Wind Cone. Refer to the following table to locate the correct figure.

| Type | Sock Diameter | Light Type | Power | Wiring Diagram |
|-------|------------------|------------------|---------|----------------------|
| L-806 | 18" | External Halogen | 120 VAC | Figure 26 on page 46 |
| L-806 | 18" | External LED | 12 VDC | Figure 27 on page 47 |
| L-806 | 18" | External LED | 120 VAC | Figure 28 on page 48 |
| L-806 | 18" | External LED | 6.6 Amp | Figure 31 on page 51 |
| L-806 | 18" | Internal Halogen | 120 VAC | Figure 25 on page 45 |
| L-806 | 18" | Internal LED | 120 VAC | Figure 29 on page 49 |
| L-806 | 18" | Internal LED | 230 VAC | Figure 29 on page 49 |
| L-806 | 18" | Internal LED | 6.6 Amp | Figure 31 on page 51 |
| L-806 | 18" | External LED | 230 VAC | Figure 28 on page 48 |
| L-806 | 18" | Internal LED | 12 VDC | Figure 27 on page 47 |
| L-807 | 18" | External Halogen | 120 VAC | Figure 26 on page 46 |
| L-807 | 18" | External LED | 12 VDC | Figure 27 on page 47 |
| L-807 | 18" | External LED | 120 VAC | Figure 28 on page 48 |
| L-807 | 18" | External LED | 6.6 Amp | Figure 31 on page 51 |
| L-807 | 18" | Internal Halogen | 120 VAC | Figure 25 on page 45 |
| L-807 | 18" | Internal LED | 120 VAC | Figure 29 on page 49 |
| L-807 | 18" | Internal LED | 230 VAC | Figure 29 on page 49 |
| L-807 | 18" | Internal LED | 6.6 Amp | Figure 31 on page 51 |
| L-807 | 18" | External LED | 230 VAC | Figure 28 on page 48 |
| L-807 | 18" | Internal LED | 12 VDC | Figure 27 on page 47 |
| L-807 | 36" | External Halogen | 120 VAC | Figure 26 on page 46 |
| L-807 | 36" | External LED | 12 VDC | Figure 27 on page 47 |
| L-807 | 36" | External LED | 120 VAC | Figure 28 on page 48 |
| L-807 | 36" | External LED | 6.6 Amp | Figure 31 on page 51 |
| L-807 | 36" | Internal Halogen | 120 VAC | Figure 24 on page 44 |
| L-807 | 36" | Internal LED | 120 VAC | Figure 30 on page 50 |
| L-807 | 36" | Internal LED | 230 VAC | Figure 30 on page 50 |
| L-807 | 36" | Internal LED | 6.6 Amp | Figure 31 on page 51 |
| L-807 | 18" | External LED | 230 VAC | Figure 28 on page 48 |
| L-807 | 18" | Internal LED | 12 VDC | Figure 27 on page 47 |

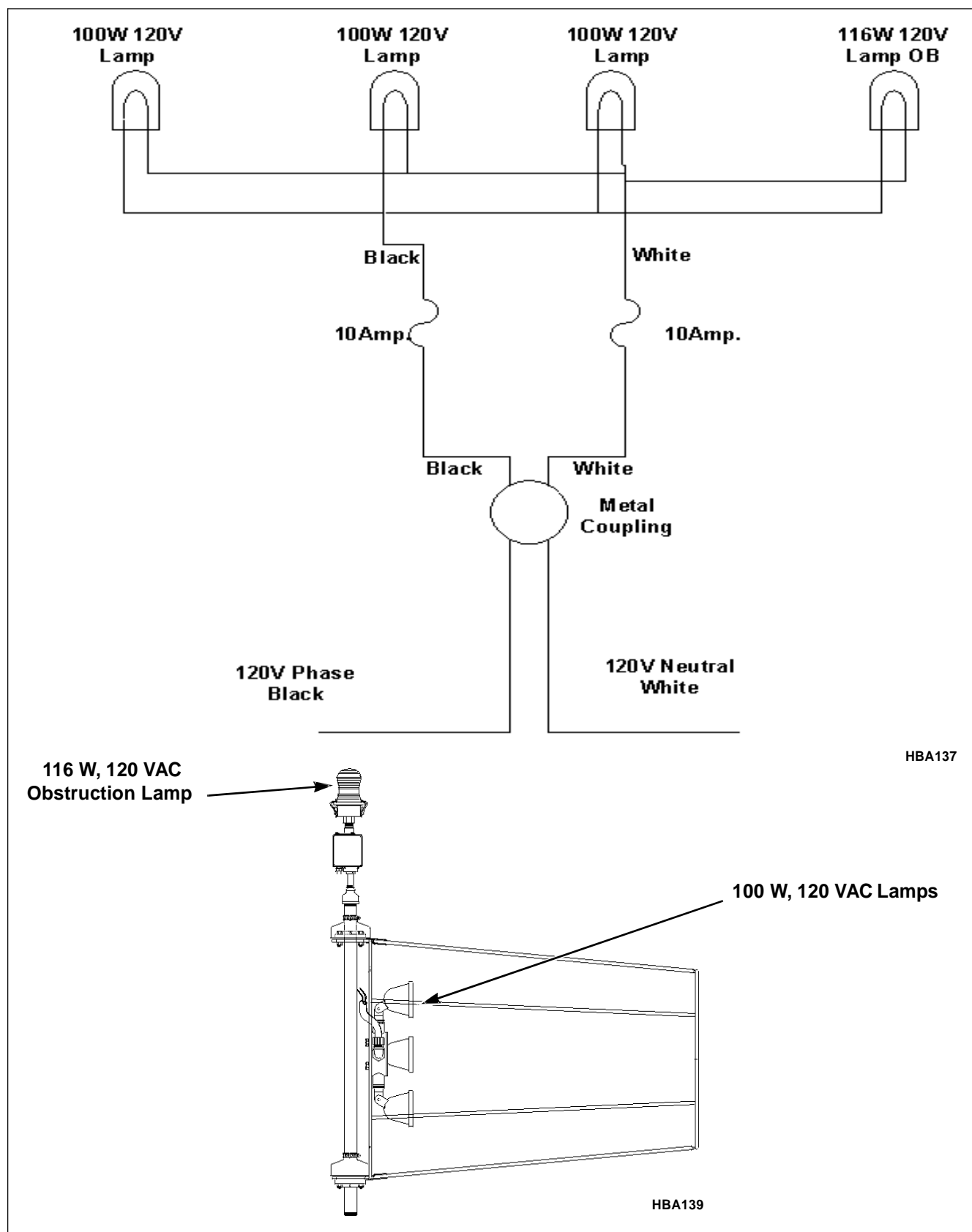


Figure 24. 120 VAC 36" Internal Halogen Wind Cone Light

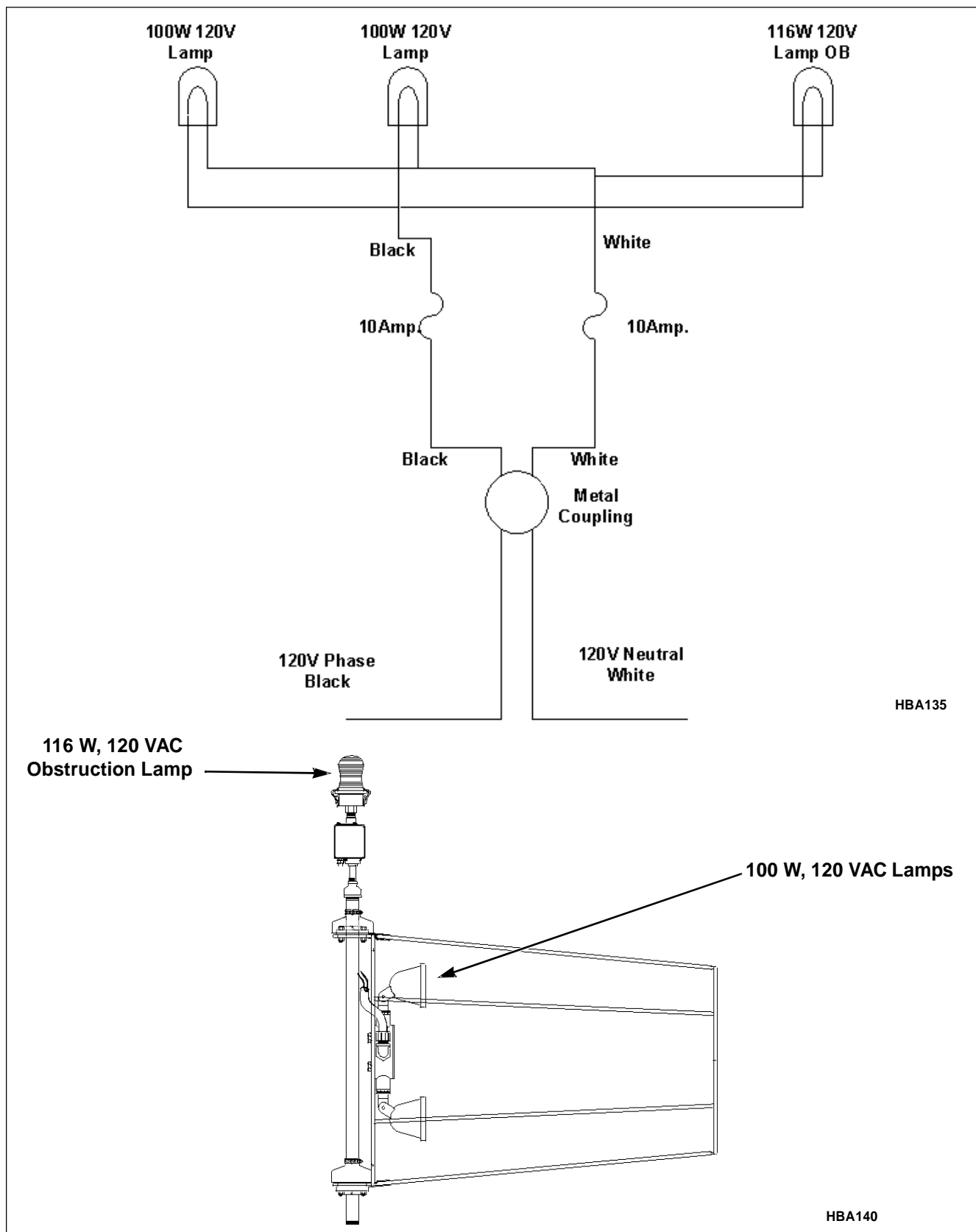
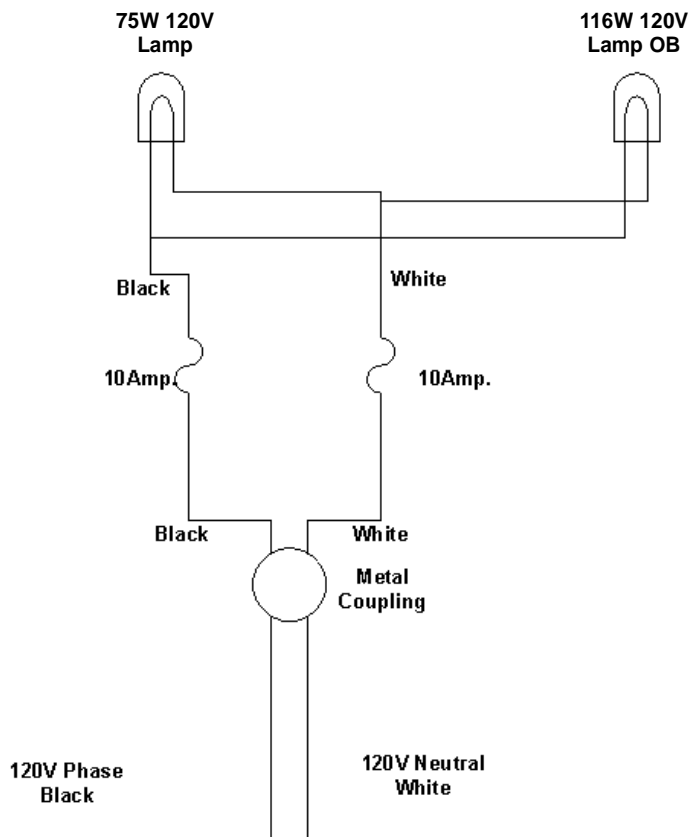
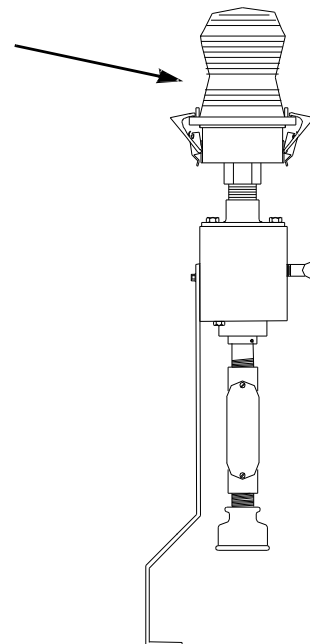


Figure 25. 120 VAC 18" Internal Halogen Wind Cone Light



HBA135r2

116 W, 120 VAC
Obstruction Lamp



75 W, 120 VAC Lamp

HBA141r2

Figure 26. 120 VAC 18" or 36" External Halogen Light

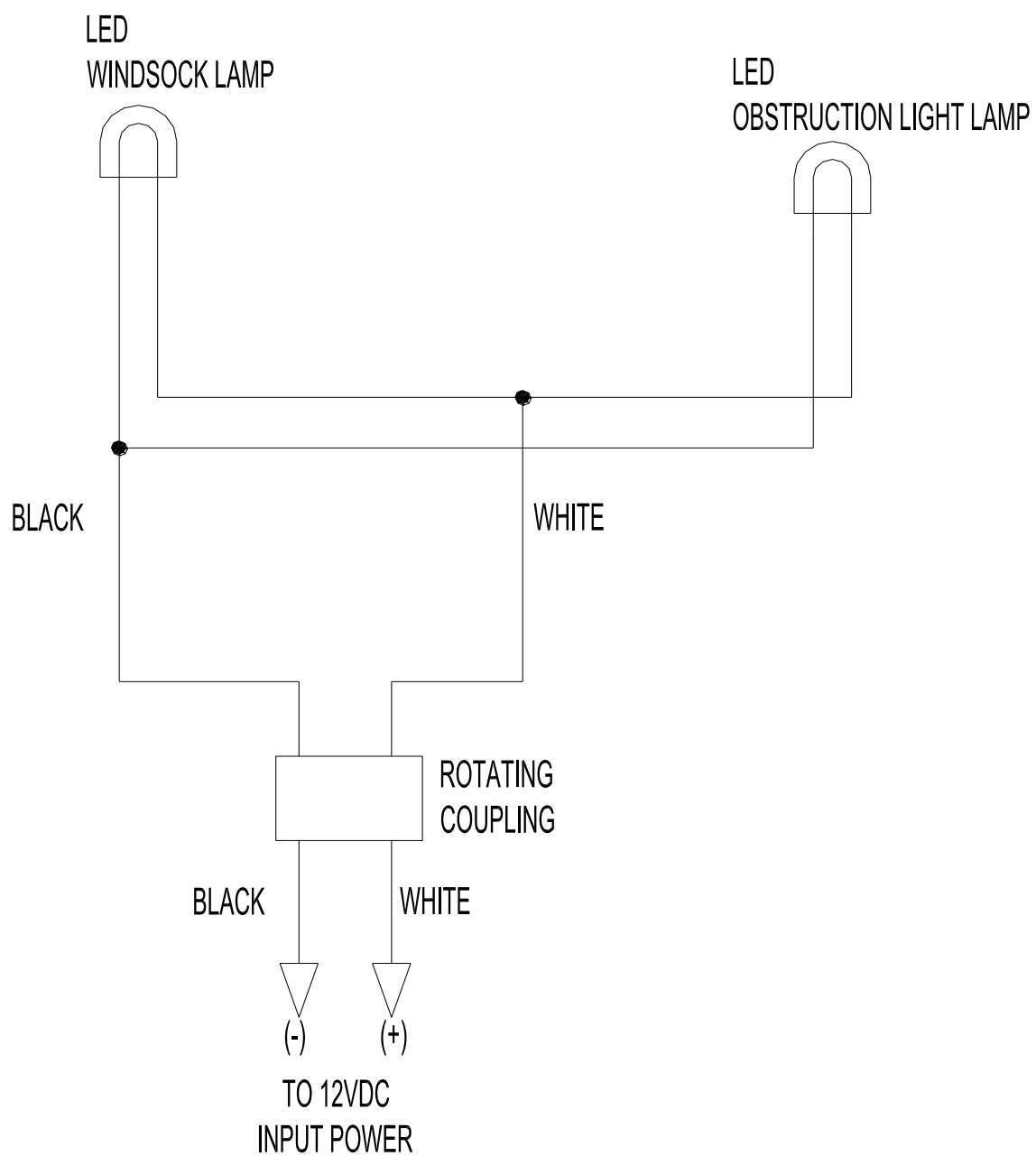


Figure 27. 12 VDC External and Internal LED Light

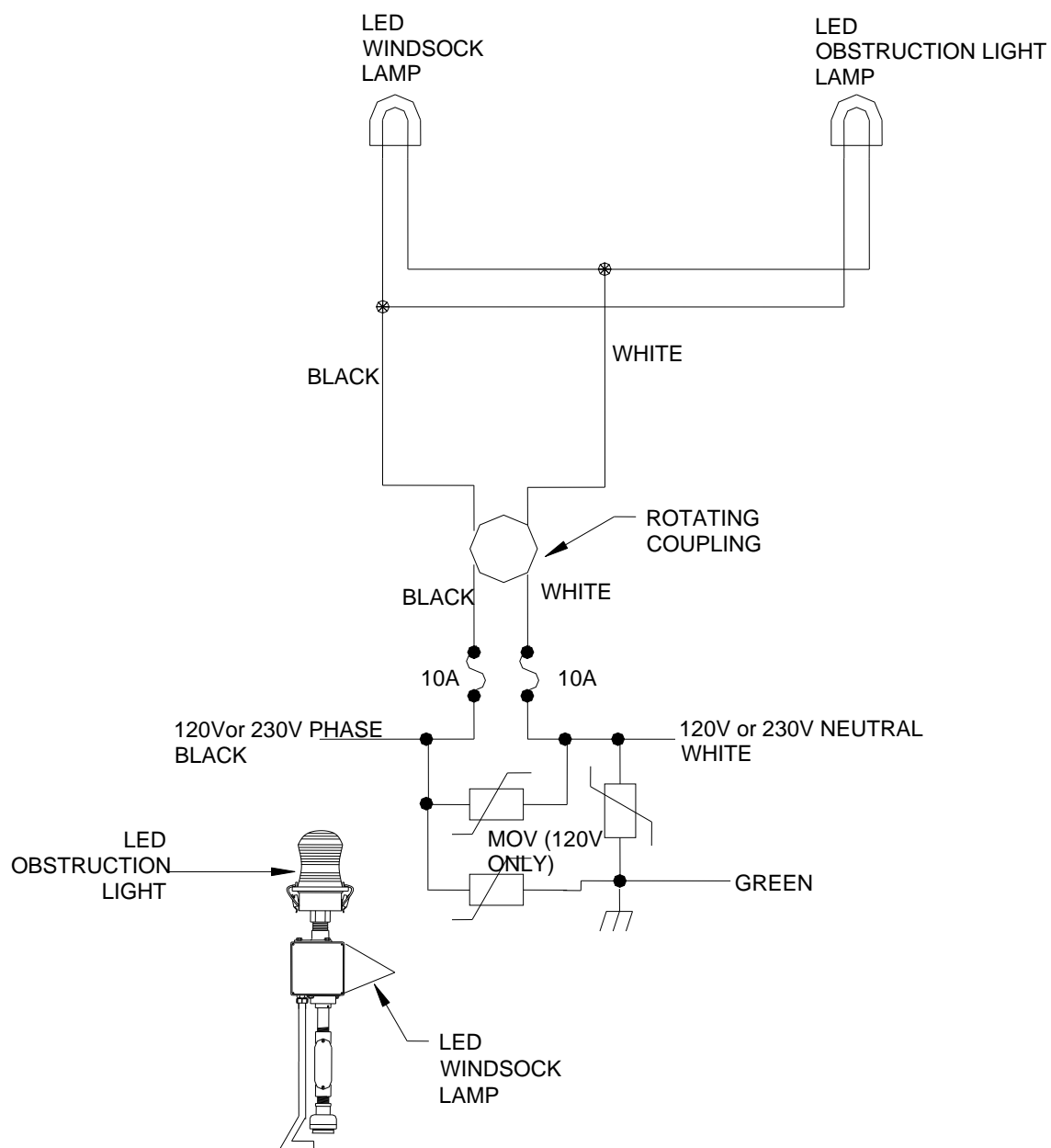


Figure 28. 120VAC and 230VAC 18" and 36" External LED Light

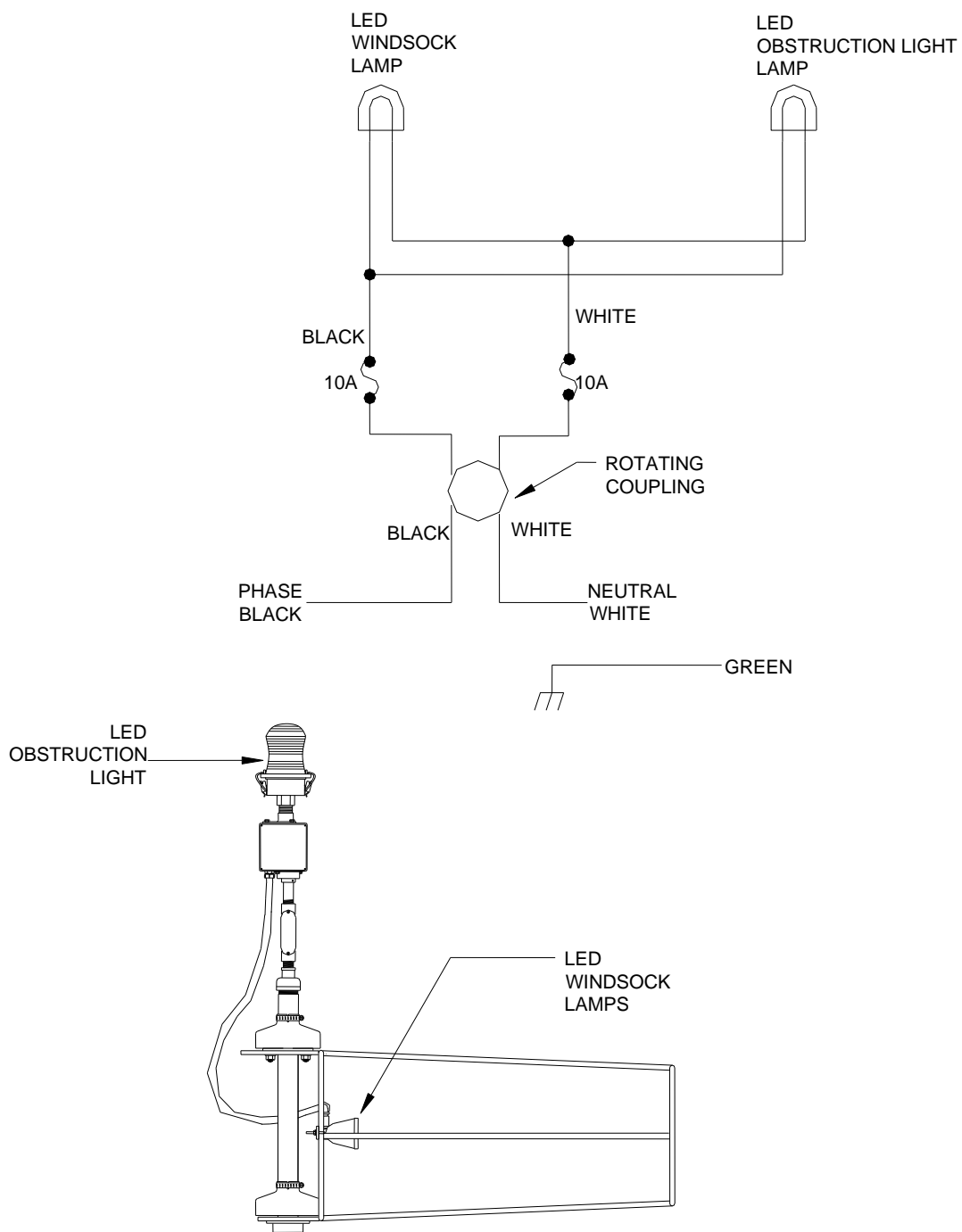


Figure 29. 120 or 230 VAC 18" Internal LED Light

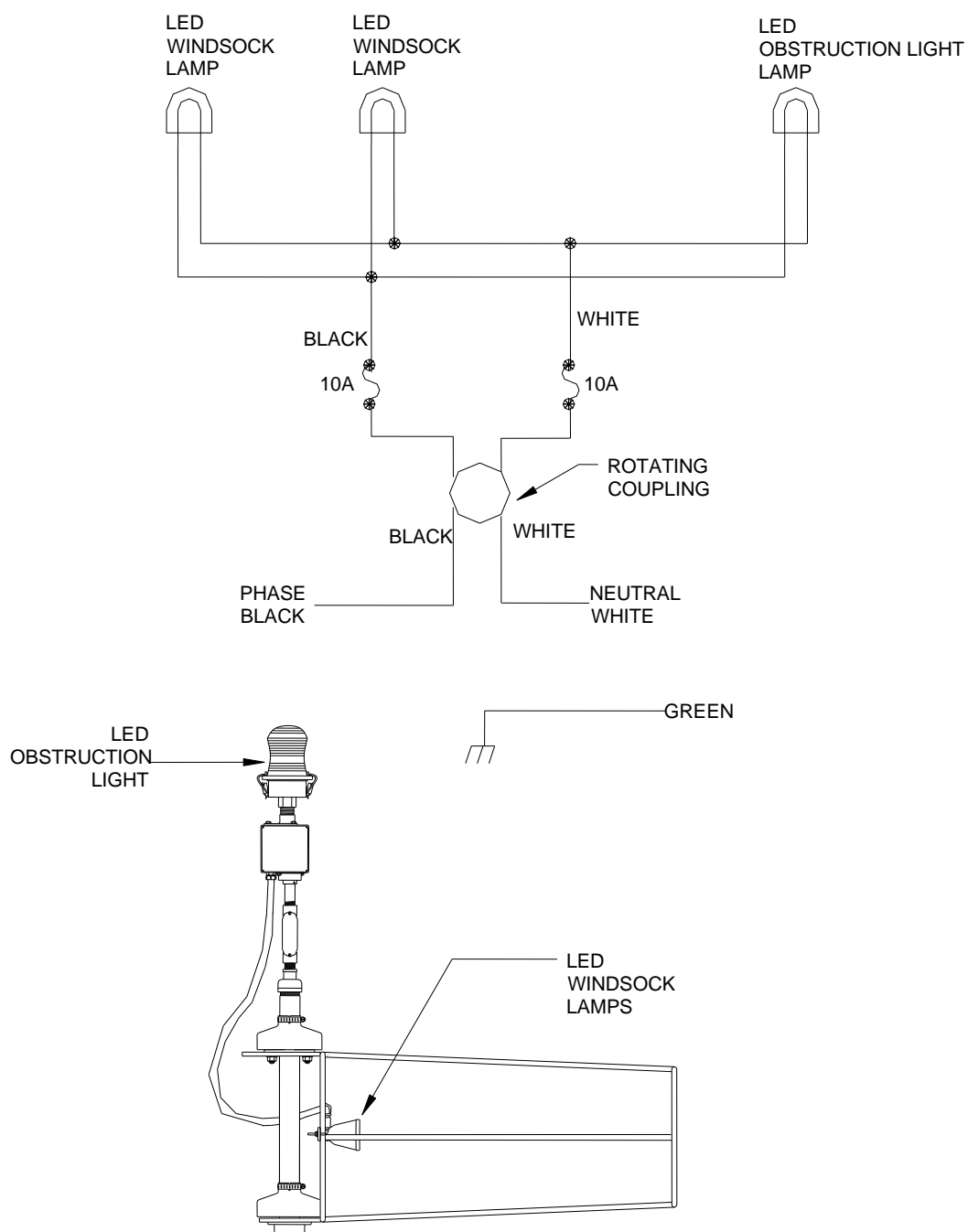


Figure 30. 120 or 230 VAC 36" Internal LED Light

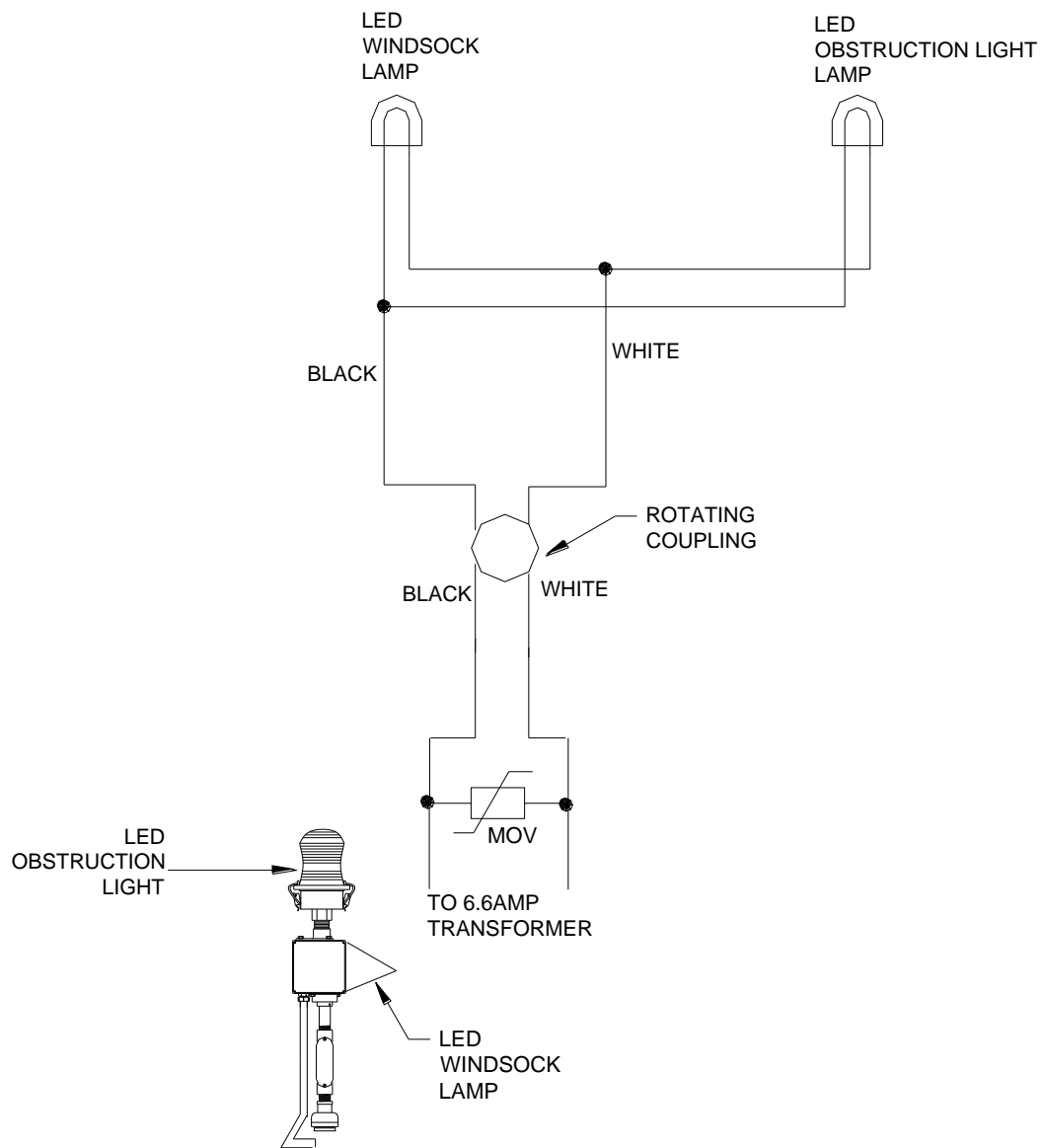


Figure 31. 6.6 Amp 18" and 36" External and Internal LED Wiring (Internal fixture not shown.)