

Service Bulletin

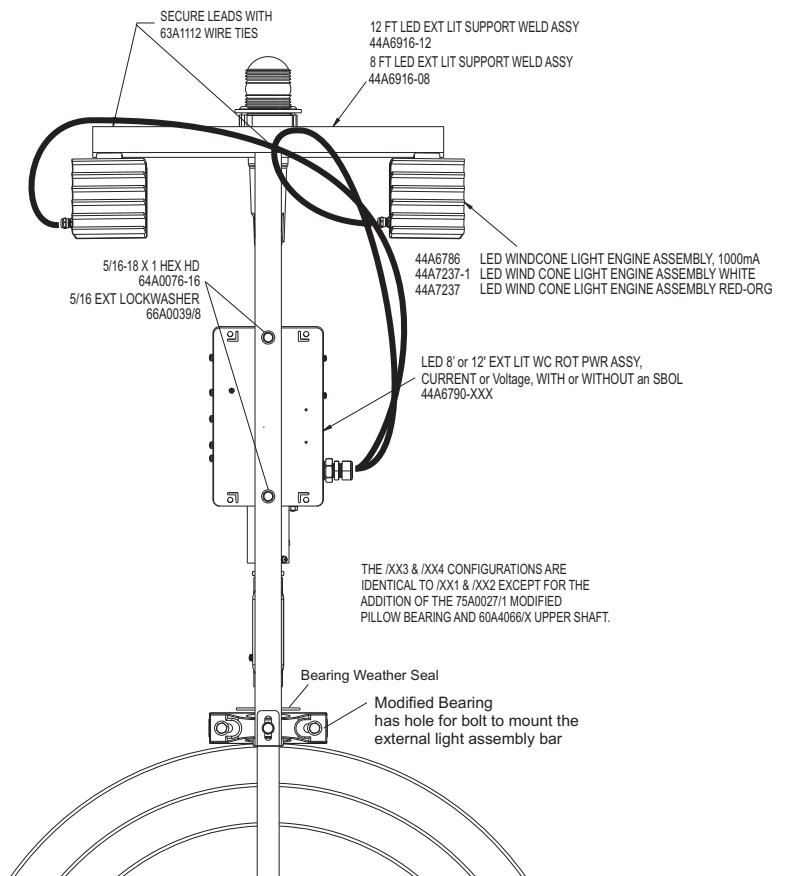
ALN147

Retain for future use.

Rev. B, 7/23/13

Wind Cone External LED Upgrade Kit 94A0531

Size 1 and 2 to bolted and welded cage



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1.0 WC Kit 94A0531

Wind Cone External LED Upgrade Kit 94A0531.

1.1 Safety

This section contains general safety instructions for installing and using ADB Airfield Solutions equipment. Some safety instructions may not apply to the equipment in this manual. Task- and equipment-specific warnings are included in other sections of this manual where appropriate.

1.1.1 To use this equipment safely:



WARNING

Read installation instructions in their entirety before starting installation.

- Refer to the FAA Advisory Circular AC 150/5340-26, Maintenance of Airport Visual Aids Facilities, for instructions on safety precautions.
- Observe all safety regulations. To avoid injuries, always disconnect power before making any wiring connections or touching any parts. Refer to FAA Advisory Circular AC 150/5340-26.
- Become familiar with the general safety instructions in this section of the manual before installing, operating, maintaining or repairing this equipment.
- Read and carefully follow the instructions throughout this manual for performing specific tasks and working with specific equipment.
- Make this manual available to personnel installing, operating, maintaining or repairing this equipment.
- Follow all applicable safety procedures required by your company, industry standards and government or other regulatory agencies.
- 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 they will not be damaged by moving equipment.
- Protect components from damage, wear, and harsh environment conditions.
- Allow ample room for maintenance, panel accessibility, and cover removal.
- 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 prior to returning power to the circuit.

1.1.1.1 Additional Reference Materials:

- NFPA 70B, Electrical Equipment Maintenance.
- NFPA 70E, Electrical Safety Requirements for Employee Workplaces.
- ANSI/NFPA 79, Electrical Standards for Metalworking Machine Tools.
- OSHA 29 CFR, Part 1910, Occupational Health and Safety Standards.
- National and local electrical codes and standards.

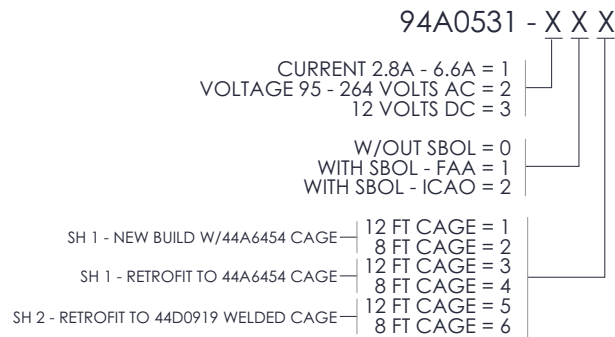
1.1.2 Qualified Personnel

The term **qualified personnel** is defined here as individuals who thoroughly understand the equipment and its safe operation, maintenance and repair. Qualified personnel are physically capable of performing the required tasks, familiar with all relevant safety rules and regulations and have been trained to safely install, operate, maintain and repair the equipment. It is the responsibility of the company operating this equipment to ensure that its personnel meet these requirements.

Always use required personal protective equipment (PPE) and follow safe electrical work practices.

1.2 Introduction

Figure 1: Kit 94A0531 Ordering Code



This service bulletin provides instructions to install a new ADB LED kit in L-807 Externally Lighted Wind Cone Assembly.

Refer to Table 1 and Table 2 for the tools and equipment required to install a ADB LED Externally Lighted Kit.

1.2.1 Special Tools and Equipment Required

Table 1: Required Equipment Supplied

Description	Part Number	Qty
Service Bulletin	ALN147	1
Externally Lit LED Kit	94A0531XXX	1
Modified Upper Bearing, Bolted Cage	/XX3 & /XX4 75A0027/1	Included in kit if required
Modified Upper Bearing, Welded Cage	/XX5 & /XX6 75B0012/1	
Lower Ground Strap	/XX5 & /XX6 44A6683/1	
Welded Cage Retrofit Mounting Bar	/XX5 & /XX6 60A4117	
Windcone Shaft Size 1 - Welded Cage	/XX6 44C0945/01	
Windcone Shaft Size 2 - Welded Cage	/XX5 44C0945/03	
Windcone Shaft Size 1 - Bolted Cage	/XX4 60A4066/1	
Windcone Shaft Size 2 - Bolted Cage	/XX3 60A4066/4	

Table 2: Required Equipment Not Supplied

Description	Qty
Wrenches for 3/8 inch, 1/2 inch, and 5/8 inch hex screws and nuts	3
Allen hex keys for 5/64 inch, 3/16 inch and 1/4 inch	3
Medium size blade screwdriver	1
36 inch bubble level	1
Miniture size blade screwdriver	1
Locking Thread Sealant (Loctite 567 or Equivelent).	A/R
L-807 Instruction Manual 96A0345	1

1.3 General Instructions

De-energize the field circuit connected to the wind cone before installing the new externally lighted kit. Read and understand the service bulletin before working on the wind cone. The assemblies can be powered by either a series circuit or a voltage power. See Table 1.

Check the new externally light kit for any shipping damage. Notify the trucking firm and ADB Airfield Solutions Sales Department immediately if any damaged is found.

The ADB LED Externally Lighted Kit includes two (2) LED Light Engine Assemblies, and a Rotating Power Assembly (RPA). A L-810 SBOL Obstruction Light Assembly is optional.

1.3.1 Lowering the Wind Cone Assembly to the Ground

After disconnecting the field circuit:

Follow procedure and Figure 1.

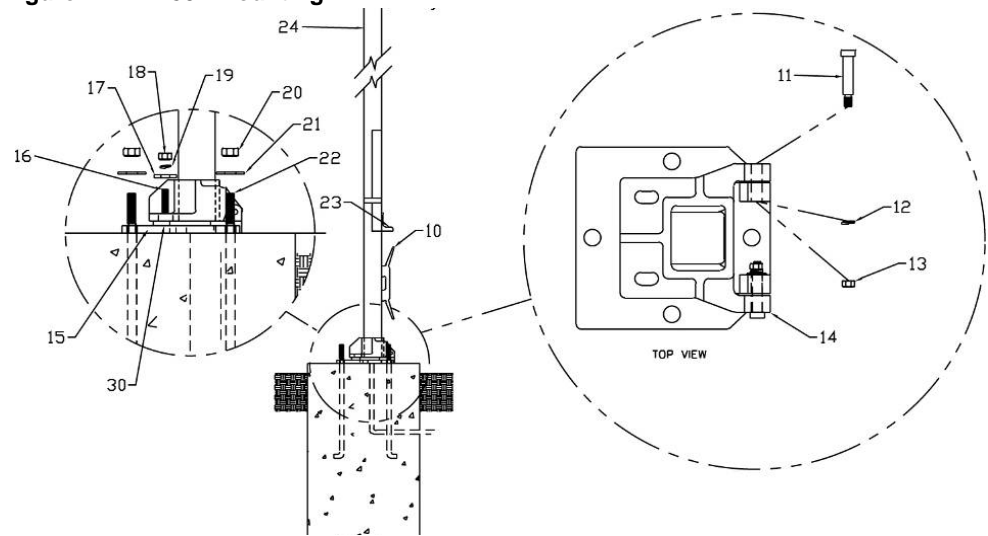
- **Before lowering the pole assembly**

- Check the rope for breaks, cuts, fraying, or other deterioration that would allow the rope to break during the lowering operation. Replace the rope, if necessary.
- Check that the support leg (23) swings away from the pole freely by moving the support leg by hand. If the support leg is tight, oil joint or adjust the nut torque until the support leg swings freely.

NOTE: Additional support can be provided by placing a sawhorse in the lowering path of the pole.

- Remove two hex nuts (18), split washers (19), and flatwasher (17) from the base plate screw (16). See Figure 2.

Figure 2: L-807 Mounting



- | | | | |
|----------------------------------|--------------------------|--------------------|-----------------------------|
| 10. Rope Cleat | 17. 1/2 Thick Flatwasher | 20. 5/8-11 Hex Nut | 23. Support Arm Assembly |
| 15. Pole Support Base Plate | 18. 1/2 Hex Nut | 21. 5/8 Lockwasher | 30. 1/2 Flatwasher - Thin |
| 16. 1/2-13 x 2 Hex Hd Cap Screws | 19. 1/2 Split Lockwasher | 22. Anchor Bolt | 8. Upper Shaft Attach Point |

Lowering of the pole assembly, L807

- Use at least two people to lower the pole assembly: one person to hold the rope and the other person to hand-walk the pole down. Remove the nuts shown above (16). Lower the pole.
- Insure that the wind cone cage assembly does not hit the ground.

General Instructions

1.3.2 Removing the Existing Light Kit

1.3.3 Remove the Cage Assembly

Lowering of the pole assembly, L806

- Use at least two people to lower the pole assembly. Unbolt the base then, lower the pole.
- Insure that the wind cone cage assembly does not hit the ground.

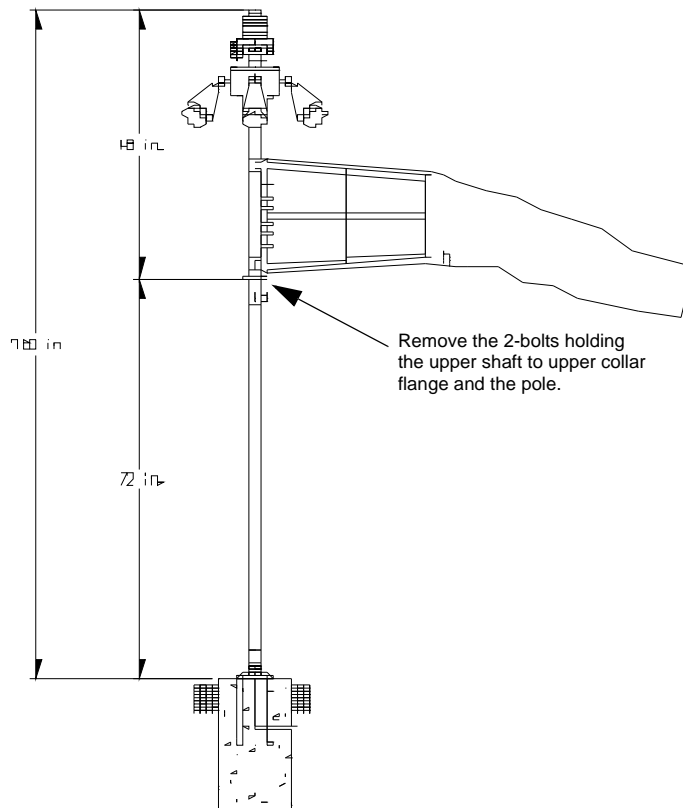
Remove the existing light kit as follows:

- Remove the existing light assembly and, if present, the obstruction light assembly.
- Disconnect all electrical connections. Disconnect the strain relief. Pull the wire through the upper shaft.
- Remove the upper shaft and the upper bearing from the cage assembly.

To install the new LED internally lighted kit, perform the following:

1. Replace the upper bearing then the upper shaft with the ones issued in the kit. See the appropriate diagrams.
2. Slide the upper collar flange over the upper shaft base.
3. Connect the external light assembly to the upper bearing and the shaft.
4. Apply a small amount of Locking-thread Sealer on the wind cone shaft threads and then screw the new External Light Assembly on top of the shaft.
5. Feed power into the Surge Protection Enclosure.
6. Connect the 2-bolts holding the upper shaft to upper collar flange and the pole.

Figure 3: L-806 External Incandescent Lamp Assembly

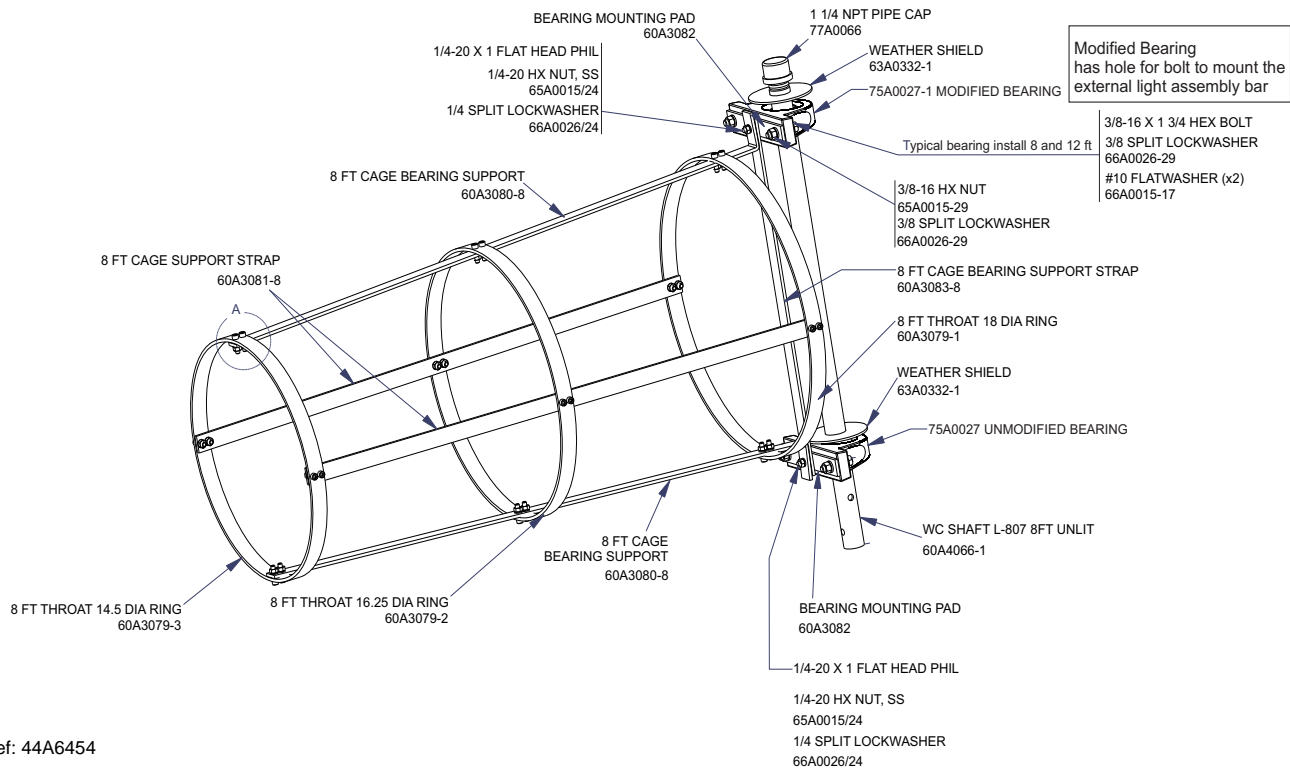


1.4 Assembling Wind Cone Sock Cage

The sock cage assembly is comprised of the following items: throat ring, mid ring, trail ring and associated connector straps. Assembling these items together is accomplished by using the 1/4-20 x 7/8 Long, Socket Button Head screws, 1/4 lock washer, and 1/4-20 hex nut, mounting hardware supplied.

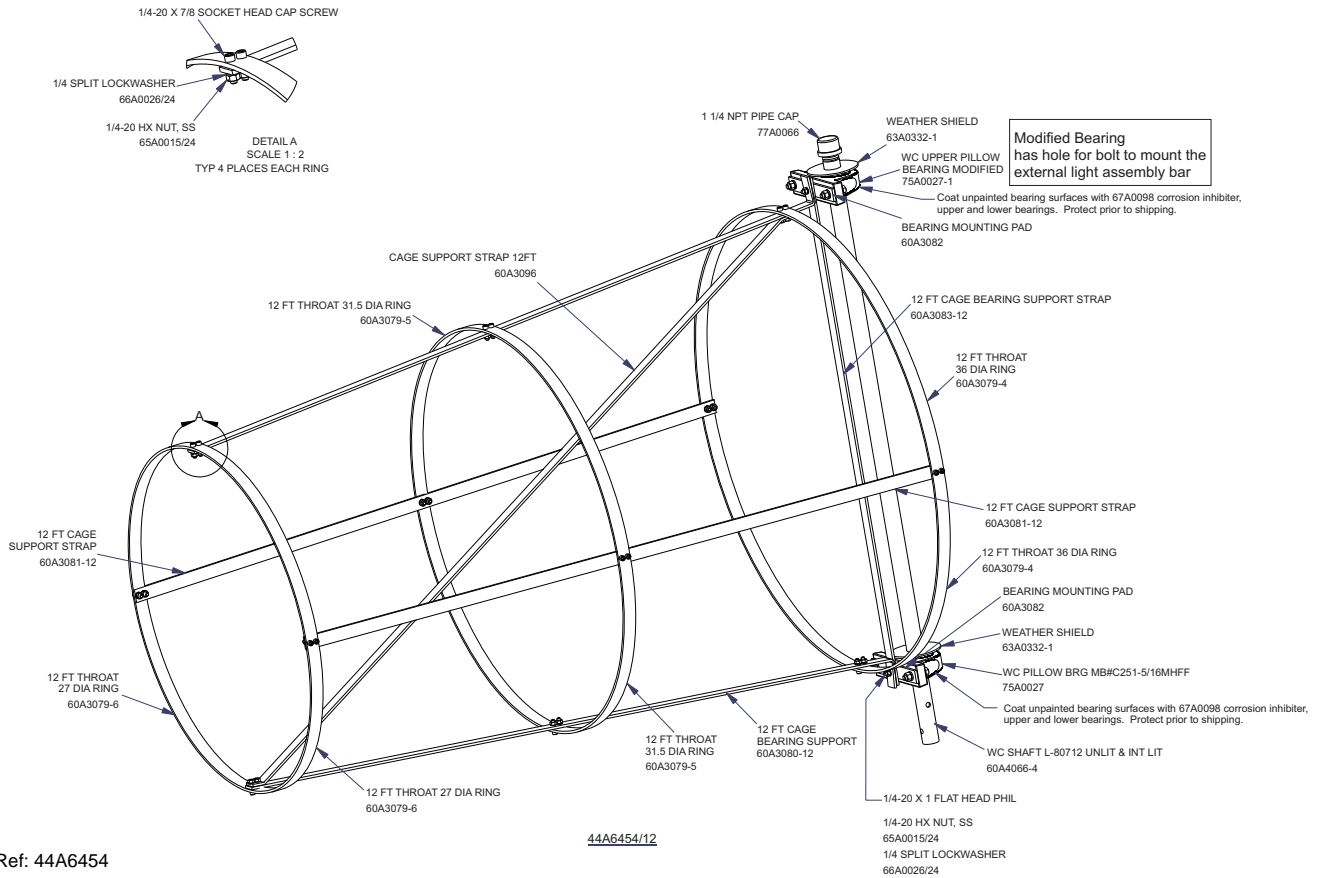
1. Fasten the two bearing L-shaped support straps to the throat ring (the largest diameter ring) using the pre-drilled holes in the ring and the strap. Install the "L- end" of the two straps to the throat ring 180 degrees apart. Turn the short leg of the strap outward. Tighten all screws and nuts.
2. Fasten the mid ring (next smallest diameter ring) to the next set of holes in the bearing support straps away from the throat ring. Tighten all screws and nuts.
3. Fasten the trail end ring (smallest diameter ring) to the far end of the strap. Tighten all screws and nuts.
4. Fasten the other two straight support straps to all three rings by using the remaining holes in each of the rings. Tighten all screws and nuts.
5. Next fasten the bearing mounting plate at right angles to the bearing support strap and fasten these to items to the L-shaped support strap using a 1/4-20 flat head screw and hex nut. Tighten the flat head screw and nut. Place the bearing on the mounting pad with the shaft collar where the set screws are located, pointing toward the center line of the cage, and fasten with the 3/8-16 screw, heavy flat washer, and 3/8-16 hex nut. Tighten all hardware.

Figure 4: L-807 - 8 ft WC Cage Assembly Diagram



Ref: 44A6454

Figure 5: L-807 - 12 ft WC Cage Assembly Diagram



Ref: 44A6454

1.4.0.1 Assembling the Cage Assembly to the Shaft

1. See Figure 4
2. Slide the first bearing onto the shaft followed by a weather shield onto the shaft. Push the seal down against the bearing. Slide the next bearing followed by a weather shield. Push the shield down against the bearing. Separate the two bearings so that the wind cone cage assembly can be fastened to the L-Shaped straps on the cage assembly. Using the mounting hardware supplied, fasten the cage assembly to the bearings. Tighten all screws and nuts.
3. Position the cage assembly so the first bearing is within 1/8 inch of the weather shield that is installed on top of the pole adapter. Tighten the set screws found in the bearing collar against the shaft.

1.5 Externally Lighted LED Wind Cone Kit Installation

This subsection describes installation procedures for the externally lighted wind cone using LED's powered by either a series circuit or an external voltage source. The L-810 and the LED light engines are to be connected using the appropriate wiring schematic within the rotating power supply.

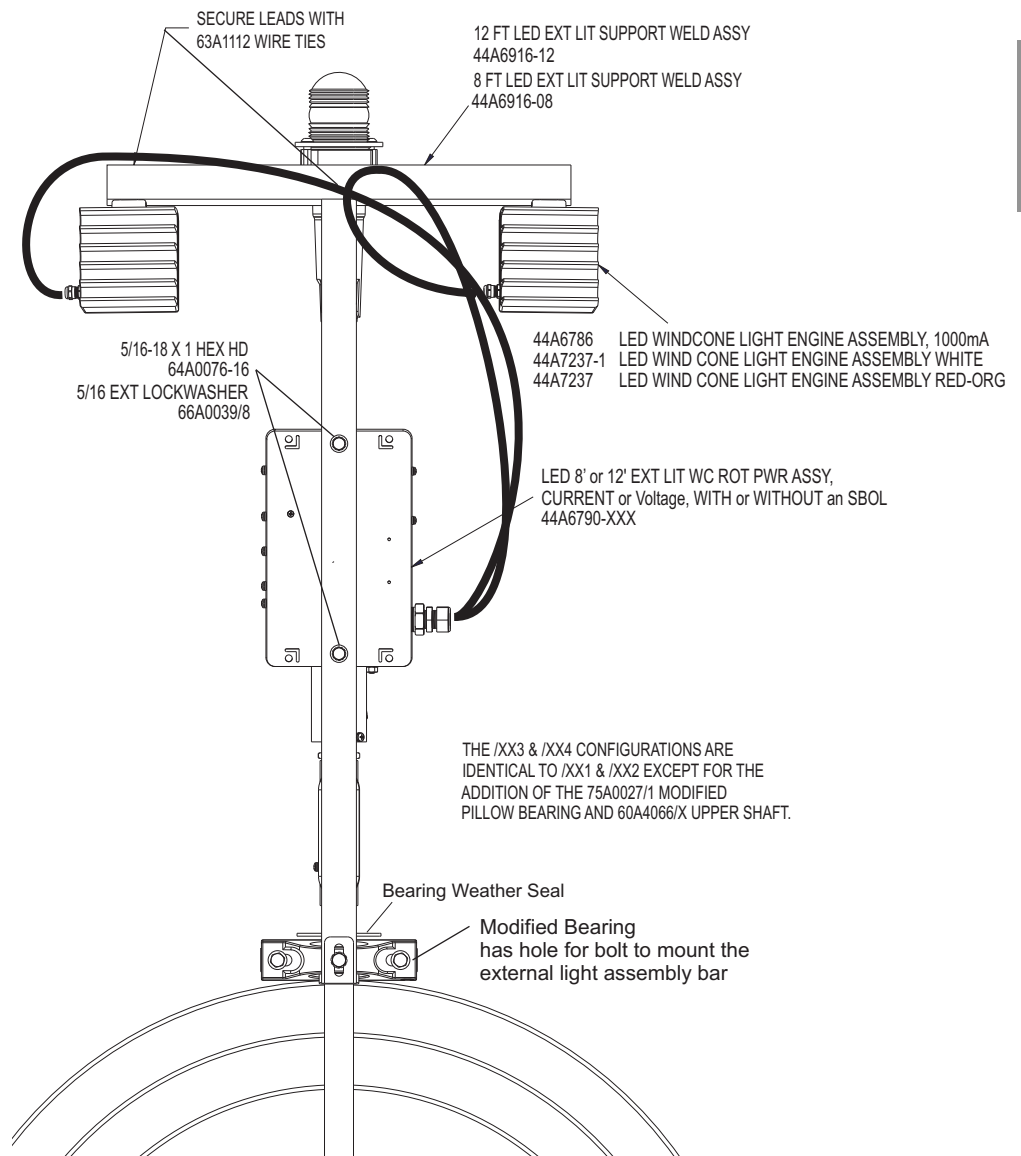
To install the LED externally lighted wind cone kit, perform the following:

1.5.1 Installing Rotary Power Assembly

1. Assemble the wind cone by completing steps in topic "Assembling Wind Cone Sock Cage" on page 5. See Figure 4 or Figure 5.

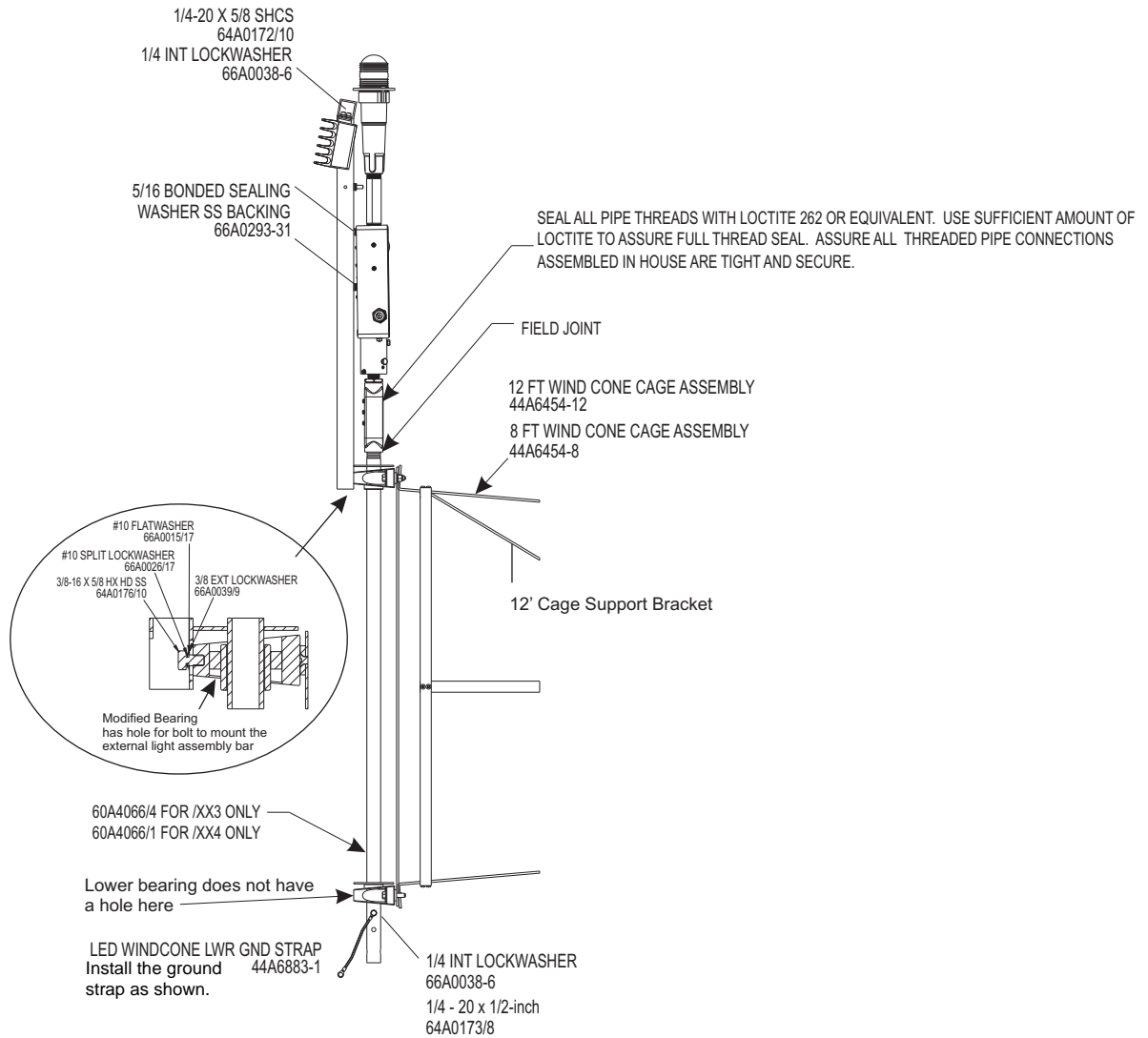
NOTE: Do not install Rotary Power Assembly onto the shaft until the shaft has been installed through both bearings and the bearings have been attached to the wind cone cage. Insure that the bearing weather seals are installed correctly when the bearings are installed on the shaft.

Figure 6: Installing Externally Lighted LED Rotary Power Assembly and LED Light Engine Assemblies



Externally
Lighted LED
Wind Cone

Figure 7: Installing Externally Lighted Assembly Details



Externally Lighted LED Wind Cone

1.5.2 Installing the External LED Light Assembly

2. Mount the Bearing Mounting Plate (See Figure 7) supplied with the External Light Kit along with the L-Shape Cage Strap, to the top of the throat ring.
3. Pull wires through the wind cone pole so that you can feed a sufficient length of wire into the Rotating Power Enclosure. Leave some slack required to raise and lower the wind cone. See Figure 27 through Figure 35 for wiring details.
4. Remove the access lids from the Rotating Power Enclosure (RPE) Assembly and the conduit fitting (See Figure 6). Screw the RPE assembly onto the top of the shaft and make connections according to the schematics for the LED voltage or current driven unit. If needed, attach the L-810 SBOL Assembly to the top of the Rotating Power Enclosure and make connections per the wiring schematics.
5. Install each of the LED Light Assemblies on the external support bars. The light assemblies are to be installed at facing the wind cone cage assembly.
6. Use the two screws shown in Figure 7 to mount the LED Engine Assembly. Tighten the screws.

NOTE: The hub on the bottom of the LED Light Assembly enclosure indexes and aims each of the LED Engines correctly.

Repeat this process for each of the LED Light Engine Assemblies. Insure that the Lower Ground Strap is connected as shown in Figure 6.

Second, after all of the light engines have been installed, route each of the cables from the enclosure along the external support bar to the conduit fitting at the top of the cage. Use supplied wire tie wraps to secure the cables to the support bar. Insert the cable through the 2-hole grommet in the end conduit fitting.

7. Connect the cable leads per the wiring schematics. See Figure 27 through Figure 35 for wiring details.

1.6 Assembling Wind Cone Shaft into Wind Cone Pole

NOTE: If you are assembling an externally lighted wind cone, place a saw horse near where the end of the shaft will be located to help support the shaft before inserting the shaft with cage assembly into the pole.

1. Insert the shaft adapter into the end of the pole and align the 2-sets of cross drilled holes in the adapter with the mating holes in the pole. Align the cross drilled holes and insert the 3/8 – 16 hex bolts. Torque hex bolts and hex nuts to 236 In-lbs (19.7 Ft-lbs).
2. Install the first weather seal over the shaft and it push down against the pole adapter that is fastened to open end of the pole.

Figure 8: Wind Cone Cage Assembly on the Pole Assembly

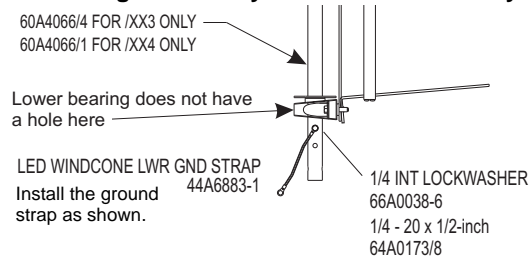
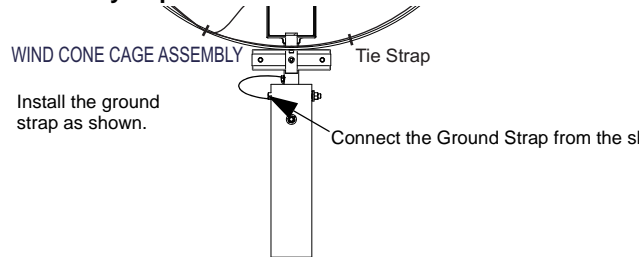


Figure 9: Pole Assembly Top



1.7 Attach the Windsock

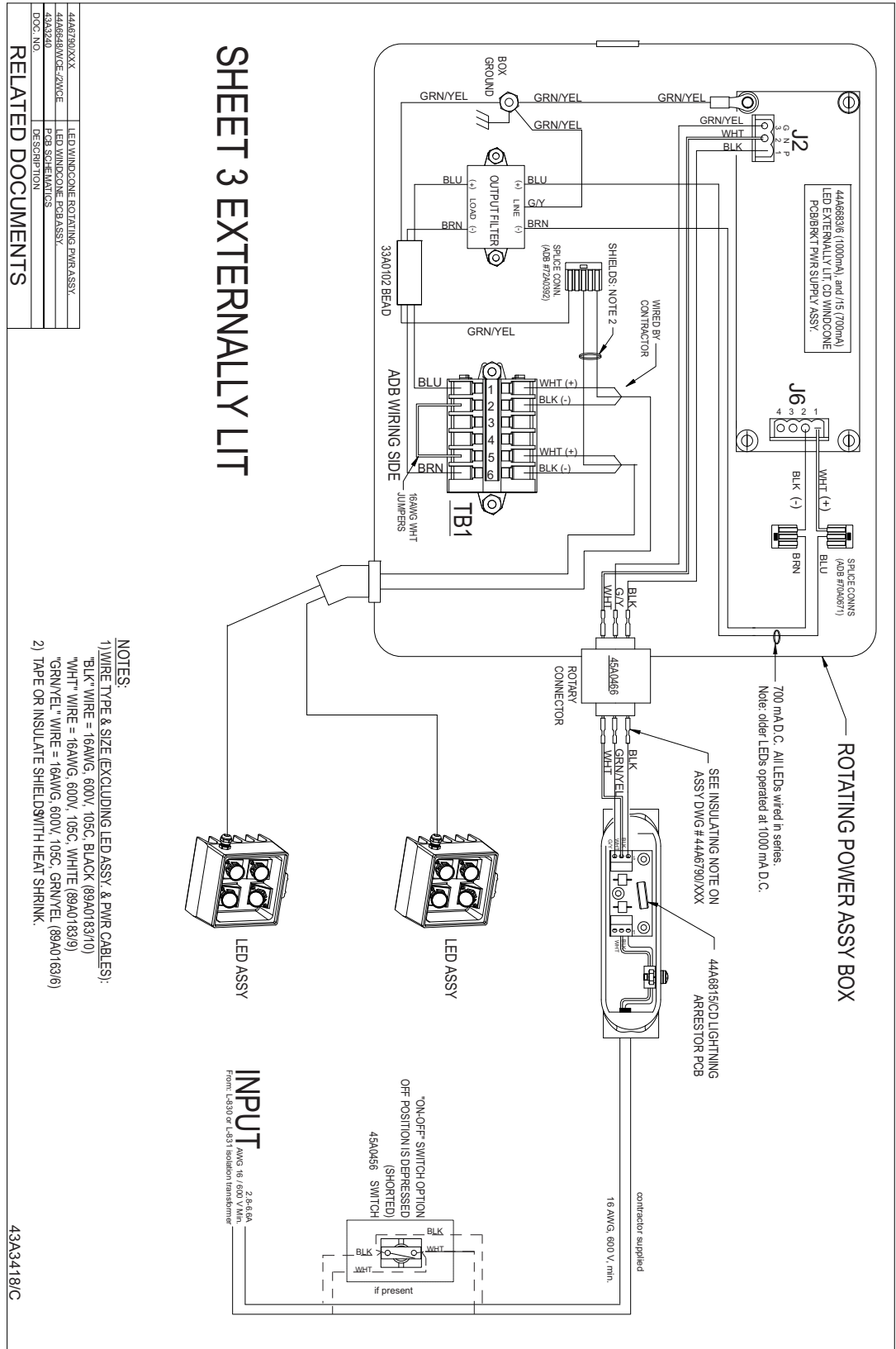
1. Slip the wind sock over the cage assembly and align the drain grommets in the wind sock to face down when the wind cone assembly is raised to the vertical position. Attach the sock to the throat ring by inserting plastic tie-wraps through the grommets in the sock throat and then around the cage throat ring. Pull the tie-wraps tight and trim off excess tie-wrap.

NOTE: The bearings are greased at factory. If greasing becomes necessary use only a small amount as over-greasing will make the bearings sluggish and will require more wind to cause the sock cage to vane when the wind blows. A rust-inhibited, water-resistant, lithium-based grease is recommended. In extremely cold climates, wind cone movement may become sluggish. Replace grease with low temperature lubricant. On unlighted cones without the L-810 obstruction light, install pipe cap on the end of the bearing shaft and the bearing cage shaft.

2. Slip the wind sock over the cage assembly and align the drain grommets in the wind sock to face down when the wind cone assembly is raised to the vertical position. Attach the sock to the throat ring by inserting plastic tie-wraps through the grommets in the sock throat and then around the cage throat ring. Pull the tie-wraps tight and trim off excess tie-wrap.
3. Raise the Wind Cone and bolt into place.

1.8 Schematics

Figure 10: 8 or 12-foot External Current



SHEET 3 EXTERNALLY LIT

DOC. NO.	DESCRIPTION
44A6790/XX	LED WINDCONE ROTATING PWR ASSY
44A6815/CD	LED EXTERNALLY LIT WINDCONE PCB/ROTATING SUPPLY ASSY
43A3418/C	ECS SCHEMATICS

RELATED DOCUMENTS

Figure 12: 8 or 12-foot External Voltage

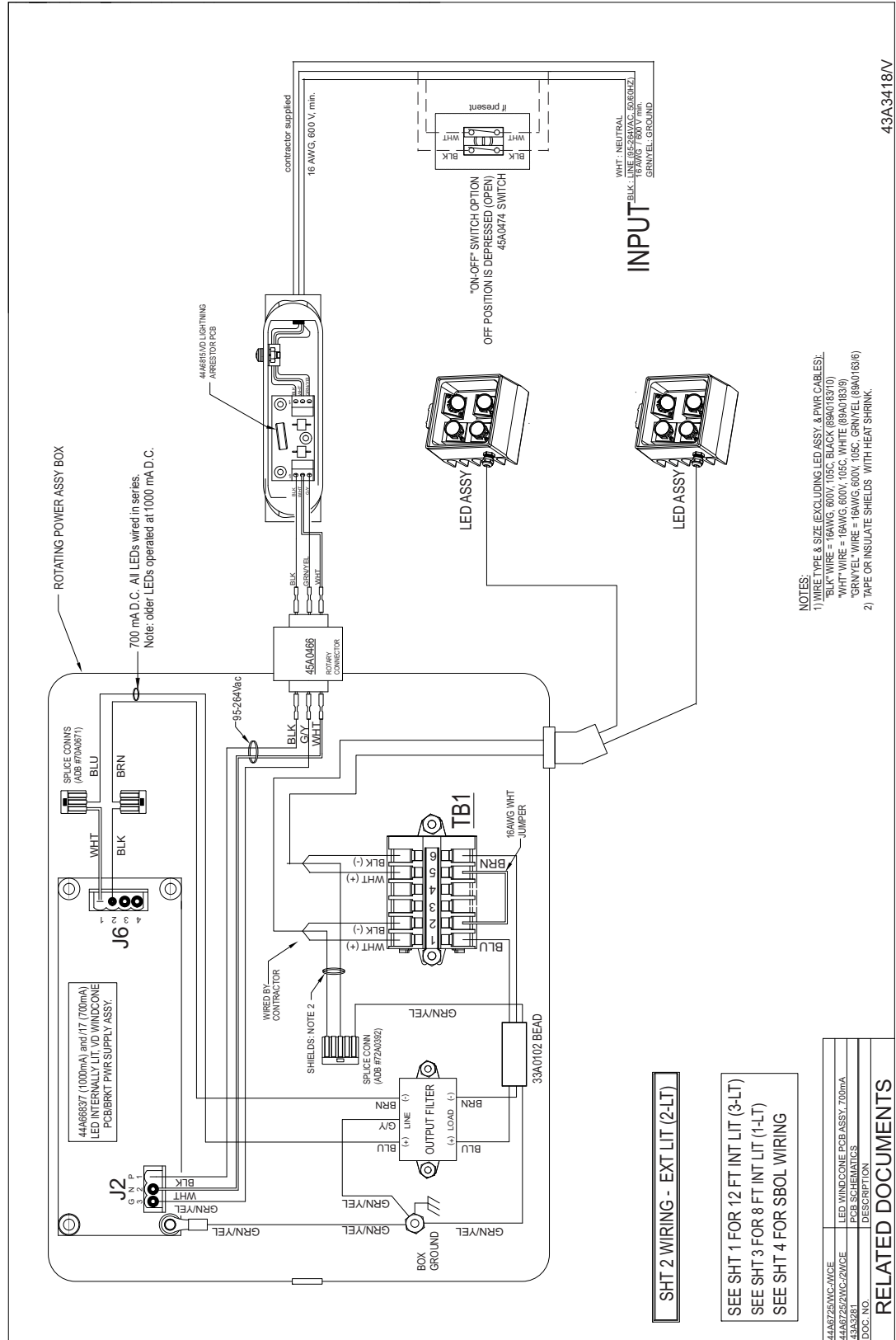
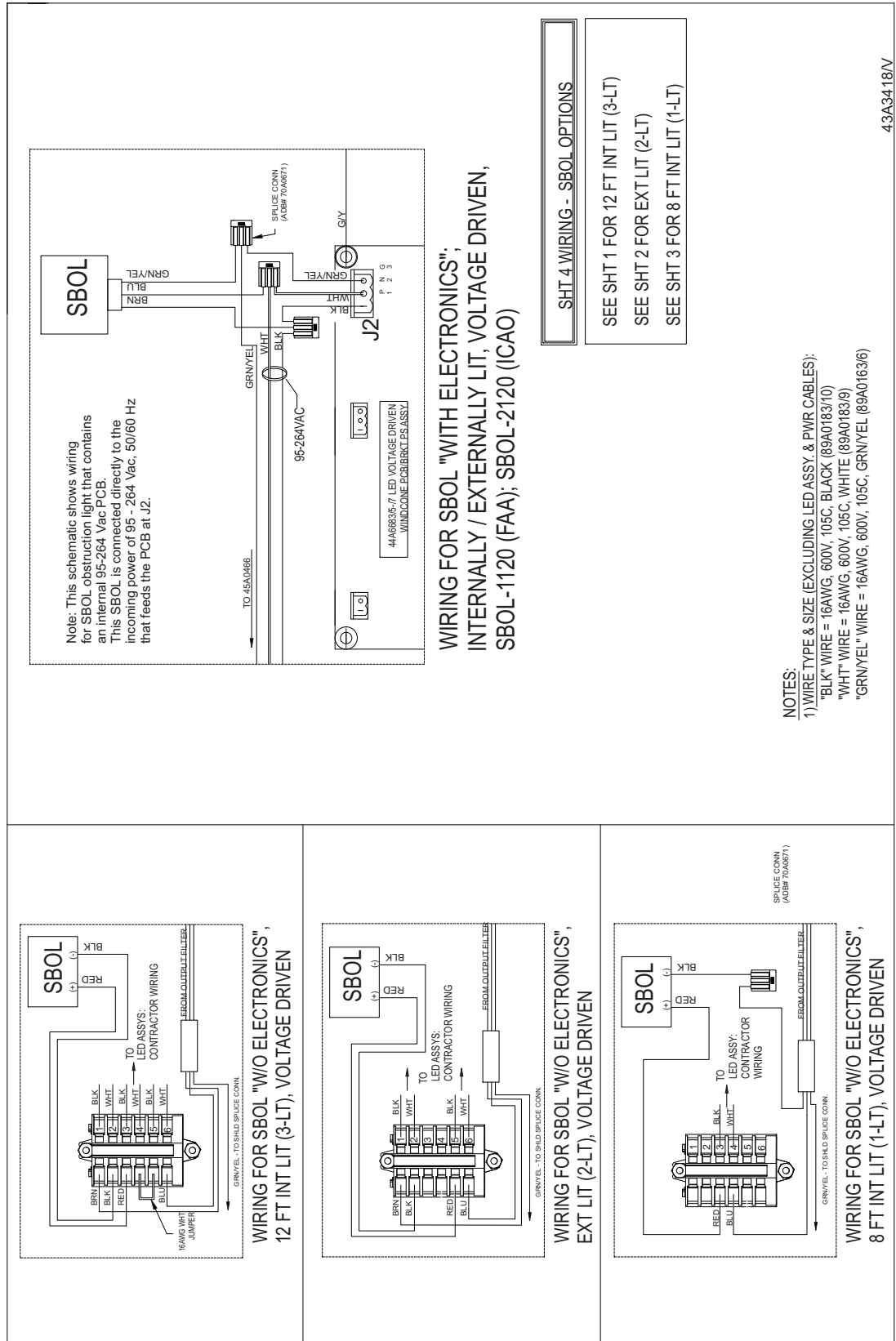


Figure 13: 8/12-foot External Voltage SBOL Options



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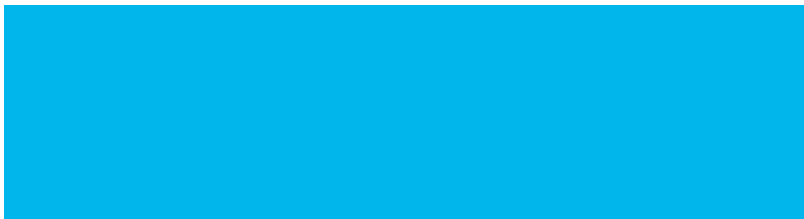
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