



EHP-L  
LED Elevated Heliport/ Helipad Perimeter Light

## User Manual

96A0407, Rev. F, 2019/10/21

  
**ADB  
SAFEGATE**



## A.0 Disclaimer / Standard Warranty

### CE certification

The equipment listed as CE certified means that the product complies with the essential requirements concerning safety and hygiene. The directives that have been taken into consideration in the design are available on written request to ADB SAFEGATE.

### ETL certification

The equipment listed as ETL certified means that the product complies with the essential requirements concerning safety and FAA Airfield regulations. The directives that have been taken into consideration in the design are available on written request to ADB SAFEGATE.

### LED Product Guarantee

Where applicable, per FAA EB67 (applicable edition), ADB SAFEGATE L858(L) Airfield Guidance Signs are warranted against electrical defects in design or manufacture of the LED or LED specific circuitry for a period of 4 years. ADB SAFEGATE LED light fixtures (with the exception of obstruction lighting) are warranted against mechanical and physical defects in design or manufacture for a period of 12 months from date of installation; and are warranted against electrical defects in design or manufacture of the LED or LED specific circuitry for a period of 4 years per FAA EB67 (applicable edition).



#### Note

See your sales order contract for a complete warranty description. In some specific cases, deviations are (to be) accepted in the contract, which will supersede the standard warranty.

### Standard Product Guarantee

Products of ADB SAFEGATE manufacture are guaranteed against mechanical, electrical, and physical defects (excluding lamps) which may occur during proper and normal use for a period of one year from the date of installation or 2 years from date of shipment and are guaranteed to be merchantable and fit for the ordinary purposes for which such products are made. ADB SAFEGATE L858 Airfield Guidance Signs are warranted against mechanical and physical defects in design or manufacture for a period of 2 years from date of installation per FAA AC 150/5345-44 (applicable edition).



#### Note

See your sales order contract for a complete warranty description.

### All Products Guarantee

LED Products of ADB SAFEGATE, manufactured and sold by ADB SAFEGATE or its licensed representatives, meets the corresponding requirements of FAA, ICAO and IEC.

ADB SAFEGATE will correct by repair or replacement per the applicable guarantee above, 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 ADB SAFEGATE written notice of such defects after delivery of the goods to Buyer. Refer to the Safety section for more information on Material Handling Precautions and Storage precautions that must be followed.

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ADB SAFEGATE'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.

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## Liability

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### WARNING

Use of the equipment in ways other than described in the catalogue leaflet and the manual may result in personal injury, death, or property and equipment damage. Use this equipment only as described in the manual.

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ADB SAFEGATE cannot be held responsible for injuries or damages resulting from non-standard, unintended uses of its equipment. The equipment is designed and intended only for the purpose described in the manual. Uses not described in the manual are considered unintended uses and may result in serious personal injury, death or property damage.

Unintended uses includes the following actions:

- Making changes to equipment that have not been recommended or described in this manual or using parts that are not genuine ADB SAFEGATE replacement parts or accessories.
- Failing to make sure that auxiliary equipment complies with approval agency requirements, local codes, and all applicable safety standards if not in contradiction with the general rules.
- Using materials or auxiliary equipment that are inappropriate or incompatible with your ADB SAFEGATE equipment.
- Allowing unskilled personnel to perform any task on or with the equipment.

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# 1.0 Safety

## Introduction to Safety

This section contains general safety instructions for installing and using ADB SAFEGATE 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 Safety Messages

### HAZARD Icons used in the manual

For all HAZARD symbols in use, see the Safety section. All symbols must comply with ISO and ANSI standards.

Carefully read and observe all safety instructions in this manual, which alert you to safety hazards and conditions that may result in personal injury, death or property and equipment damage and are accompanied by the symbol shown below.



**WARNING**

Failure to observe a warning may result in personal injury, death or equipment damage.



**DANGER - Risk of electrical shock or ARC FLASH**

Disconnect equipment from line voltage. Failure to observe this warning may result in personal injury, death, or equipment damage. ARC Flash may cause blindness, severe burns or death.



**WARNING - Wear personal protective equipment**

Failure to observe may result in serious injury.



**WARNING - Do not touch**

Failure to observe this warning may result in personal injury, death, or equipment damage.



**CAUTION**

Failure to observe a caution may result in equipment damage.

### Qualified Personnel



**Important Information**

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 practice.

### 1.1.1 Introduction to Safety



#### CAUTION

##### Unsafe Equipment Use

This equipment may contain electrostatic devices, hazardous voltages and sharp edges on components

- Read installation instructions in their entirety before starting installation.
- 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.

**Failure to follow this instruction can result in serious injury or equipment damage**

### Additional Reference Materials



#### Important Information

- IEC - International Standards and Conformity Assessment for all electrical, electronic and related technologies.
- IEC 60364 - Electrical Installations in Buildings.
- FAA Advisory: AC 150/5340-26 (current edition), Maintenance of Airport Visual Aid Facilities.
- Maintenance personnel must refer to the maintenance procedure described in the ICAO Airport Services Manual, Part 9.
- ANSI/NFPA 79, Electrical Standards for Metalworking Machine Tools.
- National and local electrical codes and standards.

### 1.1.2 Intended Use



#### CAUTION

##### Use this equipment as intended by the manufacturer

This equipment is designed to perform a specific function, do not use this equipment for other purposes

- Using this equipment in ways other than described in this manual may result in personal injury, death or property and equipment damage. Use this equipment only as described in this manual.

**Failure to follow this instruction can result in serious injury or equipment damage**

### 1.1.3 Material Handling Precautions: Storage



#### CAUTION

##### Improper Storage

Store this equipment properly

- If equipment is to be stored prior to installation, it must be protected from the weather and kept free of condensation and dust.

**Failure to follow this instruction can result in equipment damage**

### 1.1.4 Material Handling Precautions: Fasteners



#### DANGER

##### Foreign Object Damage - FOD

This equipment may contain fasteners that may come loose - torque properly.

- Only use fasteners of the same type as the one originally supplied with the equipment.
- Use of incorrect combination of gaskets, bolts and nuts can create severe damages to the product installation and create safety risk .
- You need to know what base the light fixture will be installed in, in order to chose the correct gasket, bolts and nuts.
- Bolt type, length, and torque value are determined by type of base, height of spacers used, and clamp force required in FAA Engineering Brief No 83 (latest revision).
- Due to the risk of bolts vibrating loose, do not use any type of washer with the fixing bolts (such as split lock washers) other than an anti-vibration washer. Anti-vibration washers as defined in FAA EB 83 (latest edition) must be used. For installations other than FAA, use the base can manufacturer's recommendations.
- Always tighten the fasteners to the recommended torque. Use a calibrated torque wrench and apply the recommended adhesive type.
- Obey the instructions of the adhesives necessary for the fasteners.

**Failure to follow these warnings may cause the fasteners to loosen, damage the equipment, potentially to loosen the equipment. This can lead to a highly dangerous situation of FOD, with potential lethal consequences.**



#### Note

To minimize the risk of errors, the ADB SAFEGATE Sales Representative will have information on which gasket goes with which base. This information is also provided in the product Data sheets, the User Manuals and the Spare Part Lists.



#### CAUTION

Use of incorrect combination of gaskets, bolts and nuts can create severe damages to the product installation and create multiple safety risks.

To obtain a safe and watertight installation the O-ring and retaining bolt stated in the document must be used.

You need to know what base the light fixture will be installed in, in order to choose the correct gasket, bolts and nuts.

**Failure to follow these cautions can result in equipment damage or aircraft FOD.**

### 1.1.5 Operation Safety



#### CAUTION

##### **Improper Operation**

Do Not Operate this equipment other than as specified by the manufacturer

- Only qualified personnel, physically capable of operating the equipment and with no impairments in their judgment or reaction times, should operate this equipment.
- Read all system component manuals before operating this equipment. A thorough understanding of system components and their operation will help you operate the system safely and efficiently.
- Before starting this equipment, check all safety interlocks, fire-detection systems, and protective devices such as panels and covers. Make sure all devices are fully functional. Do not operate the system if these devices are not working properly. Do not deactivate or bypass automatic safety interlocks or locked-out electrical disconnects or pneumatic valves.
- 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.
- Route electrical wiring along a protected path. Make sure they will not be damaged by moving equipment.
- Never operate equipment with a known malfunction.
- Do not attempt to operate or service electrical equipment if standing water is present.
- Use this equipment only in the environments for which it is rated. Do not operate this equipment in humid, flammable, or explosive environments unless it has been rated for safe operation in these environments.
- Never touch exposed electrical connections on equipment while the power is ON.

**Failure to follow these instructions can result in equipment damage**

### 1.1.6 Maintenance Safety



#### DANGER

##### **Electric Shock Hazard**

This equipment may contain electrostatic devices

- Do not operate a system that contains malfunctioning components. If a component malfunctions, turn the system OFF immediately.
- Disconnect and lock out electrical power.
- Allow only qualified personnel to make repairs. Repair or replace the malfunctioning component according to instructions provided in its manual.

**Failure to follow these instructions can result in death or equipment damage**

### 1.1.7 Material Handling Precautions, ESD



#### CAUTION

##### Electrostatic Sensitive Devices

This equipment may contain electrostatic devices

- Protect from electrostatic discharge.
- Electronic modules and components should be touched only when this is unavoidable e.g. soldering, replacement.
- Before touching any component of the cabinet you shall bring your body to the same potential as the cabinet by touching a conductive earthed part of the cabinet.
- Electronic modules or components must not be brought in contact with highly insulating materials such as plastic sheets, synthetic fiber clothing. They must be laid down on conductive surfaces.
- The tip of the soldering iron must be grounded.
- Electronic modules and components must be stored and transported in conductive packing.

**Failure to follow this instruction can result in equipment damage**

### 1.1.8 Arc Flash and Electric Shock Hazard



#### DANGER

##### Series Circuits have Hazardous Voltages

This equipment produces high voltages to maintain the specified current - Do NOT Disconnect while energized.

- Allow only qualified personnel to perform maintenance, troubleshooting, and repair tasks.
- Only persons who are properly trained and familiar with ADB SAFEGATE equipment are permitted to service this equipment.
- An open airfield current circuit is capable of generating >5000 Vac and may appear OFF to a meter.
- Never unplug a device from a constant current circuit while it is operating; Arc flash may result.
- Disconnect and lock out electrical power.
- Always use safety devices when working on this equipment.
- Follow the recommended maintenance procedures in the product manuals.
- Do not service or adjust any equipment unless another person trained in first aid and CPR is present.
- Connect all disconnected equipment ground cables and wires after servicing equipment. Ground all conductive equipment.
- Use only approved ADB SAFEGATE replacement parts. Using unapproved parts or making unapproved modifications to equipment may void agency approvals and create safety hazards.
- Check the interlock systems periodically to ensure their effectiveness.
- Do not attempt to service electrical equipment if standing water is present. Use caution when servicing electrical equipment in a high-humidity environment.
- Use tools with insulated handles when working with airfield electrical equipment.

**Failure to follow these instructions can result in death or equipment damage**





## 2.0 EHP-L

The EHP-L LED fixture is intended for general aviation use as a heliport perimeter light. The green and yellow omni-directional light is used to define the perimeter of the area the helicopter requires for touchdown and lift-off (TLOF). Yellow heliport lights are typically used on existing applications, while green lights are typically used for new applications. The 95-264V AC, 50/60Hz power supply minimizes installation costs by reducing required number of cable runs. Overall height installed is less than 8 inches, complying with AC 150/5390-2 requirements for raised perimeter lights.



### 2.1 About this manual

#### 2.1.1 Introduction

This manual shows the information necessary to:

- Install and maintain the EHP-L equipment.

#### 2.1.2 How to work with the manual

1. Become familiar with the structure and content.
2. Carry out the actions completely and in the given sequence.

### 2.2 Product Introduction

See [Figure 1](#). This section describes the LED, omni-directional elevated light fixture for heliport/helipad perimeter light. These fixtures are designed to provide definition to the edges of the helipad required for touchdown and lift-off (TLOF) per FAA AC 150/5390-2.

The light fixture is available for direct mounting to helipad using a J-Box. Optional designs are available for mounting to a FAA L- 867 baseplate with a frangible coupling, with or without a column to increase the mounting height of the fixture. The EHP-L can also be stake or conduit mounted. The fixture is available in both voltage (95-264 Vac, 50-60Hz) and current driven (2.8 - 6.6A, 50 - 60 Hz) designs. The unit can also be supplied with an arctic kit per FAA Engineering Brief 67.

Designed according to AC 150/5390-2 Heliport Design. L-861T AC 150/5345-46 (Current Edition) and the FAA Engineering Brief No. 67 for LED Performance. The optics exceed the lighting requirements of ANSI/IEEE C62.41 - 1991.

**Table 1: EHP-L Fixtures**

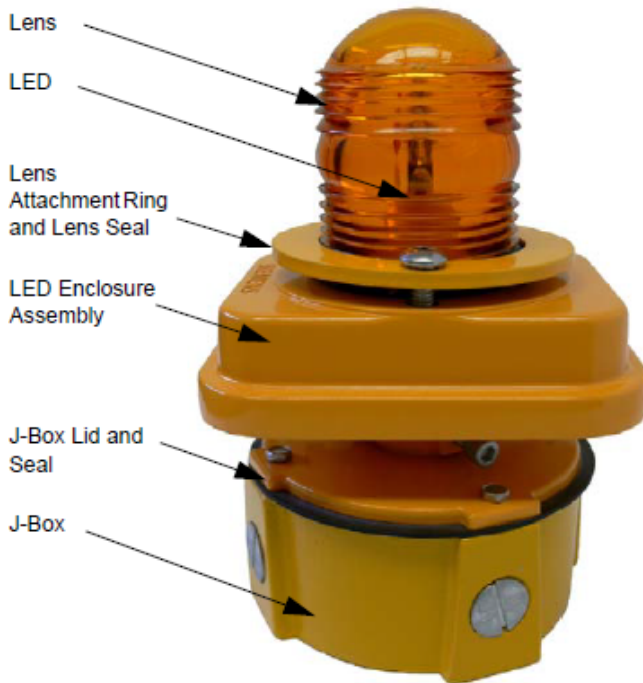
Light Fixture	Function
Yellow	Perimeter Light – Existing Installations and Military
Green	Perimeter Light – New Installations
Blue	Lead-in Taxiway Applications



## Note

FAA AC 150/5390-2, requires heliport perimeter lights to be green.

**Figure 1: EHP-L Assembly (direct J-Box mounting shown)**



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The light fixtures are available in yellow for existing civil and military applications and in green for new applications. Blue is available for lead-in taxiway applications. The basic design is 8-inches in height for direct installation using a J-Box (junction box). The J-Box is supplied with 4 ports that are tapped for 3/4" NPT for conduit connections. The J-box is directly mounted to the helipad. See FAA AC 150/5340-30 and AC 150/5390-2 for the location and installation instructions for mounting the perimeter light.

### 2.2.1 LED Elevated Heliport Perimeter Light

#### Compliance with Standards

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FAA:	Designed according to AC 150/5390-2 Heliport Design. L-861T AC 150/5345-46 (Current Edition) and the FAA Engineering Brief No. 67. ETL Certified (L-861T).
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#### Uses

EHP is intended for use as a heliport perimeter light. The green and yellow omnidirectional light is used to define the perimeter of the area the helicopter requires for touchdown and lift-off (TLOF).

- Yellow EHPs are typically used on military applications
- Green EHPs are typically used for new civil applications
- Blue EHPs can be used for lead-in taxiway applications

#### Features

- Overall height installed is less than 8 inches, complying with AC 150/5390-2C requirements for raised perimeter lights
- Average individual LED life of 50,000 hours (minimum)
- 95-264 VAC, 50/60 Hz power supply minimizes installation costs by reducing required cable run wire size. Light output stays constant regardless of input voltage range.

- EHP with arctic option (U.S. Patent 7192155 B2) uses a thermostatically controlled heater to prevent ice and snow buildup from obscuring light output. Melts ice similar to traditional incandescent fixtures.
- Thermostatically controlled heater cycles on and off when temperature drops below freezing, reducing overall energy consumption
- For voltage-driven applications, the EHP with a thermostatically controlled arctic option is 2.6 times more efficient in warm weather operations and 1.5 times more efficient than a typical 54 W(VA) fixture in cold weather operations
- More than 500,000 ADB Safegate elevated LED fixtures are in use around the USA
- Direct replacement for incandescent fixtures
- Fixture uses aluminum casting, stainless steel hardware, and is protected with aviation yellow powder coat finish
- All parts are corrosion-resistant
- Rugged, low-profile design reduces the potential for damage in the FATO perimeter
- For additional features common to all of ADB Safegate's elevated LED fixtures, see data sheet 3043.

### Operating Conditions

Temperature:	-40 °F to +131 °F (-40 °C to +55 °C)
Humidity:	0 to 100%
Wind:	Withstands wind velocities up to 300 mph (480 kph)

### Electrical Supply

#### Current Driven

W/out Heater	With Heater
2.8-6.6 A, 50/60 Hz, 12VA max.	2.8-6.6 A, 50/60 Hz, 27 VA max.

#### Voltage Driven

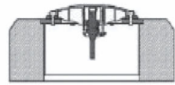
W/out Heater	With Heater
95 VAC (min.) - 264 VAC (max.), 50/60 Hz, 10 W (21 VA) max.	120 VAC, ±10%, 50/60 Hz, 25 W (36 VA) max.

## Installation Options

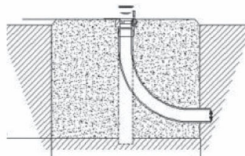
Stake mounting	A2 × 2 × 30 inch (5.08 × 5.08 × 76.2 cm) galvanized steel angle stake assembly is sold separately (Part No. 44B0348). The EHP frangible coupling screws directly into a 1.5-inch threaded hub assembly making the fixture mechanically and electrically frangible.
Base plate	A 12-inch base plate with a 1.5-inch threaded hub assembly is sold separately (Part No. 1935). A plastic base plate with 2-inch hub is also available. The base plate mounts on a 12-inch L-867 base can (Also sold separately. Contact ADB Safegate for details).
Conduit elbow	A conduit elbow with a 2-inch hub assembly is pre-cast or poured in the excavation, ready to receive the fixture at ground level. (Part No. 1409.00.020).
Junction box	A junction box ready for direct mounting or burial in concrete can be provided. Contact ADB Safegate for details.



Stake Mount



Base Plate



Conduit Elbow

## Packaging

Assembled Fixtures	Carton Dimensions		Indiv. Weight *
	Individual	12 Per Box	
8-inch OAH	6.5 × 6.5 × 20.5 in	16.5 × 21 × 20.5 in	2.75 lb
	16.5 × 16.5 × 52 cm	41.9 × 53.3 × 52 cm	1.25 kg
16-inch OAH	6.5 × 6.5 × 20.5 in	16.5 × 21 × 20.5 in	2.75 lb
	16.5 × 16.5 × 52 cm	41.9 × 53.3 × 52 cm	1.25 kg
24-inch OAH	6.5 × 6.5 × 31 in	16.5 × 21 × 33.5 in	4 lb
	16.5 × 16.5 × 79 cm	41.9 × 53.3 × 85 cm	1.81 kg

### Notes

\* Weight based on unpacked EHP with arctic option

## Energy Cost Savings

LED Fixture Load	In can./Tungsten Halogen Load	Energy Savings
Current Driven, Without/Inactive Heater <sup>1</sup>		
12 VA	54 VA	4.5 times
Current Driven, without Heater Active <sup>1</sup>		
27 VA	54 VA	2.2 times
Voltage Driven, Without/Inactive Heater <sup>1</sup>		
21 VA	54 VA	2.6 times
Voltage Driven, without Heater Active		
36 VA	54 VA	1.5 times

### Notes

<sup>1</sup> Fixture load does not include isolation transformer load

## 2.2.2 EHP-L Fixture: Required Equipment

Refer to [Table 2](#) for required equipment that is supplied. Refer to [Table 3](#) for the required equipment that is not supplied. Refer to the Parts section for part numbers and spare parts.

**Table 2: Required Equipment Supplied**

Description	Quantity
EHP-L Light fixture	1
Instruction manual	1 per order

**Table 3: Required Equipment Not Supplied**

Description	Quantity
Torque wrench (0 to 200 in-lb) with sockets	1
Set of Allen Hex Wrenches	1
Screw driver (medium blade)	1
Loctite Grade AV or equivalent	As required
Set of hex sockets and ratchet	1
L-867 base plate assembly (with 1-1/2 or 2 inch hub) When fixture is mounted on L-867B Light Base	1
Wrench for 1- 13/16 hex on frangible coupling	1
L-867B light base (if base plate is used)	1
Stake assembly (30-inch galvanized steel when the fixture is stake mounted).	1
L-830 (60 Hz) or L-831 (50 Hz), isolation transformer for series circuit. Refer to <a href="#">Table 5</a> for the correct transformer to use.	1
L-823 single-conductor (primary) connector kit	1

**Table 4: Isolation Transformers**

<b>For a...</b>	<b>Then use this isolation transformer...</b>	<b>Note</b>
6.6 A series circuit	L-830-1 (6.6 A/6.6 A, 45 W) for 60 Hz L-831-1 (6.6 A/6.6 A, 45 W) for 50 Hz	A
20 A/6.6 A series circuit	L-830-2 (20 A/6.6 A, 45 W) for 60 Hz L-832-2 (20 A/6.6 A, 45 W) for 50 Hz	

NOTE A: To match the fixture load for optimal efficiency, use either the –  
L-830-16, 10 /15W, 6.6 A/6.6A or  
L-830-17, 30/25W, 6.6A/6.6A isolation transformers for 60Hz.

## 3.0 Installation



### WARNING

#### Electrical Shock

Read installation instructions in their entirety before starting installation.

- 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.

**Failure to follow these warnings may result in serious injury or equipment damage.**

This section provides instructions for installing the EHP-L fixture. Refer to the heliport project plans and specifications for the specific installation instructions. The standard installation requires the junction box to be mounted directly on the helipad and then connecting each of the junction boxes with conduit to run power to each of the light fixtures. Optional mounting includes using a frangible coupling to mount the EHP-L to a FAA L-867 baseplate, stake mounted, or mounted on a conduit elbow.

### 3.1 Unpacking

The equipment is shipped ready for installation. Handle equipment very carefully to prevent component damage. Unpack the carton upon receipt and check the contents and their condition. Note any exterior damage to the carton 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.

### 3.2 Assembly Instructions



#### Note

Check the packing list with the parts list to verify that all parts are present before proceeding. See the Parts section.



#### Note

The elevated light fixture is completely assembled at the factory and is ready for installation. The EHP-L can be installed using a J-Box, or a FAA L-867 Light Base, stake mounted, or conduit mounted. See the following pages for installation instructions for these various mounting configurations.

To install the EHP-L assembly supplied with a J-Box (with or without frangible coupling and column) proceed as follows:

### 3.3 J-Box Mounting Installation

1. Position each of the EHP-L assemblies around the helipad perimeter as required by the site plans and specifications.
2. Refer to [Figure 4](#). Remove conduit pipe plugs from the holes where the conduit will enter or exit the junction box (J-Box). Remove the EHP-L assembly from the J-box by loosening the 3 Allen hex set screws and then lift the EHP-L off of the J-Box. Remove the J-Box lid and gasket.

3. Off-set bend the conduit threaded ends as required to connect conduit to the J-box. Connect the conduit to the J-box. Use pipe dope on the conduit threads. Note: The J-Box may be secured to the pad by using bolts and concrete anchors as required by the site plans and specifications.
  4. For voltage driven units: Pull the 3 conductor, 18 AWG wire through the conduit and, wire each EHP-L fixture per site plans and specifications. For the current driven units: Pull the 2 conductor, 16 AWG field cable for the 6.6 A secondary of the L-830/L- 831 on the series circuit.
  5. Slip the J-Box lid and lid gasket over the EHP-L leads and then connect the elevated light fixture leads to the field circuit. For the voltage driven units: Wire nut and tape the leads from the elevated light assembly to the field circuit, per: site plans, specification and local codes. Make certain the connections are watertight. Failure to do so will allow water to be drawn up the wire insulation and may cause failure of the equipment.
- 



### **Warning**

Failure to make the connections watertight may damage the equipment and will void the warranty of the equipment.

---

6. After connections have been made to the field circuit, re-install the J-box gasket and lid on to the J-Box. Tighten lid screws.
7. Re-install the EHP-L assembly to the J-Box lid and tighten the 3 set screws to secure the assembly to the J-Box.
8. Repeat the mounting procedure for each of the perimeter light assemblies.

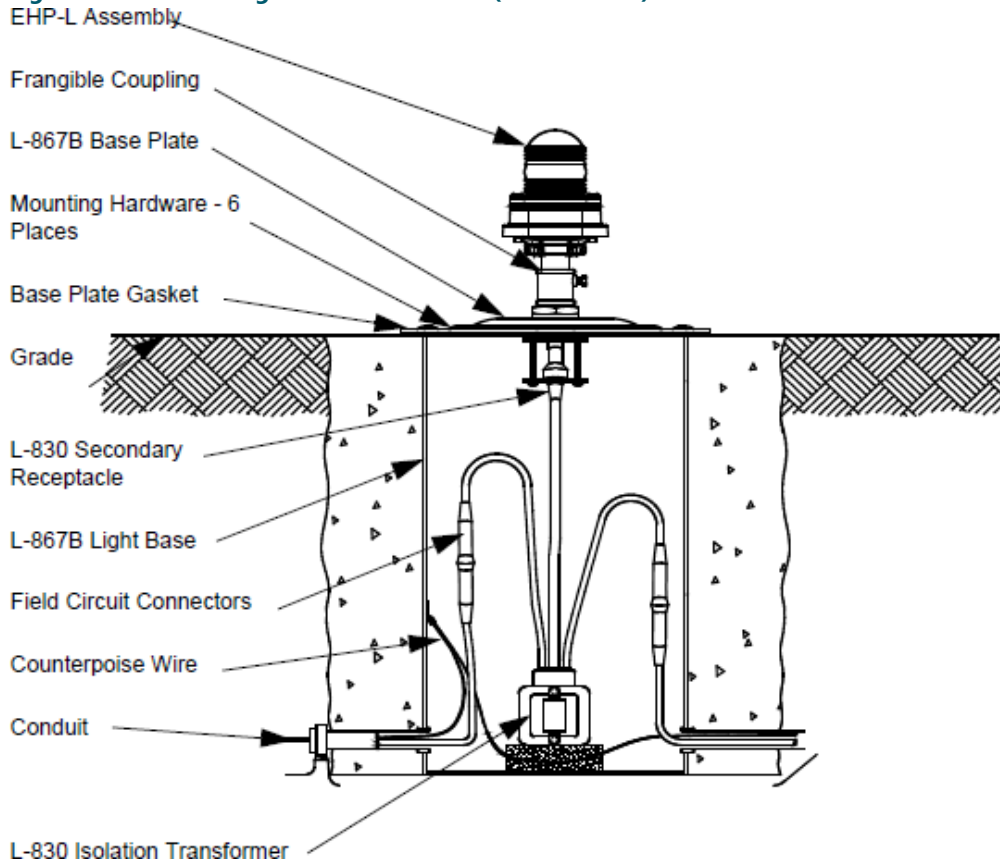
## **3.4 FAA L867 Light Base Installation**

1. Refer to [Figure 2](#). Install FAA L-867 light base per site plan and specifications.
2. Connect light bases with metal or plastic conduit per site plan and specifications.
3. Pull the 3 conductor 18 AWG cable through the conduit (if voltage system) or FAA L-824 2 conductor 16 AWG field cable (for a 6.6A secondary on a series circuit system making connections to L-830 /L-831 isolation transformer) per site plans and specifications.
4. Install the EHP-L with frangible coupling (either 1-1/2 or 2 inch threaded coupling) into the matching FAA L-867 Base-plate (A 12-inch base plate with a 1.5-inch threaded hub assembly is sold separately (Part No.1935). A plastic base plate with 2-inch hub is also available. The base plate mounts on a 12-inch L-867 base can). (Also sold separately. Call ADB Safegate for details).
5. For voltage system use wire nut and tape, per site plans, specification and local codes, the leads from the elevated light assembly to the field circuit. Insure that the connections are water proof. For current system install plug field kit to the end of the EHP-L leads for connecting to an isolation transformer.
6. After connections have been made to the field circuit, install the base-plate with the installed HPL. Place the Light Base gasket on top of the light base flange and then place the base-plate assembly on top of the L-867 light base. Install and tighten base-plate mounting bolts.



7. Loosen the 3 set screws on the EHP-L assembly and align the optical assembly so that the long side of the rectangular enclosure is parallel with the edge of the helipad. Tighten the set screws.
8. Repeat the mounting procedure for each of the perimeter light assemblies.

**Figure 2: FAA L-867 Light Base Installation (series circuit)**



### 3.5 FAA Stake Mounting Installation

1. Ref [Figure 3](#). Install the Stake Assembly in the ground as follows:
2. Place the stake into a 6-inch (152.4-mm) diameter minimum hole in the ground at a depth of 30 inches (762 mm) so that the mounting hub of the stake is level.



#### Note

The top of the stake should be even with the ground within one degree of the vertical. In areas where frost may cause heaving, anchor the stake with concrete and use a permeable backfill material such as sand around the buried electrical components. Cover the top surface with an impervious material to reduce moisture penetration.



#### Warning

Do not drive stakes. Driving stakes may damage the stake and cause light fixture misalignment. Refer to FAA specification AC 150/5340-30.

3. Backfill around the stake with compacted earth passing a 1-inch (25.4 mm) sieve.



#### Note

Use a bubble level or carpenter's level to ensure the stake is vertical before backfilling around stake. Backfill with (5- in) concrete in cases of unstable soil conditions.

4. **If current driven** (6.6 A isolation transformer secondary), bring field circuit cables from the power source to the first EHP-L fixture and connect field circuit using field connector kits to the leads from the fixture so that the fixture can be plugged into the L-830/L-831 isolation transformer secondary lead receptacle. See site plans and specifications, and local codes.

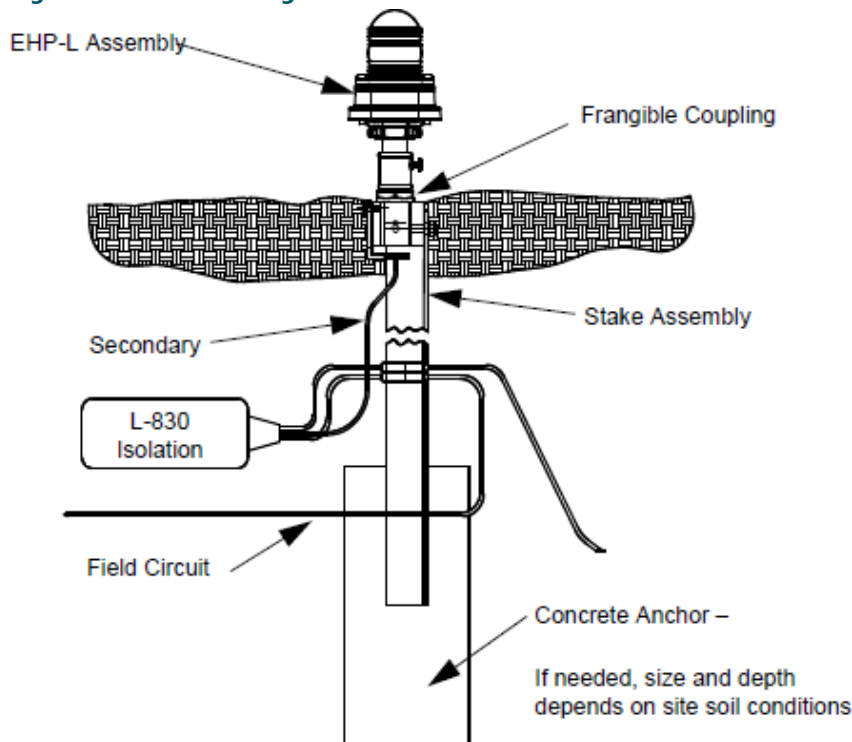


### Warning

All power cables and transformers must be rated for direct earth burial.

5. **If voltage driven** (95-264 Vac) bring field circuit cables (3 conductor 18 AWG, 600 V) from the power source to the first EHP-L fixture and connect the field circuit per site plans, specifications, and local codes.
6. Install the stake hub, supplied with the stake assembly and mounting hardware, using the 2 drilled holes at the top of the stake.
7. Screw the EHP-L with frangible coupling into the stake hub and connect the power leads from the light assembly to the field circuit per site plans and specifications and local codes.
8. Loosen the 3 set screws on the EHP-L assembly and align the optical assembly so that the long side of the rectangular enclosure is parallel with the edge of the helipad. Tighten the set screws.
9. Repeat the mounting procedure for each of the perimeter light assemblies.

**Figure 3: Stake Mounting Installation**



### 3.5.1 Conduit Mounting Instructions

1. Refer to [Figure 4](#).

Install the Conduit Mounting Assembly in the ground as follows:

2. Dig an area that will accommodate a concrete pillar and conduit elbow or straight conduit pipe. The size and depth of the pillar must be per site plans and specifications.

Use a 2-inch (50.8 mm) plastic or metal conduit elbow or optional straight conduit with a 2-inch (50.8 mm) NPT conduit coupling. The concrete pillar should protrude above the ground level per site plans and specifications or a maximum of 1.00 inch (25.4 mm). Place the conduit in the center of the concrete pillar. Ensure that conduit is vertical within 1 degree before pouring concrete.



**Note**

The top of the conduit coupling should be flush to less than 1-inch (25.4 mm) above the top surface of the concrete pillar

- Bring field circuit cables from the power source through the conduit to connect to the EHP-L assembly. Connect the power leads to the light fixture and then screw the frangible coupling into the conduit coupling. See site plans and specifications, and local codes.



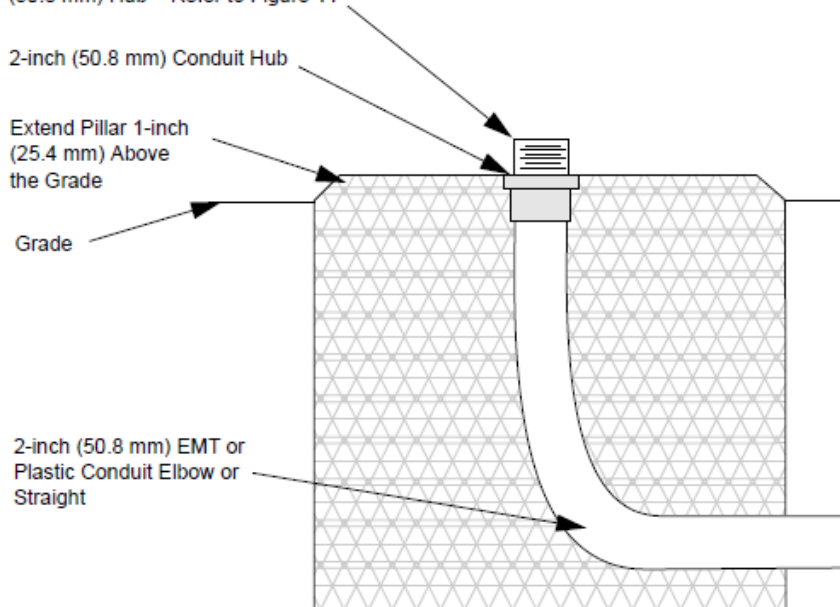
**Warning**

All power cables and transformers must be rated for direct earth burial.  
 Fixture (without heater) is designed to operate from 95 Vac (min.) to 264 Vac (max.), 50/60 Hz. Fixtures with a heater are designed to use only 120 Vac, 50/60 Hz.

- Loosen the 3 set screws on the EHP-L assembly and align the optical assembly so that the long side of the rectangular enclosure is parallel with the edge of the helipad. Tighten the set screws.
- Repeat the mounting procedure for each of the perimeter light assemblies

**Figure 4: Conduit Mounting Installation.**

Install EHP-L Assembly in 2-inch (50.8 mm) Hub – Refer to Figure 11



**Note**

See site plans for depth and width of the pillar



## 4.0 Maintenance

To keep the EHP-L light fixtures operating efficiently, follow a preventive maintenance schedule. Refer to [Table 5](#). Refer to FAA AC 150/5340-26 for more detailed information.

**Table 5: EHP-L Light Fixture Maintenance**

Interval	Maintenance Task	Action
Daily	Check for incoming power.	For series circuit driven EHP-L , verify that an input current of 2.8 to 6.6 A is present. Correct incoming power, if needed. Never open a series circuit when power is on. For voltage driven EHP-L , verify proper input voltage is present. Correct incoming power, if needed.
	Check for burned out LED.	If incoming power is OK, then turn off power and replace LED Assembly. Refer to the <i>Repair</i> section.
	Check for dim LED	After turning off power, replace burned-out LED Assembly. Refer to the <i>Repair</i> section. If series circuit, turn off power, check isolation transformer. Replace transformer as needed.
	Check for broken lens.	Replace lens.
Weekly	Check for vegetation.	Remove vegetation. Use weed killer.
	Check for dirty lens.	Clean with glass cleaner.
Monthly	Check for misaligned fixture.	Straighten, level, and align light fixture.
	Check for dirty frangible coupling weep holes (for stake-mounted fixtures only).	Clean weep holes.
	Check for dirt inside fixture.	Open fixture and clean. Replace all seals and cracked/broken lens.
Semi-Annually	Check for improper ground elevation.	Grade so frangible point is level with ground elevation.
	Check for improper light elevation.	Maintain same elevation for all light fixtures.
	Check for moisture present in light housing or light base.	Check drain holes and replace seals. Check lens for cracks. If damaged, replace. If consistent with local airport practice, use a water pump to remove the water from the light base.
	Check for presence of corrosion or loose or chipped paint.	Scrape and repaint light fixture.
Annually	Check for cracks, corrosion, and shorts.	Repair or replace light fixture.
	Check for loose wire connections.	Tighten wire connections.
Unscheduled	Prediction of heavy snowfall.	Use red flags on sticks to mark the location of fixtures to facilitate snow removal and lessen the chance of damage to fixtures by snow removal equipment.



## 5.0 Troubleshooting



### Warning

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

De-energize the circuit and lock out the circuit or constant current regulator so that the circuit cannot be energized by remote means before attempting to service the fixture.

This section contains troubleshooting information. This information covers only the most common problems that you may encounter. If you cannot solve the problem with the information given here, contact your local ADB Safegate representative for help.

Problem	Possible Cause	Corrective Action
LED will not turn on.	Defective LED	Replace LED Assembly. Refer to the <i>Repair</i> section.
	Loose connection(s)	Tighten wires.
	Transformer on series circuit bad	Replace transformer.
	Moisture present in fixture	Open up and dry light fixture. Inspect lens for cracks. Replace lamp and any damaged parts. Refer to the <i>Repair</i> section.

## 5.1 Repair



### Warning

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

This section provides instructions for replacing failed components of the EHP-L elevated light fixture.



### Note

See Parts List for part numbers and complete description of part for items mentioned in Repair Section.

### 5.1.1 Lens Replacement

To replace the Lens perform the following procedure:

De-energize the circuit and lock out the circuit.



### Warning

Disconnect equipment from incoming power. Failure to observe this warning may result in personal injury, death, or equipment damage.

1. Refer to [Figure 5](#) Remove the two screws that attach the Lens Attachment Ring to the LED Assembly Top enclosure cover.
2. Remove the lens and attachment ring and discard the lens.



### Warning

If lens is cracked or shattered use gloves or other protection to remove the lens.

3. Examine the LED for damage and remove any glass shards. If LED is damaged, refer to LED Replacement section.
4. Remove and discard the lens seal and any debris found on the top of the LED enclosure.

5. Install attachment ring over lens and place the new lens seal under the attachment ring and center it on the bottom of the lens.
6. Align the two screw holes in the attachment ring over the mating tapped holes in the top enclosure. Insert and tighten the screws. **Note:** Alternate the tightening of the two screws to insure even loading on the lens to prevent cracking lens during installation. Torque the screws to 19 in-lb.

**Figure 5: Lens Attachment Ring**



Lens Attachment Ring  
Screws - 2 screws 180  
degrees apart.

## 5.2 LED Assembly Replacement

To replace the LED assembly perform the following procedure:

1. De-energize the circuit and lock out the circuit.



### Warning

Disconnect equipment from incoming power. Failure to observe this warning may result in personal injury, death, or equipment damage.

---

2. Remove the Lens as described in the previous section and set the lens, attachment ring, lens seal, and screws/lockwashers aside.
3. Refer to [Figure 6](#). Loosen the hex Allen set screws found under the LED enclosure assembly. Lift up on the LED enclosure and remove to gain access to the screws on the bottom enclosure cover. **Note:** The power lead attached to the LED PCB is long enough to completely remove the assembly from the J-Box.

**Figure 6: Enclosure Set Screw Location**



Hex Allen Set Screws – 3  
screws 120 degrees apart



4. Refer to [Figure 7](#) . Remove the 4 Philips pan head screws located in the corners of the bottom enclosure.

**Figure 7: Bottom Enclosure Screws**

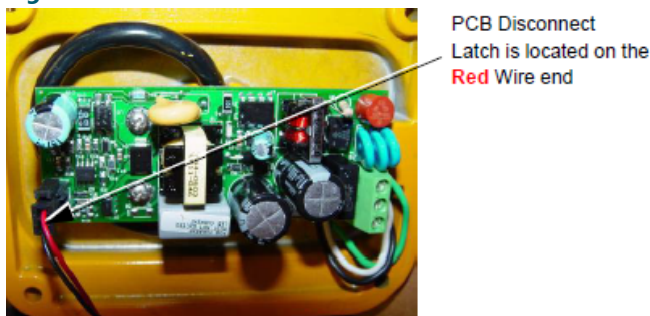


5. Refer to [Figure 6](#) through [Figure 8](#) . After the screws are removed, the Upper LED Assembly enclosure can be separated from the rest of the assembly by locating and removing the LED lead disconnect from the PCB.

**i Note**

Squeeze and pull upward on the latch located on the end of the Molex disconnect fitting to release and remove the LED leads from the PCB.

**Figure 8: PCB LED Disconnect**



6. After removing the LED disconnect, remove and discard the LED Assembly, which includes the LED Top cover enclosure, and replace with a new LED Assembly.
7. Reassemble the LED Assembly housing in reverse order of disassembly. Tighten all screws.
8. Reinstall the lens per instructions in Lens Replacement section.
9. Reinstall the assembly on the J-Box. Tighten all screws.
10. Return EHP-L Assembly to service.

### 5.2.1 LED PCB Assembly Replacement

To replace the LED PCB perform the following procedure:

1. De-energize the circuit and lock out the circuit.



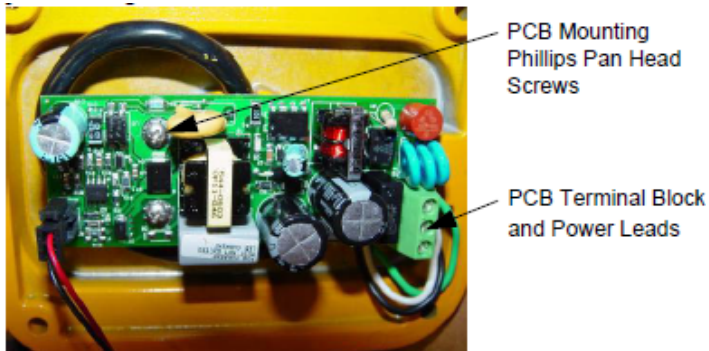
**Warning**

Disconnect equipment from incoming power. Failure to observe this warning may result in personal injury, death, or equipment damage.

2. Refer [Figure 9](#) . Remove the LED Assembly enclosure and unlatch the LED power lead from the PCB as described in the LED Replacement section.

- Using a small electrical screwdriver, loosen the 3 screws in the PCB terminal block and remove the white, black and green wires from the terminal block. Discard the removed PCB.

**Figure 9: PCB Assembly Mounting Screws**



- Locate and remove the two Phillips pan head screws that secure the PCB to the bottom enclosure. Lift the PCB Assembly out of the bottom enclosure.
- Install the new PCB on the bottom enclosure using the screws and lockwashers taken out during the PCB removal. Reconnect the power leads to the terminal block in the same order as removed. Reattach the LED assembly wires that were disconnected from the PCB.
- Reinstall the LED Assembly and tighten all screws.
- Reinstall the assembly to the J-box and tighten all screws.
- Return the EHP-L to service.

## 6.0 EHP Parts

### Ordering Code

#### LED Color

- G = Green<sup>1</sup>
- Y = Yellow<sup>1</sup>
- B = Blue

#### Power

- 1 = Voltage Driven, 95-264 VAC, 50/60 Hz<sup>1</sup>
- 2 = 50/60 Hz, Current Driven, 2.8-6.6 A

#### Overall Height

- 1 = 8 inches with junction box, no coupling<sup>1</sup>
- 2 = 16 inches with junction box, 1.5-inch coupling<sup>1</sup>
- 3 = 24 inches with junction box, 1.5-inch coupling<sup>1</sup>
- 4 = 8 inches w/out j-box, with 1.5-inch coupling
- 5 = 8 inches w/out j-box, with 2-inch coupling
- 6 = 16 inches w/out j-box, with 1.5-inch coupling
- 7 = 24 inches w/out j-box, with 1.5-inch coupling
- 8 = 16 inches w/out j-box, with 2-inch coupling
- 9 = 24 inches w/out j-box, with 2-inch coupling
- A = 12 inch OAH w/out j-box, with 1.5-inch coupling
- B = 12 inch OAH w/out j-box, with 2-inch coupling

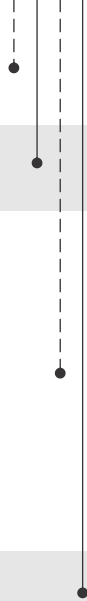
#### Arctic Option

- 0 = Without arctic option
- 1 = With arctic option<sup>2</sup>

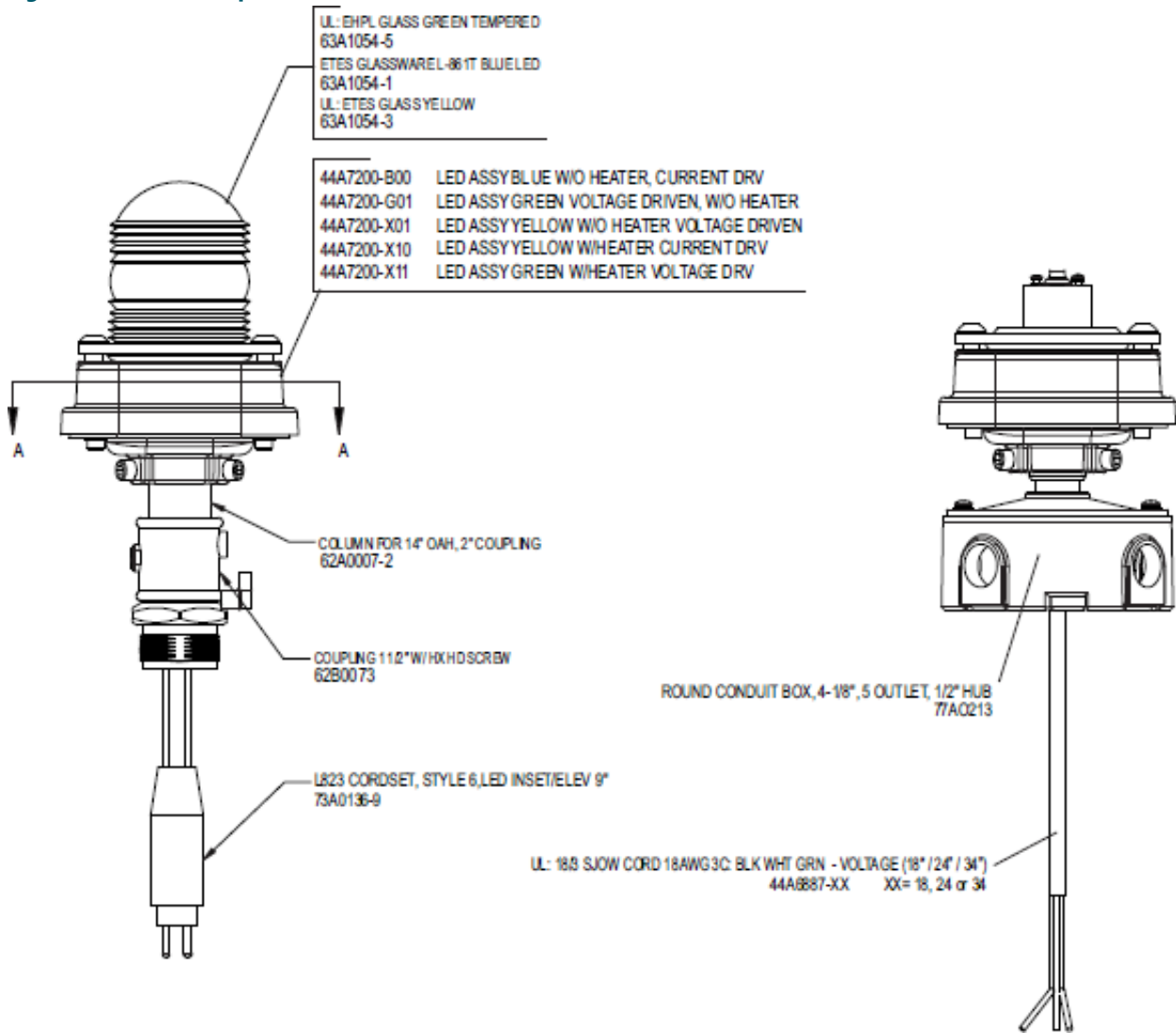
#### Notes

- <sup>1</sup> Not ETL Certified.
- <sup>2</sup> When powered by a parallel circuit, heater is designed for use at only 120 VAC, ±10%, 50/60 Hz.

EHP - X X X X 0



**Figure 10: EHP-L Component Identification**

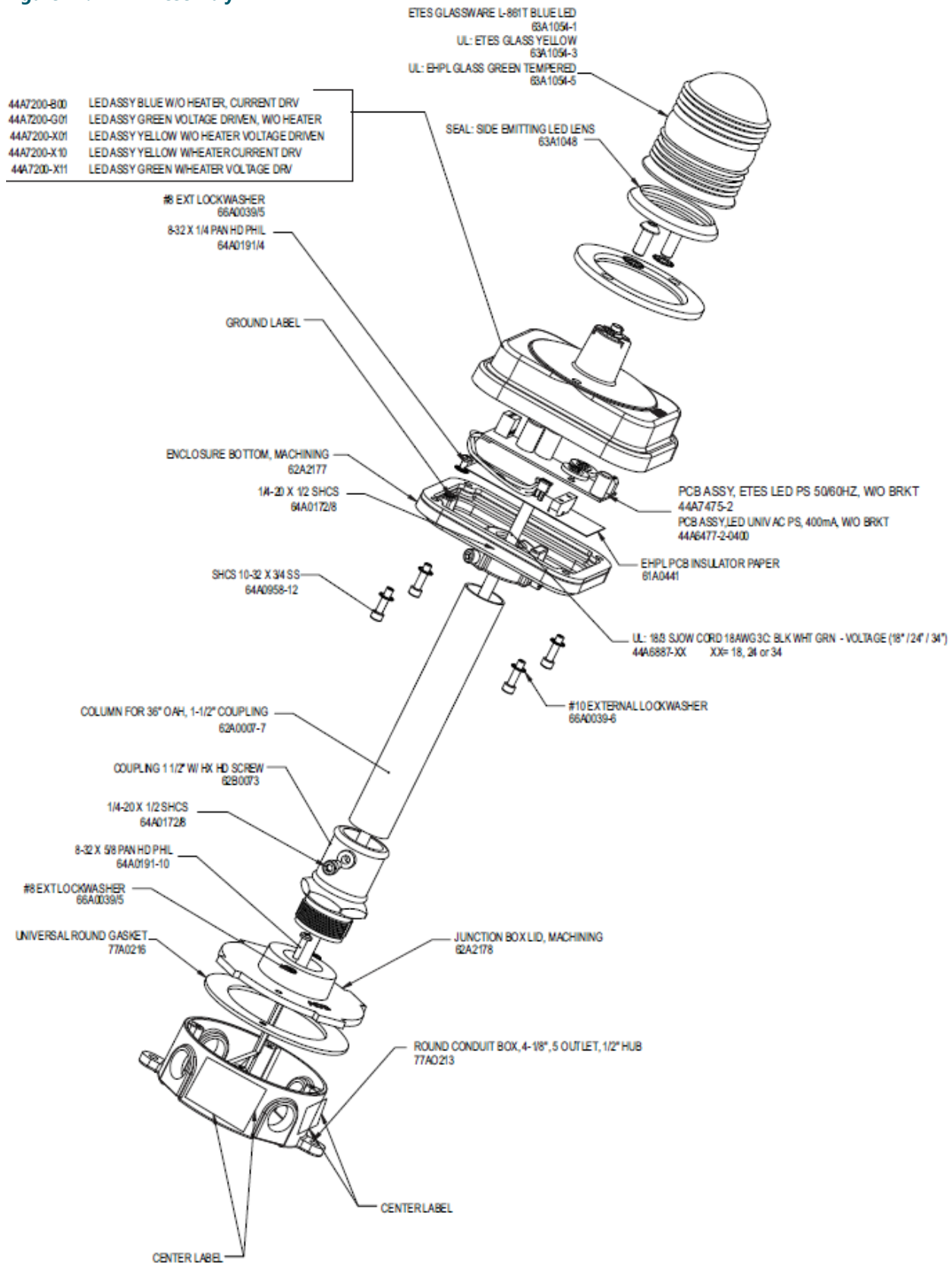


## 6.1 Spare Components

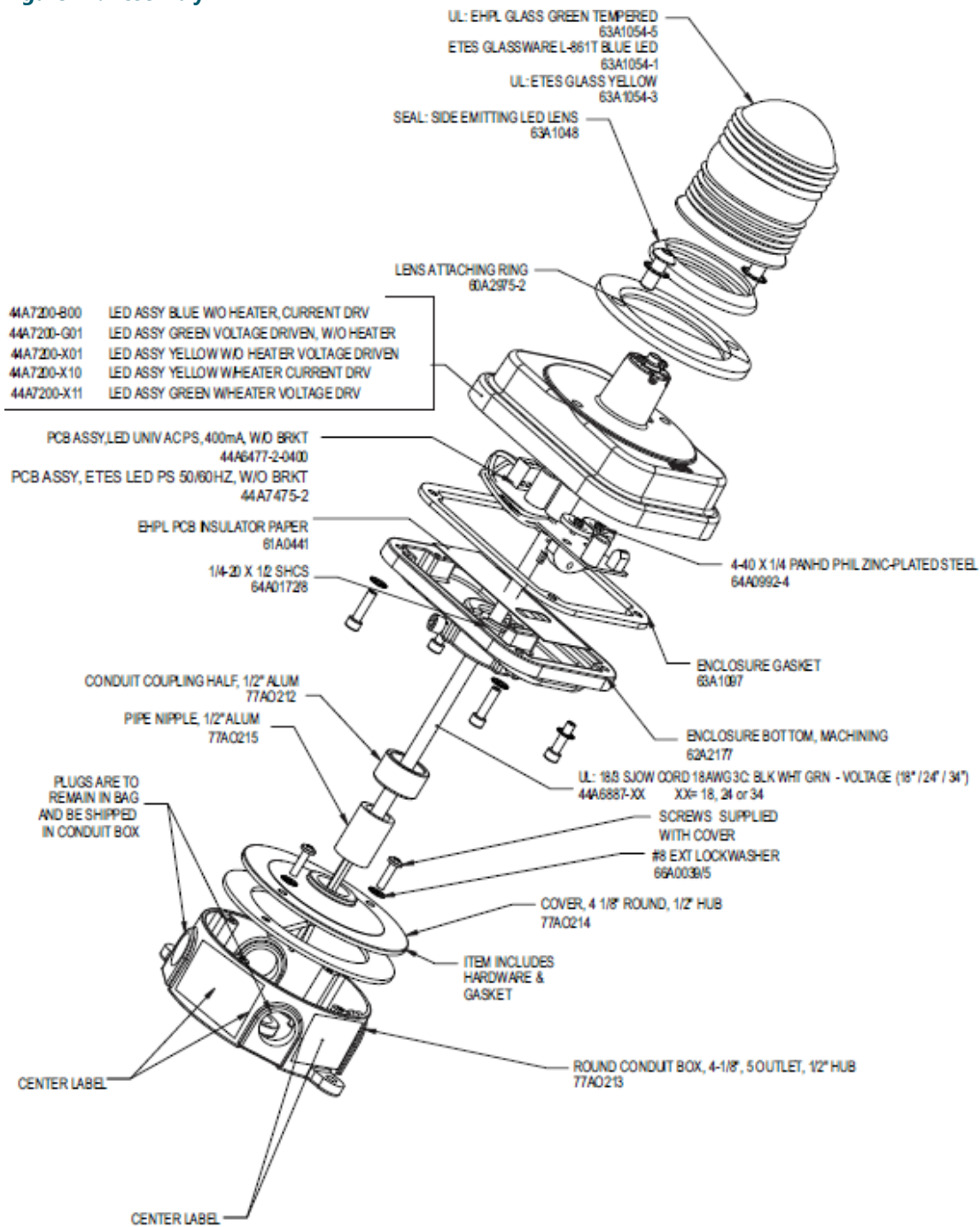
Description	Part No.
Enclosure bottom	62A2177
Enclosure gasket	63A1097
Frangible coupling, 1.5 inch, 12 TPI	62B0073/spare
Frangible reducer coupling, 2-1 inch, 11.5 TPI	61A0281/spare
Gasket, universal round	77A0216
Glassware, blue	63A1054-1
Glassware, green	63A1054-5
Glassware, yellow	63A1054-3
Junction box, round	77A0213
Junction box lid	62A2178
Junction box lid, round w/0.5-inch hub	77A0214

Description	Part No.
Lens attaching ring	60A2975-2
Seal, side-emitting LED lens	63A1048
PCB Assembly, LED AC PS, 400mA, W/O Bracket	44A6477-2-0400
PCB Assembly, LED PS 50/60HZ, W/ Bracket	44A7475-1
EHPL PCB INSULATOR PAPER	61A0441

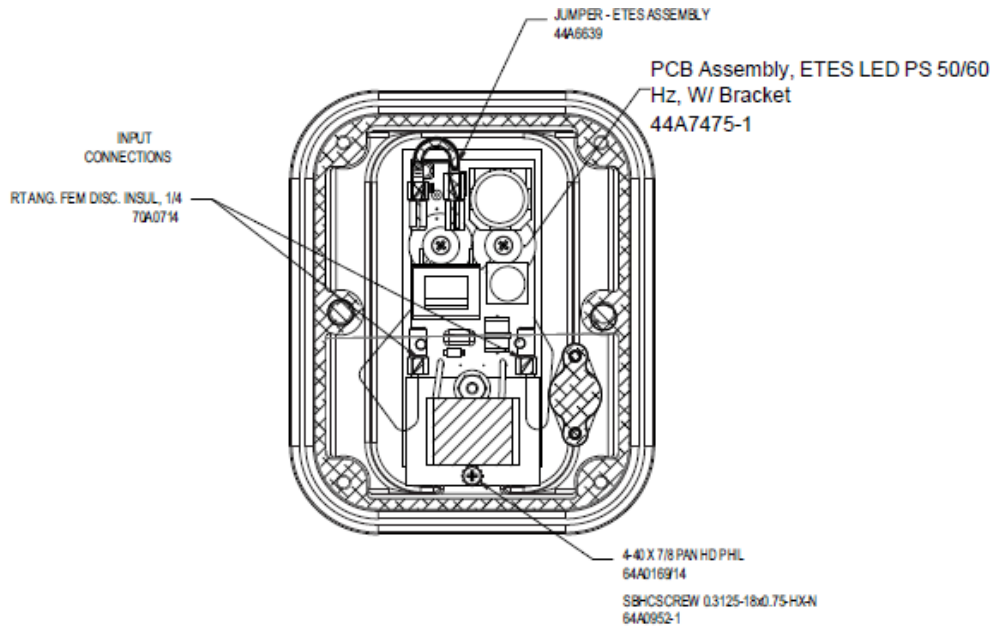
**Figure 11: EHP-L Assembly**



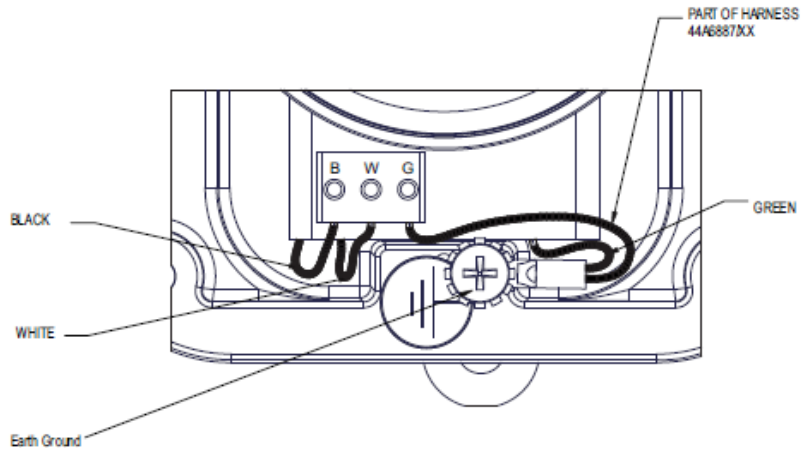
**Figure 12: Assembly**



**Figure 13: Current Driven Enclosure**



**Wiring Connections**





## Appendix A: SUPPORT

Our experienced engineers are available for support and service at all times, 24 hour/7 days a week. They are part of a dynamic organization making sure the entire ADB SAFEGATE is committed to minimal disturbance for airport operations.

**Table 6: ADB SAFEGATE Support**

### Live Technical Support - Americas

If at any time you have a question or concern about your product, just contact ADB SAFEGATE's technical service department. Trained in all areas of system issues, troubleshooting, quality control and technical assistance, our highly experienced Technical support specialists are available 24 hours a day, seven days a week to provide assistance over the phone.

**ADB SAFEGATE Americas Technical Service & Support (US & Canada): +1-800-545-4157**

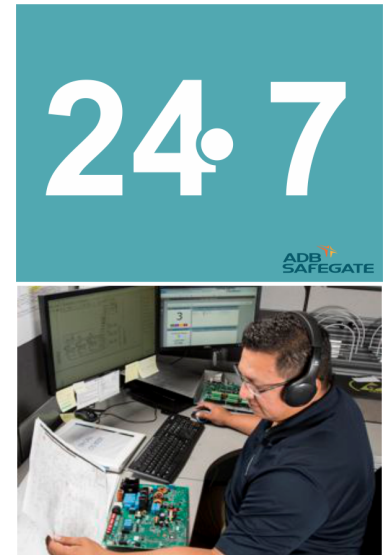
**ADB SAFEGATE Americas Technical Service & Support (International): +1-614-861-1304**

During regular business hours, you can also Chat with a Service Technician. We look forward to working with you!

### Before You Call

When you have an airfield lighting or system control system problem it is our goal to support airfield maintenance staff as quickly as possible. To support this effort we ask that you have the following information ready before calling.

- The airport code
- If not with an airport, then company name (prefer customer id number)
- Contact phone number and email address
- Product with part number preferable or product number
- Have you reviewed the product's manual and troubleshooting guide
- Do you have a True RMS meter available (and any other necessary tools)
- Be located with the product ready to troubleshoot



### Note

For more information, see [www.adbsafegate.com](http://www.adbsafegate.com), or contact ADB SAFEGATE Support via email at [support@adbsafegate.com](mailto:support@adbsafegate.com) or

Brussels: +32 2 722 17 11

Rest of Europe: +46 (0) 40 699 17 40

Americas: +1 614 861 1304. Press 3 for technical service or press 4 for sales support.

China: +86 (10) 8476 0106

### A.1 ADB SAFEGATE website

The ADB SAFEGATE website, [www.adbsafegate.com](http://www.adbsafegate.com), offers information regarding our airport solutions, products, company, news, links, downloads, references, contacts and more.

## A.2 Recycling

### A.2.1 Local authority recycling

The disposal of ADB SAFEGATE products is to be made at an applicable collection point for the recycling of electrical and electronic equipment. The correct disposal of equipment prevents any potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling. The recycling of materials helps to conserve natural resources. For more detailed information about recycling of products, contact your local authority city office.

### A.2.2 ADB SAFEGATE recycling

ADB SAFEGATE is fully committed to environmentally-conscious manufacturing with strict monitoring of our own processes as well as supplier components and sub-contractor operations. ADB SAFEGATE offers a recycling program for our products to all customers worldwide, whether or not the products were sold within the EU.

ADB SAFEGATE products and/or specific electrical and electronic component parts which are fully removed/separated from any customer equipment and returned will be accepted for our recycling program.

All items returned must be clearly labelled as follows:

- For ROHS/WEEE Recycling
- Sender contact information (Name, Business Address, Phone number).
- Main Unit Serial Number.

ADB SAFEGATE will continue to monitor and update according for any future requirements for EU directives as and when EU member states implement new regulations and or amendments. It is our aim to maintain our compliance plan and assist our customers.





## Powering Your Airport Performance from Approach to Departure

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