

Operation Manual

96A0374

Retain for future use.

Rev. I, 6/4/13

FAA: Designed according to AC 150/5390-2 Heliport Design and the FAA Engineering Brief No. 67 "Light Sources other than Incandescent and Xenon for Airport Lighting and Obstruction Lighting Fixtures."

CSA: Designed to CAN/CSA STD C22.2 NO 250.0-04

LED Heliport/Helipad Elevated Perimeter Light EHPL



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1.0 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 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 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 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.

1.1.3 Intended Use



WARNING

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.

ADB Airfield Solutions 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 and equipment damage. Unintended uses may result from taking the following actions:

- Making changes to equipment that are not recommended or described in this manual or using parts that are not genuine ADB Airfield Solutions replacement parts.
- Failing to make sure that auxiliary equipment complies with approval-agency requirements, local codes and all applicable safety standards.
- Using materials or auxiliary equipment that are inappropriate or incompatible with ADB Airfield Solutions equipment.
- Allowing unqualified personnel to perform any task.

1.1.4 Storage



CAUTION

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 injury or equipment damage.

1.1.4.1 Operation



WARNING

- 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.

1.1.4.2 Material Handling Precautions



CAUTION

- This equipment may contain electrostatic sensitive 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 should 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.

1.1.4.3 Action in the Event of a System or Component Malfunction



WARNING

- 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.

1.1.4.4 Maintenance and Repair



WARNING

- Allow only qualified personnel to perform maintenance, troubleshooting, and repair tasks.
- Only persons who are properly trained and familiar with ADB Airfield Solutions equipment are permitted to service this equipment.
 - 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 Airfield Solutions replacement parts. Using unapproved parts or making unapproved modifications to equipment may void agency approvals and create safety hazards.
 - Check 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 electrical equipment.

2.0 EHPL

This manual describes the LED, omni-directional elevated light fixture for use in heliport/helipad perimeter light applications.

2.1 About this manual

The manual shows the information necessary to:

- Install and maintain the LED, omni-directional elevated light fixture for use in heliport/helipad perimeter light applications.

2.1.1 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.



2.1.2 Record of changes

Page	Rev	Description	EC No.	Checked	Approved	Date
All	A	Released New Manual				
29	B	Updated Power Option 1 for UL Certification	1930	JJR	JJR	4/18/08
9, 10, 11, 32,33, 35, 36	C	Updated spares, added photometric information	1932	JC	JC	4/21/08
Cover, 5, 7, 10, 14, 15, 19, 20, 29	E	Updated voltage driven range to 100-240Vac, 60Hz. Added note about 100-240Vac, 50Hz operation. Updated UL/CSA standard wording.	1977	JJR	JJR	4/22/08
13	F	Added a warning to the installer to make certain the connections are made watertight or will void the warranty.	1977	JJR	JJR	6/19/08
All	G	Updated entire manual		DR	ER	12/01/12
	H	Update introduction section		JR		4/19/13
-	I	Updated into and front cover		JR	ER	5/4/13

2.1.3 Icons used in the manual

For all WARNING symbols see the Safety section.

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.

	<p>WARNING</p> <ul style="list-style-type: none"> • Failure to observe a warning may result in personal injury, death or equipment damage.
	<p>CAUTION</p> <ul style="list-style-type: none"> • Failure to observe a caution may result in equipment damage.

2.2 Introduction

See Figure 1. This section describes the LED, omni-directional elevated light fixture for use in heliport/helipad perimeter light applications. 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 (current edition).

2.2.1 Uses

EHPL is intended for general aviation 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 EHPLs are typically used on existing applications.
- Green EHPLs are typically used for new applications.

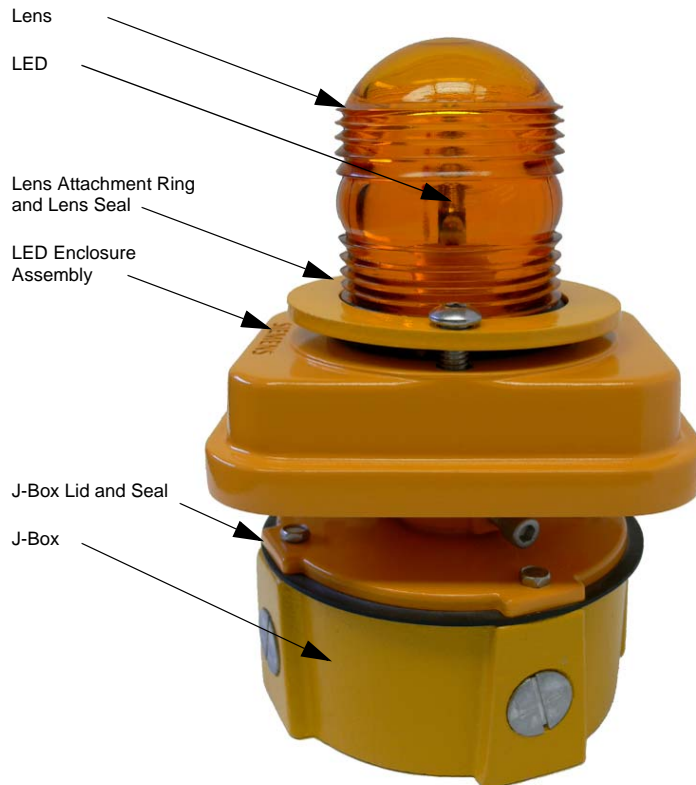
The light fixture is available for direct mounting to helipad using a J-Box. Optional designs are available for mounting to a FAA L-867 baseplate with a frangible coupling, with or without a column to increase the mounting height of the fixture. The EHPL can also be stake or conduit mounted. The fixture is available in both voltage (100-240Vac) and current driven (2.8 - 6.6A, 50 or 60 Hz) designs. The unit can also be supplied with an arctic kit per FAA Engineering Brief 67.

Table 1: EHPL Fixtures

Light Fixture	Function
Yellow	Perimeter Light – Existing or Military Installations
Green	Perimeter Light – New Installations

NOTE: FAA AC 150/5390-2B, dated September 30, 2004, requires that heliport perimeter lights to be green.

Figure 1: EHPL Assembly (direct J-Box mounting shown)



2.2.2 Compliance with Standards

FAA: Designed according to AC 150/5390-2 Heliport Design and the FAA Engineering Brief No. 67 “Light Sources other than Incandescent and Xenon for Airport Lighting and Obstruction Lighting Fixtures.”

CSA: Designed to CAN/CSA STD C22.2 NO 250.0-04

The light fixtures are available in yellow for existing applications and in green for new 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.

2.2.3 Features

Features of the EHPL are as follows:

- Overall height installed is < 8 inches, complying with AC 150/5390-2B requirements for raised perimeter lights
- Average individual LED life of 100,000 hours
- 95-264 VAC, 50/60 Hz power supply minimizes installation costs by reducing required number of cable runs. Light output stays constant regardless of input voltage range.
- Longer intervals between maintenance and very low power rating for LED lights results in lower life-cycle costs
- 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’s elevated LED fixtures, see catalog sheet 3043.

The fixture can also be stake mounted on a 30-inch (762 mm) galvanized steel stake per FAA AC 150/535-46. See FAA AC 150/5340-30 for installation of stakes. Stake-mounted lights require transformers, cables, and connectors that are designed for direct earth burial.

Refer to Table 2 for mounting heights.

NOTE: The measurements in Table 2 are taken from the grade to the top of the light fixture.

Table 2: Overall Mounting Heights

Type	Height (in.)	Height (mm)
FAA maximum	8	203.2
Optional	16	406.4
Optional	24	609.6

**2.2.4 EHPL Fixture:
Required Equipment**

Refer to Table 3 for required equipment that is supplied. Refer to Table 4, for required equipment that is not supplied. Refer to the Parts section for part numbers and spare parts.

Table 3: Required Equipment Supplied

Description	Quantity
EHPL Light fixture	1
Instruction manual	1 per order

Table 4: 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)	1
When fixture is mounted on L-867B Light Base	
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 fixture is stake mounted.	1
L-830 Isolation transformer for series circuit. Refer to Table 5 for the correct transformer to use.	1
L-823 single-conductor (primary) connector kit	1

Table 5: Isolation Transformers

For a...	Then use this isolation transformer...	Note
6.6 A series circuit	L-830-1 (6.6 A/6.6 A, 45 W) for 60 Hz	A
	L-831-1 (6.6 A/6.6 A, 45 W) for 50 Hz	
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 (Part Number 35A0578) or L-830-17. 30/45W, 6.6A/6.6A (Part Number 35A0617) isolation transformers for 60Hz.

2.2.5 Specifications

2.2.5.1 LED and Lens Colors

Table 6: EHRL LED and Lens Colors

Type (Use)	LED Color	Beam Direction	Lens Color	Note
Elevated Perimeter (existing or military installations)	LED Yellow Side Emitting 1Watt	Omni-directional	Yellow	A
Elevated Perimeter (new installations)	LED Green Side Emitting 1Watt	Omni-directional	Green	A

NOTE A: LED comes as a complete assembly – see parts list

2.2.5.2 Input

2.8A-6.6 A (current driven) or 100-240Vac, 60Hz (voltage driven)

To meet CAN/CSA Std. 22.2 No. 250.0-04 the EHPL must be supplied with 100-240Vac, 60Hz power. Although the EHPL will operated on 50Hz power, supplying power outside of this range voids the UL/CSA ratings.

2.2.5.3 Electrical Supply

95 VAC (min.) - 264 VAC (max.), 50/60 Hz, 10 W (21 VA) max.

2.2.5.4 Energy Cost Savings

LED Fixture Load	Incand./Halogen Load	Energy Savings
21 VA	54 VA	2.6 times

2.2.5.5 Rated LED Life

100,000 hours (nominal)

2.2.5.6 LED

1 Watt, Yellow or Green.

2.2.5.7 Lens

Heat- and shatter-resistant glass lens in either yellow or green

2.2.5.8 EHPL Photometric Data

Table 7: Photometric Data for EHPL Fixture

LED/Lens Color	Light Source	Measured Peak Intensity Candelas (cd)
		0–6 Degrees Vertical
Yellow	1 light side-emitting diode	28.0
Green	1 light side-emitting diode	35.4

2.2.5.9 Weather

Designed for exposure to rain, snow, ice, and standing water.

2.2.5.10 Environmental
Operating Conditions

The medium intensity elevated light fixture is designed to operate under the conditions presented below for temperature, wind, altitude, and relative humidity.

2.2.5.11 Temperature

-40 °C to +55 °C (-67 to +131 °F)

2.2.5.12 Wind

Withstands wind velocities up to 300 mph (480 kph)

2.2.5.13 Altitude

Sea level to 10,000 feet (3000 m)

2.2.5.14 Relative Humidity

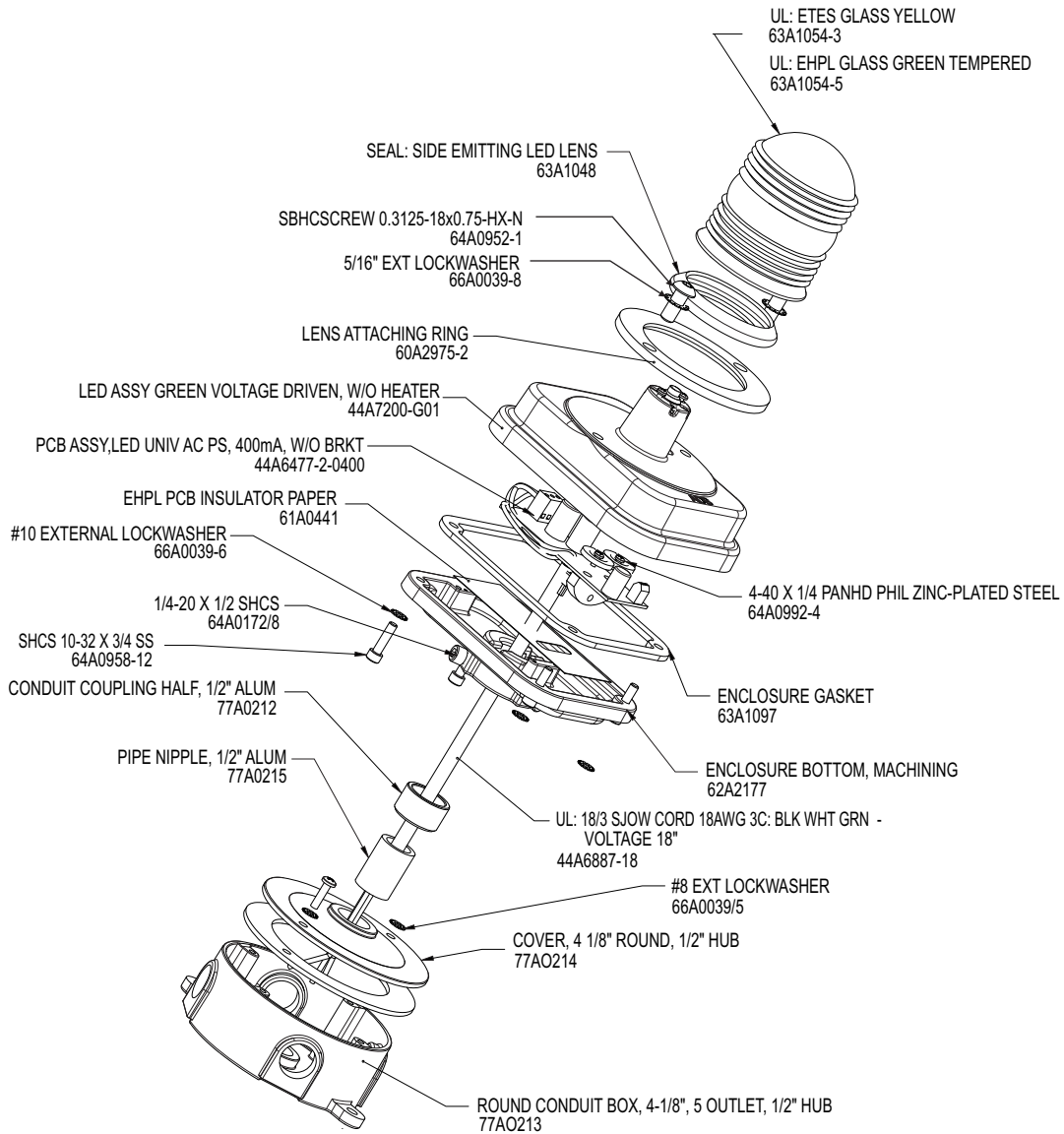
Up to 100%

2.2.5.15 Weight

Refer below for weight of assembled light fixtures.

- 8-inch overall height: 2.75 lb (2.27 kg)
- 16-inch overall height: 3.10 lb (2.84 kg)
- 24-inch overall height: 4.00 lb (3.18 kg)

Figure 2: EHPL Main Component Identification



2.3 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.

This section provides instructions for installing the EHPL fixture. Refer to the airport 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 EHPL to a FAA L-867 baseplate, stake mounted, or mounted on a conduit elbow.

2.3.1 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.

2.3.2 Assembly Instructions

NOTE: Check the packing list with the parts list to verify that all parts are present before proceeding. See "Parts" on page 20.

NOTE: The elevated light fixture is completely assembled at the factory and is ready for installation. The EHPL 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 EHPL assembly supplied with a J-Box (with or without frangible coupling and column) proceed as follows:

2.3.3 J-Box Mounting Installation

1. Position each of the EHPL Assembly around the helipad perimeter as required by the site plans and specifications.
2. Ref Figure 3. Remove conduit pipe plugs from the holes where the conduit will enter or exit the junction box (J-Box). Remove the EHPL Assembly from the J-box by loosening the 3 Allen hex set screws and then lift the EHPL 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. NOTE: See Figure 3 for CSA 22.2 No. 250.0-04 installation conditions.
4. Pull 18/3 AWG conductor through the conduit and wire each EHPL fixture per site plans and specifications.
5. Slip the J-Box lid and lid gasket over the EHPL leads and then connect the elevated light fixture leads to the field circuit. Wire nut and tape, per site plans, specification and local codes, the leads from the elevated light assembly to the field circuit. Make certain the connections are watertight. Failure to do so will allow water to be drawn up the wire insulation and may cause a failure of the equipment.

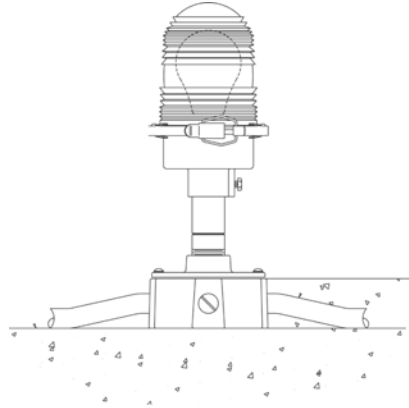


WARNING

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 EHPL 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.

Figure 3: EHPL J-Box Installation



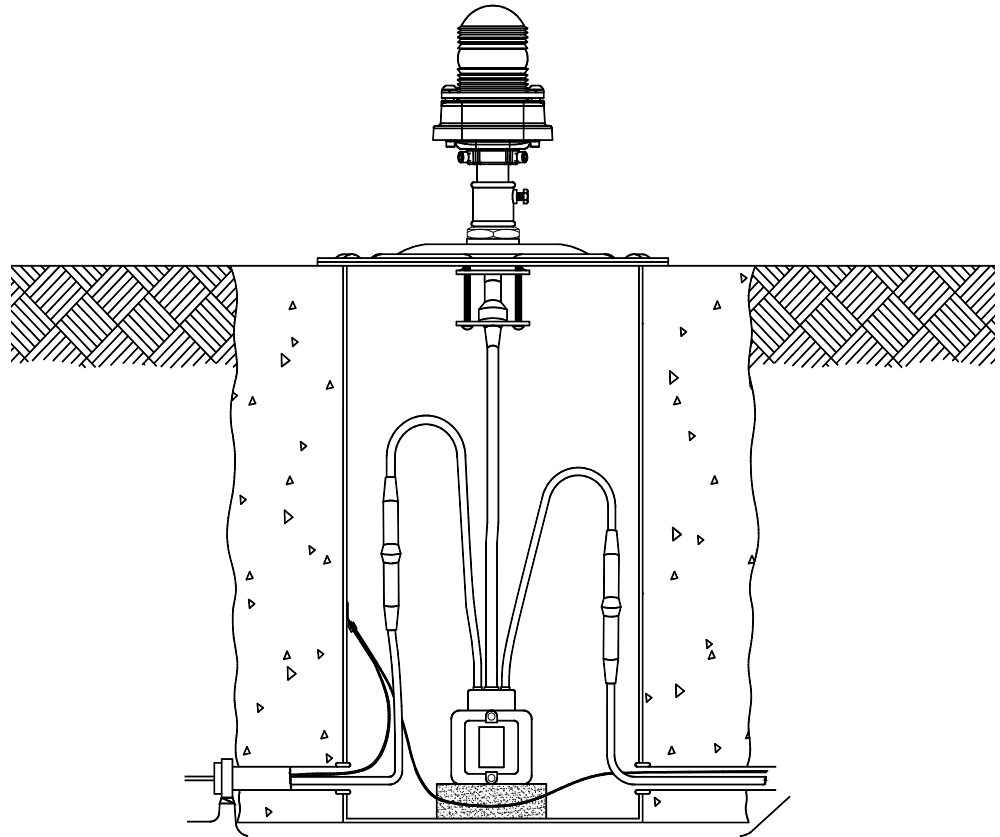
WARNING

To meet CAN/CSA 22.2 No. 250.0-04 requirements the J-Box must be installed on top of the helipad surface as shown in Figure 3. Recessing the J-Box into the pad voids the CSA ratings.

2.3.4 FAA L867 Light Base Installation

1. Ref Figure 4. 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 18/3 AWG conductor through the conduit (if voltage system) or FAA L-824 field cable (if 6.6A current system making connections to L-830 isolation transformer) per site plans and specifications.
4. Install the EHPL with frangible coupling (either 1-1/2 or 2 inch threaded coupling) into the matching FAA L-867 Baseplate (see Parts List for baseplate part numbers).
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 EHPL leads for connecting to an isolation transformer.
6. After connections have been made to the field circuit, install baseplate with the installed EHPL. Place the Light Base gasket on top of the light base flange and then place the baseplate assembly on top of the L-867 light Light Base. Install and tighten baseplate mounting bolts.
7. Loosen the 3 set screws on the EHPL assembly and align the optical assembly so that the long side of the rectangular enclosure is parallel with the edge of the helipad. Retighten the set screws.
8. Repeat the mounting procedure for each of the perimeter light assemblies.

Figure 4: FAA L-867 Light Base Installation



Installation

2.3.5 FAA Stake Mounting Installation

1. Ref Figure 5. 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 concrete (5) in case of unstable soil conditions.
4. If current driven (6.6A), bring field circuit cables from the power source to the first EHPL fixture and connect field circuit using field connector kits to the leads from the fixture so that the fixture can be plugged into the L830 isolation transformer secondary lead receptacle. See site plans and specifications, and local codes.

WARNING

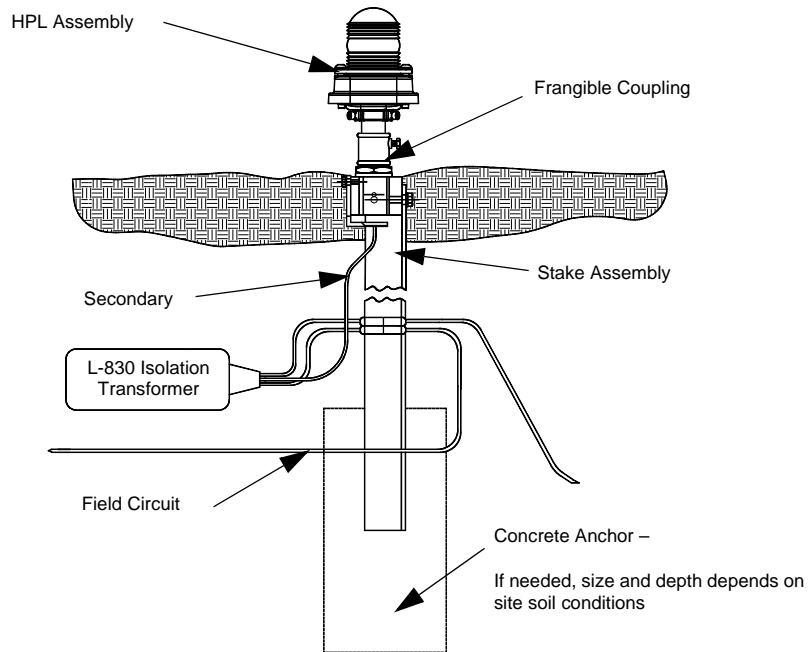


All power cables and transformers must be rated for direct earth burial.

5. If voltage driven (100-240Vac) bring field circuit cables (18-3 AWG) from the power source to the first EHPL 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. Install the stake hub, supplied with the stake assembly and mounting hardware, using the 2 drilled holes at the top of the stake.
8. Screw the EHPL 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.
9. Loosen the 3 set screws on the EHPL assembly and align the optical assembly so that the long side of the rectangular enclosure is parallel with the edge of the helipad. Retighten the set screws.
10. Repeat the mounting procedure for each of the perimeter light assemblies.

Figure 5: Stake Mounting Installation



2.3.6 Conduit Mounting Instructions

1. Ref Figure 6. Install the Conduit Mounting Assembly in the ground as follows:
2. Dig an area that will accommodate a concrete pillar and an elbow or straight conduit pipe. Size and depth of the pillar per site plan and specifications. Use a 2 - inch plastic or metal conduit elbow or optional straight conduit with a 2-inch NPT conduit coupling. The concrete pillar should protrude above the ground level per site plans and specifications or a maximum of 1.00 inch. 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 one inch above the top surface of the concrete pillar. After the concrete has cured, backfill around the concrete pillar
3. Bring field circuit cables from the power source through the conduit to connect to the EHPL 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.

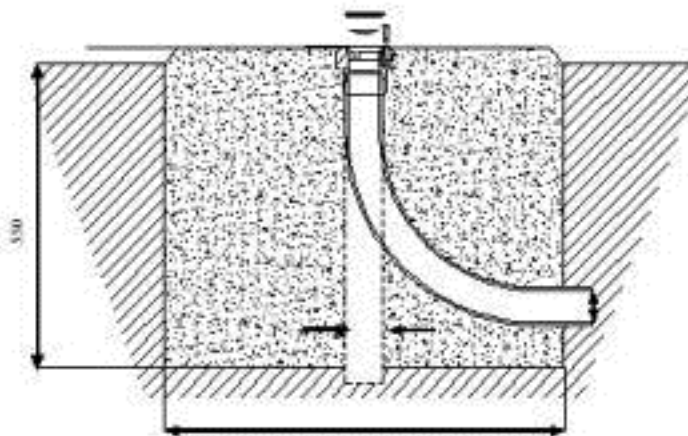


WARNING

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

4. Loosen the 3 set screws on the EHPL assembly and align the optical assembly so that the long side of the rectangular enclosure is parallel with the edge of the helipad. Retighten the set screws.
5. Repeat the mounting procedure for each of the perimeter light assembly.

Figure 6: Conduit Mounting Installation



Installation

2.4 Maintenance

To keep the EHPL light fixtures operating efficiently, follow a preventive maintenance schedule. Refer to Table 8. Refer to FAA AC 150/5340-26 for more detailed information.

Table 8: EHPL Light Fixture Maintenance

Interval	Maintenance Task	Action
Daily	Check for burned out LED.	After turning off power, replace burned-out LED Assembly. Refer to "Repair" on page 16.
	Check for dim LED	After turning off power, replace burned-out LED Assembly. Refer to "Repair" on page 16. 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 light elevation.	Maintain same elevation for all light fixtures.
	Check for moisture present in light housing.	Check drain holes and replace seals. Check lens for cracks. If damaged, replace
	Check for corrosion present or paint loose or chipped.	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.

2.5 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 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 Airfield Solutions representative for help.

Table 9: Troubleshooting

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 the transformer.
	Moisture present in fixture	Open up and dry light fixture. Inspect lens for cracks. Replace the LED assembly and any damaged parts. Refer to "Repair" on page 16.

2.6 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 EHPL elevated light fixture.

NOTE: See "Parts" on page 20 for part numbers and complete description of part for items mentioned in Repair Section.

2.6.1 Lens Replacement

To replace the Lens perform the following procedure:

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

WARNING: Disconnect equipment from line voltage. Failure to observe this warning may result in personal injury, death, or equipment damage.

2. Refer to Figure 7. Remove the two screws that attach the Lens Attachment Ring to the LED Assembly Top enclosure cover.
3. Remove the lens and attachment ring and discard the lens.

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

4. Examine the LED for damage and remove any glass shards. If LED is damaged, refer to LED Replacement section.
5. Remove and discard the lens seal and any debris found on the top of the LED enclosure.
6. Install attachment ring over lens and place the new lens seal under the attachment ring and center it on the bottom of the lens.
7. Align the two screw holes in the attachment ring over the mating taped holes in the top enclosure an 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.

Figure 7: Lens Attachment Ring



Lens Attachment Ring
Screws - 2 screws 180
degrees apart

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

2. Remove the Lens as describe in the previous section and set the lens, attachment ring, lens seal, and screws/lock washers aside.
3. Refer to Figure 8. 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 8: Enclosure Set Screw Location



Hex Allen Set Screws - 3 screws 120 degrees apart

4. Refer to Figure 9. Remove the 4 Phillips pan head screws located in the corners of the bottom enclosure.

Figure 9: Bottom Enclosure Screws



Phillips Pan Head Screw and Lock washer

Power Lead to the PCB

5. Refer to Figure 10. When 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.

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 10: PCB LED Disconnect

PCB Disconnect
Latch is located on the Red
Wire end



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 EHPL Assembly to service.

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

2. Refer to Figure 11. Remove the LED Assembly enclosure and unlatch the LED power lead from the PCB as described in the LED Replacement section.
3. Using a small electrical screwdriver, loosen the 3 screws in the terminal block and remove the white, black and green wires from the terminal block. Discard the removed PCB.

Figure 11: PCB Assembly Mounting Screws

PCB Mounting Phillips Pan Head Screws



PCB Terminal Block and power leads

4. 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.
5. Install the new PCB on the bottom enclosure using the screws and lock washers taken out during the PCB removal. Reconnect the power leads to the terminal block in the same order as removed. Reattach the LED disconnect to the PCB.
6. Reinstall the LED Assembly and tighten all screws.
7. Reinstall the assembly to the J-box and tighten all screws.
8. Return the EHPL to service.

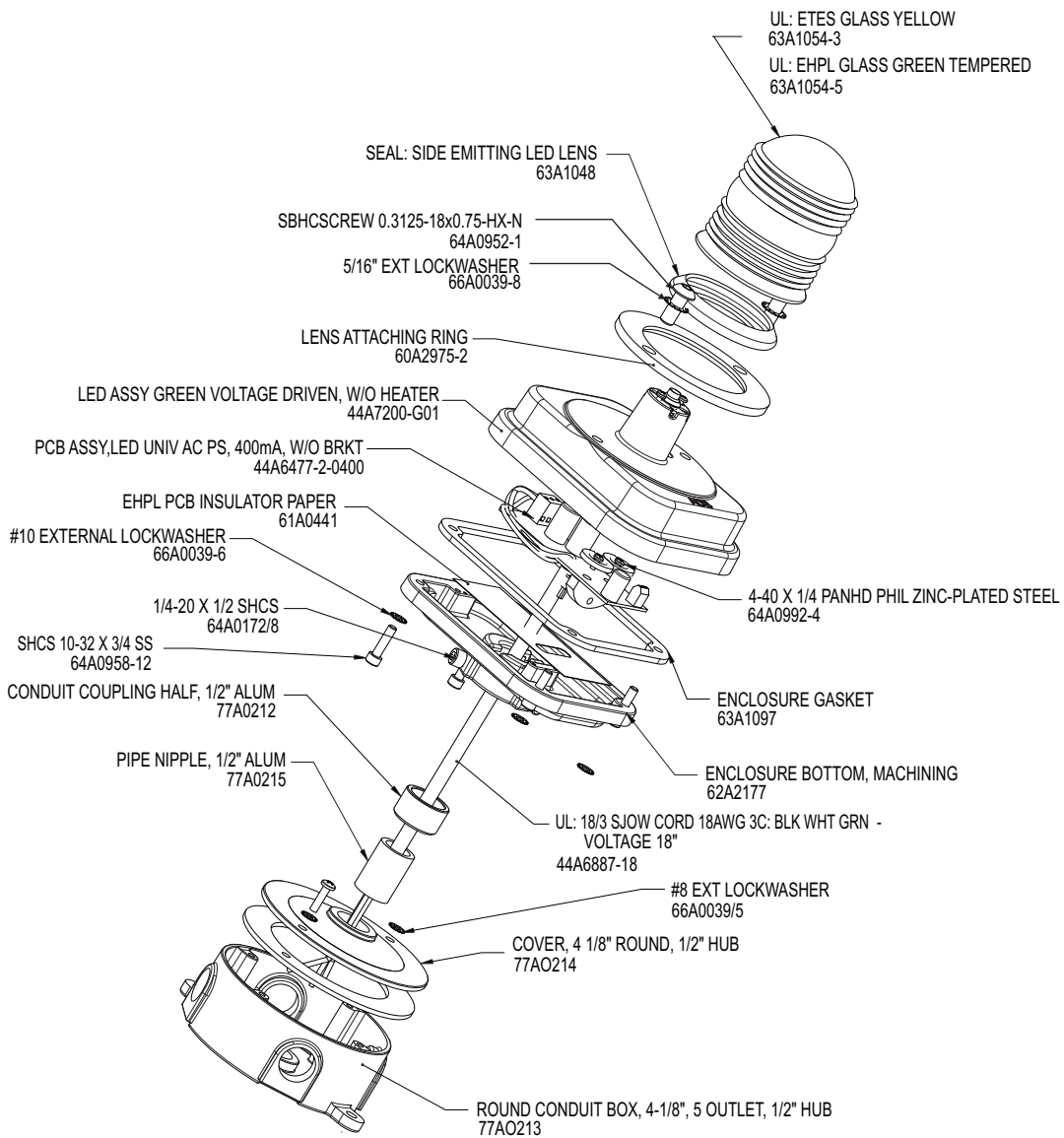
2.7 Parts

Ordering Code	EHPL - XXXX0
LED Color	
G = Green	
Y = Yellow	
Power	
1 = Voltage Driven ¹	
Overall Height	
1 = 8 inches with junction box, no coupling	
Arctic Option	
0 = Without arctic option	

Notes

¹ ETL Listed rating is 100-240 VAC, 0.08 A, 60 Hz. ETL Listed voltage of 100-240 VAC is nominal voltage range. Fixture designed to operate from 95 VAC - 264 VAC, 50/60 Hz.

Figure 12: EHPL Parts



LED Heliport/Helipad Elevated Perimeter Light Operation Manual

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Document Date (12/2012)