



IUL-L

LED In-pavement Utility and Heliport Perimeter Light

User Manual

96A0364, Rev. H, 2021/04/22


**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 European directives that have been taken into consideration in the design are available on written request to ADB SAFEGATE.

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Note

See your sales order contract for a complete warranty description.

FAA Certified product installed in the United States and purchased or funded with monies through the Airport Improvement Program (AIP) installations guarantee

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).

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 from date of installation, per FAA EB67 (applicable edition).

ADB SAFEGATE LED light fixtures (with the exception of obstruction lighting) are warranted against electrical defects in design or manufacture of the LED or LED specific circuitry for a period of 4 years from date of installation, per FAA EB67 (applicable edition).

**Note**

See your sales order contract for a complete warranty description.

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**WARNING**

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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.

	<p>WARNING Failure to observe a warning may result in personal injury, death or equipment damage.</p>
	<p>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.</p>
	<p>WARNING - Wear personal protective equipment Failure to observe may result in serious injury.</p>
	<p>WARNING - Do not touch Failure to observe this warning may result in personal injury, death, or equipment damage.</p>
	<p>CAUTION Failure to observe a caution may result in equipment damage.</p>

Qualified Personnel

	<p>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.</p>
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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 LED IUL

This manual covers all information pertaining to the ADB SAFEGATE LED In-pavement Utility Light (IUL).



8-inch



12-inch

2.1 About this manual

The manual shows the information necessary to:

- Install and maintain ADB Safegate LED In-pavement Utility Light in an airfield application.

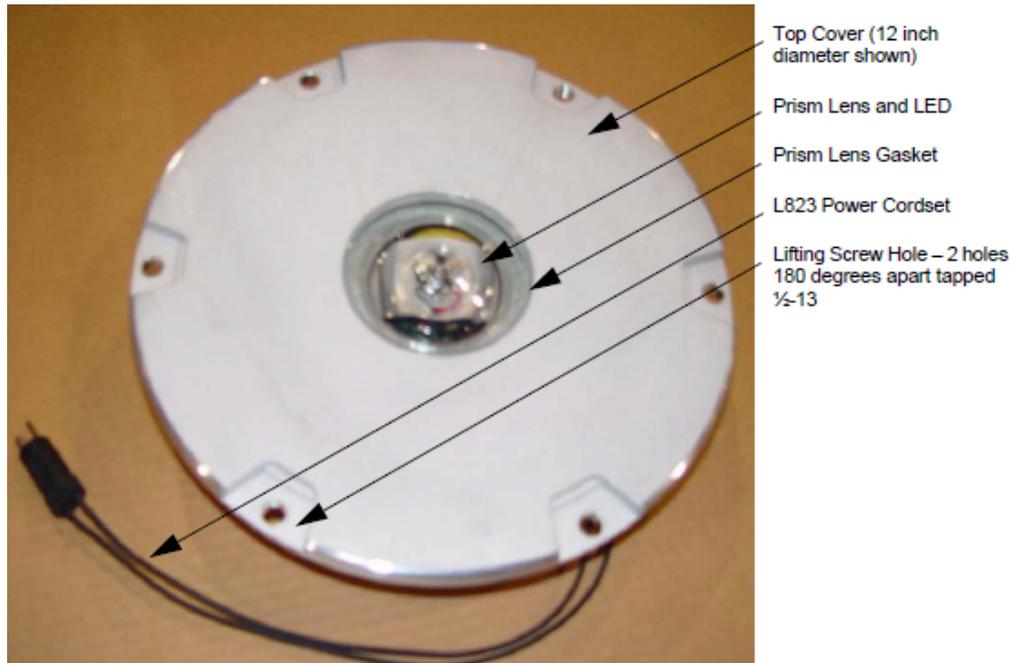
2.1.1 How to work with the manual

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

2.2 Introduction

See [Figure 1](#). This section describes the ADB Airfield Solutions IUL (In-pavement Utility Light). See [Figure 1](#). The IUL is manufactured in accordance with FAA specification AC 150/5345-46 and FAA Engineering Brief 67 for the LED performance requirements, Style 3 ($\leq \frac{1}{4}$ inch Height Above Grade). The fixture is available in both 8 inch and 12 inch diameter versions. The 8- inch mounts on a special shallow base and is typically glued into place. The standard 12-inch mounts directly on a FAA L-868B Light Base or can be machined to mount on a FAA L-867B light base. See Section 3 for additional installation instructions. The standard 12-inch fixture is shown in [Figure 1](#). The fixture can be supplied with either a white, yellow, green, blue, or red light beam. The fixture is voltage driven.

Figure 1: IUL In-pavement Light Assembly



2.2.1 LED In-pavement Utility & Heliport Perimeter Light

Compliance with Standards

FAA:	Manufactured to applicable L-852T(L) requirements in FAA AC 150/5345-46 (Current Edition) and the FAA Engineering Brief No. 67.
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Uses

- Heliports with constant voltage sources
 - Yellow for military and existing civilian applications
 - Green for new civilian applications

- Used as boundary marking of final approach and takeoff (FATO) areas, touchdown and lift-off (TLOF) areas, and aprons
- Also used for taxiway edges and aiming points
- Gate security
- Under vehicle inspection illumination
- Used for a variety of special applications where a balance of vertical and horizontal light output is required
- Provides essential lighting for the protection of fixed installations and other potential targets
- Used in high security areas to assist detection of bombs and smuggling, in maintenance facilities to spot vehicle damage, and to protect entrances to security areas
- Fixture layout/quantity can be designed for individual and/or pattern control to enable use of alternate traffic patterns

Electrical Supply

Input Voltage

W/out Heater	With Heater
95VAC (min.) -264 VAC (max.), -50/60 Hz	120 VAC, $\pm 10\%$, 50/60 Hz

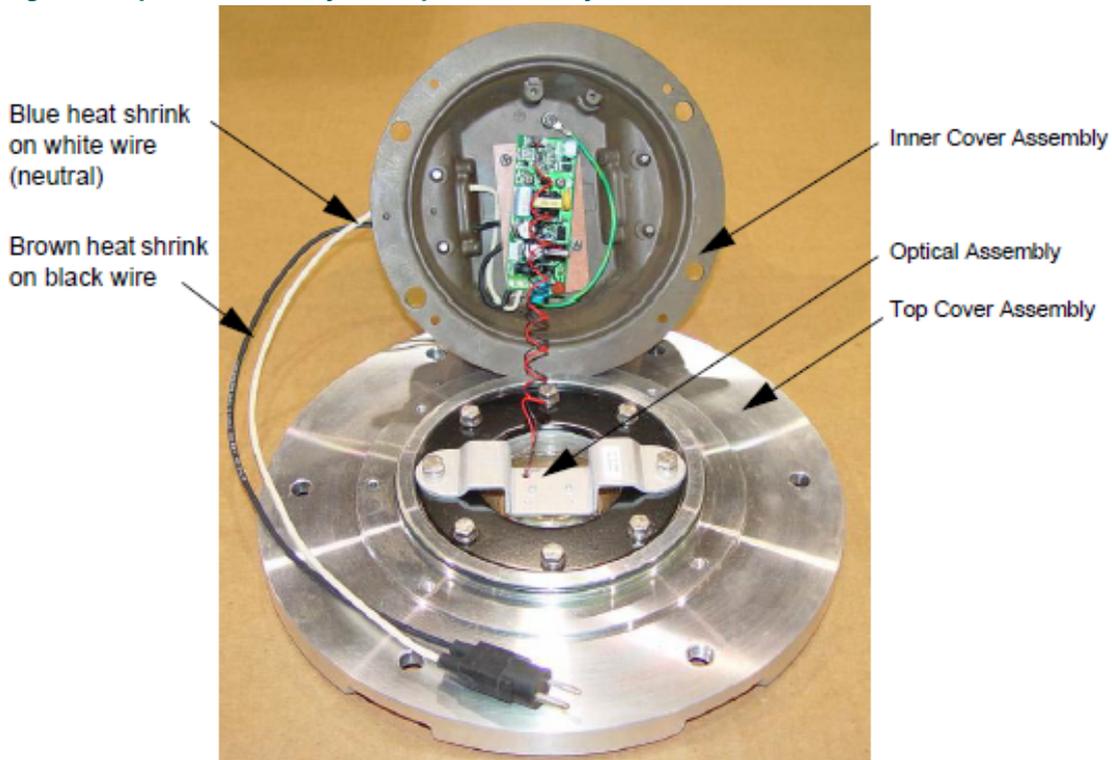
Maximum Input Power

	W/out Heater	With Heater
Yellow	10.2 VA	33.2 VA
Green	14.3 VA	37.3 VA
Blue	13.5 VA	36.5 VA
White	14.3 VA	37.3 VA
Red	14.3 VA	37.3 VA

2.2.2 Top Cover and Inner Cover Assemblies

See [Figure 2](#). The Omni directional assembly consists of the top cover assembly (prism lens, gaskets, and mounting hardware), the LED Optical Assembly (LED, Mounting Bracket, Power Lead, and mounting hardware), and the Inner Cover Assembly (inner cover, power cordset, and LED PCB Power Supply Assembly)

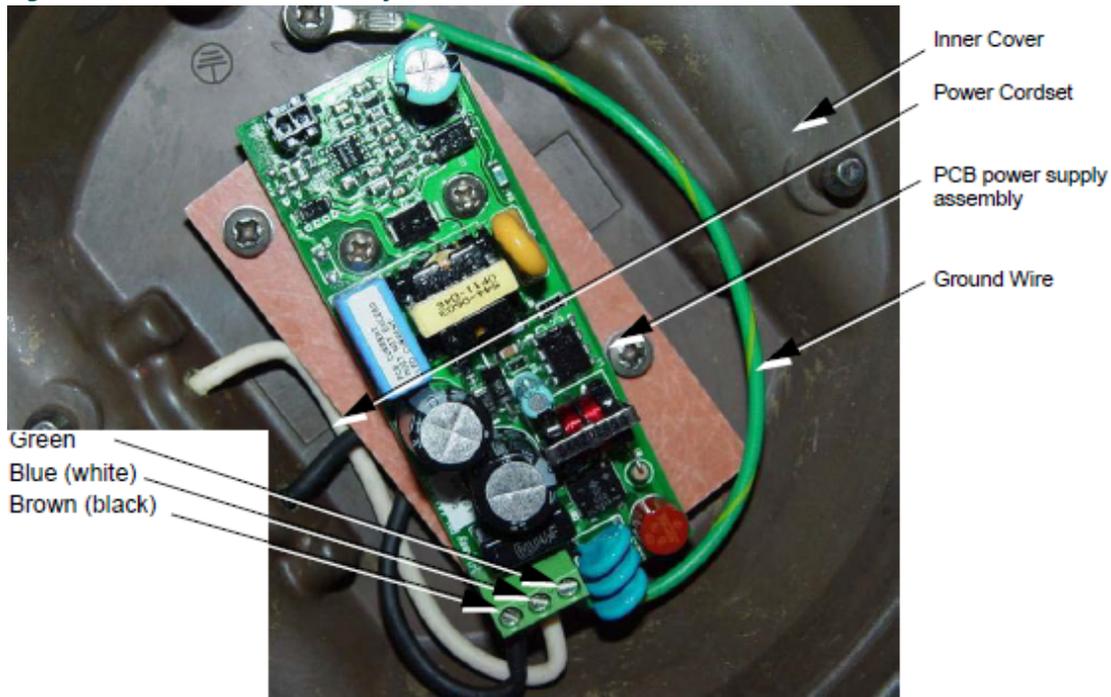
Figure 2: Top Cover Assembly with Optical Assembly



2.2.3 Inner Cover Subassembly

See [Figure 3](#). The inner cover assembly is comprised of the inner cover, power cordset, pressure release screw (not shown), and LED PCB power supply assembly.

Figure 3: Inner Cover Subassembly



2.2.4 IUL Light Fixture: Required Equipment

Refer to [Table 1](#) for required equipment that is supplied. Refer to [Table 2](#) for required equipment that is not supplied. Refer to "Spare Components".

Table 1: Required Equipment Supplied

Description	Quantity
IUL In-pavement light, with LED assembly	1
Instruction manual	1 per order

Table 2: Required Equipment Not Supplied

Description	Quantity
Torque wrench	1
Alignment jig	1
Crimping tool	1
Small water suction pump	1
Set of fiber brushes	1
Set of socket wrenches, 1/2 in. (12.7 mm) drive	1
Metric Socket for M6 Hex Hd Screw	1
Set of screwdrivers, one with 3/8 in. (9.525 mm) minimum blade width	1
Silicone grease	As required
P606 Joint sealing filler	As required

Table 2: Required Equipment Not Supplied (Continued)

Description	Quantity
Pressure test fitting assembly (44A6104)	1
3/8 diameter x 16 long rod or pipe	1
½ -13 threaded eyebolt	2

3.0 Installation



WARNING

Electric Shock

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

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.
- 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 these warnings may result in serious injury or equipment damage.

This section provides instructions for installing the IUL in-pavement lights. Refer to airport project plans and specifications for the specific installation instructions. The installation shall conform to the applicable sections of the National Electric Code and local codes.

3.1 Overview of Sequence of Work

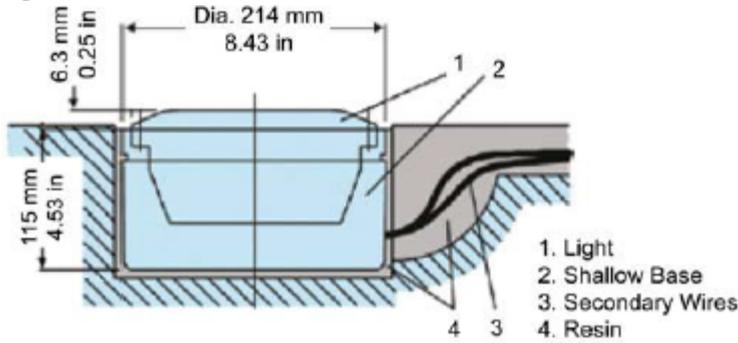
- Electrical contractor locates new light bases and interconnecting conduit trench, and excavates for light base bottom section by saw cutting or core drilling. Electrical contractor prepares subgrade and stone subbase, sets bottom section with rebar, rigid steel conduit stubs, drain, and pours high early strength concrete-encasement excavation. Electrical contractor shall record can locations and elevations of mud plate after concrete-encasement.
- Electrical contractor excavates conduit trench, installs rigid steel and fittings, backfills conduit trench with high early strength concrete.
- General contractor prepares and installs concrete pavement. Electrical contractor makes a pilot core to find mud plate center point indent before final core-drilling.
- Electrical contractor core-drills concrete pavement. Electrical contractor installs top section, y-flange ring, space and lighting fixture, and pours epoxy joint sealer. Provide space for adjustment with spacers, maximum number of spacers shall be 3.
- See specific details as shown in FAA AC 150/5340-30 (current edition).

3.2 Installation Overview

On a shallow base.

The 8" dia. base is secured in the pavement by means of resin. Correct positioning and leveling are obtained with a jig with sighting telescope. Wires between the light and the series transformer are installed either in saw cuts in the pavement filled with resin or in pipes in the lower concrete layers. Mounting on existing or new, larger diameter bases, is made possible by means of dedicated adapter rings.

Figure 4: Installation on 8" shallow base



On a FAA L-868B size B steel base.

The 8" dia. light is mounted in an 8" to 12" dia. snow plow or adapter ring bolted onto the base. The 12" fixture is directly mounted without a separate ring. The bases are interconnected by means of conduits protecting the cables. See FAA AC 150/5340-30 for additional design guidance on deep base cans. The series transformer is installed under the light or in a separate pit. See data sheet A.05.120 or DS2012 for more information on base cans.

3.3 INTEROPERABILITY

Top cover versions

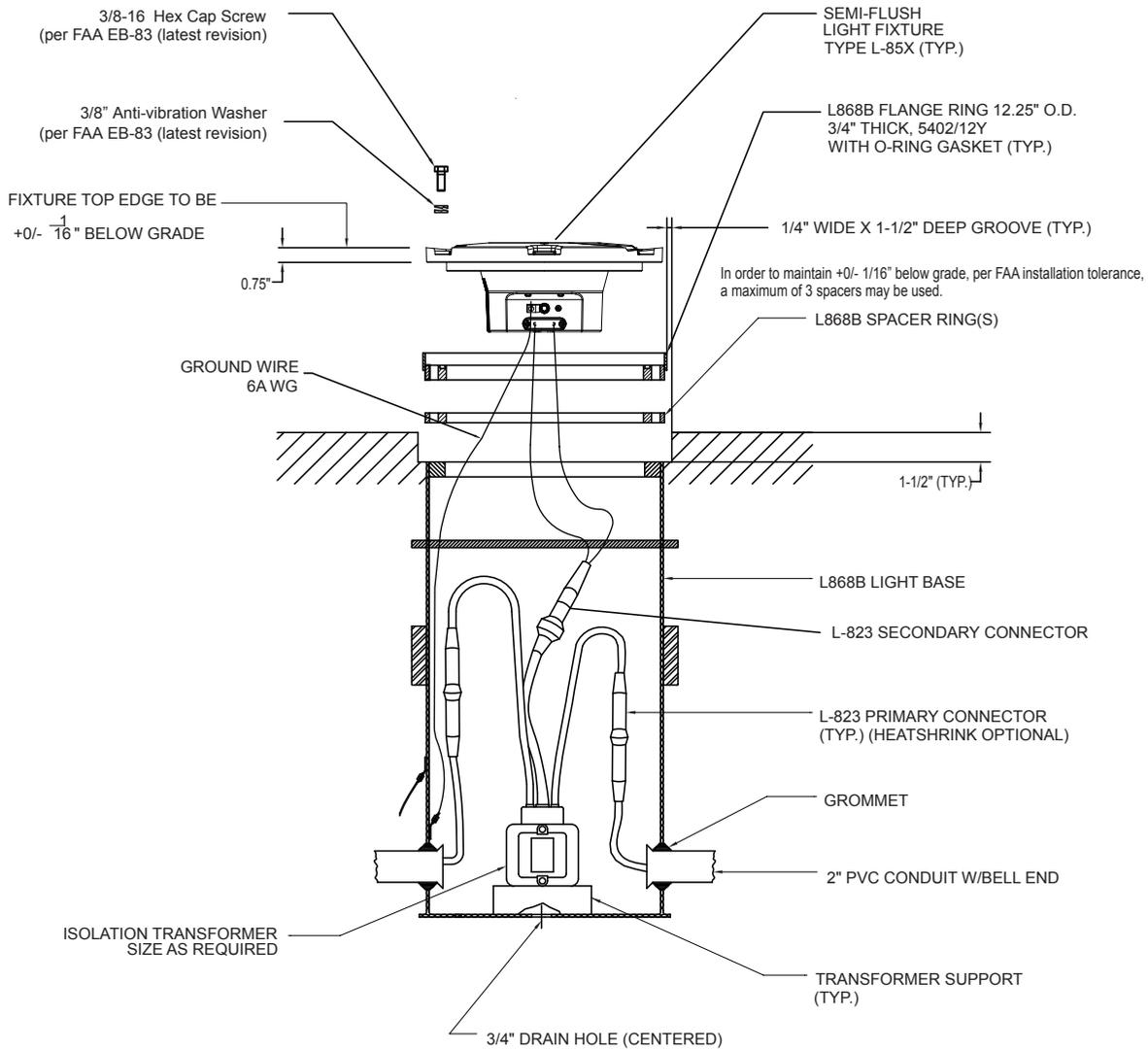


Note

Please check interoperability matrix for information on torque values and compatibility towards different bases.

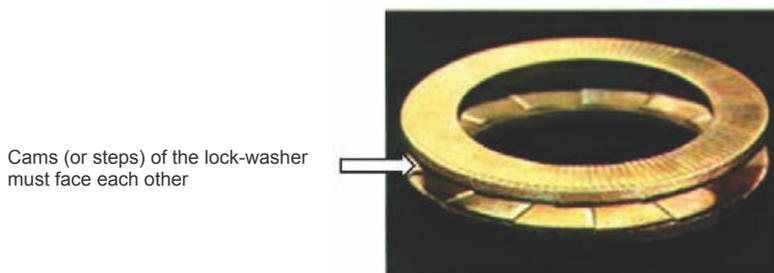
3.4 Typical L-868 Assembly

Figure 5: Diagram of the Fixture Installed in a 1-Piece Base Can



1. Torque according to: FAA EB-83 (latest revision).

Figure 6: Anti-vibration washer example





CAUTION

Per FAA AC 150/5340-30, Chapter 10, and FAA Engineering Brief No 83 (latest revision), it is extremely important that other types of washers, such as split washers, must not be used. Failure to use properly installed anti-vibration lock washers will cause mounting bolts to become loose. The cams (or steps) of each half of the lock washer must face each other.

3.5 Safety Considerations

Read the installation section of all system component manuals before starting these steps. A thorough understanding of system components and their requirements will promote safe and efficient installation. See FAA AC 150/5340-30, Design and Installation Details for Airport Visual Aids, and site plans and specifications for field installation of runway and taxiway in-pavement lights.



DANGER

Failure to follow these safety procedures can result in personal injury or death.

- Allow only qualified personnel to install ADB SAFEGATE and auxiliary equipment. Use only approved equipment. Using unapproved equipment in an approved system may void FAA approvals. Observe and follow the safety instructions in this document and all other related documentation.
 - Make sure all equipment is rated and approved for the environment where it is being used.
 - Follow all instructions for installing components and accessories.
 - Install all electrical connections in compliance with local and national codes and regulations.
 - Use only electrical wire of sufficient gauge and insulation to handle the rated current demand. All wiring must meet local and national codes.
 - Route electrical wiring along a protected path. Make sure it will not be damaged by moving equipment.
 - Protect components from damage, wear and harsh environmental conditions.
 - Allow ample clearance 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, reinstall them immediately after the work is completed and check them for proper functioning.
 - The cord set must be protected prior to installation.
-

3.6 Photobiological safety



CAUTION

Photobiological safety conforming with IEC 62471

RISK GROUP 0 or 1: Optical radiation emitted from LED lights may be harmful to the eyes. Do not stare with at the light source with bare eyes at a fixture operating at high intensity. Use protection goggles or similar protection method.

Goggles with a transmission factor not higher than 5% in the 400-530 nm band have been tested and provide adequate protection.

3.7 Verify Input Requirements and Equipment Needed

The In-pavement light fixture is designed for connection to a 6.6A or 20A series lighting circuit via an L-830 (60 Hz) or L-831 (50 Hz) isolation transformer.

Make sure you have the necessary tools and materials ready for installation (not supplied). Also consider other tools that might be needed based on site-specific conditions.

Table 3: Suggested Tools and Materials for Installation and Repair

Qty.	Description	Qty.	Description
1	Torque wrench	1	Set of screwdrivers, one with 3/8" (9.525mm) minimum blade width
1	Alignment jig		
1	Diamond-faced core drill	As needed	Silicone grease
1	Diamond-faced saw, 3/8" (9.525mm) thick	As needed	Joint sealing filler
1	Crimping tool	1	Pressure test fitting assembly
1	Small water suction pump	As needed	Dow Corning Molykote® 3452 or equal (P/N 67A0095) - used on top cover prism seal
2	Eyebolts, 3/8 inch (9.525mm) diameter		
1	Lifting rod, 16 inches (406mm) long	As needed	Novagard® Silicone Versilube® G322L™ (P/N 67A0009) - used on O-ring between top cover and inner pan assembly; also may be applied to four nipples of inner pan assembly to install optical assembly
1 or 2	L-830 / L-831 isolation transformer		
1	Set of fiber brushes		
1	Set of socket wrenches, 1/2" (12.7mm) drive		

3.8 Input Requirement

The IUL light fixture requires a 95-264V input lighting circuit.



WARNING

The light fixture is supplied with a molded FAA L-823 2-pin plug on the end of the Power Cordset. Removing the plug will allow water to wick back into the fixture. Removal of the L-823 plug supplied with the fixture voids the warranty.

Install a FAA L-823, secondary connector kit to the field circuit leads to maintain a water tight seal. See parts list for full description and part number of the kit and see [Figure 5](#) for installation of the field receptacle kit.



WARNING

In-pavement light must be grounded. Use grounding lug provided on in - pavement light, Ref [Figure 12](#). Ground the fixture per local codes.



Note

Black wire (power) has a brown piece of heat shrink for European installations. The White wire (neutral) has a piece of blue heat shrink for European installations.

3.9 Unpacking the Unit

To reduce the possibility of damaging the light assembly, unpack the RELIANCE light fixtures at the installation site. If damage to any equipment is noted, file a claim form with the carrier immediately.

When receiving the light fixture, open the box and verify that the characteristics of the light fixture correspond to the design requirements, such as type, color etc. When installing an IQ0 light fixture where the function is to be activated at a later stage, make sure to register product information, such as PID/SN and position of the light fixture in, for example, a site documentation table. The information is required for remote activation and administration of IQ functionality from a substation.

3.10 Inspect on delivery

1. Inspect all packings for visible damage.
2. Open every damaged box and inspect the contents for damage.
3. Immediately fill a claim form with the carrier if any fixture is damaged.
4. Store the fixture in its original packing in a protected area.



Note

If damage to any equipment is noted, file a claim form with the carrier immediately.



WARNING

Do not damage the cable insulation.



CAUTION

Do not unpack the fixture before it is at the installation site to avoid damage due to transportation and handling.

3.11 Store

Store the fixture in its original packing in a protected area. Indoor storage:

- Storage temperature: 14°F to 122°F (-10°C to +50°C).
- Humidity: <95% non condensing.

For long storage periods (longer than one year), we recommend to energize the LED lights once a year at nominal intensity (6.6 Amps) for 20 minutes.

3.12 Installation on L-868 Base

The light assembly is shipped complete, and is ready for installation.

To install the fixture on an L-868 base, see FAA AC 150/5345-30 and the project site-specific plans and specifications for details on L-868 base installation.



Note

Mounting bolts are not supplied with the fixture. Mounting bolts and anti-rotation lock washers are normally supplied with the base can spacer or flange ring. If a flange ring is used, the bolt length is 1-1/4 inch (32mm) plus the thickness of the flange ring.

Also read the following guidelines:

1. Clean the base receptacle. Make sure the base receptacle is completely clean and dry. The mating surfaces must be clean and free of foreign particles.
2. If, present, fit an appropriate lifting tool into the two threaded holes, which are located 180° apart in the cover.



The lifting tool can be made from two 1/2 x 13 eyebolts (1-inch ID) and a 1/2-inch diameter, 16-inch (406mm) long rod or pipe inserted through the eyebolts.



CAUTION

Never hold the light fixture by the wires. Doing so may damage the insulation, break the waterproof seal and cause insulation faults and water leakage.

3. Carry the light assembly to the base.
4. Place the light assembly next to the opening in the L-868 base so that the L-823 connector can be connected with the mating receptacle from the L-830 or L-831 isolation transformer in the base. Make sure that the connection is solid and secure. Refer to the Electrical Supply section of the User manual for required isolation transformers.
5. Make sure items such as spacers, shims and gaskets are installed on the light base as indicated on site plans, specifications and drawings.
6. Position the light assembly over the L-868 base and set it onto the base. Align the light according to FAA AC 150/5345-30 and project plans and specifications. Remove the eyebolts and lifting rod.



CAUTION

Ensure that the cord set wires are NOT pinched between the base can and the fixture. Pinched wires can cause water to be drawn inside the fixture.

7. If present, lubricate the labyrinth gasket with water. soap may be added to the water (8" only).



CAUTION

Do not use silicon or any other type of grease. Avoid the use of soap that contains silicon or glycerin.

8. Attach the six fixing bolts and anti-vibration washers. [See FAA EB-83 (latest revision)]



CAUTION

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 revision).

9. Turn on the power to determine whether the fixture will illuminate. Operate for a minimum of five minutes.

3.13 Torquing and Installation Guidance for In-pavement Fixtures

In-pavement fixtures must be installed according to the plans and specifications; the applicable regulatory guidance; and the following guidance. The importance of using the proper fixture clamping components and bolt torque to minimize the risk for fixture failure or loosening of clamping components cannot be overemphasized. Refer to FAA Engineering Brief No 83 (latest revision) for torque and installation guidelines for this fixture.

Also see our Product Center at www.adbsafegate.com.



CAUTION

Read installation instructions in their entirety before starting installation.

- Failure to follow the installation guidance could result in bolt loosening or bolts breaking off, resulting in catastrophic failure of the fixture and/or the mounting system components.
- Failure to follow these warnings may result in serious injury or equipment damage.

3.14 Shallow base can installation

Shallow base cans may be non-load bearing or load bearing depending on location or fixture application. Following are specific requirements to insure that an either an elevated or an in-pavement fixture is properly installed.



CAUTION

Read installation instructions in their entirety before starting installation.

Fasteners:

- Make sure the power is OFF when you install or remove any fixture.
- Only use fasteners of the same type as the one originally supplied with the mounting support. See Base O-ring and Bolt Selection.
- Always tighten the fasteners to the recommended torque. Use a calibrated torque wrench and apply the recommended adhesive type.
- If this is not the case, this may cause the fasteners to loosen, damage the fixture, potentially to loosen the fixture. This can lead to a highly dangerous situation of FOD, with potential lethal consequences.
- Obey the instructions of the adhesives necessary for the fasteners.
- Only install the fixture on mounting supports:
 - That ADB Safegate has approved;
 - That are installed according to the Instruction Manual of the mounting support.
- Failure to do so can result in a highly dangerous situation of FOD, with potential lethal consequences.

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



CAUTION

Proper Operation:

- The fixture is supplied from a 6.6 A series circuit;
 - The series circuit is powered by a Constant Current Regulator that complies with IEC 61822;
 - The transformer is an AGL series transformer that complies with IEC 61823.
 - The power of the series transformer shall not exceed 200 W, for versions with the monitoring option.
 - The mounting support is correctly earthed. Failure to do so will void the warranty for all damages that occur as a result of voltage surges.
 - Never hold the fixture by the cable leads. This can damage the insulation, break the waterproof seal and cause insulation faults and water leakage.
-



Note

See the Instruction Manual of the mounting support for instructions on how to earth the mounting support.

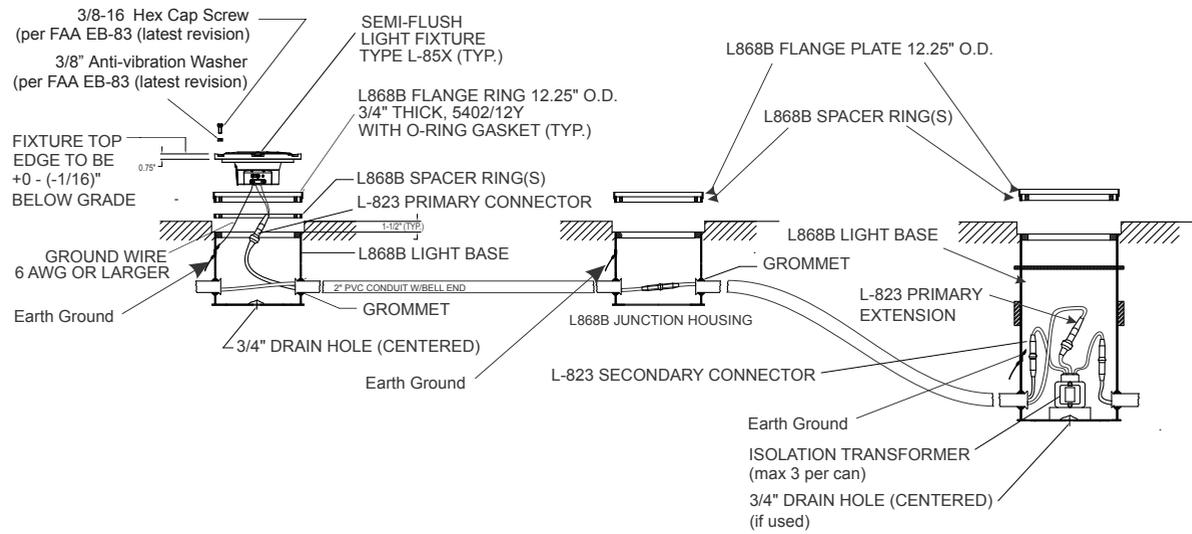
3.14.1 Installation on a Shallow Base

Installing the light fixture on a shallow base involves preparing the pavement recess and wireways, then installing the light fixture on a shallow base.

See FAA AC 150/5345-30 and the project site-specific plans and specifications for details on shallow base installation.

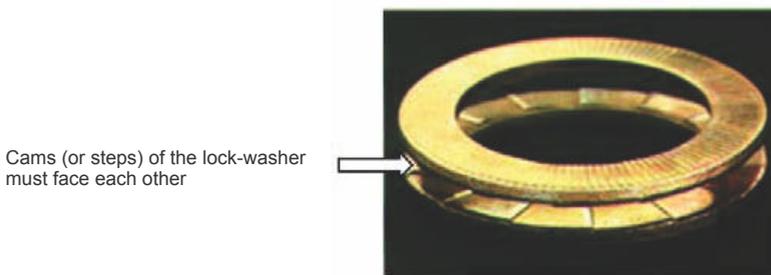
Also follow the applicable instructions in the previous section, when connecting, installing and powering the fixture.

Figure 7: Example of a Shallow Base Installation



1. Torque according to: FAA EB-83 (latest revision).

Figure 8: Anti-vibration washer example



CAUTION

Per FAA AC 150/5340-30, Chapter 10, and FAA Engineering Brief No 83 (latest revision), it is extremely important that other types of washers, such as split washers, must not be used. Failure to use properly installed anti-vibration lock washers will cause mounting bolts to become loose. The cams (or steps) of each half of the lock washer must face each other.

4.0 Maintenance

This section provides maintenance information and procedures for the IUL light fixtures.

4.1 Maintenance Schedule

Service life depends upon the entire assembly being waterproof. All surfaces must be clean, dry and free of all foreign matter and all bolts must be properly tightened if the light fixture is to operate for extended periods without requiring maintenance.

To keep the IUL light fixtures operating efficiently, follow a preventive maintenance schedule. Refer to [Table 4](#). Refer to FAA AC 150/5340-26 for more detailed information on maintenance.

Table 4: IUL Light Fixture Maintenance

Interval	Check	Action
Daily	Low light output	Clean outer surface of prism lens if dirty. Refer to <i>Cleaning Prism Lens</i> this section. Check for presence of moisture inside fixture.
Monthly (or more frequently during rainy seasons)	For presence of moisture or water (visual inspection for condensation on inner side of prism lens and on LED)	Open up light assembly. Clean, dry, and inspect light assembly. Replace cover/inner cover gasket and other parts found defective. Replace LED assembly if LED does not light or dirt can not be removed. Refer to <i>Replacing LED Assembly</i> in the <i>Repair</i> section.
Bimonthly	Torque hold-down bolts	Torque six bolts holding fixture to base. Refer to <i>Torquing Mounting Bolts</i> in this section or in the installation section.
Semi-annually (or more frequently during rainy seasons)	For six inches (152 mm) of water in the L-868B base	Pump water from base. Inspect light for water damage. Refer to <i>Removing water from L-867 or L-868 Base</i> in this section.
After snow removal	For damaged light fixtures	Replace damaged fixtures. Use a power broom for snow removal, if practical.

4.2 Maintenance Procedures

This subsection describes the following maintenance procedures:

- cleaning light prism lens
- torquing mounting bolts
- removing water from L-867 or L-868 base
- lifting light unit off of light base
- testing for leaks

4.2.1 Cleaning Lens

To clean the lens, perform the following procedure:

1. Clean the outer surface of the prism lens (3) using liquid glass cleaner. If the prism lens is coated with a substance impervious to the cleaner, apply a suitable solvent sparingly with a wad of cotton or a patch of cloth.
2. After the solvent has acted, remove the softened coating with a clean piece of cotton or cloth.
3. Dry the prism lens gently with dry, oil-free compressed air at a pressure no greater than 10 psi (69 Knt/m²) to evaporate or remove all remaining cleaner.

4.2.2 Lifting Light Unit From Base

To lift the light unit from the light base, perform the following procedure:

1. Remove all mounting bolts and lockwashers.
2. See [Figure 5](#). Screw two 1/2-13 threaded eyebolts into the two 1/2-13 tapped holes found in mounting bolt holes. Align the eyebolts and then slip a 3/8 dia x 16 inch long rod or pipe through the eyes and lift the light assembly off of the light base.



Note

Check for and remove any P606 or other compound from the outside diameter of the in - pavement light top cover that would prevent removal of the light assembly from the light base.

3. Disconnect the light fixture wires from the power wires coming from the transformer(s).
4. Mount a serviced or new light fixture as described in [Overview of Sequence of Work](#).



Note

see “ [Bolt Torque Preventive Maintenance Schedule](#)”.

5. Take the in-pavement fixture unit back to the maintenance base where it can be serviced entirely.



Note

Never hold the light fixture by the power lead wire. This may damage the insulation, break the waterproof seal, and cause insulation faults and water leakage.

4.2.3 Testing for Leaks

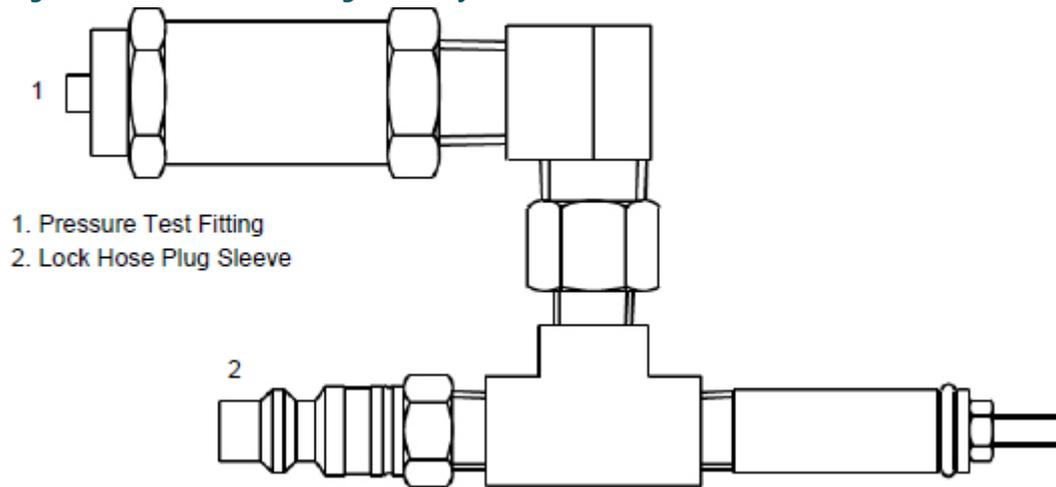
To test for leaks, perform the following procedure:

1. See [Figure 9](#).
Remove pressure relief screw.
2. See [Figure 10](#).
Screw pressure test fitting into the pressure relief port (the opening created when the pressure relief screw is removed).
Screw fitting hand-tight.

Figure 9: Pressure Relief Screw



Figure 10: Pressure Test Fitting Assembly



- 1. Pressure Test Fitting
- 2. Lock Hose Plug Sleeve

3. Attach the shop airline to the lock hose plug sleeve (2).
 4. Pressurize to 20 psi.
 5. Submerge the pressure test fitting in a water tank.
Check for air bubbles. Air bubbles indicate a leak.
 6. Locate the leak source, depressurize, replace the seal that is leaking, reassemble, and retest by following steps 4 and 5.
If leak is fixed, depressurize and reinstall the pressure release screw (1).
- Go to [Overview of Sequence of Work](#) to finish.

4.3 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.

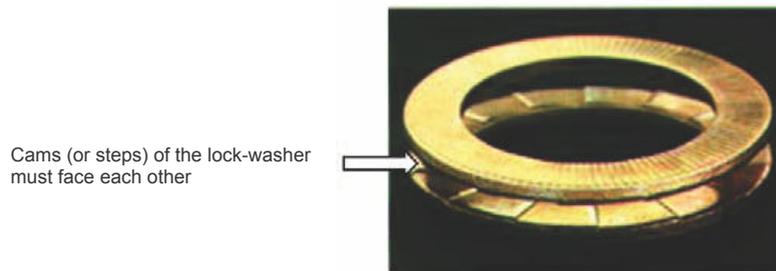
Failure to follow these cautions can result in equipment damage or aircraft FOD.

4.4 Bolt Torque Preventive Maintenance Schedule

An established schedule for checking light fixture bolt torque and bolt condition is mandatory. This is particularly true for areas that are subject to high impact loads from aircraft such as runway status lights, runway touchdown zone lights, runway centerline lights, and taxiway lead-off lights. Although AC 150/5340-26 offers a recommended schedule for periodic checks, these checks should be tailored to the facility based on local conditions such as environmental issues and runway traffic load.

1. Torque according to: FAA Engineering Brief No 83 (latest revision).

Figure 11: Anti-vibration washer example



CAUTION

Per FAA AC 150/5340-30, Chapter 10, and FAA Engineering Brief No 83 (latest revision), it is extremely important that other types of washers, such as split washers, must not be used. Failure to use properly installed anti-vibration lock washers will cause mounting bolts to become loose. The cams (or steps) of each half of the lock washer must face each other.

FAA Cert Alert No. 14-03 refers to AC 150/5340-26 for the frequency of checking bolt torque. AC 150/5340-26 (latest revision) paragraph 5.3.4.1.4, *Bi-Monthly Checks* states: *"The torque of the bolts attaching the light fixture to its base should be checked with a calibrated torque wrench – never use an impact wrench."*

Regular inspection as outlined in FAA Engineering Brief 83 (latest edition), Canada Civil Aviation Safety Alert Document CASA 2014-05, and any other applicable regulatory guidelines is critical in insuring torque on all bolts is restored to optimum values. Bolts that loosen more often should be inspected and re-torqued on a more frequent basis.

It is especially important to maintain a regular inspection schedule for LED fixtures. Since LED fixtures operate more reliably and are not subject to removal/replacement/re-torque as frequently as would be seen with incandescent fixtures, it is even more important to implement regular torque inspections.

It is critical that remedial action be taken if bolts are found to be loose or missing during inspection. If this occurs, it is important to carefully inspect all structural elements of the mounting system as defined in Installation. Also inspect the base can for general structural conditions such as:

- Is the base can solidly mounted in the pavement, and not moving or rocking during rollovers?
- If a base can extension is present, are all extension attachment bolts tight?

If poor base can structure or mounting system components are not in accordance with regulatory requirements or are in poor condition, it is the airport's responsibility to:

- Increase the frequency of bolt torque inspection to insure that no bolts become loose or missing.
- Quickly replace/repair the mounting system components, which may include replacing the entire base can.

Airport operators must also ensure these maintenance activities are properly documented.

Digital Asset Tracking and Service Application Information

ALIS is ADB SAFEGATE's new digital asset tracking, inspection and service solution, helps airports easily register airside assets, electronically schedule and track maintenance, and record maintenance and inspection tasks in compliance with ICAO and FAA standards.

Easy to implement and use, cloud-based software enables a more reliable and fail-safe approach to asset tracking and maintenance by always using live field data and eliminating inefficiencies caused by human error. Every asset is registered using GPS data and its status recorded, so airport maintenance teams get a clearer view of maintenance schedules and history, allowing them to manage resources more effectively as well as improve the safety and longevity of airside assets. This increased visibility helps airports plan and schedule preventive maintenance, or undertake corrective maintenance more quickly, to reduce downtime and significantly improve operational availability.

<https://adbsafegate.com/product-center/airfield/airside-services/ALIS-airside-maintenance>

- Easily integrates electronic torque measurements and photometric measurement reports to provide a complete view of the asset's status.
- ALIS can be integrated with the AirTorque or Ingersoll Rand® QX series wrenches, which are used for accurate, ergonomic torque inspections of AGL fixtures. The applied torque can seamlessly be registered in the ALIS system as a part of the maintenance record.
- The iPhone application of ALIS – ALIS Personal – makes it easier than ever to register maintenance actions while working. It will proactively show you which assets you still need to work on and select the closest one to you automatically. ALIS Personal acts as a feedback and information device for the associated torque wrench.

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 regulator so that the circuit cannot be energized by remote means before attempting to service the fixture.

5.1 Introduction

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.

5.2 Troubleshooting Procedures

Troubleshooting procedures for the IUL In-pavement lights are contained here.

Problem	Possible Cause	Corrective Action
1. LED not energizing	LED defective	Replace Optical LED assembly. Refer to " Replacing LED Assembly ".
	Loose LED Power Cordset	Replace Optical assembly
	IUL PCB defective	Replace the PCB power supply assembly
	IUL Control Transformer	Replace transformer
	Moisture inside assembly causing current leakage	Open up light assembly. Clean, dry, and inspect light assembly. Replace O-ring.
	No connection to the field circuit.	Check connection between the assembly Power Cordset and the field circuit connector kit
2. Weak light output	Partial short circuit in primary loop	Check cable assembly.
	Defective IUL transformer	Replace transformer
	Dirty prism lens	Clean prism lens. Refer to " Cleaning Lens ".
3. Light beam distorted	Broken or damaged lens /cover	Replace lens or entire fixture. Refer to " Replacing Prism Lens and Gasket ".
4. Short LED life	Current too high	Check output current of isolation transformer at full brightness. Replace LED transformer if defective.
	Moisture in lighting fixture	<ol style="list-style-type: none"> 1. Open light assembly. Refer to "Opening Light Assembly". 2. Check for cause of leakage (dirty or damaged o-ring seal mating surfaces, defective lens seals, cracked or broken lens, loose screws or damaged wire insulation). 3. Clean, dry, inspect, or replace damaged components.

6.0 Repair

This section describes procedures for repairing and replacing parts. It includes opening the light assembly, LED assembly, and prism lens and prism lens gasket. It also describes how to close the light assembly.

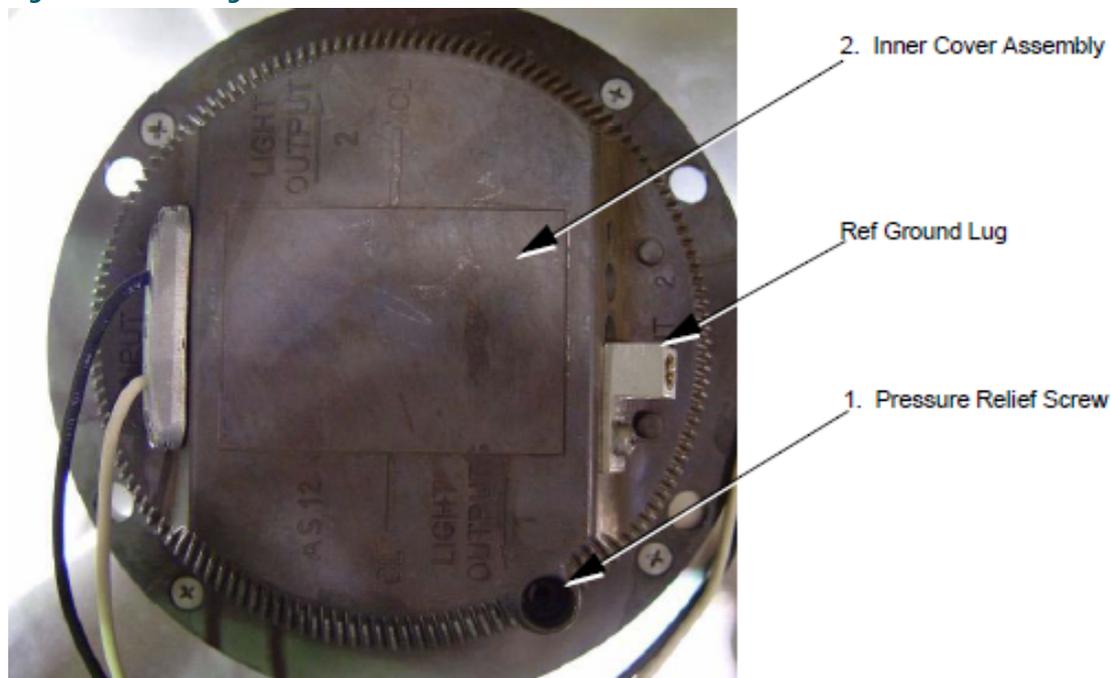
Note If the power cordset needs servicing, contact the ADB Safegate Sales department.

6.1 Opening Light Assembly

To open the light assembly, perform the following procedure:

1. Turn the light unit upside-down and place the assembly onto a surface that will not damage the prism lens.
2. See [Figure 12](#). Remove the pressure release screw (2). This relieves any built-up internal pressure and makes it easier to remove the inner cover.

Figure 12: Removing Pressure Release Screw



3. Remove the four Phillips Cover head screws that fasten the inner cover to the top cover.
The use of an impact driver may be required to unlock the screws.
4. Carefully lift off the inner Cover (2) from the cover, taking care not to damage the wire connection between the PCB power supply assembly and the LED assembly.

Note If the inner cover does not separate from the cover assembly easily, use a flat bladed screwdriver to separate it by inserting the screwdriver blade in the pry slots. The pry slot is located on the underside of the top cover flange. See [Figure 14](#).

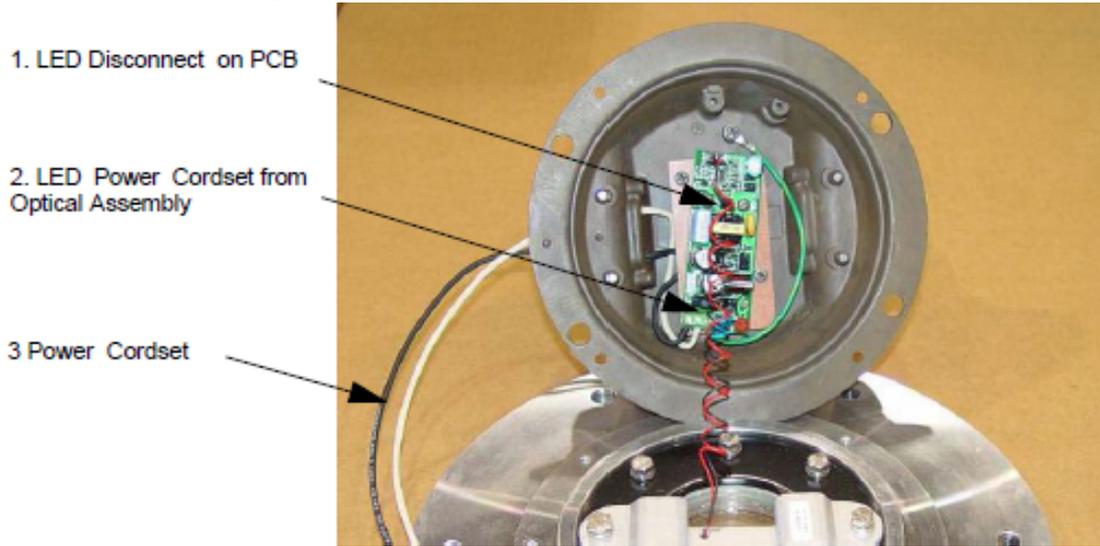


WARNING

Be careful. Do not pull on the LED lead cable when you lift the inner Cover. This might damage the connection!

5. See [Figure 13](#). Disconnect the LED Optical Assembly from the PCB power supply assembly by pulling on the quick disconnect on the PCB. See [Figure 13](#). If necessary use a small flat screwdriver to separate the quick disconnect from the terminal on the PCB.

Figure 13: Disconnecting LED Optical Assembly



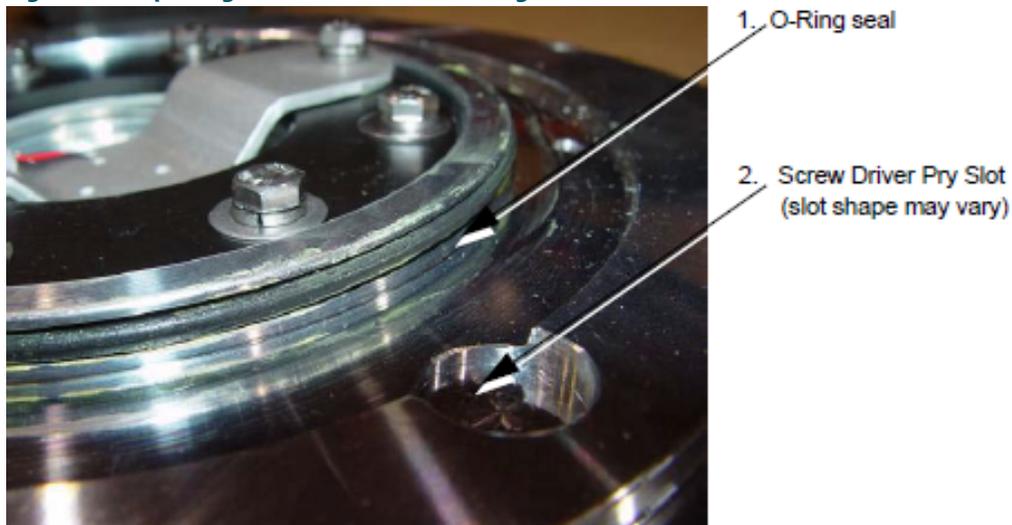
6. Remove the inner Cover from the cover.



Note

See [Figure 14](#). Always replace the inner cover O-Ring seal Item 1 whenever the in - pavement fixture is opened.

Figure 14: Replacing Cover/Inner Cover O-ring Seal



6.2 Replacing LED Assembly



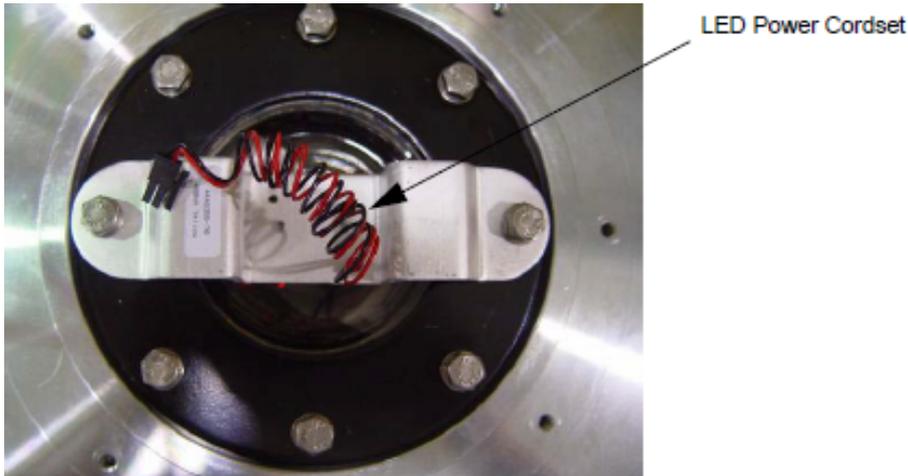
WARNING

Turn off the circuit before replacing LEDs. Failure to observe this warning may result in personal injury, death, or equipment damage.

To replace the LED assembly perform the following procedure:

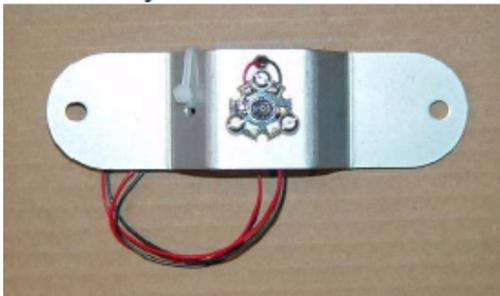
1. Open the light assembly. Refer to “ [Opening Light Assembly](#)”.
2. See [Figure 15](#). Unscrew the two M6 hex head screws that fasten the LED Optical Assembly bracket to the top cover.

Figure 15: Led Assembly



3. Disconnect the LED Power Cordset from the PCB power supply assembly and remove and discard the existing LED Optical Assembly. See [Figure 13](#).
4. Install the new LED Optical Assembly (purchased as a complete assembly) See [Figure 16](#).and torque screws to 75 +/- 5 In-lbs. Re-connect the LED lead to the terminal on the PCB power supply assembly.

Figure 16: LED Optical Assembly



5. Re-install the inner cover assembly to the top cover using the 4 Phillips flat head screws. Apply a droplet of Loctite 222 to the last threads. Torque screws to 75 +/- 5 In-lbs.

6.3 Replacing Prism Lens and Gasket

To replace the lens and lens gasket, perform the following procedure:

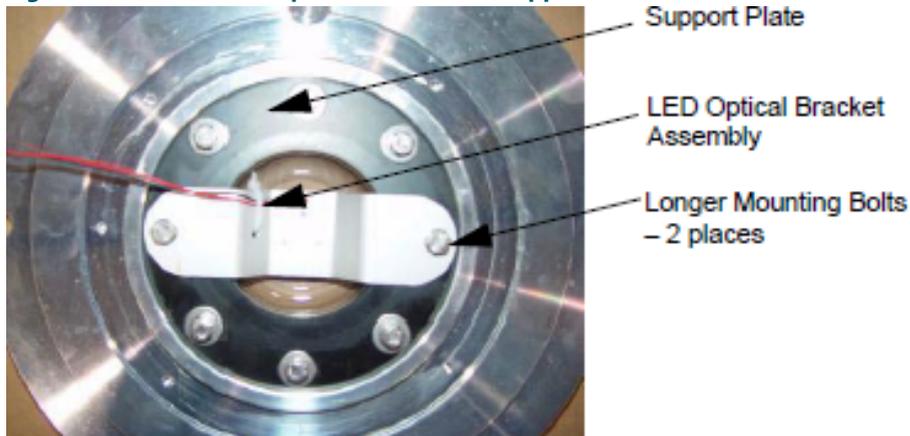
1. Open the light assembly. Refer to “ [Opening Light Assembly](#)”.
2. See [Figure 17](#). Unscrew the eight M6 metric Hex Head Cap Screws and then remove the LED bracket and the lens support plate.



Note

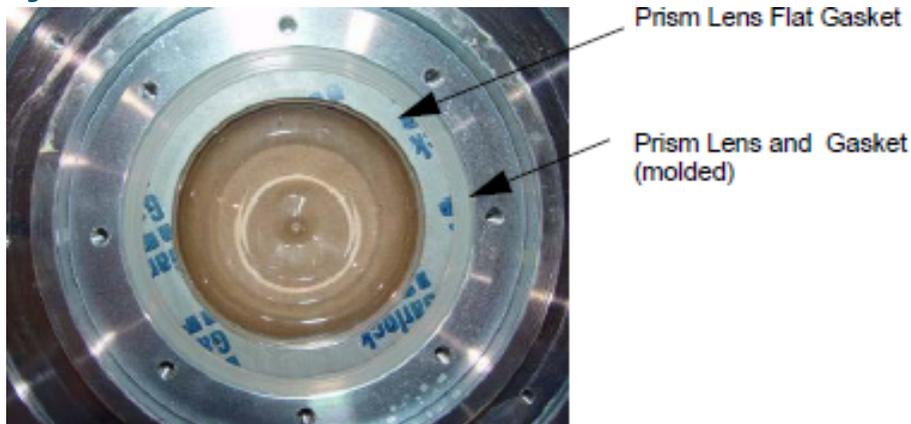
The two M6 Hex Cap Screws used to mount the optical assembly bracket to the top cover are longer than the other mounting screws used to attach the support plate. See [Figure 24.](#) and [Figure 25.](#)

Figure 17: Remove LED Optical Bracket and Support Plate



3. See [Figure 18.](#) Remove the prism lens flat gasket.

Figure 18: Remove Flat Gasket



4. Turn the top cover over and push the prism lens and gasket out of the recessed pocket from the outside of the top cover.



WARNING

Cracked or broken glass is very sharp. Take necessary precautions to protect hands from being cut.

5. If prism lens is cracked, pitted, or damaged discard. Examine the inside of the light fixture and remove any glass shards found in the fixture. Re-checked the prism lens recess and remove any debris.
6. Install a new gasket over the prism lens.
7. Using a small brush, apply a thin layer of lubricant MOLYKOTE BG87 INETRA (Part number 67A0095) in the prism lens recess and then gently push the prism lens gasket assembly into the recess from the inside of the top cover.
8. Install a new the flat gasket on top of the prism lens and gasket. Install the support plate and LED Optical bracket in the reverse order as disassembled. Re-install the 6 hex head screws and finger- tighten them against the support plate.
9. Torque the eight M6 hex head screws across corners to 75 +/- 5 in-lbs.



Note

Be sure to use the two longer M6 Hex Cap screws to fasten the optical bracket to the top cover. See [Figure 17](#).

10. Close the light fixture. Refer to “ [Closing and Testing Light Assembly](#)”.

6.4 Closing and Testing Light Assembly

To close and test the light assembly, perform the following procedure:

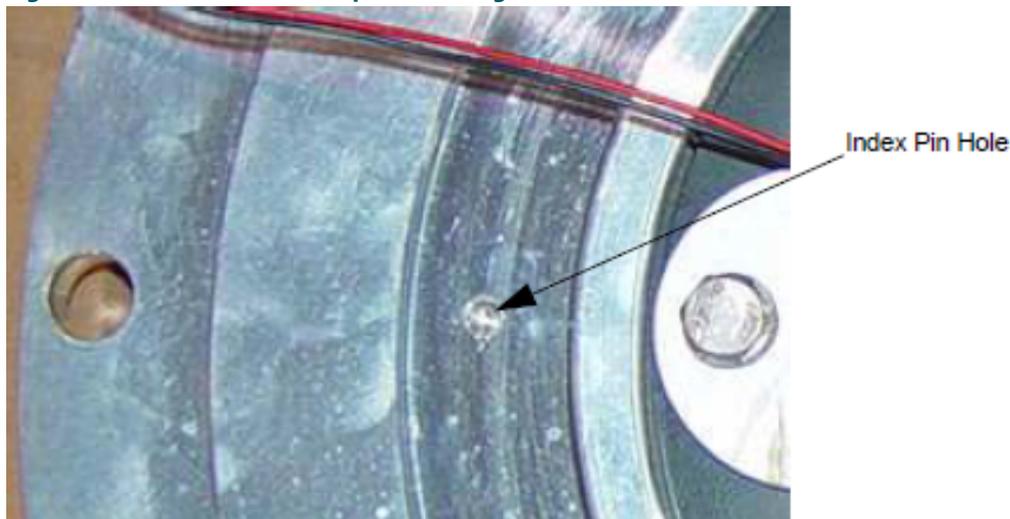


WARNING

Misalignment of the index pin in the inner cover flange and its mating hole in the underside of the top cover will prevent components from being assembled correctly. Damage may also occur to the top cover and inner cover.

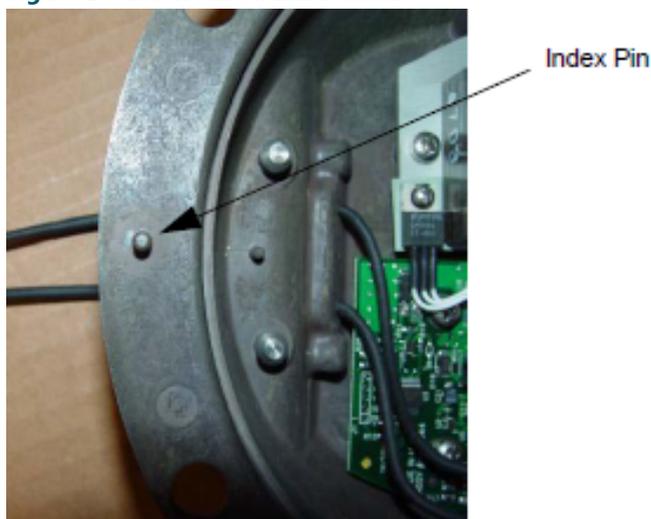
1. See [Figure 19](#). Turn the cover over and find the index pin hole machined underside area of the top cover.

Figure 19: Index Pin Hole in Top Cover Flange



2. See [Figure 20](#). Find index pin molded into the flange of the inner cover.

Figure 20: Index Pin on Inner Cover



3. Gently put the inner cover over the top cover and align the index pin on the inner cover flange with the index pin hole in the flange of the top cover. Make sure that LED Power Cordset does not get damaged when the inner cover is installed on the top cover.

4. Press the inner cover on the top cover and secure with new Phillips flat head screws. Apply a drop of Loctite to the end thread of the screw before insert screw into the tapped hole. Refer to [Bolt Torque Preventive Maintenance Schedule](#).
5. Check the waterproofness of the fixture assembly by applying a maximum of 20 psi of air pressure through the pressure port using the ADB Pressure Test Fitting Assembly. Refer to [Testing for Leaks](#), for test fitting, [Figure 7](#). and detailed testing instructions. After testing is completed remove fixture from the water remove air hose, test fitting, and dry the fixture.
6. Install and tighten the pressure release screw and return fixture to service if no leaks are found. Repair fixture if leaks are found and then retest.

6.5 Testing for Leaks

To test for leaks, perform the following procedure:

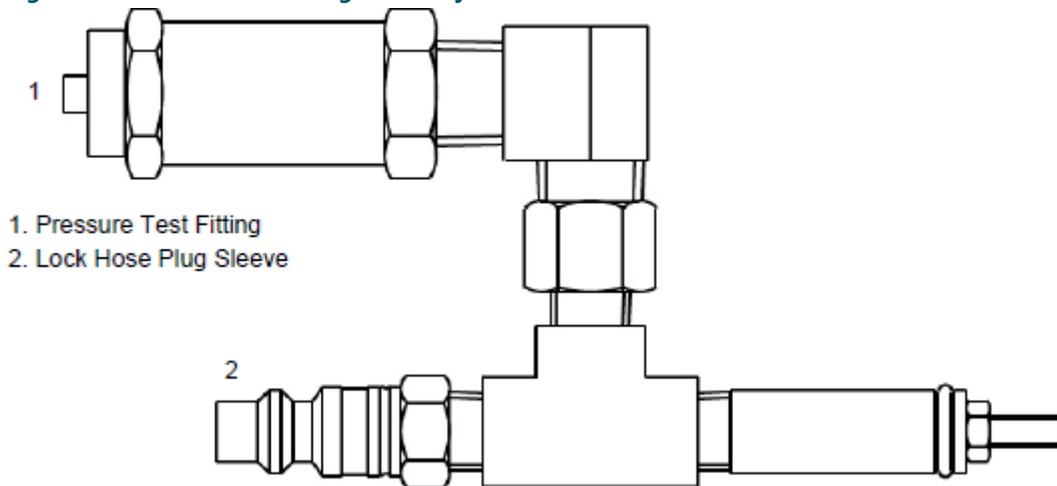
1. See [Figure 21](#).
Remove pressure relief screw.
2. See [Figure 22](#).

Screw pressure test fitting into the pressure relief port (the opening created when the pressure relief screw is removed).
Screw fitting hand-tight.

Figure 21: Pressure Relief Screw



Figure 22: Pressure Test Fitting Assembly



3. Attach the shop airline to the lock hose plug sleeve (2).
4. Pressurize to 20 psi.
5. Submerge the pressure test fitting in a water tank.

Check for air bubbles. Air bubbles indicate a leak.

6. Locate the leak source, depressurize, replace the seal that is leaking, reassemble, and retest by following steps 4 and 5.

If leak is fixed, depressurize and reinstall the pressure release screw (1).

Go to [Overview of Sequence of Work](#) to finish.

7.0 Parts

To order parts, call ADB Safegate Customer Service or your local representative. Use this four-column parts list, and the accompanying illustration, to describe and locate parts correctly.

Ordering Code

LED Color

- 1 = White
- 2 = Yellow
- 3 = Green
- 4 = Blue
- 5 = Red

Mounting

- 1 = 12-inch fixture for L-868 light base
- 2 = 12-inch fixture for L-867 light base
- 3 = 8-inch fixture for 8-inch light base

Light Beam Direction

- 1 = Upward light pattern
- 2 = Omnidirectional light pattern¹

Arctic Option

- 0 = Without arctic option
- 1 = With arctic option²

IUL - X X X X



Notes

Fixture supplied with only L-823 style male connector. To ensure wire entry is waterproof, a secondary connector kit (Part No. 70A0046) is required for installation.

¹ Heliport light pattern

² When powered by a parallel circuit, heater is designed for use at only 120 VAC, ±10%, 50/60 Hz

7.1 IUL Light Fixture Parts

Figure 23: Top Cover without Heater

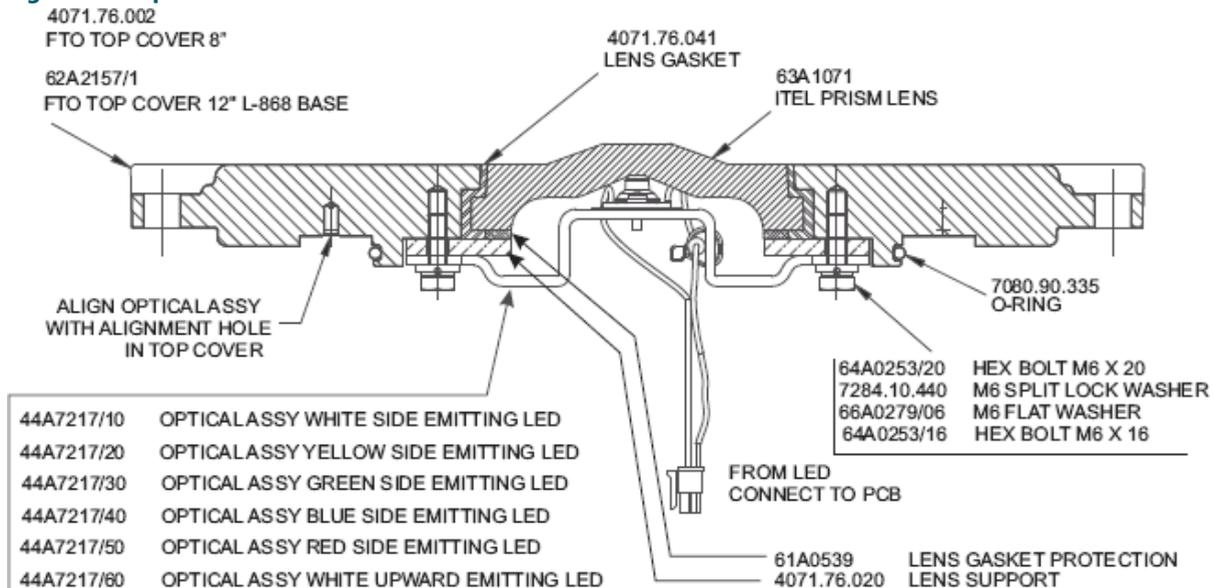


Figure 24: Top Cover with Heater

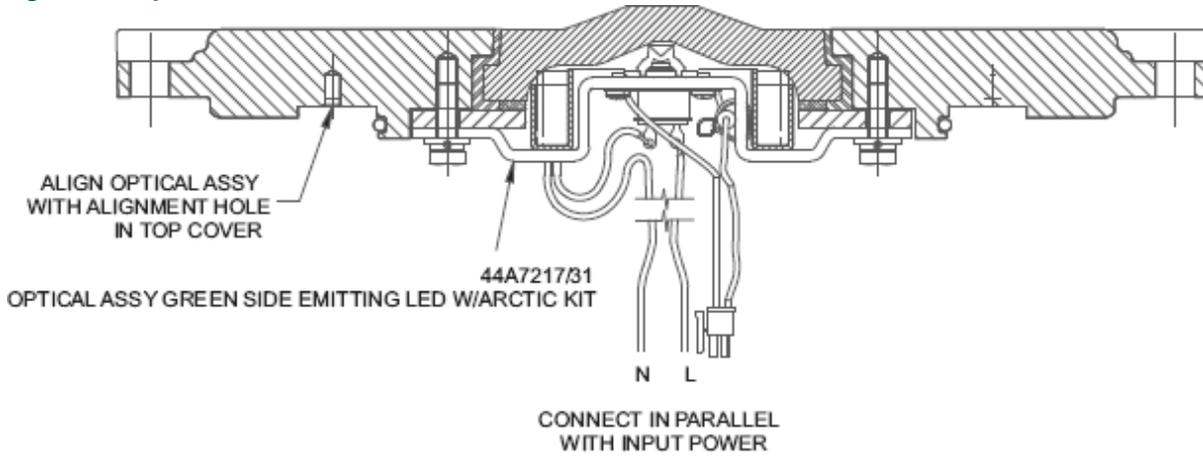
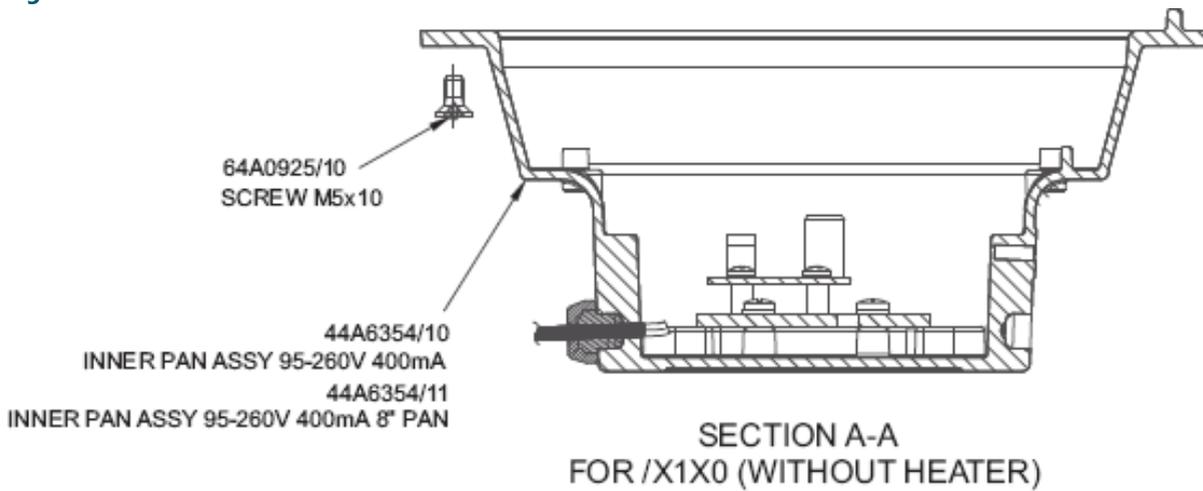


Figure 25: IUL Inner Pan



8-inch Load Bearing Base Can

88ICC05Y

7.2 Spare Components

Description	Part No.
Cord set	73A0136-23
Inner pan assembly, 95-264 V, yellow	44A6354-10
Inner pan assembly, 95-264 V, blue	44A6354-20
Inner pan assembly, 95-264 V, green, white	44A6354-30
LED optical assembly, white, omni-directional light pattern, w/out heater	44A7217-10
LED optical assembly, white, omni-directional light pattern, with heater	44A7217-11
LED optical assembly, yellow, omni-directional light pattern, w/out heater	44A7217-20
LED optical assembly, yellow, omni-directional light pattern, with heater	44A7217-21
LED optical assembly, green, omni-directional light pattern, w/out heater	44A7217-30

Description	Part No.
LED optical assembly, green, omni-directional light pattern, with heater	44A7217-31
LED optical assembly, blue, omni-directional light pattern, w/out heater	44A7217-40
LED optical assembly, blue, omni-directional light pattern, with heater	44A7217-41
LED optical assembly, red, omni-directional light pattern, w/out heater	44A7217-50
LED optical assembly, red, omni-directional light pattern, with heater	44A7217-51
LED optical assembly, white, upward light light pattern, w/out heater	44A7217-60
LED optical assembly, white, upward light pattern, with heater	44A7217-61
Lens gasket, molded	4071.76.041
O-ring, inner cover seal	63A1285
Prism lens	63A1071
Secondary female connector kit	70A0046
Top cover, 8-inch	4071.76.002
Top cover, 12-inch, L-868 11.25" bolt circle	62A2157-1
Top cover, 12-inch, L-867 10.25" bolt circle	62A2157-2

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.

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**

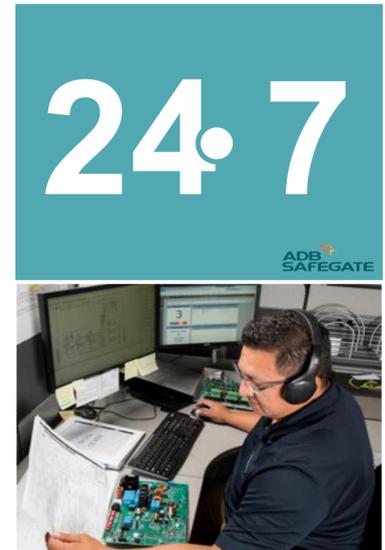
ADB SAFEGATE Americas Technical Service & Support (International): +1-614-861-1304

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, or contact ADB SAFEGATE Support via email at 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, 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 labeled 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.

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