Military Infrared In-pavement Light

User Manual

96A0391, Rev. C, 2020/06/29

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.

ETL certification

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

All Products Guarantee

ADB SAFEGATE will correct by repair or replacement per the applicable guarantee above, at its option, equipment or parts which fail because of mechanical, electrical or physical defects, provided that the goods have been properly handled and stored prior to installation, properly installed and properly operated after installation, and provided further that Buyer gives ADB SAFEGATE written notice of such defects after delivery of the goods to Buyer. Refer to the Safety section for more information on Material Handling Precautions and Storage precautions that must be followed.

ADB SAFEGATE reserves the right to examine goods upon which a claim is made. Said goods must be presented in the same condition as when the defect therein was discovered. ADB SAFEGATE furthers reserves the right to require the return of such goods to establish any claim.

ADB SAFEGATE's obligation under this guarantee is limited to making repair or replacement within a reasonable time after receipt of such written notice and does not include any other costs such as the cost of removal of defective part, installation of repaired product, labor or consequential damages of any kind, the exclusive remedy being to require such new parts to be furnished.

ADB SAFEGATE's liability under no circumstances will exceed the contract price of goods claimed to be defective. Any returns under this guarantee are to be on a transportation charges prepaid basis. For products not manufactured by, but sold by ADB SAFEGATE, warranty is limited to that extended by the original manufacturer. This is ADB SAFEGATE's sole guarantee and warranty with respect to the goods; there are no express warranties or warranties of fitness for any particular purpose or any implied warranties of fitness for any particular purpose or any implied warranties other than those made expressly herein. All such warranties being expressly disclaimed.

Standard Products Guarantee

Products of ADB SAFEGATE manufacture are guaranteed against mechanical, electrical, and physical defects (excluding lamps) which may occur during proper and normal use for a period of two years from the date of ex-works delivery, and are guaranteed to be merchantable and fit for the ordinary purposes for which such products are made.

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.

Liability

WARNING

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

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

Unintended uses, includes the following actions:

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

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1.0 Safety

Introduction to Safety

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

1.1 Safety Messages

HAZARD Icons used in the manual

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

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

	WARNING Failure to observe a warning may result in personal injury, death or equipment damage.
	DANGER - Risk of electrical shock or ARC FLASH Disconnect equipment from line voltage. Failure to observe this warning may result in personal injury, death, or equipment damage. ARC Flash may cause blindness, severe burns or death.
	WARNING - Wear personal protective equipment Failure to observe may result in serious injury.
	WARNING - Do not touch Failure to observe this warning may result in personal injury, death, or equipment damage.
	CAUTION Failure to observe a caution may result in equipment damage.

Qualified Personnel

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

1.1.1 Introduction to Safety

CAUTION

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

- Read installation instructions in their entirety before starting installation.
- Become familiar with the general safety instructions in this section of the manual before installing, operating, maintaining or repairing this equipment.
- Read and carefully follow the instructions throughout this manual for performing specific tasks and working with specific equipment.
- Make this manual available to personnel installing, operating, maintaining or repairing this equipment.
- Follow all applicable safety procedures required by your company, industry standards and government or other regulatory agencies.
- Install all electrical connections to local code.
- Use only electrical wire of sufficient gauge and insulation to handle the rated current demand. All wiring must meet local codes.
- Route electrical wiring along a protected path. Make sure they will not be damaged by moving equipment.
- Protect components from damage, wear, and harsh environment conditions.
- Allow ample room for maintenance, panel accessibility, and cover removal.
- Protect equipment with safety devices as specified by applicable safety regulations
- If safety devices must be removed for installation, install them immediately after the work is completed and check them for proper functioning prior to returning power to the circuit.

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

Additional Reference Materials

Important Information

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

1.1.2 Intended Use

CAUTION

Use this equipment as intended by the manufacturer
This equipment is designed to perform a specific function, do not use this equipment for other purposes

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

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

1.1.3 Material Handling Precautions: Storage

CAUTION

Improper Storage
Store this equipment properly

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

Failure to follow this instruction can result in equipment damage

1.1.4 Material Handling Precautions: Fasteners

DANGER

Foreign Object Damage - FOD
This equipment may contain fasteners that may come loose - torque properly.

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

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

Note

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

CAUTION

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

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

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

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

1.1.5 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

1.1.6 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

1.1.7 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 Introduction

This section describes the ADB Safegate Infrared runway inset light fixture.

Uses

- Covert Landing Zone
- AMP 1 and 3 Configurations (Per Air Force Engineering
  - Technical Letter 07-XX: C-130 and C-17 Landing Zone
  - Dimensional, Marking, and Lighting Criteria)

Features

- Designed and built with simplicity and ease of maintenance in mind
- Light channel in front of prism windows protects prisms from damage and prevents rubber buildup thereby maintaining optimal light output
- Low-energy/long-life halogen lamps are 48W with a rated life of 1,500 hours at 6.6A and in excess of 6,000 hours in practical use
- Low-temperature lights. Temperature rise at center of top cover remains below the FAA- specified limit of 320°F (160°C).
- Fixtures uses aluminum alloy cover and inner cover, stainless steel hardware, and aluminum alloy and stainless steel optical assembly

Packaging

- In cardboard box: 7 x 13 x 13 in (17.8 x 33 x 33 cm)
- Weight with packing: 15.3 lb (6.94 kg)
- Weight without packing: 12.3 lb (5.58 kg)

3.0 Installation

WARNING

Read the instructions in their entirety before starting installation.

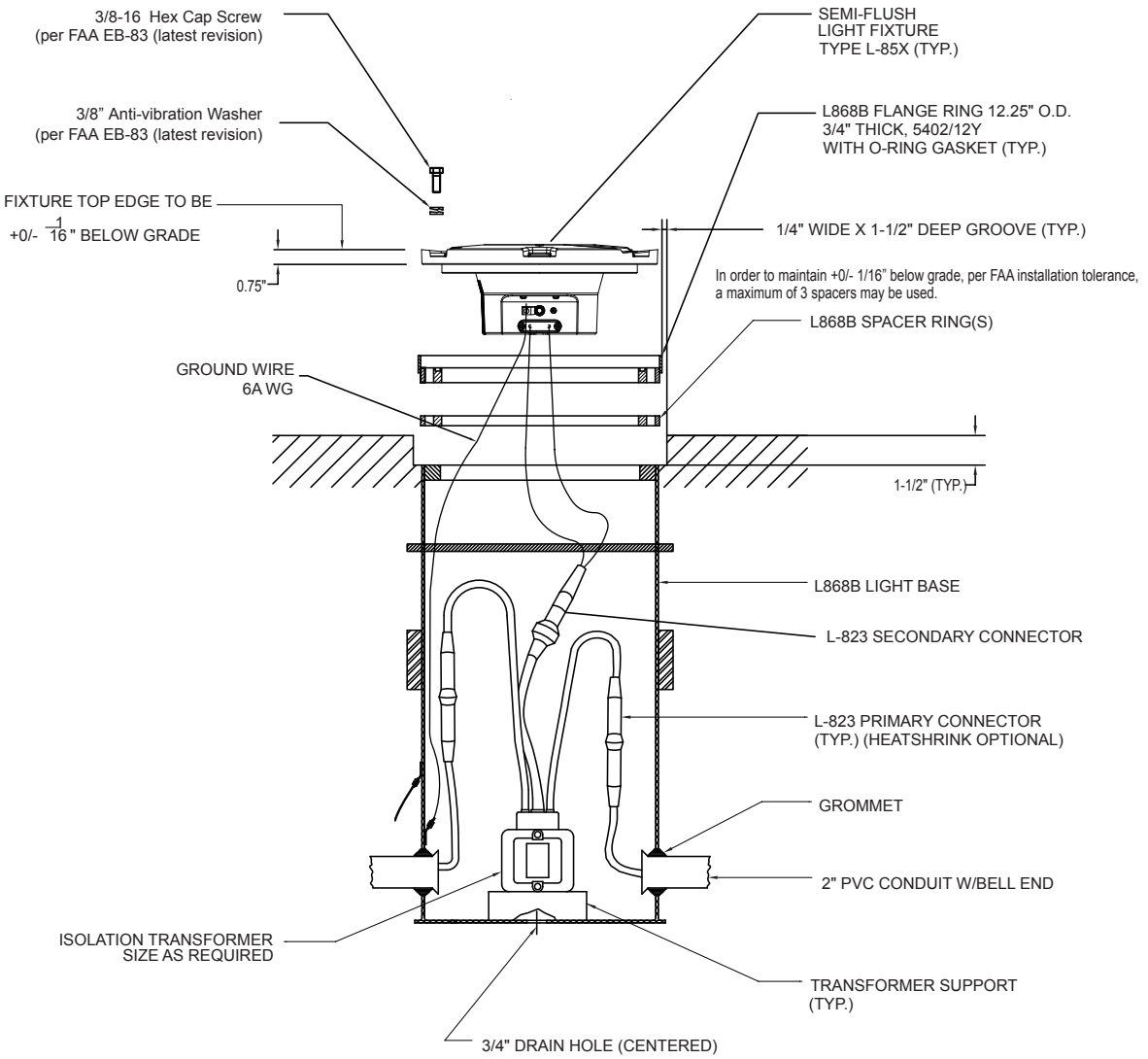
This section provides installation instructions for the L-850A IR light fixtures.

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 Typical L-868 Assembly

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



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

Figure 2: Anti-vibration washer example

Cams (or steps) of the lock-washer must face each other

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.

3.3 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.

CAUTION

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.

3.4 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.

3.5 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 1: 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		

3.6 Unpack 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.

3.7 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.

3.8 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.

3.9 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 silcon 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 LED fixture will illuminate. Operate for a minimum of five minutes.

3.10 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.

3.11 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.

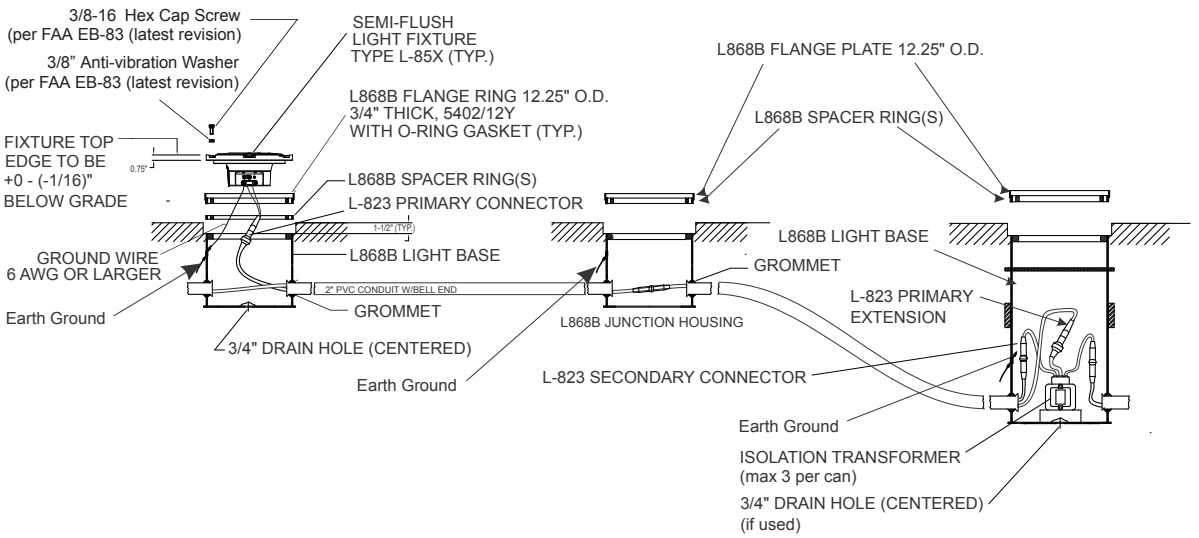
3.11.1 Installation on a Shallow Base

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.

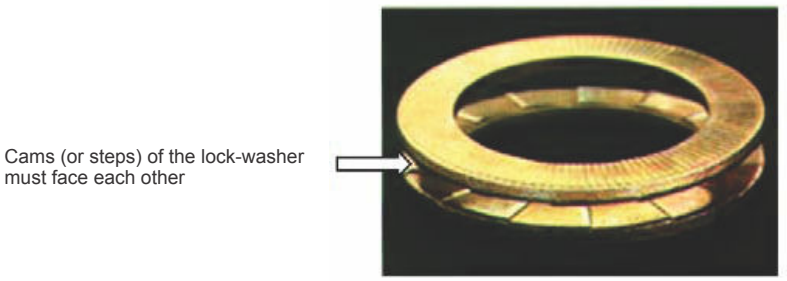
Also follow the applicable instructions in the previous section, when connecting, installing and powering the fixture.

Figure 3: Example of a Shallow Base Installation



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

Figure 4: 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

WARNING

Read the instructions in their entirety before starting installation.

This section provides maitenance instructions for the L-850A Infrared Style 3 light fixtures.

4.1 Introduction

This section provides instructions for maintaining the F-Range 850A IR in-pavement lights. Refer to airport project plans and specifications for specific installation instructions. The installation must conform to the applicable sections of the National Electric Code and local codes.

4.1.1 Safety Considerations

Read the installation section of all system component manuals before installing this equipment. A thorough understanding of system components and their requirements will promote safe and efficient maintenance. 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.

WARNING

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

- Allow only qualified personnel to install ADB Airfield Solutions 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.

Table 2: Maintenance Schedule

Interval	Maintenance Task	Action
Daily	Check for burned-out lamp.	Replace lamp and film disc cutout, if used. Refer to *Replacing Lamp* in this section.
	Check for dim lamp.	Clean optical surface if dirty. Check for misalignment or presence of moisture in fixture.
Weekly	Check for dirty channel and prism.	Clean channel and prism. Refer to *Cleaning Light Channel and Prism* in this section.
Monthly (or more frequently during rainy seasons)	Check for moisture in the light fixture.	Open up the light fixture. Clean, dry, and inspect the light assembly. Replace O-ring.

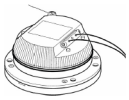
Table 2: Maintenance Schedule (continued)

Interval	Maintenance Task	Action
Every 60 days, or whenever the light assembly is serviced	Check for improper torque on holddown bolts.	Torque six bolts holding fixture to base to base receptacle to 185 ± 5 in-lb (20.902 ±0.565 Nt-M). Use Loctite to keep bolts tight. Refer to *Retorquing Mounting Bolts* in this section.
Semi-annually	Check for six inches (152 mm) of water in L-868B base.	Pump water from base. Remove and inspect light for water damage. Refer to *Removing L-868B Base Water* in this section.
After 1600 hours operation	Not applicable	Replace lamp Refer to *Replacing Lamp* in this section.
After snow removal	Check for damaged light fixtures.	Replace damaged fixtures. Use a power broom for snow removal, if practical. Follow recommended snow removal techniques described in AC 150/5200-23.

4.2 Repair Procedures

This section describes procedures for repairing and replacing parts, including how to open and close the optical unit and replace the film disc cutout assembly, lamp, filter, prism, optical unit and L-823 cord set.

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



4.2.1 Opening the Optical Unit

To open the optical unit:

1. Turn the light unit upside down.
2. Use a flat-blade screwdriver to remove the pressure release screw.
3. Use a Phillips head screwdriver to remove the four Phillips flat-head screws.

Note

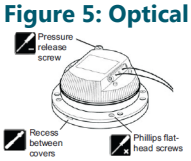
The Phillips head screws may be difficult to remove, especially if thread-locking adhesive was applied to the screws. To quickly loosen the screws, insert a Phillips head screwdriver into the screw slots and tap it lightly with a hammer.

4. Insert a small or medium flat-blade screwdriver in the machined recess between the top and inner covers, then twist it to separate the inner cover from the top cover.

CAUTION

The inner cover O-ring must be replaced each time the fixture is opened. Refer to Crimp on the fast-on terminals and connect to the terminal block. Crimp on the fast-on terminals and connect to the terminal block. for the procedure.

Figure 5: Optical Unit



4.2.2 Replacing Lamps

WARNING

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

WARNING

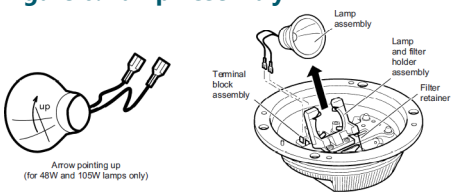
Allow time for the unit to cool. High interior temperatures may cause severe burns. Failure to observe this warning may result in personal injury.

Note

When a film disc cutout is used, always replace the film disc cutout each time a lamp has to be replaced.

To replace a lamp:

Figure 6: Lamp Assembly



1. Release the filter retainer.
2. Disconnect the fast-on connectors of the lamp from the terminal block.
3. Hold the reflector as you remove the lamp from the lamp and filter holder assembly.
4. If using a film disc cutout, remove it by loosening the screw that secures the cutout clip to the terminal block and rotate cutout clip free.

   Install a new lamp and reassemble in reverse order.

   For fixtures using 48W or 105W lamps, position the lamp with the arrow pointing up to optimize photometric output.

   (Lamp orientation is not important for fixtures using 30W lamps.)

   CAUTION

   Touching the bulb of the lamp with bare hands will reduce the lifetime of the lamp considerably. Should anyone touch the bulb with their bare hands, clean the bulb with alcohol.

5. If using a film disc cutout, position a new disc (smaller contact area pointed up) in the terminal block. Rotate the cutout clip on top of the cutout and hold while tightening the screw. Ensure that the pressure applied by the clip on the film disc is sufficient for good contact. If the film disc is loose, remove the clip and bend it slightly to increase its pressure.

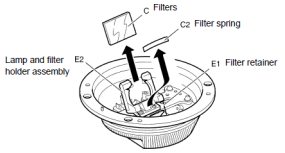
   Make sure there is good contact between fast-on connectors and terminals.

   To close the unit properly, replace the O-ring and check for watertightness, proceed to:

   - Crimp on the fast-on terminals and connect to the terminal block.

   Crimp on the fast-on terminals and connect to the terminal block. Section 4.2.9 , “Testing for Leaks”, on page 4-10

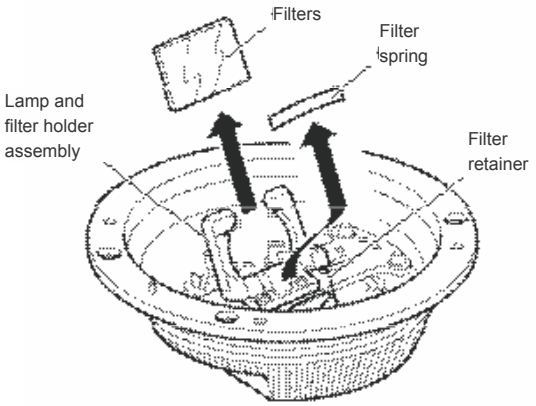
Figure 7: Filter Assembly



4.2.3 Replacing Filters

To replace the filter:

Figure 8: Filter Assembly



1. Release the filter retainer.
2. Lift the filter and the filter spring out of the lamp and filter holder assembly.
3. Place a new filter in the lamp and filter holder slot.
4. Reinstall the filter spring.
5. Relatch the retainer spring.

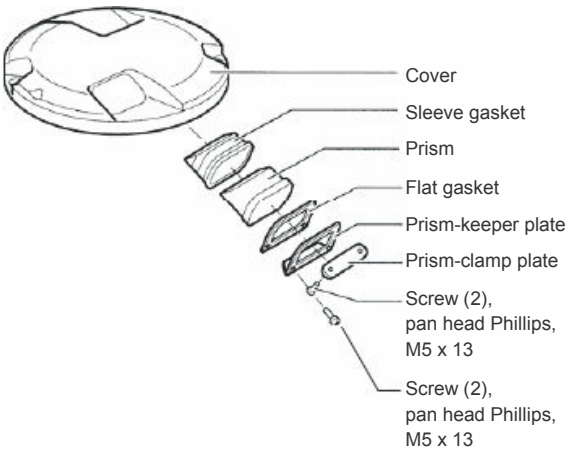
4.2.4 Replacing Prism

Replace the prism if it is broken or its surface is badly pitted or scarred.

To replace the prism:

1. Remove the prism-clamp plate secured in the cover.

   Figure 9: Prism Assembly



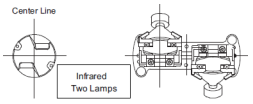
2. Remove the prism-clamp plate and two screws. Retain for reassembly.
3. Remove the prism-keeper plate and two screws. Retain for reassembly.
4. Discard the flat gasket.
5. Push the prism with the sleeve gasket toward the inside of the cover.
6. Clean and degrease the prism chamber with any effective solvent.

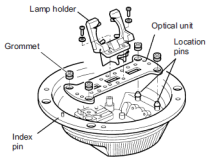
CAUTION

Never use any abrasive substance. This will scratch or frost the prism.

7. Use a small brush to apply a thin layer of Dow Corning Molykote 3452 or equivalent in the prism chamber.
8. Install a new sleeve gasket over the prism.
9. Push the prism/gasket assembly in the prism pocket from the inside and clean the inner surface of the prism.
10. Install a new flat gasket between the prism and the prism-keeper plate.
11. Reinstall the prism-keeper plate, then the prism-clamp plate and screws with the Phillips pan-head screws. Apply a drop of sealant, Loctite 270 or equivalent, to the last threads. Torque to 31 ±4 in-lb (3.5 ±0.5 N•m).
12. Close the optical unit.

4.2.5 Replacing Optical Unit





To replace the optical unit:

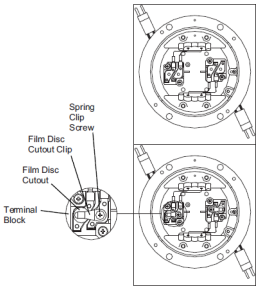
1. Open the optical unit.
2. Remove the lamp.
3. Remove the optical unit by lifting it up from the inner cover manually.
4. Position the lamp holder on the optical support according to the type of unit, referring to the figures at right.
5. Install the new optical unit with new grommets, as shown below.
6. Clip the optical unit to the four location pins on the inner cover. A thin layer of silicone grease Novagard G322L or equivalent may be applied to the four location pins to ease installation of the optical unit.
7. Reinstall the lamp.
8. Close the optical unit.

CAUTION

Make sure Crimp on the fast-on terminals and connect to the terminal block.thaCrimp on the fast-on terminals and connect to the terminal block.t when you replace the inner cover on the top cover, the index pin hole on the top cover is aligned with the index pin on the inner cover. Not aligning the F-Range in-pavement light by the index pin could crack the inner pan and cross-thread the countersunk screws.

4.2.6 Replacing the Film Disc Cutout

Figure 10: Film Disc Cutout



To replace the film disc cutout:

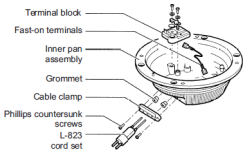
1. Remove the inner cover from the bottom of the top cover.
2. Disconnect the lamps from the terminals on the terminal block.
3. Grasp the optical plate assembly and pull straight up.
4. Using a Phillips head screwdriver, loosen or remove the spring clip screw.
5. Remove the installed film disc cutout and replace with a new film disc cutout.

> **Note**
> Make sure that the smaller contact area on the film disc cutout is pointed up.

6. Rotate the cutout clip on top of the cutout and hold while tightening the screw. Ensure that the pressure applied by the clip on the film disc is sufficient for good contact. If the film disc is loose, remove the clip and bend it slightly to increase its pressure (see figure at right).

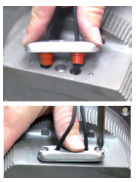
4.2.7 Replacing L-823 Cord Set

Figure 11: Cordset



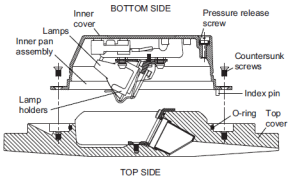
To replace the L-823 cord set:

1. Open the optical unit and remove the bottom cover.
2. Unplug the fast-on terminals from the terminal block.
3. Remove both Phillips countersunkscrews and the cable clamp.
4. Cut the fast-on terminals from the L-823 cord set.
5. Pull the L-823 cord set out of the inner pan assembly.
6. Bring the new ADB SAFEGATE L-823 cord set through the cable clamp (one wire per hole).
7. Put a new grommet on each of the wires. Make sure the wire grommet is facing the correct direction.
8. Pull the wires into the pan assembly.
9. Reinstall the wire clamp by means of both Phillips countersunk screws.
10. Remove about 0.2 inch (5mm) of insulation from the wires.
11. Crimp on the fast-on terminals and connect to the terminal block.



4.2.8 Closing the Optical Unit

To close the optical unit:



1. Turn the cover upside down.
2. Make sure the contact surfaces with the O-ring are clean and apply a light coat of high quality neutral silicone grease.
3. Install a new greased O-ring in the groove in the top cover.

Note
Use a silicone grease such as Novagard G322L or equivalent.

4. Remove the pressure release screw.
5. Install the inner cover on the top cover.
6. Check to make sure the lamp holders and lamps are correctly positioned and the wires of the lamps will not get damaged between both parts (cover and inner cover).
7. Align the index pin in the inner cover with the index pin hole on the top cover.

CAUTION
Failing to align the F-Range in-pavement light by the index pin could crack the inner pan and cross-thread the countersunk screws.

8. Press the inner cover on the top cover and secure with the countersunk screws. Apply a drop of Loctite 222 to the last threads. Torque screws to 22 ±4 in-lb (2.5 ±0.5 N•m).
9. Proceed to the next section, Section 4.2.9, “Testing for Leaks”, to check the watertightTesting for Leaks inTesting for Leakstegrity of the assembly.

4.2.9 Testing for Leaks

To test for leaks, perform the following procedure:

1. See Figure 12.

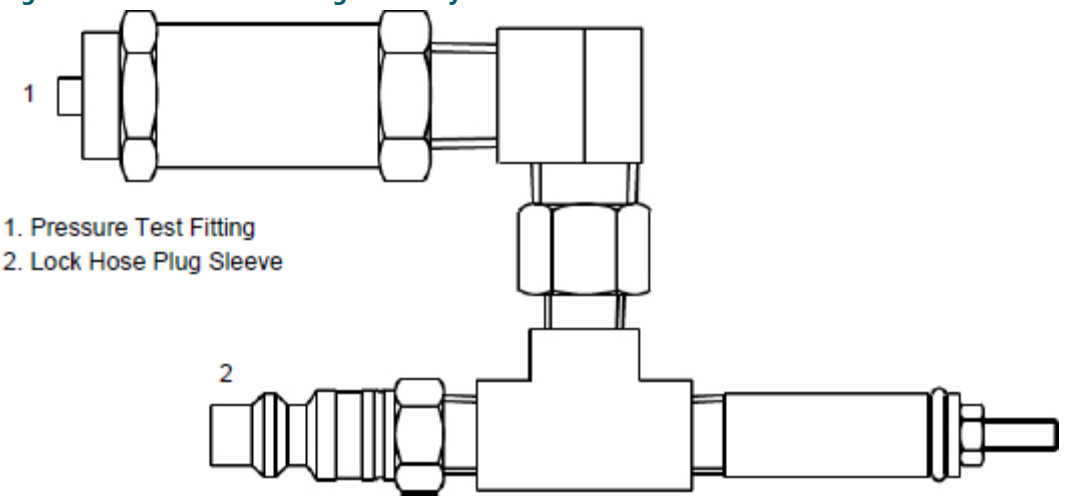
   Remove pressure relief screw.

2. See Figure 13.

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

Figure 12: Pressure Relief Screw

Figure 13: 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.

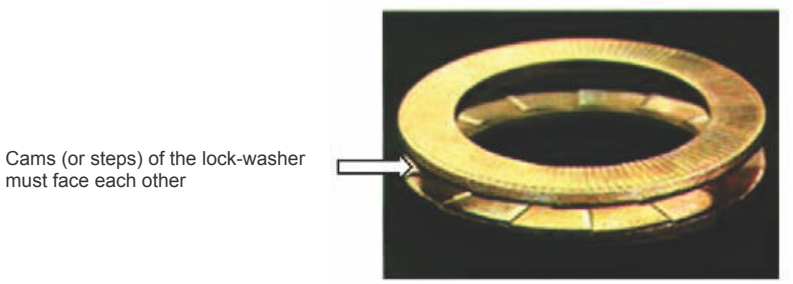
Failure to follow these cautions can result in equipment damage or aircraft FOD.

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 14: 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.

4.5 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 3: Troubleshooting Guide

Problem	Possible Cause	Corrective Action
1. Lamp will not energize	Defective lamp	Replace lamp and film disc cutout (if used). Refer to *Replacing Lamp* in the *Maintenance* section.
	Loose or broken contacts	Tighten or replace.
	Moisture inside assembly causing current leakage	Open up light assembly. Clean, dry, and inspect light assembly. Replace O-ring.
	Defective isolation transformer	Check transformer output current with meter.
2. Lamp not turning on at normal level	Resistance too low	Replace wires or cover assembly.
3. Lamp output distorted	Broken or damaged prism	Replace outer cover assembly.
4. Improper color	Filter broken	Replace the filter bracket assembly.
	Filter bracket broken	Replace the filter bracket assembly.

Table 3: Troubleshooting Guide (continued)

Problem	Possible Cause	Corrective Action
5. Short lamp life	Current too high	Check constant current regulator and isolation transformer.
	Water in assembly	Inspect prism. Open light assembly. Clean, dry and inspect light assembly. Replace O-ring.
	Defective lamp	Replace lamp and film disc cutout (if used). Refer to *Replacing Lamp* in the *Maintenance* section. **Note** Lamp interior will have a white powdery appearance if air has entered through a hole or crack.
	Over voltage	Check to see if lamp has black burns. If so, check isolation transformer output with meter. Replace isolation transformer, if defective.
6. Distorted light beam output in L-852D	Filter/spreader installed wrong	Reinstall the filter/spreader with the smooth flat side of the filter toward the lamp.

5.0 Parts

This section provides parts information for the L-850A Infrared in-pavement fixture.

Table 4: Spare Components

Description	Part No.
Cable clamp	4071.50.090
Cord set, L-823	73A0133-23
Cord set grommet	63A1014
Film disc cutout	47A0118
Filter, infrared	63A1092
Ground lug kit	94A0469-2
IR filter gasket	63A1093
IR filter keeper plate	61A0416
Lamp assembly, 48W	2990.40.827
Lamp holder assembly	1411.22.001
O-ring, inner cover seal	63A1285
O-ring, pressure release screw	63B0267-011
Pressure release screw	60A2602
Prism	63A0993-2
Prism clamp	4071.50.360
Prism gasket sleeve	4071.50.030
Prism keeper plate	4071.50.052
Seal, prism keeper plate	63A0986
Terminal block assembly w/o film disc cutout	44A6112-1
Terminal block assembly with film disc cutout	44A6112-2

Notes

1 Lamp retainer spring comes riveted to lamp holder assembly2 - Introduction

Figure 15: Parts

GENERAL ASSEMBLY BILL OF MATERIAL ORDER OF ENTRY: NUMERICAL ORDER OF ALL COMPONENTS. LINE EVERY FIFTH COMPONENT AT A MINIMUM. RM NUMBERS LISTED LAST

GENERAL ASSEMBLY BILL OF MATERIAL

ITEM NO.	PART NUMBER	PART NAME/DESCRIPTION	UNITS	QTY.
1	SEE TABLE	TOP COVER ASSY	EA	1
2	SEE TABLE	OPTICAL SUPPORT ASSY	EA	1
3	SEE TABLE	INNER PAN ASSY	EA	1
8	64A0925/10	SCREW M5x10	EA	4

44A6659/X21X (2 LAMP ONLY)

ITEM NO.	PART NUMBER	PART NAME/DESCRIPTION	UNITS	QTY.
3	44A4811/23	INNER PAN ASSY	EA	1

44A6659/X22X (2 LAMP ONLY)

	ITEM NO.	PART NUMBER	PART NAME/DESCRIPTION	UNITS	QTY.
	3	44A4811/23	INNER PAN ASSY	EA	1
NS	6	44D0465/1	SHALLOW BASE (DEEP)	EA	1
NS	7	70A0503	MALE TERMINAL 10-12 DISCONNECT	EA	2

44A6659/X23X (2 LAMP ONLY)

ITEM NO.	PART NUMBER	PART NAME/DESCRIPTION	UNITS	QTY.
3	44A4811/24	INNER PAN ASSY	EA	1

44A6659/X24X (2 LAMP ONLY)

	ITEM NO.	PART NUMBER	PART NAME/DESCRIPTION	UNITS	QTY.
	3	44A4811/24	INNER PAN ASSY	EA	1
NS	6	44D0465/1	SHALLOW BASE (DEEP)	EA	1
NS	7	70A0503	MALE TERMINAL 10-12 DISCONNECT	EA	2

44A6659/X13X (2 LAMP ONLY)

ITEM NO.	PART NUMBER	PART NAME/DESCRIPTION	UNITS	QTY.
3	44A4811/14	INNER PAN ASSY	EA	1

44A6659/X14X (2 LAMP ONLY)

	ITEM NO.	PART NUMBER	PART NAME/DESCRIPTION	UNITS	QTY.
	3	44A4811/14	INNER PAN ASSY	EA	1
NS	6	44D0465/1	SHALLOW BASE (DEEP)	**EA**	**1**
NS	7	70A0503	MALE TERMINAL 10-12 DISCONNECT	**EA**	2

44A6659/214X (1 LAMP ONLY)

	ITEM NO.	PART NUMBER	PART NAME/DESCRIPTION	UNITS	QTY.
	3	44A4811/15	INNER PAN ASSY	EA	1
NS	6	44D0465/1	SHALLOW BASE (DEEP)	**EA**	**1**
NS	7	70A0503	MALE TERMINAL 10-12 DISCONNECT	**EA**	2

44A6659/213X (1 LAMP ONLY)

ITEM NO.	PART NUMBER	PART NAME/DESCRIPTION	UNITS	QTY.
3	44A4811/15	INNER PAN ASSY	EA	1

44A6659/223X (1 LAMP ONLY)

ITEM NO.	PART NUMBER	PART NAME/DESCRIPTION	UNITS	QTY.
3	44A4811/25	INNER PAN ASSY	EA	1

44A6659/1XX1

ITEM NO.	PART NUMBER	PART NAME/DESCRIPTION	UNITS	QTY.
1	44A4787/1IR	TOP COVER ASSY	EA	1
2	44A4810/14	OPTICAL SUPPORT ASSY	EA	1

44A6659/2XX1

ITEM NO.	PART NUMBER	PART NAME/DESCRIPTION	UNITS	QTY.
1	44A4787/2IR	TOP COVER ASSY	EA	1
2	44A4810/15	OPTICAL SUPPORT ASSY	EA	1

44A6659/X11X (2 LAMP ONLY)

ITEM NO.	PART NUMBER	PART NAME/DESCRIPTION	UNITS	QTY.
1	44A4811/13	INNER PAN ASSY	EA	1

44A6659/X12X (2 LAMP ONLY)

	ITEM NO.	PART NUMBER	PART NAME/DESCRIPTION	UNITS	QTY.
	3	44A4811/13	INNER PAN ASSY	EA	1
NS	6	44D0465/1	SHALLOW BASE (DEEP)	EA	1
NS	7	70A0503	MALE TERMINAL 10-12 DISCONNECT	EA	2

44A6659/224X (1 LAMP ONLY)

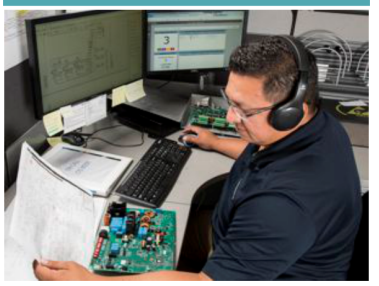
	ITEM NO.	PART NUMBER	PART NAME/DESCRIPTION	UNITS	QTY.
	3	44A4811/21	INNER PAN ASSY	EA	1
NS	6	44D0465/1	SHALLOW BASE (DEEP)	EA	1
NS	7	70A0503	MALE TERMINAL 10-12 DISCONNECT	EA	2

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.

Company Addresses

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Contact: Tel.: +1 (614) 861 1304, Fax: +1 (614) 864 2069	Email: sales.us@adbsafegate.com Internet: www.adbsafegate.com

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Contact: Tel.: +46 (0)40 699 17 00, Fax: +46 (0)40 699 17 30	Email: marketing@adbsafegate.com Internet: www.adbsafegate.com

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