IREL In-pavement Runway Edge Light
Type L-850C, Style 3

User Manual

96A0285, Rev. G, 2020/06/26

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 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 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 IREL L-850C Description

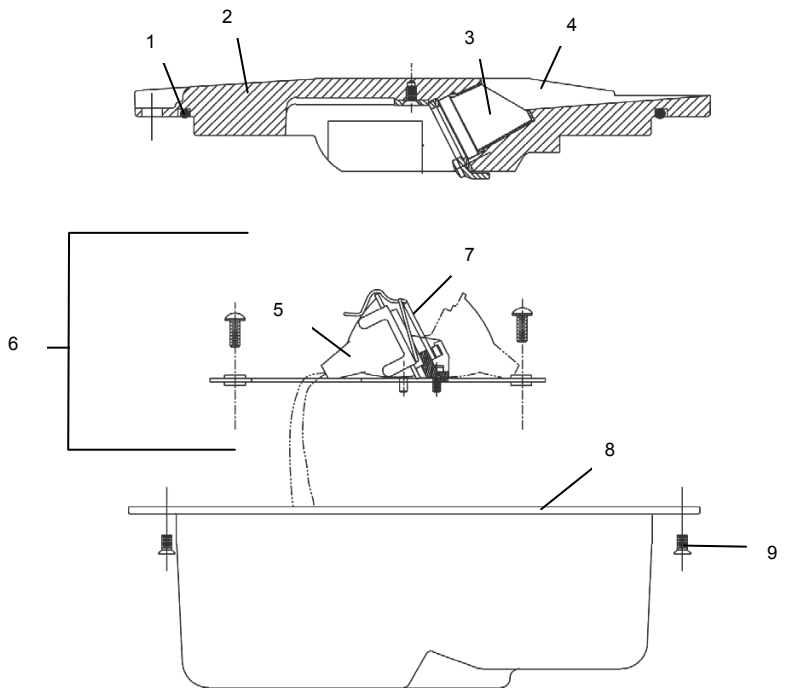
2.1 Introduction

This section describes the ADB SAFEGATE F-Range Type L-850C, Style 3 inset lights.

See Figure 1 and Figure 2. The 12-inch L-850C F-Range inset light fixtures are designed to mark the runway edge. It is manufactured in accordance with FAA specification AC 150/5345-46B, Style 3 (£ 0.25 inches Height Above Grade).

Figure 1: Top View of L-850C Style 3 F-Range Inset Light Fixture

Figure 2: Cutaway View of L-850C F-Range Inset Light Fixture



1. O-Ring	4. Light Channel	7. Lamp and Filter Holder Assembly
2. Top Cover	5. Lamp	8. Inner Cover
3. Prism	6. Optical Unit	9. Phillips Flat Head Screw

2.2 In-pavement Runway Edge Light

Compliance with Standards

FAA:	L-850C AC 150/5345-46 (Current Edition). ETL Certified.
Military:	Photometry complies with UFC 3-535-01 Fig. 4-2.

Uses

FAA L-850C

- Runway edge on category I, II, and III runways
- Military runway edge applications less than 200 feet wide

Features

- 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 105 W with a rated life of 1,000 hours at 6.6 A
- Low-temperature lights. Temperature rise at center of top cover remains below FAA-specified limit of 320 °F (160 °C).
- Fixture uses aluminum alloy cover, stainless steel hardware, and aluminum alloy and stainless steel optical assembly
- Includes a UL 467 rated ground lug, which accepts an AWG 6 earth ground wire

Dimensions

Outside Diameter:	11.94 in / 30.33 cm
Bolt Circle Diameter (L-868B):	11.25 in / 28.58 cm
Max. Bottom Cover O.D.:	9.94 in / 25.25 cm
Bottom Cover Depth:	3.8 in / 9.65 cm[1]

Notes
[1] If used in conjunction with an L-868B Top Section, the overall height of the Top Section must be 4 in (10.16 cm) minimum.

Packaging

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

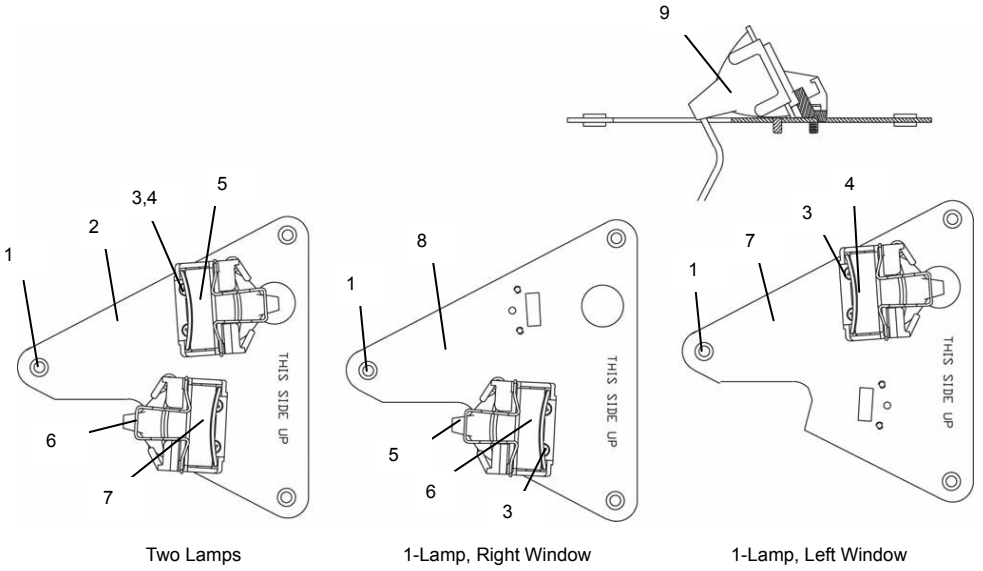
Optional Snow Plow Ring

Depending on installation method and snow plowing technique used, a snow plow ring may be necessary. Snow plow rings are available for either standard or stainless steel adjustable Size B L-868 cans. Contact ADB SAFEGATE Sales for additional details.

2.3 Optical Unit

See Figure 3 for the optical unit. The F-Range series light fixture optical unit consists of one or two unidirectional or bidirectional 105 W/MR16 lamps, prisms, and color filters.

Figure 3: L-850C Optical Unit

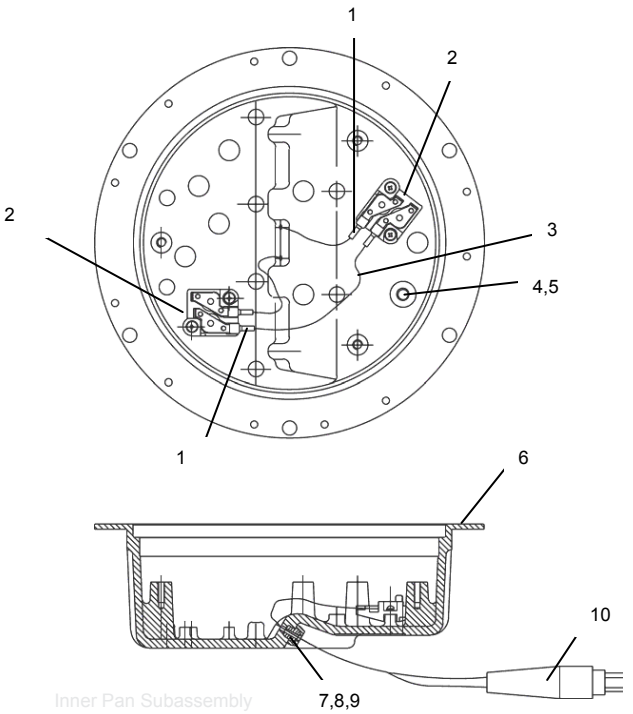


1. Grommet	4. Lockwasher	7. Filter
2. Bidirectional Optical Unit	5. Filter Spring	8. Unidirectional Optical Unit
3. Screw	6. Retainer Spring	9. Lamp

2.4 Inner Pan Subassembly

See Figure 4. The inner pan subassembly is comprised of the inner cover (6), L-823 cordset (10), terminal block(s) (2) (with or without film disc cutout), fast-on connectors (1), O-ring (5), wire clamp (8), screw (9), and pressure release screw (4).

Figure 4: Inner Pan Subassembly



1. Fast-On Connectors	4. Pressure Release Screw	7. Wire Grommets	10. Cordset
2. Terminal Blocks	5. O-Ring	8. Wire Clamp	
3. Cable Assembly	6. Inner Cover	9. Screw	

2.5 Lamp and Filter Holder Assembly

See Figure 2. The lamp and filter holder assembly (7) consists of the lamp/filter support subassembly and the retainer spring (see

Figure 3, Item 6). The lamp/filter support subassembly is pre-assembled at the factory. The retainer spring is a replaceable item and is required only if a filter is required.

2.6 Optional Film Disc Cutout

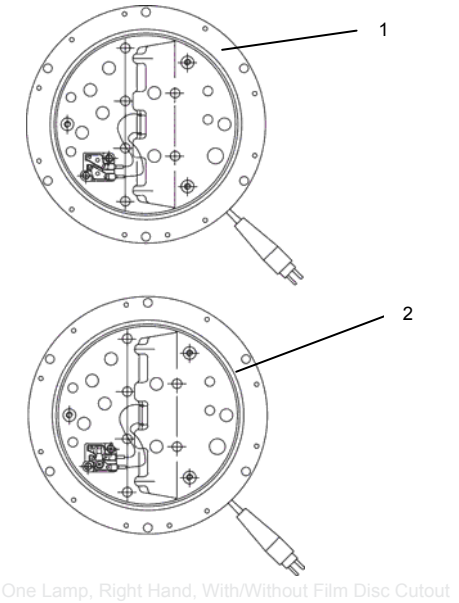
An optional film disc cutout is available as an electrical bypass device in case of lamp failure. It closes an auxiliary circuit around the lamp within 15 seconds after lamp failure. The film disc cutout shorts and completes the circuit when the lamp fails. This allows the other lamps to remain lighted in series-connected fixtures. It also prevents excessive volt amperes on the secondary of the isolation transformer. The film disc cutout must be replaced (if used) when the lamp is replaced. Refer to *Replacing Film Disc Cutout Assembly* in the *Repair* section.

CAUTION

Do not use a film disc cutout if circuit has monitoring. This will prevent the monitoring system from functioning properly.

See Figure 5 through Figure 8 for F-Range light fixture pan assemblies with and without film disc cutouts.

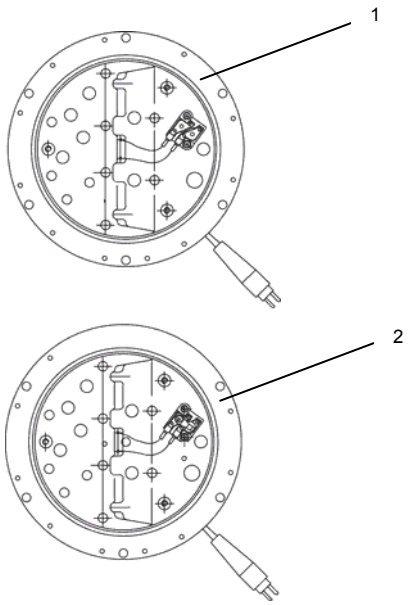
Figure 5: One Lamp, Right Hand, With/Without Film Disc Cutout



One Lamp, Right Hand, With/Without Film Disc Cutout

1. Without Film Disc Cutout
2. With Film Disc Cutout

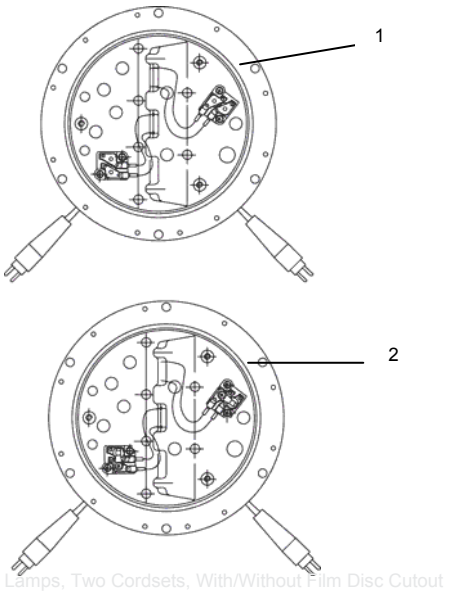
Figure 6: One Lamp, Left Hand, With/Without Film Disc Cutout



One Lamp, Left Hand, With/Without Film Disc Cutout

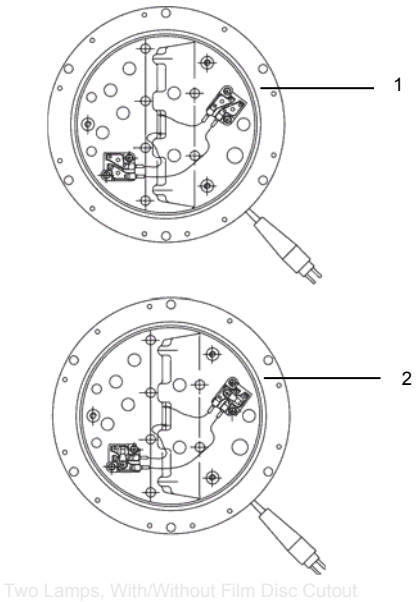
1. Without Film Disc Cutout
2. With Film Disc Cutout

Figure 7: Two Lamps, Two Cordsets, With/Without Film Disc Cutout



1. Without Film Disc Cutout
2. With Film Disc Cutout

Figure 8: Two Lamps, With/Without Film Disc Cutout



1. Without Film Disc Cutout
2. With Film Disc Cutout

2.7 F-Range L-850C 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 the *Parts* section for part numbers.

Table 1: Required Equipment Supplied

Description	Quantity
F-Range L-850C inset light, with lamps	1
Instruction manual	1 per order

Table 2: Required Equipment Not Supplied

Description	Quantity
Torque wrench (0 to 200 in-lb) (0-22.6 Nt-M)	1
Alignment jig	1
Diamond-faced core drill, 13 in. (330 mm diameter)	1
Diamond-faced saw, 3/8 in. (9.525 mm) thick	1
Crimping tool	1
Small water suction pump	1
L-830 isolation transformer	1 or 2
Eyebolt, 3/8 in. (9.525 mm) diameter	2
Lifting rod, 16 in. (406 mm) long	1
Set of fiber brushes	1
Set of socket wrenches, 1/2 in. (12.7 mm) drive	1
Set of screwdrivers, one with 3/8 in. (9.525 mm) minimum blade width	1
Silicone grease	As required
Joint sealing filler	As required

3.0 Installation

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 L-850C Toe-In Location Coding

See Figure 3-1. L-850C light fixtures are supplied with aviation red or yellow filters installed. Refer to AC 150/5340-28 for the location of the fixtures on the taxiway centerline. Fixtures are supplied with a colored dot label matching the color fixture that is installed affixed to the top of the fixture. The lamps are automatically toed 3-1/2 degrees during assembly. No further adjustment is required.

NOTE: If dot labels are missing, the filter color can be determined by looking into the window to see the color of the filter installed.

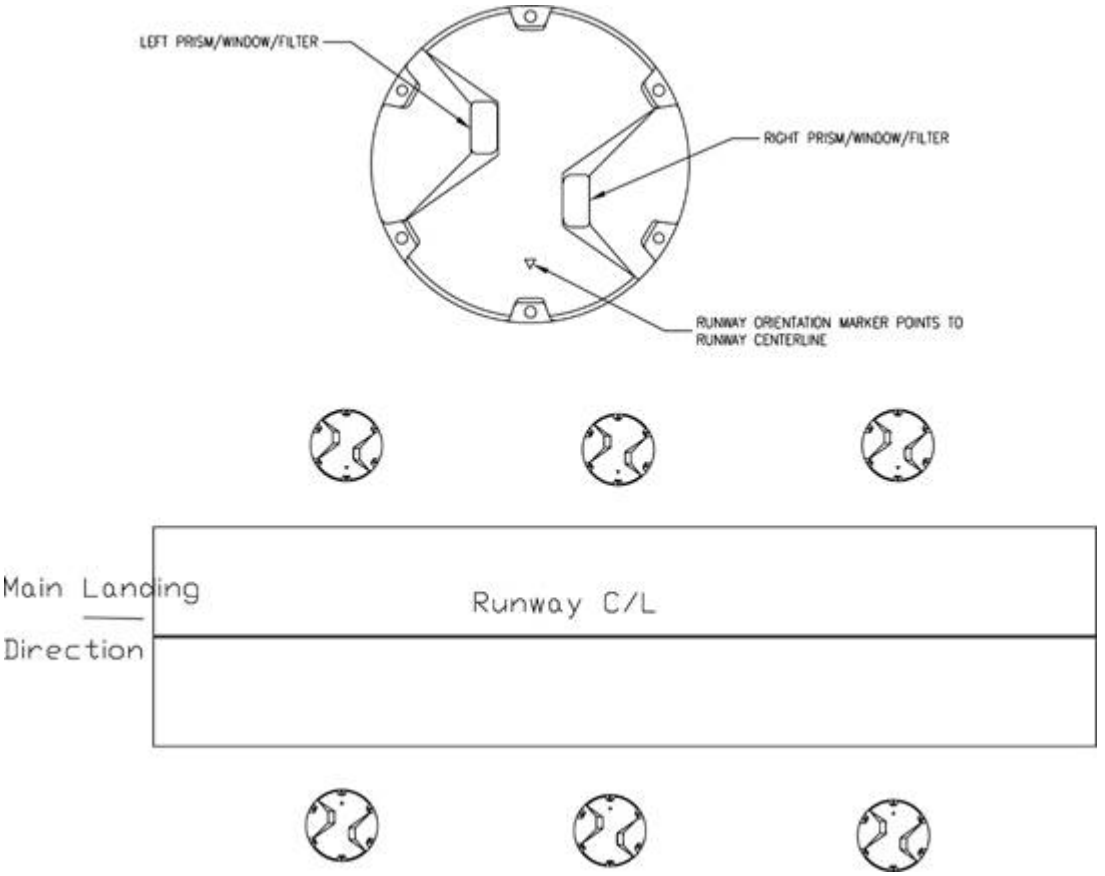
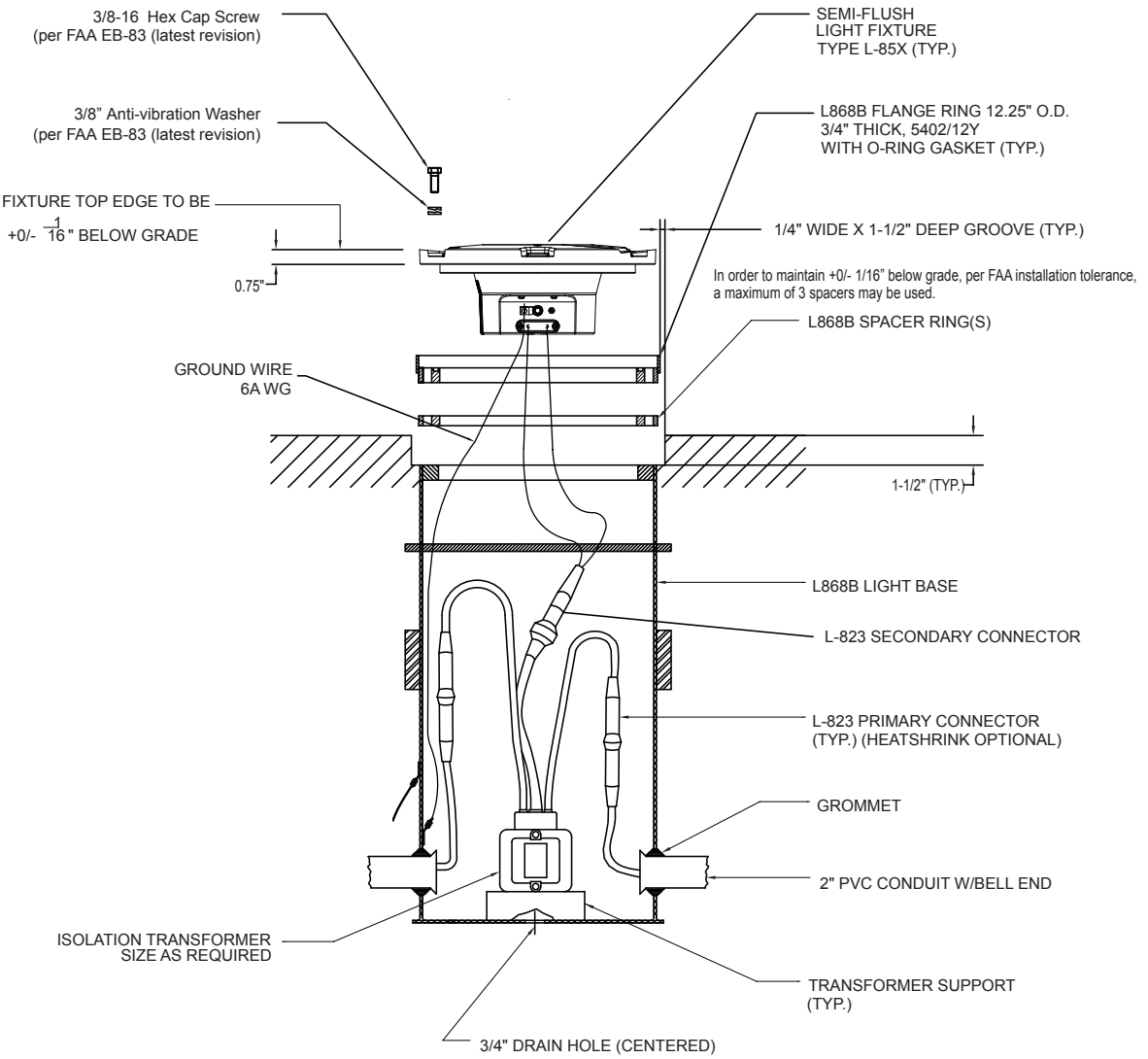


Figure 3-1 Installation of L-850C Light Fixture Orientation to Runway Centerline

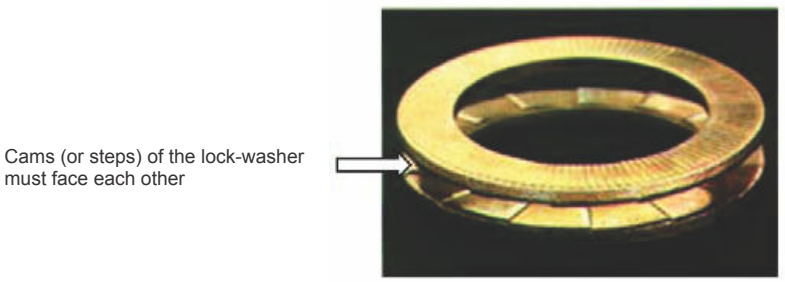
3.3 Typical L-868 Assembly

Figure 9: Diagram of the Fixture Installed in a 1-Piece Base Can



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

Figure 10: 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.

3.4 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.

3.5 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.

3.6 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		

3.7 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.

3.8 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.

3.9 Store

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

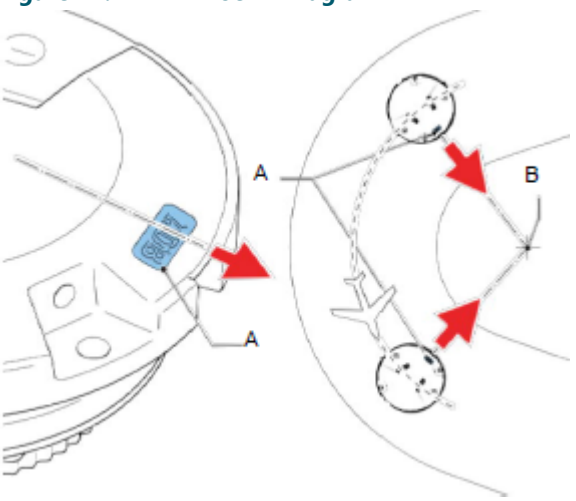
- Storage temperature: 14°F to 122°F (-10°C to +50°C).
- Humidity: <95% non condensing.

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.

3.10 Toe-in Location Only

Make sure the ADB logo (A) points towards the runway centerline.

Figure 11: DTZ-LP Toe-in Diagram



3.11 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.

3.12 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.

3.13 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.

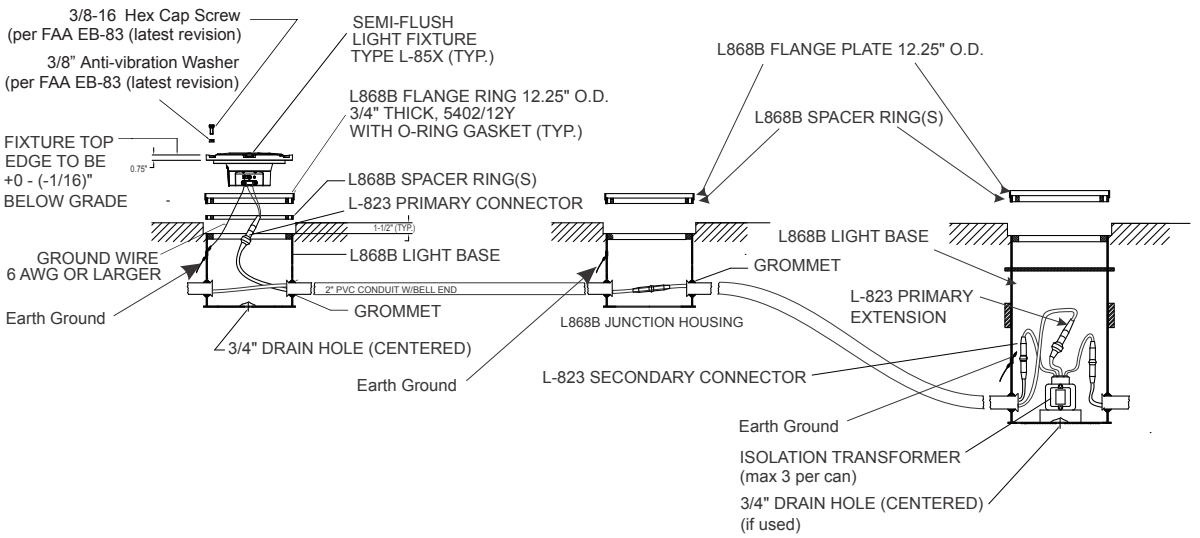
3.13.1 Installation on a Shallow Base

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.

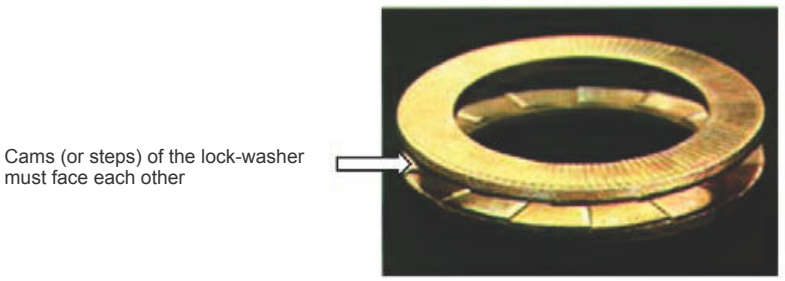
Also follow the applicable instructions in the previous section, when connecting, installing and powering the fixture.

Figure 12: Example of a Shallow Base Installation



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

Figure 13: 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

4.1 Introduction

This section provides maintenance information and procedures for the L-850C F-Range light fixtures.

4.2 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 F-Range light fixtures operating efficiently, follow a preventive maintenance schedule. Refer to Table 4-1. Refer to FAA AC 150/5340-26 for more detailed information.

Table 4-1 F-Range Light Fixture Maintenance

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 lens.	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.
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 inch-pounds (20.902 ±0.565 Nt-M). Use Loctite to keep bolts tight. Refer to Bolt Torque Preventive Maintenance Schedule in this section.
Semi-annually	Check for six inches (152 mm) of water in the L-868 base.	Pump water from base. Remove and inspect light for water damage. Refer to *Removing L-868 Base Water* 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.

4.3 Maintenance Procedures

This subsection describes the following maintenance procedures:

- replacing lamp
- cleaning light channel and prism
- retorquing mounting bolts
- removing L-868 base water
- lifting optical unit out of base
- testing for leaks

4.3.1 Replacing Lamp

CAUTION

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

CAUTION

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

The preferred method of maintaining the F-Range inset light is to periodically and systematically replace the light assembly and return the replaced assembly to the maintenance shop for renovation. As an alternative, you can service the light assembly in the field. It is recommended, however, that field servicing be limited to cleaning lenses and replacing lamp(s).

Note

If any lamps are out, record the location of the fixture and replace the lamp when the circuit is turned off.

Refer to *Replacing Lamp and Filter* in the *Repair* section for lamp replacement procedure.

4.3.2 Cleaning Light Channel and Prism

To clean the light channel and prism, perform the following procedure:

1. See Figure 2-1. Use a suitable fiber brush to remove all accumulated debris from the light channel (4).

   Cleaning Light Channel and Prism *(contd.)*

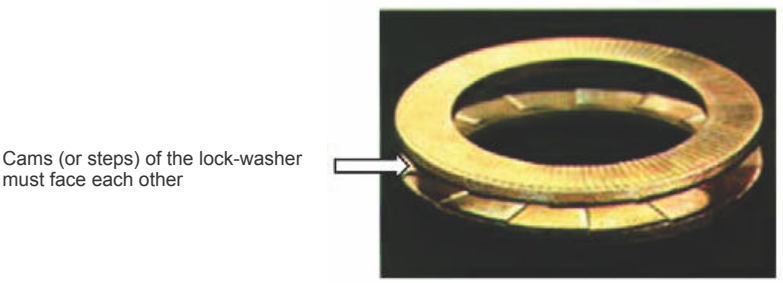
2. Clean the outer surface of the prism (3) using liquid glass cleaner. If the prism is coated with a substance impervious to the cleaner, apply a suitable solvent sparingly with a wad of cotton or a patch of cloth. After the solvent has acted, remove the softened coating with a clean piece of cotton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

4.3.3 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.

4.3.4 Removing L-868 Base Water

Turn off the circuit when checking water level.

Check the water level in the L-868 base on a regular schedule. If more than six inches (152.4 mm) of water in the light base is found, pump the water from the base and remove and inspect the entire light assembly for water damage. Cover the L-868 base with the appropriate steel cover plate after removing the light assembly.

Water entering the L-868 base can become a serious problem, since freezing water can rupture the base.

4.3.5 Lifting Optical Unit Out of Base

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

1. Remove the six fixing screws and washers or self locking nuts.
2. Fit the appropriate lifting tool into both holes located (180° apart) in the cover, lift the optical unit out of the base and place the optical unit next to the 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 Installation on L-868 Base* in the *Installation* section.

Note

Torque the six screws to 20.902 ± 0.565 Nt-m (185 ±5 inch-pounds).

1. Take the inset fixture unit back to the maintenance base where it can be serviced entirely.

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

4.3.6 Testing for Leaks

To test for leaks, perform the following procedure:

1. See Figure 15.

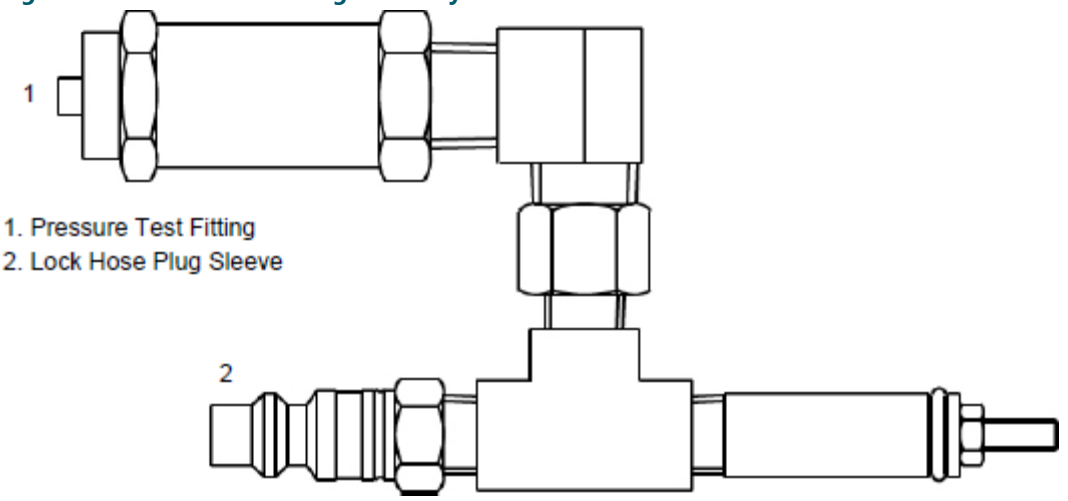
   Remove pressure relief screw.

2. See Figure 16.

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

Figure 15: Pressure Relief Screw

Figure 16: 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.

4.4 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.

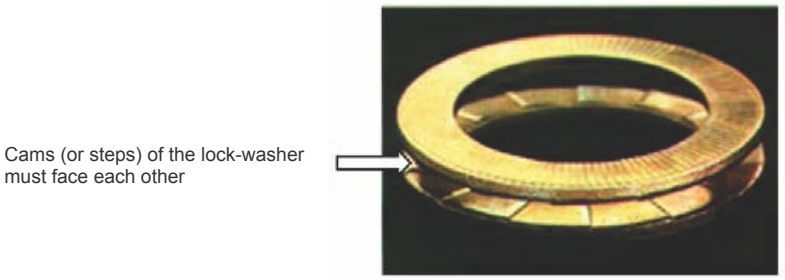
Failure to follow these cautions can result in equipment damage or aircraft FOD.

4.5 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 17: Anti-vibration washer example



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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.

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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

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 F-Range inset lights are contained here.

Problem	Possible Cause	Corrective Action
1. Lamp not energizing	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	Continuity incorrect	Check lamp filament and wiring for continuity.
3. Lamp output distorted	Broken or damaged lens	Replace lens.
4. Improper color	Filter broken	Replace filter bracket assembly.
	Filter bracket broken	Replace filter bracket assembly.
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.
	Overvoltage	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	Cracked or damaged lens	Replace lens.
7. Water inside optical chamber	Damaged or missing lens seals or top cover O-ring	Replace both lens seals. Replace top cover O-ring.
	Cut or nick on L-823 cordset insulation that exposes wire	Replace insulation.

6.0 Repair

6.1 Introduction

This section describes procedures for repairing and replacing parts.

It includes opening the optical unit, and replacing the lamp, filter, film disc cutout assembly, optical unit, and L-823 cordset. It also describes how to close the optical unit.

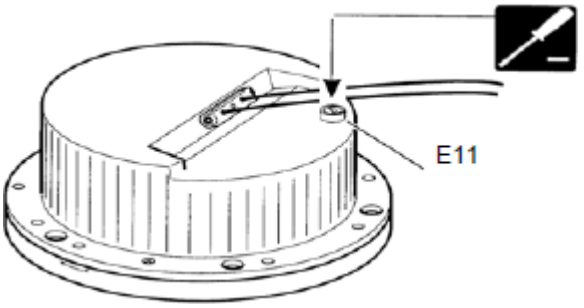
6.2 Opening Optical Unit

To open the optical unit, perform the following procedure:

1. Turn the light unit upside-down.
2. See Figure 18. Remove the pressure release screw (E11).

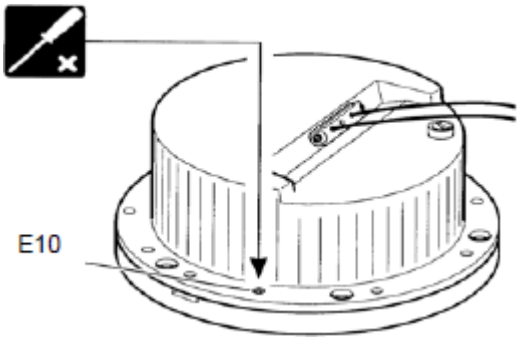
> **Note**
> Removing the pressure release screw equalizes the pressure inside and outside the fixture, making it easier to break the seal and remove the inner cover.

Figure 18: Pressure Release Screw



3. See Figure 19. Remove the six screws (E10). The use of an impact driver may be required to unlock the screws.

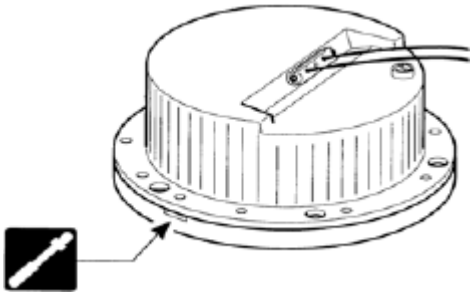
Figure 19: Removing Screws



4. See Figure 20. Insert small or medium flat blade screwdriver in the machined recess slot between cover and inner cover and turn it vertically to separate the inner cover from the cover.

Note
The two recess slots are 180 degrees apart.

Figure 20: Separating Inner Cover from Top Cover



6.3 Replacing Lamp and Filter

CAUTION
Turn off the circuit before replacing lamp(s). Failure to observe this warning may result in personal injury, death, or equipment damage.

CAUTION
Allow time for the unit to cool. High interior temperatures may cause severe burns to personnel.

Refer to Table 6-1 for parts referred to in Figure 21, Figure 22, Figure 23, and Figure 25.

Parts List for Replacing Lamp and Filter

Item	Part Number	Description	Quantity	Note
Item 1 on Figure Figure 21		Optical unit	1	
	44A6018-1	Optical unit, 1 lamp, right hand		
	44A6018-2	Optical unit, 1 lamp, left hand		
	44A6018-3	Optical unit, 2 lamps		
Item 2 on Figure Figure 21		Inner pan assembly	1	
	44A6019-1	Inner pan assembly, 2 lamp, 1 cordset, without film disc cutout		
	44A6019-2	Inner pan assembly, 2 lamp, 1 cordset, with film disc cutout		
	44A6019-3	Inner pan assembly, 2 lamp, 2 cordsets, without film disc cutout		
	44A6019-4	Inner pan assembly, 2 lamp, 2 cordsets, with film disc cutout		
	44A6019-5	Inner pan assembly, left-hand lamp, 1 cordset, without film disc cutout		
	44A6019-6	Inner pan assembly, left-hand lamp, 1 cordset, with film disc cutout		
	44A6019-7	Inner pan assembly, right-hand lamp, 1 cordset, without film disc cutout		
	44A6019-8	Inner pan assembly, right-hand lamp, 1 cordset, with film disc cutout		
Item 4 on Figure Figure 21	63A0222	Grommet (for optical bracket)	3	
Item 5 on Figure Figure 21	7110.08.367	Screw, M4 x 10 (for optical bracket)	3	
Item 6 on Figure Figure 22		Terminal block assembly	See note.	A

	44A6112-1	Terminal block assembly, without film disc cutout	
	44A6112-2	Terminal block assembly, with film disc cutout	
Item 7 on Figure Figure 22	6111.87.140	Fast-on connector	See note. B
Item 8 on Figure Figure 25	1411.22.001	Lamp and filter holder assembly – New Style used on fixtures purchased after 9/20/05	See note. A
Item 8 on Figure Figure 23	1411.22.002	Lamp and filter holder assembly – Old Style used on fixtures purchased before 9/20/05	
Item 9 on Figures Figure 24/ Figure 25	2990.40.900	Lamp, 105 W	See note. A
Item 10 on Figures Figure 24/ Figure 25	4071.50.160	Filter spring	See note. A
Item 11 on Figures Figure 24/ Figure 25	63A0964	Filter, yellow	See note. C
Item 12 on Figures Figure 24/ Figure 25	4071.58.510	Retainer spring	See note. A

1. NOTE A: Quantity is 1 for unidirectional, 2 for bidirectional.
2. NOTE B: Quantity is 2 for unidirectional, 4 for bidirectional.
3. NOTE C: Quantity is 1 for clear/yellow lens, 0 for clear/clear lens.

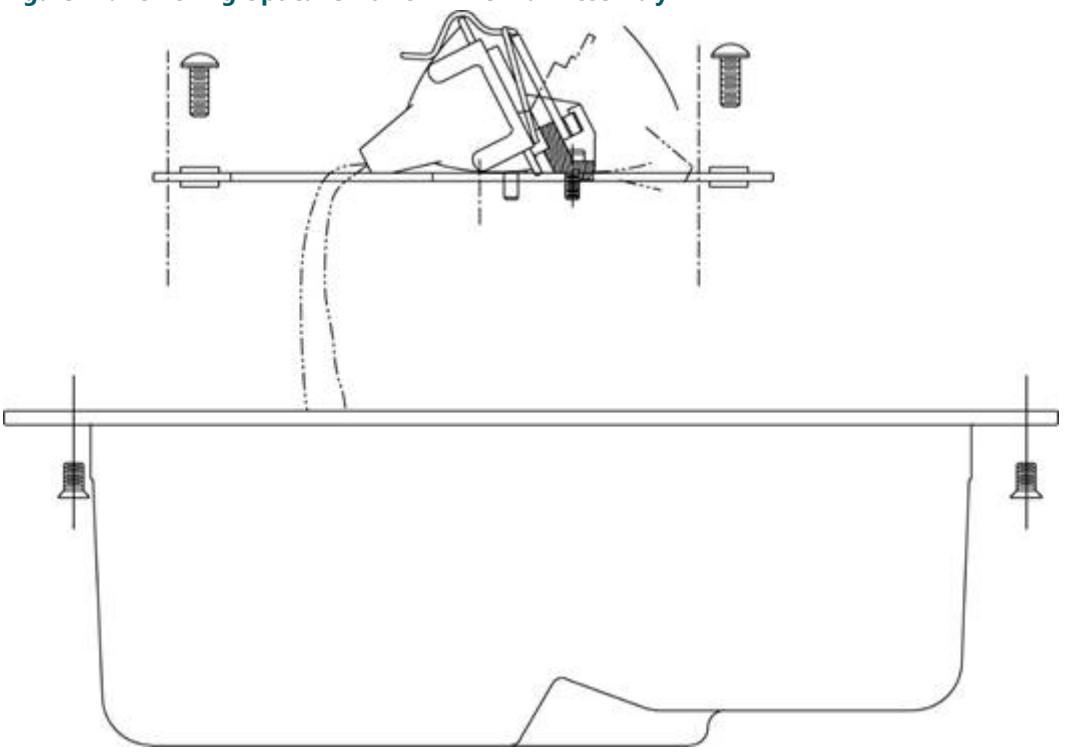
To replace the lamp and filter, perform the following procedure:

1. Open the optical unit. Refer to *Opening Optical Unit* in this section.

Note
Replacing Lamp and Filter *(contd.)*

2. See Figure Figure 21. Lift the optical unit (1) from the inner pan assembly (2).

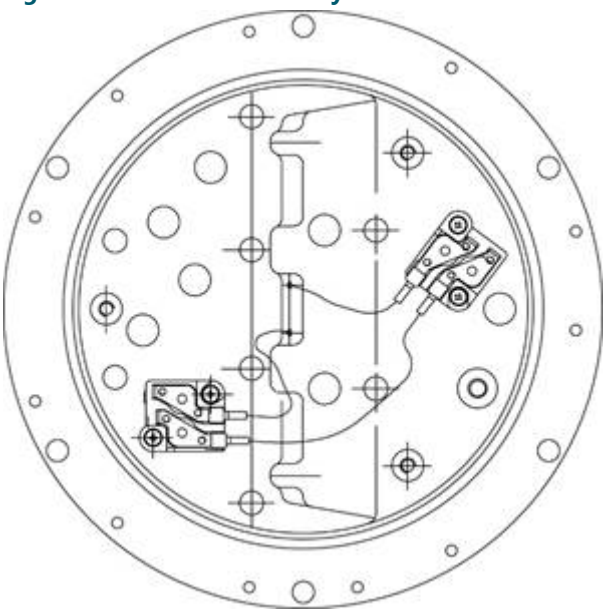
Figure 21: Removing Optical Unit from Inner Pan Assembly



Note
Replacing Lamp and Filter *(contd.)*

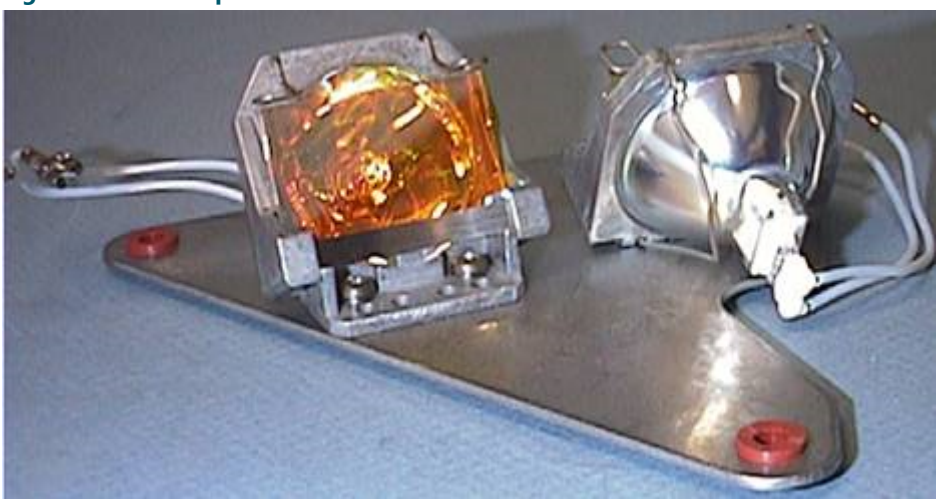
3. See Figure Figure 22. Unplug the lamp's fast-on connectors (6) from the terminal blocks (7).

Figure 22: Inner Pan Assembly



4. See Figure Figure 23. If replacing the filter **for L-850C inset lights purchased before September 20, 2006**, perform the following procedure:
5. While holding the reflector, unlatch the retainer spring (12).

Figure 23: Old Lamp and Filter Holder



Note

Replacing Lamp and Filter *(contd.)*

6. Remove the filter spring (10), filter (11), and lamp (9).
7. Replace with new lamp and new filter.

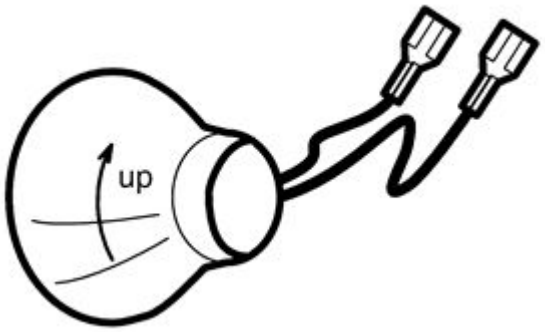
Note

See Figure Figure 24. To optimize photometric output, make sure that the lamp is correctly positioned with the arrow pointing up.

CAUTION

Never touch the bulb of the lamp with your bare hands. It will reduce the lifetime of the lamp considerably. Should it happen, clean the bulb with alcohol.

Figure 24: Arrow Pointing Up



8. Put the filter spring back in. Make sure the curved part of the filter spring faces the filter.
9. Put the two parts of the retainer spring in their respective notches on the lamp and filter holder assembly.

Note

Replacing Lamp and Filter *(contd.)*

-OR-

If replacing the filter **for L-850C inset lights purchased after September 20, 2006** , perform the following procedure:

1. See Figure Figure 25. Unlatch the retainer spring (12).

Figure 25: New Lamp and Filter Holder

2. While holding onto the lamp (9) and filter holder assembly (8), pull the lamp straight up.
3. Remove the filter spring (10) and filter (11).
4. Replace with new lamp and new filter.

Note

See Figure Figure 24. To optimize photometric output, make sure that the lamp is correctly positioned with the arrow pointing up.

CAUTION

Never touch the bulb of the lamp with your bare hands. It will reduce the lifetime of the lamp considerably. Should it happen, clean the bulb with alcohol.

Note

Replacing Lamp and Filter *(contd.)*

1. Put the filter spring (10) back in. Make sure the curved part of the filter spring faces the filter.
2. Latch the retainer spring (12) back on the lamp.
3. If a film disc cutout is used, remove the film disc cutout by loosening the screw that secures that cutout clip to the terminal block and rotate the cutout clip free. Refer *to Replacing Film Disc Cutout Assembly* in this section.
4. Replace the film disc cutout with a new cutout by performing the following procedure:
5. Position a new disc with small button side up in the terminal block.
6. Rotate the cutout clip on top of the cutout and hold while tightening the screw.
7. Make sure that the pressure applied by the clip on the film disc is sufficient to ensure good contact. If loosened, remove the clip and bend it slightly to increase its pressure.
8. See Figure Figure 21. If the optical bracket grommets (4) are aged or damaged, replace them, and use screws (5) to reinstall grommets.
9. Reinstall optical unit into inner pan assembly. When plugging fast-on connectors to terminal blocks, make sure there is good contact between fast-on connectors and terminals.

6.4 Replacing Film Disc Cutout Assembly

Refer to Table 4 for parts referred to in Figure 26 .

Table 4: Parts List for Replacing Film Disc Cutout

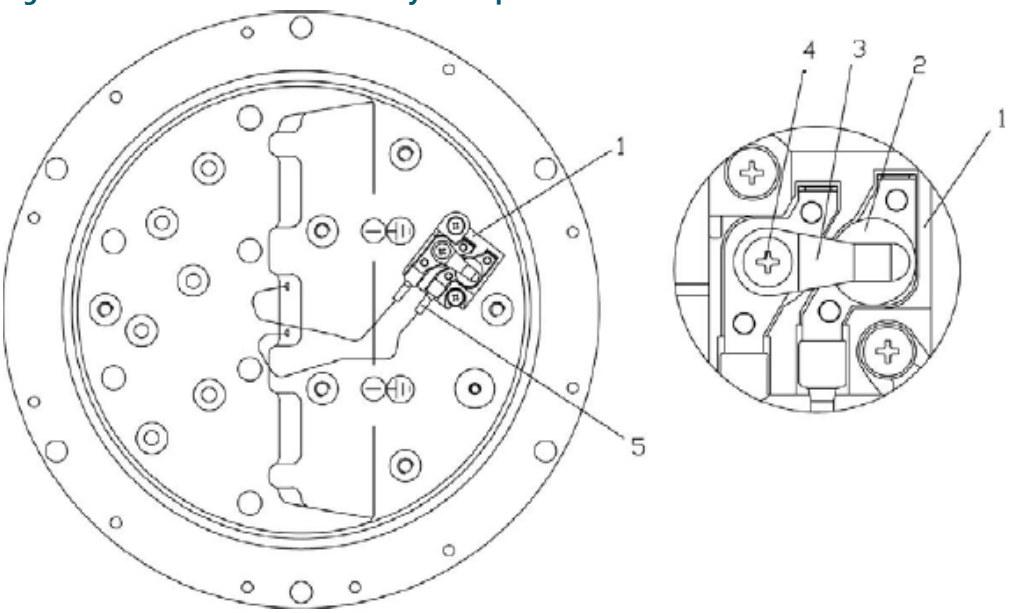
Item	Part Number	Description	Quantity	Note
1	Terminal block assembly		See note.	A
	44A6112-1	Terminal block assembly, without film disc cutout		
	44A6112-2	Terminal block assembly, with film disc cutout		
2	47A0118	Film disc cutout	See note.	A
3	4071.50.130	Film disc cutout clip	See note.	A
4	64A0964-10	Spring clip screw	See note.	A
NOTE A: Quantity is 1 per lamp				

To replace the film disc cutout assembly, perform the following procedure:

1. Open the optical unit. Refer to *Opening Optical Unit* in this section.
2. Disconnect the lamp from the terminals on the terminal block.
3. Grasp the optical unit and pull straight up from the inner pan assembly.

4. See Figure 26 . Using a Phillips head screwdriver, loosen or remove the spring clip screw (4).

Figure 26: Film Disc Cutout Assembly and Optical Unit



5. Remove installed film disc cutout (2) and replace with the new film disc cutout.

Note

CAUTION: Make sure that the small button on the side of the film disc cutout is pointed up.

6. Reassemble all components in reverse order as removal. The inner pan assembly is now ready to reinstall on the top cover.

6.5 Replacing Prism

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

Refer to Table 5 for parts referred to in Figure 27 and Figure 28 .

Table 5: Parts List for Replacing Prism

Item	Part Number	Description	Quantity	Note
1	4071.50.030	Prism gasket sleeve	A/R	A
2	63A0993-2 1428.00.270 1428.00.280 1428.00.290	Prism, narrow beam, optical glass (clear) Red Dichroic Prism Green Dichroic Prism Yellow Dichroic Prism	A/R	B
3	4071.50.052	Prism-keeper plate	A/R	A
4	64A0936-13	Screw, M5 x 13 (for Prism-keeper plate)	2	
5	63A0986	Flat seal	A/R	A
6	4017.50.360	Prism clamp	A/R	A
7	64A0925-10	Screw, M5 x 10 (for Prism Clamp)	2	

NOTE A: Quantity is 1 per prism. Note B: L-850D FAA uses 2 red/1green prism (as of 9/1/06); L850D Military uses 2 green/1 red prism; L850E FAA uses 2 Green; L850E Military uses either 2 ea Green, Red, or White depending upon application.

To replace the prism, perform the following procedure:

1. See Figure 27 for the L-850D light fixture prism. See Figure 28 for the L-850E light fixture prism. The replacement procedure is the same for both fixtures. Remove the prism-clamp (6) and prism-keeper plate (3) secured in the inner pan assembly.

Figure 27: Replacing L-850D Prism

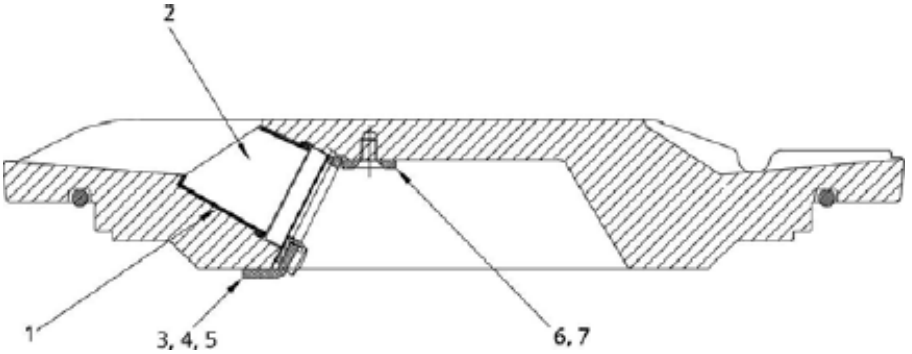
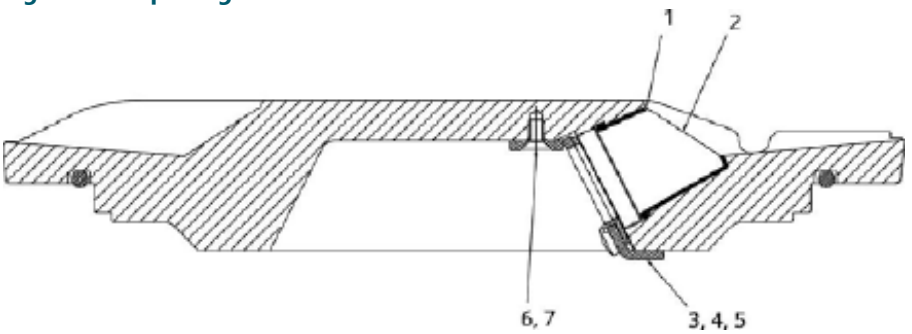


Figure 28: Replacing L-850E Prism



2. Replace with new lamp and new filter.

Note
See Table 12 . To optimize photometric output, make sure that the lamp is correctly positioned with the arrow pointing up.

Note
Never touch the bulb of the lamp with your bare hands. It will reduce the lifetime of the lamp considerably. Should it happen, clean the bulb with alcohol.

3. See Figure 11 . For the red or green optical support assembly, put the filter spring (4) and filter (3) back in. Make sure the curved part of the filter spring faces the filter.
4. Put the two parts of the lamp clip (6) in their respective notches on the lamp holder assembly.

6.6 Replacing Optical Unit

Refer to Table 6-1 in *Replacing Lamp and Filter* in this section for parts referred to in Figure 6-4.

To replace the optical unit, perform the following procedure:

1. Remove the lamp(s). Refer to *Replacing Lamp and Filter* in this section.
2. See Figure 6-4. Remove the optical unit (1) by loosening screws (5).
3. Position the new optical unit with new grommets (4).

NOTE: See Figure 2-3. Lamps and lamp holders must be assembled to the same side of the optical bracket labeled “THIS SIDE UP”.

4. Torque the fixing screws to 3.5 ± 0.5 Nt-m (31 ± 4 inch-pounds).

6.7 Replacing L-823 Cordset

Refer to Table 6 for parts referred to in Figure 29.

Table 6: Parts List for Replacing L-823 Cordset

Item	Part Number	Description	Quantity	Note
Item 5 on Figure 26	6111.87.140	Female cordset terminal	See note.	A
Item E5 on Figure 30		**Top cover**	1	
	44A6264-2	Top cover, threshold & runway end (L-850D FAA)		
	44A6264-2	Top cover, runway end only (L-850D FAA)		
	44A6264-3	Top cover , threshold & runway end (L-850D Military)		
	44A6265-1	Top cover, L-850E, threshold end		
	44A6265-2	Top cover, L-850E, threshold end (red/clear only)		
Item F5 on Figure 30	63A1014	Grommets (for cordset)	2	B
Item F6 on Figure 30	4071.50.090	Wire clamp (for cordset)	1	C
Item F7 on Figure 30	7110.08.367	Screw, M4 x 10 (for cordset)	2	B
Item F8 on Figure 30	73A0133-31	Cordset	1	C

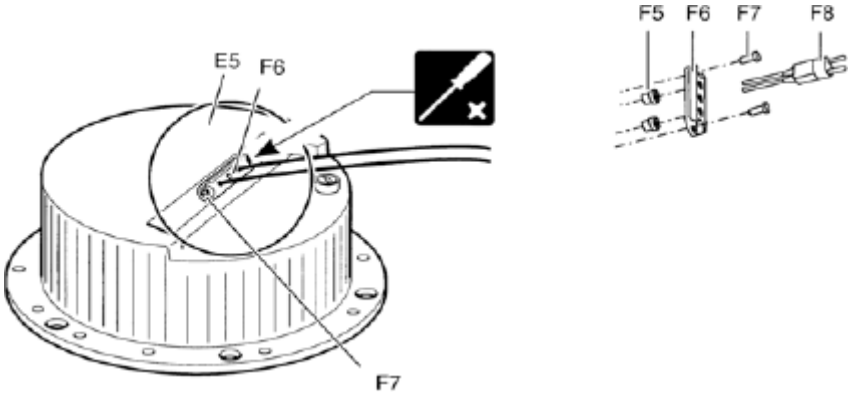
NOTE A: Quantity is 1 for L-850D Runway end; 2 for L-850E; 3 for L-850D Runway & Threshold.
NOTE B: Quantity is 2 for unidirectional; 4 for bidirectional.
NOTE C: Quantity is 1 for unidirectional; 2 for bidirectional.

To replace the L-823 cordset, perform the following procedure:

1. Open the optical unit. Refer to Opening Optical Unit .
2. Remove the optical unit.
3. See Figure 29. Remove both screws (F7) and the wire clamp (F6).

Note
Replace the wire grommets (F5) when damaged or aged.

Figure 29: L-823 Cordset



4. See Figure 26. Unplug the female cordset terminal s (5) from the cable assembly.
5. See Figure 29. Pull the cordset cable assembly (F9) out of the inner cover and discard the wire grommets (F5).
6. Bring the new cable assembly (F9) through the wire clamp (F6).
7. Put a new wire grommet (F5) on each of the wires, taking care of the direction. Put the smaller diameter into the inner cover recess.
8. Install the wires in the inner cover.
9. Reinstall the wire clamp (F6) by means of both cross recessed countersunk screws (F7).

Note
Do not torque down the screws entirely at this step.

10. Remove the insulation of the wires over about 5 mm.
11. Crimp on the new female cordset terminals and connect them to the terminals. Adjust the wires inside the inner cover.
12. Torque the screws (F7) to 31 ± 4 inch-pounds (3.5 ± 0.5 Nt-m).

6.8 Closing Optical Unit

Refer to Table 7 for parts referred to in Figure 30.

Table 7: Parts List for Closing Optical Unit

Item	Part Number	Description	Quantity	Note
1	MS00001-376-01	O-ring (for top cover)	1	
2	Top cover		1	
	44A6264-1	Top cover, threshold & runway end (L-850D FAA)		
	44A6264-2	Top cover, runway end only (L-850D FAA)		
	44A6264-3	Top cover, threshold & runway end (L-850D Military only)		
	44A6265-1	Top cover, L-850E, threshold end		
	44A6265-2	Top cover, L-850E, threshold end (red/clear only)		
	63A0993-2	Prism	See note.	A
	1428.00.270	Red Dichroic Prism		
	1428.00.280	Green Dichroic Prism		
	2990.40.900	Lamp, 105 W/6.6A, MR16 (L850E and L850D Military)	See note.	A
	48A0386	Lamp, 62W/6.6A, MR16 (L850D FAA)		A
3	Inner cover (of inner pan assembly)		1	
	4071.62.630	Inner cover, one cordset application		B
	4071.62.650	Inner cover, two cordset application		B
4	1411.22.002	Lamp holder assembly	See note.	A
5	Optical support assembly		1	
	44A6263-1	Optical support assembly, threshold right, runway end right (L- 850D)		
	44A6263-2	Optical support assembly, threshold straight, runway end right (L- 850D)		
	44A6263-5	Optical support assembly, threshold straight, runway end left (L-850D)		
	44A6263-6	Optical support assembly, threshold left, runway end left (L-850D)		
	44A6263-7	Optical support assembly, threshold right, runway end straight (L- 850D)		
	44A6263-8	Optical support assembly, threshold straight, runway end straight (L-850D)		
	44A6263-9	Optical support assembly, threshold left, runway end straight (L- 850D)		
	44A6263-10	Optical support assembly, runway end obscured, threshold only right (L-850E)		
	44A6263-11	Optical support assembly, runway end obscured, threshold only straight (L-850E)		
	44A6263-12	Optical support assembly, runway end obscured, threshold only left (L-850E)		

Table 7: Parts List for Closing Optical Unit (continued)

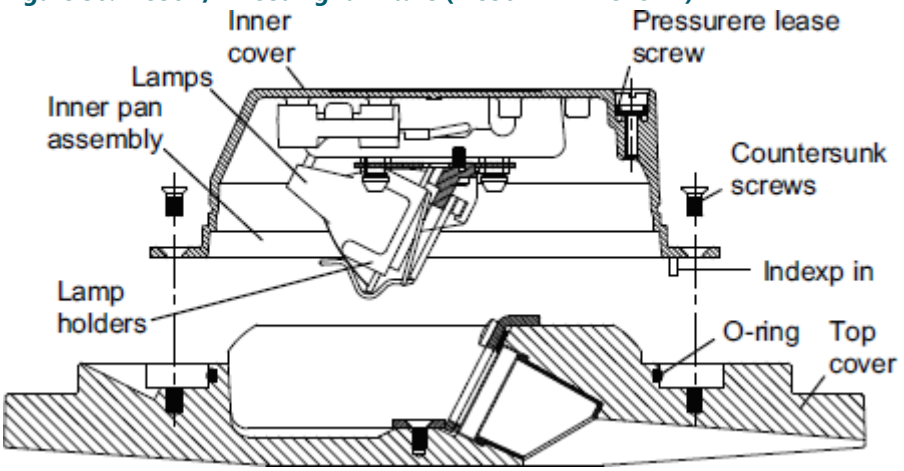
Item	Part Number	Description	Quantity	Note
	64A0925-10	Screw, M5 x 10 (for top cover assembly)	4	

NOTE A: Quantity is 1 for L-850D Runway; 2 for L-850E; 3 for L-850D Runway & Threshold.
NOTE B: Inner cover does not include cordsets.

To close the optical unit, perform the following procedure:

1. See Figure 30. Turn the top cover upside down.

Figure 30: L-850D/E Inset Light Fixture (L-850D – FAA shown)



2. Make sure that 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 located in the top cover.

Note
Use a synthetic grease such as Molykote (67A0095).

4. See Figure 18. Remove the pressure release screw.
5. See Figure 30. Install the inner cover on top of the cover.

Note
Align the inner pan mounting holes on the top cover holes.

6. See Figure 11. Make sure the lamp holder and lamp are correctly positioned and that the wires of the lamps do not get damaged between both parts (cover and inner cover).
7. Press the inner cover of the inner pan assembly on the top cover and secure with the countersunk screws. Apply a droplet of Loctite 222 to the last threads. Torque screws to 22 ±4 inch-pounds (2.5 ±0.5 Nt-m).
8. Check the water tightness of the assembly by replacing the pressure release screw with a pressure test fixture. The leak path can then be located by submerging the assembly in a tank of water while pressurizing using shop air pressure to a maximum of 20 psi (38 kPa). Refer to " Testing for Leaks".
9. Make sure the O-ring seal for the pressure release screw is in good condition and reinstall the pressure release screw.

7.0 Parts

7.1 Introduction

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

44A6009 - X X X X

Left Filter Colors[1]
0 = White (No Filter)
1 = Yellow
2 = Red
3 = Obscured

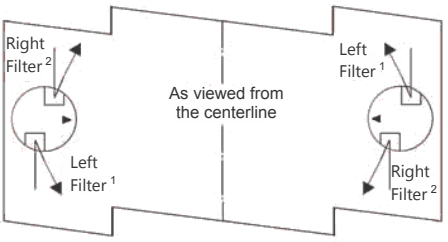
Right Filter Colors[2]
0 = White (No Filter)
1 = Yellow
2 = Red
3 = Obscured

Film Disc Cutout
1 = Included
2 = Not Included

Cord Sets
1 = One L-823 Cord Set
2 = Two L-823 Cord Sets

Notes
Bidirectional fixture uses two 105 W lamps and unidirectional fixture uses one 105 W lamp.
[1, 2] See filter location diagram below.

Toe-in Coding



Note: Triangle embossed on the top cover should point toward the centerline to ensure correct toe-in position.

7.2 F-Range L-850C Light Fixture Parts List

See Figure 31.

Part Number	Description	Quantity	Note
44A6017	Top cover	1	
44A6017-1	Top cover, right window, unidirectional		
44A6017-2	Top cover, bidirectional		
44A6017-2	Top cover, left window unidirectional		
44A6018	Optical unit	1	
44A6018-1	Optical unit, 1 lamp, right hand		
44A6018-2	Optical unit, 1 lamp, left hand		
44A6018-3	Optical unit, 2 lamps		

Part Number	Description	Quantity	Note
44A6019	Inner pan assembly	1	
44A6019-1	Inner pan assembly, 2 lamp, 1 cordset, without film disc cutout		
44A6019-2	Inner pan assembly, 2 lamp, 1 cordset, with film disc cutout		
44A6019-3	Inner pan assembly, 2 lamp, 2 cordset, without film disc cutout		
44A6019-4	Inner pan assembly, 2 lamp, 1 cordset, with film disc cutout		
44A6019-5	Inner pan assembly, left-hand lamp, 1 cordset, without film disc cutout		
44A6019-6	Inner pan assembly, left-hand lamp, 1 cordset, with film disc cutout		
44A6019-7	Inner pan assembly, right-hand lamp, 1 cordset, without film disc cutout		
44A6019-8	Inner pan assembly, right-hand lamp, 1 cordset, with film disc cutout		
44A6112	Terminal block assembly	See note.	A
44A6112-1	Terminal block assembly, without film disc cutout		
44A6112-2	Terminal block assembly, with film disc cutout		
47A0118	Film disc cutout	See note.	A
60A2602	Pressure release screw	1	
60A2603	Optical bracket	1	
63A0222	Grommet (for optical bracket)	3	
63A0964	Filter, yellow	See note.	B
63A0986	Flat seal	See note.	A
63A0993-3	Prism	See note.	A
63B0267-011	O-ring, pressure screw	1	
64A0925-10	Screw, M5 x 10		
	Screw, M5 x 10 (for top cover assembly)	See note.	A
	Screw, M5 x 10 (to connect top cover assembly to innerpan assembly)	10	
64A0936-13	Screw, M5 x 13 (for top cover assembly)	See note.	A
73A0133-31	Cordset	1	
1411.22.001	Lamp and filter holder assembly – New Style used on fixtures purchased after 9/20/05, See Fig 6-8, Item 8	See note.	A
1411.22.002	Lamp and filter holder assembly – Old Style used on fixtures purchased before 9/20/05, See Fig 6-6, Item 10	See Note	A
2990.40.900	Lamp, 105 W	See note.	A
4017.50.130	Film disc cutout clip	See note.	A
4071.50.030	Sock seal	See note.	A
4071.50.052	Prism keeper plate	See note.	A
4071.50.090	Wire clamp (for cordset)	1	
4071.50.160	Filter spring	1	
4017.50.360	Prism clamp	See note.	A
4071.58.510	Retainer spring	See note.	A
4071.62.630	Inner cover	1	

Part Number	Description	Quantity	Note
6111.87.140	Fast-on connector (for inner pan terminal block)	See note.	B
6126.01.031	Grommets (for cordset)	2	
MS00001-376-01	O-ring (for top cover)	1	

Note

A: Quantity is 1 for unidirectional, 2 for bidirectional.

Note

B: Quantity is 1 for clear/yellow lens, 0 for clear/clear lens. The white lens has no filter.

Figure 31: Figure 7-2 F-Range L-850C Light Fixture (1 of 3)

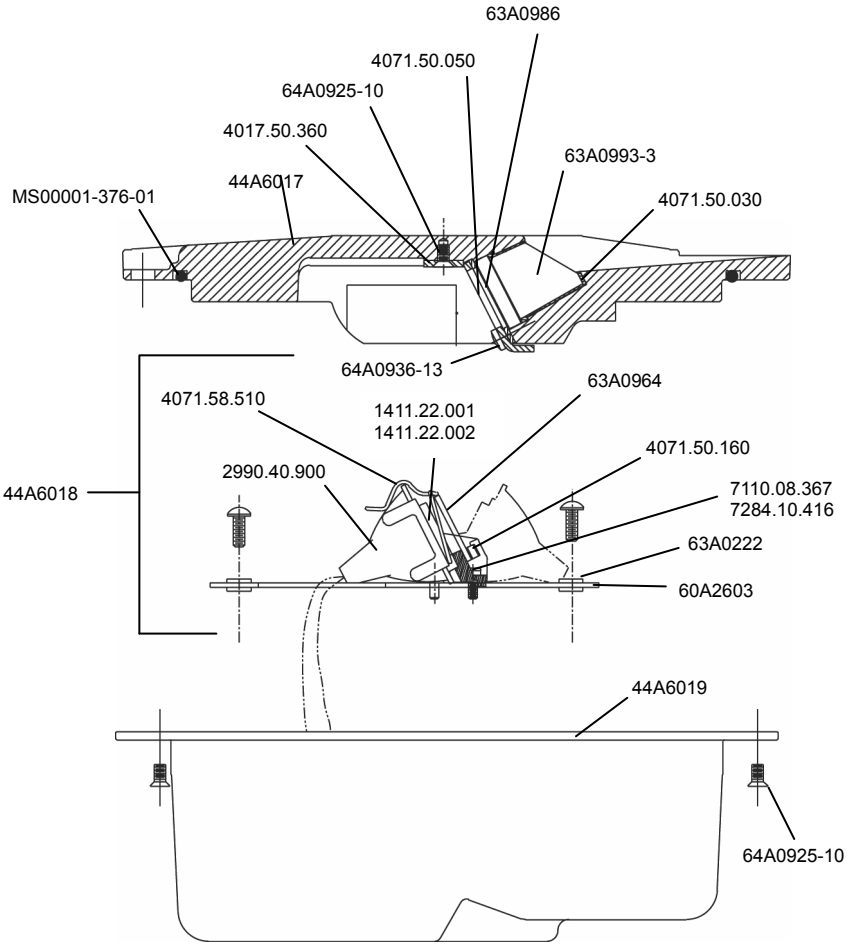


Figure 32: Figure 7-2. F-Range L-850C Light Fixture (2 of 3)

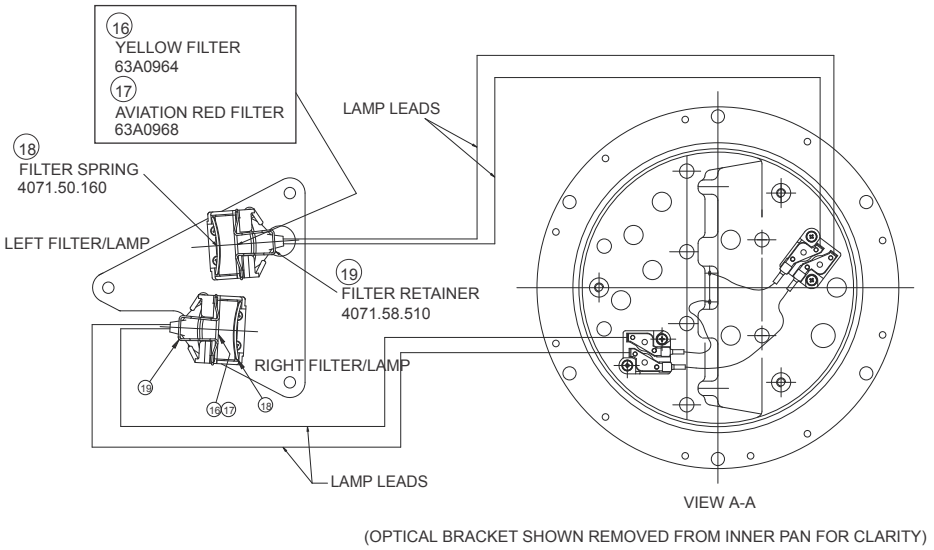
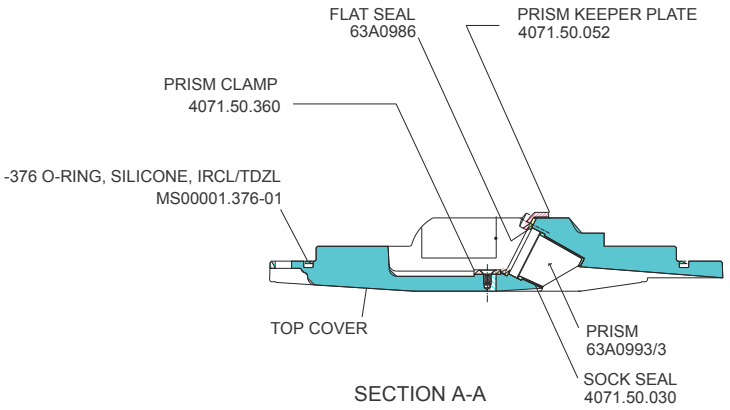


Figure 33: Figure 7-2. F-Range L-850C Light Fixture (3 of 3)



7.3 F-Range Optical Unit Parts List

See Figure 7-2.

Part Number	Description	Quantity	Note
44A6018	Optical unit	1	
44A6018-1	Optical unit, 1 lamp, right hand		
44A6018-2	Optical unit, 1 lamp, left hand		
44A6018-3	Optical unit, 2 lamps		
60A2603	Optical bracket	1	
63A0222	Grommet (for optical bracket)	3	
1411.22.001	Lamp and filter holder assembly – New Style used on fixtures purchased after 9/20/05, See Fig 6-8, Item 8	See note.	A,
1411.22.002	Lamp and filter holder assembly – Old Style used on fixtures purchased before 9/20/05, See Fig 6-6, Item 10	See note	A
2990.40.900	Lamp, 105 W	See note.	A

Part Number	Description	Quantity	Note
7110.08.367	Screw, M4 x 10 (for optical unit)	See note.	A
7284.10.416	Spring lockwasher, M4	See note.	B

Note
A: Quantity is 1 for unidirectional, 2 for bidirectional.

Note
B: Quantity is 2 for unidirectional, 4 for bidirectional.

7.4 Recommended Spare Parts

See Figure 7-2.

Part Number	Description
44A6017-X	**Top cover**
44A6017-1	Top cover, right window, unidirectional
44A6017-2	Top cover, bidirectional
44A6017-2	Top cover, left window unidirectional
44A6018-X	**Optical unit**
44A6018-1	Optical unit, 1 lamp, right hand
44A6018-2	Optical unit, 1 lamp, left hand
44A6018-3	Optical unit, 2 lamps
44A6019-X	**Inner pan assembly**
44A6019-1	Inner pan assembly, 2 lamp, 1 cordset, without film disc cutout
44A6019-2	Inner pan assembly, 2 lamp, 1 cordset, with film disc cutout
44A6019-3	Inner pan assembly, 2 lamp, 2 cordset, without film disc cutout
44A6019-4	Inner pan assembly, 2 lamp, 1 cordset, with film disc cutout
44A6019-5	Inner pan assembly, left-hand lamp, 1 cordset, without film disc cutout
44A6019-6	Inner pan assembly, left-hand lamp, 1 cordset, with film disc cutout
44A6019-7	Inner pan assembly, right-hand lamp, 1 cordset, without film disc cutout
44A6019-8	Inner pan assembly, right-hand lamp, 1 cordset, with film disc cutout
44A6112-X	**Terminal block assembly**
44A6112-1	Terminal block assembly, without film disc cutout
44A6112-2	Terminal block assembly, with film disc cutout
47A0118	Film disc cutout
60A2602	Pressure release screw
60A2603	Optical bracket
63A0222	Grommet (for optical bracket)
63A0964	Filter, yellow
63A0986	Flat seal
63A0993-3	Prism

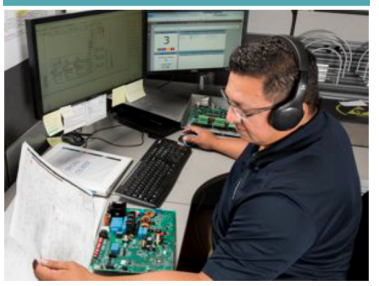
63B0267-011	O-ring, pressure screw
67A0095	Molykote lubricate
73A0133-31	Cordset
1411.22.001	Lamp and filter holder assembly
2990.40.900	Lamp, 105 W
4017.50.130	Film disc cutout clip
4071.50.030	Sock seal
4071.50.052	Prism keeper plate
4071.50.090	Wire clamp (for cordset)
4071.50.160	Filter spring
4017.50.360	Prism clamp
4071.58.510	Retainer spring
4071.62.630	Inner cover
6111.87.140	Fast-on connector (for inner pan terminal block)
6126.01.031	Grommets (for cordset)
MS00001-376-01	O-ring (for top cover)

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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