IRTE, IRTM, IRTA Style 2, F-Range Series
Incandescent In-pavement, FAA L-850D/E Runway Threshold and Runway End Light, High-Intensity

User Manual

96A0308, Rev. J, 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 L-850D/E - FAA / IRTE, Style 2, F-Range Series

The IRTE FAA Style 2 incandescent light can be used for displaced threshold and runway threshold/end lighting applications. Low-energy and long-life halogen lamps are rated with a life of 1,000 hours at 6.6A. The fixture has an aluminum alloy inner and outer cover as well as stainless steel hardware and optical assembly.

2.1 About this manual

The manual shows the information necessary to:

- Install and maintain the IRTE FAA Style 2 incandescent light.

2.2 How to work with the manual

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

3.0 Product Introduction

This section describes the ADB Safegate F-Range Type L-850D/E, Style 2 inset lights referred to in "Uses".

See Figure 1 for the L-850D inset light. See Figure 2 for the L-850E inset light. The 12-inch L-850D/E F-Range inset light fixtures are designed to mark the runway ends and threshold. The L-850D can be supplied as a bidirectional or unidirectional fixture, whereas the L-850E is supplied only as a unidirectional fixture. They are manufactured in accordance with FAA specification AC 150/5345-46, Style 2 (0.50 inches height above grade) and the photometric requirements of the latest edition of ICAO Annex 14.

3.1 Incandescent In-pavement Runway Threshold/End Light

Compliance with Standards

FAA:	L-850D AC 150/5345-46 (Current Edition). ETL Certified.

Uses

FAA L-850D

- Runway displaced threshold light (unidirectional green, one 62 W lamp)
- Runway threshold/end (bidirectional red/ green: one 62 W lamp, green; two 62 W lamps, red)

Features

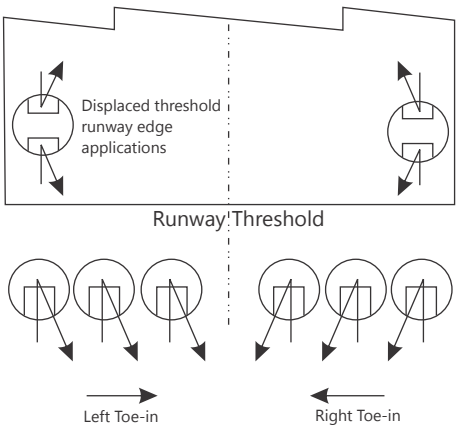
- FAA Style 2-Low protrusion above ground of ≤0.50 inch reduces vibrations caused by aircraft landing gear in both light fixture and landing gear, increasing lamp life
- Designed and built with simplicity and ease of maintenance in mind
- Light channel in front of prism windows protects prisms from damage and prevents rubber buildup thereby maintaining optimal light output
- Low-energy/long-life halogen lamps are 62 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 and inner 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

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.

Toe-in Coding Threshold Only

- Toe-in direction for green side is from the pilot's perspective on approach. Opposite side (runway end/red side) is straight.
- Position the fixtures on either side of the runway so that the fixture toe-in points to the runway centerline
- In a displaced threshold/runway edge application, the toe-in is always towards the runway centerline. When ordering always choose the same toe-in direction as the threshold beam. For example, if the threshold beam is toed right, the runway edge light is toed right.



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

	Runway End	**Threshold/End**
In cardboard box:	7 × 13 × 13 in / 18 × 33 × 33 cm	7 × 13 × 13 in / 18 × 33 × 33 cm
Weight with packing:	15.3 lb / 6.94 kg	18.5 lb / 8.4 kg
Weight packing:	12.3 lb / 5.58 kg	15.5 lb / 7 kg

3.2 Incandescent In-pavement Runway Threshold/Military Approach Light

Compliance with Standards

FAA:	L-850E AC 150/5345-46 (Current Edition). ETL Certified.
Military:	Photometry complies with UFC 3-535-01 Fig 3-2.B (Approach White & Red) and Fig 4-5 (Threshold Green).

Uses

FAA L-850E

- Threshold lighting system, L-850E (2 green, 105 W lamps)

U.S. Military

- Military approach lighting system (2 white or 2 red, 105 W lamps)
- Military threshold system (2 green, 105 W lamps)

Features

- FAA Style 2–Low protrusion above ground of ≤ 0.50 inch reduces vibrations caused by aircraft landing gear in both the light fixture and the landing gear, increasing lamp life
- 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 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 and inner 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

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.

Ordering Code

44A6248 - X X X 0

Color
1 = FAA Green (ETL Certified)
2 = Military White[2]
3 = Military Red[2]
4 = Military Green[2]

Film Disc Cutout
1 = Included
2 = Not Included

Light Beam
1 = Straight (ETL Certified)[1]
2 = Right Toed[2]
3 = Left Toed[2]

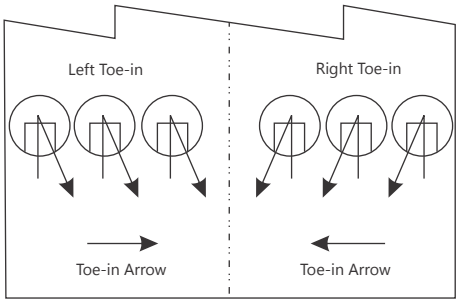
Notes

- External fixture-to-base can O-ring, Part No. 7080.90.650, is ordered separately if needed for installation. For FAA installations, this O-ring is normally included with the flange ring.

[1] Normally used on military applications
[2] Configuration not recognized by the FAA

Toe-in Coding

- Toe-in direction is from the pilot's perspective (the approach end of the runway)
- For more information about FAA-E-2968 Steady Burning, Semi-Flush, Approach Light for MALSR, Style II, unidirectional, green applications, see IAML data sheet DS-2029.



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:	18.5 lb / 8.4 kg
Weight without packing:	15.5 lb / 7 kg

3.3 Incandescent In-pavement Runway Threshold/End Light

Compliance with Standards

Military:	Designed according to L-850D AC 150/5345-46 (Current Edition) and photometry tested to UFC 3-535-01 Fig 4-5 (green) and Fig 4-10 (red).
ICAO:	Annex 14, Vol. 1, par 5.3.10.10 (Runway Threshold) and par 5.3.11 (Runway End).

Uses

ICAO and U.S. Military

- Runway end light (unidirectional red, one 105 W lamp)
- Runway threshold light (unidirectional green, two 105 W lamps)
- Runway threshold/end (bidirectional red/ green: one 105 W lamp, red; two 105 W lamps, green)

Features

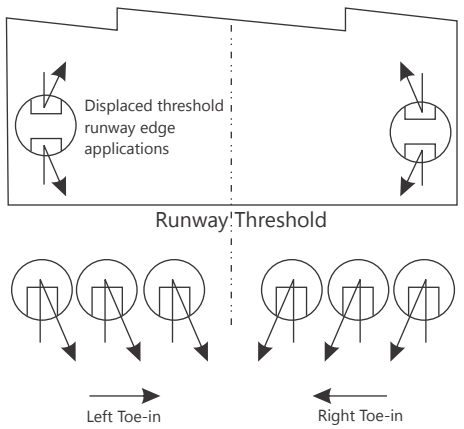
- FAA Style 2–Low protrusion above ground of ≤ 0.50 inch reduces vibrations caused by aircraft landing gear in both the light fixture and the landing gear, increasing lamp life
- Designed and built with simplicity and ease of maintenance in mind
- Light channel in front of prism windows protects prisms from damage and prevents rubber buildup thereby maintaining optimal light output
- Low-energy/long-life halogen lamps are 105W 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 and inner 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

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.

Toe-in Coding Threshold/End Only

- Toe-in direction for green side is from the pilot's perspective on approach. Opposite side (runway end/red side) is straight.
- Position the fixtures on either side of the runway so that the fixture toe-in points to the runway centerline
- In a displaced threshold/runway edge application, the toe-in is always towards the runway centerline. When ordering always choose the same toe-in direction as the threshold beam. For example, if the threshold beam is toed right, the runway edge light is toed right.



Packaging

	Runway End	Threshold/End
In cardboard box:	7 × 13 × 13 in / 18 × 33 × 33 cm	7 × 13 × 13 in / 18 × 33 × 33 cm
Weight with packing:	15.3 lb / 6.94 kg	18.5 lb / 8.4 kg
Weight w/out packing:	12.3 lb / 5.58 kg	15.5 lb / 7 kg

3.4 Equipment and Accessories Supplied

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

3.5 Equipment Required But Not Supplied

Description	Quantity
Torque wrench	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. Refer to DataSheet 2085.	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
Lifting tool (Part number 1411.19.550)	1

4.0 Installation

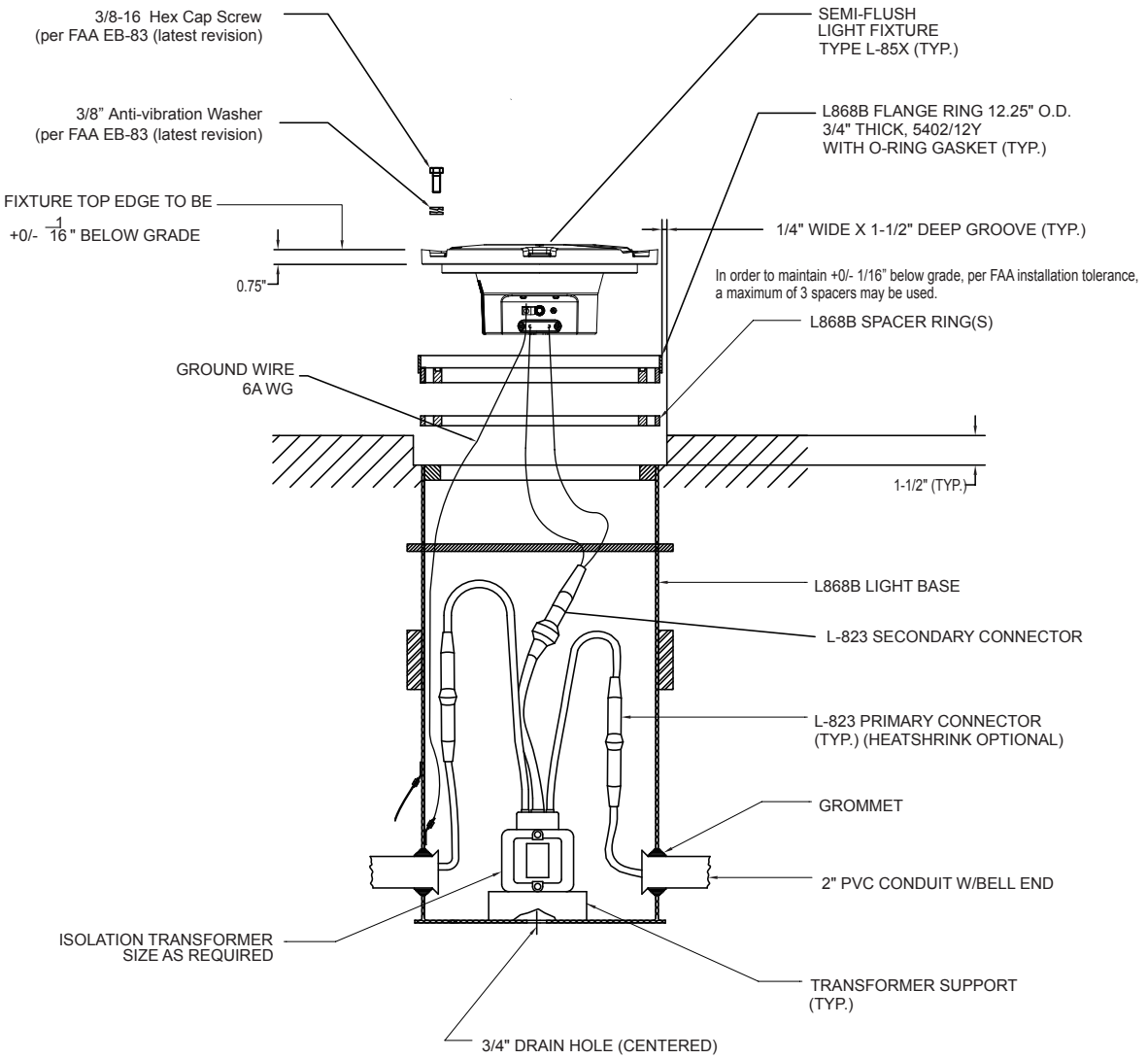
This section provides instructions for installing the L-850D/E F-Range inset lights. Refer to airport project plans and specifications for the specific installation instructions. The installation shall conform to FAA specification AC 150/5340-30, site plans and drawings, and applicable sections of the National Electric Code and local codes.

4.1 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).

4.2 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.

4.3 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.

4.4 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.

4.5 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		

4.6 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.

4.7 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.

4.8 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.

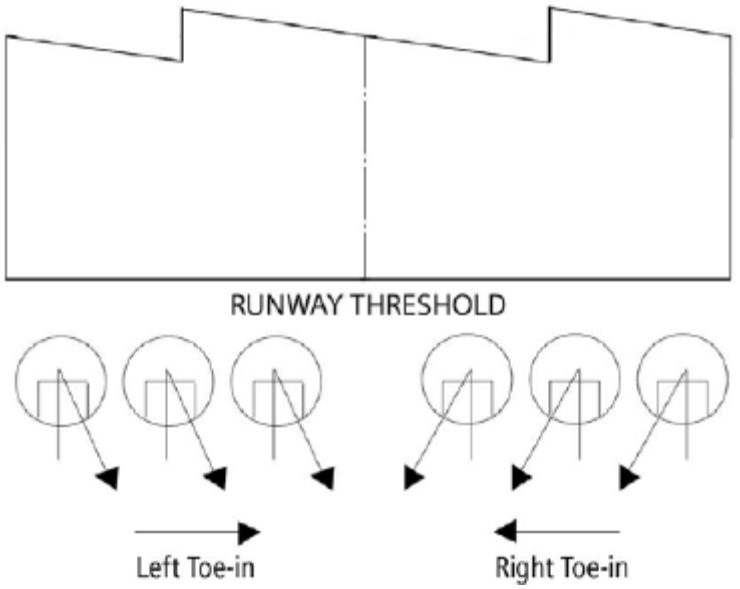
For long storage periods (longer than one year), we recommend to energize the LED lights once a year at nominal intensity (6.6 Amps) for 20 minutes.

4.9 L-850D/E Toe-In Coding

See Figure 3 . Refer to the guidelines below for L-850D toe-in coding (threshold/end only).

- Toe-in direction for the green side is from the pilot's perspective on approach. Opposite side (the runway end/red side) is straight.
- Position the L-850D fixtures on either side of the runway so that the fixture toe-in points to the runway centerline.

Figure 3: L-850D/E Toe-In Coding



See Figure 3 . Refer to the guidelines below for L-850E toe-in coding.

- For military approach applications, there is no toe-in. Toe-in direction is from the pilot's perspective (the approach end of the runway).
- For ICAO applications, the light beam is toed and fixtures must be located on both sides of the runway so that the fixture toe-in points to the runway centerline. The light beam is straight for FAA applications.

Encapsulated (FAA Style) isolation transformers are available for voltage-driven, medium-intensity approach lighting applications. For 210 W, 240 Vac to 31.8 Vac applications, use part number 35C0094.

4.10 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.

4.11 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.

4.12 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.

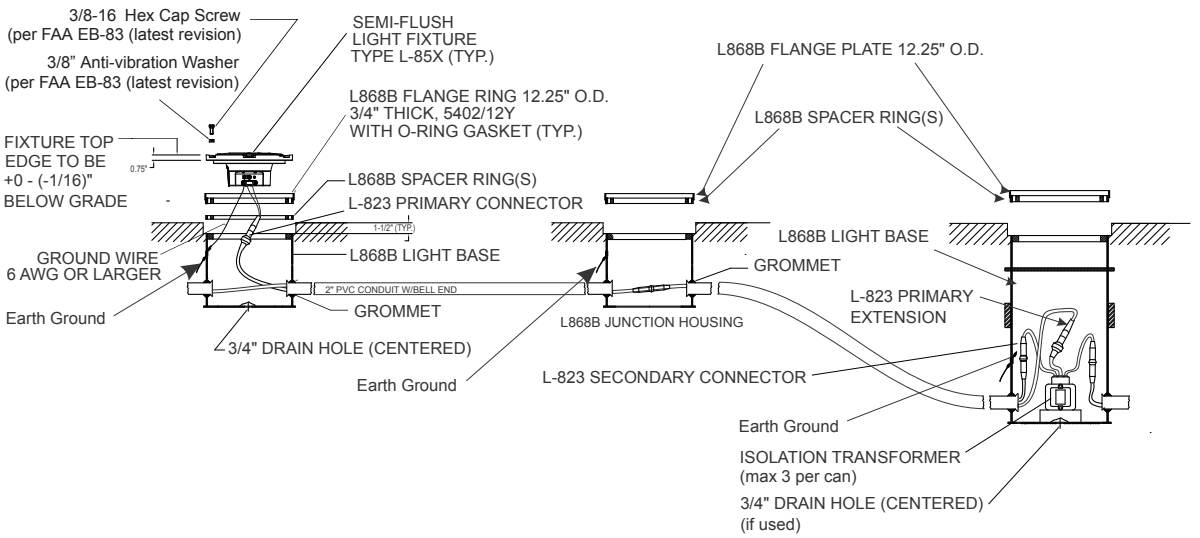
4.12.1 Installation on a Shallow Base

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.

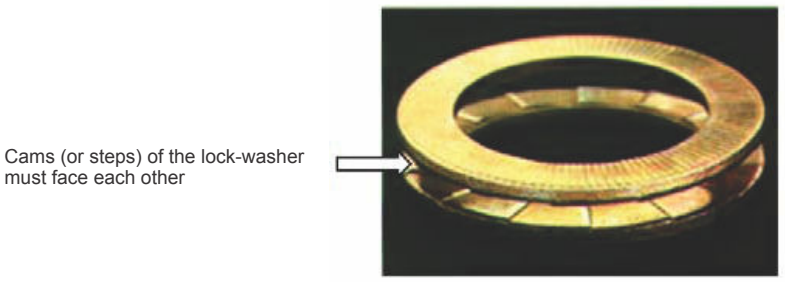
Also follow the applicable instructions in the previous section, when connecting, installing and powering the fixture.

Figure 4: Example of a Shallow Base Installation



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

Figure 5: 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.

5.0 Maintenance

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

5.1 Periodic Maintenance Schedule

The L-850D/E light fixtures can be serviced in the field, but it is recommended to limit field maintenance to cleaning the prisms. It is recommended to replace the inset lights at regular intervals and to have them overhauled in the maintenance shop. The same applies to lights found “non-serviceable” in the field.

To keep the F-Range light fixtures operating efficiently, follow a preventive maintenance schedule. Refer to Table 2 . Refer to FAA AC 150/5340-26 for more detailed information.

Note

Reference with the local airport maintenance standards.

Table 2: Recommended Minimum Maintenance Schedule Table

Interval	Check	Action
Daily	For lamp failure	Replace lamp and film disc cut-out (if any). Refer to *Replacing Lamp and Filter* and *Replacing Film Disc Cutout Assembly* in the *Repair* section.
	For low light output	1. Clean outer surface of prism if dirty. 2. Check for misalignment or presence of moisture in fixture. 3. Check for lamp aging or displacement
Weekly	For obstruction in light output channel	Clean channel and prism surface. Refer to *Cleaning Light Channel and Prism* in this section.
Monthly (or more frequently during rainy seasons)	For presence of moisture or water (visual inspection on condensation inside of prisms)	1. Open up light assembly. 2. Clean, dry and inspect. 3. Replace O-ring and other parts found defective.
Bimonthly	Torque on hold-down bolts	Refer to *Retorquing Mounting Bolts* in the *Maintenance* section.
Semi-annually (or more frequently during rainy seasons)	For presence of water in base	1. Pump water from base. 2. Remove, dismantle and inspect light for water damage. 3. Cure the cause of water ingress.
After 800 hours of operation at 6.6 A	Replace lamps of complete subsystems (for example, R/W centerline)	It is recommended to replace the lamps systematically when 80 % of the useful life has been reached. At full brightness (6.6 A), it represents 800 hours, but, in practice, life spans of 2000 to 4000 hours can be expected.
After snow removal	For damaged light fixtures	1. Replace badly damaged fixtures. 2. Use a power broom for snow removal in the vicinity of the light fixture, if practical.

5.2 Maintenance Procedures

DANGER

ARC FLASH AND ELECTRIC SHOCK HAZARD
Allow only qualified personnel to perform maintenance, troubleshooting, and repair tasks.

- Only persons who are properly trained and familiar with ADB Airfield Solutions equipment are permitted to service this equipment.
- 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 Airfield Solutions 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 warnings will result in death or equipment damage.

This subsection describes the following maintenance procedures:

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

5.2.1 Replacing Lamp

1. Turn off the circuit before replacing lamp(s).

WARNING

WARNING - DO NOT TOUCH

- 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.

2. 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.

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

5.2.2 Cleaning Light Channel and Prism

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

1. See the L-850 light fixtures. Use a suitable fiber brush to remove all accumulated debris from the light channel.
2. Clean the outer surface of the prism 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 kPa) to evaporate or remove all remaining cleaner.

5.2.3 Removing L-868 Base Water

1. Turn off the circuit when checking water level.
2. Check the water level in the L-868 base on a regular schedule.

Note
If more than six inches (150 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.

3. Cover the L-868 base with the appropriate steel cover plate after removing the light assembly.

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

5.2.4 Lifting Light Fixture Out of Base

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

1. See Figure 6 . Remove the six fixing screws and washers (3).
2. Fit the lifting tool in Figure 3-3 (part number 1411.19.550) into both holes located 180 degrees apart in the top cover (see Figure 6), lift the optical assembly out of the base. Place the optical assembly next to the base.

Note
The light fixture is heavy. Use two men to lift the fixture.

3. Perform required service.
4. After service is complete, reinstall the fixture.

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

Note
See " Torquing and Installation Guidance for In-pavement Fixtures" on page 13.

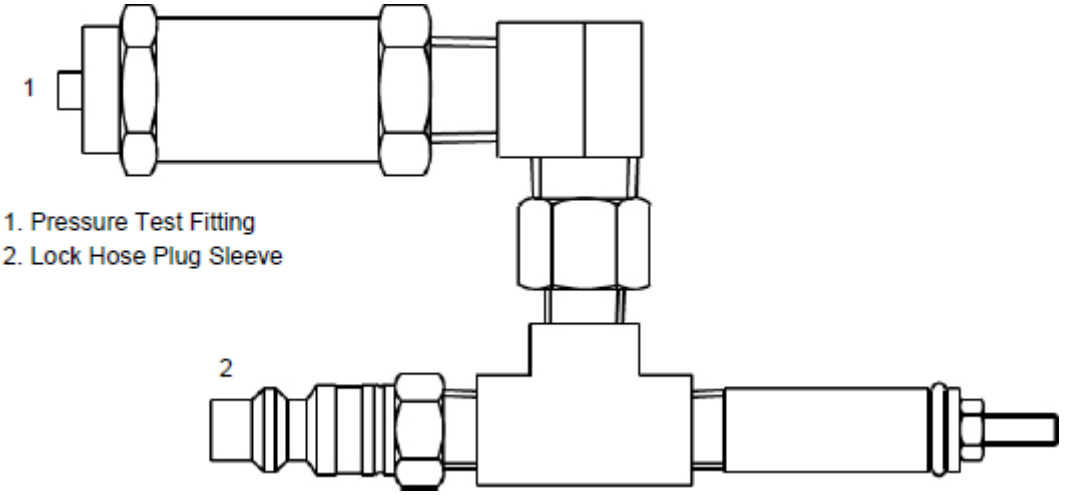
5.2.5 Testing for Leaks

To test for leaks, perform the following procedure:

1. See Figure 6.
   Remove pressure relief screw.
2. See Figure 7.
   Screw pressure test fitting into the pressure relief port (the opening created when the pressure relief screw is removed). Screw fitting hand-tight.

Figure 6: Pressure Relief Screw

Figure 7: 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.

5.3 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.

5.4 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 8: Anti-vibration washer example

CAUTION

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

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.

6.0 Troubleshooting

WARNING

ELECTRIC SHOCK HAZARD

- 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 warnings will result in death or equipment damage.

6.1 Action Table in the Event of a System or Component Malfunction

Table 3: Product L-850D Troubleshooting Guide Table

Problem	Possible Cause	Corrective Action
1. Lamp not energizing	Defective lamp	Replace lamp and film disc cutout (if used). Refer to Replacing Lamp and Replacing Film Disc Cutout Assembly .
	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	Wrong prism	Replace prism with one with correct color. (see parts list)
	Dichroic coating damaged	Replace filter.
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 " and Replacing Film Disc Cutout Assembly . **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.

Table 3: Product L-850D Troubleshooting Guide Table (continued)

Problem	Possible Cause	Corrective Action
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.

6.2 Repair Procedures

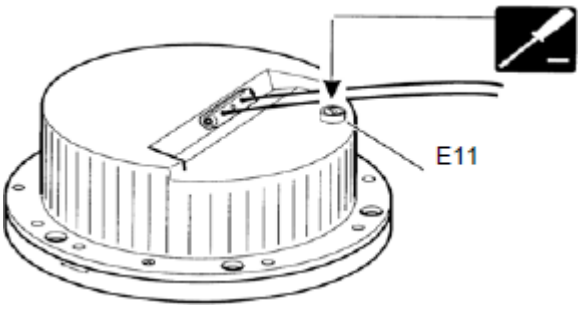
6.2.1 Opening Optical Unit

To open the optical unit, perform the following procedure:

1. Turn the light unit upside-down.
2. See Figure 9. Remove the pressure release screw (E11).

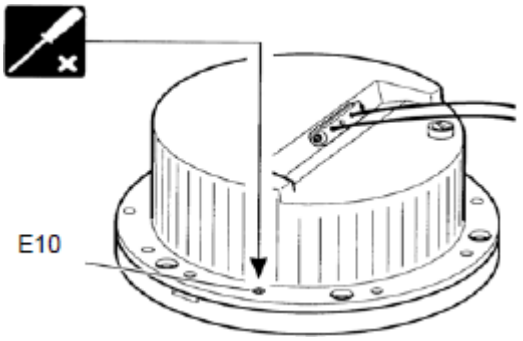
Note
Removing the pressure release screw equalizes the pressure inside and outside the fixture, making it easier to break the seal and remove the inner cover.

Figure 9: Pressure Release Screw



3. See Figure 10. Remove the six screws (E10). The use of an impact driver may be required to unlock the screws.

Figure 10: Removing Screws

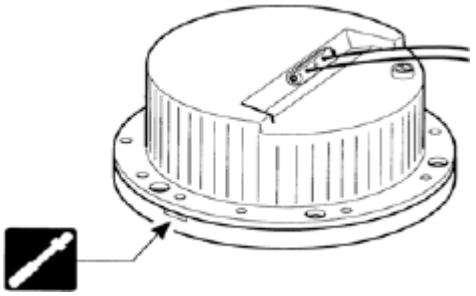


4. See Figure 11. Insert small or medium flat blade screwdriver in the machined recess slot between cover and inner cover and turn it vertically to separate the inner cover from the cover.

Note

The two recess slots are 180 degrees apart.

Figure 11: Separating Inner Cover from Top Cover



6.2.2 Replacing Optical Support

Refer to Table 4 for parts referred to in Figure 12.

Table 4: Parts List for Replacing Optical Supports

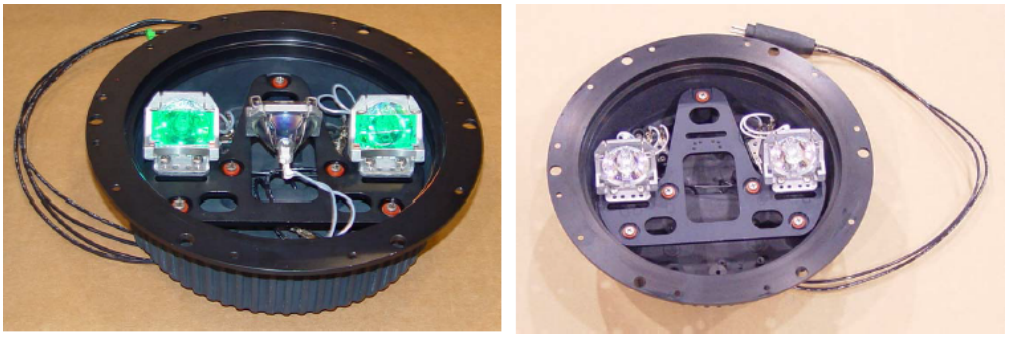
Item	Part Number	Description	Quantity	Note
1	Optical support assembly – FAA L-850D		1	
	44A6660-5	Optical support assembly, threshold left, runway end straight		
	44A6660-6	Optical support assembly, threshold left, runway end left		
	44A6660-7	Optical support assembly, threshold straight, runway end right		
	44A6660-8	Optical support assembly, threshold straight, runway end straight(		
	44A6660-9	Optical support assembly, threshold straight, runway end left		
	44A6660-10	Optical support assembly, threshold right, runway end obscure		
	44A6660-11	Optical support assembly, threshold left, runway end obscured		
	44A6660-12	Optical support assembly, threshold left, runway end obscured		
1	Optical support assembly – FAA L-850E		1	
	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)		
1	2990.40.900	Lamp, 105W (L850D Military and L850E)	2 - 3	
	48A0386	Lamp, 62W (L850D FAA)	3	A
2	1411.22.002	Lamp holder assembly	1 per lamp or A/R	
3		Lamp spring clip	1 per lamp or A/R	

NOTES: A – L850D FAA only

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

1. **WARNING:** Turn off the circuit before replacing lamp(s). Failure to observe this warning may result in personal injury, death, or equipment damage.
2. **WARNING:** Allow time for the unit to cool. High interior temperatures may cause severe burns to personnel.
3. See Figure 12 . Open the optical unit. Refer to *Opening Optical Unit* in this section.
4. See Figure 12 for lamp removal in the L850D fixture assembly and Figure 6-5 for lamp removal from the L850E fixture assembly.
5. Lift the lamp clip (3) up and off of the lamp (1) and the lamp holder assembly (2). Remove lamp (2) and replace with new lamp. See Figure 13 for lamp installation instructions.

Figure 12: L-850D – FAA Optical Support Assembly and Figure 6-5 L-850E Optical Support Assembly



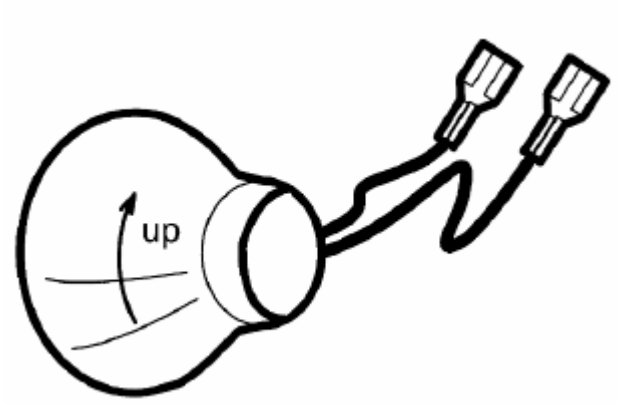
Note
See Figure 12 for L-850D - Military

6. Replace with new lamp.

Note
See Figure 13. If lamp has an arrow imprinted on the side of the lamp make sure that the lamp is correctly positioned with the arrow pointing up to optimize photometric output.

Note
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 13: Arrow Pointing Up



7. Put the two parts of the lamp clip (3) in their respective notches on the lamp holder assembly.

6.2.3 Replacing Film Disc Cutout Assembly

Refer to Table 5 for parts referred to in Figure 14 .

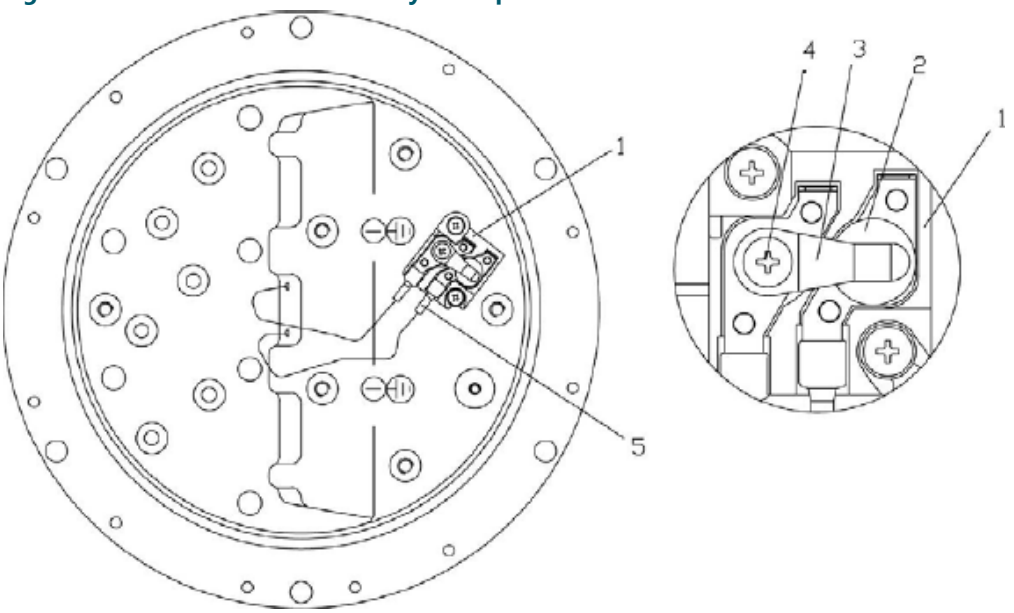
Table 5: Parts List for Replacing Film Disc Cutout

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

Figure 14: 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.

6.2.4 Replacing Prism

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

Refer to Table 6 for parts referred to in Figure 15 and Figure 16 .

Table 6: 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 15 for the L-850D light fixture prism. See Figure 16 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 15: Replacing L-850D Prism

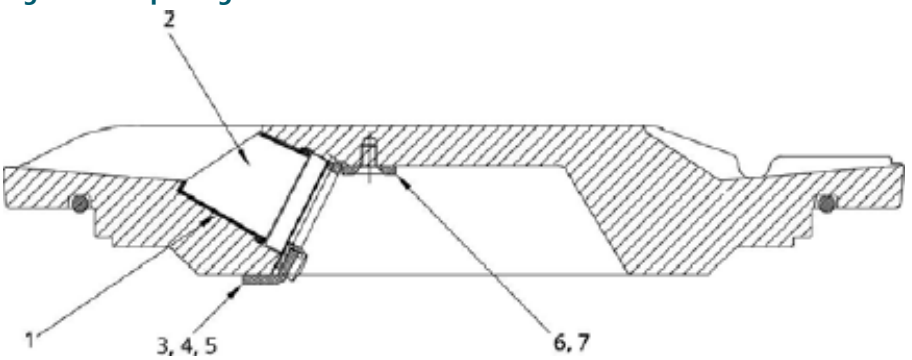
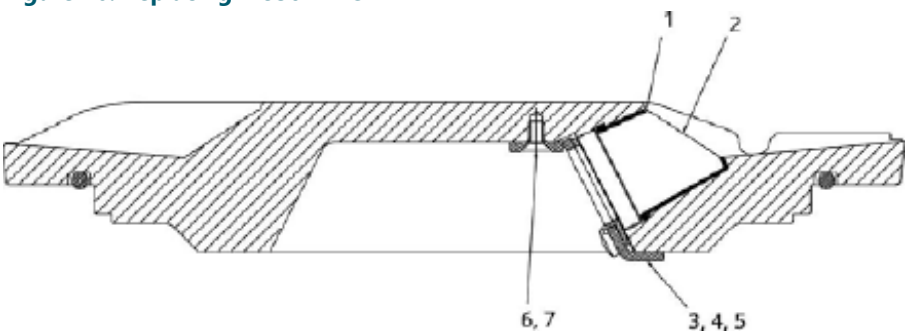


Figure 16: Replacing L-850E Prism



2. Replace with new lamp and new filter.

Note

See Figure 13 . 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 12 . 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.

6.2.5 Replacing L-823 Cordset

Refer to Table 7 for parts referred to in Figure 17.

Table 7: Parts List for Replacing L-823 Cordset

Item	Part Number	Description	Quantity	Note
Item 5 on Figure 14	6111.87.140	Female cordset terminal	See note.	A
Item E5 on Figure 18		**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 18	63A1014	Grommets (for cordset)	2	B
Item F6 on Figure 18	4071.50.090	Wire clamp (for cordset)	1	C
Item F7 on Figure 18	7110.08.367	Screw, M4 x 10 (for cordset)	2	B
Item F8 on Figure 18	73A0133-31	Cordset	1	C

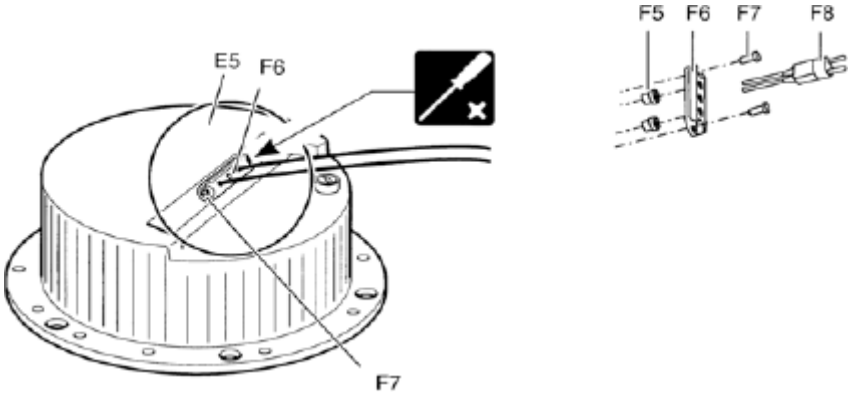
NOTE A: Quantity is 1 for L-850D Runway end; 2 for L-850E; 3 for L-850D Runway & Threshold.
NOTE B: Quantity is 2 for unidirectional; 4 for bidirectional.
NOTE C: Quantity is 1 for unidirectional; 2 for bidirectional.

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 17. Remove both screws (F7) and the wire clamp (F6).

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

Figure 17: L-823 Cordset



4. See Figure 14. Unplug the female cordset terminal s (5) from the cable assembly.
5. See Figure 17. 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).

6.2.6 Closing Optical Unit

Refer to Table 8 for parts referred to in Figure 18.

Table 8: Parts List for Closing Optical Unit

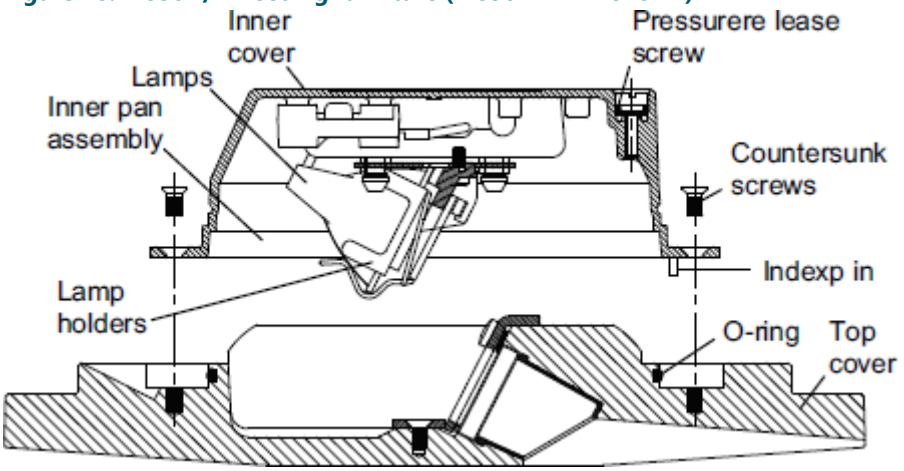
Item	Part Number	Description	Quantity	Note
1	MS00001-376-01	O-ring (for top cover)	1	
2	Top cover		1	
	44A6264-1	Top cover, threshold & runway end (L-850D FAA)		
	44A6264-2	Top cover, runway end only (L-850D FAA)		
	44A6264-3	Top cover, threshold & runway end (L-850D Military only)		
	44A6265-1	Top cover, 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)		
	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 18. Turn the top cover upside down.

Figure 18: 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 9. Remove the pressure release screw.
5. See Figure 18. Install the inner cover on top of the cover.

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

6. See Figure 12. 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.

6.2.7 Testing for Leaks

To test for leaks, perform the following procedure:

1. See Figure 19.

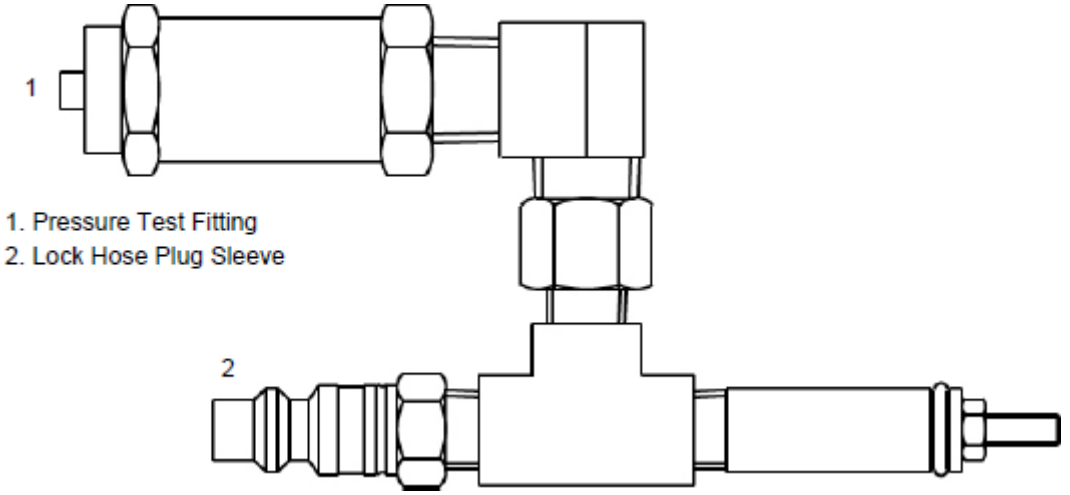
   Remove pressure relief screw.

2. See Figure 20.

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

Figure 19: Pressure Relief Screw

Figure 20: Pressure Test Fitting Assembly



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

Go to Overview of Sequence of Work to finish.

7.0 Parts

The parts section is a separate file in the book so that it can be used in the Parts manual.

Figure 21: L850E

Ordering Code 44A6248 - X X X 0

Color
1 = FAA Green (ETL Certified)
2 = Military White[2]
3 = Military Red[2]
4 = Military Green[2]

Film Disc Cutout
1 = Included
2 = Not Included

Light Beam
1 = Straight (ETL Certified)[1]
2 = Right Toed[2]
3 = Left Toed[2]

Notes
- External fixture-to-base can O-ring, Part No. 7080.90.650, is ordered separately if needed for installation. For FAA installations, this O-ring is normally included with the flange ring.

[1] Normally used on military applications
[2] Configuration not recognized by the FAA

Figure 22: L850D

Ordering Code 44A6656 - X X X X

Threshold Beam
0 = Obscured
1 = Green Straight[2]
2 = Green Right Toed
3 = Green Left Toed
4 = Red Straight[3]
5 = Red Right Toed[2]
6 = Red Left Toed[2]

Runway End Beam
0 = Obscured
1 = Red Straight
2 = Red Right Toed[2]
3 = Red Left Toed[2]
4 = White Right Toed[1, 2]
5 = White Left Toed[1, 2]
6 = Yellow Right Toed[1, 2]
7 = Yellow Left Toed[1, 2]
8 = Yellow Straight[2]
9 = White Straight[2]

Film Disc Cutout
1 = Included
2 = Not Included

Base Mounting
1 = One Cord Set
2 = Two Cord Sets

Notes
- Fixtures manufactured after September 5, 2006, use one green 62 W lamp and two red 62 W lamps. For fixtures that use two green 105 W lamps and one red 105 W lamp, see IRTM data sheet DS-2055.
- External fixture-to-base can O-ring, Part No. 7080.90.650, is ordered separately if needed for installation. For FAA installations, this O-ring is normally included with the flange ring.

[1] 3° toe-in for displaced threshold/runway edge applications
[2] Configuration not recognized by the FAA
[3] Not submitted to ETL for certification

Figure 23: L850D Military / ICAO Style 2

Ordering Code

44A6247 - X X X X

Threshold Beam
0 = Obscured
1 = Green Straight
2 = Green Right Toed
3 = Green Left Toed
4 = Red Straight
5 = Red Right Toed
6 = Red Left Toed

Runway End Beam
0 = Obscured
1 = Red Straight
2 = Red Right Toed
3 = Red Left Toed
4 = White Right Toed[1]
5 = White Left Toed[1]
6 = Yellow Right Toed[1]
7 = Yellow Left Toed[1]
8 = Yellow Straight
9 = White Straight

Film Disc Cutout
1 = Included
2 = Not Included

Base Mounting
1 = One Cord Set
2 = Two Cord Sets

Notes

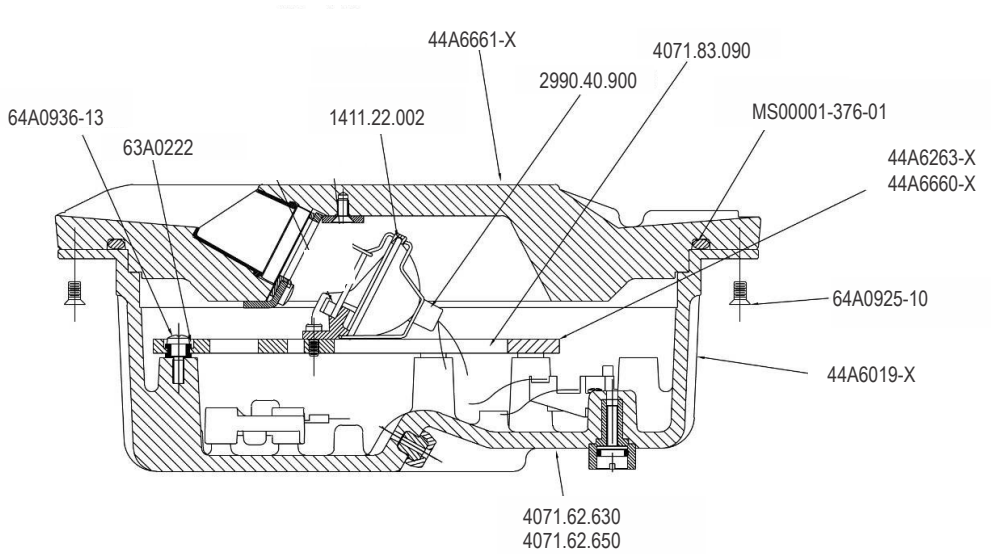
- External fixture-to-base can O-ring, Part No. 7080.90.650, is ordered separately if needed for installation. For FAA installations, this O -ring is normally included with the flange ring.

[1] 3° toe-in for high-intensity displaced threshold/runway edge applications.

7.1 F-Range IRTE L-850D/E Parts List

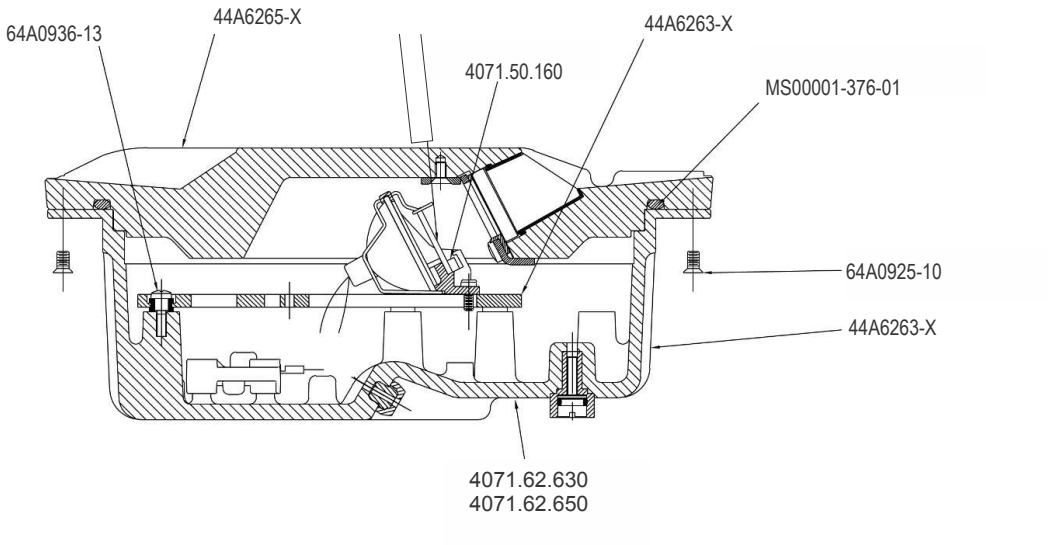
See Figure 24 and Figure 25.

Figure 24: F-Range L-850D Main Assembly Parts



NOTE: for dash X numbers and complete description see parts list

Figure 25: F-Range L-850E Main Assembly Parts



NOTE: for dash X numbers and complete description see parts list

Part Number	Description	Quantity	Note
Top cover assembly – FAA L-850D (2 red/1green)		1	
44A6661-2	Top cover assembly, runway end		
44A6661-3	Top cover assembly, runway end / threshold		
Top cover assembly – Military L-850D (1 red/2green)		1	
44A6264-2	Top cover assembly, runway end		
44A6262-3	Top cover assembly, runway end /threshold		
Top cover assembly – FAA L-850E (2 green)		1	
44A6265-1	Top cover assembly, threshold end		
Top cover assembly – Military L-850E		1	
44A6265-2	Top cover assembly, threshold end (red/clear only)		
Optical support assembly – FAA L-850D		1	
44A6660-5	Optical support assembly, runway end, straight, threshold toed left		
44A6660-6	Optical support assembly, runway end, toed left, threshold straight		
44A6660-7	Optical support assembly, runway end toed right, threshold straight		
44A6660-8	Optical support assembly, runway end straight, threshold straight		
44A6660-9	Optical support assembly, runway end toed left, threshold straight		
44A6660-10	Optical support assembly, runway end obscured, threshold toed right		
44A6660-11	Optical support assembly, runway end obscured, threshold Straight		
44A6660-12	Optical support assembly, runway end obscured, threshold toed left		
Optical support assembly – FAA L-850E		1	
44A6263-11	Optical support assembly, runway end obscured, threshold only straight, L-850E		

Part Number	Description	Quantity	Note
44A6263-12	Optical support assembly, runway end obscured, threshold only left, L- 850E		
Optical support assembly – Military L850D		1	
44A6263-1	Optical support assembly, threshold toed right runway end toed right		
44A6263-2	Optical support assembly, threshold straight, runway end toed right		
44A6263-5	Optical support assembly, threshold straight, runway end toed left		
44A6263-6	Optical support assembly, threshold toed left, runway end toed left		
44A6263-7	Optical support assembly, threshold toed right, runway end straight		
44A6263-8	Optical support assembly, threshold straight, runway end straight		
44A6263-9	Optical support assembly, threshold toed left, runway end straight		
44A6263-13	Optical support assembly, threshold obscured, runway end		
44A6263-14	Optical support assembly, threshold obscured, runway end straight		
44A6263-15	Optical support assembly, threshold obscured, runway end toed left		
Inner pan assembly – FAA L-850D		1	
44A6019-9	Inner pan assembly, runway & threshold, 1 cordset, without film disc cutout		
44A6019-10	Inner pan assembly, runway & threshold, 1 cordset, with film disc cutout		
44A6019-11	Inner pan assembly, runway & threshold, 2 cordsets, without film disc cutout		
44A6019-12	Inner pan assembly, runway & threshold, 2 cordsets, with film disc cutout		
Inner pan assembly – FAA L-850E		1	
44A6019-13	Inner pan assembly, runway & threshold, 1 cordset, without film disc cutout		
44A6019-14	Inner pan assembly, runway & threshold, 1 cordset, with film disc cutout		
Inner pan assembly – Military L-850D		1	
44A6019-9	Inner pan assembly, runway & threshold, 1 cordset, without film disc cutout		
44A6019-10	Inner pan assembly, runway & threshold, 1 cordset, with film disc cutout		
44A6019-11	Inner pan assembly, runway & threshold, 2 cordsets, without film disc cutout		
44A6019-12	Inner pan assembly, runway & threshold, 2 cordsets, with film disc cutout		
44A6019-15	Inner pan assembly, runway only, without film disc cutout		
44A6019-16	Inner pan assembly, runway only, with film disc cutout		
Terminal block assembly – L850D/E		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
48A0386	Lamp, 62W/6.6A, MR16 (FAA L-850D)		

Part Number	Description	Quantity	Note
60A2602	Pressure release screw	1	
63A0222	Grommet (for optical bracket)	3	
1428.00.290	Yellow Dichroic Prism	See note.	B
63A0986	Flat seal	See note.	A
63A0993-2	Prism – Clear (White)	See note.	A
1428.00.270	Red Dichroic Prism		C
1428.00.280	Green Dichroic Prism		D
63B0267-011	O-ring, pressure screw	1	

NOTE A: Quantity is 1 for L-850D Runway end only; 3 for L-850D Runway & Threshold; 2 for L-850E.
NOTE B: Quantity is 1 for the yellow lens; The white optical support system has no filter.
NOTE C: Quantity is 2 for FAA L-850D (after 9/1/06); Quantity is 1 for FAA L-850D (before 9/1/06)
NOTE D: Quantity is 1 for FAA L-850D (after 9/1/06); Quantity is 2 for FAA L-850D (before 9/1/06)

Part Number	Description	Quantity	Note
73A0133-31	Cordset	See note.	A
1411.22.002	Lamp holder assembly	See note.	B
2990.40.900	Lamp, 105 W/6.6A/MR16 (L850D Military and L850E)	See note.	B
4017.50.130	Film disc cutout clip	See note.	B
4071.50.030	Prism gasket sleeve	See note.	B
4071.50.052	Prism keeper plate	See note.	B
4071.50.090	Wire clamp (for cordset)	See note.	A
4017.50.360	Prism clamp	See note.	B
4071.62.240	Top cover, FTE, L-850D (Not for Military Application)	1	
4071.62.250	Top cover, FEN, L-850D (FAA and Military Application)	1	
4071.62.260	Top cover, FTH, L-850E	1	
4071.62.630	Inner cover (one cordset application)	1	D
4071.62.650	Inner cover (two cordsets application)	1	D
4071.83.090	Optical bracket	1	
6111.87.140	Female cordset terminal (for inner pan terminal block)	See note.	B
63A1014	Grommets (for cordset)	See note.	A
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 Military L-850D Runway end only; 2 for L-850E; 3 for L-850D Runway & Threshold.
NOTE C: Quantity is 1 for the yellow lens; 2 for red/green lens. The white optical support system has no filter or spring.
NOTE D: Inner cover does not include cordset.

7.2 F-Range Optical Support Assembly Parts List

Figure 26: Optical Support Assemblies

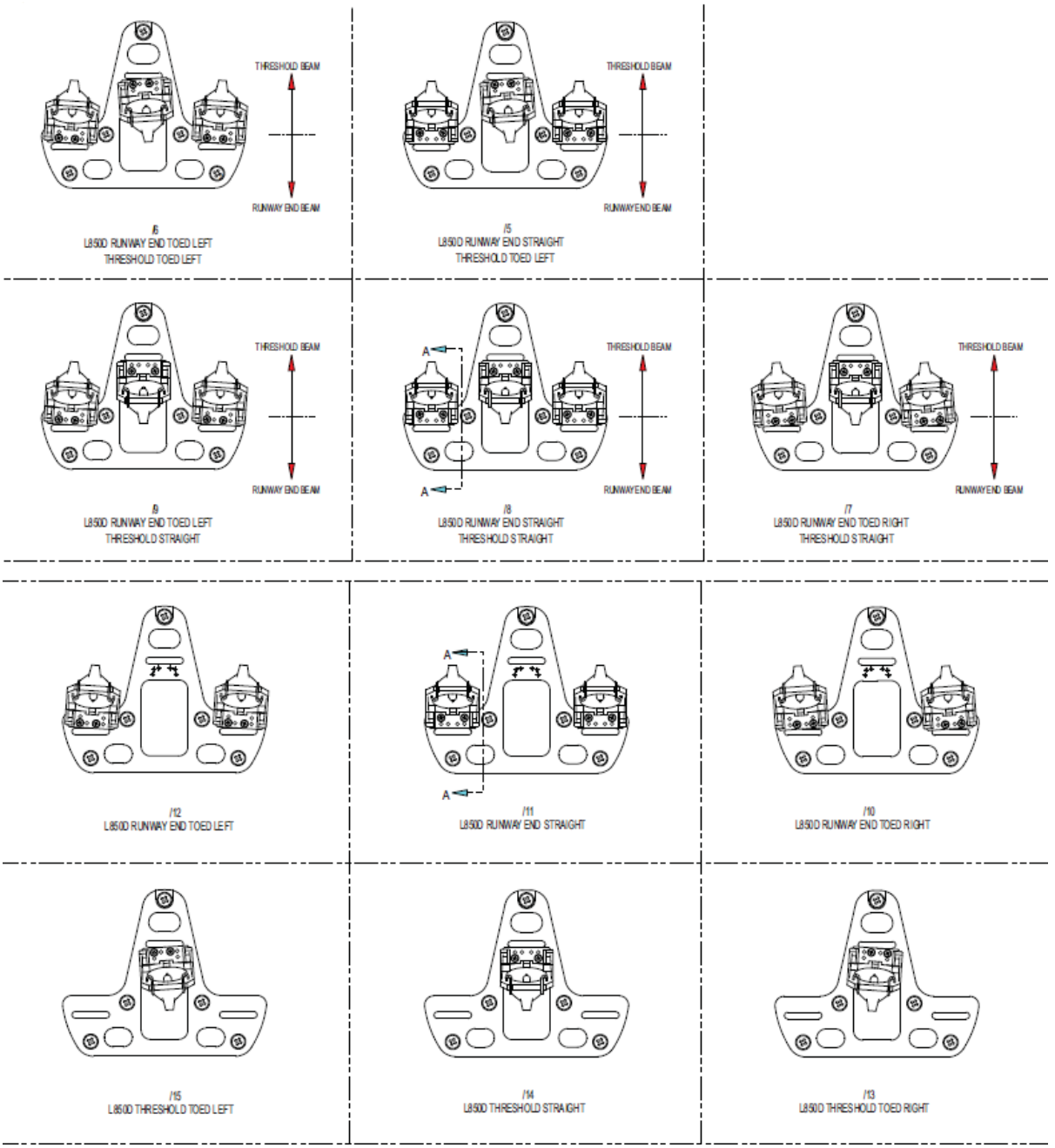
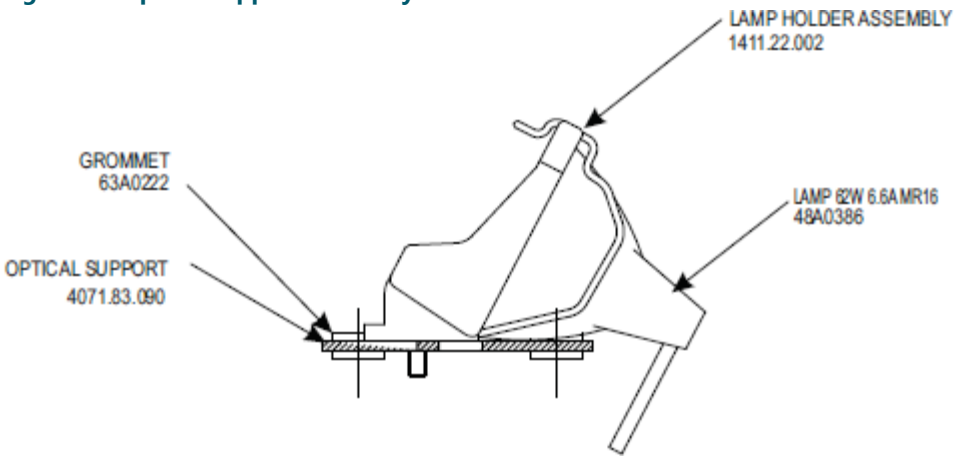


Figure 27: Optical Support Assembly - side view



Part Number	Description	Quantity	Note
Optical Support Assembly – FAA L-850D		1	
44A6660-5	Optical support assembly, runway end, straight, threshold toed left		
44A6660-6	Optical support assembly, runway end, toed left, threshold straight		
44A6660-7	Optical support assembly, runway end toed right, threshold straight		
44A6660-8	Optical support assembly, runway end straight, threshold straight		
44A6660-9	Optical support assembly, runway end toed left, threshold straight		
44A6660-10	Optical support assembly, runway end obscured, Threshold toed right		
44A6660-11	Optical support assembly, runway end obscured, Threshold Straight		
44A6660-12	Optical support assembly, runway end obscured, threshold toed left		
	Optical Support Assembly – L-850E	1	
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)		
	Optical Support Assembly – Military L-850D	1	
44A6263-1	Optical support assembly, threshold toed right runway end toed right		
44A6263-2	Optical support assembly, threshold straight, runway end toed right		

Part Number	Description	Quantity	Note
44A6263-5	Optical support assembly, threshold straight, runway end toed left		
44A6263-6	Optical support assembly, threshold toed left, runway end toed left		
44A6263-7	Optical support assembly, threshold toed right, runway end straight		
44A6263-8	Optical support assembly, threshold straight, runway end straight		
44A6263-9	Optical support assembly, threshold toed left, runway end straight		
44A6263-13	Optical support assembly, threshold obscured, runway end		
44A6263-14	Optical support assembly, threshold obscured, runway end straight		
44A6263-15	Optical support assembly, threshold obscured, runway end toed left		
4071.83.090	Optical bracket	1	
63A0222	Grommet (for optical bracket)	5	
1411.22.002	Lamp holder assembly	See note.	A
48A0386	Lamp, 62W/6.6A/MR16 (FAA L850D)	See note.	A

NOTE A: Quantity is 2 for FAA L-850D Runway end only; 1 for FAA L-850D Threshold only; 2 for L-850E; 3 for FAA L-850D Runway & Threshold.

7.3 IRTE Spare Parts

See L-850D Figure 24 and L-850E Figure 25.

Part Number	Description
44A6660-X	Optical support assembly – FAA L-850D
44A6263-X	Optical support assembly – Military L-850D and L-850E
44A6112-1	Terminal block assembly, without film disc cutout
44A6112-2	Terminal block assembly, with film disc cutout
48A0386	Lamp, 62W/6.6A, MR16 (FAA L-850D)
60A2602	Pressure release screw
4071.83.090	Optical bracket
63A0222	Grommet (for optical bracket)
1428.00.290	Yellow Dichroic Prism , L-850D only
63A0993-2	Prism
1428.00.270	Prism – Red Dichroic

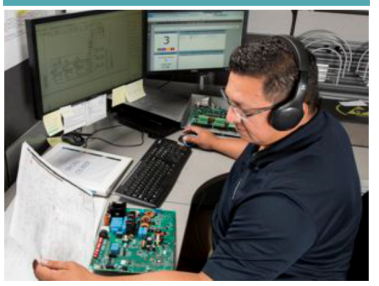
Part Number	Description
1428.00.280	Prism – Green Dichroic
63B0267-011	O-ring, pressure screw
67A0095	Lubricate
73A0133-31	Cordset
1411.22.002	Lamp holder assembly
2990.40.900	Lamp, 105 W (L850D Military and L850E)
4071.50.030	Prism gasket sleeve
4071.50.052	Prism keeper plate
4071.50.090	Wire clamp (for cordset)
4071.62.240	Top cover, FTE, L-850D
4071.62.250	Top cover, FEN, L-850D
4071.62.260	Top cover, FTH, L-850E
4071.62.630	Inner cover (one cordset application) **Note** Inner cover does not include cordset.
4071.62.650	Inner cover (two cordsets application) **Note** Inner cover does not include cordset.
6111.87.140	Female cordset terminal (for inner pan terminal block)
63A1014	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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