F-Range Low Profile
Types: L-850A, L-850B & L-850F L-852A, L-852B, L-852C & L-852D L-852G, L-852S & L-852G/S RWSL REL & THL Style 3 In-Pavement Lights

User Manual

96A0220, Rev. AA, 2020/06/17

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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TABLE OF CONTENTS

List of Figures

List of Tables

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 F-range Low-profile Style 3 In-pavement Lights

Types:

L-850A, L-850B & L-850F, L-852A, L-852B, L-852C & L-852D, L-852G, L-852S & L-852G/S, Runway Status Lights (RWSL) REL & THL, Style 3 In-Pavement Lights

2.1 About this manual

The manual shows the information necessary to:

- Install F-range In-pavement Lights
- Maintain F-range In-pavement Lights
- Troubleshoot F-range In-pavement Lights

2.1.1 How to work with the manual

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

3.0 Introduction

3.1 Light Fixtures

This manual provides instructions for installation and maintenance of the ADB Safegate F-Range low profile series in-pavement lights listed in Table 1 .

Table 1: F-Range Series Light Fixtures

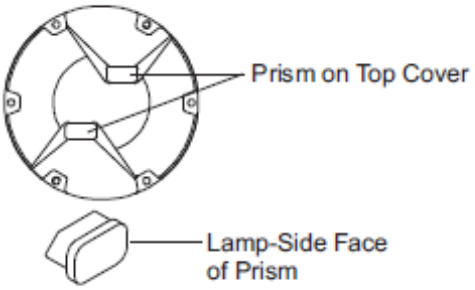
FAA Type	Function	See "Fixture Identification" Figure 1
L-850A	Used on runway centerline	A
L-850B	Used on runway touchdown zone	B
L-850F	Used on Land and Hold Short (LAHSO) light systems	D
L-852A	Used on taxiway centerline straight sections and clearance bars with an RVR of ≥1200 ft	C
L-852B	Used on taxiway centerline curved sections with an RVR [1] of ≥1200 ft	
L-852C	Used on taxiway centerline straight sections and clearance bars with an RVR [1] of <1200 ft	
L-852D	Used on taxiway centerline curved sections with an RVR [1] of <1200 ft Also used for in-pavement Medium Intensity Runway Edge and Threshold applications.	
L-852G	Used on taxiways for Runway Guard Light, unidirectional	
L-852S	Used on Stop Bar, unidirectional	
L-852G/S	Combination Runway Guard Light and Stop Bar, unidirectional	D
THL	FAA Runway Status Lights (RWSL) Takeoff Hold Light (THL), unidirectional; physically the same as L-850A red fixtures except with a 105W, 6.6A lamp	A
REL	FAA Runway Status Lights (RWSL) Runway Entrance Light (REL), unidirectional; physically the same as L-852S fixtures	C

Notes

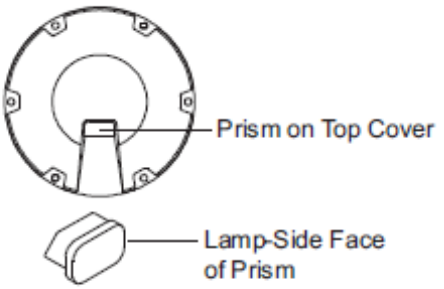
1 * RVR = Runway visual range

Figure 1: Fixture Identification

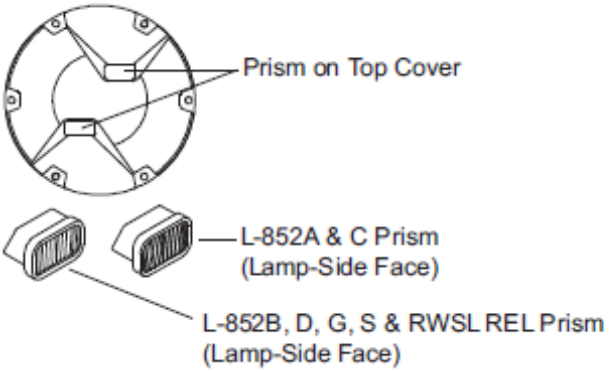
A - L-850A & THL Prism



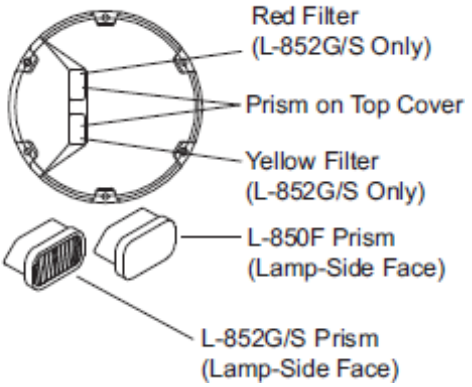
B - L-850B Prism



C - L-852A, B, C, D, G, S & REL Prisms



D - L-850F & L-852G/S Prisms



Note

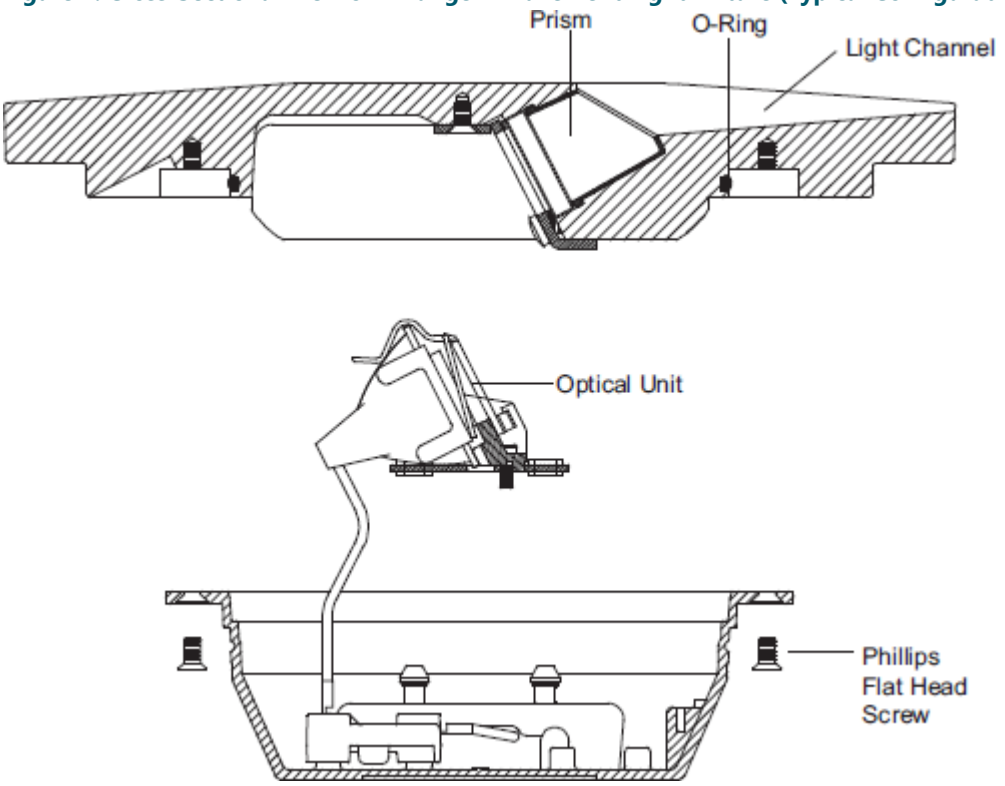
To determine specific fixture identification details, see the label on the bottom of the fixture. The ordering codes in Parts Section, Part Numbers and Internal Wiring - Main Assembly" provide part number configuration information.

3.2 Typical Configuration

F-Range in-pavement light fixtures are available in unidirectional, standard bidirectional and switchable bidirectional, and are designed to provide visual guidance along the taxiway and runway centerlines, touchdown zone and runway guard lights (see Figure 2).

The light fixtures are manufactured in accordance with FAA specification AC 150/5345-46 (current edition), Style 3: ≤ 1/4 inch (6.35mm) height above grade.

Figure 2: Cross-Sectional View of F-Range In-Pavement Light Fixture (Typical Configuration)



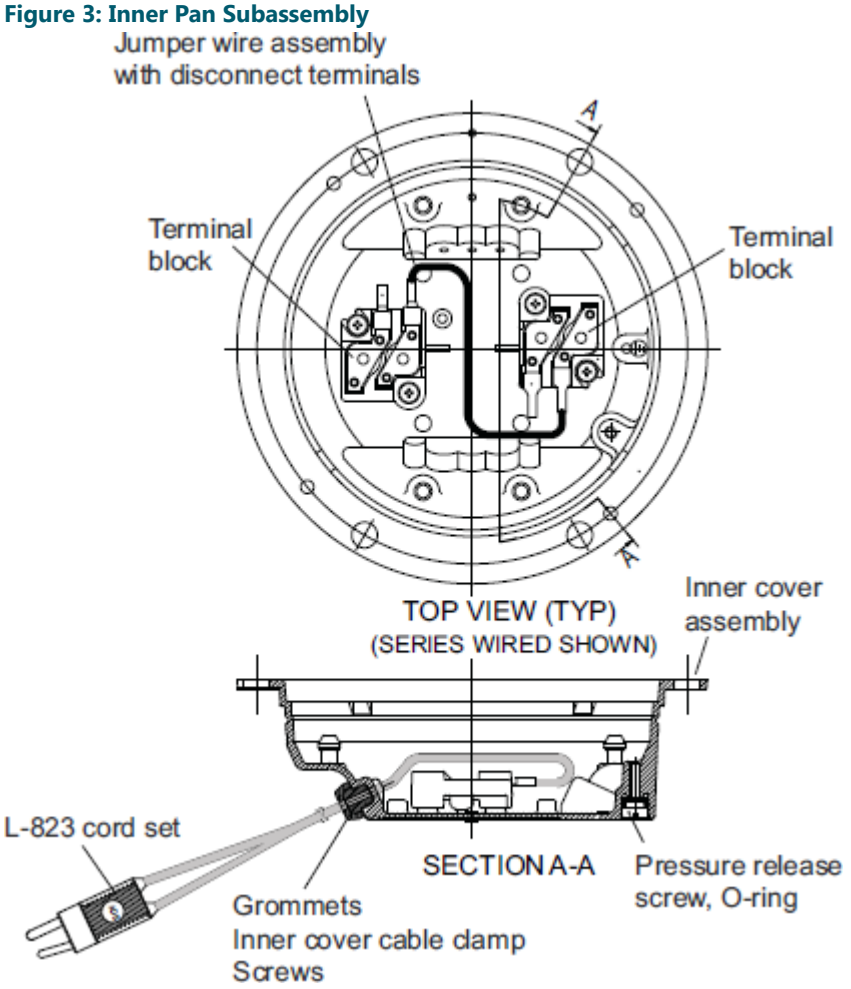
3.3 Inner Pan Subassembly

The inner cover assembly includes the inner cover, L-823 cord sets, terminal blocks—with or without film disc cutout—and the pressure release screw, as shown in Figure 3 .

Note

The jumper wire assembly with disconnect terminals in Figure 3 is used only with two lamps and one cord set.

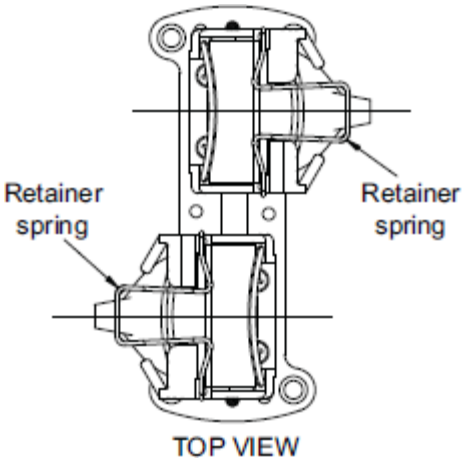
Figure 3: Inner Pan Subassembly



3.4 Lamp and Filter Holder Assembly

The lamp and filter holder assembly consists of the lamp/filter support subassembly and the retainer spring (see Figure 4). The lamp/filter support subassembly is pre-assembled at the factory.

Figure 4: Lamp and Filter Holder Assembly



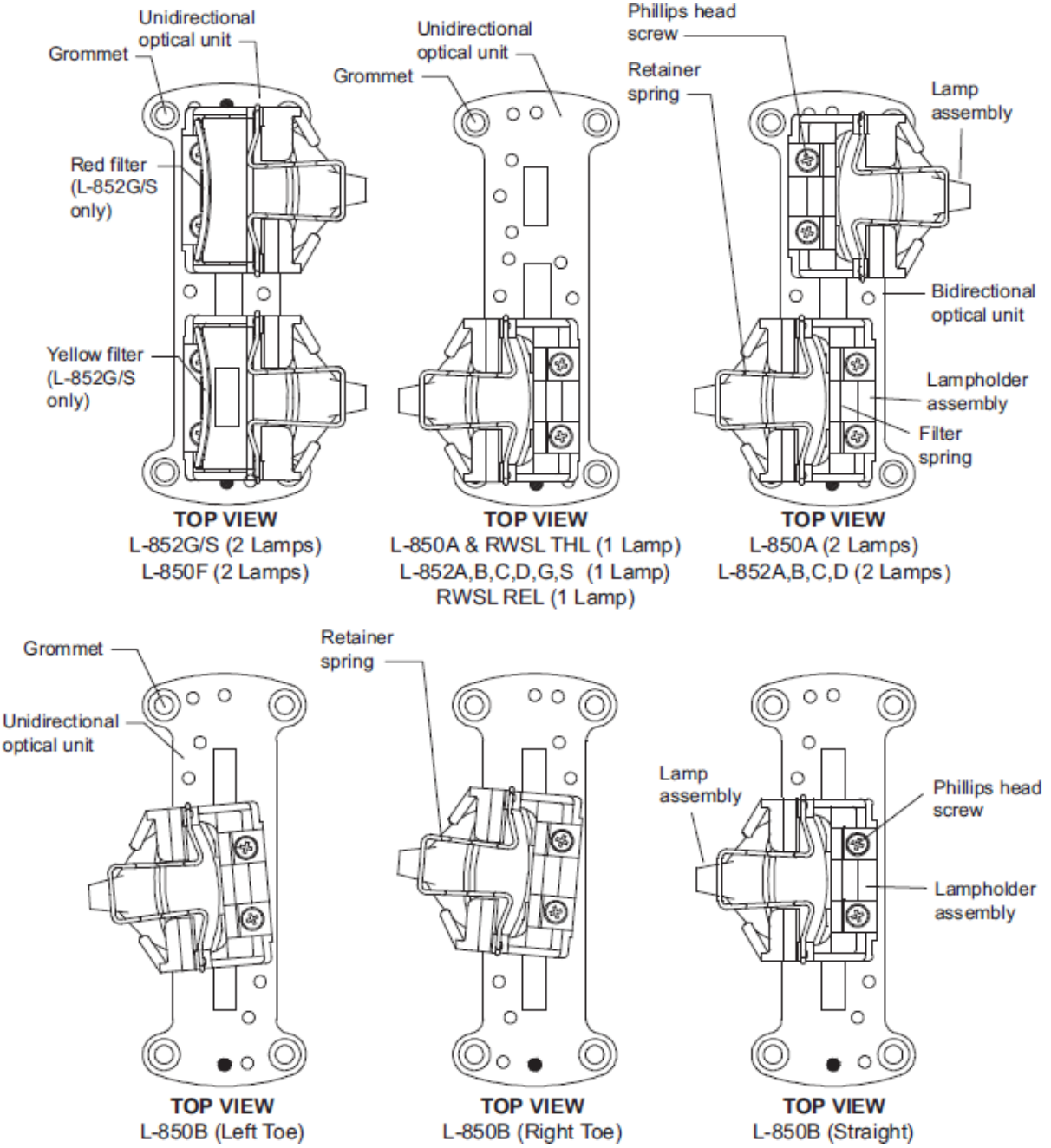
3.5 Optical Unit

The F-Range series light fixture optical unit consists of one or two unidirectional or two bidirectional lamps, prisms and color filters, as shown in Optical Unit .

Note

L-850B in-pavement lights must be toed toward the runway centerline per FAA AC 150/5340-30. This can be achieved by toeing the base can, in which case the L-850B is ordered straight.

Figure 5: Optical Unit



4.0 Installation

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

4.1 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 Installation Safety Considerations

WARNING

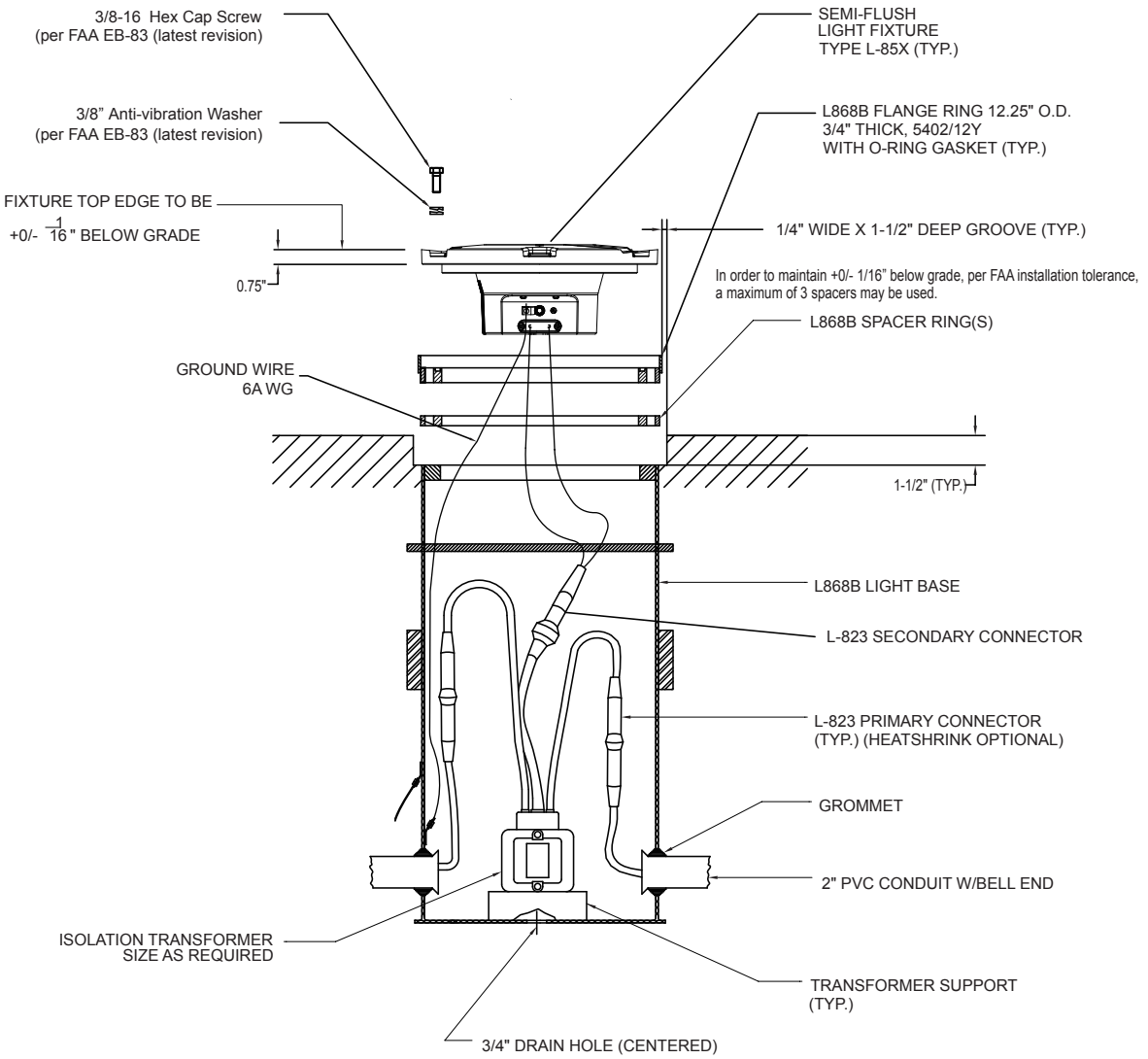
Electric Shock
Read installation instructions in their entirety before starting installation.

- 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.
- 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.

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

4.3 Typical L-868 Assembly

Figure 6: Diagram of the Fixture Installed in a 1-Piece Base Can



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

Figure 7: 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.

4.4 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.

DANGER

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

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

4.5 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.

4.6 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 2: 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		

4.7 Unpacking the Unit

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

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

4.8 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.

4.9 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.

4.10 Coding

Review the coding details for the appropriate FAA type of F-Range fixture before installation.

4.10.1 L-850A Coding

L-850A light fixtures are supplied with white-white or white-red filters. Refer to FAA AC 150/5340-30 for the location of white-white and white-red fixtures on the runway centerline. White-red fixtures have a red dot label affixed to the top of the fixture on the lens where the red filter is located.

Note

If the red dot label is missing, the red filter side can be determined by looking into the window opening. If you can see the lamp, the red filter is the opposite window in a bi-directional fixture. The lamp cannot be seen if the red filter is installed.

The triangular arrowhead on the top of the L-850A cover designates the location of the index pin in the lower cover. The arrowhead pointer does NOT indicate any geographic orientation or placement.

4.10.2 RWSL THL Coding

THL light fixtures are supplied with a red filter. THLs, or Takeoff Hold Lights, are used at the runway departure area to warn aircrews and vehicle operators the runway is unsafe for takeoff. These red unidirectional lights are installed in a double longitudinal row, aligned and offset 6 feet from either side of the runway centerline lighting at a longitudinal spacing of 100 feet. See FAA Runway Status Lights System Engineering Brief #64 for additional installation details.

The triangular arrowhead on the top of the THL cover designates the location of the index pin in the lower cover. The arrowhead pointer does NOT indicate any geographic orientation or placement.

4.10.3 L-850B Toe-In Location and Coding

Each L-850B light fixture is shipped with a factory-attached label, indicating the toe direction and location of the runway centerline (see “Installation of L-850B Fixture to Runway Centerline”). Position the F-Range in-pavement light fixtures on either side of the runway so that the arrow on the sticker points to the runway centerline. The L-850B light beam must be 4 degrees toward the runway center per FAA AC 150 /5340-30.

Figure 8: Installation of L-850B Fixture to Runway Centerline

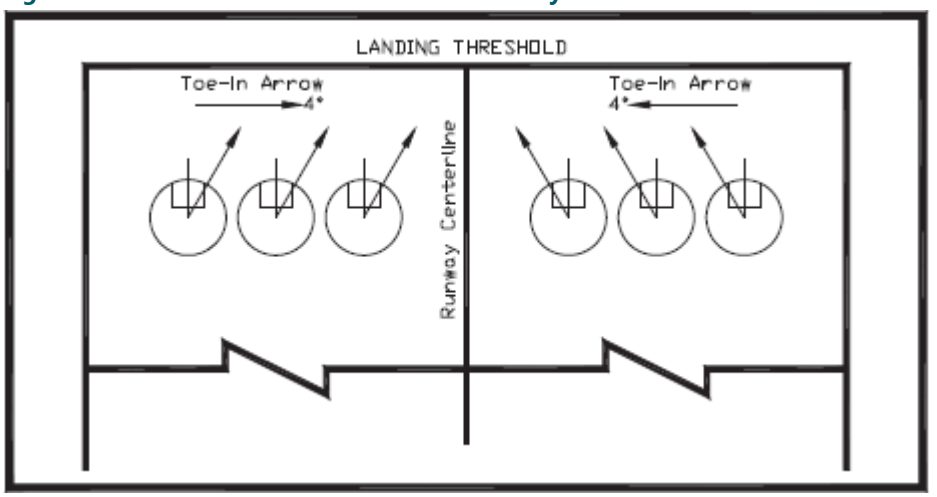


Table 3: L-850B Toe-In Labels

Label	Description
	Toe-in **right** with the in-pavement light installed to the left of the centerline.
	Toe-in **left** with the in-pavement light installed to the right of the centerline.
No label	No toe-in (used if base can installed so that it is toed 4° toward the runway centerline).

Note

The triangular arrowhead on the top of the L-850B cover designates the location of the index pin in the inner cover. The arrowhead does NOT indicate direction or toe.

4.10.4 L-850F Coding

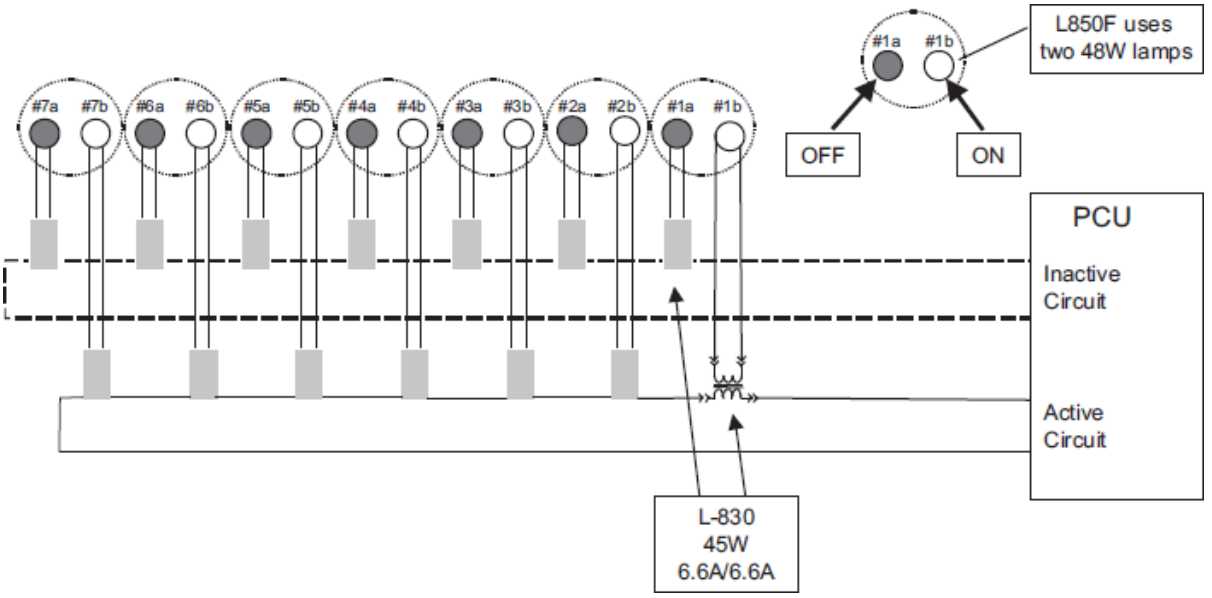
Refer to FAA AC 150/5340-30 for the location of the fixtures.

The L-850F light fixture is supplied with a white light only.

The L-850F light fixture cord sets are identified near the cord set entry on the bottom pan as **INPUT 1** and **INPUT 2** . The L-850F cord sets independently control each lamp.

For the L-850F in-pavement light, **INPUT 1** and **INPUT 2** are connected to a remote control device using separate isolation transformers, such as a Land and Hold Short Operation (LAHSO) Power Control Unit (PCU), as shown in Figure 9 .

Figure 9: Wiring between L-850F and LAHSO PCU:



The triangular arrowhead on the top of the cover is used to identify the location of the index pin in the lower cover. The arrowhead pointer does NOT indicate any geographic orientation.

4.10.5 L-852A, B, C & D Coding

L-852A, L-852B, L-852C and L-852D light fixtures are supplied with green or yellow filters installed. Refer to FAA AC 150/5340-30 for the location of the fixtures on the taxiway centerline. The color of the installed filter is indicated by a colored label on the top of the fixture.

Note

If a colored label is missing, the filter color can be determined by looking into the window to see the color of the filter.

The triangular arrowhead on the top of the fixture shows the location of the index pin in the lower cover. The arrowhead pointer does NOT indicate any geographic orientation or placement.

4.10.6 L-852G, S & G/S Coding

Refer to FAA AC 150/5340-30 for the location of the fixtures.

- The L-852G fixture is supplied with a traffic signal yellow filter only.
- The L-852S fixture is supplied with a traffic signal red filter only.
- The L-852G/S fixture is supplied with both traffic signal red and yellow filters.

  L-852G/S fixture cord sets are identified near the cord set entry on the bottom pan as **INPUT 1** and **INPUT 2** . The L-852G/S **INPUT 1** cord set controls the yellow light. The **INPUT 2** cord set controls the red light. All other fixtures are supplied with a colored label matching the light color affixed to the top of the fixture near the window.

The triangular arrowhead on the top of the cover is used to identify the location of the index pin in the lower cover. The arrowhead pointer does NOT indicate any geographic orientation.

4.10.7 REL Coding

REL light fixtures are supplied with a traffic signal red filter. RELs, or Runway Entrance Lights, are installed at taxiway/runway intersections and warn aircrews or vehicles when it is unsafe to cross or enter a runway. See FAA Runway Status Lights System Engineering Brief #64A for additional installation details.

The triangular arrowhead on the top of the cover is used to identify the location of the index pin in the lower cover. The arrowhead pointer does NOT indicate any geographic orientation.

4.11 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.

4.12 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.

4.13 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.

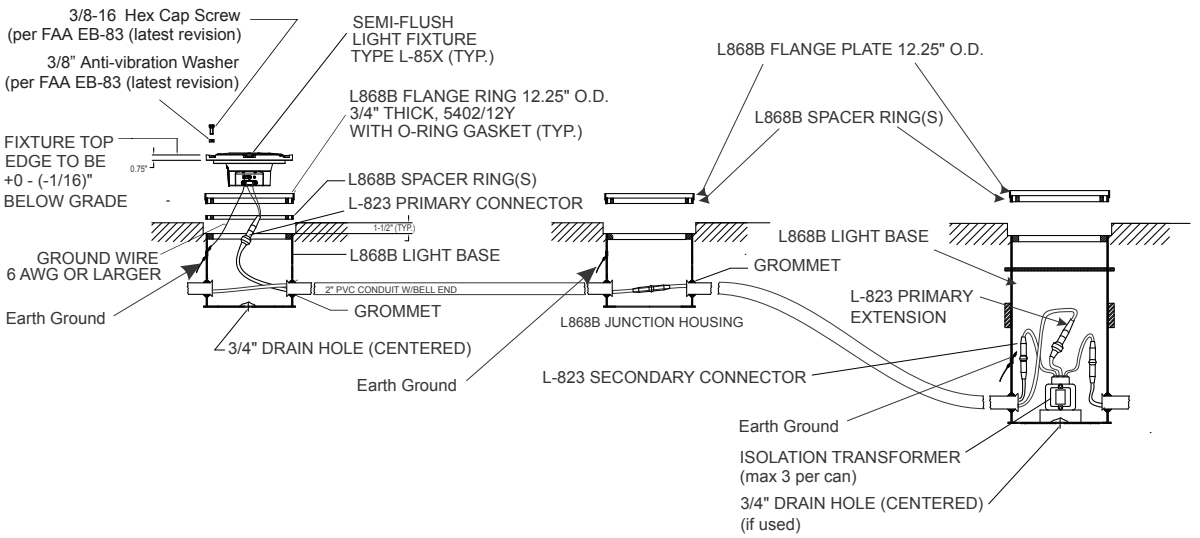
4.13.1 Installation on a Shallow Base

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.

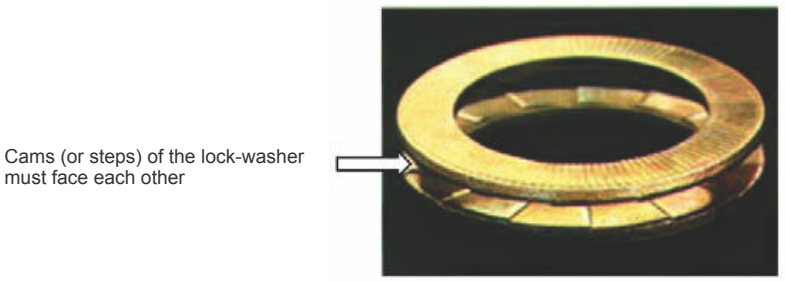
Also follow the applicable instructions in the previous section, when connecting, installing and powering the fixture.

Figure 10: Example of a Shallow Base Installation



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

Figure 11: Anti-vibration washer example



CAUTION

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

5.0 Maintenance

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

Preventive Maintenance - Inset Lights

Maintenance personnel must refer to the maintenance procedure described in the ICAO Airport Services Manual, Part 9, Airport maintenance practices and in FAA Advisory Circular N° AC150/ 5340-26.

DANGER

Electric Shock Hazard
This equipment may contain electrostatic devices

- Do not carry out any action on the fixture unless you have read and understood all the information in the Safety Section.
- 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.
- Make sure that the power to the series circuit is OFF when you carry out maintenance.

Failure to follow these instructions can result in death or equipment damage

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.

5.1 Maintenance Schedule

The equipment's service life depends on the assembly being waterproof. All bolts must be properly tightened and all surfaces must be clean, dry and free of all foreign matter 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, as shown in "F-Range Light Fixture Maintenance". Refer to FAA AC 150/5340-26 for more information.

Table 4: F-Range Light Fixture Maintenance

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

Table 4: F-Range Light Fixture Maintenance (continued)

Interval	Maintenance Task	Action	Refer to:
Every 60 days (also whenever the light assembly is serviced)	Check for improper torque on hold-down bolts.	Torque the six bolts holding the fixture to the base.	See Bolt Torque Preventive Maintenance Schedule
Semiannually	Check for water in the L-868 base.	If practical, pump water from the base. Remove and inspect light for water damage.	Removing L-868 Base Water
After snow removal	Check for damaged light fixtures.	Replace damaged fixtures. Use a power broom for snow removal, if practical.	—

5.2 Maintenance Procedures

This section describes the following maintenance procedures:

- Notes on Replacing Lamps
- Cleaning the Light Channel and Prism
- Re-torquing Mounting Bolts
- Removing L-868 Base Water
- Lifting Optical Unit Out of Base

5.2.1 Notes on Replacing Lamps

The recommended method for maintaining the F-Range in-pavement light is to periodically and systematically replace the light assembly and return the replaced assembly to the maintenance shop for refurbishing. Alternatively, the light assembly may be serviced in the field. ADB Safegate recommends limiting field service to cleaning lenses and replacing lamps.

Refer to Replacing Lamps for lamp replacement procedure.

WARNING

Burns
Read installation instructions in their entirety before starting installation.

- Turn off electrical power to the circuit before replacing lamps. Failure to observe this warning may result in personal injury, death or equipment damage.
- Allow time for the unit to cool. High interior temperatures may cause severe burns. Failure to observe this warning may result in personal injury.

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

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

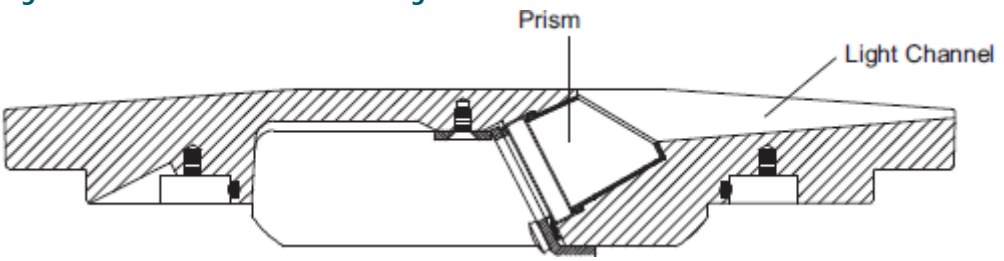
5.2.2 Cleaning the Light Channel and Prism

To clean the light channel and prism:

1. Use a suitable fiber brush to remove all accumulated debris from the light channel (see Figure 12).
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.

3. After the solvent has acted, remove the softened coating with clean cotton or cloth.
4. Dry the prism gently with oil-free compressed air at a pressure no greater than 10 psi (69 kPa).

Figure 12: Cross-Sectional View of Light Channel and Prism



5.2.3 Re-torquing Mounting Bolts

To re-torque mounting bolts:

Refer to: Bolt Torque Preventive Maintenance Schedule.

5.2.4 Removing L-868 Base Water

WARNING

Electric Shock
Read installation instructions in their entirety before starting installation.

- Turn off electrical power to the circuit when checking the water level

Failure to follow this warning may result in death, serious injury or equipment damage.

If the base can or conduit system is designed to prevent water from accumulating in the base can, check the base can water level regular schedule. If more than 6 inches (150mm) of water are found in the light base, pump the water from the base and remove and inspect the entire light assembly for water damage.

Note
Water that fills the base may become a serious problem if the water begins to freeze because freezing water expands, which can rupture the fixture.

5.2.5 Lifting Optical Unit Out of Base

CAUTION

Equpment Damage
Read installation instructions in their entirety before starting installation.

- Never use a screwdriver to pry up the fixture
- 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.

Failure to follow this warning may result in equipment damage.

To lift the optical unit from the light base:

1. Remove the six fixing bolts and anti-vibration washers.
2. Fit an appropriate lifting tool into both holes, which are located 180° apart in the cover.

Note
The lifting tool can be made from two 1/2 x 13 eyebolts (1-inch ID) and a 1/2-inch diameter, 16-inch (400mm) long rod or pipe inserted through the eyebolts.

3. Lift out the optical unit and place it next to the base.
4. Disconnect the light fixture wires from the power wires coming from the isolation transformers or remote control and monitoring device, if present.
5. Mount a serviced or new light fixture as described in "Installation on L-868 Base".
6. Torque the mounting bolts as described in Bolt Torque Preventive Maintenance Schedule.

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

5.3 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 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.

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 Troubleshoot and Repair

WARNING

Electric Shock
Read installation instructions in their entirety before starting installation.

- Allow only qualified personnel to perform the following tasks. Observe and follow the safety instructions in this document and all related documentation.
- Before attempting to service the fixture, de-energize the circuit and lock out the circuit or regulator so that the circuit cannot be energized by remote means

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

6.1 Troubleshooting Tips

Refer to Table 5 for troubleshooting procedures for F-Range in-pavement lights. This guide covers only the most common problems. For additional help, contact your local ADB Safegate representative or the ADB Safegate Service Department.

Table 5: Troubleshooting Guide

Problem	Possible Cause	Corrective Action
Lamp not energizing	Defective lamp	Replace the lamp (see " Replacing Lamps ") and the film disc cutout, if used (see Replacing the Film Disc Cutout), then verify that the fixture is sealed (see" Testing for Leaks").
	Loose or broken contacts	Tighten or replace, then verify that the fixture is sealed (see " Testing for Leaks").
	Moisture inside assembly causing current leakage	Open the light assembly. Clean, dry and inspect the assembly. Replace the O-ring and verify the fixture is sealed (see " Testing for Leaks").
	Fixture wires pinched between base can and fixture	If both wires are pinched between the fixture and the base can, the isolation transformer is shorted and the lamp will not energize. Replace fixture leads. Refer to " Replacing L-823 Cord Set ". Use care when remounting fixture on the base can to ensure that the wires do not get pinched.
	Defective isolation transformer	Check transformer output current with a true RMS meter using a clamp-on current probe. This can be done by placing a short across the transformer secondary and verifying that the secondary current is present. For 6.6A/6.6A transformers, the primary and secondary currents should match. For 20A/6.6A transformers, the secondary current should be one-third of the primary current. If the secondary current is too low or zero, replace the isolation transformer.
	Defective remote control device	Consult the remote control device's instruction manual.

Table 5: Troubleshooting Guide (continued)

Problem	Possible Cause	Corrective Action
Lamp not turning on at normal level	Continuity incorrect	Verify that there is low resistance between the fixture L-823 connector pins. Compare with resistance measured on a known good fixture. Replace lamp or internal wiring.
	Isolation transformer secondary current incorrect	Check transformer current with a true RMS meter using a clamp-on current probe. This can be done by placing a short across the transformer secondary and verifying that the secondary current is present. For 6.6A/6.6A transformers, the primary and secondary currents should match. For 20A/6.6A transformers, the secondary current should be one-third of the primary current. If the secondary current is too low or zero, replace the isolation transformer.
	Wrong fixture installed	Check the label on the bottom of the fixture. Replace if necessary. If the lamp has recently been replaced, open fixture to verify whether correct lamp wattage is present. Replace with proper lamp if lamp wattage is wrong.
Improper color	Filter broken	Replace filter bracket assembly (see Replacing Filters).
	Filter bracket broken	Replace filter bracket assembly (see Replacing Filters).
Short lamp life	Current too high (series circuit applications)	Check constant current regulator output current levels. Check the label on the isolation transformer and replace if necessary. For example, incorrectly installing a 6.6A/20A transformer will cause very short lamp life.
		Check the isolation transformer for the correct wattage (see “Required Isolation Transformers, 60 Hz” on page 32). Using an isolation transformer with wattage higher than needed will increase the secondary current, reducing lamp life.
	Water in assembly	Inspect the prism. Open light assembly. Clean, dry and inspect light assembly. Replace O-ring. Verify fixture is sealed (see “ Testing for Leaks”).
	Defective lamp	Replace the lamp (see “ Replacing Lamps ”) and the film disc cutout, if used (see Replacing the Film Disc Cutout), then verify that the fixture is sealed (see“ Testing for Leaks”). **Note** Lamp interior will have a white powdery appearance if air has entered through a hole or crack.
Distorted light beam output	Broken, damaged or wrong prism installed	Check parts list and install correct prism (see Replacing Prism).
Water inside optical chamber	Damaged or missing prism seals or top cover O-ring	Replace both prism seals. Replace top cover O-ring. Verify that the fixture is sealed. Refer to “ Testing for Leaks”.
	Fixture wires pinched between base can and fixture	A break in the fixture wire will cause water to be drawn into the fixture during the fixture's heating and cooling cycle (when switched on and off). Replace fixture leads. Refer to Replacing L-823 Cord Set . Use care when remounting fixture on the base can to ensure that the wires do not get pinched.

Table 5: Troubleshooting Guide (continued)

Problem	Possible Cause	Corrective Action
Lamp not pulsing (L-852G & G/S, LAHSO applications)	Defective remote control device	Consult the remote control device's instruction manual.
Lamp not energized; monitoring device does not detect failed lamp	Fixture wires pinched between base can and fixture	Both wires are pinched between the fixture and base can, allowing normal current to flow. Some monitoring systems rely on a failed lamp to be open. Replace fixture leads. Refer to " Replacing L-823 Cord Set ". Use care when remounting fixture on the base can to ensure that the wires do not get pinched.
	Lamp has failed and film disc cutout has activated, shorting across fixture leads	Some monitoring systems rely on a failed lamp to be open. A film disc cutout must not be installed in fixtures where these monitoring systems are used (such as the ACE L-827/L-829 monitoring system). Remove film disc cutout—do not replace it. Replace lamp. Refer to " Replacing Lamps " .

6.2 Repair Procedures

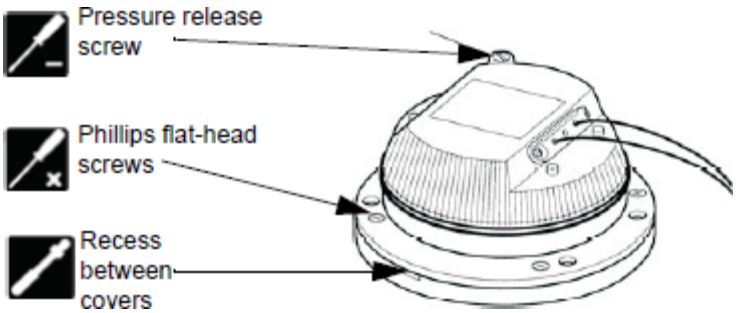
This section describes procedures for repairing and replacing parts, including how to open and close the optical unit and replace the film disc cutout assembly, lamp, filter, prism, optical unit and L-823 cord set.

- Make sure you have the necessary tools and materials ready for repair procedures (not supplied). Check the suggestions in Table 2 . Also consider other tools that might be needed based on site-specific conditions.

6.2.1 Opening the Optical Unit

To open the optical unit:

1. Turn the light unit upside down.



2. Use a flat-blade screwdriver to remove the pressure release screw.
3. Use a Phillips head screwdriver to remove the four Phillips flat-head screws.

Note

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

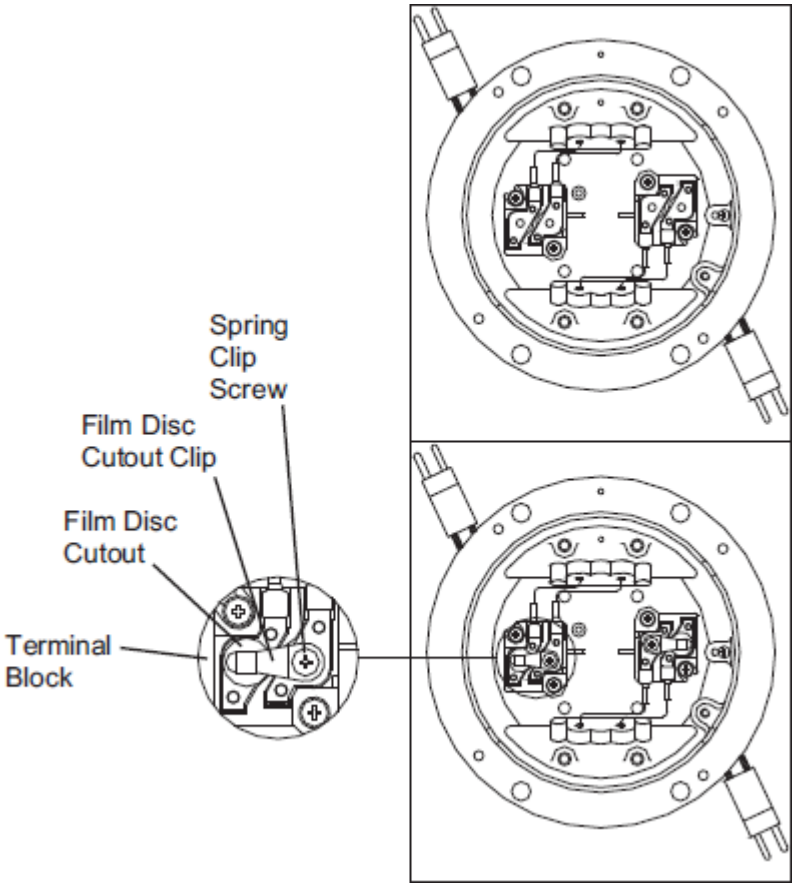
4. Insert a small or medium flat-blade screwdriver in the machined recess between the top and inner covers, then twist it to separate the inner cover from the top cover.

CAUTION

The inner cover O-ring must be replaced each time the fixture is opened. Refer to Closing the Optical Unit for the procedure.

6.2.2 Replacing the Film Disc Cutout

Figure 14: Film Disc Cutout Diagrams



To replace the film disc cutout:

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

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

6. Rotate the cutout clip on top of the cutout and hold while tightening the screw.
   Ensure that the pressure applied by the clip on the film disc is sufficient for good contact. If the film disc is loose, remove the clip and bend it slightly to increase its pressure (see Figure 14).
7. Reassemble all components in reverse order.
8. Reinstall the inner cover assembly on the top cover. Refer to " Closing the Optical Unit ".

6.2.3 Replacing Lamps

WARNING

Burns
Read installation instructions in their entirety before starting installation.

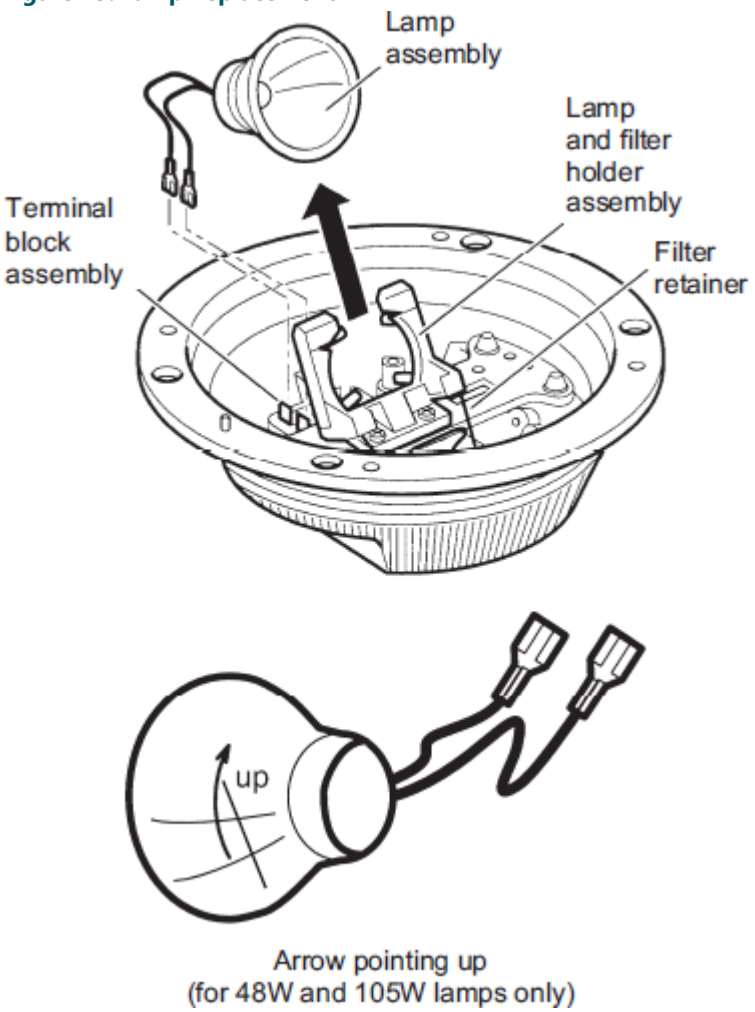
- Turn off electrical power to the circuit before replacing lamps. Failure to observe this warning may result in personal injury, death or equipment damage.
- Allow time for the unit to cool. High interior temperatures may cause severe burns. Failure to observe this warning may result in personal injury.

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

Note

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

Figure 15: Lamp Replacement



To replace a lamp:

1. Release the filter retainer (see figure at right).
2. Disconnect the fast-on connectors of the lamp from the terminal block.
3. Hold the reflector as you remove the lamp from the lamp and filter holder assembly.
4. If using a film disc cutout, remove it by loosening the screw that secures the cutout clip to the terminal block and rotate cutout clip free (see figure in " Replacing the Film Disc Cutout ").

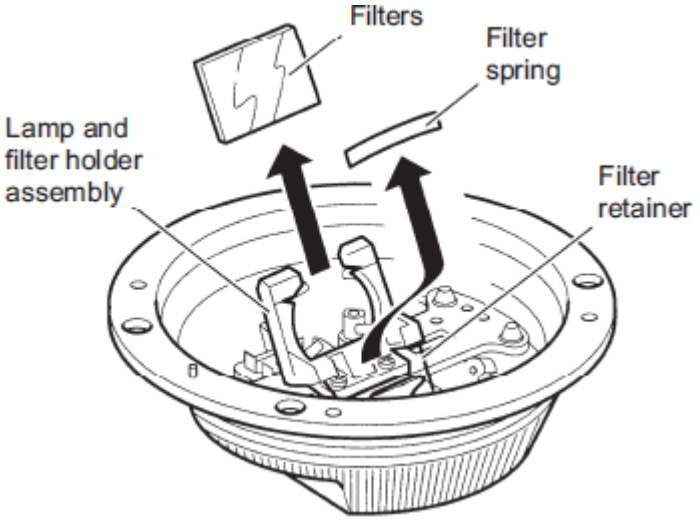
5. Install a new lamp and reassemble in reverse order.
6. For fixtures using 48W or 105W lamps, position the lamp with the arrow pointing up to optimize photometric output. (Lamp orientation is not important for fixtures using 30W lamps.)

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

7. If using a film disc cutout, position a new disc (smaller contact area pointed up) in the terminal block. Rotate the cutout clip on top of the cutout and hold while tightening the screw. Ensure that the pressure applied by the clip on the film disc is sufficient for good contact. If the film disc is loose, remove the clip and bend it slightly to increase its pressure (see figure in " Replacing the Film Disc Cutout ").
8. Make sure there is good contact between fast-on connectors and terminals.
9. To close the unit properly, replace the O-ring and check for watertightness, proceed to:
   - " Closing the Optical Unit " and
   - " Testing for Leaks".

6.2.4 Replacing Filters

Figure 16: Replacement Filter Diagram

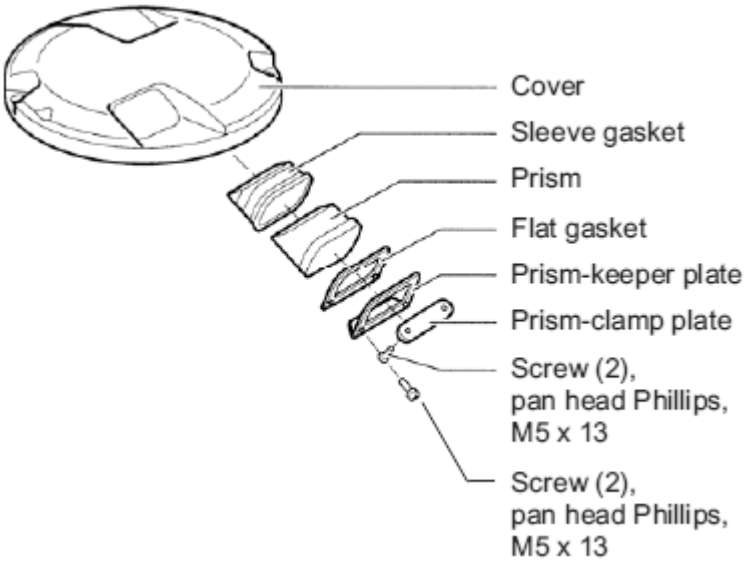


To replace the filter:

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

6.2.5 Replacing Prism

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



To replace the prism:

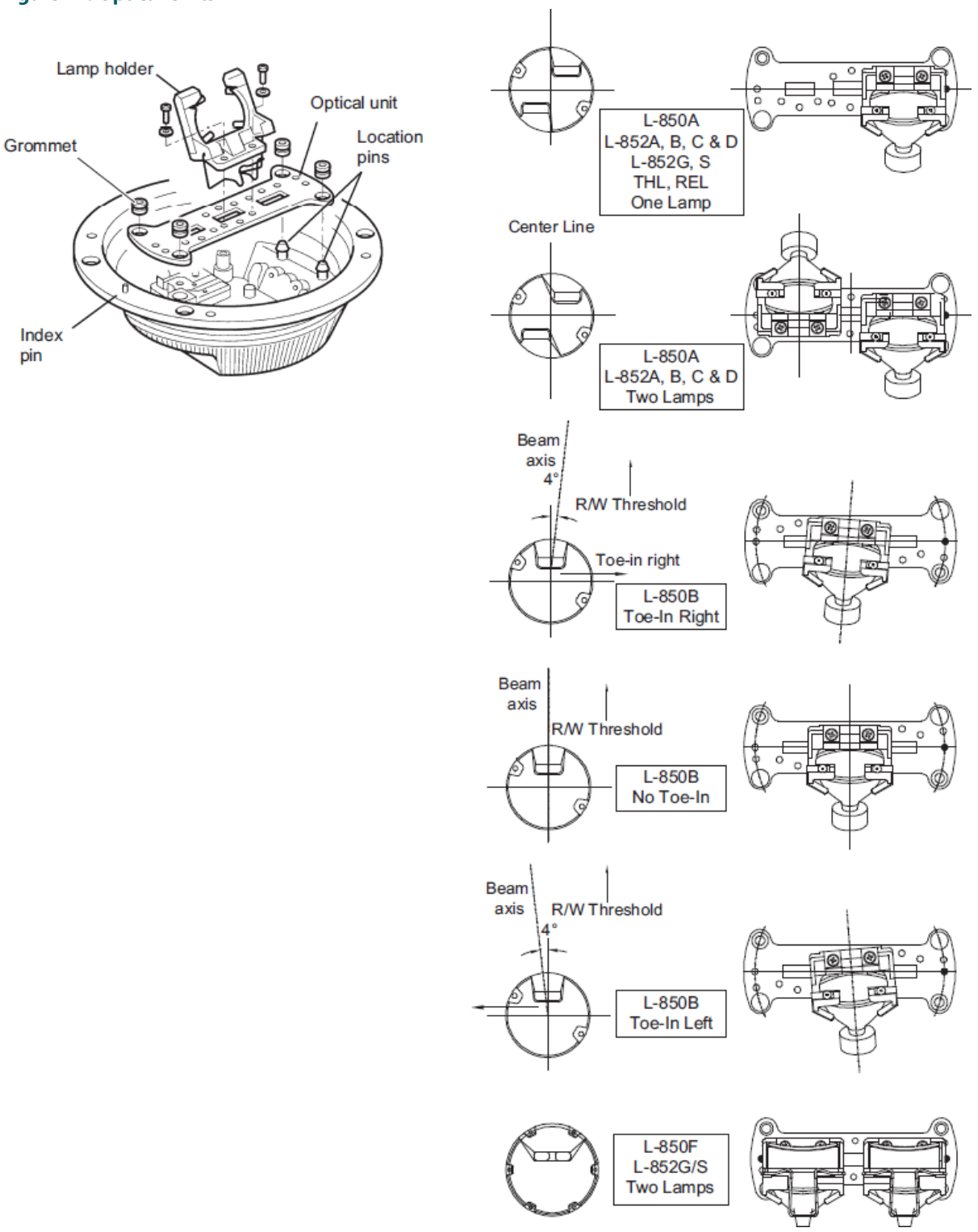
1. Remove the prism-clamp plate secured in the cover.
2. Remove the prism-clamp plate and two screws. Retain for reassembly.
3. Remove the prism-keeper plate and two screws. Retain for reassembly.
4. Discard the flat gasket.
5. Push the prism with the sleeve gasket toward the inside of the cover.
6.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

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

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

6.2.6 Replacing Optical Unit

Figure 17: Optical Units



To replace the optical unit:

1. Open the optical unit (see " Opening the Optical Unit ").
2. Remove the lamp.
   Refer to " Replacing Lamps ".

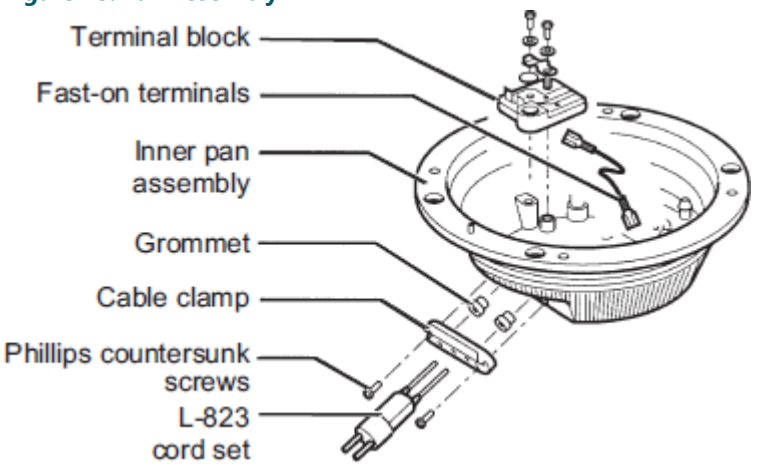
3. Remove the optical unit by lifting it up from the inner cover manually.
4. Position the lamp holder on the optical support according to the type of unit, referring to the figures at right.
5. Install the new optical unit with new grommets, as shown below.
6. Clip the optical unit to the four location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

CAUTION

Make sure that when you replace the inner cover on the top cover, the index pin hole on the top cover is aligned with the index pin on the light by the index pin could crack the inner pan and cross-thread the countersunk screws.

6.2.7 Replacing L-823 Cord Set

Figure 18: Pan Assembly



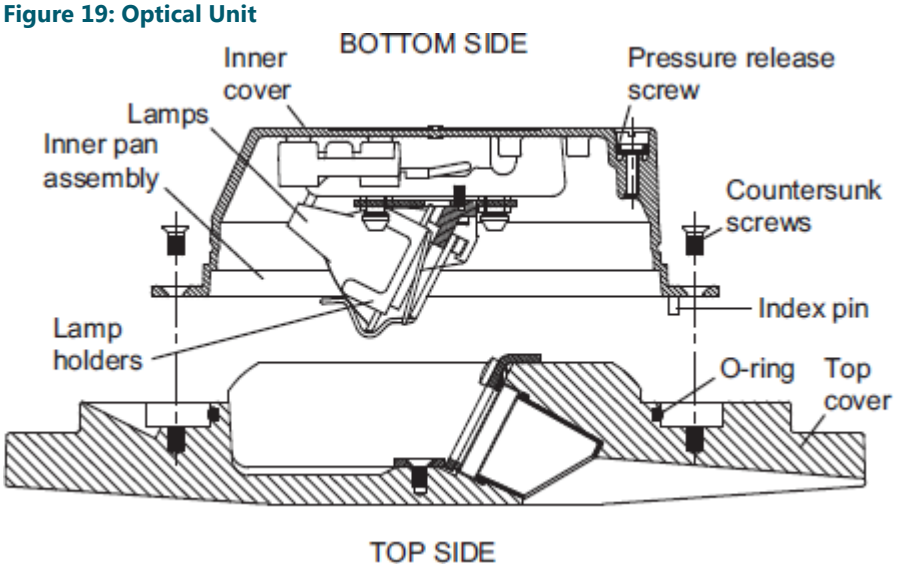
To replace the L-823 cord set:

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

6.2.8 Closing the Optical Unit

To close the optical unit:

Figure 19: Optical Unit



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

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

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

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

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

6.2.9 Testing for Leaks

To test for leaks, perform the following procedure:

1. See Figure 20.

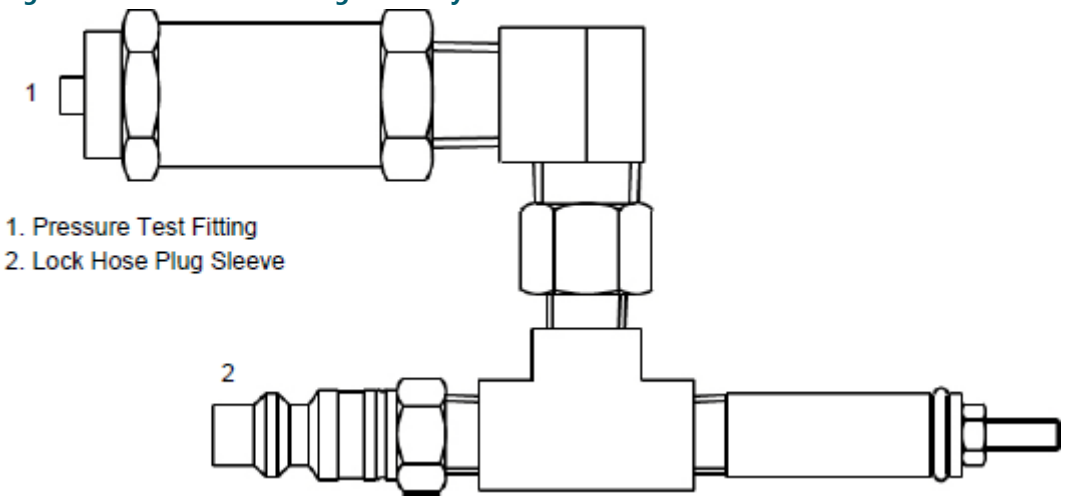
   Remove pressure relief screw.

2. See Figure 21.

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

Figure 20: Pressure Relief Screw

Figure 21: 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.

7.0 Specifications

7.1 Dimensions, Weight and Operating Conditions

F-Range light fixtures are designed to operate under the conditions shown in Table 6 for temperature, altitude and relative humidity. The table also shows dimensions and weights for various F-Range types.

Table 6: Dimensions, Weight and Environmental Operating Conditions

	L-850A, THL	L-850B	L-850F	L-852A, B, C & D		L-852G	L-852S, REL	L-852G/S
				12-inch	10-inch			
DIMENSIONS [1]								
Shipping dimensions,	7 x 13 x 13							
inches (cm)	(17.8 x 33 x 33)							
Outer diameter,	11.94	11.94	11.94	11.94	9.94	11.94	11.94	11.94
inches (mm)	(303.28)	(303.28)	(303.28)	(303.28)	(252.48)	(303.28)	(303.28)	(303.28)
Bolt-circle diameter,	11.25	11.25	11.25	11.25	10.25	11.25	11.25	11.25
inches (mm)	(285.75)	(285.75)	(285.75)	(285.75)	(260.55)	(285.75)	(285.75)	(285.75)
WEIGHT								
Shipping weight (if shipped in	15.3	14.8	15.6	15.3	15.3	14.8	14.8	15.6
individual box), lb. (kg) max.	(6.9)	(6.7)	(7.1)	(6.9)	(6.9)	(6.7)	(6.7)	(7.1)
Net weight,	12.3	11.8	12.6	12.3	12.3	11.8	11.8	12.6
lb. (kg) max.	(5.6)	(5.4)	(5.7)	(5.6)	(5.6)	(5.4)	(5.4)	(5.7)
ENVIRONMENTAL OPERATING CONDITIONS								
Temperature	-40°F to 131°F (-40°C to 55°C)							
Altitude	Sea level to 10,000 ft. (3000m)							
Relative humidity	Up to 100%							

Notes

[1] Fixtures shipped after July 2008 have a new bottom cover (P/N 60A3339/X) substituted for older bottom covers (P/N 4071.50.082 and 4071.59.040). The new bottom cover and all attached parts are functionally the same as the older version. However, the new bottom cover is deeper. Bottom cover (shown below) N60A3339/X is 3.55" deep from the underside of the fixture top cover, compared with 2.47" for bottom covers 4071.50.082 or 4071.59.040.

Figure 22: F-Range In-pavement Light with Inner Pan Assembly 60A3339/X

7.2 Isolation Transformers

Refer to Table 7 for the isolation transformer required for each F-Range type.

Table 7: Required Isolation Transformers, 60 Hz

F-Range Type	Number and Type of Lamps	Series Circuit	Isolation Transformer	Watts	Amperes
L-850A	One, 48W/6.6A, Unidirectional	6.6A	L-830-1	30/45	6.6/6.6
		20A	L-830-2		20/6.6
	Two, 48W/6.6A, Bidirectional, one cord set	6.6A	L-830-4	100	6.6/6.6
		20A	L-830-5		20/6.6
	Two, 48W/6.6A, Bidirectional, two cord sets	6.6A	Two L-830-1	30/45	6.6/6.6
		20A	Two L-830-2		20/6.6
L-850B	One, 48W/6.6A, Unidirectional	6.6A	L-830-1	30/45	6.6/6.6
		20A	L-830-2		20/6.6
L-850F	Two, 48W/6.6A, Unidirectional	6.6A	Two L-830-1	30/45	6.6/6.6
		20A	Two L-830-2		20/6.6
L-852A L-852B L-852C L-852D	One, 30W/6.6A, Unidirectional	6.6A	L-830-1	30/45	6.6/6.6
		20A	L-830-2		20/6.6
	Two, 30W/6.6A, Bidirectional, one cord set	6.6A	L-830-3	65	6.6/6.6
	Two, 30W/6.6A, Bidirectional, two cord sets	6.6A	Two L-830-1	30/45	6.6/6.6
		20A	Two L-830-2		20/6.6
L-852G L-852S	One, 105W/6.6A, Unidirectional	6.6A	L-830-4 (Note 1)	100	6.6/6.6
		20A	L-830-5 (Note 1)		20/6.6
L-852G/S	Two, 105W/6.6A, Unidirectional	6.6A	Two L-830-4 (Note 2)	100	6.6/6.6
		20A	Two L-830-5 (Note 2)		20/6.6
THL, REL	One, 105W/6.6A, Unidirectional	6.6A	L-830-4 or L-830-18 (Note 3)	100 or 150	6.6/6.6

Note

[1] 100W isolation transformer may be used if connected to BRITE system using a single Remote.

[2] Depending on application, a 100W or 150W isolation transformer may be used if connected to BRITE system using a single Remote.

[3] May use one 100W isolation transformer if connected to BRITE system using a dual Remote.

7.3 Lamps and Light Beams

Table 8 shows specifications for lamps and light beams. F-Range light fixtures mount on a 12-inch (304.8mm) diameter deep L-868 light base or on an optional ADB Safegate shallow base.

Table 8: MR-16 Lamp Specifications, 6.6A

F-Range Type	# Lamps	Lamp Wattage (W)	Rated Lamp Life	Light Beam
L-850A	1 or 2	48	1500 hours	Unidirectional or 180 degrees bidirectional
L-850B	1			Unidirectional
L-850F	2			Unidirectional
L-852A	1 or 2	30 or 48		Unidirectional or 180 degrees bidirectional
L-852B				
L-852C				
L-852D				
L-852G, S	1	105	1000 hours	Unidirectional flashing (L-852G) Unidirectional steady burning (L-852S)
L-852G/S	2			Unidirectional, one side flashing (L-852G) or one side steady burning (L-852S)
THL, REL	1	105	1000 hours	Unidirectional

Notes

1 48W used only for replacement of existing 48W lamp. Not used in new installations.

8.0 F-Range Parts

To order parts, call ADB Safegate Customer Service or your local representative.

- "Ordering Codes, Part Numbers and Internal Wiring - Main Assembly" provides ordering codes, main assembly part number lists and internal fixture wiring information and recommended spare parts for each F-Range fixture. Refer to the appropriate section in the table below for the fixture type.
- Refer to Subassembly Part Numbers for subassembly part number lists.
- See THL, REL Spare Parts for recommended spare parts for each F-Range fixture.

8.1 L-850A & THL 12" Low Profile

Figure 23: L-850A and THL Low-profile Lights

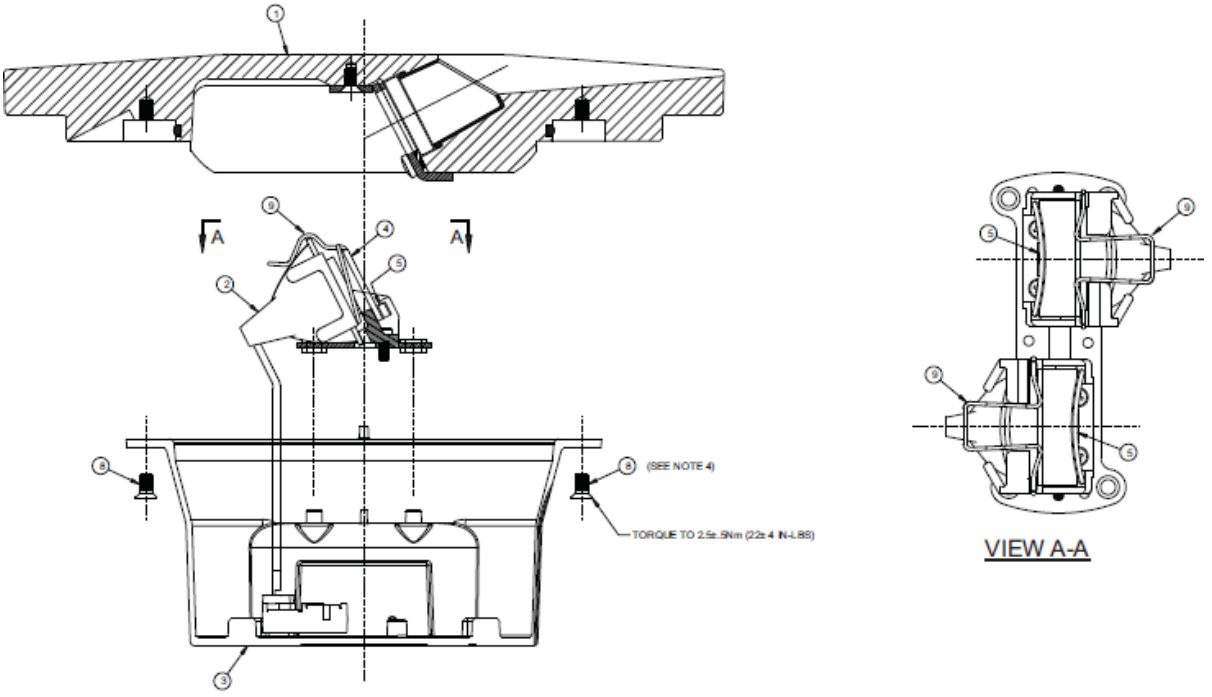


Table 9: L-850A and THL Low-profile Light Parts

F-Range Fixture / Item No.	Part Number	Part Name/Description	Qty.	Note	Subassembly
44A4817/1XX1					
1	44A4787/1	Top Cover Assy	1		see " Subassembly Part Numbers "
2	44A4810/14	Optical Support Assy	1		see Figure 38
44A4817/2XX1					
4	63A0968	Red Filter	1		
5	4071.50.160	Filter Spring	1		
1	44A4787/1	Top Cover Assy	1		see " Subassembly Part Numbers "
2	44A4810/14	Optical Support Assy	1		see Figure 38
9	4071.58.510	Filter Retainer	1		

Table 9: L-850A and THL Low-profile Light Parts (continued)

F-Range Fixture / Item No.	Part Number	Part Name/Description	Qty.	Note	Subassembly
44A4817/3XX1					
4	63A0968	Red Filter	2		
5	4071.50.160	Filter Spring	2		
1	44A4787/1	Top Cover Assy	1		see " Subassembly Part Numbers "
2	44A4810/14	Optical Support Assy	1		see Figure 38
9	4071.58.510	Filter Retainer	2		
44A4817/4XX1					
1	44A4787/2	Top Cover Assy	1		see " Subassembly Part Numbers "
2	44A4810/15	Optical Support Assy	1		see Figure 38
44A4817/5XX1					
4	63A0968	Red Filter	1		
5	4071.50.160	Filter Spring	1		
1	44A4787/2	Top Cover Assy	1		see " Subassembly Part Numbers "
2	44A4810/15	Optical Support Assy	1		see Figure 38
9	4071.58.510	Filter Retainer	1		
44A4817/6XX1					
1	44A4787/11	Top Cover Assembly	1		see Figure 37
2	44A4810/14	Optical Support Assembly	1		Figure 39
44A4817/7XX1					
4	63A0968	Red Filter	1		
5	4071.50.160	Filter Spring	1		
1	44A4787/11	Top Cover Assembly	1		
2	44A4810/14	Optical Support Assembly	1		Figure 39
9	4071.58.510	Filter Retainer	1		
44A4817/X11X (2 LAMP ONLY)					
1	44A4811/13	Inner Pan Assy	1		see Figure 35
44A4817/X12X (2 LAMP ONLY)					
3	44A4811/23	Inner Pan Assy	1		see Figure 35
6	44D0465/1	Shallow Base (DEEP)	1	**NS**	
7	70A0503	Male Terminal 10-12 Disconnect	2	**NS**	
44A4817/X21X (2 LAMP ONLY)					
3	44A4811/23	Inner Pan Assy	1		see Figure 35
44A4817/X22X (2 LAMP ONLY)					
3	44A4811/23	Inner Pan Assy	1		see Figure 35
6	44D0465/1	Shallow Base (DEEP)	1	**NS**	

Table 9: L-850A and THL Low-profile Light Parts (continued)

F-Range Fixture / Item No.	Part Number	Part Name/Description	Qty.	Note	Subassembly
7	70A0503	Male Terminal 10-12 Disconnect	2	**NS**	
44A4817/X23X (2 LAMP ONLY)					
3	44A4811/24	Inner Pan Assy	1		see Figure 39
44A4817/X24X (2 LAMP ONLY)					
	44A4811/24	Inner Pan Assy	1		see Figure 39
6	44D0465/1	Shallow Base (DEEP)	1	**NS**	
7	70A0503	Male Terminal 10-12 Disconnect	2	**NS**	
44A4817/X13X (2 LAMP ONLY)					
3	44A4811/14	Inner Pan Assy	1		see Figure 39
44A4817/X14X (2 LAMP ONLY)					
3	44A4811/14	Inner Pan Assy	1		see Figure 39
6	44D0465/1	Shallow Base (DEEP)	1	**NS**	
7	70A0503	Male Terminal 10-12 Disconnect	2	**NS**	
44A4817/413X & /513X (1 LAMP ONLY)					
3	44A4811/15	Inner Pan Assy	1		see Figure 39
44A4817/414X & /514X (1 LAMP ONLY)					
a	44A4811/15	Inner Pan Assy	1		see Figure 39
6	44D0465/1	Shallow Base (DEEP)	1	**NS**	
7	70A0503	Male Terminal 10-12 Disconnect	2	**NS**	
44A4817/423X & /523X (1 LAMP ONLY)					
3	44A4811/25	Inner Pan Assy	1		see Figure 39
44A4817/424X & /524X (1 LAMP ONLY)					
3	44A4811/24	Inner Pan Assy	1		see Figure 37
6	44D0465/1	Shallow Base (DEEP)	1	**NS**	
7	70A0503	Male Terminal 10-12 Disconnect	2	**NS**	

Note

[1] Shallow base assemblies are shipped separately. See details on Installation on a Shallow Base.

[2] A thin layer of Novagard G322L (P/N 67A0009) or equivalent may be applied to four nipples of inner pan assembly to install optical assembly.

[3] Apply Novagard G322L (P/N 67A0009) or equivalent silicone grease to O-ring on top cover assembly.

[4] Apply Loctite 242 to Item 8: M5x10 screw, quantity = 4 (P/N 64A0925/10).

[5] NS = Not Shown

8.2 L-850B 12" Low Profile

Figure 24: L-850B 12" Low-profile Light

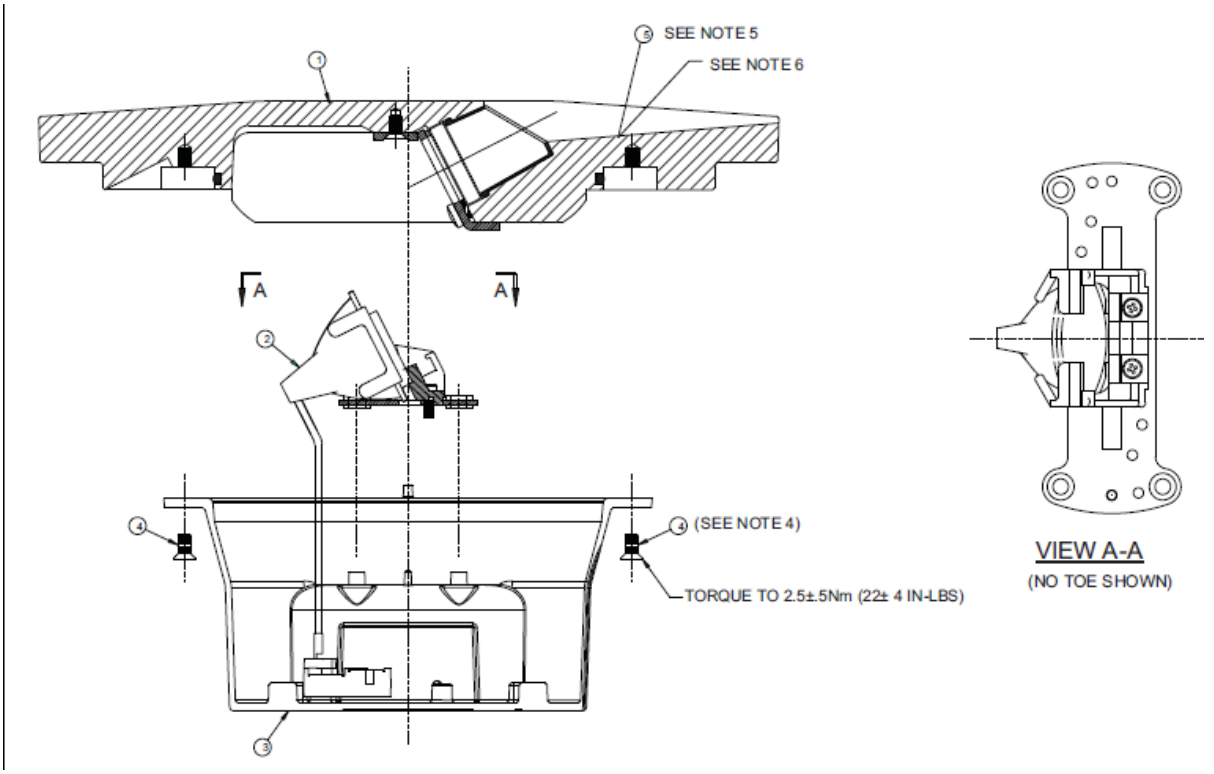


Table 10: L-850B 12" Low-profile Light Parts

F-Range Fixture / Item No.	Part NumberNumberNumber	Part Name/DescriptionName/Description	Qty.	Notes	Subassembly
4	64A0925/10	Screw M5x10	4		
5	42A0468	Toeing Label	1		
44A4763/11X					
1	44A4786	Top Cover Assembly	1		see Table 18
2	44A4810/11	Optical Support Assembly	1		see Figure 38
3	44A4811/12	Inner Pan Assembly	1		see Figure 35
44A4763/12X					
1	44A4786	Top Cover Assembly	1		see Table 18
2	44A4810/12	Optical Support Assembly	1		see Figure 38
3	44A4811/11	Inner Pan Assembly	1		see Figure 35
44A4763/13X					
1	44A4786	Top Cover Assembly	1		see Table 18
2	44A4810/13	Optical Support Assembly	1		see Figure 38
3	44A4811/12	Inner Pan Assembly	1		see Figure 35
44A4763/14X					
1	44A4786/1	Top Cover Assembly	1		see Table 18
2	44A4810/11	Optical Support Assembly	1		see Figure 38

Table 10: L-850B 12" Low-profile Light Parts (continued)

F-Range Fixture / Item No.	Part NumberNumberNumber	Part Name/DescriptionName/Description	Qty.	Notes	Subassembly
3	44A4811/12	Inner Pan Assembly	1		see Figure 35
44A4763/15X					
1	44A4786/1	Top Cover Assembly	1		see Table 18
2	44A4810/12	Optical Support Assembly	1		see Figure 38
3	44A4811/11	Inner Pan Assembly	1		see Figure 35
44A4763/16X					
a	44A4786/1	Top Cover Assembly	1		see Table 18
2	44A4810/13	Optical Support Assembly	1		see Figure 38
3	44A4811/12	Inner Pan Assembly	1		see Figure 35
44A4763/21X					
a	44A4786	Top Cover Assembly	1		see Table 18
2	44A4810/11	Optical Support Assembly	1		see Figure 38
3	44A4811/22	Inner Pan Assembly	1		see Figure 35
44A4763/22X					
1	44A4786	Top Cover Assembly	1		see Table 18
2	44A4810/12	Optical Support Assembly	1		see Figure 38
3	44A4811/21	Inner Pan Assembly	1		see Figure 35
44A4763/23X					
1	44A4786	Top Cover Assembly	1		see Table 18
2	44A4810/13	Optical Support Assembly	1		see Figure 38
3	44A4811/22	Inner Pan Assembly	1		see Figure 35
44A4763/24X					
1	44A4786/1	Top Cover Assembly	1		see Table 18
2	44A4810/11	Optical Support Assembly	1		see Figure 38
3	44A4811/22	Inner Pan Assembly	1		see Figure 35
44A4763/25X					
1	44A4786/1	Top Cover Assembly	1		see Table 18
2	44A4810/12	Optical Support Assembly	1		see Figure 38
3	44A4811/21	Inner Pan Assembly	1		see Figure 35
44A4763/26X					
1	44A4786/1	Top Cover Assembly	1		see Table 18
2	44A4810/13	Optical Support Assembly	1		see Figure 38
3	44A4811/22	Inner Pan Assembly	1		see Figure 35
44A4763/XX2					

Table 10: L-850B 12" Low-profile Light Parts (continued)

F-Range Fixture / Item No.	Part NumberNumberNumber	Part Name/DescriptionName/Description	Qty.	Notes	Subassembly
6	44D0465/1	Shallow Base (DEEP)	1	**NS**	
7	70A0503	Male Terminal 10-12 Disconnect	2	**NS**	

Note

[1] Shallow base assemblies are shipped separately. See details on Installation on a Shallow Base.

[2] A thin layer of Novagard G322L (P/N 67A0009) or equivalent may be applied to four nipples of inner pan assembly to install optical assembly.

[3] Apply Novagard G322L (P/N 67A0009) or equivalent silicone grease to O-ring on top cover assembly.

[4] Apply Loctite 242 to Item 4: M5x10 screw, quantity = 4 (P/N 64A0925/10).

[5] Toeing label in window area. see sales order for required toeing. If fixture is not toed, there is no label.

[6] Toeing is indicated by use of arrow stamp in center of light channel.

[7] NS = NOT SHOWN

8.3 L-850F 12" Low Profile

Figure 25: L-850F 12" Low Profile Light

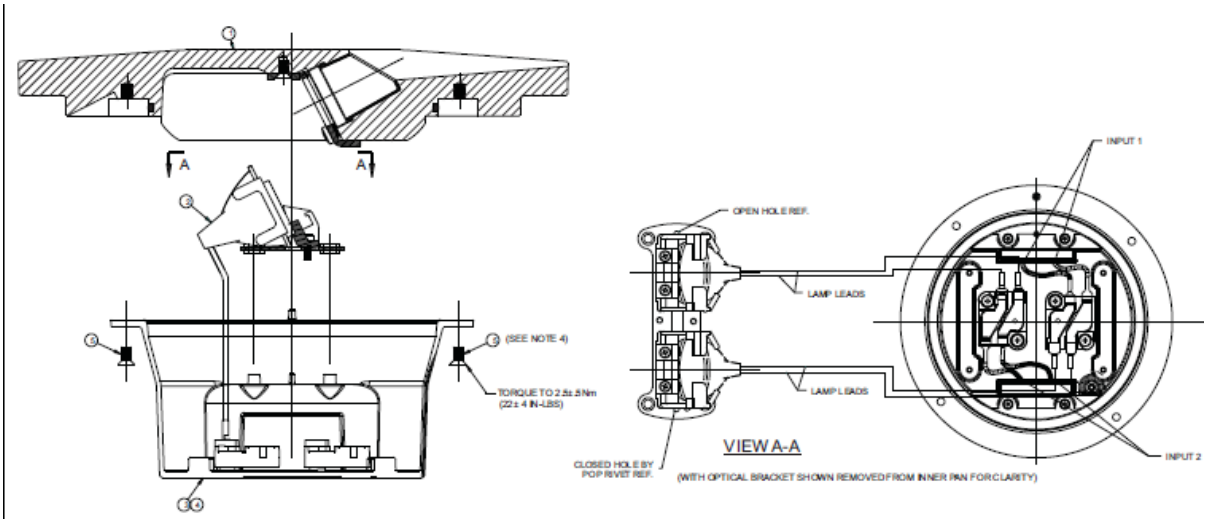


Table 11: L-850F 12" Low Profile Light Parts

Item No.	Part Number	Part Name/Description	Qty.				Notes	Subassembly
1	44A5989/2	12" Unidirectional Top Cover Assembly	1	1	1	1		see Figure 42
2	44A4810/16	Optical Support Assembly	1	1	1	1		see Figure 38
3	44A4811/16	Inner Pan Assembly w/ FDC	-	-	1	1		see Figure 37
4	44A4811/26	Inner Pan Assembly w/o FDC	1	1	-	-		see Figure 37
5	64A0925/10	Screw M5x10	4	4	4	4	4	
6	44D0465/1	Shallow Base (DEEP)	1	-	2	-	**NS**	
7	70A0503	Male Terminal 10-12 Disconnect	2	-	1	-	**NS**	

Table 11: L-850F 12" Low Profile Light Parts (continued)

Item No.	Part Number	Part Name/Description	Qty.				Notes	Subassembly
			0221	0211	0121	0111		
			configuration					

Note

[1] Shallow base assemblies are shipped separately. See details on Installation on a Shallow Base.

[2] A thin layer of Novagard G322L (P/N 67A0009) or equivalent may be applied to four nipples of inner pan assembly to install optical assembly.

[3] Apply Novagard G322L (P/N 67A0009) or equivalent silicone grease to O-ring on top cover assembly.

[4] Apply Loctite 242 to Item 5: M5x10 screw, quantity = 4 (P/N 64A0925/10).

[5] NS = NOT SHOWN

8.4 L-852A & L-852C 12" Low Profile

Figure 26: L-852A & L-852C 12" Low-profile

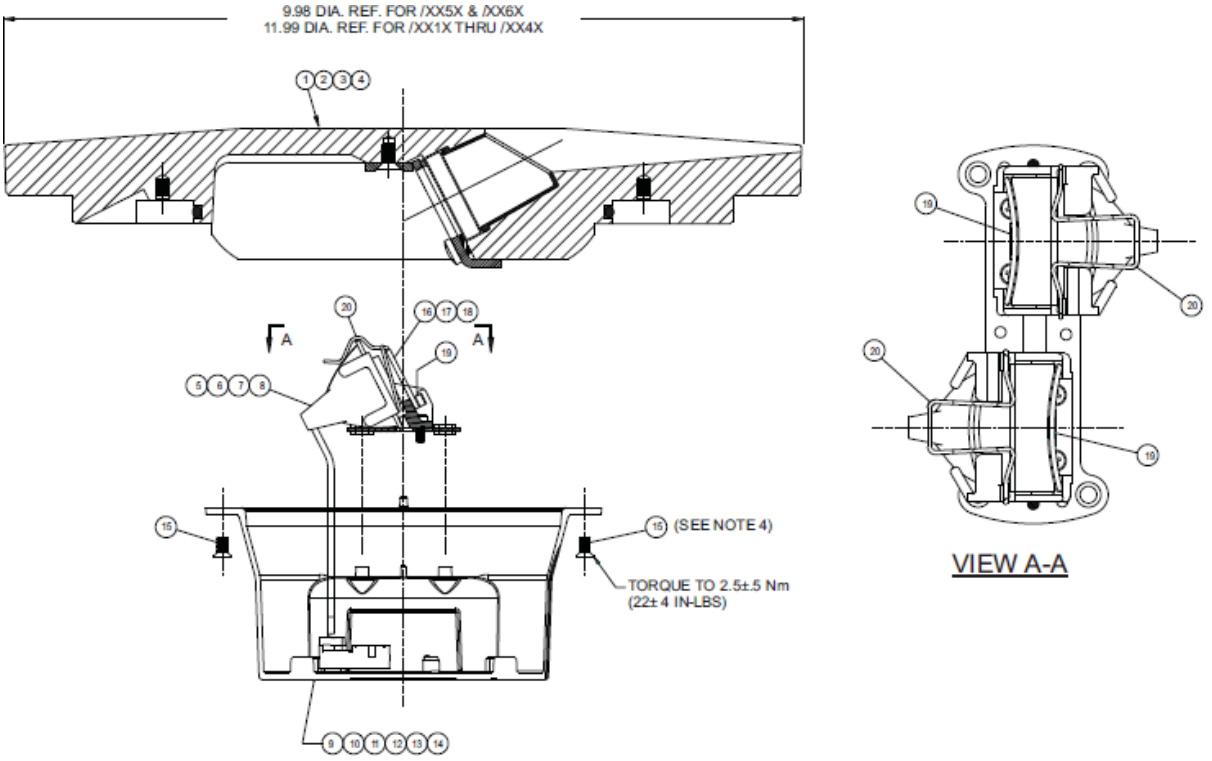


Table 12: L-852A & L-852C 12" Low Profile

Item No.	Part Number	Part Name/Description	Qty. [1]	Notes	Subassembly
1	44A4787/3	12" Top Cover Assembly	1	A	see " Subassembly Part Numbers "
2	44A4787/4	12" Top Cover Assembly	1	B	see " Subassembly Part Numbers "
3	44A4787/7	10" Top Cover Assembly	1	C	see " Subassembly Part Numbers "
4	44A4787/8	10" Top Cover Assembly	1	D	see " Subassembly Part Numbers "

Table 12: L-852A & L-852C 12" Low Profile (continued)

Item No.	Part Number	Part Name/Description	Qty. [1]	Notes	Subassembly
5	44A4810/14	Optical Support Assembly	1	E	see Figure 39
6	44A4810/15	Optical Support Assembly	1	F	see Figure 39
7	44A4810/34	Optical Support Assembly	1	G	see Figure 39
8	44A4810/35	Optical Support Assembly	1	H	see Figure 39
9	44A4811/13	Inner Pan Assembly	1	I	see Figure 35
10	44A4811/14	Inner Pan Assembly	1	J	see Figure 37
11	44A4811/15	Inner Pan Assembly	1	K	see Figure 37
12	44A4811/23	Inner Pan Assembly	1	L	see Figure 35
13	44A4811/24	Inner Pan Assembly	1	M	see Figure 37
14	44A4811/25	Inner Pan Assembly	1	N	see Figure 37
15	64A0925/10	Screw M5x10	4	4	
16	63A0964/1	Yellow Filter	1 or 2	O	
17	63A0963/2	Green Filter	1 or 2	P	
18	63A0968	Filter, Aviation Red	1 or 2	Q	
19	4071.50.160	Filter Spring	1 or 2	R	
20	4071.58.510	Filter Retainer	1 or 2	R	
21	44D0465/1	Shallow Base (DEEP)	1	NS	
22	70A0503	Male Terminal 10-12 Disconnect	2	NS	

Notes

[1] **Qty.** (Quantity) varies with application. Where indicated, numbers in parentheses define the options valid for each X of the Ordering Code.

Note

[1] Shallow base assemblies are shipped separately. See details on Installation on a Shallow Base.

[2] A thin layer of Novagard G322L (P/N 67A0009) or equivalent may be applied to four nipples of inner pan assembly to install optical assembly.

[3] Apply Novagard G322L (P/N 67A0009) or equivalent silicone grease to O-ring on top cover assembly.

[4] Apply Loctite 242 to **Item 15** : M5x10 screw, quantity = 4 (P/N 64A0925/10).

A Quantity = 1 for bidirectional applications (44A4764-1XXX, -2XXX, -4XXX, -8XXX, -9XXX)

B Quantity = 1 for unidirectional applications (44A4764-XXX, -6XXX, -7XXX)

C Quantity = 1 for 44A4764-X(Option 1-9) X(Option 1-2) X(Option 5-6) X(Option 1-2)

D Quantity = 1 for 44A4764-X(Option 5-7) X(Option 1-2) X(Option 5-6) X(Option 1-2)

E Quantity = 1 for 48W, bidirectional applications

F Quantity = 1 for 48W applications, 44A4764-X(Option 5-7) X(Option 1-2) X(Option 1-6) X(Option 1)

G Quantity = 1 for 30W applications, 44A4764-X(Option 1-4, 8-9) X(Option 1-2) X(Option 1-6) X(Option 2)

H Quantity = 1 for 30W applications, 44A4764-X(Option 5-7) X(Option 1-2) X(Option 1-6) X(Option 2)

I Quantity = 1 for 44A4764-X(Option 1-4, 7-9) X(Option 1) X(Option 1-2, 6) X(Option 1-2)

J Quantity = 1 for 44A4764-X(Option 1-4, 8-9) X(Option 1) X(Option 3-5) X(Option 1-2)

K Quantity = 1 for 44A4764-X(Option 5-7) X(Option 1) X(Option 1-6) X(Option 1-2)

L Quantity = 1 for 44A4764-X(Option 1-4, 8-9) X(Option 2) X(Option 1-2, 6) X(Option 1-2)

M Quantity = 1 for 44A4764-X(Option 1-4, 8-9) X(Option 2) X(Option 3-5) X(Option 1-2)

N Quantity = 1 for 44A4764-X(Option 5-7) X(Option 2) X(Option 1-6) X(Option 1-2)

O Quantity = 1 or 2 for yellow applications

P Quantity = 1 or 2 for green applications

Q Quantity = 1 or 2 for red applications

R Quantity = 1 or 2, depending on application

NS = NOT SHOWN

8.5 L-852B & L-852D 12" Low Profile

Figure 27: L-852B & L-852D 12" Low Profile

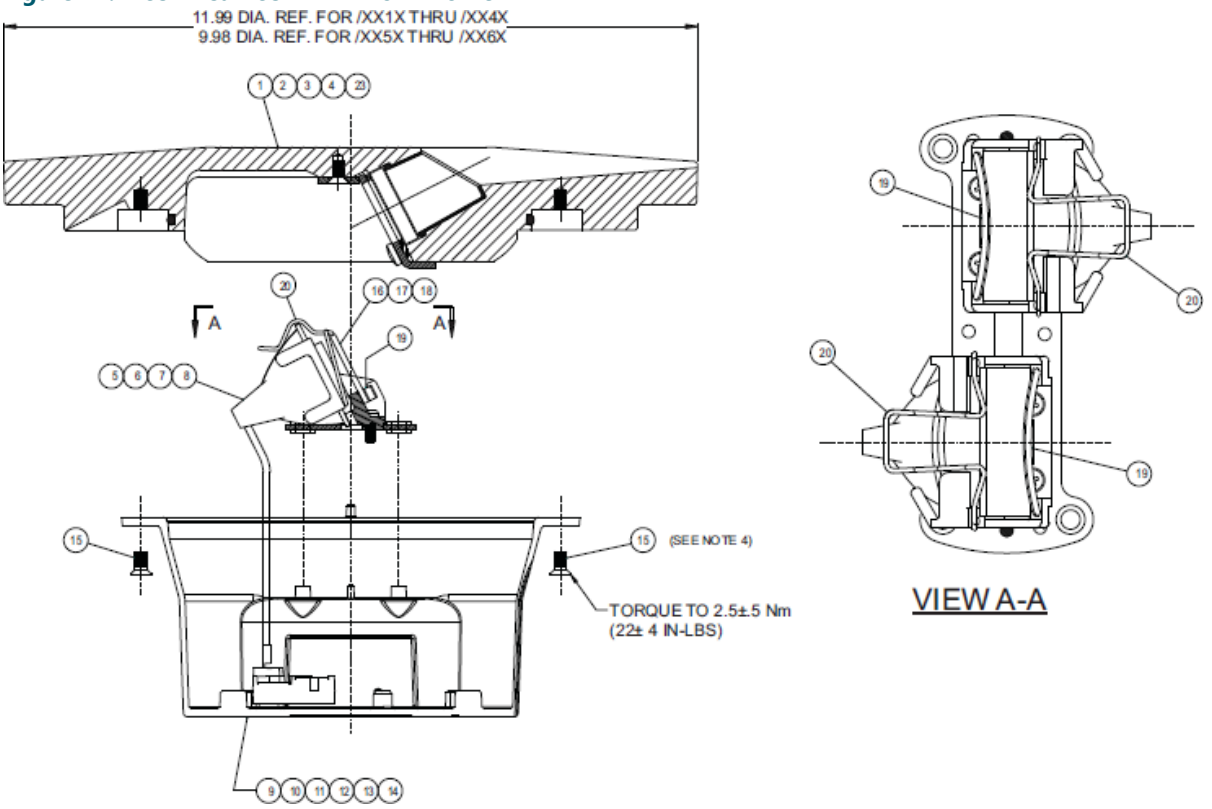


Table 13: Figure 32: L-852B & L-852D 12" Low Profile Parts

Item No.	Part Number	Part Name/Description	Qty. [1]	Notes	Subassembly
1	44A4787/5	12" Top Cover Assembly	A		see " Subassembly Part Numbers "
2	44A4787/6	12" Top Cover Assembly	B		see " Subassembly Part Numbers "
3	44A4787/9	10" Top Cover Assembly	C		see " Subassembly Part Numbers "
4	44A4787/0	10" Top Cover Assembly	D		see " Subassembly Part Numbers "
5	44A4810/14	Optical Support Assembly	E		see Figure 39
6	44A4810/15	Optical Support Assembly	F		see Figure 39
7	44A4810/34	Optical Support Assembly	G		see Figure 39
8	44A4810/35	Optical Support Assembly	H		see Figure 39
9	44A4811/13	Inner Pan Assembly	I		see Figure 35
10	44A4811/14	Inner Pan Assembly	J		see Figure 37
11	44A4811/15	Inner Pan Assembly	K		see Figure 37
12	44A4811/23	Inner Pan Assembly	L		see Figure 35
13	44A4811/24	Inner Pan Assembly	M		see Figure 37
14	44A4811/25	Inner Pan Assembly	N		see Figure 37
15	64A0925/10	Screw M5x10	4	4	

Table 13: Figure 32: L-852B & L-852D 12" Low Profile Parts (continued)

Item No.	Part Number	Part Name/Description	Qty. [1]	Notes	Subassembly
16	63A0964	Yellow Filter	O		
17	63A0963	Green Filter	P		
18	63A0968	Filter, Aviation Red	Q		
19	4071.50.160	Filter Spring	R		
20	4071.58.510	Filter Retainer	R		
21	44D0465/1	Shallow Base (DEEP)	1	NS	
22	70A0503	Male Terminal 10-12 Disconnect	2	NS	
23	44A7173/XX	Two-piece Top Cover Assembly	1	44A4765 /XX7X	see Figure 34

Note

[1] Shallow base assemblies are shipped separately. See details on Installation on a Shallow Base.

[2] A thin layer of Novagard G322L (P/N 67A0009) or equivalent may be applied to four nipples of inner pan assembly to install optical assembly.

[3] Apply Novagard G322L (P/N 67A0009) or equivalent silicone grease to O-ring on top cover assembly.

[4] Apply Loctite 242 to

[5] **Item 15** : M5x10 screw, quantity = 4 (P/N 64A0925/10).

A Quantity = 1 for bidirectional applications (44A4765-1XXX, -2XXX, -4XXX, -8XXX, -9XXX)

B Quantity = 1 for unidirectional applications (44A4765-5XXX, -6XXX, -7XXX)

C Quantity = 1 for 44A4765-X(Option 1-9) X(Option 1-2) X(Option 5-6) X(Option 1-2)

D Quantity = 1 for 44A4765-X(Option 5-7) X(Option 1-2) X(Option 5-6) X(Option 1-2)

E Quantity = 1 for 48W, bidirectional applications

F Quantity = 1 for 48W applications, 44A4765-X(Option 5-7) X(Option 1-2) X(Option 1-6) X(Option 1)

G Quantity = 1 for 30W applications, 44A4765-X(Option 1-4, 8-9) X(Option 1-2) X(Option 1-6) X(Option 2)

H Quantity = 1 for 30W applications, 44A4765-X(Option 5-7) X(Option 1-2) X(Option 1-6) X(Option 2)

I Quantity = 1 for 44A4765-X(Option 1-4, 7-9) X(Option 1) X(Option 1-2, 6) X(Option 1-2)

J Quantity = 1 for 44A4765-X(Option 1-4, 8-9) X(Option 1) X(Option 3-5) X(Option 1-2)

K Quantity = 1 for 44A4765-X(Option 5-7) X(Option 1) X(Option 1-6) X(Option 1-2)

L Quantity = 1 for 44A4765-X(Option 1-4, 8-9) X(Option 2) X(Option 1-2, 6) X(Option 1-2)

M Quantity = 1 for 44A4765-X(Option 1-4, 8-9) X(Option 2) X(Option 3-5) X(Option 1-2)

N Quantity = 1 for 44A4765-X(Option 5-7) X(Option 2) X(Option 1-6) X(Option 1-2)

O Quantity = 1 or 2 for yellow applications

P Quantity = 1 or 2 for green applications

Q Quantity = 1 or 2 for red applications

R Quantity = 1 or 2, depending on application

Notes

[1] **Qty.** (Quantity) varies with application. Where indicated, numbers in parentheses define the options valid for each X of the Ordering Code.

8.6 L-852G 12" Low Profile

Figure 28: L-852G 12" Low-profile

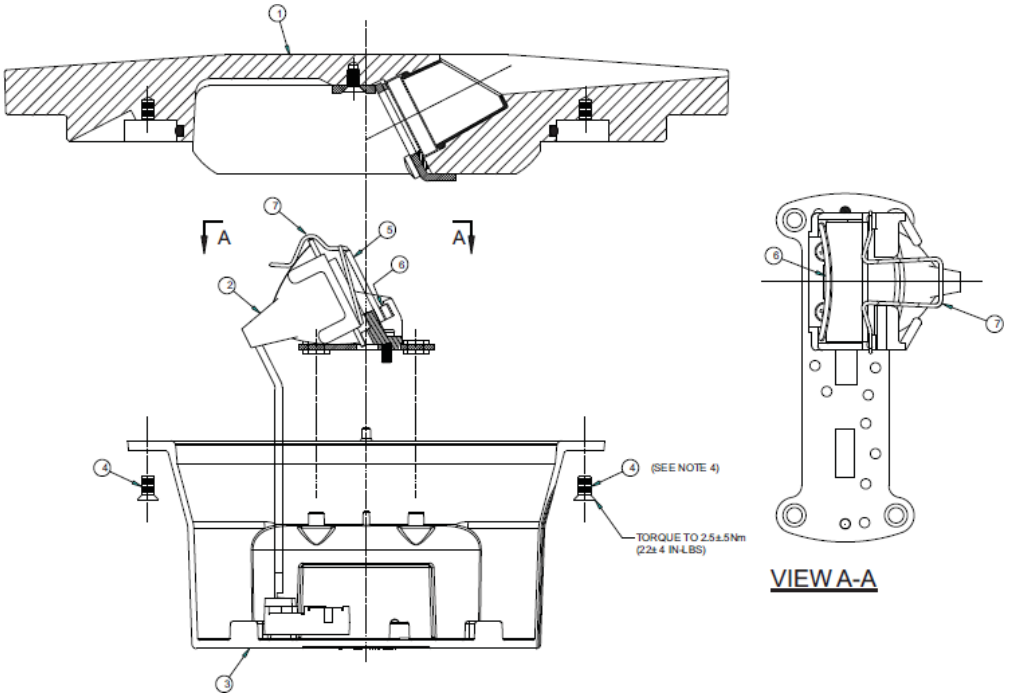


Table 14: L-852G 12" Low-profile Parts

F-Range Fixture / Item No.	Part Number	Part Name/Description	Qty.	Subassembly
1	44A4787/6	Top Cover Assembly	1	see " Subassembly Part Numbers "
2	44A4810/25	Optical Support Assembly	1	
4	64A0925/10	Screw M5x10	4	
5	63A0957	Filter	1	
6	4071.50.160	Filter Spring	1	
7	4071.58.510	Filter Retainer	1	
44A5875/1XX				
3	44A4811/15	Inner Pan Assembly w/o Film Disc Cutout	1	
44A5875/2XX				
3	44A4811/25	Inner Pan Assembly w/o Film Disc Cutout	1	
44A5875/X2X				

Table 14: L-852G 12" Low-profile Parts (continued)

F-Range Fixture / Item No.	Part Number	Part Name/Description	Qty.	Subassembly
NS	44D0465/1	Shallow Base (DEEP)	1	
NS	70A0503	Male Terminal 10-12 Disconnect	2	

Note

[1] Shallow base assemblies are shipped separately. See details on Installation on a Shallow Base.

[2] A thin layer of Novagard G322L (P/N 67A0009) or equivalent may be applied to four nipples of inner pan assembly to install optical assembly.

[3] Apply Novagard G322L (P/N 67A0009) or equivalent silicone grease to O-ring on top cover assembly.

[4] Apply Loctite 242 to **Item 4** : M5x10 screw, quantity = 4 (P/N 64A0925/10).

8.6.1 L-852S & 12" Low Profile

Figure 29: L-852S & REL 12" Low Profile

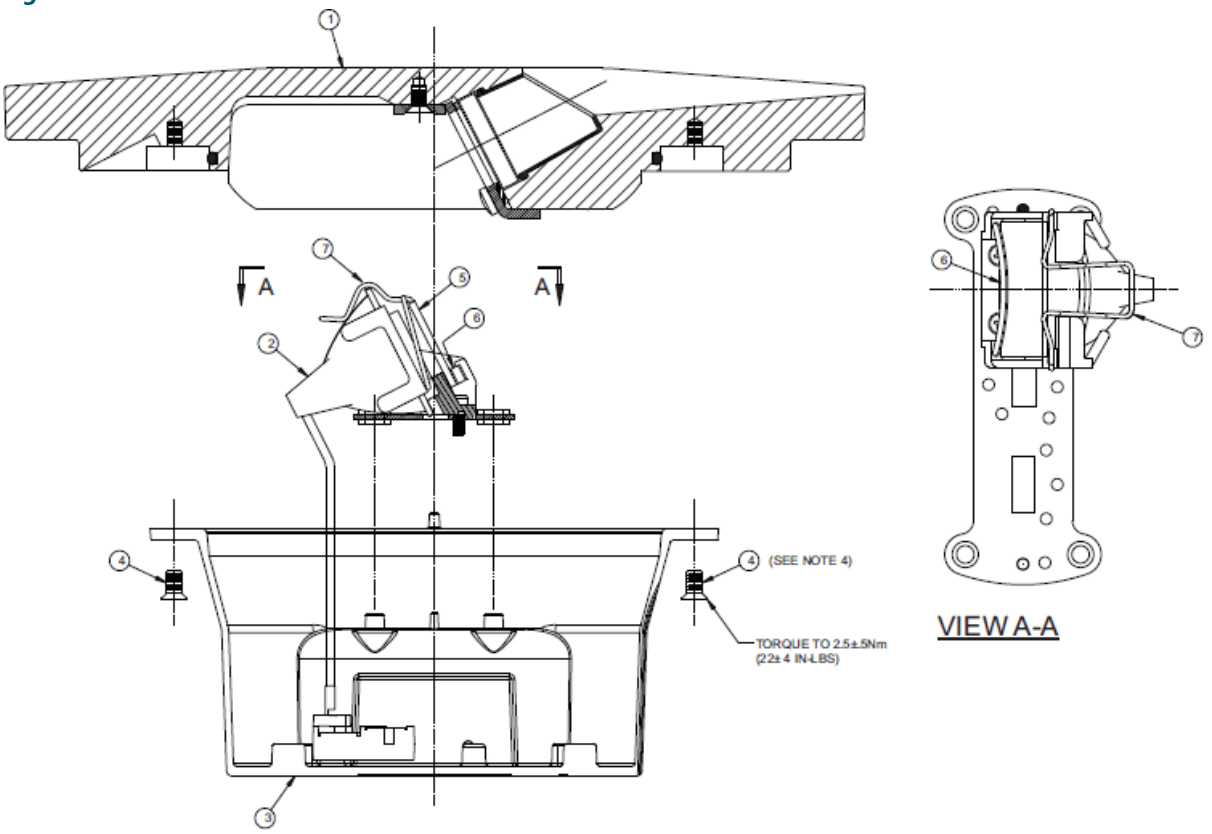


Table 15: L-852S & REL 12" Low Profile Light Parts

F-Range Fixture / Item No.	Part Number	Part Name/Description	Qty.	Subassembly
1	44A4787/6	Top Cover Assembly	1	see " Subassembly Part Numbers "
2	44A4810/25	Optical Support Assembly	1	
4	64A0925/10	Screw M5x10	4	
5	63A0957	Filter	1	

Table 15: L-852S & REL 12" Low Profile Light Parts (continued)

F-Range Fixture / Item No.	Part Number	Part Name/Description	Qty.	Subassembly
6	4071.50.160	Filter Spring	1	
7	4071.58.510	Filter Retainer	1	
44A5924/1XX				
3	44A4811/15	Inner Pan Assembly w/o Film Disc Cutout	1	
44A5924/2XX				
3	44A4811/25	Inner Pan Assembly w/o Film Disc Cutout	1	
44A5924/X2X				
NS	44D0465/1	Shallow Base (DEEP)	1	
NS	70A0503	Male Terminal 10-12 Disconnect	2	

Note

[1] Shallow base assemblies are shipped separately. See details on Installation on a Shallow Base.

[2] A thin layer of Novagard G322L (P/N 67A0009) or equivalent may be applied to four nipples of inner pan assembly to install optical assembly.

[3] Apply Novagard G322L (P/N 67A0009) or equivalent silicone grease to O-ring on top cover assembly.

[4] Apply Loctite 242 to **Item 4**: M5x10 screw, quantity = 4 (P/N 64A0925/10).

8.6.2 L-852G/S 12" Low Profile

Figure 30: L-852G/S 12" Low Profile

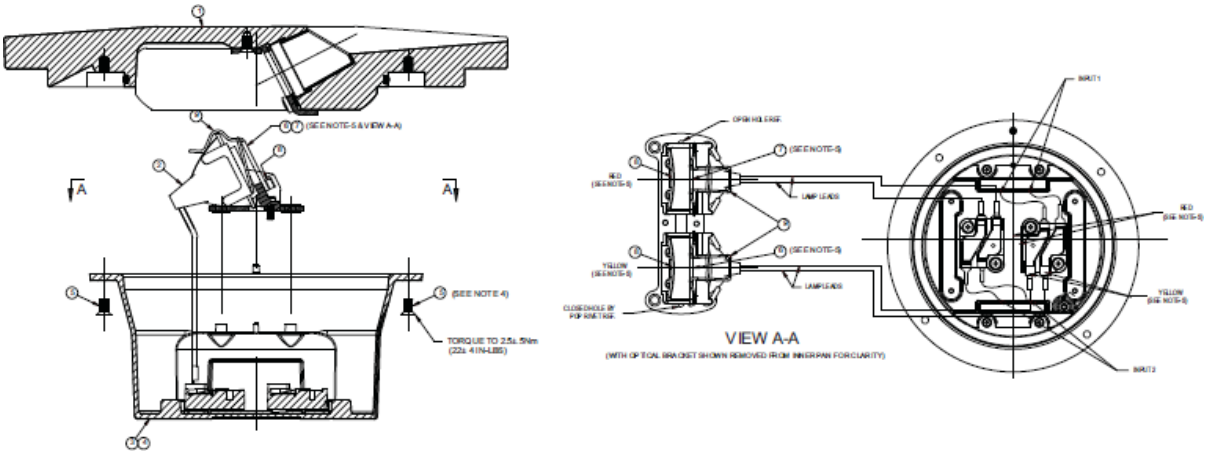


Table 16: L-852G/S 12" Low Profile Light Parts

Item No.	Part Number	Part Name/Description	Qty.				Notes	Subassembly
1	44A5989/1	12" Unidirectional Top Cover Assembly	1	1	1	1		see Figure 42
2	44A4810/26	Optical Support Assembly	1	1	1	1		
3	44A4811/16	Inner Pan Assembly w Film Disc Cutout	-	-	1	1		

Table 16: L-852G/S 12" Low Profile Light Parts (continued)

Item No.	Part Number	Part Name/Description	Qty.				Notes	Subassembly
4	44A4811/26	Inner Pan Assembly w/o FDC	1	1	-	-		
5	64A0925/10	Screw M5x10	4	4	4	4	4	
6	63A0957	Filter, Traffic Signal Yellow	1	1	1	1		
7	63A0952	Filter, Traffic Signal Red	1	1	1	1		
8	4071.50.160	Filter Spring	2	2	2	2		
9	4071.58.510	Filter Retainer	2	2	2	2		
10	70A0503	Male Terminal 10-12 Disconnect	2	-	2	-	NS	
11	44D0465/1	Shallow Base	1	-	1	-	NS	
			1221	**1211**	**1121**	**1111**		
			configuration					

Note

[1] Shallow base assemblies are shipped separately. See details on Installation on a Shallow Base.

[2] A thin layer of Novagard G322L (P/N 67A0009) or equivalent may be applied to four nipples of inner pan assembly to install optical assembly.

[3] Apply Novagard G322L (P/N 67A0009) or equivalent silicone grease to O-ring on top cover assembly.

[4] Apply Loctite 242 to Item 5: M5x10 screw, quantity = 4 (P/N 64A0925/10).

[5] The red filter is installed in the left window (when viewed from the lens side of the cover).

8.7 Subassembly Part Numbers

8.7.1 Top Cover Assemblies

F-range Top Cover Assemblies:

“Top Cover Subassembly, 12" - L-850A, THL, L-852A-D, G, S, REL”

“Top Cover Subassembly, 12" - L-850B - 44A4786”

“Top Cover Subassembly, 12" - L-850F, L-852G/S - 44A5989”

"Two-piece Top Cover Assembly for 44A4765/XX7X"

Figure 31: Top Cover Subassembly, 12" - L-850A, THL, L-852A-D, G, S, REL

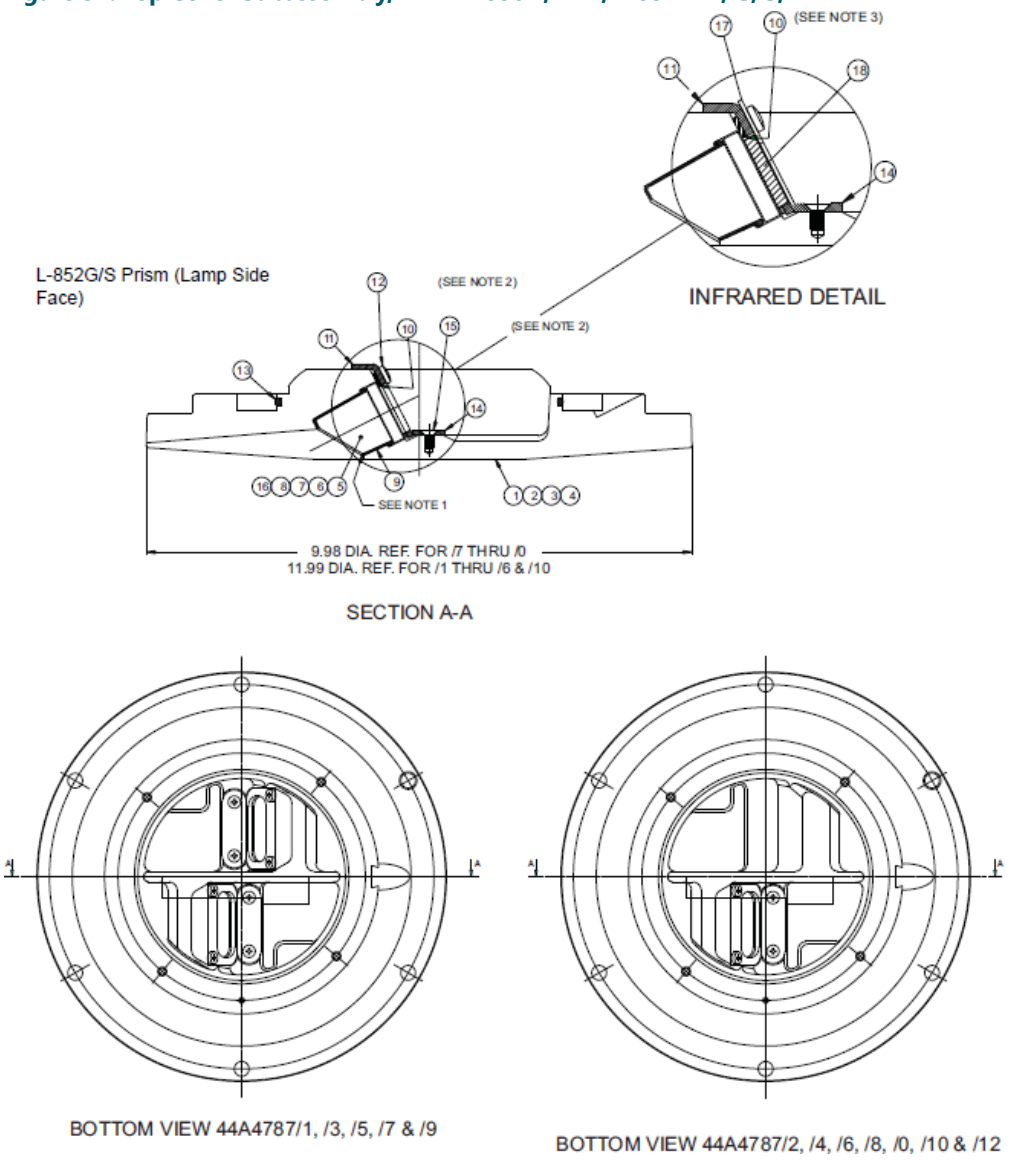


Table 17: Top Cover Subassembly, 12" - L-850A, THL, L-852A-D, G, S, REL Parts

Item No.	Part Number	Part Name/ Description	Qty.														
1	62A2125/2	Top Cover	-	1	-	1	-	-	-	-	-	-	1	-	1	-	1
2	62A2125/1	Top Cover	1	-	1	-	1	-	-	-	-	1	-	1	-	1	-
3	62A2131/2	Top Cover	-	-	-	-	-	-	1	-	1	-	-	-	-	-	-
4	62A2131/1	Top Cover	-	-	-	-	-	1	-	1	-	-	-	-	-	-	-
5	63A0993/2	Prism	1	2	-	-	-	-	-	-	-	-	-	-	-	1	2
6	1428.00.230	Prism	-	-	-	-	-	-	-	1	2	-	-	1	2	-	-
8	63A0979/3	Prism	-	-	-	-	1	1	2	-	-	1	2	-	-	-	-
9	4071.50.030	Sock Seal	1	2	1	2	1	1	2	1	2	1	2	1	2	1	2
10	63A0986	Flat Seal	1	2	1	2	1	1	2	1	2	1	2	1	2	1	2

Table 17: Top Cover Subassembly, 12" - L-850A, THL, L-852A-D, G, S, REL Parts (continued)

Item No.	Part Number	Part Name/ Description	Qty.														
10(IR)	63A1093	IR Flat Seal	1	2	-	-											
11	4071.50.052	Prism Keeper Plate	1	2	1	2	1	1	2	1	2	1	2	1	2	1	2
12	64A0936/13	Screw M5x13	2	4	2	4	2	2	4	2	4	2	4	2	4	2	4
13	63A1285	O-Ring #2-258	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14	4071.50.360	Prism Clamp	1	2	1	2	1	1	2	1	2	1	2	1	2	1	2
15	64A0925/10	Screw M5x10	2	4	2	4	2	2	4	2	4	2	4	2	4	2	4
16	63A0993/3	Prism	-	-	1	2	-	-	-	-	-	-	-	-	-	-	-
17	61A0416	Infa-red Filter Keeper Plate	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-
18	63A1092	Infa-red Filter	1	2	-	-	-	-	-	-	-	-	-	-	-	-	-
			2IR	**1IR**	**12**	**11**	**10**	**0**	**9**	**8**	**7**	**6**	**5**	**4**	**3**	**2**	**1**
			Configuration														

Note

[1] Apply a thin & even layer of Molykote 3452 (P/N 67A0095) or equivalent in the prism housing with a brush before installing prism & sock.

[2] Apply Loctite 270 to Items 12 & 15 and torque to 3.5 ±0.5N•m (31 ±4 in-lb).

[3] Apply black RTV to the gap between the IR filter and the IR flat seal.

Figure 32: Top Cover Subassembly, 12" - L-850B - 44A4786

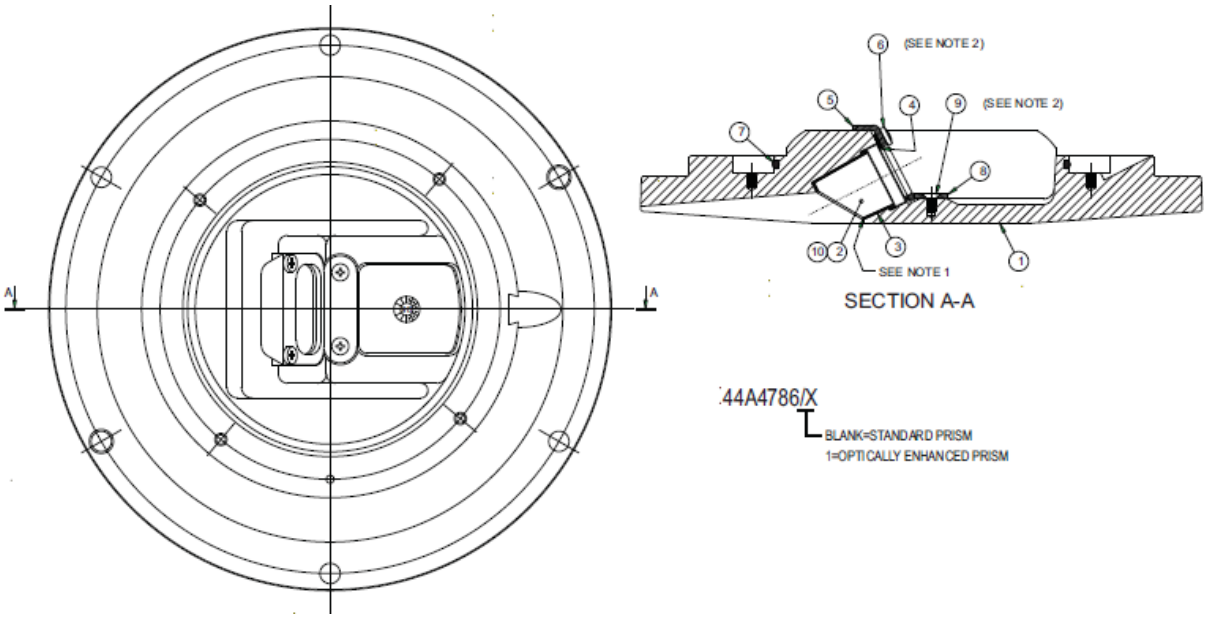


Table 18: Top Cover Subassembly, 12" - L-850B - 44A4786

Item No.	Part Number	Part Name/Description	Qty.
1	62A2129	Top Cover 12" Machining Low Profile	1
2	63A0993/2	Prism	1
3	4071.50.030	Sock Seal	1
4	63A0986	Flat Seal	1
5	4071.50.052	Prism Keeper	1
6	64A0936/13	Screw M5x13	1
7	63A1285	O-Ring #2-258	1
8	4071.50.360	Prism Clamp	1
9	64A0925/10	Screw M5x10	1
10	1428.00.300	Prism	1
NS	67A0095	MOLYCOAT Grease	1

Note

[1] Apply a thin & even layer of Molykote 3452 (P/N 67A0095) or equivalent in the prism housing with a brush before installing prism & sock.

[2] Apply Loctite 270 to Items 6 & 9 and torque to 3.5 ±0.5N•m (31 ±4 in-lb).

Figure 33: Top Cover Subassembly, 12" - L-850F L-852G/S - 44A5989

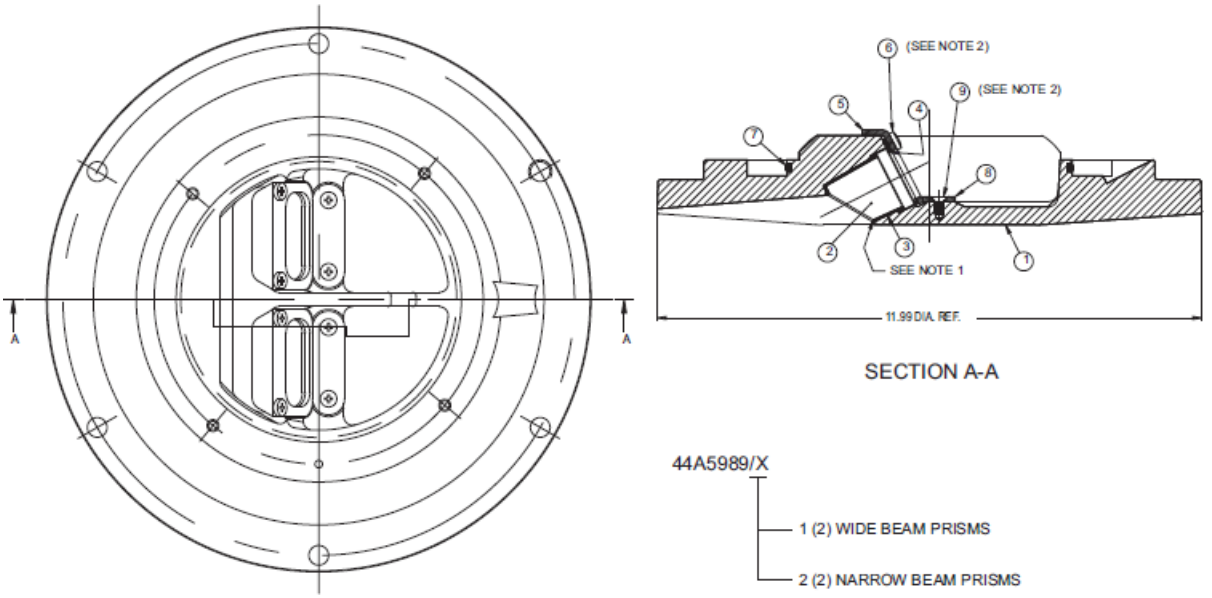


Table 19: Top Cover Subassembly, 12" - L-850F, L-852G/S - 44A5989

Item No.	Assembly #	Part Number	Part Name/Description	Qty.
1	-	62A2135	Top Cover	1
2	Assembly # 44A5989/1	63A0979/3	Prism (L-852G/S)	2
2	Assembly # 44A5989/2	63A0993/2	Prism (L-850F)	2
3	-	4071.50.030	Sock Seal	2
4	-	63A0986	Flat Seal	2

Table 19: Top Cover Subassembly, 12" - L-850F, L-852G/S - 44A5989 (continued)

Item No.	Assembly #	Part Number	Part Name/Description	Qty.
5	-	4071.50.052	Prism Keeper Plate	2
6	-	64A0936/13	Screw M5x13	4
7	-	63A1285	O-Ring #2-258	1
8	-	4071.50.360	Prism Clamp	2
9	-	64A0925/10	Screw M5x10	4

Note

[3] Apply a thin & even layer of Molykote 3452 (P/N 67A0095) or equivalent in the prism housing with a brush before installing prism & sock.

[4] Apply Loctite 270 to Items 6 & 9 and torque to 3.5 ±0.5N•m (31 ±4 in-lb).

8.7.2 44A4765/XX7X with a Two-piece Top Cover Assembly

Figure 34: Two-piece Top Cover Assembly for 44A4765/XX7X

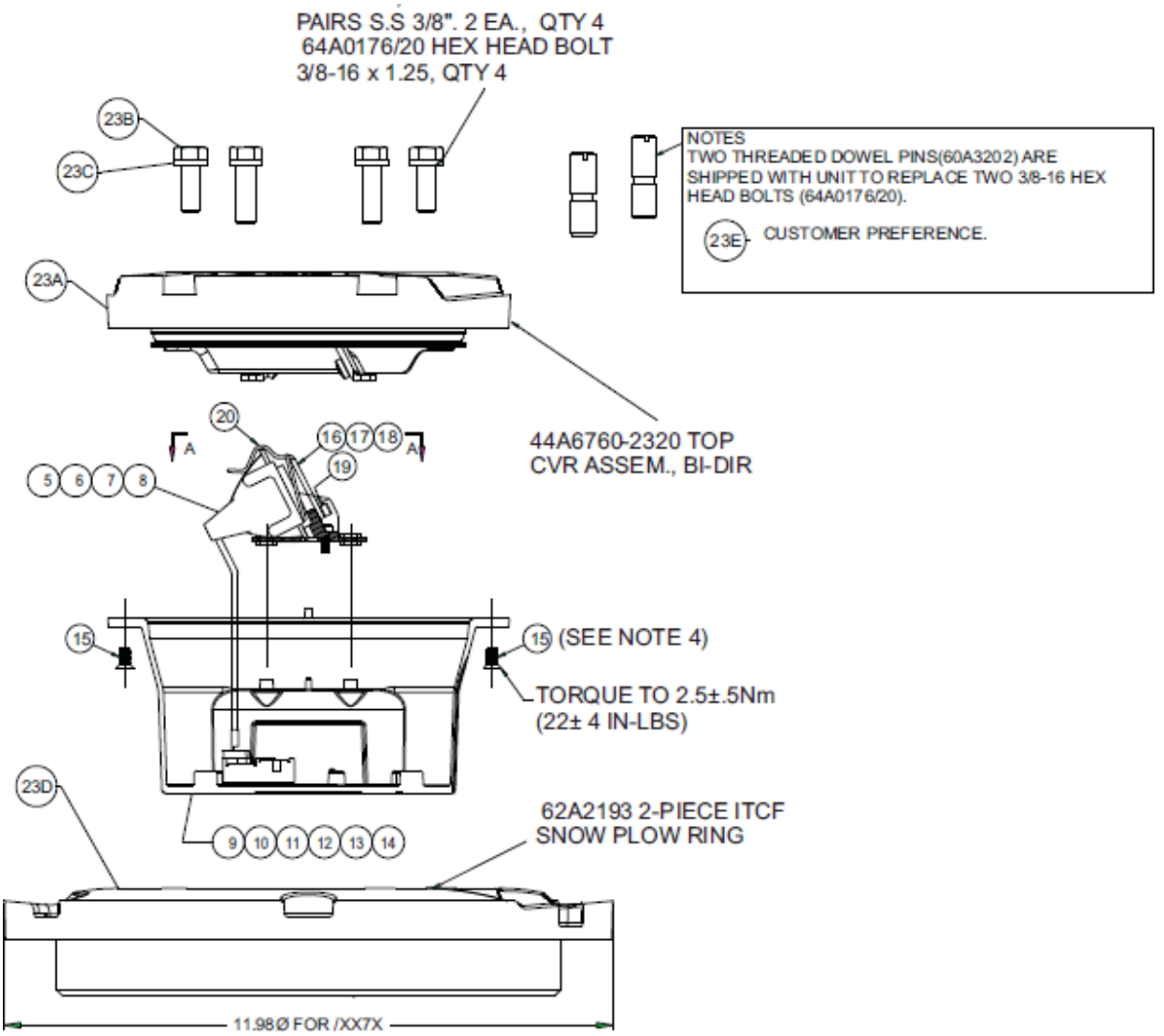


Table 20: Two-piece Top Cover Assembly 44A7173/XX Parts

Item	Part Number	Description	Qty	Notes	Reference
23A	44A6760-2320	TOP CVR ASSEM.	1		44A6760-2320
23B	64A0176/20	Hex Head Bolt 3/8-16 x 1.25	4		
23C	ACC0375	CEC Lockwasher Pairs S.S 3/8". 2 EA.	4		
23D	62A2193	2-Piece ITCF Snow Plow Ring	1		
23E	60A3202	Two - Threaded Dowel Pins	1 pr		
13	44A4811/24	Inner Pan Assembly	1		see Figure 37
15	64A0925/10	Screw M5x10	4	4	
16	63A0964	Yellow Filter	2		
19	4071.50.160	Filter Spring	2		
20	4071.58.510	Filter Retainer	2		

8.7.3 Inner Pan Subassembly - 44A4811/XX

Figure 35: Inner Pan Subassembly 44A4811/XX

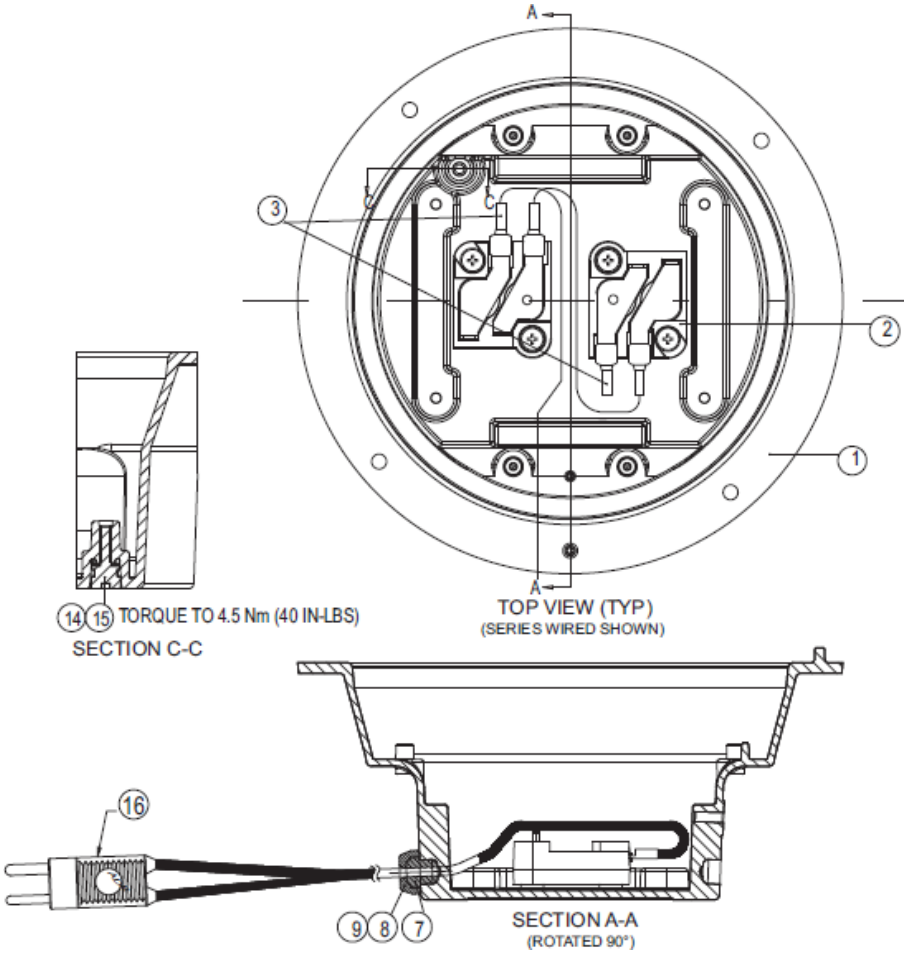


Table 21: Inner Pan Subassembly 44A4811/X1-X6

WITH FILM DISC CUTOUT (47A0118)				WITHOUT FILM DISC CUTOUT			
Item	**Part Number**	**Part Name/Description**	**Qty.**	**Item**	**Part Number**	**Part Name/Description**	**Qty.**
Assy.#/11/12/15				**Assy.#**/21/22/25			
1	60A3339/1	Inner Pan (see Note 2)	1	1	60A3339/1	Inner Pan (see Note 2)	1
2	44A6112/2	Terminal Block Assembly w/ Film Disc Cutout	1	2	44A6112/1	Terminal Block Assembly	1
3	6111.87.140	Fast-On Receptacle	2	3	6111.87.140	Fast-On Receptacle	2
7	6126.01.031	Grommet	2	7	6126.01.031	Grommet	2
8	4071.50.090	Inner Pan Cable Clamp	1	8	4071.50.090	Inner Pan Cable Clamp	1
9	64A0964/10	Taptite Screw M4x10 w/ Lockwasher	2	9	64A0964/10	Taptite Screw M4x10 w/ Lockwasher	2
14	63B0267/011	O-Ring	1	14	63B0267/011	O-Ring	1
15	60A2602	Pressure Release Screw	1	15	60A2602	Pressure Release Screw	1
16	73A0133/23	Cord Set	1	16	73A0133/23	Cord Set	1
Assy.#/13				**Assy.#**/23			
1	60A3339/3	Inner Pan (see Note 2)	1	1	60A3339/3	Inner Pan (see Note 2)	1
2	44A6112/2	Terminal Block Assembly w/ Film Disc Cutout	2	2	44A6112/1	Terminal Block Assembly	2
3	6111.87.140	Fast-On Receptacle	4	3	6111.87.140	Fast-On Receptacle	4
7	6126.01.031	Grommet	4	7	6126.01.031	Grommet	4
8	4071.50.090	Inner Pan Cable Clamp	2	8	4071.50.090	Inner Pan Cable Clamp	2
9	64A0964/10	Taptite Screw M4x10 w/ Lockwasher	4	9	64A0964/10	Taptite Screw M4x10 w/ Lockwasher	4
14	63B0267/011	O-Ring	1	14	63B0267/011	O-Ring	1
15	60A2602	Pressure Release Screw	1	15	60A2602	Pressure Release Screw	1
16	73A0133/23	Cord Set	2	16	73A0133/23	Cord Set	2
Assy.#/14				**Assy.#**/24			
1	60A3339/1	Inner Pan (see Note 1)	1	1	60A3339/1	Inner Pan (see Note 1)	1
2	44A6112/2	Terminal Block Assembly w/ Film Disc Cutout	2	2	44A6112/1	Terminal Block Assembly	2
3	6111.87.140	Fast-On Receptacle	2	3	6111.87.140	Fast-On Receptacle	2
7	6126.01.031	Grommet	2	7	6126.01.031	Grommet	2
8	4071.50.090	Inner Pan Cable Clamp	1	8	4071.50.090	Inner Pan Cable Clamp	1
9	64A0964/10	Taptite Screw M4x10 w/ Lockwasher	2	9	64A0964/10	Taptite Screw M4x10 w/ Lockwasher	2
11	44A5955	Cable Assembly	1	11	44A5955	Cable Assembly	1
14	63B0267/011	O-Ring	1	14	63B0267/011	O-Ring	1
15	60A2602	Pressure Release Screw	1	15	60A2602	Pressure Release Screw	1
16	73A0133/23	Cord Set	1	16	73A0133/23	Cord Set	1

Table 21: Inner Pan Subassembly 44A4811/X1-X6 (continued)

WITH FILM DISC CUTOUT (47A0118)				WITHOUT FILM DISC CUTOUT			
Item	**Part Number**	**Part Name/Description**	**Qty.**	**Item**	**Part Number**	**Part Name/Description**	**Qty.**
Assy.#/16				**Assy.#**/26			
1	60A3339/3	Inner Pan (see Note 1)	1	1	60A3339/3	Inner Pan (see Note 1)	1
2	44A6112/2	Terminal Block Assembly w/ Film Disc Cutout	2	2	44A6112/1	Terminal Block Assembly (offset terminal)	2
3	6111.87.140	Fast-On Receptacle	4	3	6111.87.140	Fast-On Receptacle	4
7	6126.01.031	Grommet	4	7	6126.01.031	Grommet	4
8	4071.50.090	Inner Pan Cable Clamp	2	8	4071.50.090	Inner Pan Cable Clamp	2
9	64A0964/10	Taptite Screw M4x10 w/ Lockwasher	4	9	64A0964/10	Taptite Screw M4x10 w/ Lockwasher	4
14	63B0267/011	O-Ring	1	14	63B0267/011	O-Ring	1
15	60A2602	Pressure Release Screw	1	15	60A2602	Pressure Release Screw	1
16	73A0133/23	Cord Set	2	16	73A0133/23	Cord Set	2
17	63A1017/1	Cable Tie, Locking, Nylon, Red	1	17	63A1017/1	Cable Tie, Locking, Nylon, Red	1
18	63A1017/2	Cable Tie, Locking, Nylon, Yellow	1	18	63A1017/2	Cable Tie, Locking, Nylon, Yellow	1

NOTES:

1. For L-852G/S only, on /16 & /26 each cord set plug is externally identified as either "red" or "yellow" corresponding to the lamp/filter combination it controls. "Input 1" noted on bottom of inner pan is for yellow cord set. "Input 2" noted on bottom of inner pan is for red cord set. Install red & yellow wire ties (Items 17 & 18) to corresponding cord set lead.
2. Fixtures shipped after July 2008 have a new bottom cover (P/N 60A3339) substituted for older bottom covers (P/N 4071.50.082 and 4071.59.040). The new bottom cover and all attached parts are functionally the same as the older version.

However, the new bottom cover is deeper. Bottom cover 60A3339 is 3.55" deep from the underside of the fixture top cover, compared with 2.47" for bottom cover 4071.50.082 or 4071.59.040.

Figure 36: Inner Pan Subassembly 44A4811/X1-X3 Chart

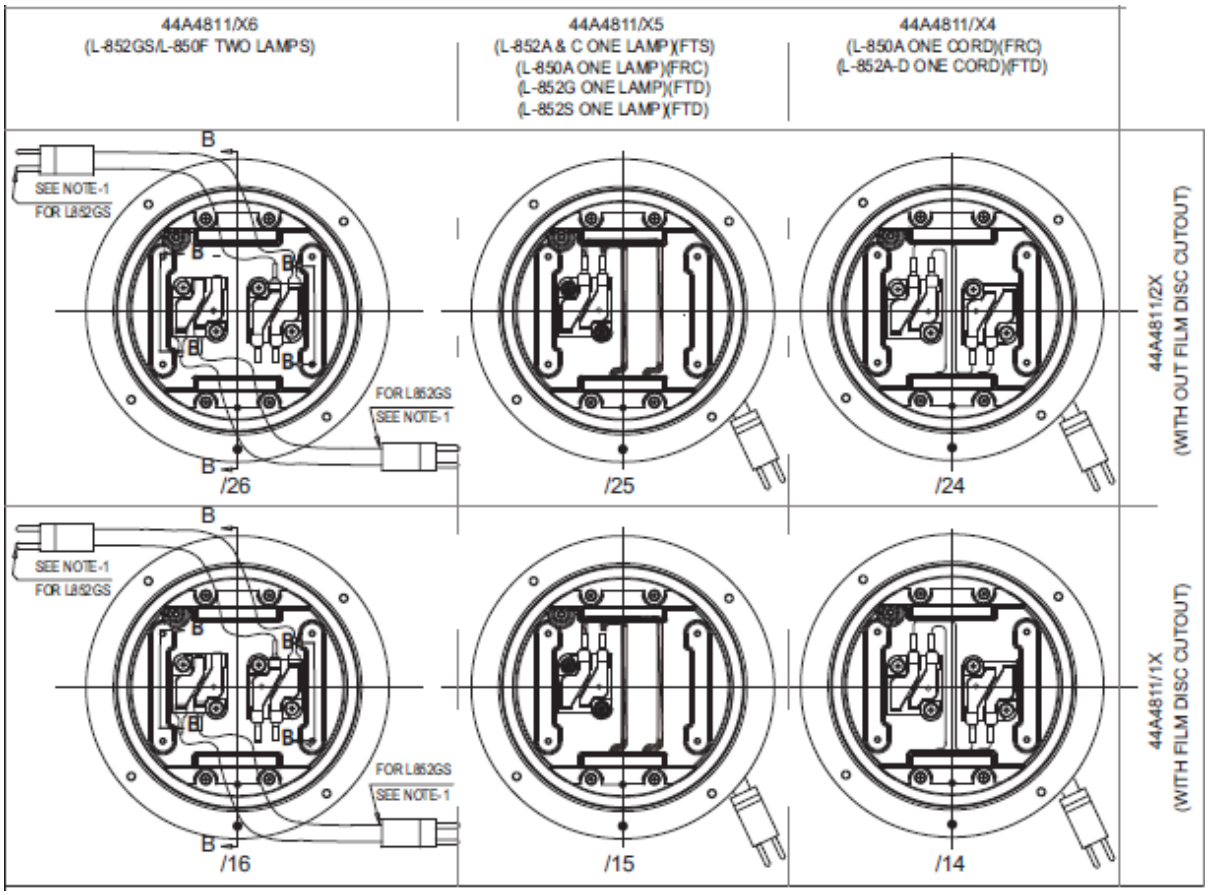


Figure 37: Inner Pan Subassembly 44A4811/X4-X6

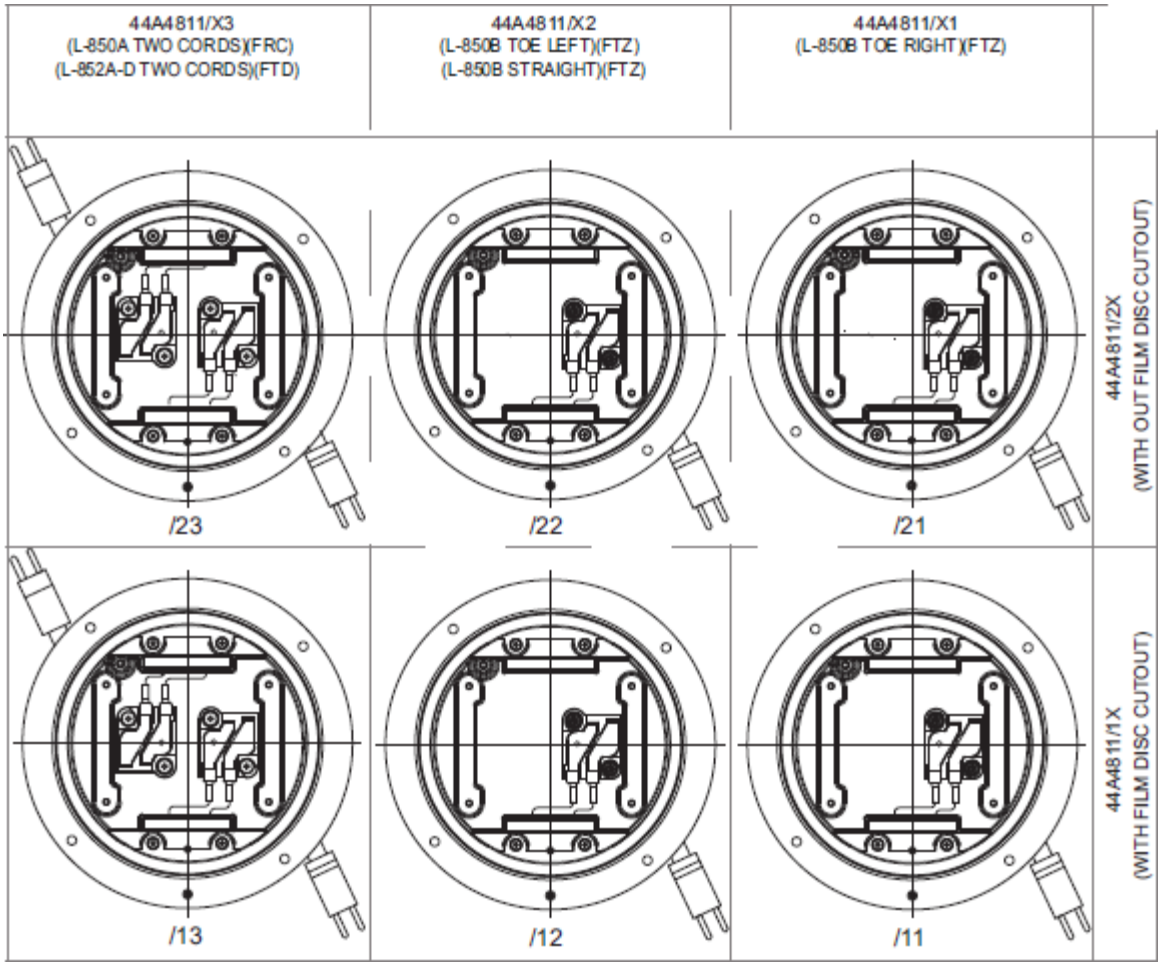


Figure 38: Optical Support Subassembly - 44A4810/X1-X3

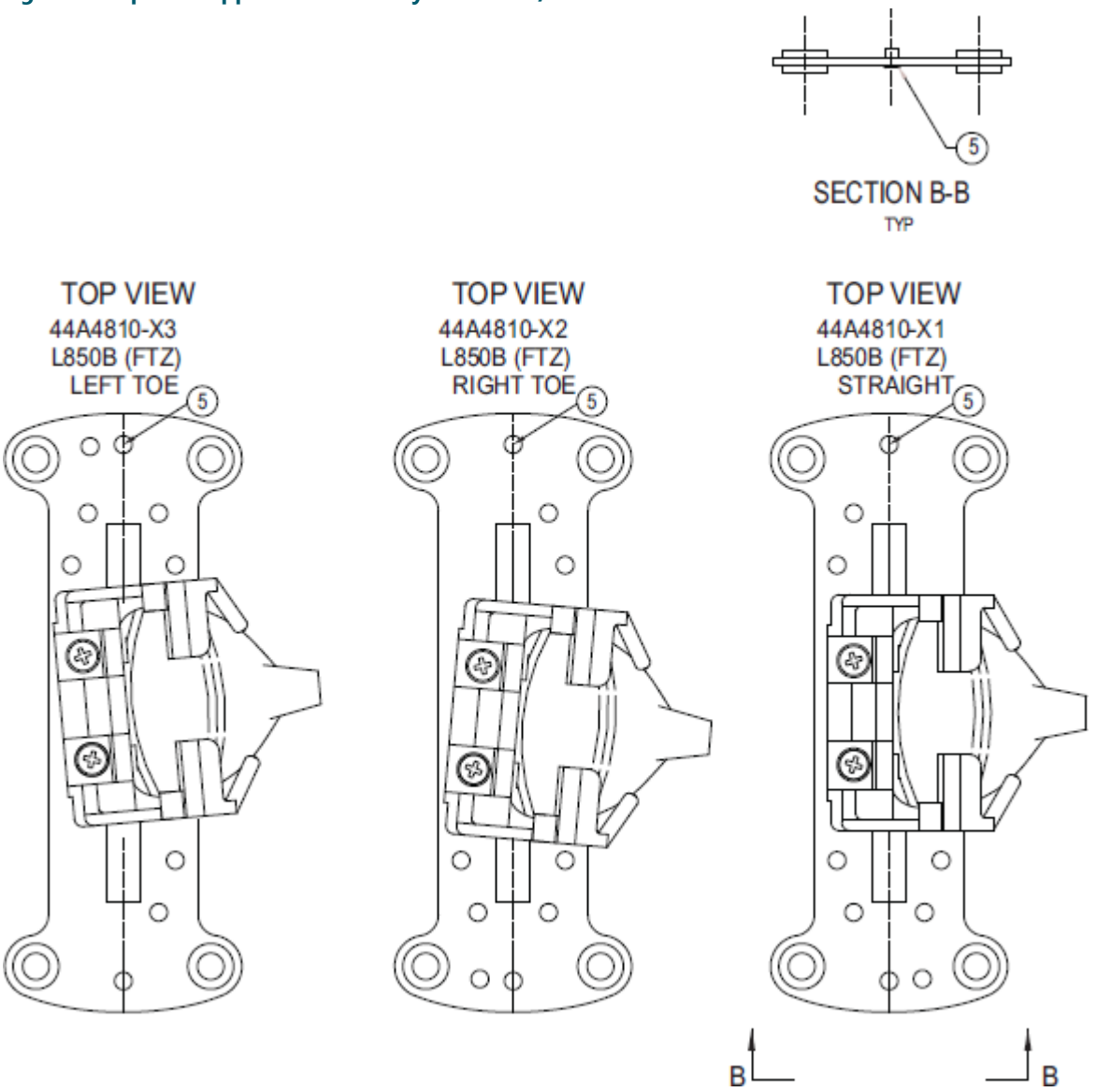


Figure 39: Optical Support Subassembly - 44A4810/X4-X6

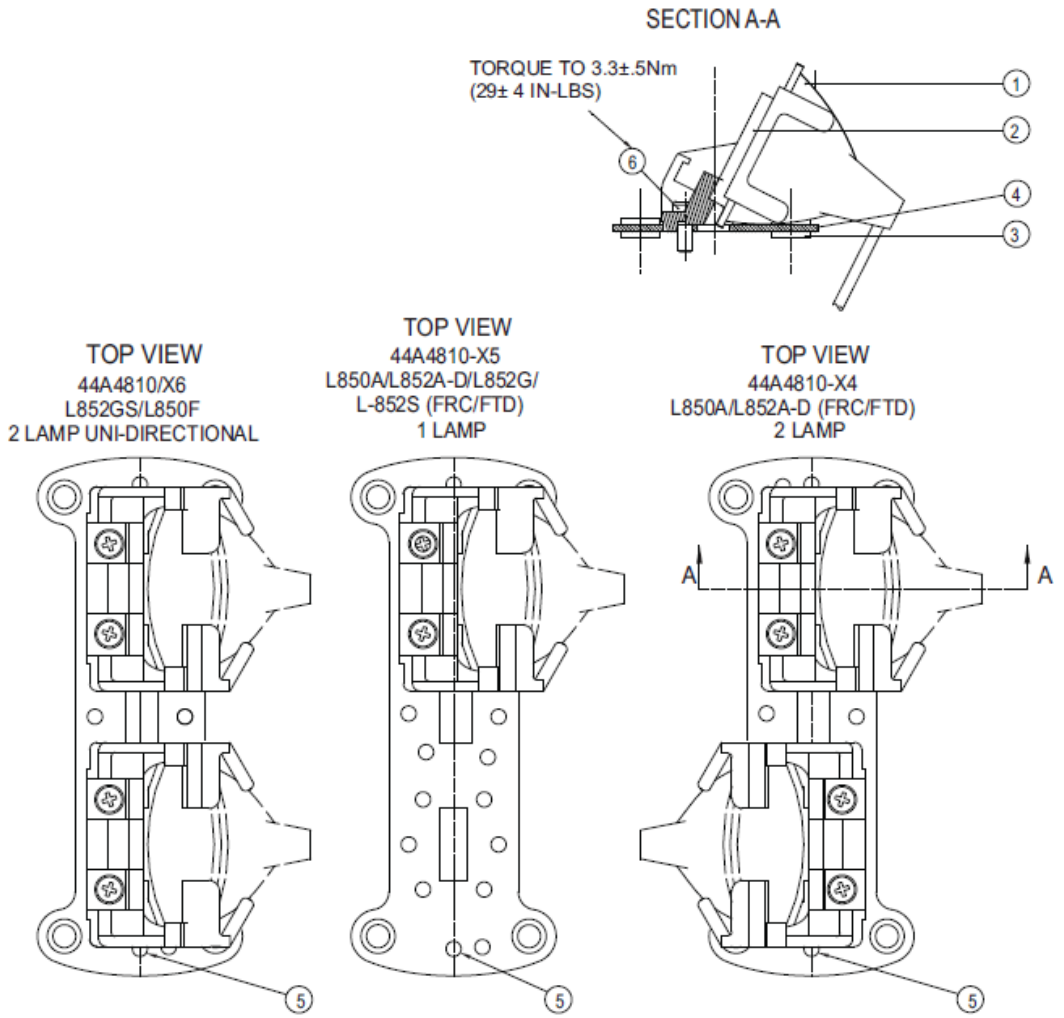


Table 22: Optical Support Subassembly Parts

Item No.	Assembly #	Part Number	Part Name/Description	Qty.
1	44A4810/11	48A0420	Lamp, 48 W	1
1	44A4810/12	48A0420	Lamp, 48 W	1
1	44A4810/13	48A0420	Lamp, 48 W	1
1	44A4810/14	48A0420	Lamp, 48 W	2
1	44A4810/15	48A0420	Lamp, 48 W	1
1	44A4810/16	48A0420	Lamp, 48 W	2
1	44A4810/25	2990.40.900	Lamp, 105 W	1
1	44A4810/26	2990.40.900	Lamp, 105 W	2
1	44A4810/34	44A5911	Lamp, 30 W	2
1	44A4810/35	44A5911	Lamp, 30 W	1
1	44A4810/44	48A0421	Lamp, 30 W Flood	2
1	44A4810/45	48A0421	Lamp, 30 W Flood	1
2	44A4810/X1	1411.22.001	Lamp Holder Assembly	1

Table 22: Optical Support Subassembly Parts (continued)

Item No.	Assembly #	Part Number	Part Name/Description	Qty.
2	44A4810/X2	1411.22.001	Lamp Holder Assembly	1
2	44A4810/X3	1411.22.001	Lamp Holder Assembly	1
2	44A4810/X4	1411.22.001	Lamp Holder Assembly	2
2	44A4810/X5	1411.22.001	Lamp Holder Assembly	1
2	44A4810/X6	1411.22.001	Lamp Holder Assembly	2
3	-	63A0222	Grommet	4
4	-	62A2137/1	Optical Support	1
5	-	65A0543	Plastic Pop Rivet	1
6	-	64A0964/10	Taptite Screw M4x10 w/ Lockwasher	2

8.7.4 F-range Base Assembly

The optional shallow base is shipped separately from the F-Range fixture.

The shallow base is a 12" O.D. L-868B base can and includes connectors to attach to the external wiring. Contact the ADB Safegate Sales Department for additional information.

8.8 THL, REL Spare Parts

Table 23: L-850A & THL Spare Parts

Description	Part No.
Cable assembly, series jumper	44A5955
Cable clamp	4071.50.090
Cord set, L-823	73A0133-23
Cord set grommet	63A1014
Cord set terminal, female	6111.87.140
Film disc cutout	47A0118
Film disc spring	4071.50.130
Filter, red	63A0968
Filter spring clip	4071.50.160
Lamp assembly, 48W (for L-850A)	2990.40.827
Lamp assembly, 105W (for THL)	2990.40.900
Lamp holder assembly	1411.22.001
Lamp retainer spring	4071.58.510
O-ring, inner cover seal	63A1285
O-ring, pressure release screw	63B0267-011
Pressure release screw	60A2602
Prism	63A0993-2
Prism clamp	4071.50.360
Prism gasket sleeve	4071.50.030
Prism keeper plate	4071.50.052

Table 23: L-850A & THL Spare Parts (continued)

Description	Part No.
Seal, prism keeper plate	63A0986
Terminal block assembly w/o film disc cutout	44A6112-1
Terminal block assembly with film disc cutout	44A6112-2
[1] Source: 2001 Rev. K	

Notes

[1] RWSL L-850T THL Fixture 116A0092-5231 Used in FAA Runway Status Light THL applications. Fixture is unidirectional traffi c signal red with a 105W/6.6A lamp. Fixture, supplied with one L-823 cord set, is used on a standard 12-inch base can and does not use a film disc cutout.

Table 24: L-850F Spare Parts

Description	Part No.
Cable clamp	4071.50.090
Cord set, L-823	73A0133-23
Cord set grommet	63A1014
Cord set terminal, female	6111.87.140
Film disc cutout	47A0118
Film disc spring	4071.50.130
Lamp assembly, 48W	2990.40.827
Lamp holder assembly	1411.22.001
Lamp retainer spring	4071.58.510
O-ring, inner cover seal	63A1285
O-ring, pressure release screw	63B0267-011
Pressure release screw	60A2602
Prism	63A0993-2
Prism clamp	4071.50.360
Prism gasket sleeve	4071.50.030
Prism keeper plate	4071.50.052
Seal, prism keeper plate	63A0986
Terminal block assembly w/o film disc cutout	44A6000
Terminal block assembly with film disc cutout	44A6000-1S
[1] Source: 2037 Rev. G	

Table 25: L-850B Spare Parts

Description	Part No.
Cable clamp	4071.50.090
Cord set, L-823	73A0133-23
Cord set grommet	63A1014
Cord set terminal, female	6111.87.140
Film disc cutout	47A0118
Film disc spring	4071.50.130
Lamp assembly, 6.6A, 48W	2990.40.827

Table 25: L-850B Spare Parts (continued)

Description	Part No.
Lamp holder assembly	1411.22.001
Lamp retainer spring	4071.58.510
O-ring, inner cover seal	63A1285
O-ring, pressure release screw	63B0267-011
Pressure release screw	60A2602
Prism	63A0993-2
Prism clamp	4071.50.360
Prism gasket sleeve	4071.50.030
Prism keeper plate	4071.50.052
Seal, prism keeper plate	63A0986
Terminal block assembly w/o film disc cutout	44A6112-1
Terminal block assembly with film disc cutout	44A6112-2

[1] Source: 2000 Rev. L

Table 26: L-852A, C, B & D Two Lamp Spare Parts

Description	Part No.
Cable assembly, series jumper	44A5955
Cable clamp	4071.50.090
Cord set, L-823	73A0133-23
Cord set grommet	63A1014
Cord set terminal, female	6111.87.140
Film disc cutout	47A0118
Film disc spring	4071.50.130
Filter, green, wide beam, L-852B/D	63A0963
Filter, yellow, wide beam, L-852B/D	63A0964
Filter, green, wide beam, L-852A/C	63A0963-2
Filter, yellow, wide beam, L-852A/C	63A0964-1
Filter spring clip	4071.50.160
Lamp assembly, 30W, L-852B/D	44A5911
Lamp assembly, 30W, L-852A/C	48A0421
Lamp assembly, 48W (for existing applications only)	2990.40.827
Lamp holder assembly	1411.22.001
Lamp retainer spring	4071.58.510
O-ring, inner cover seal	63A1285
O-ring, pressure release screw	63B0267-011
Pressure release screw	60A2602
Prism, L-852A/C	1428.00.230
Prism, L-852B/D	63A0979/3
Prism clamp	4071.50.360

Table 26: L-852A, C, B & D Two Lamp Spare Parts (continued)

Description	Part No.
Prism gasket sleeve	4071.50.030
Prism keeper plate	4071.50.052
Seal, prism keeper plate	63A0986
Terminal block assembly w/o film disc cutout	44A6112-1
Terminal block assembly with film disc cutout	44A6112-2
[1] Source: 2002 Rev. M	

Table 27: L-852S & REL Spare Parts

Description	Part No.
Cable clamp	4071.50.090
Cord set, L-823	73A0133-23
Cord set grommet	63A1014
Cord set terminal, female	6111.87.140
Film disc cutout	47A0118
Film disc spring	4071.50.130
Filter, traffic signal red	63A0962
Filter spring clip	4071.50.160
Lamp assembly, 105W	2990.40.900
Lamp holder assembly	1411.22.001
Lamp retainer spring	4071.58.510
O-Ring, inner cover seal	63A1285
O-ring, pressure release screw	63B0267-011
Pressure release screw	60A2602
Prism	63A0979/3
Prism clamp	4071.50.360
Prism gasket sleeve	4071.50.030
Prism keeper plate	4071.50.052
Seal, prism keeper plate	63A0986
Terminal block assembly w/o film disc cutout	44A6112-1
Terminal block assembly with film disc cutout	44A6112-2
[1] Source: 2025 Rev. K	

Table 28: L-852G Spare Parts

Description	Part No.
Cable clamp	4071.50.090
Cord set, L-823	73A0133-23
Cord set grommet	63A1014
Cord set terminal, female	6111.87.140
Filter, traffic signal yellow	63A0957

Table 28: L-852G Spare Parts (continued)

Description	Part No.
Filter spring clip	4071.50.160
Lamp, 6.6A, 105W	2990.40.900
Lamp holder assembly	1411.22.001
Lamp retainer spring	4071.58.510
O-Ring, inner cover seal	63A1285
O-ring, pressure release screw	63B0267-011
Pressure release screw	60A2602
Prism	63A0979/3
Prism clamp	4071.50.360
Prism gasket sleeve	4071.50.030
Prism keeper plate	4071.50.052
Seal, prism keeper plate	63A0986
Terminal block assembly w/o film disc cutout	44A6112-1

[1] Source: 2023 Rev. H

Table 29: L-852G/S Spare Parts

Description	Part No.
Cable clamp	4071.50.090
Cord set, L-823	73A0133-23
Cord set grommet	63A1014
Cord set terminal, female	6111.87.140
Filter, traffic signal red	63A0962
Filter, traffic signal yellow	63A0957
Filter spring clip	4071.50.160
Lamp, 6.6A, 105W	2990.40.900
Lamp holder assembly	1411.22.001
Lamp retainer spring	4071.58.510
O-Ring, inner cover seal	63A1285
O-ring, pressure release screw	63B0267-011
Pressure release screw	60A2602
Prism	63A0979/3
Prism clamp	4071.50.360
Prism gasket sleeve	4071.50.030
Prism keeper plate	4071.50.052
Seal, prism keeper plate	63A0986
Terminal block assembly w/o film disc cutout	44A6000
Terminal block assembly with film disc cutout	44A6000-1S

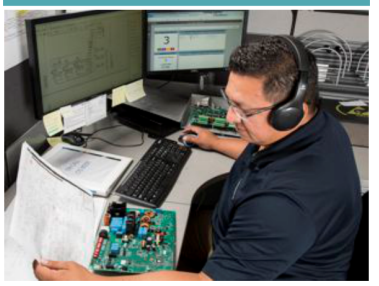
[1] Source: 2032 Rev. H

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

ADB SAFEGATE	ADB SAFEGATE, Belgium: Leuvensesteenweg 585, B-1930 Zaventem Belgium
Contact: Tel.: +32 2 722 17 11, Fax: +32 2 722 17 64	Email: marketing@adbsafegate.com Internet: www.adbsafegate.com

Americas LLC	ADB SAFEGATE, Americas: 977 Gahanna Parkway, Columbus, OH 43230 USA
Contact: Tel.: +1 (614) 861 1304, Fax: +1 (614) 864 2069	Email: sales.us@adbsafegate.com Internet: www.adbsafegate.com

ADB SAFEGATE Sweden AB	ADB SAFEGATE, Sweden: Djurhagegatan 19 SE-213 76 Malmö Sweden
Contact: Tel.: +46 (0)40 699 17 00, Fax: +46 (0)40 699 17 30	Email: marketing@adbsafegate.com Internet: www.adbsafegate.com

ADB SAFEGATE Airfield Technologies Ltd. China	ADB SAFEGATE, China: Unit 603, D Block, CAMIC International Convention Center, No 3, Hua Jia Di East road, ChaoYang district, Beijing 100102 P.R. China
Contact: Tel.: +86 (10) 8476 0106, Fax: +86 (10) 8476 0090	Email: china@safegate.com Internet: www.adbsafegate.com

ADB SAFEGATE Germany GmbH	ADB SAFEGATE Germany GmbH, Mannheim: Konrad-Zuse-Ring 6, D-68163 Mannheim Germany
Contact: Tel.: +49 (621) 87 55 76-0, Fax: +49 (621) 87 55 76-55	Email: marketing@adbsafegate.com Internet: www.adbsafegate.com

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