



L-852N (Navy) LED and Incandescent, Type VII and VIII

User Manual

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**ADB
SAFEGATE**

A.0 Disclaimer / Standard Warranty

CE certification

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

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Note

See your sales order contract for a complete warranty description.

Replaced or repaired equipment under warranty falls into the warranty of the original delivery. No new warranty period is started for these replaced or repaired products.

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WARNING

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

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1.0 Safety

Introduction to Safety

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

1.1 Safety Messages

HAZARD Icons used in the manual

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

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



WARNING
Failure to observe a warning may result in personal injury, death or equipment damage.



DANGER - Risk of electrical shock or ARC FLASH
Disconnect equipment from line voltage. Failure to observe this warning may result in personal injury, death, or equipment damage. ARC Flash may cause blindness, severe burns or death.



WARNING - Wear personal protective equipment
Failure to observe may result in serious injury.



WARNING - Do not touch
Failure to observe this warning may result in personal injury, death, or equipment damage.



CAUTION
Failure to observe a caution may result in equipment damage.



ELECTROSTATIC SENSITIVE DEVICES
This equipment may contain electrostatic devices.

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.
 - CSA - C22.2 No.180:13 (R2018) Series isolating transformers for airport lighting
 - FAA Advisory: AC 150/5340-26 (current edition), Maintenance of Airport Visual Aid Facilities.
 - Maintenance personnel must refer to the maintenance procedure described in the ICAO Airport Services Manual, Part 9.
 - ANSI/NFPA 79, Electrical Standards for Metalworking Machine Tools.
 - National and local electrical codes and standards.
-

1.1.2 Intended Use



CAUTION

Use this equipment as intended by the manufacturer

This equipment is designed to perform a specific function, do not use this equipment for other purposes

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

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

1.1.3 Material Handling Precautions: Storage



CAUTION

Improper Storage

Store this equipment properly

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

Failure to follow this instruction can result in equipment damage

1.1.4 Material Handling Precautions: Fasteners



DANGER

Foreign Object Damage - FOD

This equipment may contain fasteners that may come loose - torque properly.

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

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

Note

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



CAUTION

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

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

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

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

1.1.5 Maintenance Safety

DANGER

Electric Shock Hazard

This equipment may contain electrostatic devices

- Do not operate a system that contains malfunctioning components. If a component malfunctions, turn the system OFF immediately.
- Disconnect and lock out electrical power.
- Allow only qualified personnel to make repairs. Repair or replace the malfunctioning component according to instructions provided in its manual.
-



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

1.1.6 Material Handling Precautions, ESD



CAUTION

Electrostatic Sensitive Devices

This equipment may contain electrostatic devices

- Protect from electrostatic discharge.
- Electronic modules and components should be touched only when this is unavoidable e.g. soldering, replacement.
- Before touching any component of the cabinet you shall bring your body to the same potential as the cabinet by touching a conductive earthed part of the cabinet.
- Electronic modules or components must not be brought in contact with highly insulating materials such as plastic sheets, synthetic fiber clothing. They must be laid down on conductive surfaces.
- The tip of the soldering iron must be grounded.
- Electronic modules and components must be stored and transported in conductive packing.

Failure to follow this instruction can result in equipment damage

1.1.7 Arc Flash and Electric Shock Hazard



DANGER

Series Circuits have Hazardous Voltages

This equipment produces high voltages to maintain the specified current - Do NOT Disconnect while energized.

- Allow only qualified personnel to perform maintenance, troubleshooting, and repair tasks.
- Only persons who are properly trained and familiar with ADB SAFEGATE equipment are permitted to service this equipment.
- An open airfield current circuit is capable of generating >5000 Vac and may appear OFF to a meter.
- Never unplug a device from a constant current circuit while it is operating; Arc flash may result.
- Disconnect and lock out electrical power.
- Always use safety devices when working on this equipment.
- Follow the recommended maintenance procedures in the product manuals.
- Do not service or adjust any equipment unless another person trained in first aid and CPR is present.
- Connect all disconnected equipment ground cables and wires after servicing equipment. Ground all conductive equipment.
- Use only approved ADB SAFEGATE replacement parts. Using unapproved parts or making unapproved modifications to equipment may void agency approvals and create safety hazards.
- Check the interlock systems periodically to ensure their effectiveness.
- Do not attempt to service electrical equipment if standing water is present. Use caution when servicing electrical equipment in a high-humidity environment.
- Use tools with insulated handles when working with airfield electrical equipment.

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

2.0 L-852N Fixture Introduction



WARNING

Read the instructions in their entirety before starting installation.



This manual provides instructions for the ADB Safegate L852N Light Fixture.

2.1 Incandescent & LED Runway Centerline and Simulated Carrier Deck Light

Compliance with Standards

FAA:	Manufactured to applicable requirements in AC 150/5345-46 (Current Edition), and the FAA Engineering Brief No. 67.
US Navy:	NAVAIR 5150AAA-2, WP 006-04, WP 004-06

Uses

- FAA L-852N**
- Provides visual guidance for simulated carrier deck landings and manufactured to resist damage from aircraft tail hooks.
 - For runway centerline applications that have a large percentage of the landings by aircraft equipped with arresting hooks — available in uni- and bidirectional configurations — are resistant to arresting hook damage.

Features

- Incandescent or LED version available.
- Low LED wattage: Single 3 W LED with only 14 VA maximum fixture load for unidirectional applications, making L-852N LED fixtures more than twice as efficient as traditional 45 W unidirectional fixtures.
- Narrow light channel and hardened stainless steel top cover to resist tail hook damage. Stainless steel for the top cover conforms to ASTM A747 with a Rockwell Hardness of C40 ± 5.
- Low protrusion above ground (≤ 0.375 inch) reduces vibrations caused by aircraft landing gear in both the light fixture and the landing gear. Protrusion is 25% lower than traditional L-852N (0.5 inch) fixtures.
- Smooth outer surface of light cover and low protrusion height prevent tire damage and minimize risk of snowplow damage

- Average LED life of uni- and bidirectional fixtures is 100,000 hours under high-intensity conditions and more than 200,000 hours under actual operating conditions, which significantly reduces ongoing maintenance costs and periodic re-lamping expenses, resulting in lower life cycle costs
- Very low power rating for LED lights contributes to a lower life cycle cost. Limits cost for supporting equipment, such as isolation transformers and CCRs, to strict minimum.
- Can be installed on existing 6.6 A or 20 A series circuits with no modifications to existing CCR or isolation transformer
- Operates on either 3- or 5-step ferroresonant or thyristor CCRs that are designed in compliance with FAA requirements
- LED photometric performance will be maintained longer due to a cleaner lens. Lower lens temperature prevents the "baking effect" that causes contaminants to stick to the lens surface.
- Smart electronics control current to LED, so light output matches existing incandescent fixtures.
- Many components are common to all F-Range lights, which reduces spare parts stock
- Field replaceable L-823 cord sets are mechanically clamped to the bottom cover and provide a watertight seal without the use of sealing compounds or resins
- Outer prisms are mechanically clamped to light cover. Prism replacement is fast, easy, and does not require sealing compound, resin, or setting jigs.
- No optical adjustment required after replacement of any optical components
- Plug for pressure-testing of fixture after maintenance
- Resists corrosion without the use of environmentally damaging coatings
- Narrow light channel in front of prism window protects prism from damage and prevents rubber buildup thereby maintaining optimal light output
- Designed to exceed lightning protection requirements of ANSI/ IEEE C62.41-1991 Category C1
- Rugged lightning protection complies with ANSI/IEEE C62.41-1991 Location Category C2 given in FAA Eng. Brief 67. Category C2 is defined as a 1.2/50µS - 8/20 µS combination wave, with a peak voltage of 10,000 V and a peak current of 5,000 A.
- Includes a UL 467 rated ground lug, which accepts an AWG 6 earth ground wire



Note

Front cover image: 10-inch model shown

Operating Conditions

Temperature:	-40 °F to +131 °F / -40 °C to +55°C
Altitude:	Sea level to 10,000 feet / 3,050 m
Humidity:	0 to 100%

Power Supply

L-852N LED fixture is designed to work with any FAA-compliant transformer up to 100 W without affecting the performance or lifetime of the light fixture or transformer. See data sheet 3033 for more details on recommended isolation transformers specified below.

L-852N LED Isolation Fixture Transformer	Fixture Load
Unidirectional 10/15 W	14 VA
Bidirectional ¹ 20/25 W	17 VA
Bidirectional ² 10/15 W per side	14 VA per side (28 VA total)

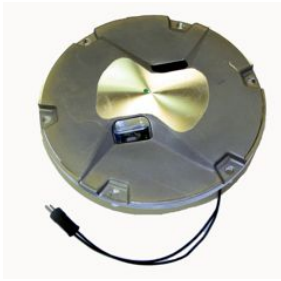
Notes

¹ One cord set

L-852N LED Isolation Fixture Transformer
Fixture Load

² One cord set per side (2 total)

Figure 1: 12-inch model shown



Installation

The light assembly is designed for connection to a 6.6 A series lighting circuit via an L-830 (60 Hz) or L-831 (50 Hz) isolation transformer. When required, multiple fixtures can be connected in series using an appropriately-sized isolation transformer.

L-852N fixtures can be installed on 10- or 12-inch diameter deep base cans.

Figure 2: 12-inch model with optional snow plow ring shown



Dimensions

10-inch fixture	
Outside diameter:	9.98 in / 25.35 cm
Bolt-circle diameter (L-868A ¹):	9.25 in / 23.5 cm
12-inch fixture	
Outside diameter:	11.94 in / 30.33 cm
Bolt-circle diameter (L-868B):	11.25 in / 28.58 cm
Packaging	
In cardboard box:	13 × 13 × 7 in / 33 × 33 × 17.8 cm
Weight	
10-inch fixture	18.5 lb / 8.4 kg
12-inch fixture	28.5 lb / 12.9 kg

Notes

¹ Refers to older style 10-inch L-868A base can compliant to AC 150/5345-42C. 10-inch base cans are no longer specified in the current FAA Advisory Circular.

2.2 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 centerlines. (see [Figure 4](#)). The light fixtures are manufactured in accordance with FAA specification AC 150/5345-46 (current edition), Style 3: $\leq 1/4$ in. (6.35mm) height above grade.

Figure 3: L-852N Assemblies

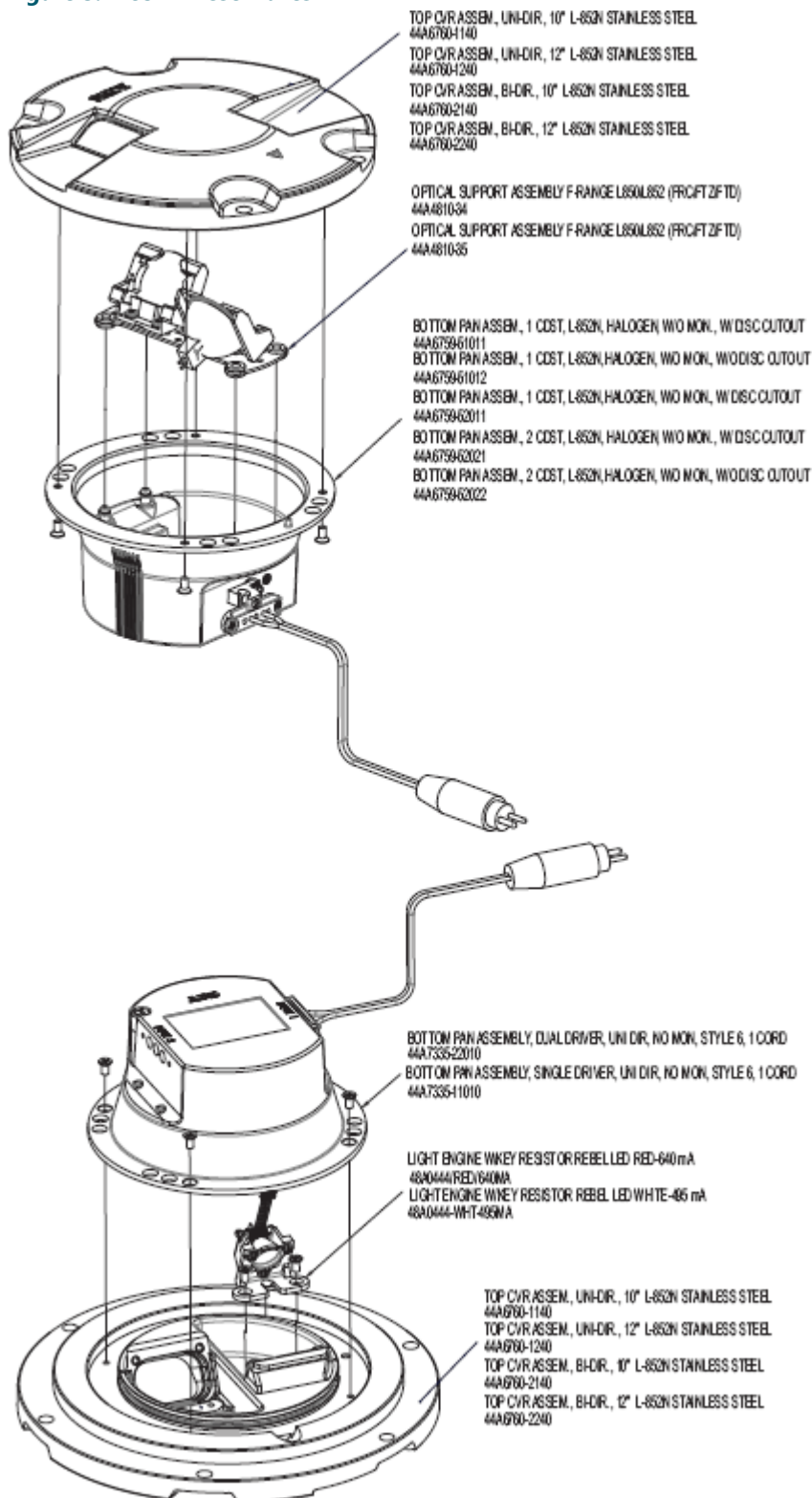
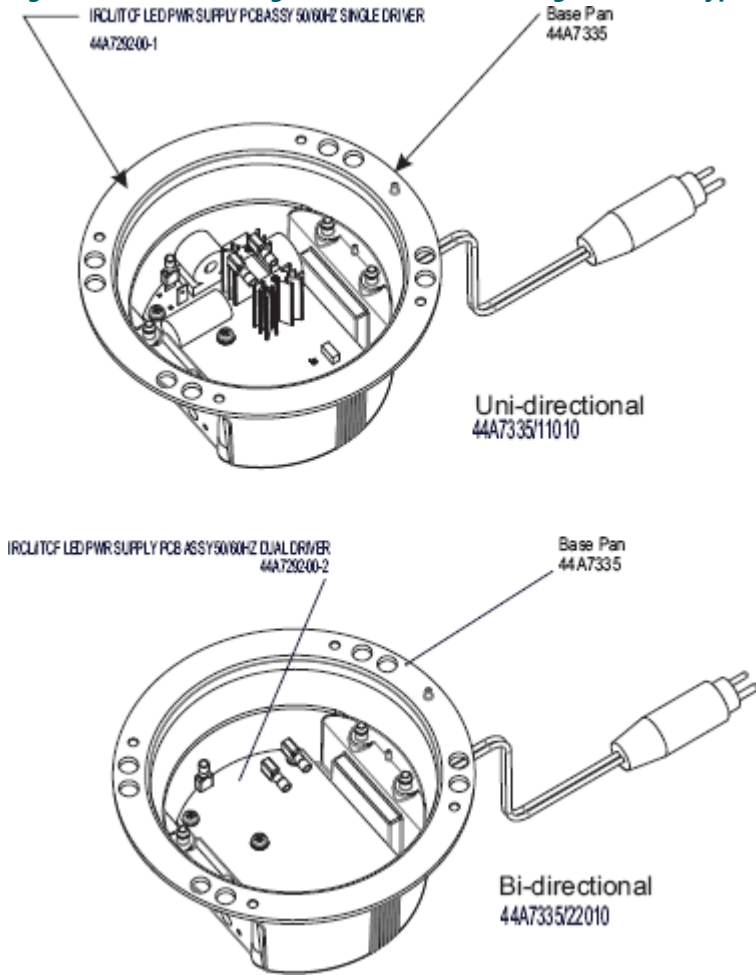


Figure 4: View of F-Range In-Pavement L852N Light Fixture (Typical Configuration)

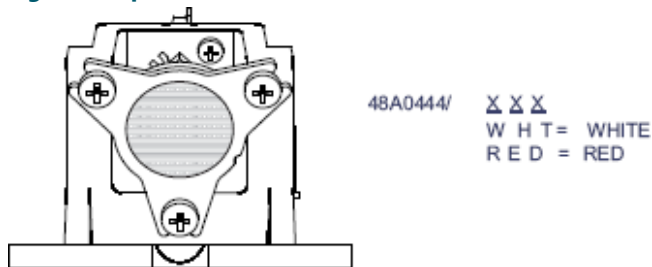


2.2.1 Inner Pan Subassembly

The inner cover assembly includes the inner cover, L-823 cord sets, and the pressure release screw, as shown in [Figure 3](#)

2.2.2 Optical Unit L852N

Figure 5: Optical Unit 48A0444-XXX-XXXMA for L852N



3.0 Installation



WARNING

Read the instructions in their entirety before starting installation.

This section provides installation instructions for the L852N fixtures.



Note

Light Detail:

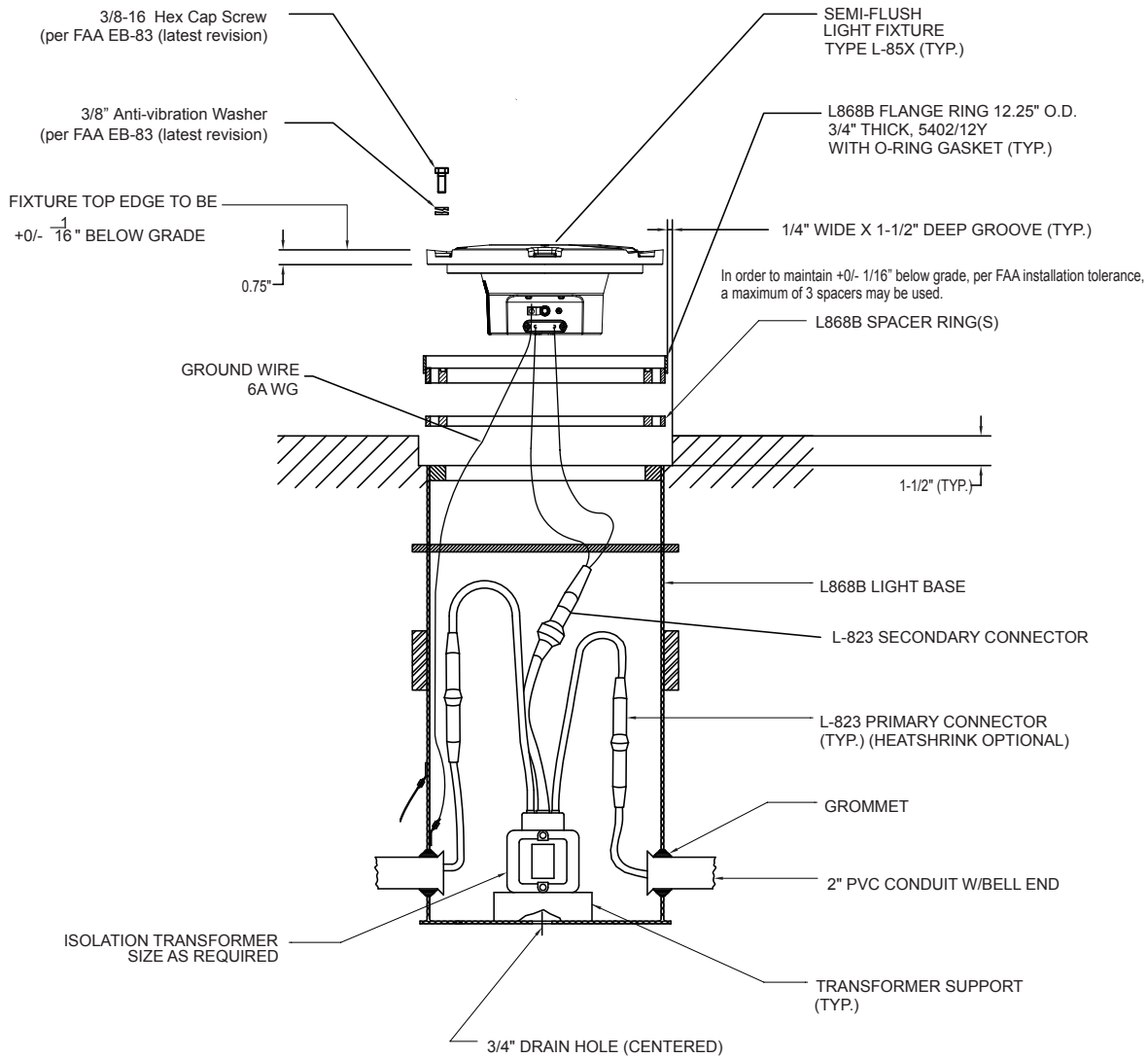
1. Light bases shall be installed with care to assure vertical & azimuth alignment of the fixture.
2. Provide 2'-3' cable slack within light base to allow transformer servicing.
3. Bolts and washers used during installation of base, cable and transformers shall be replaced with new, for final installation. The minimum thread engagement into top flange of base is 0.5".
4. As required to maintain +0/ through -1/16" below grade FAA installation tolerance, a maximum of three spacer rings may be stacked together.
5. ADB Safegate L852N part {44A6777-XXXX}.

3.1 Overview of Sequence of Work

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

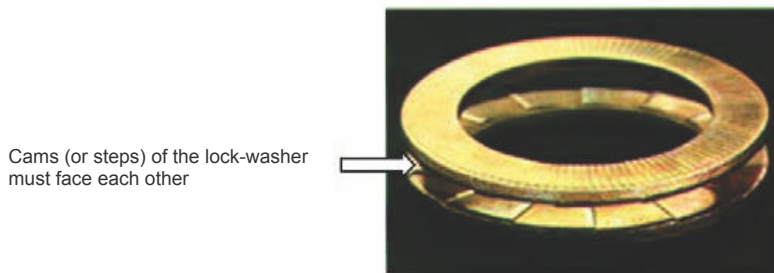
3.2 Typical L-868 Assembly

Figure 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.

3.3 Safety Considerations

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



DANGER

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

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

3.4 Photobiological safety



CAUTION

Photobiological safety conforming with IEC 62471

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

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

3.5 Verify Input Requirements and Equipment Needed

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

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

Table 1: Suggested Tools and Materials for Installation and Repair

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

3.6 Unpacking the Unit

To reduce the possibility of damaging the light assembly, unpack the 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 a light fixture where the control and monitoring 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 control and monitoring functionality from a substation.

3.7 Inspect on delivery

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



Note

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



WARNING

Do not damage the cable insulation.



CAUTION

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

3.8 Store

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

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

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

3.9 Installation on L-868 Base

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

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



Note

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

Also read the following guidelines:

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



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



CAUTION

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

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



CAUTION

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

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



CAUTION

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

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



CAUTION

Due to the risk of bolts vibrating loose, do not use any type of washer with the fixing bolts (such as split lock washers) other than an anti-vibration washer. Anti-vibration washers as defined in FAA EB-83 (latest revision).

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

3.10 Torquing and Installation Guidance for In-pavement Fixtures

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

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



CAUTION

Read installation instructions in their entirety before starting installation.

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

3.11 Shallow base can installation

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



CAUTION

Read installation instructions in their entirety before starting installation.

Fasteners:

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

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



CAUTION

Proper Operation:

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



Note

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

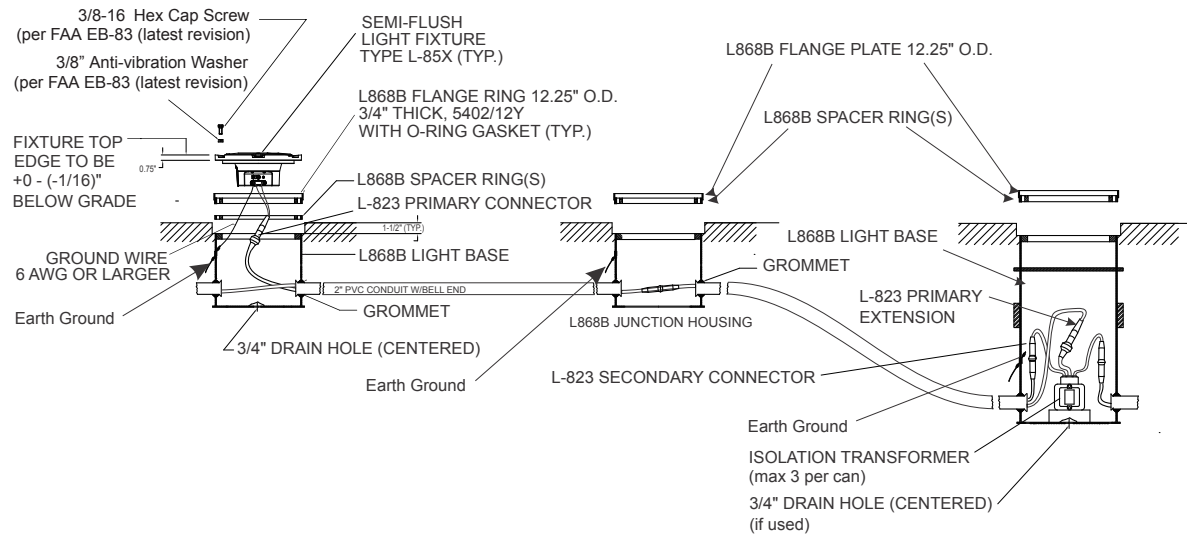
3.11.1 Installation on a Shallow Base

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

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

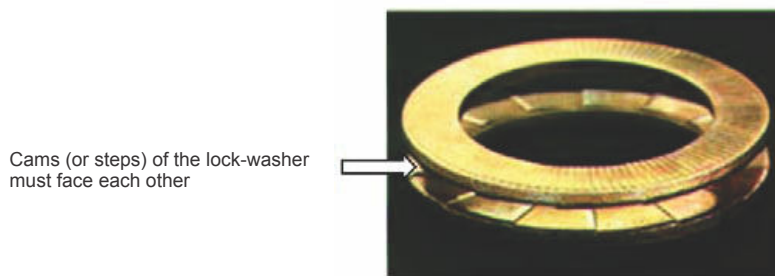
Also follow the applicable instructions in the previous section, when connecting, installing and powering the fixture.

Figure 8: Example of a Shallow Base Installation



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


Figure 9: Anti-vibration washer example



CAUTION

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

4.0 Maintenance and Troubleshooting



WARNING

Read the instructions in their entirety before starting installation.

This section provides maintenance instructions for the L852N Light Fixtures

4.1 Maintenance Schedule

Interval	Maintenance Task	Action
Weekly	Check for dirty channel and lens.	Clean channel and prism. Refer to <i>Cleaning Light Channel and Prism</i> in this section.
Monthly (or more frequently during rainy seasons)	Check for moisture in the light fixture.	Open up the light fixture. Clean, dry, and inspect the light assembly. Replace O-ring.
Every 60 days, or whenever the light assembly is serviced	Check for improper torque on hold-down bolts.	Torque six bolts holding fixture to base receptacle per section " Torquing and Installation Guidance for In-pavement Fixtures ". Use Loctite to keep bolts tight.
Semi-annually	Check for six inches (152 mm) of water in the L-868 base.	Pump water from base. Remove and inspect light for water damage. Refer to <i>Removing L-868 Base Water</i> in this section.
After snow removal	Check for damaged light fixtures.	Replace damaged fixtures. Use a power broom for snow removal, if practical.

4.2 Cleaning the Light Channel and Prism


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

1. Use a suitable fiber brush to remove all accumulated debris from the light channel (4).
2. Clean the outer surface of the prism (3) using liquid glass cleaner. If the prism is coated with a substance impervious to the cleaner, apply a suitable solvent sparingly with a wad of cotton or a patch of cloth. After the solvent has acted, remove the softened coating with a clean piece of cotton or cloth. Dry the prism with gently, dry, oil-free compressed air at a pressure no greater than 10 psi (69 KN/m²) to evaporate or remove all remaining cleaner.

4.3 Removing L-868 Base Water

Turn off the circuit when checking the water level.

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

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

4.4 Lifting Optical Unit Out of Base

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

1. Remove the six fixing screws and washers or self locking nuts.
2. Fit the appropriate lifting tool into both threaded holes located (180 degrees apart) in the cover, lift the optical unit out of the base and place the optical unit next to the base.
3. Disconnect the light fixture wires from the power wires coming from the transformer(s).
4. Mount a serviced or new light fixture as described in Installation on L-868 Base in the Installation section.



Note

See " [Bolt Torque Preventive Maintenance Schedule](#)".

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



Note

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

4.5 Repair Procedures

Opening the Optical Unit

To open the optical unit, perform the following procedure:

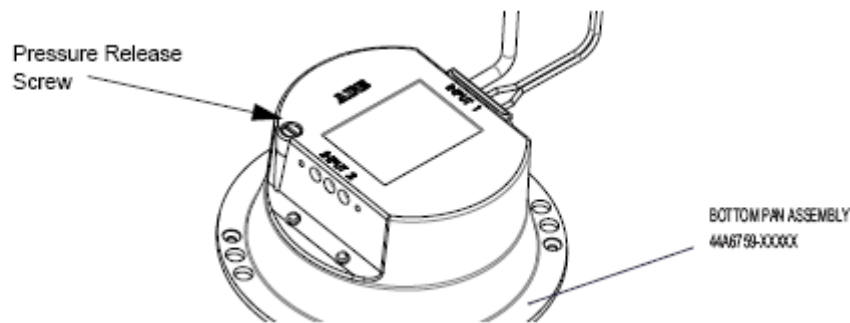
1. Turn the light unit upside-down.
2. See [Figure 10](#). Remove the pressure release screw.



Note

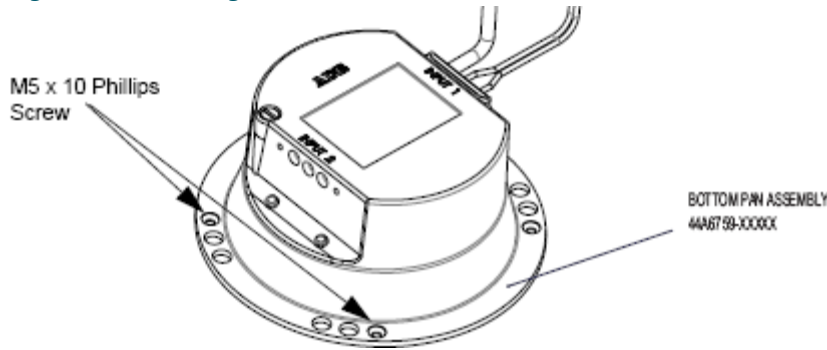
Removing the pressure release screw equalizes the pressure inside and outside the fixture, making it easier to break the seal and remove the inner cover.

Figure 10: Pressure Release Screw



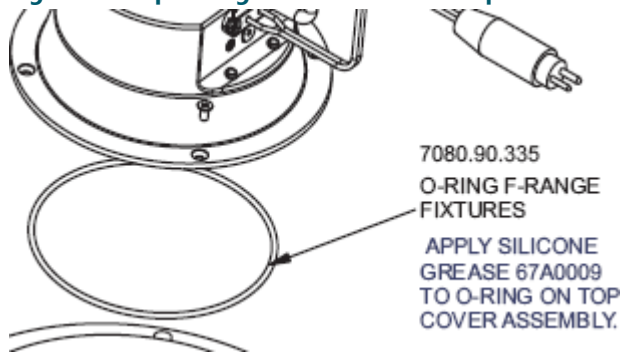
3. Remove the 4 screws. The use of an impact driver may be required to unlock the screws.

Figure 11: Removing Screws



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

Figure 12: Separating Bottom Pan from Top Cover



Replacing the Prism

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

To replace the prism, perform the following procedure:

5. Remove the prism-clamp and prism-keeper plate secured in the inner pan assembly.

Figure 13: Replacing Prism

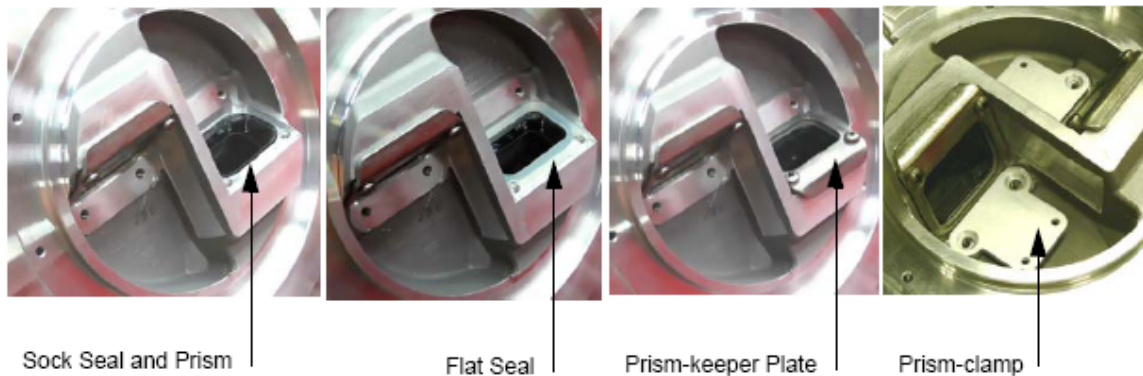


Figure 14: Top Assembly



6. See [Figure 13](#). Remove the flat seal.
7. See [Figure 14](#). Push the prism with the sock seal towards the inside of the cover.
8. Clean and degrease the prism chamber with any effective solvent.



Note

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

9. Apply a thin layer of lubricant MOLYKOTE BG87 INERTA or MOLYKOTE BG88 INERTA in the prism chamber using a small brush.
10. Install a new sock seal over the prism.
11. Push the prism/gasket assembly in the prism pocket from the inside and clean the inner surface of the prism.
12. Install a new flat seal over the prism-keeper plate.
13. See [Figure 13](#). Reinstall hardware with the Phillips pan head screws. Apply a droplet of sealant Loctite 270 to the last threads. Torque to $3.5 \pm 0.5 \text{ N}\cdot\text{m}$ ($31 \pm 4 \text{ inch-pounds}$).

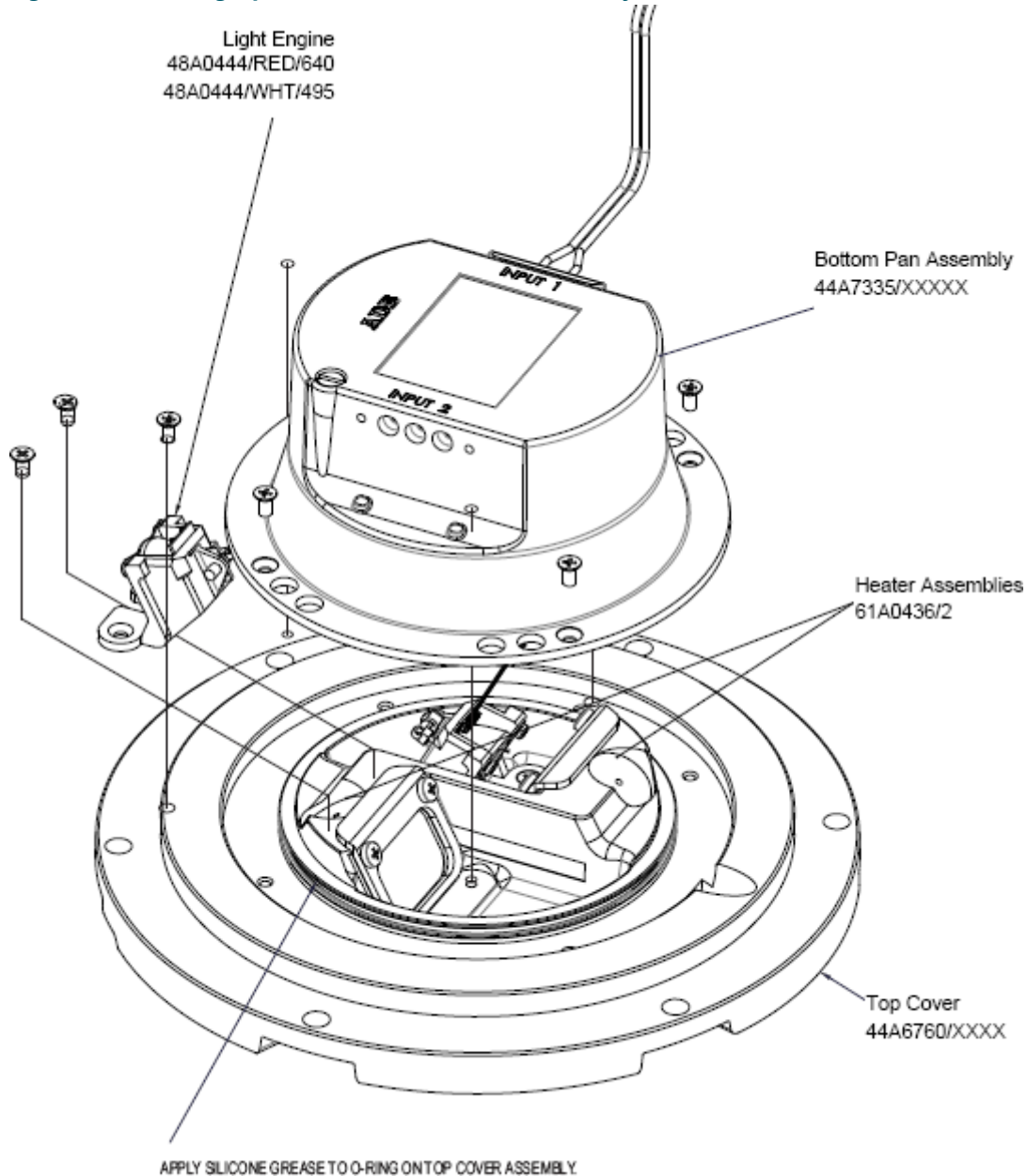
Replacing Optical Unit

To replace the optical unit, perform the following procedure:

14. Remove the optical unit(s).

15. Remove the optical unit (3) by loosening screws (5).

Figure 15: Removing Optical Unit from Inner Pan Assembly

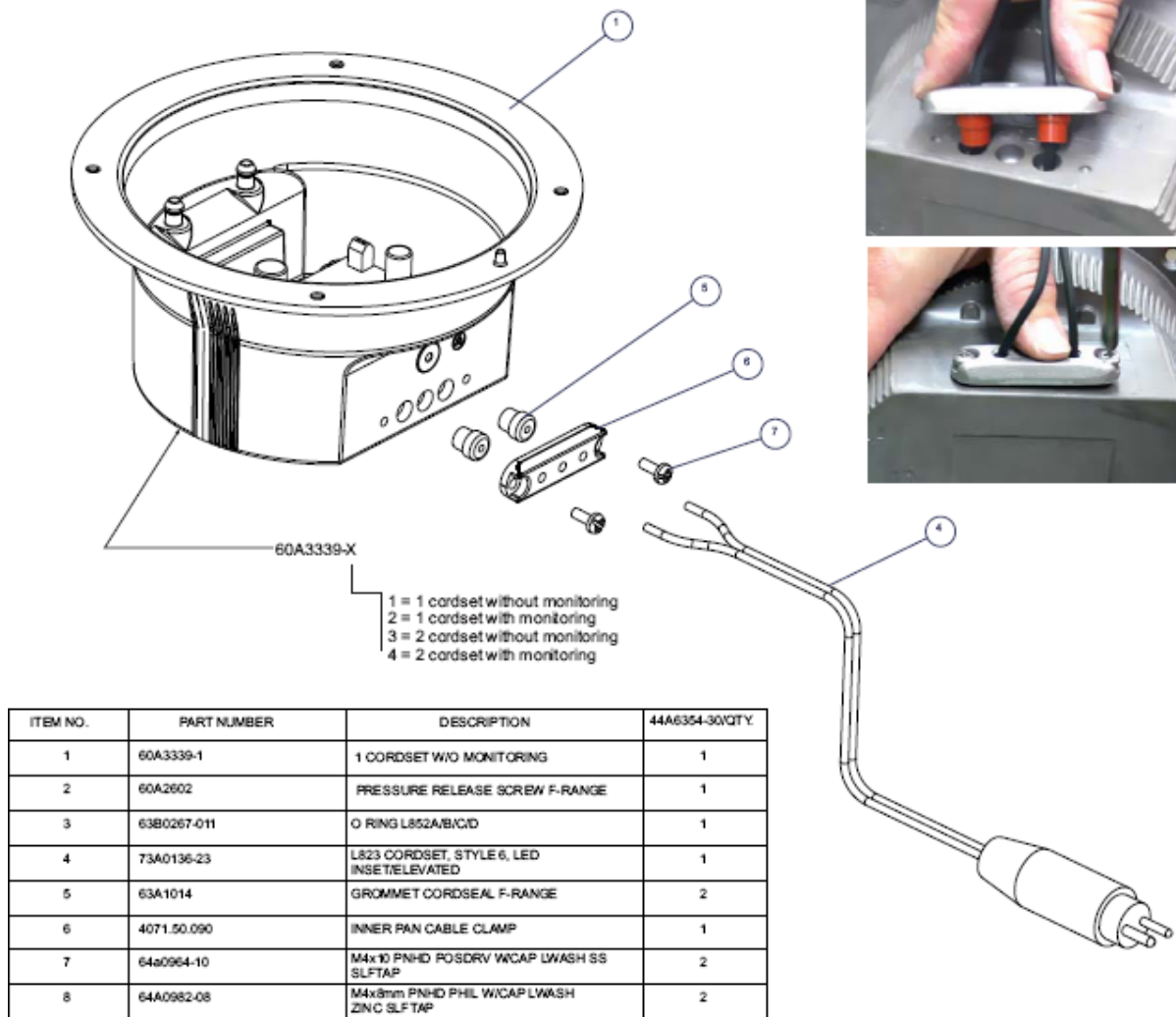


16. Position the new optical unit to the top cover, replace screws and tighten. Torque the fixing screws to $3.5 \pm 0.5 \text{ N}\cdot\text{m}$ (31 ± 4 inch-pounds).

17. Connect the LED unit wires to the power supply. Close the unit.

4.6 Replacing L-823 Cord Set

Figure 16: Bottom Pan Assembly



To replace the L-823 cord set:

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

4.7 Installing Power Supplies, Heaters, and Thermostats

Figure 17: Incandescent Bottom Pan L-852N DBL Assembly Cordset

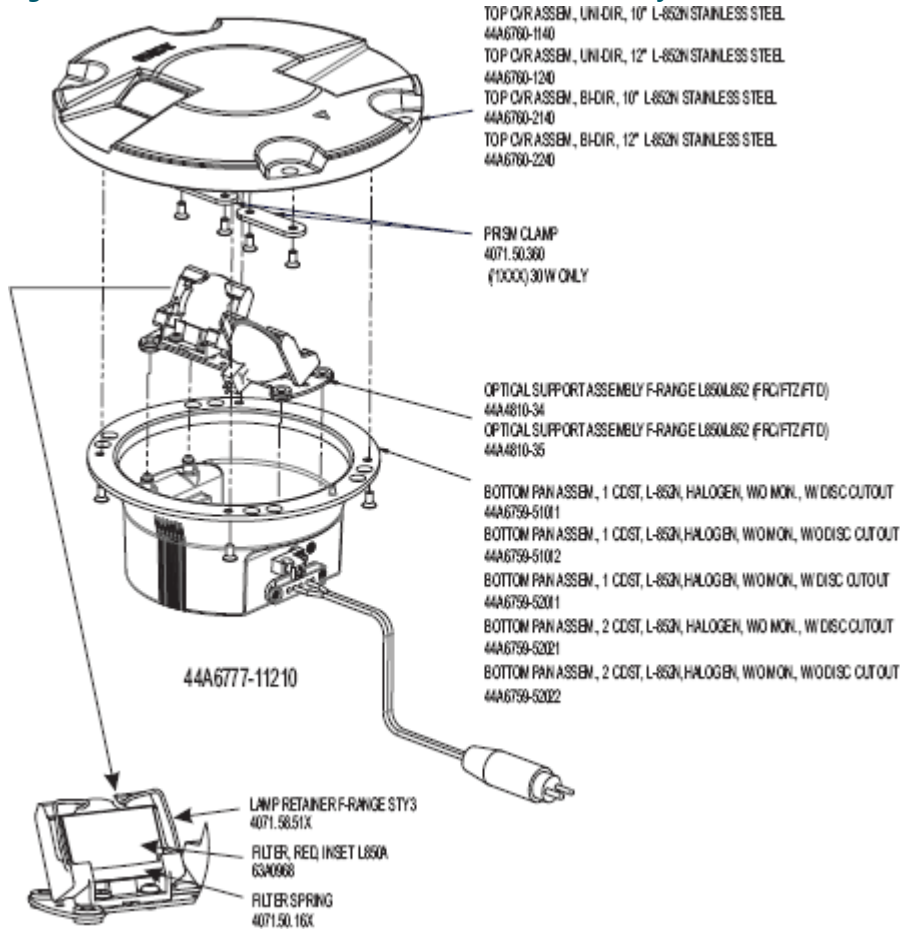


Figure 18: LED Bottom Pan L-852N DBL Assembly Cordset

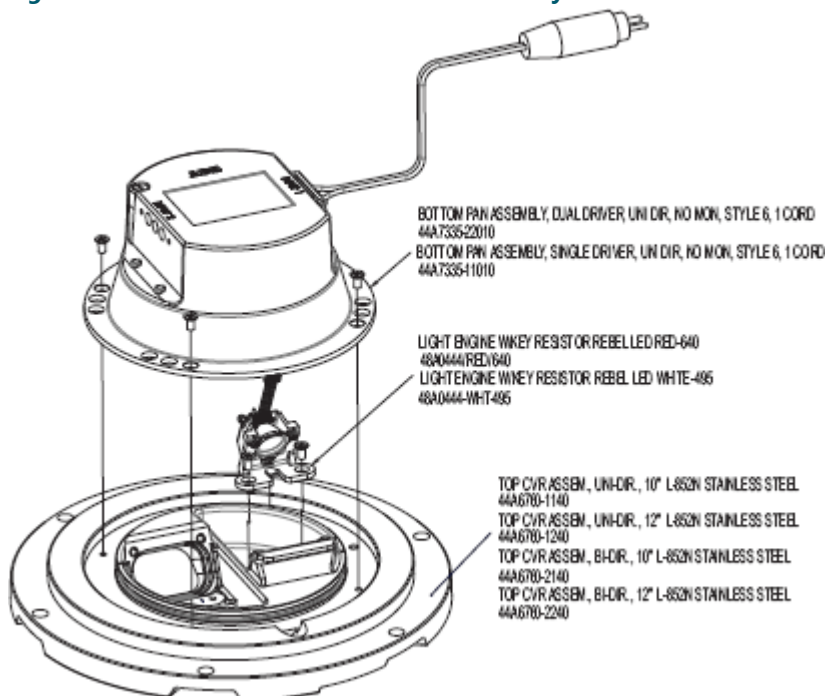


Figure 19: L-852N Thermostat and Heater

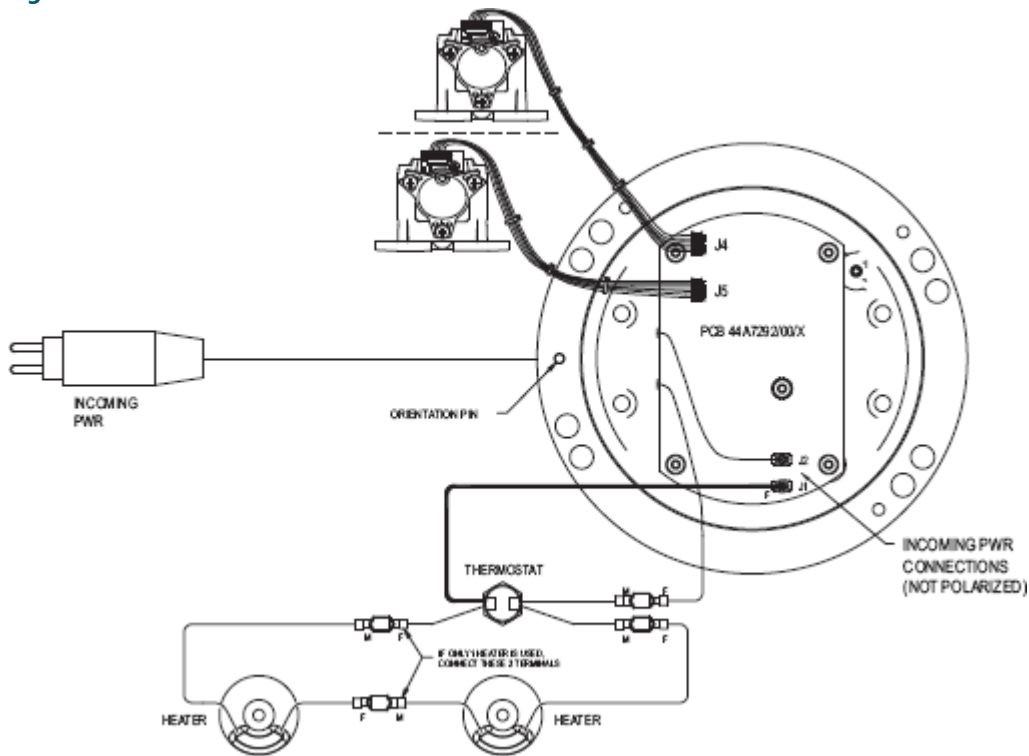
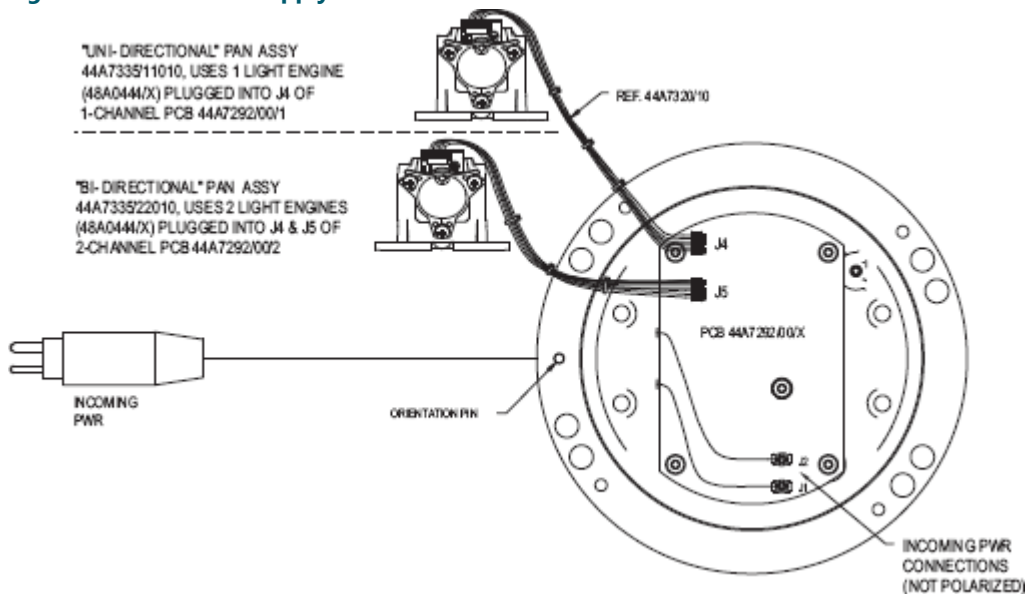


Figure 20: LED Power Supply Connections



Closing Optical Unit

To close the optical unit, perform the following procedure:

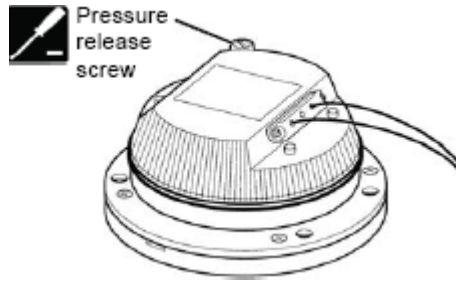
1. Turn the top cover upside down.
2. Make sure that the contact surfaces with the O-ring are clean and apply a light coat of high quality neutral silicone grease.
3. Install a new greased O-ring in the groove located in the top cover.



Note

Use a synthetic grease such as MOLYKOTE BG87 INERTA or MOLYKOTE BG88 INERTA.

4. Remove the pressure release screw.



5. Install the inner cover on top of the cover.



Note

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

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

Make sure the O-ring seal for the pressure release screw is in good condition and reinstall the pressure release screw.

4.8 Testing for Leaks

To test for leaks, perform the following procedure:

1. See [Figure 21](#).

Remove pressure relief screw.

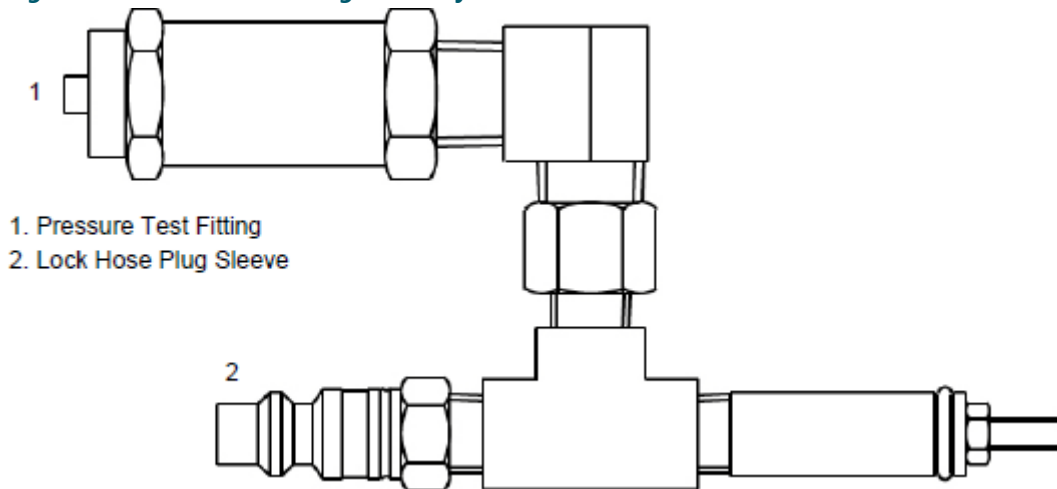
2. See [Figure 22](#).

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

Figure 21: Pressure Relief Screw



Figure 22: Pressure Test Fitting Assembly



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

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

4.9 Material Handling Precautions: Fasteners



DANGER

Foreign Object Damage - FOD

This equipment may contain fasteners that may come loose - torque properly.

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

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



Note

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



CAUTION

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

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

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

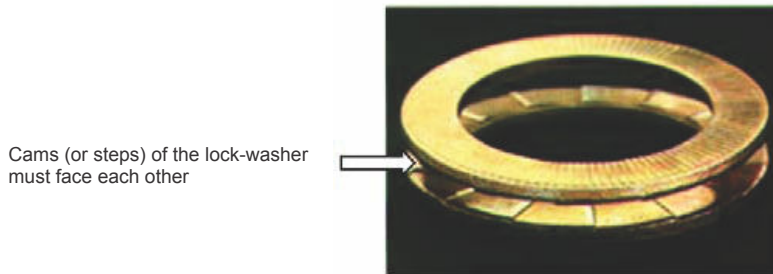
Failure to follow these cautions can result in equipment damage or aircraft FOD.

4.10 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 23: Anti-vibration washer example



CAUTION

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

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

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

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

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

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

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

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

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

Digital Asset Tracking and Service Application Information

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

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

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

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

5.0 L852N Troubleshooting

5.1 Troubleshooting Tips

Refer to Table 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 2: Troubleshooting Guide

Problem	Possible Cause	Corrective Action
LED not energizing	Loose or broken contacts	Tighten or replace, then verify that the fixture is sealed.
	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.
	Fixture wires pinched between base can and fixture	<p>If both wires are pinched between the fixture and the base can, the isolation transformer is shorted and the LED will not energize. Replace fixture leads. Refer to "Replacing L-823 Cord Set"</p> <ul style="list-style-type: none"> Use care when remounting fixture on the base can to ensure that the wires do not get pinched.
	Defective isolation transformer	<p>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.</p> <ul style="list-style-type: none"> 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. <p>If the secondary current is too low or zero, replace the isolation transformer.</p>
	Defective remote control device	Consult the remote control device's instruction manual.
LED 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 pwr supply or internal wiring.
	Isolation transformer secondary current incorrect	<p>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.</p> <ul style="list-style-type: none"> 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. <p>If the secondary current is too low or zero, replace the isolation transformer.</p>
	Wrong fixture installed	Check the label on the bottom of the fixture. Replace if necessary.

Table 2: Troubleshooting Guide (Continued)

Problem	Possible Cause	Corrective Action
Distorted light beam output	Broken, damaged or wrong prism installed	Check parts list and install correct 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.
	Fixture wires pinched between base can and fixture	<p>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"</p> <ul style="list-style-type: none"> • Use care when remounting fixture on the base can to ensure that the wires do not get pinched.

6.0 L-852N Parts

Ordering Code

44A6777 - X X X X

Lamp and Monitoring

- 1 = 30 W incandescent without monitoring
- 2 = 6.6 A 60 Hz, LED without monitoring
- 3 = 6.6 A 60 Hz, LED with monitoring
- 4 = 6.6 A 50 Hz, LED without monitoring
- 5 = 6.6 A 50 Hz, LED with monitoring

Color

- 1 = Unidirectional White
- 2 = Bidirectional White/Red
- 3 = Unidirectional Red
- 4 = Bidirectional White/White

Size and Cord Set

- 1 = Unidirectional 10-inch, 1 cord set
- 2 = Bidirectional 10-inch, 1 cord set
- 3 = Bidirectional 10-inch, 2 cord sets
- 4 = Unidirectional 12-inch, 1 cord set
- 5 = Bidirectional 12-inch, 1 cord set
- 6 = Bidirectional 12-inch, 2 cord sets

Film Disc

- 1 = With film disc cutout¹
- 2 = Without film disc cutout

Note

- ¹ Film disc cutout is only used on incandescent option

6.1 Schematic Drawings and Part Numbers

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

This section provides a schematic drawing of each L852N type, along with a list of part numbers, ordering codes and spare components. Refer to the appropriate section for the fixture type.

6.1.1 LED Spare Components

Description	Part No.
Cable clamp	4071.50.090
Cord set without monitoring	73A0136-23
Inner cover, L-852N	62A2168-2
Narrow beam LED lamp assembly, white	48A0444-WHT/495MA
Narrow beam LED lamp assembly, red	48A0444-RED/640MA
O-ring, inner cover seal	63A1285
O-ring, pressure release screw	63B0267-011
Pressure release screw	60A2602
Prism, narrow beam	63A0993-2
Prism clamp	4071.50.360
Prism gasket sleeve	4071.50.030
Prism keeper plate	4071.50.052
Seal, prism keeper plate	63A0986

Description	Part No.
Ground Lug	72A0401
Power Supply Dual Driver	44A7292-00-2
Power Supply Single Driver	44A7292-00-1

Figure 24: LED L-852N Assembly

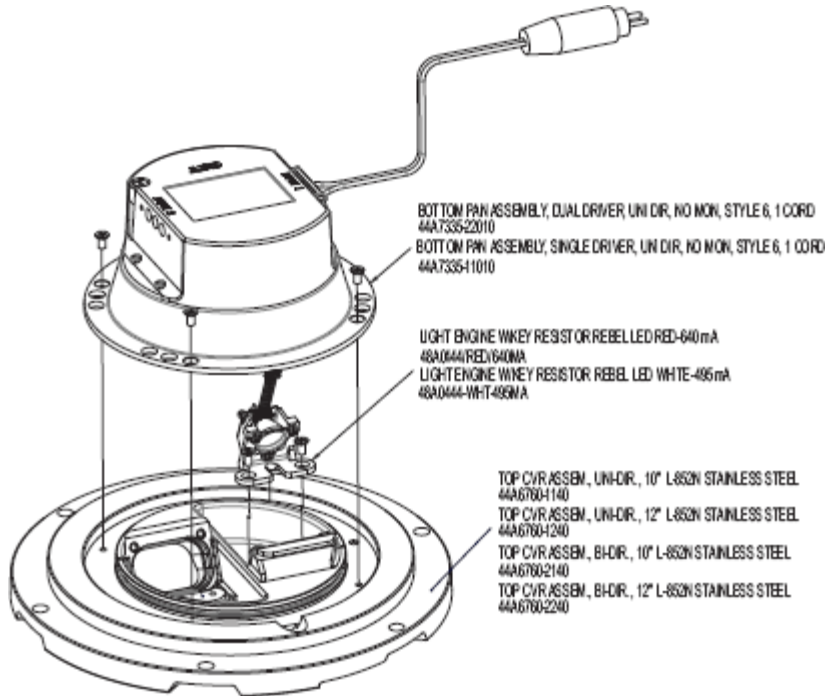


Figure 25: L-852N LED Light Engine Connection Diagram

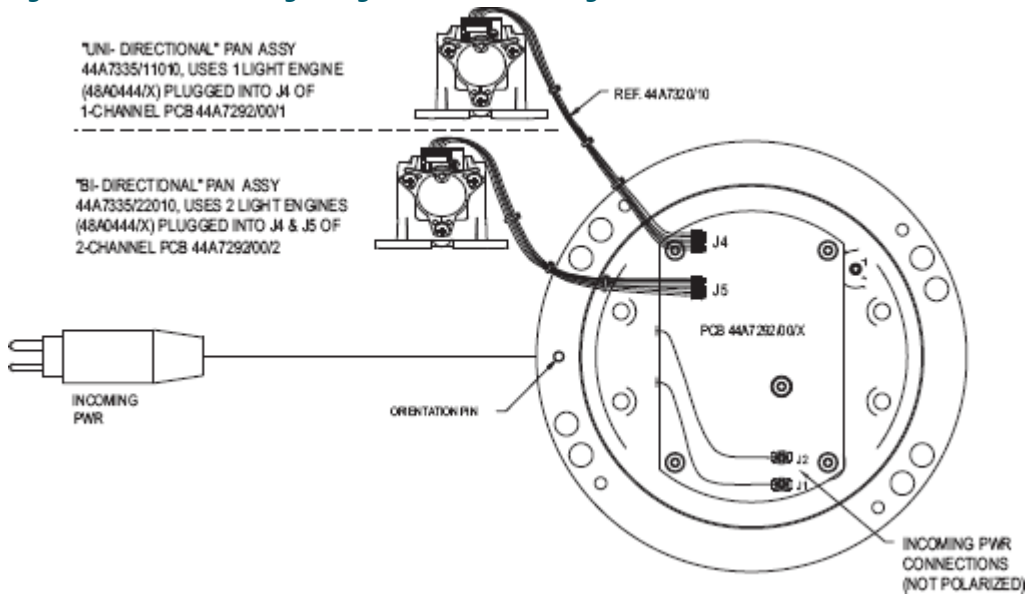


Figure 26: Wiring Diagrams for the Heaters

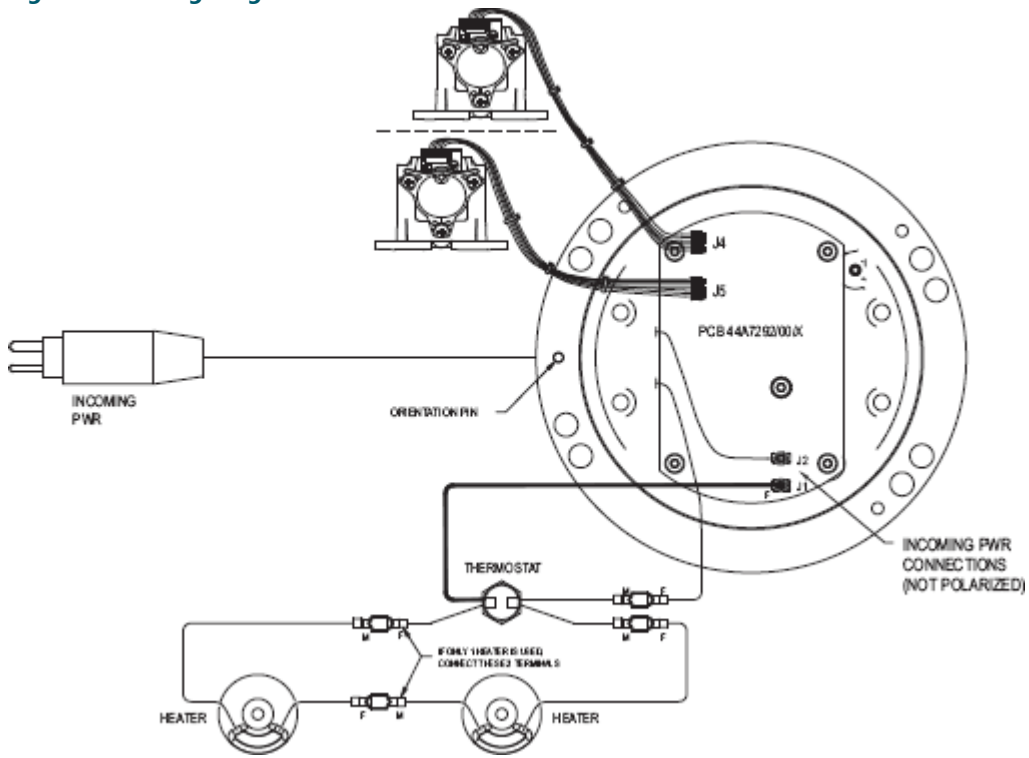
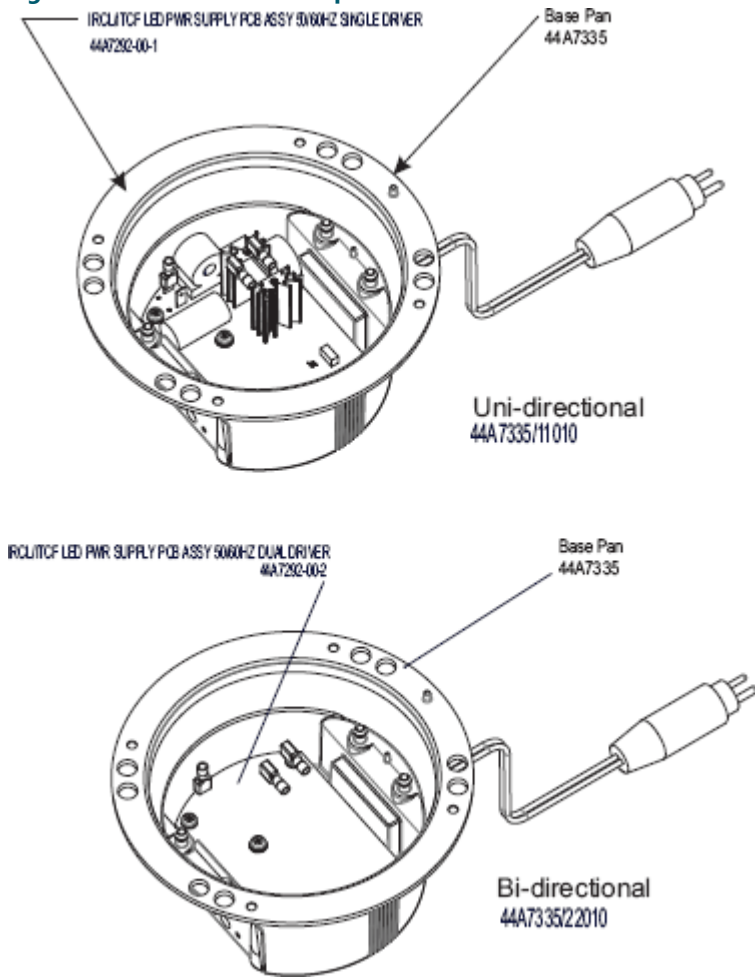


Figure 27: LED Base Pan Components



6.1.2 Incandescent Spare Parts

Table 3: Incandescent Spare Parts

Description	Part No.
Bottom Medium Pan	44A6759-XXXX
O-ring, inner cover seal	63A1285
Top Cover	44A6760-XXXX
Optical Support	44A2137-1
Optical Assembly	44A4810-3XP
Lamp Holder Assembly	1411.22.001
Lamp MR16 w/ female leads, 30W	44A5911
Film Disc Spring	4071.50.130
Film Disc Cutout 30/80V	47A0118
O-ring, pressure release screw	63B0267-011
Pressure release screw	60A2602
Cordset Style 1	44A7387-10
Prism, narrow beam	63A0993-2
Prism clamp	4071.50.360

Table 3: Incandescent Spare Parts (Continued)

Description	Part No.
Prism gasket sleeve	4071.50.030
Prism keeper plate	4071.50.052
Seal, prism keeper plate	63A0986
Ground Lug	72A0401

Figure 28: Incandescent L-852N Assembly

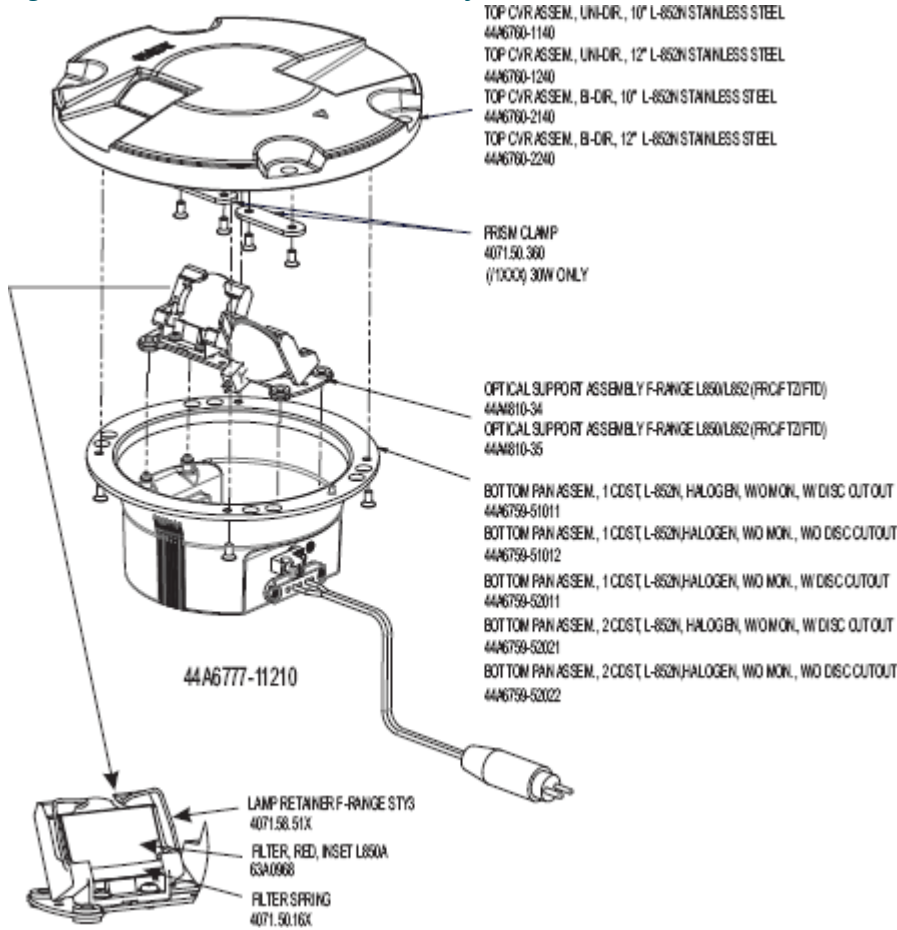


Figure 29: 44A4810/3XP Optical Assembly

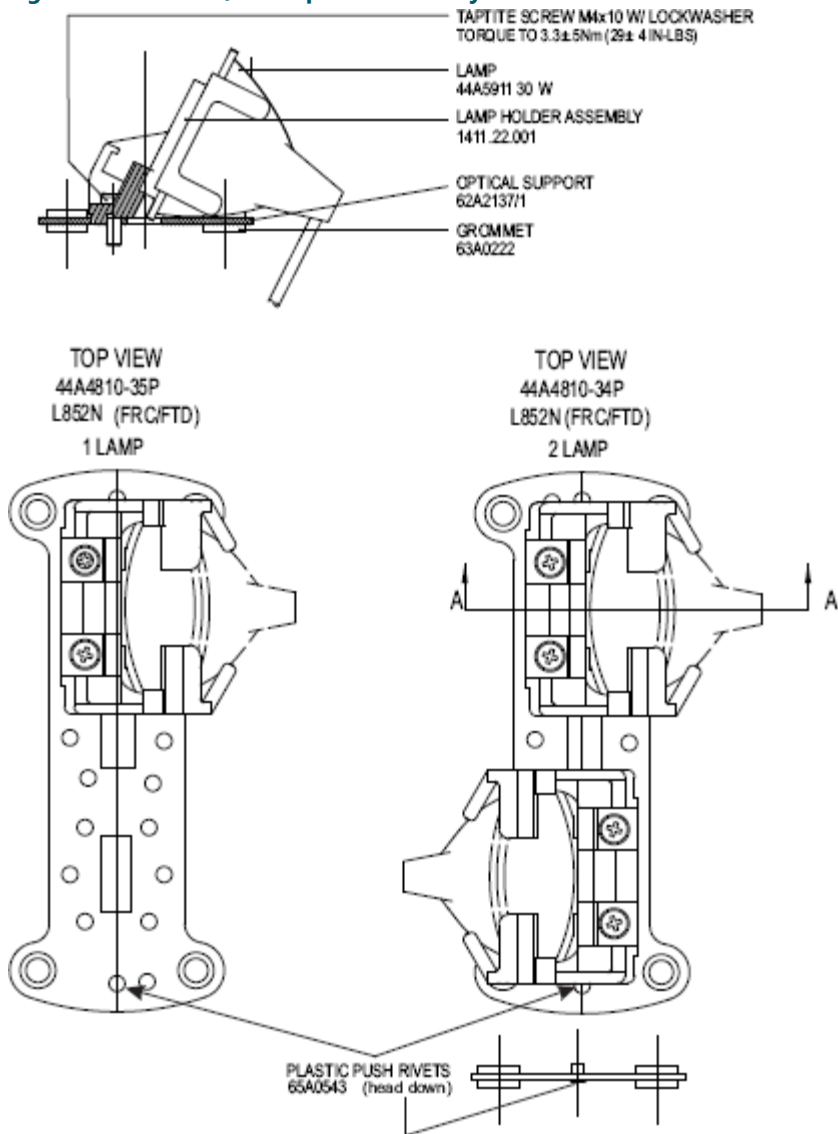
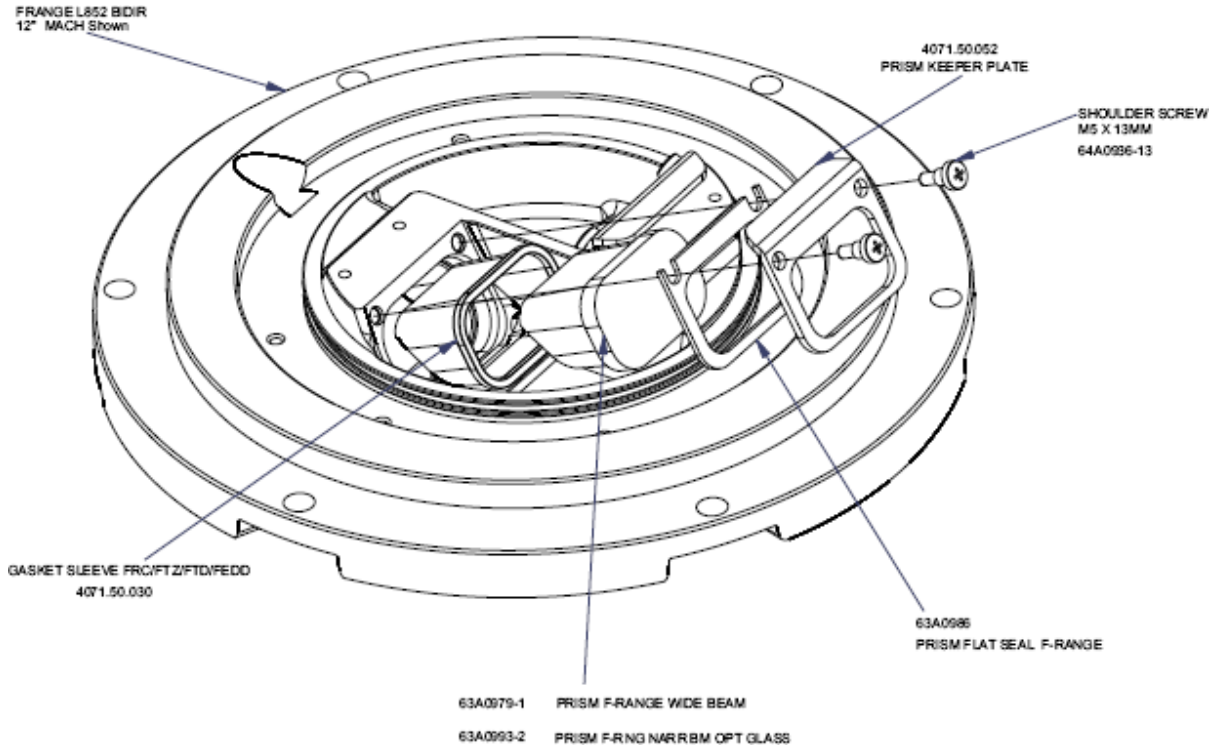


Figure 30: Top Cover Assembly



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

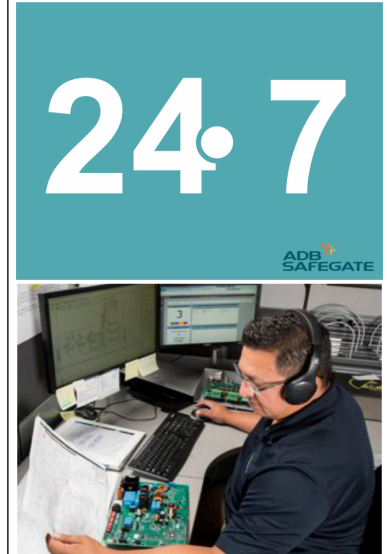
ADB SAFEGATE Americas Technical Service & Support (International): +1-614-861-1304

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, prior to calling, please ensure the following:

- Review the product's manual and troubleshooting guide.
- Be located with the product ready to troubleshoot.
- Have all necessary information available: airport code/company name, customer id number, contact phone number/email address, product/part number.
- Have a *True RMS* meter available and any other necessary tools.



Note

For more information, see www.adbsafegate.com, or contact ADB SAFEGATE Support via email at support@adbsafegate.com or

Europe: +32 2 722 17 11

Americas: +1 614 861 1304. Press 3 for technical service or press 4 for sales support.

China: +86 (10) 8476 0106

Middle East and Africa: +971 4 452 7575

A.1 ADB SAFEGATE Website

The ADB SAFEGATE website, www.adbsafegate.com, offers information regarding our airport solutions, products, company, news, links, downloads, references, contacts and more.

A.2 Recycling

A.2.1 Local Authority Recycling

The disposal of ADB SAFEGATE products is to be made at an applicable collection point for the recycling of electrical and electronic equipment. The correct disposal of equipment prevents any potential negative consequences for the environment and human health, which could otherwise be caused by inappropriate waste handling. The recycling of materials helps to conserve natural resources. For more detailed information about recycling of products, contact your local authority city office.

A.2.2 ADB SAFEGATE Recycling

ADB SAFEGATE is fully committed to environmentally-conscious manufacturing with strict monitoring of our own processes as well as supplier components and sub-contractor operations. ADB SAFEGATE offers a recycling program for our products to all customers worldwide, whether or not the products were sold within the EU.

ADB SAFEGATE products and/or specific electrical and electronic component parts which are fully removed/separated from any customer equipment and returned will be accepted for our recycling program.

All items returned must be clearly labeled as follows:

- For *ROHS/WEEE* Recycling
- Sender contact information (Name, Business Address, Phone number).
- Main Unit Serial Number.

ADB SAFEGATE will continue to monitor and update according for any future requirements for *EU directives* as and when *EU member states* implement new *regulations* and or *amendments*. It is our aim to maintain our *compliance plan* and assist our customers.

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