



60m Runway Edge Light Style 2 LED IREL(L)

User Manual

96A0463, Rev. C, 2020/04/02



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 further 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 or in US Military 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

1.0 Safety	1
1.1 Safety Messages	1
1.1.1 Introduction to Safety	2
1.1.2 Intended Use	2
1.1.3 Material Handling Precautions: Storage	3
1.1.4 Material Handling Precautions: Fasteners	3
1.1.5 Maintenance Safety	4
1.1.6 Material Handling Precautions, ESD	4
1.1.7 Arc Flash and Electric Shock Hazard	5
2.0 IREL	7
2.1 About this manual	7
2.1.1 How to work with the manual	7
2.1.2 Icons used in the manual	7
3.0 Introduction	9
3.1 LED Runway Edge Light	9
4.0 Installation	13
4.1 Overview of Sequence of Work	13
4.2 Typical L-868 Assembly	14
4.3 Safety Considerations	15
4.4 Photobiological safety	15
4.5 Verify Input Requirements and Equipment Needed	15
4.6 Unpack the unit	16
4.7 Inspect on delivery	16
4.8 Store	17
4.9 Connection of the Series Transformer and the Light Connectors	17
4.10 Earth Ground Connection	18
4.11 Installation on L-868 Base	18
4.12 Torquing and Installation Guidance for In-pavement Fixtures	19
4.13 Shallow base can installation	21
4.13.1 Installation on a Shallow Base	21
5.0 Troubleshooting	23
5.1 Troubleshooting	23
6.0 Maintenance	25
6.1 IREL Maintenance Schedule	25
6.2 Fixture Component Maintenance	25
6.2.1 Cleaning the Light Channel and Prism	25
6.2.2 Lifting Optical Unit Out of Base	25
6.3 Repair Procedures	27
6.3.1 Opening Optical Unit	27
6.3.2 Replacing Prism	28
6.4 Replacing LED Assembly	30
6.5 Replacing L-823 Cordset	31
6.6 Replacing the PCB	33
6.7 Testing for Leaks	33
6.8 Material Handling Precautions: Fasteners	35
6.9 Bolt Torque Preventive Maintenance Schedule	36
7.0 Parts	39
7.1 IREL Parts	40
7.2 Optional Snow Plow Ring	42
A.0 SUPPORT	45
A.1 ADB SAFEGATE Website	45

A.2 Recycling	46
A.2.1 Local Authority Recycling	46
A.2.2 ADB SAFEGATE Recycling	46

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 IREL

60m Runway Edge Light Style 2 LED.

2.1 About this manual

The manual shows the information necessary to:

- Install and maintain the IREL Style 2 LED Runway Edge Light.

2.1.1 How to work with the manual

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

2.1.2 Icons used in the manual

For all WARNING symbols see the Safety section.

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.



CAUTION

Failure to observe a caution may result in equipment damage.

3.0 Introduction



3.1 LED Runway Edge Light

Compliance with Standards

ICAO:	Runway Edge: Annex 14, Vol. I, par. 5.3.9.7 and 5.3.9.10; Fig. A2-10 for 60 m runways.
T/C:	Runway Edge: Transport Canada TP 312 par. 5.3.10.11 and 5.3.10.14 and Appendix B, Fig. B.1.11 for 60 m runways.
Military:	Runway Edge: Photometry complies with UFC 3-535-01 Fig. 4-2.B for runways 60 m (200 feet) or more wide.

Uses

ICAO, T/C and US MIL

- Runway edge on category I, II, and III runways
- Runway edge applications 60 m (200 feet) or more wide

Features

- Average LED life of 56,000 hours under high-intensity conditions and more than 150,000 hours under typical operating conditions, resulting in significant reduction or even elimination of ongoing maintenance costs and periodic re-lamping expenses.
- For white runway edge applications, use of LED light source eliminates color shifts at lower CCR step settings. For red or yellow runway applications, use of LED light source eliminates filter replacement and color shifts when viewed at various angles or CCR step settings.
- Low protrusion above ground of ≤ 12 mm reduces vibrations caused by aircraft landing gear in both light fixture and landing gear, increasing lamp life.
- 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 IEC or FAA requirements
- Very low power rating for LED lights contributes to a lower life cycle cost. Limits cost for supporting equipment, such as CCRs, to strict minimum.
- Full compatibility with existing airfield lighting series circuits. No need to replace CCRs, series transformers, or cables.
- LED photometric performance will be maintained longer due to a cleaner lens. The lower temperature of the lens prevents the "baking effect" that causes contaminants to stick to the surface of the lens.
- Offers longer maintenance intervals and requires fewer spare parts, resulting in lower life cycle cost.
- Smart electronics control current to LED, so light output matches existing incandescent fixtures.
- Low-temperature lights. Temperature rise at center of top cover remains below 320 °F (160 °C).
- Light channel in front of prism windows protects prisms from damage and prevents rubber buildup thereby maintaining optimal light output.

- 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 Volts and a peak current of 5,000 Amps.
- Unique double-barrier cord set design eliminates risk for water incursion in case the cord set becomes damaged. Cord set can also be easily replaced without opening fixture.
- Environment-friendly, precision-cast aluminum alloy cover, optical support, and inner cover assembly with stainless steel hardware.

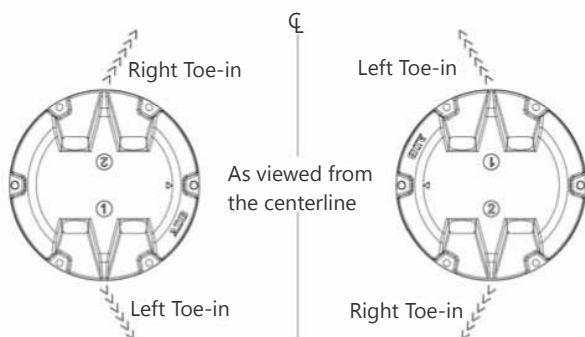
Operating Conditions

Temperature:	-40 °C to +55 °C / -40 °F to +131 °F
Altitude:	Sea level to 10,000 feet / 3000 m
Relative Humidity:	Up to 100%

Optional Snow Plow Ring

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

Toe-in Coding



Note

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

Power Supply

It is recommended that the IREL-L LED fixture be powered from a dedicated CCR and that separate remote controls are available. IREL-L lights have been designed to work with any IEC- or FAA-compliant transformer up to 200 W without affecting the performance or lifetime of the light fixture or transformer.

IREL-L	Fixture Load	Isolation XF	Isol. XF Load	CCR Load
Without Heater				
Unidirectional	21 VA	30/45 W	8 VA	29 VA
Bidirectional ¹	36 VA	65 W	17 VA	53 VA
Bidirectional ²	21 VA/side (42 VA total)	30/45 W per side	8 VA per XF	29 VA/side (58 VA total)
With Heater				

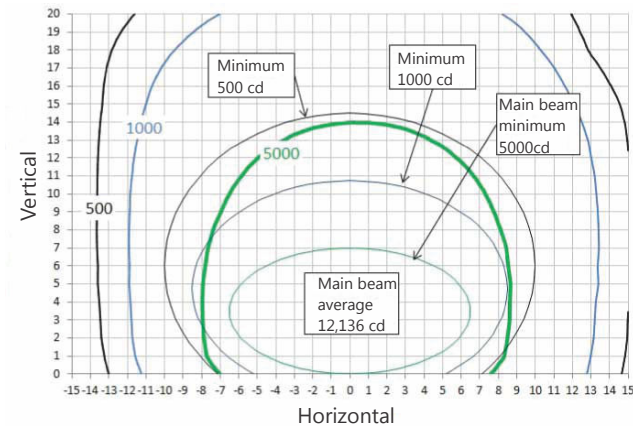
IREL-L	Fixture Load	Isolation XF	Isol. XF Load	CCR Load
Unidirectional	49 VA	65 W	15 VA	64 VA
Bidirectional ¹	64 VA	65 W	13 VA	77 VA
Bidirectional ²	49 VA/side (98 VA total)	65 W per side	15 VA per XF	64 VA/side (128 VA total)

Notes

¹ One cord set

² One cord set per side

Photometric Data: IREL-L 60 m White



Dimensions

Outside Diameter:	11.94 in / 30.33 cm
Bolt Circle Diameter (L-868B):	11.25 in / 28.58 cm
Max. Bottom Cover O.D.: - 9.92 in / 25.20 cm down to depth of 1.63 in / 4.14 cm - 8.69 in / 22.07 cm from depth of 1.63 in / 4.14 cm to 3.88 in / 9.86 cm Compatible with L-868B Top Sections where the overall height of the Top Section is less than 4 in / 10.16 cm.	
Bottom Cover Depth:	3.88 in / 9.9 cm

Packaging

In cardboard box:	7 × 13 × 13 in / 17.8 × 33 × 33 cm
Weight with packing:	18.5 lb / 8.4 kg
Weight without packing:	15.5 lb / 7 kg

4.0 Installation



Warning

Read the instructions in their entirety before starting installation.

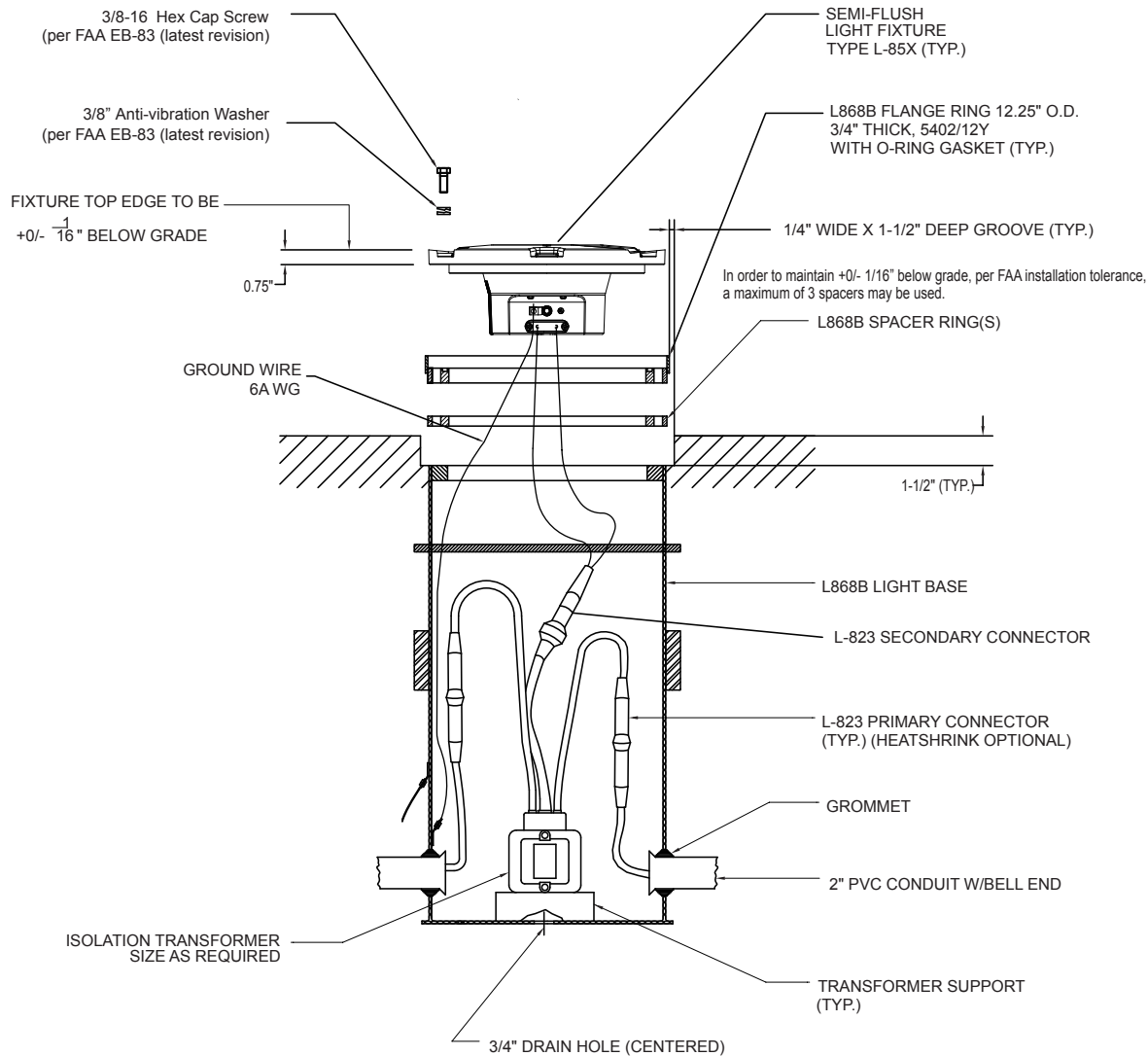
This section provides installation instructions for the IREL Light Fixture.

4.1 Overview of Sequence of Work

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

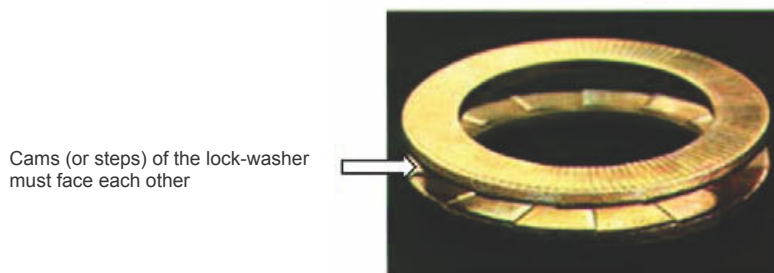
4.2 Typical L-868 Assembly

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



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

Figure 2: Anti-vibration washer example





CAUTION

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

4.3 Safety Considerations

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



CAUTION

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

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

4.4 Photobiological safety



CAUTION

Photobiological safety conforming with IEC 62471

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

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

4.5 Verify Input Requirements and Equipment Needed

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

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

Table 1: Suggested Tools and Materials for Installation and Repair

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

4.6 Unpack the unit

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

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

4.7 Inspect on delivery

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



Note

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



Warning

Do not damage the cable insulation.



CAUTION

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

4.8 Store

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

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

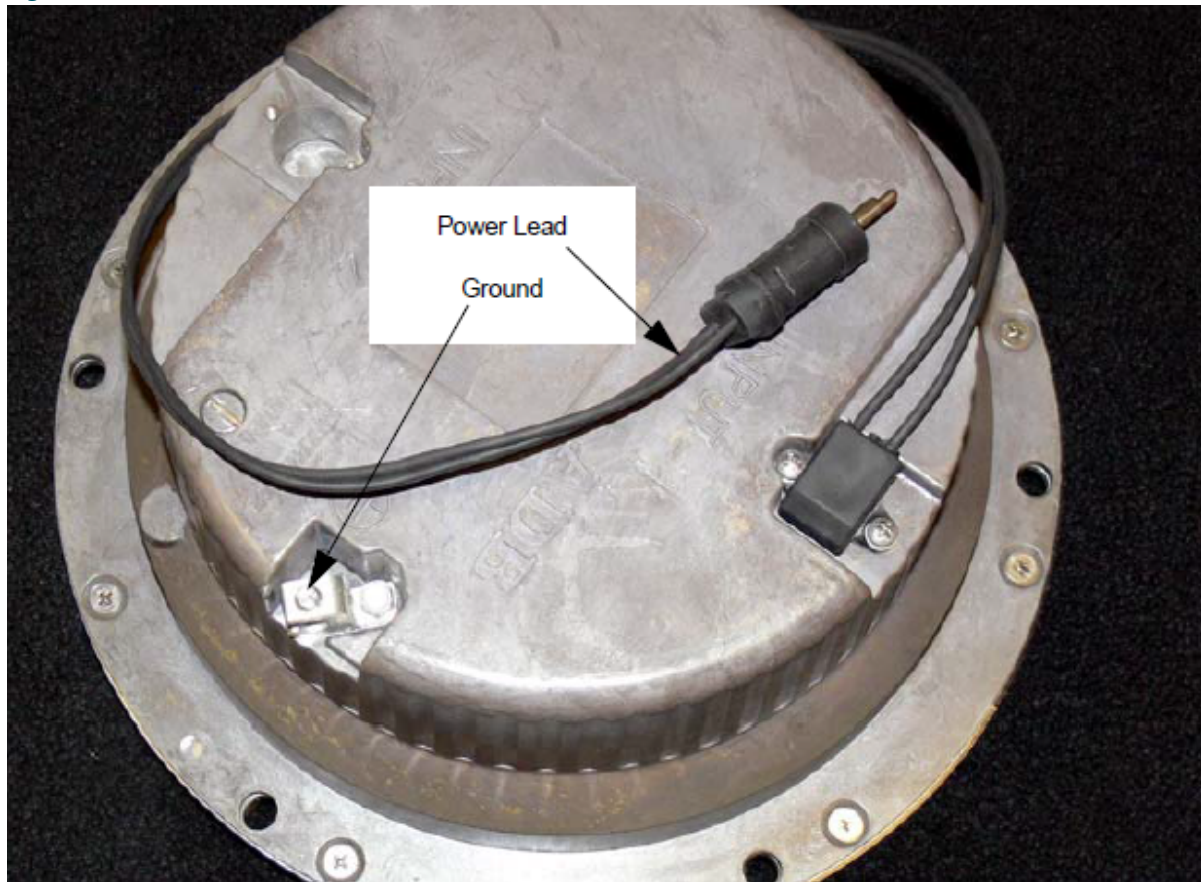
For long storage periods (longer than one year), we recommend to energize the LED lights once a year at nominal intensity (6.6 Amps) for 20 minutes.

4.9 Connection of the Series Transformer and the Light Connectors

The 2-pin plug on cable 1 is connected to the socket for the secondary circuit of the series transformer. See [Figure 3](#).

Note
The IREL also may have 2 power leads, one for each side.

Figure 3: IREL with Power Lead



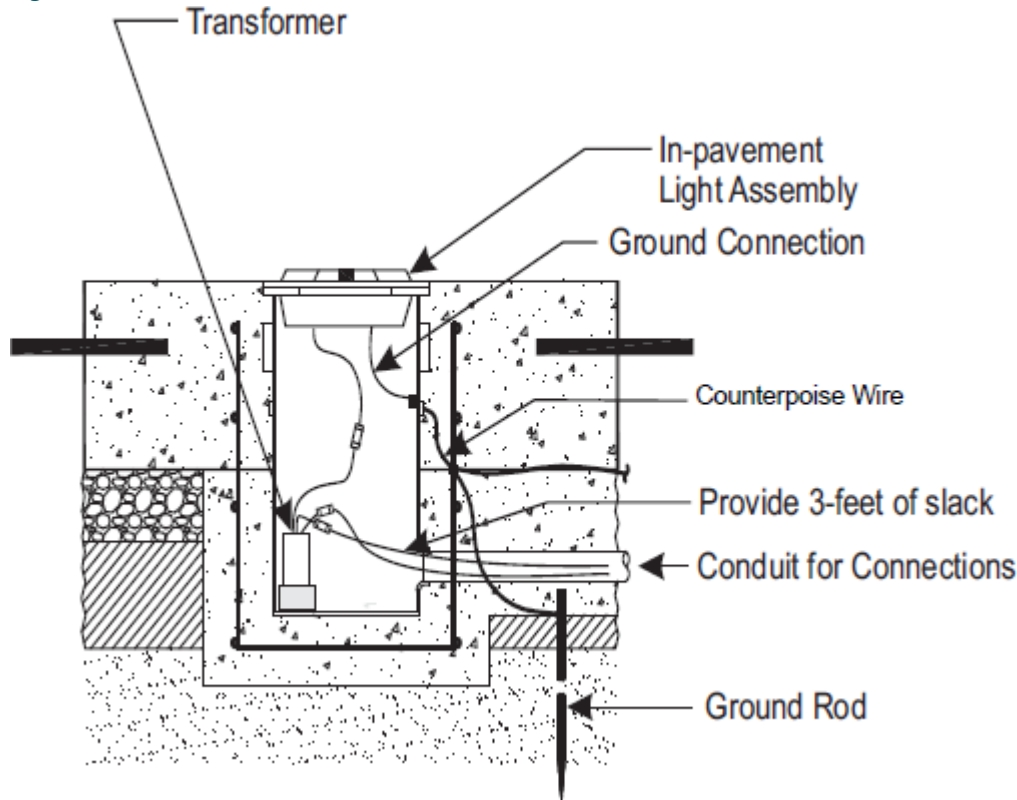
Note
All connections should be sealed with self-bonding insulation tape and then covered with electrical tape in accordance with local airport practices. If your airport does not require this, it is highly recommend that you at least wrap the connection with electrical tape.

4.10 Earth Ground Connection

Earth ground should be connected to the UL 467 Rated Earth ground screw. The cross-sectional area of the cable should be at least 6 AWG (13.29 mm²) with a minimum wire length of 48-inches. Some installations will require a 72-inch wire.

i Note
A braided ground strap may also be used instead of a ground wire.

Figure 4: Base Can Cross-section



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.

i 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 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.

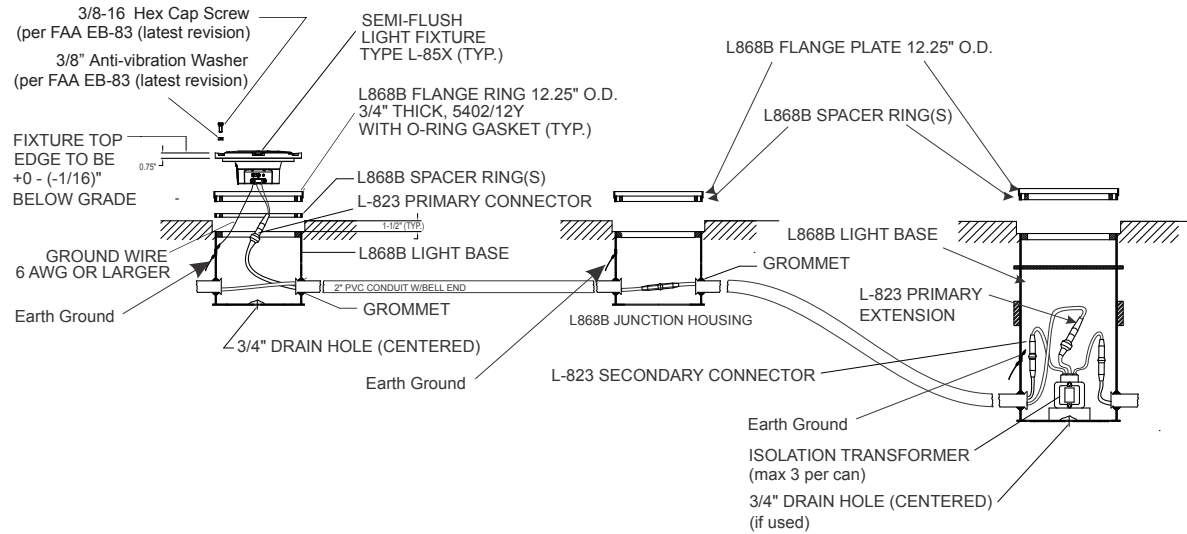
4.13.1 Installation on a Shallow Base

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.

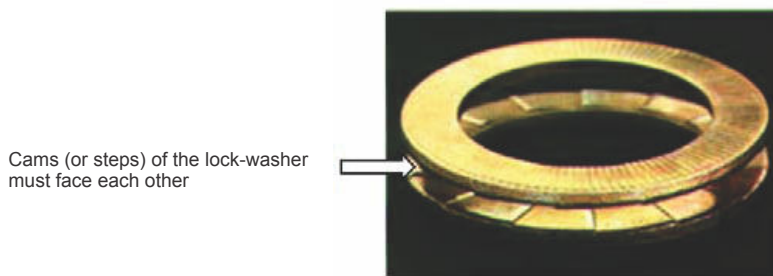
Also follow the applicable instructions in the previous section, when connecting, installing and powering the fixture.

Figure 5: Example of a Shallow Base Installation



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

Figure 6: 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 Troubleshooting



Warning

Read the instructions in their entirety before starting troubleshooting.

5.1 Troubleshooting

Problem	Possible Cause	Corrective Action
Failed LED or internal PCB (short life span)	Input current too high	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 fixture component life.
	Water in assembly	Inspect the prism. Open light assembly. Clean, dry and inspect light assembly. Replace O-ring. Verify fixture is sealed. See " Cleaning the Light Channel and Prism ".
Distorted light beam output	Broken, damaged or wrong prism installed. Improper toe on the LED assembly.	Check parts list and install correct prism. Check the toe of the LED assembly. Adjust if necessary.
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.

6.0 Maintenance

6.1 IREL Maintenance Schedule

Interval	Maintenance Task	Action	Refer to:
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 by looking through the lens.	Open up the light fixture if moisture is present. Clean, dry, and inspect the light assembly. Replace the O-ring.	"Opening Optical Unit".
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.	"Bolt Torque Preventive Maintenance Schedule".
After snow removal	Check for damaged light fixtures.	Replace damaged fixtures. Use a power broom for snow removal, if practical.	

6.2 Fixture Component Maintenance



Warning

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

The preferred method of maintaining the IREL in-pavement high-intensity runway edge light is to periodically and systematically replace the light assembly and return the replaced assembly to the maintenance shop for renovation. As an alternative, you can service the light assembly in the field. It is recommended, however, that field servicing be limited to cleaning lenses and removing moisture.

6.2.1 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.
2. Clean the outer surface of the prism using liquid glass cleaner. If the prism is coated with a substance impervious to the cleaner, apply a suitable solvent sparingly with a wad of cotton or a patch of cloth. After the solvent has acted, remove the softened coating with a clean piece of cotton or cloth. Dry the prism with gently, dry, oil-free compressed air at a pressure no greater than 10 psi (69 KN/m²) to evaporate or remove all remaining cleaner.

6.2.2 Lifting Optical Unit Out of Base

There are two methods that can be used to lift the fixture:

Method 1: Use eyebolts to lift the fixture



1. Remove the six mounting bolts and washers.
2. Fit the eyebolts 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.



Note

Lifting Tool is two 1/2-inch x 13 Eyebolts (1 in. ID) and a 1/2 in. dia. rod/pipe x 16 in. long (placed between the eyebolts).

3. Disconnect the light fixture wires from the power wires coming from the transformer(s).
4. Mount a serviced or new light fixture as described in Installation on L-868 Base in the Installation section.



Note

Torque the six screws to 185 ± 5 in-lb (20.902 ± 0.565 N•m). If lubricant is used on the bolts, contact the base can manufacturer for recommended torque values.

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



Note

Never hold the light fixture by the wires. This may damage the insulation.

Method 2: Use a lifting tool

To lift the optical unit out of the base receptacle or adapter ring, proceed as follows:

6. Remove the mounting bolts and washers.



Note

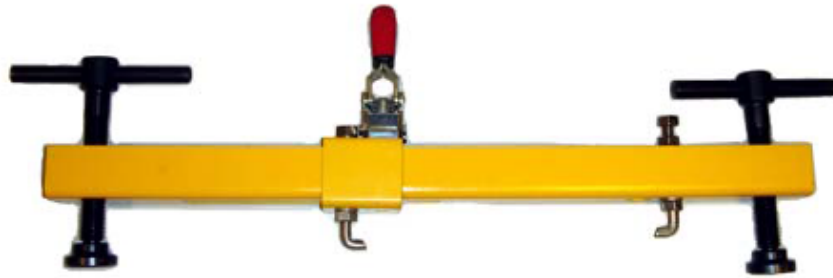
Never hold the light fixture by the wires. This may damage the insulation.

7. Fit the appropriate lifting tool into lifting holes (A) located (180° apart) in the cover. Screw the T-handles down to separate the fixture from the mounting base. Lift the optical unit out of the base or adapter ring and place it next to it.

Lifting Tool

1411.19.550

Ordered separately



8. Disconnect the light fixture wires from the power wires coming from the transformer(s).
9. Mount a serviced or new fitting. See "[Installation on L-868 Base](#)".
10. Take the optical unit back to the maintenance shop where it can be serviced entirely.

6.3 Repair Procedures

6.3.1 Opening Optical Unit

To open the optical unit, perform the following procedure:

1. Turn the light unit upside-down.
2. See [Figure 7](#). Remove the pressure release screw.

i Note

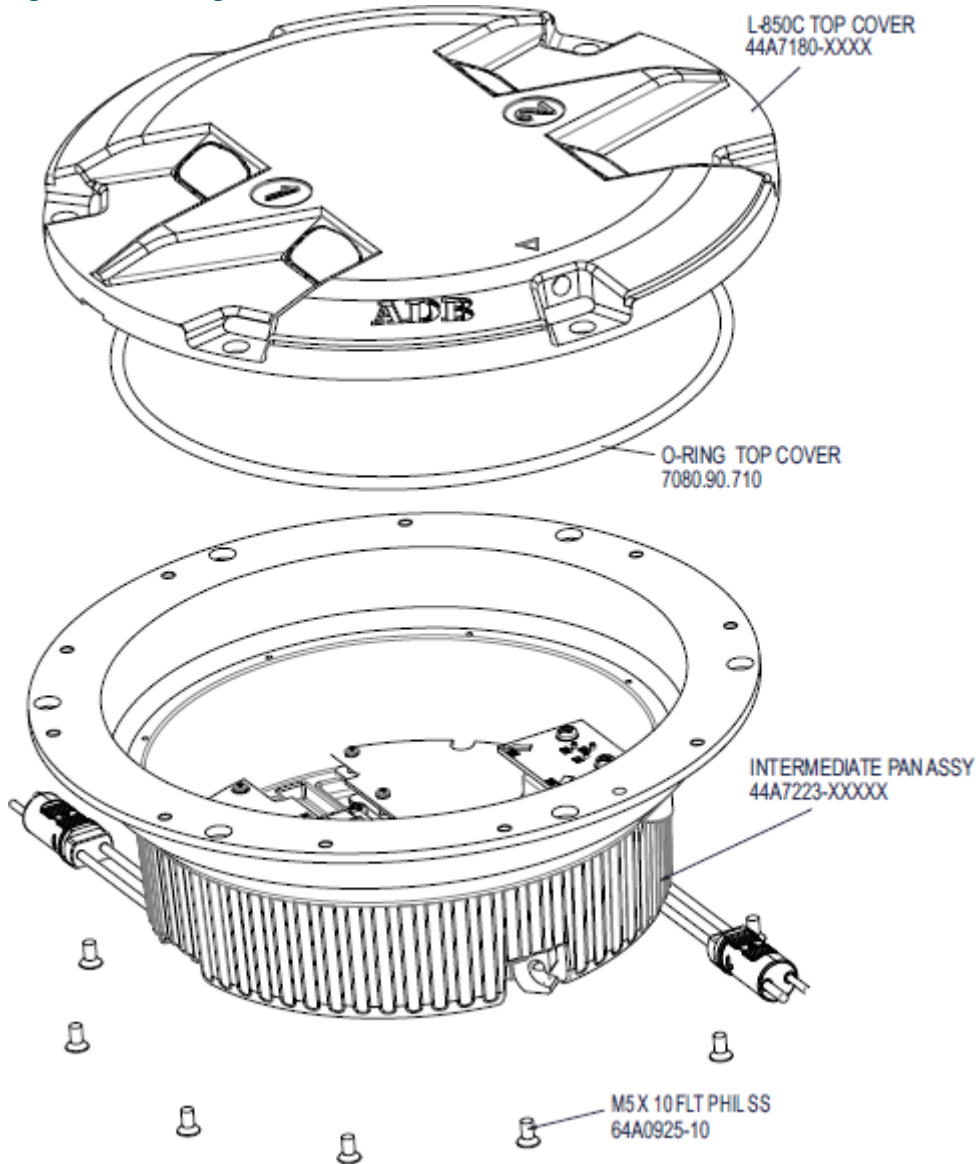
Removing the pressure release screw equalizes the pressure inside and outside the fixture, making it easier to break the seal and remove the inner cover.

Figure 7: Pressure Release Screw



- See [Figure 8](#). Remove the (10) screws. The use of an impact driver may be required to unlock the screws.

Figure 8: Removing Screws



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

6.3.2 Replacing Prism

Table 2: Parts List for Replacing Prism

Part Number	Description	Quantity	Note
4072.18.336	Lens, optical glass	2 or 4	
4072.18.380	Lens Retainer Seal	2 or 4	
4072.18.362	Lens Seal	2 or 4	

To replace the prism, perform the following procedure:

- See [Figure 9](#). Remove the LED Assembly by removing the four Phillips Head screws.
- Remove the lens retainer plate and Lens Retainer Seal secured in the inner pan assembly. Also see [Figure 20](#).

Figure 9: Lens Retainer Seal and Lens

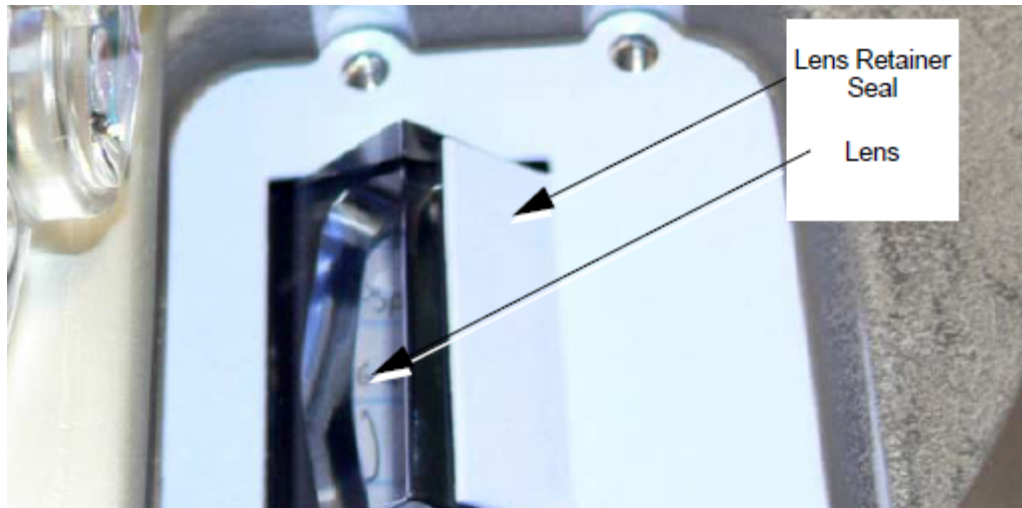
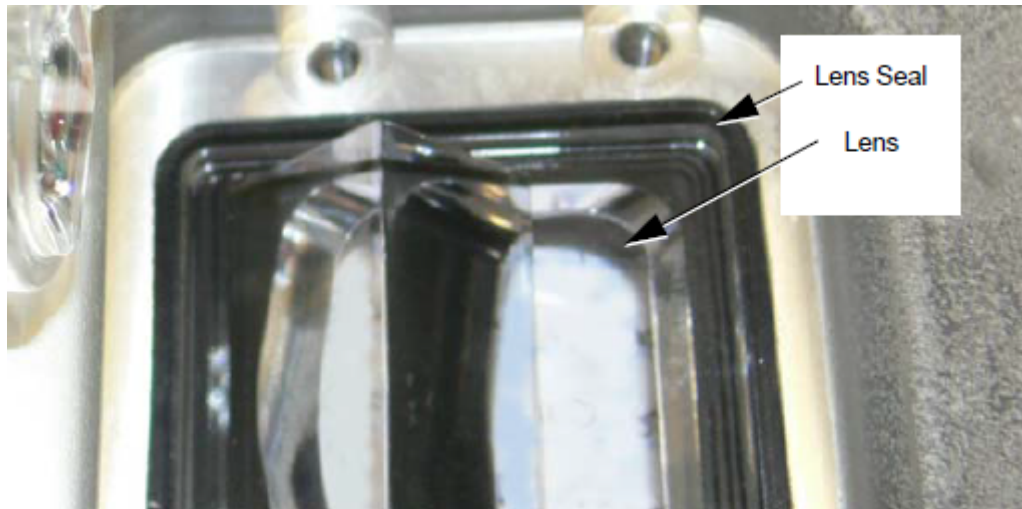


Figure 10: Lens Seal for Lens



3. See [Figure 10](#). Push the Lens with the Lens Seal towards the inside of the cover.
4. Clean and remove grease from the prism chamber with any effective solvent.



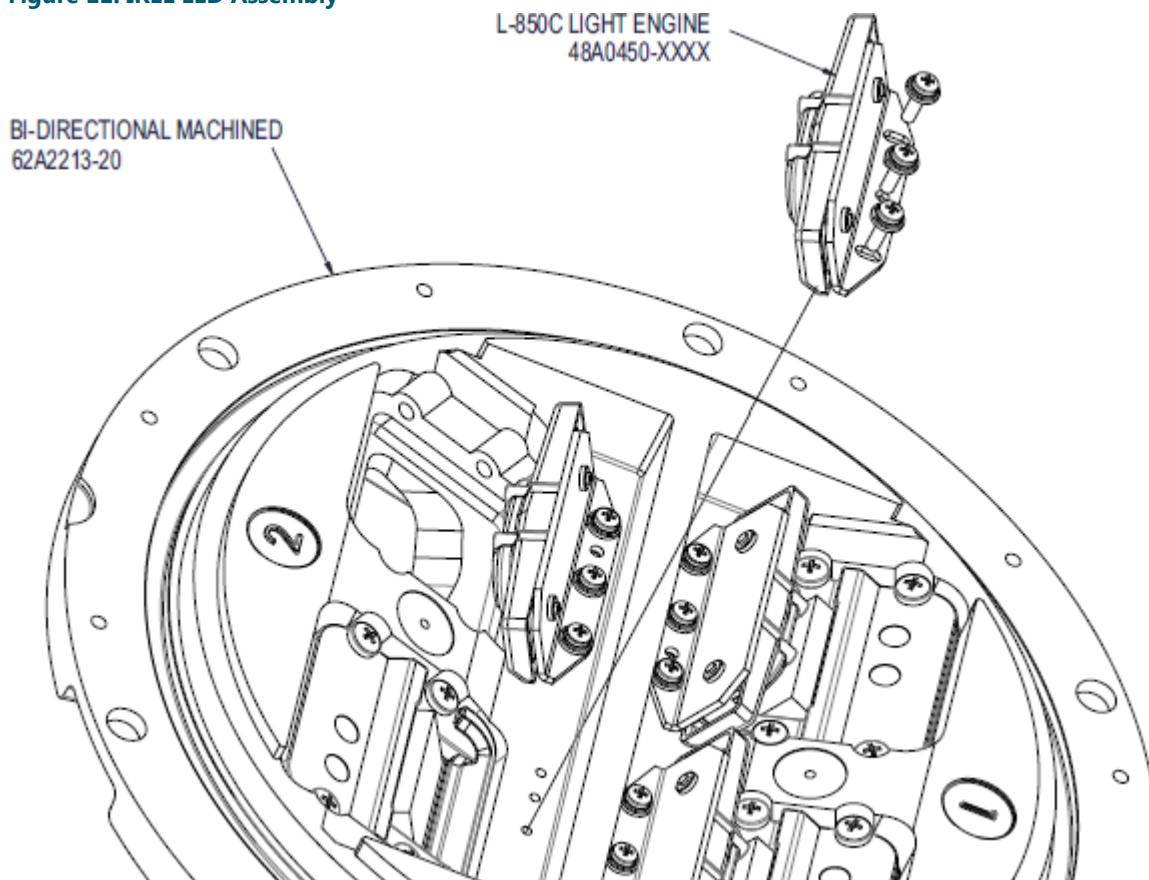
Note

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

5. Apply a thin layer of Dow Corning Molykote 3452 or equivalent in the prism chamber using a small brush.
6. Install a Lens Seal over the Lens
7. Push the Lens and Seal assembly in the lens pocket from the inside and clean the inner surface of the lens.
8. Install a Lens Retainer Seal over the Lens.
9. Reinstall the Lens Retainer Plate hardware with the Phillips pan head screws. Apply a droplet of sealant Loctite 270 to the last threads. Torque to 31.4 inch-pounds (3.5 0.5 N•m).
10. Close the Optical Unit.
11. Test for leaks, see "[Testing for Leaks](#)".

6.4 Replacing LED Assembly

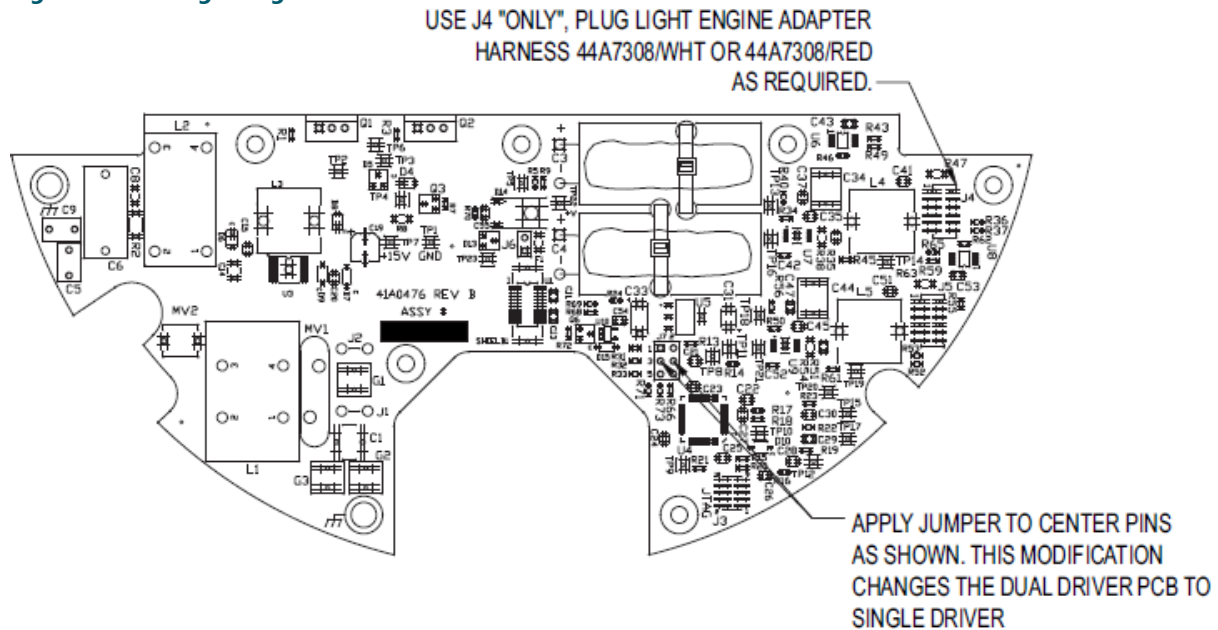
Figure 11: IREL LED Assembly



1. Open the Optical Unit, see “ [Opening Optical Unit](#)”.
2. Disconnect the LED Assembly wires at the PCB by pulling gently upward.
3. Remove the three Phillips Head screws, clean the mounting surface of the top cover.
4. Replace the LED Assembly, attach with three Phillips Head screws, apply a drop of Loctite 242 and torque to $2.5 \pm 0.5\text{N}\cdot\text{m}$ ($22 \pm 4\text{ IN}\cdot\text{LBS}$).
5. Connect the LED Assembly to the PCB.

6. Close the Optical Unit.
7. Test for leaks, see " [Testing for Leaks](#)".

Figure 12: LED Light Engine Connections

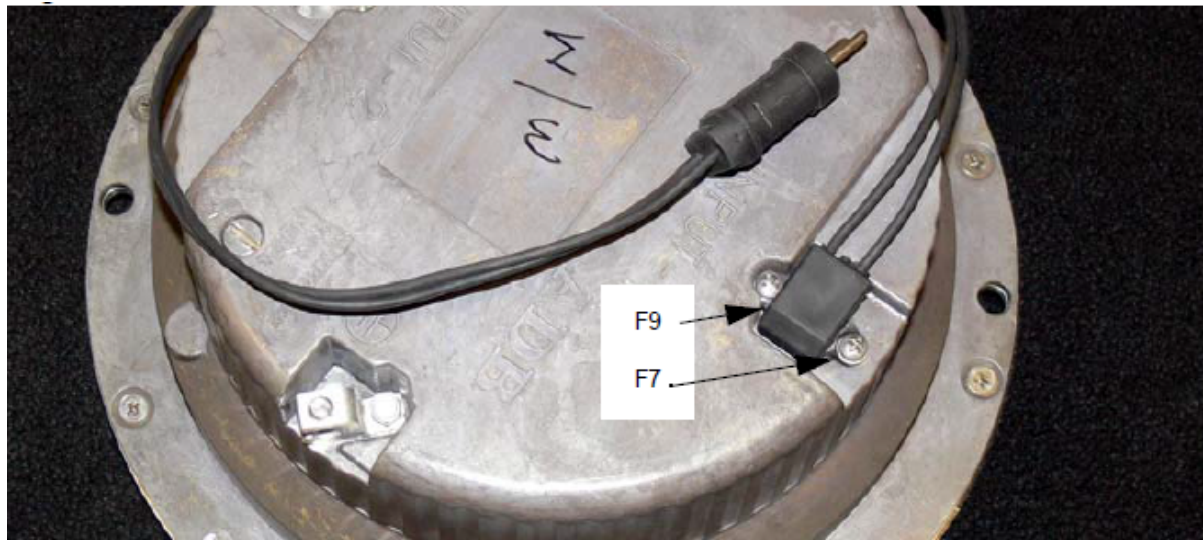


6.5 Replacing L-823 Cordset

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

1. See [Figure 13](#). Remove both screws (F7) from the cordset connector (F9).
2. Unplug the cordset assembly.

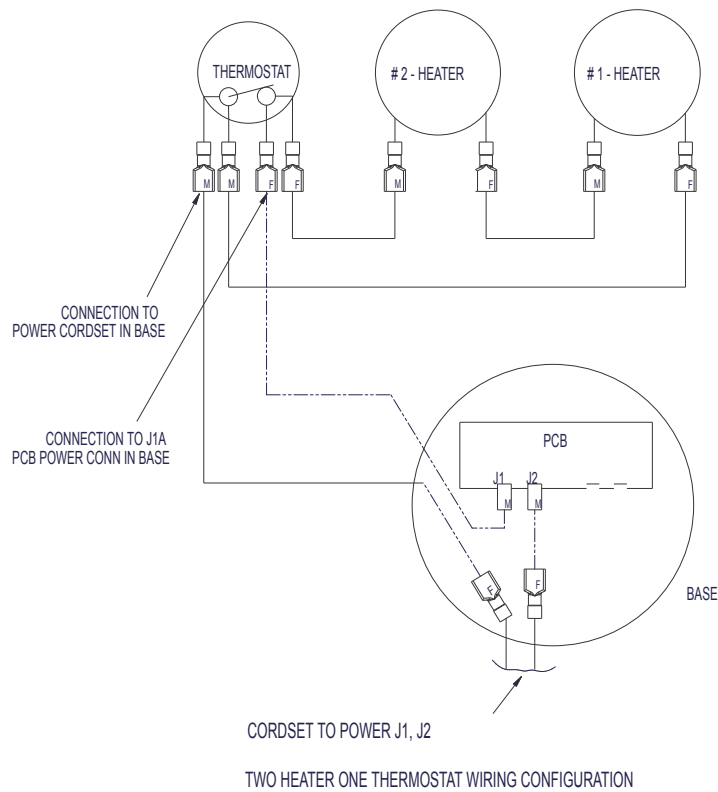
Figure 13: L-823 Cordset



3. Replace the cordset by plugging in the new cordset.

4. Attach the two screws. Do not use a power screw driver. Compress the cord rubber by no more than 1/32" (0.79 mm).
5. Return the light to service.

Figure 14: IREL(L), Cordset and Heater Wiring Diagram-



6.6 Replacing the PCB

Figure 15: IREL PCB



1. Open the optical unit. Refer to " [Opening Optical Unit](#)".
2. Disconnect the LED Assemblies from the PCB and disconnect the fast-on connectors J4 and J5.
3. Disconnect the power from J1 and J2.
4. Remove the PCB.
5. Replace the PCB and reconnect all wires.



Note

PCB Is "2-chan" by default; add shunt to J7 pins 3 & 4 to change it to "1-chan". Apply jumper to center pins 3 & 4. This modification changes the dual driver PCB to single driver.

6. Close the unit and, test for leaks, see " [Testing for Leaks](#)".

6.7 Testing for Leaks

To test for leaks, perform the following procedure:

1. See [Figure 16](#).

Remove pressure relief screw.

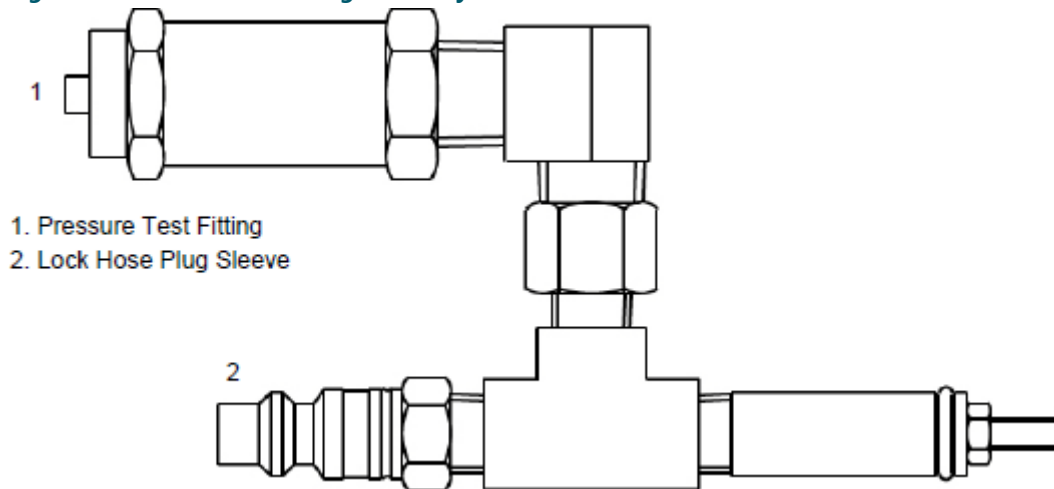
2. See [Figure 17](#).

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

Figure 16: Pressure Relief Screw



Figure 17: 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.

6.8 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.

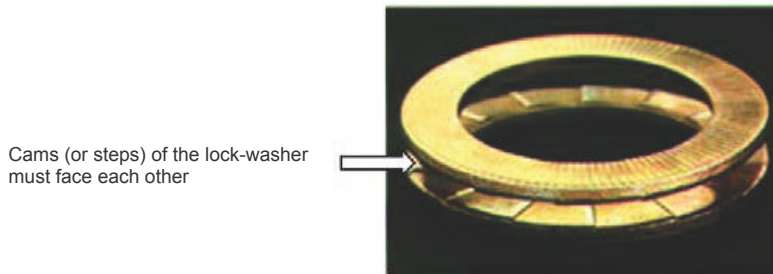
Failure to follow these cautions can result in equipment damage or aircraft FOD.

6.9 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 18: 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.

7.0 Parts

Ordering Code

LED Colors - Side 1

- 0 = Obscured
- 3 = White Left Toed
- 6 = Red Left Toed
- 9 = Yellow Left Toed

LED Colors - Side 2

- 0 = Obscured
- 2 = White Right Toed
- 5 = Red Right Toed
- 8 = Yellow Right Toed

Power

- 1 = 50 Hz
- 2 = 60 Hz

0

Number of Cord Sets

- 1 = One
- 2 = Two

Arctic Kit

- 1 = No
- 2 = Yes

Cord Set Style and Length

- 0 = Style 6 (2-pin), 18" long (FAA standard)¹
- 1 = Style 1 SO Jacketed cable, 2 -pin, 18" long (FAA standard)¹
- 2 = Style 6 (2-pin), 10" long²
- 3 = Style 6 (3-pin), 10" long²
- 4 = German Style 1 (2-pin), 10" long²
- 5 = German Style 1 (3-pin) 10" long²
- 6 = French Style (3-pin), 10" long²

Type

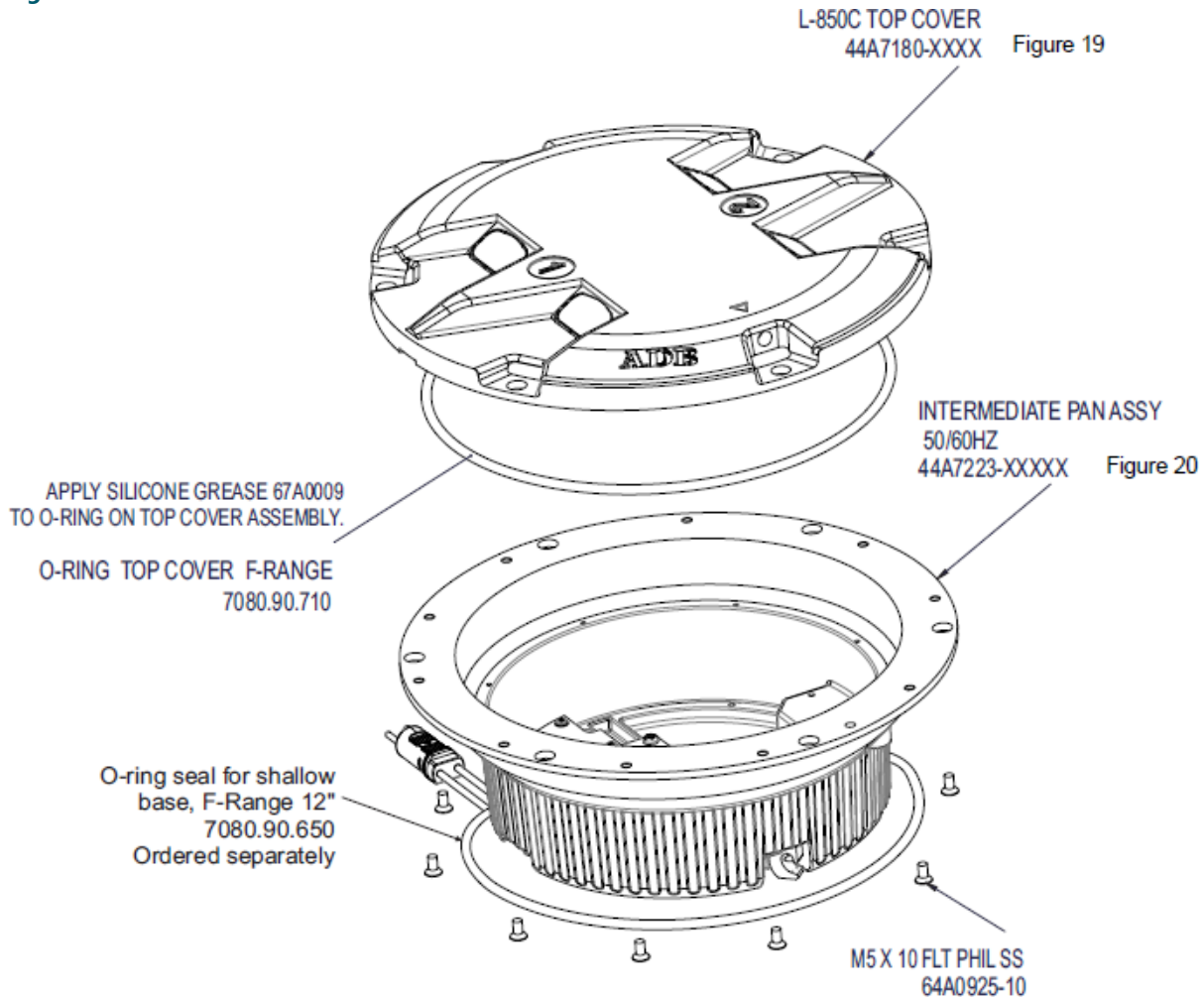
- 1 = ICAO 60 m
- 4 = ICAO 60 m with heavy-duty abrasion-resistant lens coating^{3,4}

IREL - X X X 0 X X X 1

Notes

- ¹ Fixtures with 18" cord sets are for installation on deep base cans and therefore are not supplied with an external O-ring gasket.
- ² Fixtures with 10" cord sets are for installation on shallow bases and are supplied with an external O-ring gasket.
- ³ Typically used for intensive winter service where sand is applied to runways and rotating brushes are used.
- ⁴ Not ETL Certified.

Figure 19: IREL Parts



7.1 IREL Parts

Description	Part No.
Cord set, L-823, Style 6, 2-pin, 18" (FAA)	4072.42.351
Cord set, L-823, Style 6, 2-pin, 10" (ICAO)	4072.24.950
LED light engine, L-850C(L), white	48A0450-WHT2
LED light engine, L-850C(L), red	48A0450-RED ¹
LED light engine, L-850C(L), yellow	48A0450-YEL ¹
LED PCB Assembly	44A7228-00201
Lens	4072.18.336
Lens retainer plate	4072.18.350
Lens seal	4072.18.362
Lens retainer seal	4072.18.380
O-Ring, pressure release screw	63B0267-011
O-Ring, top cover	MS00001-376-01
Pressure release screw	60A2602

Description	Part No.
Bar Lifting Tool	1411.19.550
Set of spare anchor hooks for lifting tool 1411.19.550	1411.19.560
O-ring seal between top cover and shallow base, for F-Range 12"	7080.90.650

Notes

- ¹ Must replace both light engines on the same side at the same time. (Quantity. 2 needed)

7.2 Optional Snow Plow Ring

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

Figure 20: Top Cover Assembly

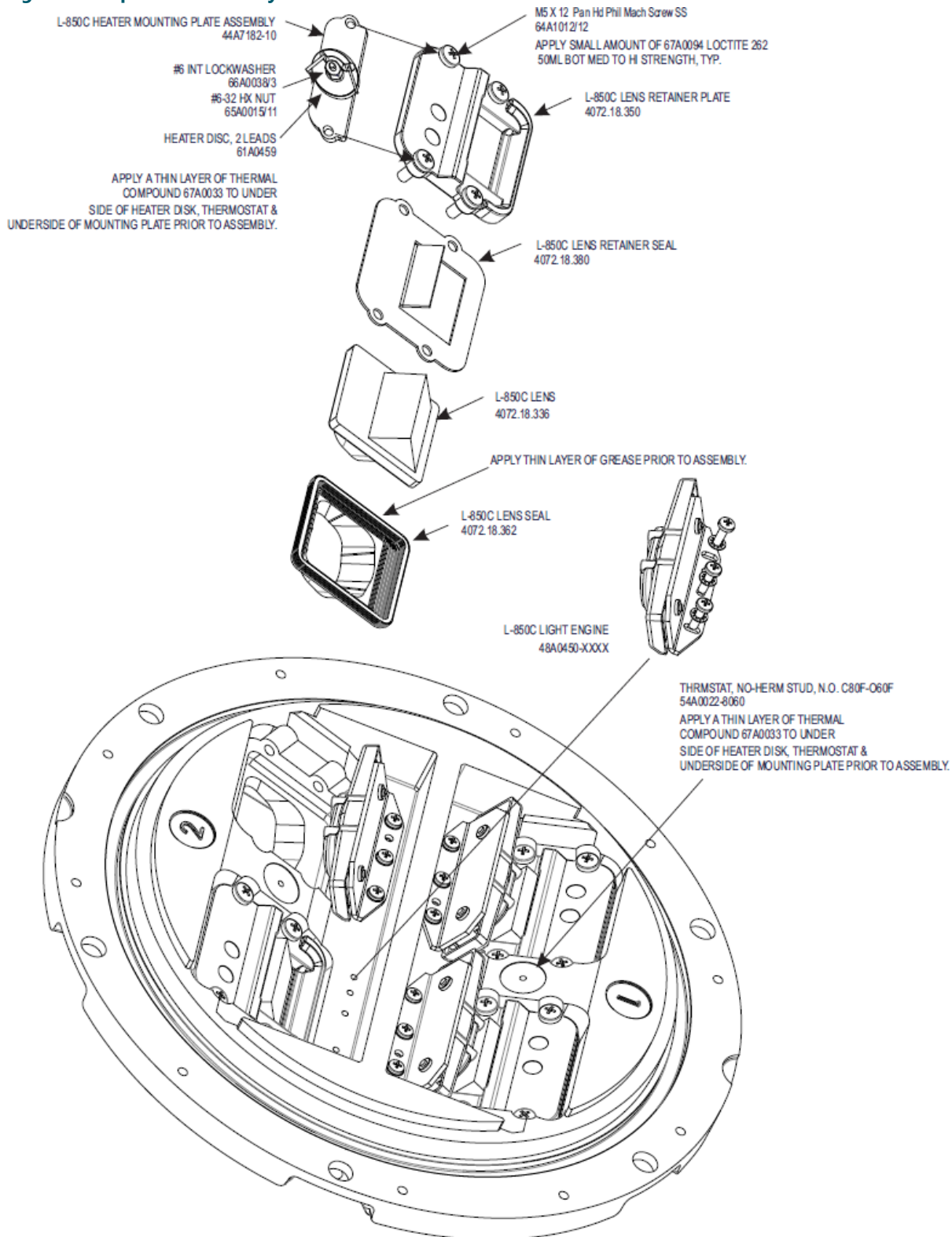
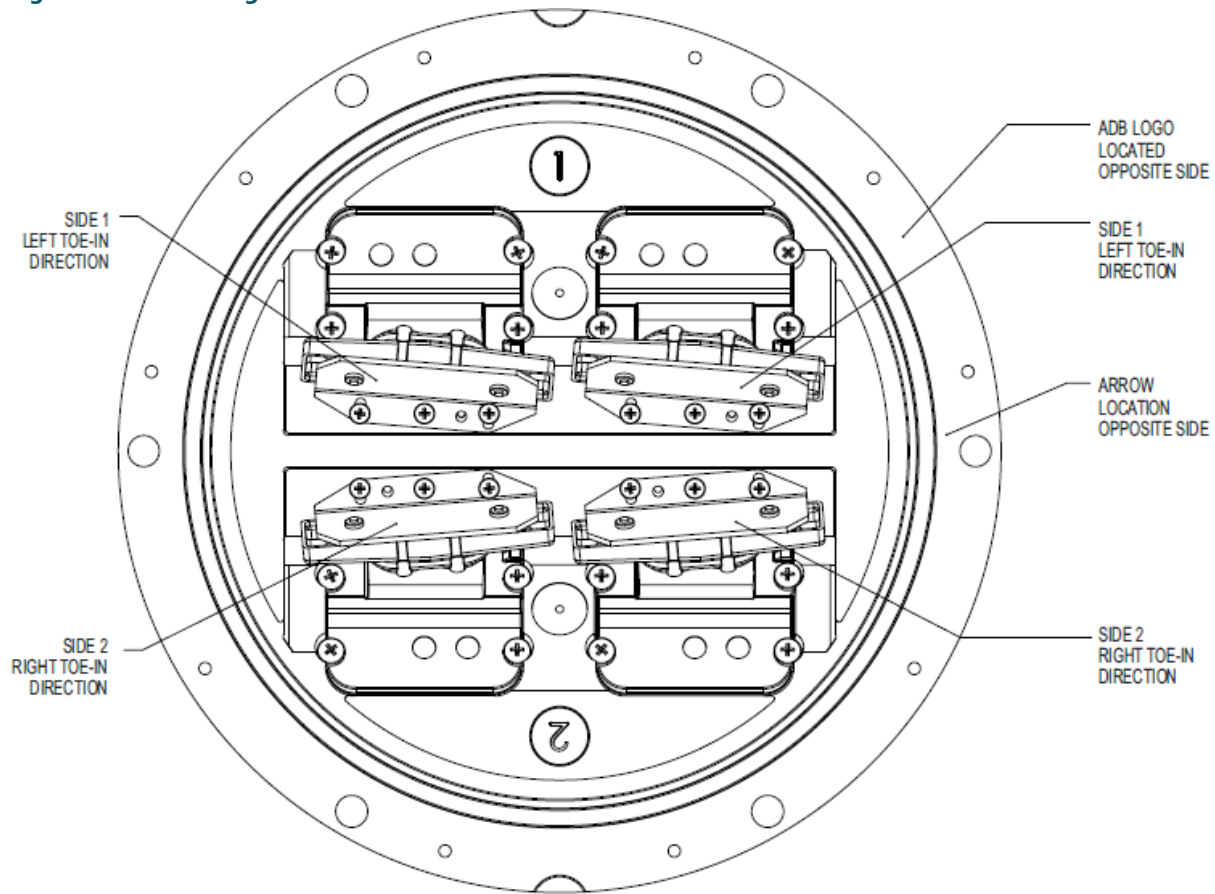


Figure 21: IREL Toeing



- 44A7180/ X X X X
- 0 = FAA
 - 1 = FAA & ICAO (SEE SHEET 4)
 - ARCTIC KIT:
 - 1 = NO
 - 2 = YES
 - SIDE - 2 COLOR & TOE-IN:
 - 0 = OBS.
 - 1 = WHT / STRAIGHT
 - 2 = WHT / RIGHT
 - 3 = N/A
 - 4 = RED / STRAIGHT
 - 5 = RED / RIGHT
 - 6 = N/A
 - 7 = YEL / STRAIGHT
 - 8 = YEL / RIGHT
 - 9 = N/A
 - A = GRN / STRAIGHT
 - B = GRN / RIGHT
 - C = N/A
 - SIDE - 1 COLOR & TOE-IN:
 - 0 = OBS.
 - 1 = WHT / STRAIGHT
 - 2 = N/A
 - 3 = WHT / LEFT
 - 4 = RED / STRAIGHT
 - 5 = N/A
 - 6 = RED / LEFT
 - 7 = YEL / STRAIGHT
 - 8 = N/A
 - 9 = YEL / LEFT
 - A = GRN / STRAIGHT
 - B = N/A
 - C = GRN / LEFT

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

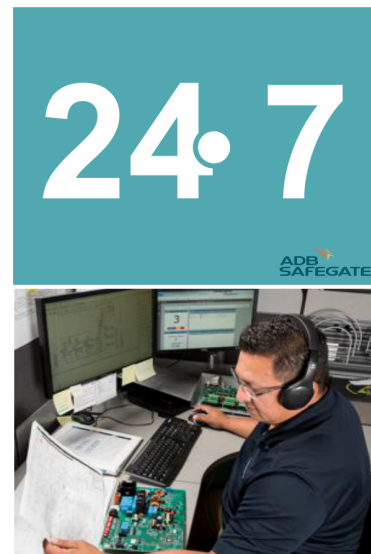
ADB SAFEGATE Americas Technical Service & Support (International): +1-614-861-1304

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



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 labelled as follows:

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

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

Company Addresses

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