ITIL In-pavement Taxiway Intersection Light
L-852E/F, Style 1

User Manual

96A0088, Rev. T, 2021/08/03

ADB SAFEGATE

A.0 Disclaimer / Standard Warranty

CE certification

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

ETL certification

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

All Products Guarantee

ADB SAFEGATE will correct by repair or replacement per the applicable guarantee above, at its option, equipment or parts which fail because of mechanical, electrical or physical defects, provided that the goods have been properly handled and stored prior to installation, properly installed and properly operated after installation, and provided further that Buyer gives ADB SAFEGATE written notice of such defects after delivery of the goods to Buyer. Refer to the Safety section for more information on Material Handling Precautions and Storage precautions that must be followed.

ADB SAFEGATE reserves the right to examine goods upon which a claim is made. Said goods must be presented in the same condition as when the defect therein was discovered. ADB SAFEGATE furthers reserves the right to require the return of such goods to establish any claim.

ADB SAFEGATE's obligation under this guarantee is limited to making repair or replacement within a reasonable time after receipt of such written notice and does not include any other costs such as the cost of removal of defective part, installation of repaired product, labor or consequential damages of any kind, the exclusive remedy being to require such new parts to be furnished.

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Standard Products Guarantee

Products manufactured by ADB SAFEGATE 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.

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.

FAA Certified products manufactured by ADB SAFEGATE

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 LED products (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). These FAA certified constant current (series) powered LED products must be installed, interfaced and powered with and through products certified under the FAA Airfield Lighting Equipment Program (ALECP) to be included in this 4 (four) year warranty. This includes, but is not limited to, interface with products such as Base Cans, Isolation Transformers, Connectors, Wiring, and Constant Current Regulators.

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.

Liability

WARNING

Use of the equipment in ways other than described in the catalog leaflet and the manual may result in personal injury, death, or property and equipment damage. Use this equipment only as described in the manual.

ADB SAFEGATE cannot be held responsible for injuries or damages resulting from non-standard, unintended uses of its equipment. The equipment is designed and intended only for the purpose described in the manual. Uses not described in the manual are considered unintended uses and may result in serious personal injury, death or property damage.

Unintended uses, includes the following actions:

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

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1.0 Safety

Introduction to Safety

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

1.1 Safety Messages

HAZARD Icons used in the manual

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

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

	WARNING Failure to observe a warning may result in personal injury, death or equipment damage.
	DANGER - Risk of electrical shock or ARC FLASH Disconnect equipment from line voltage. Failure to observe this warning may result in personal injury, death, or equipment damage. ARC Flash may cause blindness, severe burns or death.
	WARNING - Wear personal protective equipment Failure to observe may result in serious injury.
	WARNING - Do not touch Failure to observe this warning may result in personal injury, death, or equipment damage.
	CAUTION Failure to observe a caution may result in equipment damage.

Qualified Personnel

	Important Information The term **qualified personnel** is defined here as individuals who thoroughly understand the equipment and its safe operation, maintenance and repair. Qualified personnel are physically capable of performing the required tasks, familiar with all relevant safety rules and regulations and have been trained to safely install, operate, maintain and repair the equipment. It is the responsibility of the company operating this equipment to ensure that its personnel meet these requirements. Always use required personal protective equipment (PPE) and follow safe electrical work practice.

1.1.1 Introduction to Safety

CAUTION

Unsafe Equipment Use
This equipment may contain electrostatic devices, hazardous voltages and sharp edges on components

- Read installation instructions in their entirety before starting installation.
- Become familiar with the general safety instructions in this section of the manual before installing, operating, maintaining or repairing this equipment.
- Read and carefully follow the instructions throughout this manual for performing specific tasks and working with specific equipment.
- Make this manual available to personnel installing, operating, maintaining or repairing this equipment.
- Follow all applicable safety procedures required by your company, industry standards and government or other regulatory agencies.
- Install all electrical connections to local code.
- Use only electrical wire of sufficient gauge and insulation to handle the rated current demand. All wiring must meet local codes.
- Route electrical wiring along a protected path. Make sure they will not be damaged by moving equipment.
- Protect components from damage, wear, and harsh environment conditions.
- Allow ample room for maintenance, panel accessibility, and cover removal.
- Protect equipment with safety devices as specified by applicable safety regulations
- If safety devices must be removed for installation, install them immediately after the work is completed and check them for proper functioning prior to returning power to the circuit.

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

Additional Reference Materials

Important Information

- IEC - International Standards and Conformity Assessment for all electrical, electronic and related technologies.
- IEC 60364 - Electrical Installations in Buildings.
- FAA Advisory: AC 150/5340-26 (current edition), Maintenance of Airport Visual Aid Facilities.
- Maintenance personnel must refer to the maintenance procedure described in the ICAO Airport Services Manual, Part 9.
- ANSI/NFPA 79, Electrical Standards for Metalworking Machine Tools.
- National and local electrical codes and standards.

1.1.2 Intended Use

CAUTION

Use this equipment as intended by the manufacturer
This equipment is designed to perform a specific function, do not use this equipment for other purposes

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

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

1.1.3 Material Handling Precautions: Storage

CAUTION

Improper Storage
Store this equipment properly

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

Failure to follow this instruction can result in equipment damage

1.1.4 Material Handling Precautions: Fasteners

DANGER

Foreign Object Damage - FOD
This equipment may contain fasteners that may come loose - torque properly.

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

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

Note

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

CAUTION

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

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

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

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

1.1.5 Operation Safety

CAUTION

Improper Operation
Do Not Operate this equipment other than as specified by the manufacturer

- Only qualified personnel, physically capable of operating the equipment and with no impairments in their judgment or reaction times, should operate this equipment.
- Read all system component manuals before operating this equipment. A thorough understanding of system components and their operation will help you operate the system safely and efficiently.
- Before starting this equipment, check all safety interlocks, fire-detection systems, and protective devices such as panels and covers. Make sure all devices are fully functional. Do not operate the system if these devices are not working properly. Do not deactivate or bypass automatic safety interlocks or locked-out electrical disconnects or pneumatic valves.
- Protect equipment with safety devices as specified by applicable safety regulations.
- If safety devices must be removed for installation, install them immediately after the work is completed and check them for proper functioning.
- Route electrical wiring along a protected path. Make sure they will not be damaged by moving equipment.
- Never operate equipment with a known malfunction.
- Do not attempt to operate or service electrical equipment if standing water is present.
- Use this equipment only in the environments for which it is rated. Do not operate this equipment in humid, flammable, or explosive environments unless it has been rated for safe operation in these environments.
- Never touch exposed electrical connections on equipment while the power is ON.

Failure to follow these instructions can result in equipment damage

1.1.6 Maintenance Safety

DANGER

Electric Shock Hazard
This equipment may contain electrostatic devices

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

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

1.1.7 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

1.1.8 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.

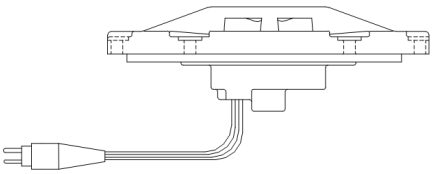
- Allow only qualified personnel to perform maintenance, troubleshooting, and repair tasks.
- Only persons who are properly trained and familiar with ADB SAFEGATE equipment are permitted to service this equipment.
- An open airfield current circuit is capable of generating >5000 Vac and may appear OFF 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 Description

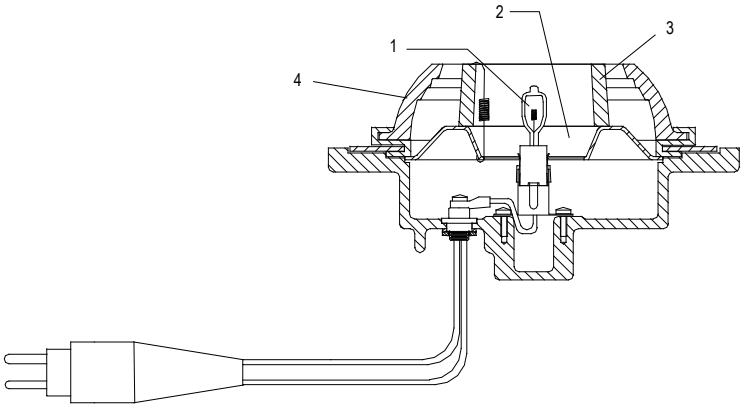
See Figure 1. The L-852E/F light fixtures are switchable lights designed to provide control of traffic on taxiway intersections. The L-852E/F light fixtures are manufactured in accordance with FAA specification AC 150/5345-46B.

Figure 1: L-852E/F Light Fixtures



Optical Assembly, See Figure 2. The L-852E/F light fixture optical assembly includes a quartz 6.6 A or 40 W/120 Vac lamp (1), reflector (2), ring-shaped filters (3), and lens (4). Refer to the specifications section for information on the optical assembly options.

Figure 2: Optical Assembly



1. Lamp
2. Reflector
3. Filter
4. Lens

2.1 Incandescent In-pavement Taxiway Intersection Light

Compliance with Standards

FAA:	L-852E AC 150/5345-46 (Current Edition).

Uses

FAA L-852E	(≥1200 RVR); Category I and II taxiway intersections
FAA L-852F	(<1200 RVR); Category III taxiway intersections
Heliport	Heliport perimeter light

Features

- Durable high tensile strength ductile iron fixture resists corrosion without the use of environmentally damaging coatings
- Designed to withstand the high-impact and rollover loads imposed by present-day aircraft
- L-852E lamps are 45 W/6.6 A quartz rated for 1,000 hours
- L-852F lamps are 120 W/6.6 A or 150 W/6.6 A quartz rated for 500 hours
- Maximum protection against water invasion
- The film disc cutout option provides an electrical bypass in case of lamp failure on series circuit applications.
- Optical assembly is housed inside aluminum inner cover and ductile-iron top cover casting with an o-ring seal
- Adapts to various new and existing installation styles:
  - Mounts on shallow base, 12-inch diameter L-868B base, or optional 12-inch diameter L-867
  - Bolt circle diameter of fixture is 11.25 inch (28.6 cm) standard with an optional 10.25 inch (26 cm) for L-867 bases
- Includes a UL 467 rated ground lug, which accepts an AWG 6 earth ground wire

Operating Conditions

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

2.2 Optional Film Disc Cutout

In case of lamp failure, an optional film disc cutout is available as an electrical bypass device. The film disc cutout closes an auxiliary circuit around the lamp within 15 seconds after lamp failure. This prevents an overload from occurring on the constant current regulator when a lamp failure opens the secondary of the isolation transformer. The film disc cutout must be replaced when the lamp is replaced. Do not use the film disc cutout with a 40 W/120 Vac lamp.

2.2.1 L-852E/F Light Fixture: Required Equipment

Refer to Table 2 for required equipment that is supplied. Refer to Table 3 for required equipment that is not supplied. Refer to the *Parts* section for part numbers.

Table 1: Required Equipment Supplied

Description	Quantity
L-852E/F taxiway inset light	1
Instruction manual	1 per order

Table 2: Required Equipment Not Supplied

Description	Quantity
Torque wrench (0 to 200 in-lb) (0-22.6 Nt-M) with sockets and hex bit sockets	1
Alignment jig	1
Diamond-faced core drill, 13 in. (330 mm diameter)	1
Diamond-faced saw, 3/8 in. (9.525 mm) thick	1
Crimping tool	1
L-830 isolation transformer (not required for 120 Vac)	1
Bolts and lockwashers, 3/8-16 x 1.25-in.	6
Set of screwdrivers, one with 3/8 in. (9.525 mm) minimum blade	1
Putty knife	1
Solderless squeeze connectors	2
L-868 base, 12-inch- (304.8-mm-) diameter	1
ADB Safegate shallow base for 30 W and 45 W L-852E fixture only. 30 W L-852F fixture is not FAA approved.	1
ADB Safegate shallow base for 40 W and 120 W L-852F fixture or for the 120 W L-852F fixture only. 40 W and 120 W L-852F fixture is not FAA approved.	1
Duct seal	As required
Heat shrinkable insulating tubing	As required
Loctite Grade AV or equivalent	As required
Paste-type adhesive – P605 or P606	As required
Electricians tape	As required
Solvent (acetone)	As required
Silicone grease	As required
Silicone release compound	As required

2.2.2 L-852E/F Specifications

This subsection provides specifications for the L-852E/F light fixtures. Refer to the *Parts* section for ordering information.

Refer to Table 4 for the L-852E/F lamp current.

Table 3: Lamp Current

L-852 Fixture	Lamp	Lamp Current	Note
L-852E	30 W, 45 W, 120 W	6.6 A	A
L-852E	40 W	120 Vac (special order)	A
L-852F	120 W	6.6 A	
NOTE A: 30 W and 40 W are not ETL certified.			

Rated Lamp Life

Refer to Table 5 for the L-852E/F rated lamp life.

Table 4: Rated Lamp Life

L-852 Fixture	Lamp	Manufacturer	Rated Lamp Life (Hours)
L-852E	45 W/6.6 A (ETL certified)	GE EXM	1000
L-852E	30 W/6.6 A	GE EXL	1000
L-852E	120 W/6.6 A	GE EVV	500
L-852E	40 W/120 Vac	Sylvania 40S11N	500
L-852F	120 W/6.6 A (ETL certified)	GE EVV	500

Table 6 describes the required isolation transformers for the L-852E/F light fixture.

NOTE: The 40 W/120 Vac lamp is used on parallel-powered circuits and does not require any isolation transformer.

Table 5: L-852E/F Required Isolation Transformers

L-852 Fixtures	Lamp (Watts)	Series Circui (Amperes)	Isolation Transformer	Transformer (Watts)	Transformer (Amperes)
L-852E	30/45	6.6	L-830-1	30/45	6.6/6.6
L-852E	30/45	20	L-830-2	30/45	20/6.6
L-852E	120	6.6	L-830-4	100	6.6/6.6
L-852E	120	20	L-830-5	100	20/6.6
L-852F	150	6.6	L-830-6	200	6.6/6.6
L-852F	150	20	L-830-7	200	20/6.6

Optional Color Filters

Refer to Table 7 for L-852E/F optional color filters.

Table 6: Optional Color Filters

Filter Color	Ordering Status
Yellow (ETL certified)	Standard equipment
Blue (Not recognized by FAA)	Special order
Green (Not recognized by FAA)	Special order
Red (Not recognized by FAA)	Special order

Refer to Table 8 for the L-852E/F minimum beam coverage.

Table 7: Minimum Beam Coverage

L-852 Fixture	Main Beam Coverage	Minimum Intensity in Yellow (Quartz Lamps)	Minimum Intensity at Structural Ribs
L-852E	360 degrees horizontal 1 to 8 degrees vertical	50 candelas	37.5 candelas
L-852F	360 degrees horizontal 1 to 8 degrees vertical	200 candelas	150 candelas

Mounting

Refer to Table 9 for the L-852E/F mounting requirements.

Table 8: Mounting Requirements

This light fixture...	Mounts on this base...
30 W or 45 W quartz lamps	ADB Safegate shallow base (standard) P/N 62D0335 or L-868B
40 W or 120 W quartz lamps	ADB Safegate deep shallow base P/N 62D0335-1 or L-868B (12-inch)

The L-852E/F light fixture is designed to operate under the conditions presented below for temperature, altitude, and relative humidity.

Dimensions

Refer below for the L-852E/F dimensions.

Outer Diameter:	11.937 in. (303 mm)
Bolt-circle diameter:	11.25 in. (285.75 mm)

Weight

L-852E/F weight is 19 lb (8.6 kg) (approximate)

3.0 Installation

CAUTION

Allow only qualified personnel to perform the following tasks. Observe and follow the safety instructions in this document and all other related documentation.

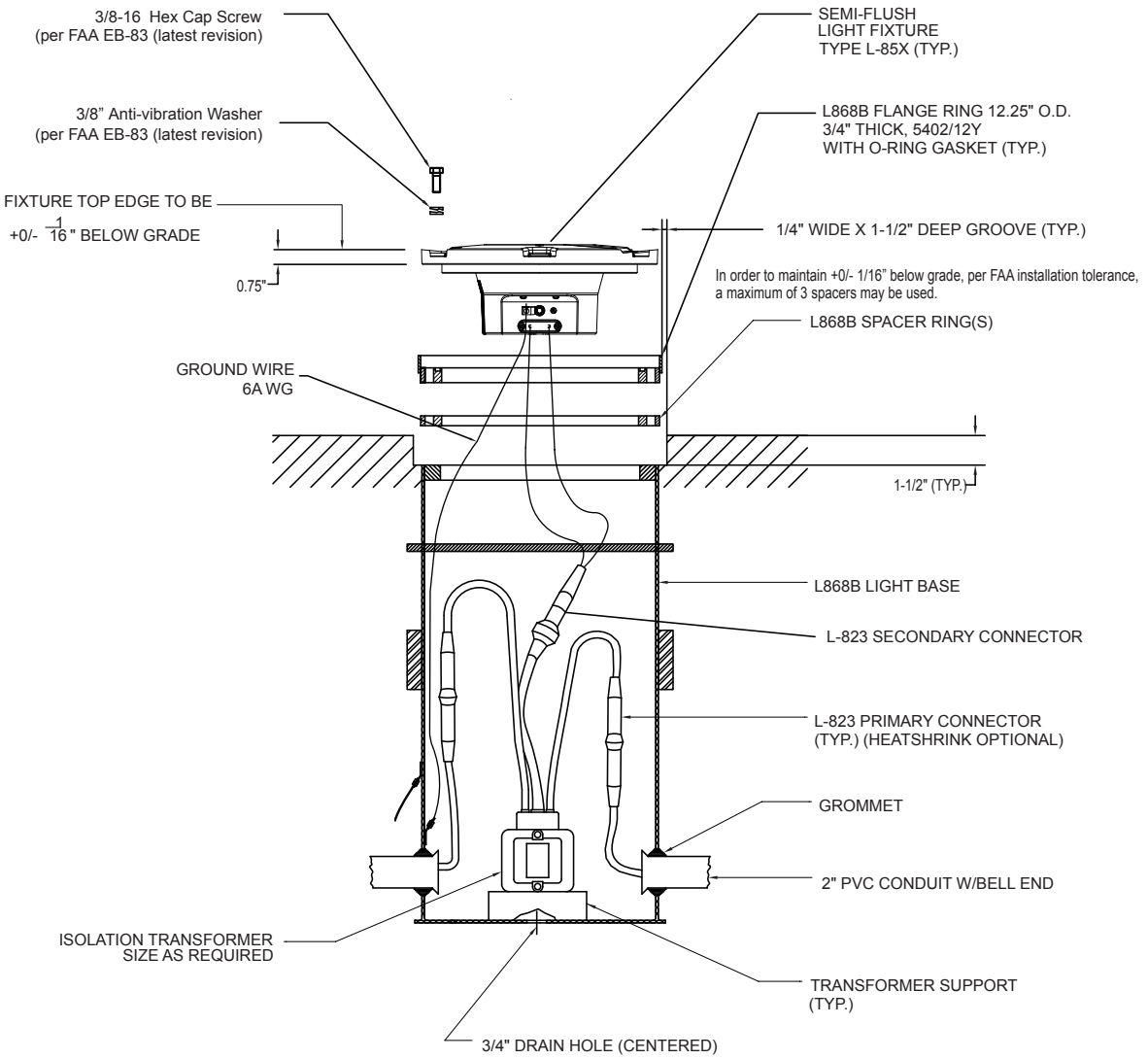
This section provides instructions for installing the L-852E/F taxiway inpavement lights.

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).

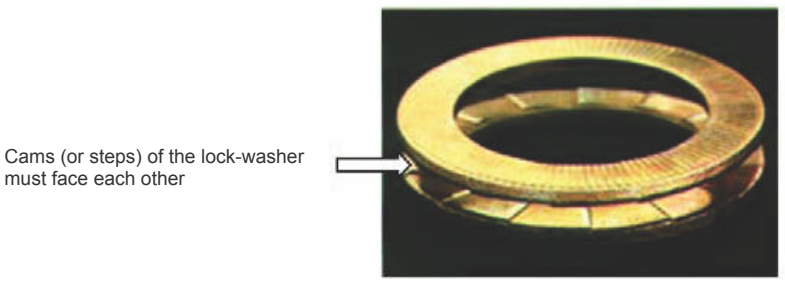
3.2 Typical L-868 Assembly

Figure 3: Diagram of the Fixture Installed in a 1-Piece Base Can



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

Figure 4: 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 9: 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 RELIANCE light fixtures at the installation site. If damage to any equipment is noted, file a claim form with the carrier immediately.

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

3.7 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 silcon or any other type of grease. Avoid the use of soap that contains silicon or glycerin.

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

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

9. Turn on the power to determine whether the 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.

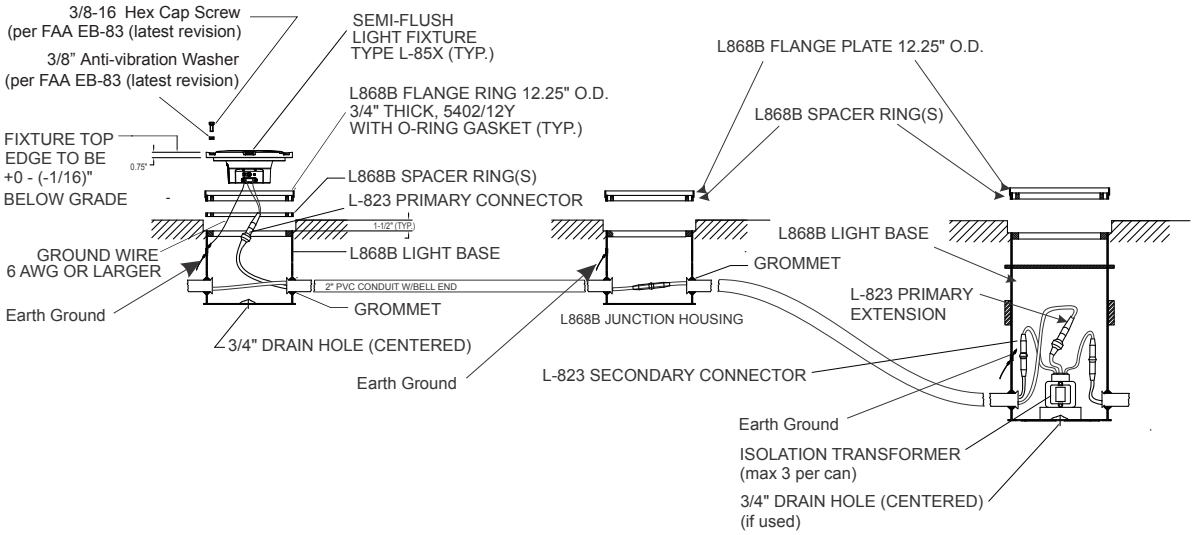
3.11.1 Installation on a Shallow Base

Installing the F-Range light fixture on a shallow base involves preparing the pavement recess and wire ways, then installing the light fixture on a shallow base. See " F-range Base Assembly" for additional details on the optional shallow base supplied with F-Range fixtures.

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, "Installation on L-868 Base", when connecting, installing and powering the fixture.

Figure 5: Example of a Shallow Base Installation



4.0 Maintenance

L-852E/F light fixtures.

4.1 Safety Considerations

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

DANGER

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

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

4.2 Maintenance

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

Preventive Maintenance - Inset Lights

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

DANGER

Electric Shock Hazard
This equipment may contain electrostatic devices

- Do not carry out any action on the fixture unless you have read and understood all the information in the Safety Section.
- Do not operate a system that contains malfunctioning components.
- If a component malfunctions, turn the system OFF immediately.
- Disconnect and lock out electrical power.
- Allow only qualified personnel to make repairs. Repair or replace the malfunctioning component according to instructions provided in its manual.
- Make sure that the power to the series circuit is OFF when you carry out maintenance.

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

CAUTION

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

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

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

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

4.3 Maintenance Schedule

Service life depends upon the entire assembly being waterproof. All surfaces must be clean, dry and free of all foreign matter and all bolts must be properly tightened if the light fixture is to operate for extended periods without requiring maintenance.

To keep the L-852E/F light fixtures operating efficiently, follow a preventive maintenance schedule. Refer to Table 12. Refer to FAA AC 150/5340-26 for more detailed information.

Table 12. L-852E/F Light Fixture Maintenance

Interval	Maintenance Task	Action
Daily	Check for burned-out lamp.	Replace lamp, gasket, and film disc cutout, if used. Refer to Replacing Lamp in this section.
	Check for dim lamp.	Clean optical surface if dirty. Check for misalignment or presence of moisture in fixture.
Weekly	Check for dirty channel and lens.	Clean channel and lens. Refer to Cleaning Light Channel and Lens in this section.
Monthly (or more frequently during rainy seasons)	Check for moisture in the optical assembly.	Inspect lens. Open optical assembly. Replace gaskets. Clean, dry, and inspect the optical assembly. Replace O-ring, if necessary.
Every 60 days, or whenever the light assembly is serviced (See Note 1 below.)	Check for improper torque on hold down bolts.	Refer to Bolt Torque Preventive Maintenance Schedule in this manual..

Semi-annually	Check for six inches (152 mm) of water in L-868 base.	Pump water from base. Remove and inspect light for water damage. Refer to Removing L-868 Base Water in this section.
After 400 hours operation	Not applicable	Replace lamp. Refer to Replacing Lamp in this section.
After snow removal	Check for damaged light fixtures.	Replace damaged fixtures. Use a power broom for snow removal, if practical. Follow recommended snow removal techniques described in AC 150/5200-23.

NOTE 1: In areas subject to high vibration, bolt torque may need to be checked more often. If bolt(s) are continually loose, check for damaged threads in the L-868B light base and ensure that new bolts and locking washers are used. Contact ADB Safegate for repair recommendations.

4.4 Maintenance Procedures

1. replacing lamp
2. replacing film disc cutout
3. cleaning light channel and lens
4. retorquing mounting bolts
5. removing L-868 base water

- replacing lens

4.4.1 Replacing Lamp

CAUTION

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

CAUTION

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

Note

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

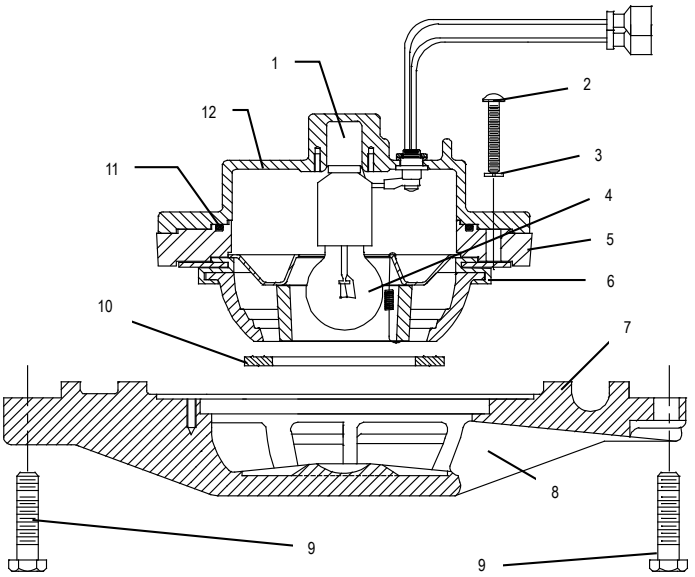
Note

It is recommended that the lamp be replaced when 80% of the useful life has been utilized. Refer to Table 5 for the lamp life of lamps.

To replace the lamp, perform the following procedure:

See Figure 6. Remove the six 3/8-inch (9.525mm) diameter bolts (9) that hold the light fixture on the base receptacle.

Figure 6: Figure 6. Upside-Down View of L-852E/F Light Fixture (40 W/120 Vac Lamp Shown)



1. Lamp Socket	4. Lamp	7. Upper Cover Assembly	10. Inner Cover Assembly Gasket
2. Allen Socket Head Screw	5. Ring Spacer	8. Light Channel	11. O-Ring
3. Lockwasher	6. Lens Gasket	9. Three Eighths-Inch Diameter Bolt	12. Lower Cover Assembly

Note
Figure 6 shows the 40 W/120 Vac lamp.

1. Remove the light assembly from the base receptacle and turn the fixture upside down so that the inner cover assembly (7) is facing up.
2. Remove the three noncounterbore pan head screws (2) and lockwashers (3) from the base.
3. Lift the inner cover assembly from the top cover assembly to expose the lamp (4). Pull or unscrew the lamp from the socket (1).
4. Insert a new lamp into the lamp socket, and remove the protective sleeving from the lamp.

CAUTION
Wear clean, lint-free gloves when touching the lamp. Touching the lamp with bare fingers may seriously shorten lamp life. If the lamp has been touched, wipe it carefully with a piece of lens cleaning tissue or similar material moistened with isopropyl alcohol.

5. Replace the film disc cutout (if used), lens gasket (6), and inner cover gasket (10) from the inner cover assembly. Refer to *Replacing Film Disc Cutout* in this section. Always replace gaskets after opening the inner cover assembly.
6. Examine the O-ring (11) carefully. If the O-ring is stretched or torn, has a permanent set or other defect that would prevent it from forming a watertight seal, replace the seal. Coat the O-ring with silicone grease before installing. Carefully position the O-ring in the groove on the outer cover assembly and gently press into place.

Note
ADB Safegate recommends that the O-ring be replaced every time the fixture is opened.

Note

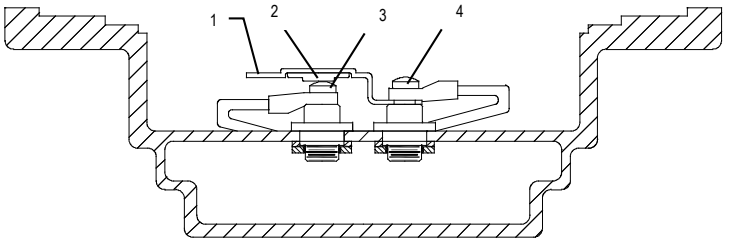
The groove is made wider than the O-ring to provide room for displacement of the O-ring when compressed between the housing when the screws on the inner cover assembly are properly torqued to 20-30 in.-lbs (2.7-3.4 Nt-m).

7. Reassemble the fixture by reversing the procedure. Reinstall the 6 screws removed from the base of the fixture and torque the screws to 20-30 in.-lbs (2.7-3.4 Nt-m). Torque across corners. Refer *to Retorquing Mounting Bolts* in this section.

4.4.2 Replacing Film Disc Cutout

See Figure 7. Loosen the terminal screw (4) that secures the wire lead to the feed-thru, and rotate the cutout clip (1) free from the top of the cutout.

Figure 7: Figure 7. Replacing Film Disc Cutout Assembly



1. Cutout Clip
2. Film Disc Cutout
3. Terminal Screw #1
4. Terminal Screw #2

1. Position the new disc cutout (small button side down) on the head of the other screw in the terminal post.
2. Rotate the cutout clip on top of the disc, and hold in place while tightening the screw.

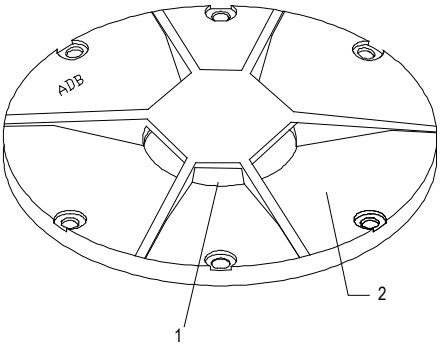
Note

Make sure the cutout clip has sufficient tension to hold the cutout disc tightly against the screw head. If the cutout is loose, remove the clip and bend slightly to increase tension. Reinstall the clip as outlined above.

4.4.3 Cleaning Light Channel and Lens

See Figure 8. Use a suitable fiber brush to remove all accumulated debris from the light channel (2).

Figure 8: Figure 8. Light Fixture Lens



1. Lens
2. Channel

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

1. Clean the outer surface of the lens (1) using liquid glass cleaner. If the lens surface is coated with a substance impervious to the cleaner, apply a suitable solvent sparingly with a wad of cotton or a patch of cloth.
2. After the solvent has acted, remove the softened coating with a clean piece of cotton or cloth.
3. Dry the lens with dry, oil-free compressed air at a pressure no greater than 10 psi (69 KNt/m^2) to evaporate or remove all remaining cleaner.

4.4.4 Removing L-868 Base Water

CAUTION

Disconnect power when checking water level.

Check the water level in the L-868 base on a regular schedule. If more than six inches (152 mm) of water in the deep light base or one inch in a shallow 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.

CAUTION

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

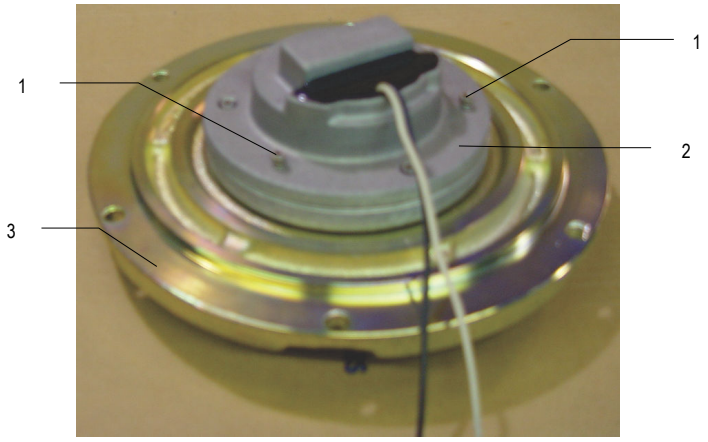
4.4.5 Replacing Lens

To replace the lens, perform the following procedure:

1. Turn the inset light upside down.

See Figure 9. Remove the three exposed inner cover screws (1) from the bottom cover (2).

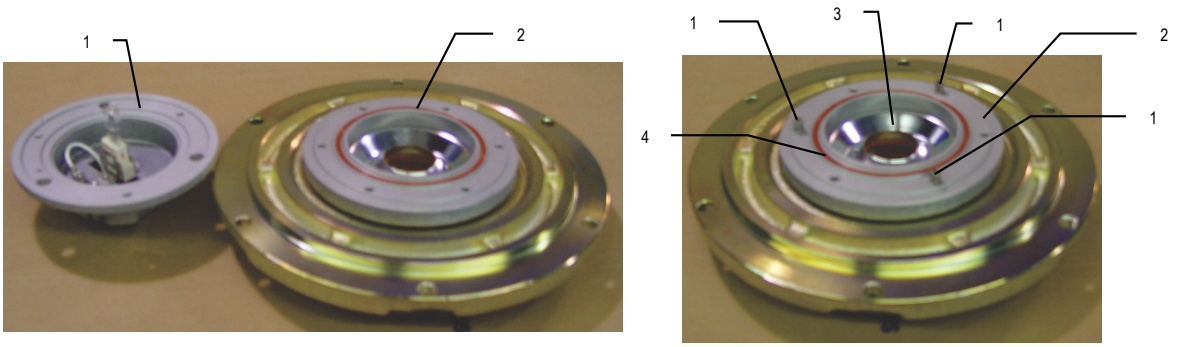
Figure 9: Removing Screws from Bottom Cover



1. Inner Cover Screws	2. Top Cover (Upside Down)
3. Bottom Cover	

2. See Figure 10. Remove the bottom cover (1).

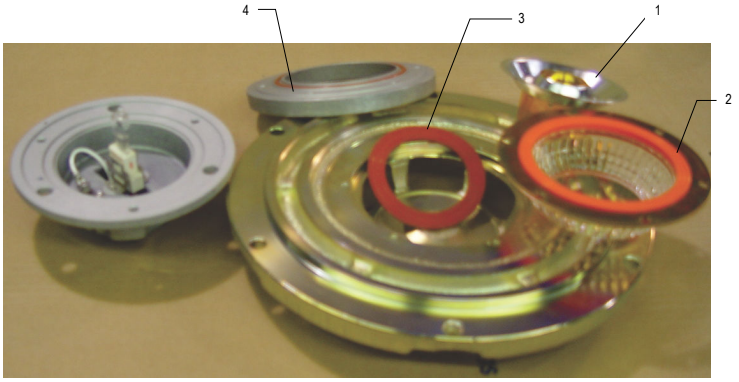
Figure 10: Removing Bottom Cover.



a. Bottom Cover	a. Spacer Ring Screws
b. Spacer Ring	b. Spacer Ring
c. See Figure 11. Remove the three screws (1) from the spacer ring (2).	c. Reflector Assembly
	d. Spacer Ring O-Ring

3. See Figure 11. Remove the spacer ring (4) and reflector filter assembly (1). Check the condition of the springs, the reflector, the filter in the reflector assembly, and the two lens gaskets. Replace any items, if necessary.

Figure 11: Removing Spacer Ring, Lens Top Gasket, Reflector Assembly, and Lens Assembly.



a. Reflector Filter Assembly

b. Lens Assembly with Gasket

c. Lens Top Gasket

d. Spacer Ring

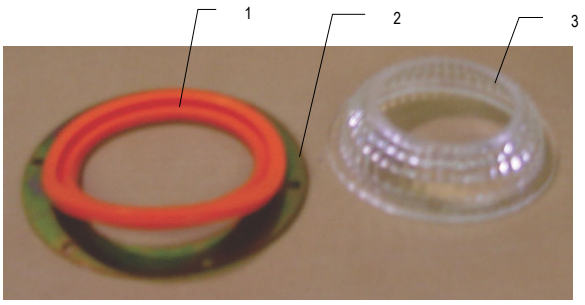
4. Remove the spacer ring lens gasket (3) and lens assembly (2). Make sure that the gasket is in good condition. Replace gasket, if necessary.

Note
If the lens top gasket is replaced, the gasket must be installed so that the rib side of the gasket (2) is installed against the machined surface of the top cover. The single rib side goes against the lens.

5. See Figure 12. Remove the gasket (3) from the lens (3) by lifting the lip of the gasket with your finger. Lift the lens out as you slide your finger down the gasket in a counterclockwise motion. Lens should lift out.

Note
Lens glass has sharp edges.

Figure 12: Removing Gasket from Lens



a. Lower Lens Gasket

b. Lens Bracket

c. Lens

6. Put the gasket on the new lens by lifting the lip of the gasket and working the lens in a clockwise/counterclockwise motion.

Note

The rubber gasket fits on the lens much like a bicycle tire fits on a bicycle rim.

7. Install the three screws in the spacer ring. For torquing requirements, refer to *Retorquing Mounting Bolts* in this section.
8. Install the three screws in the bottom cover. For torquing requirements, refer to *Retorquing Mounting Bolts* in this section.

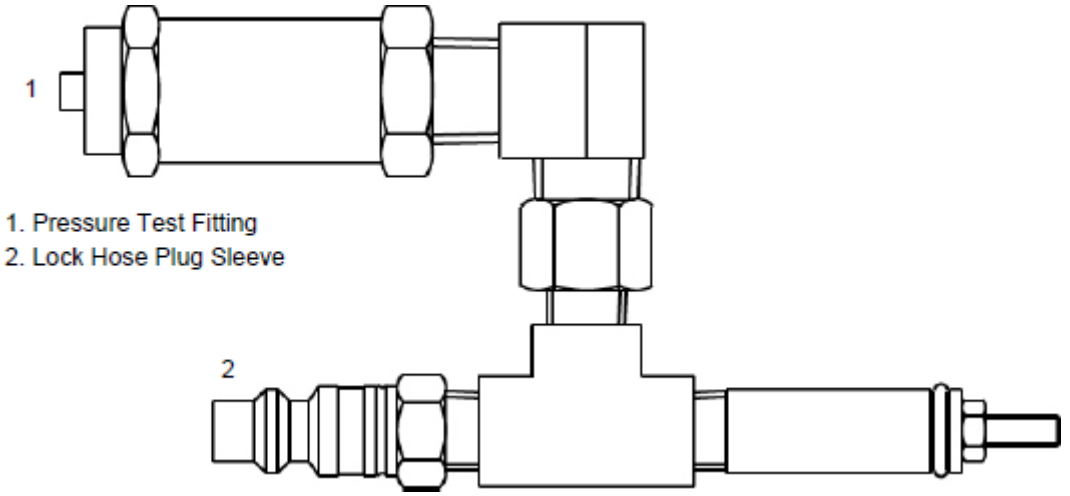
4.4.6 Testing for Leaks

To test for leaks, perform the following procedure:

1. See Figure 13.
   Remove pressure relief screw.
2. See Figure 14.
   Screw pressure test fitting into the pressure relief port (the opening created when the pressure relief screw is removed). Screw fitting hand-tight.

Figure 13: Pressure Relief Screw

Figure 14: 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.

4.5 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.

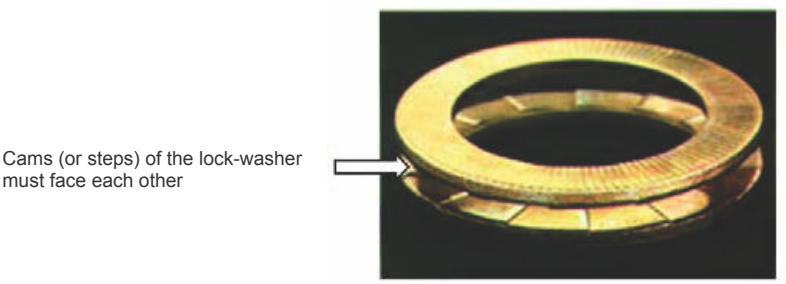
Failure to follow these cautions can result in equipment damage or aircraft FOD.

4.6 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 15: 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 Troubleshooting

CAUTION

Allow only qualified personnel to perform the following tasks. Observe and follow the safety instructions in this document and all other related documentation.

WARNING

De-energize the circuit and lock out the circuit or regulator so that the circuit cannot be energized by remote means before attempting to service the fixture.

This section contains troubleshooting information. This information covers only the most common problems that you may encounter. If you cannot solve the problem with the information given here, contact your local ADB Safegate representative for help.

Problem	Possible Cause	Corrective Action
1. Lamp will not energize	Defective lamp	Replace lamp, film disc cutout (if used), and gaskets. Refer to *Replacing Lamp* and *Replacing Film Disc Cutout* in the *Maintenance* section.
	Loose or broken contacts	Tighten or replace.
	Moisture inside optical assembly causing current leakage	Open up optical assembly. Clean, dry, and inspect optical assembly. Replace gaskets. Replace O-ring, if damaged.
	Defective L-830 isolation transformer	Check transformer output current with meter to determine if voltage is present across the lamp.
2. Lamp output distorted	Dirty lens	Clean lens. Refer to *Cleaning Light Channel and Lens* in the *Maintenance* section.
	Defective lamp	Replace lamp and film disc cutout (if used). Refer to *Replacing Lamp* in the *Maintenance* section.
	Broken or damaged lens	Replace lens and gaskets.
3. Short lamp life	Current too high	Check for defective CCR and short in the lighting loop.
	Water in assembly	Open light assembly. Clean, dry and inspect light assembly. Replace gaskets. Replace O-ring, if damaged.
	Defective lamp	Replace lamp, film disc cutout (if used), and gaskets. Refer to *Replacing Lamp* in the *Maintenance* section. **NOTE:** Lamp interior will have a white powdery appearance if air has entered through a hole or crack.
	Overvoltage	Check to see if lamp has black burns. If so, check isolation transformer output with meter. Replace isolation transformer, if defective. Make sure CCR is operating properly.

6.0 Parts

To order parts, call ADB Safegate Customer Service or your local representative. Use this five-column parts list, and the accompanying illustration, to describe and locate parts correctly.

Ordering Code

44D144X - X X X X

Beam
2 = L-852E/Cat. I & II
3 = L-852F/Cat. III

Base Mounting
2 = L-823 cord set for an L-868B base
4 = L-867B base 10.25-in bolt circle w/cord set

Lamp Wattage
1 = L-852E supplied with 45 W
or L-852F supplied with 150 W
2 = L-852E or F supplied with 120 W
3 = L-852E supplied with 30 W
4 = L-852E supplied with 40 W/120 VAC

Filter Color
1 = Green[1]
2 = Yellow
3 = Blue[1]
4 = Red
5 = White

Film Disc Cutout
1 = Included
2 = Not Included

Notes
[1] Color not recognized by the FAA

6.1 Using the Illustrated Parts List

This subsection describes how to use the illustrated parts list covered later in this section. It does not provide the actual parts list.

The Item column numbers correspond to the numbers that identify parts in illustrations following each parts list. NS (not shown) indicates that a listed part is not illustrated.

The Description column gives the part name, as well as its dimensions and other characteristics when appropriate. Indentions show the relationships between assemblies, subassemblies, and parts.

The Part Number column gives the ADB Safegate part number.

Item	Description	Part Number	Quantity	Note
S1	Assembly	xxxxxxxx	1	A
NS	Part	xxxxxxxx	1	
H1	Part or Assembly			
	Part/Assembly for option 1	xxxxxxxx	2	
	Part/Assembly for option 2	xxxxxxxx	2	
T1	Assembly	xxxxxxxx	1	
	• Part	xxxxxxxx	1	
	• Part	xxxxxxxx	2	
NOTE A				

The Quantity column contains the quantity required per unit, assembly, or subassembly. The code AR (As Required) is used if the part number is a bulk item ordered in quantities or if the quantity per assembly depends on the product version or model.

The Note column contains letters that refer to notes at the end of each parts list. Notes contain special ordering or product/part version information.

6.2 L-852E/F Light Fixture Parts List

Item	Description	Part Number	Quantity	Note
1	Top cover		1	
	Cover, top with 11.25-inch bolt diameter	62D0500		
	Cover, top with 10.25-inch bolt diameter	62D0500-1		
2	Filter		1	
	Green filter (special order)	63A0470-1		
	Yellow filter (for L-852E, except with 120 W lamp)	63A0470-2		
	Blue filter (special order)	63A0470-3		
	Red filter (special order)	63A0470-4		
3	Lamp		1	
	Lamp, 30 W/6.6 A, quartz, L-852E only, GE EXL	48A0085		A
	Lamp, 40 W/120 Vac, L-852E only, special order, Sylvania 40S11N	48A0126		A
	Lamp, 45 W/6.6 A, quartz, FAA approved, L-852E only, GE EXM	48A0083		
	Lamp, 120 W/6.6 A, quartz, L-852F only, GE EVV	48A0069		
	Lamp, 150 W/6.6 A, quartz, L-852F only, GE EVV	48A0044		A
4	Lens gasket	63B0468	1	
5	Spacer ring (used with lens gasket)	61B0155	1	
6	O-ring, L-852F only, Parker 2-244	63B0267-244	1	
7	Reflector	61B0156	1	
8	Lamp socket		1	
	Lamp socket QCJ-6 (for 30 W, 45 W, 120 W lamps)	49A0063		
	Lamp socket (for 40 W, 120 Vac lamps)	49A0137		
9	L-823 cordset, 31 in. long	73A0009-31	1	
10	Ring spacer (used for lamp spacer)	62C0502	1	B
11	Lens	63C0467	1	
12	Spring	65A0168	2	
13	Gasket	63B0471	1	
NOTE A: Not ETL certified. NOTE B: The ring spacer is used only with L-852E/40 W/120Vac and L-852F/150 W/6.6 A lamps.				
14	10-32 x 1 long allen socket head screw	64A0958-16	3 or 6	A
15	# 10 lockwasher	66A0026-17	6	
16	10-32 x 1-1/4 long allen socket head screw	64A0958-20	3	B

17	Shallow base		1	C
	Shallow base, with screws and plywood cover for new installation for 30 W/45 W, 6.6 A L-852E fixture only	44D0465		
	Shallow base, with screws and plywood cover for new installation for 150 W L-852F or 40 W/120 W L-852E fixture	44D0465-1		
	Shallow base only, without screws and plywood cover for 30 W/45 W, 6.6 A L-852E fixture only	62D0335		
	Shallow base, without screws and plywood cover for 150 W L-852F or 40 W/120 W L-852E fixture	62D0335-1		
18	Feed thru cap	60B1302	1	
19	Seal washer	63A0660	1	
20	Wire, 12 AWG	89A0154	AR	
21	Feed thru hex jam nut	65A0200	1	
22	Feed thru body	60B1301	1	
23	Feed thru grommet	63A0658	1	
24	Female disconnect	70A0329	1	
25	Cover assembly			
	Cover assembly, bottom (uses lamp socket 49A0063)	44A2076		
	Cover assembly, bottom (includes lamp socket 49A0137)	44A2076-1		D

NOTE A: Only 3 screws are needed when the ring spacer (Item #10) is used.
NOTE B: Only used when the ring spacer (Item #10) is used.
NOTE C: Refer to Table 13 for more shallow base information.
NOTE D: Lamp socket 49A0137 can be ordered separately.
AR: As Required

Item	Description	Part Number	Quantity	Note
26	Contact assembly	44B1100	1	
NS	Film disc cutout, GE 4815920 G-20	47A0023	1	
NS	Cutout clip	60B0240	1	
NS	Cordset terminal, female	70A0057	1	
NS	Brass inset light marker	63A0582	1	A

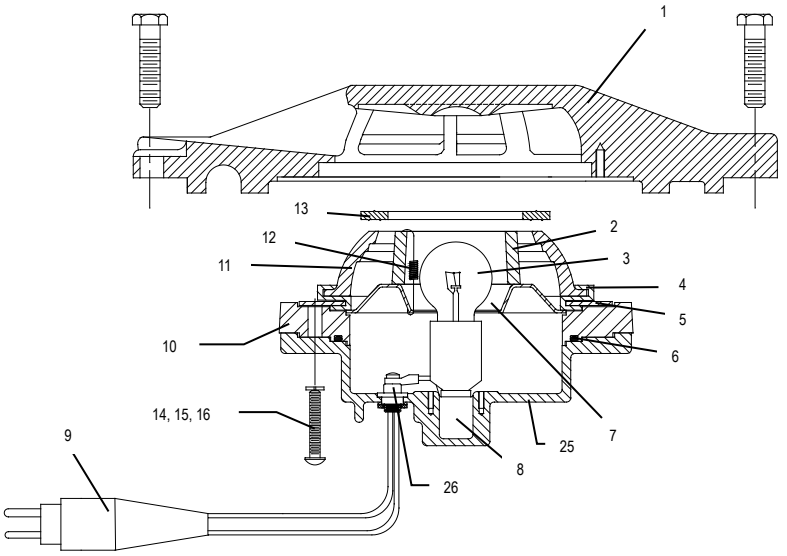
NOTE A: The brass inset light marker provides light location identification when installed in the pavement next to the light fixture.
NS: Not Shown

Table 10: ADB Safegate Shallow Bases

Assembly	Shallow Base	Depth	Note
44D0465	62D0335	3.5 nominal	A
44D0465-1	62D0335-1	4.5 nominal	B

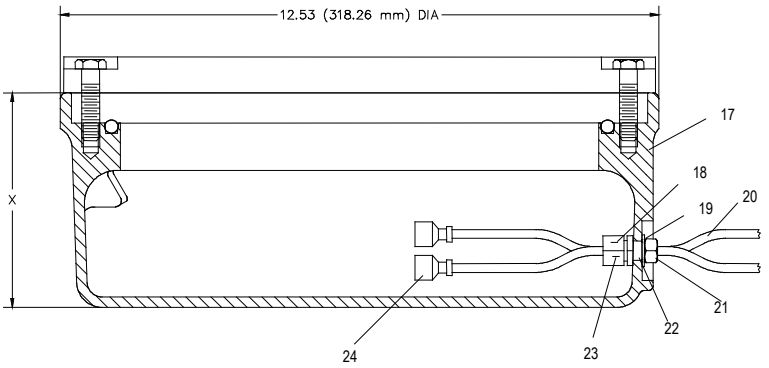
NOTE A: Used only with L-852E/30 W/45 W/6.6 A lamps.
NOTE B: Used only with L-852E/40 W/120 Vac and L-852F/150 W/6.6 A lamps.

Figure 16: L-852E/F Light Fixture with Shallow Base (40 W/120 Vac Lamp Shown) (Part 1 of 2)



Note
To locate the depth (X) dimension in Figure 16 (Part 2 of 2), refer to Table 13 in this section.

Figure 17: L-852E/F Light Fixture with Shallow Base (Part 2 of 2)



6.3 Recommended Spare Parts

See Figure 16.

Item	Description	Part Number
2	Filter	
	Green filter (special order)	63A0470-1

	Yellow filter (for L-852E, except with 120 W lamp)	63A0470-2
	Blue filter (special order)	63A0470-3
	Red filter (special order)	63A0470-4
3	Lamp	
	Lamp, 30 W/6.6 A, quartz, L-852E only, GE EXL	48A0085
	Lamp, 40 W/120 Vac, L-852E only, special order, Sylvania 40S11N	48A0126
	Lamp, 45 W/6.6 A, quartz, FAA approved, L-852E only, GE EXM	48A0083
	Lamp, 120 W/6.6 A, quartz, L-852F only, GE EVV	48A0069
	Lamp, 150 W/6.6 A, quartz, L-852F only, GE EWR	48A0044
4	Lens gasket	63B0468
6	O-ring, L-852F only, Parker 2-244	62B0267-244
7	Reflector	61B0156
8	Lamp socket	
	Lamp socket QCJ-6 (for 30 W, 45 W, 120 W lamps)	49A0063
	Lamp socket (for 40 W, 120 Vac lamps)	49A0137
11	Lens	63C0467
13	Gasket	63B0471
14	10-32 x 1 long allen socket head screw	64A0958-16
15	# 10 lockwasher	66A0026-17
16	10-32 x 1-1/4 long allen socket head screw (used only when the ring spacer [See Item 10 on Figure 11, part number 62C0502] is used)	64A0958-20
25	Cover assembly	
	Cover assembly, bottom (uses lamp socket 49A0063)	44A2076
	Cover assembly, bottom (includes lamp socket 49A0137) (Lamp socket 49A0137 can be ordered separately.)	44A2076-1
26	Contact assembly	44B1100
NS	Film disc cutout, GE 4815920 G-20	47A0023
NS	Cordset terminal, female	70A0057
NS: Not Shown		

Appendix A: SUPPORT

Our experienced engineers are available for support and service at all times, 24 hour/7 days a week. They are part of a dynamic organization making sure the entire ADB SAFEGATE is committed to minimal disturbance for airport operations.

ADB SAFEGATE Support

Live Technical Support - Americas
If at any time you have a question or concern about your product, just contact ADB SAFEGATE's technical service department. Trained in all areas of system issues, troubleshooting, quality control and technical assistance, our highly experienced Technical support specialists are available 24 hours a day, seven days a week to provide assistance over the phone.
ADB SAFEGATE **Americas Technical Service & Support (US & Canada): +1-800-545-4157**
ADB SAFEGATE Americas Technical Service & Support (International): +1-614-861-1304
During regular business hours, you can also Chat with a Service Technician. We look forward to working with you!

Before You Call
When you have an airfield lighting or system control system problem it is our goal to support airfield maintenance staff as quickly as possible. To support this effort we ask that you have the following information ready before calling.

- The *airport code*
- If not with an airport, then company name (prefer customer id number)
- Contact phone number and email address
- Product with part number preferable or product number
- Have you reviewed the product's manual and troubleshooting guide
- Do you have a *True RMS* meter available (and any other necessary tools)
- Be located with the product ready to troubleshoot

Note

For more information, see www.adbsafegate.com, or contact ADB SAFEGATE Support via email at support@adbsafegate.com or
Brussels: +32 2 722 17 11
Rest of Europe: +46 (0) 40 699 17 40
Americas: +1 614 861 1304. Press 3 for technical service or press 4 for sales support.
China: +86 (10) 8476 0106

A.1 ADB SAFEGATE Website

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

A.2 Recycling

A.2.1 Local Authority Recycling

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

A.2.2 ADB SAFEGATE Recycling

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

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

All items returned must be clearly labeled as follows:

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

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

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