



ERGL-L

User Manual

96A0376, Rev. S, 2023/10/30


**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 C22.2 No.180:13 (R2018) regulations. The CSA directives that have been taken into consideration in the design are available on written request to ADB SAFEGATE.

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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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Note

See your applicable sales agreement for a complete warranty description.

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

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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.

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**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.



ELECTROSTATIC SENSITIVE DEVICES

This equipment may contain electrostatic devices.

Qualified Personnel



Important Information

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

Always use required personal protective equipment (PPE) and follow safe electrical work practice.

1.1.1 Introduction to Safety

CAUTION

Unsafe Equipment Use

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

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



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

Additional Reference Materials



Important Information

- IEC - International Standards and Conformity Assessment for all electrical, electronic and related technologies.
- IEC 60364 - Electrical Installations in Buildings.
- CSA - C22.2 No.180:13 (R2018) Series isolating transformers for airport lighting
- FAA Advisory: AC 150/5340-26 (current edition), Maintenance of Airport Visual Aid Facilities.
- Maintenance personnel must refer to the maintenance procedure described in the ICAO Airport Services Manual, Part 9.
- ANSI/NFPA 79, Electrical Standards for Metalworking Machine Tools.
- National and local electrical codes and standards.

1.1.2 Intended Use



CAUTION

Use this equipment as intended by the manufacturer

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

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

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

1.1.3 Material Handling Precautions: Storage



CAUTION

Improper Storage

Store this equipment properly

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

Failure to follow this instruction can result in equipment damage

1.1.4 Material Handling Precautions: Fasteners



DANGER

Foreign Object Damage - FOD

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

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

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

Note

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



CAUTION

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

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

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

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

1.1.5 Maintenance Safety

DANGER

Electric Shock Hazard

This equipment may contain electrostatic devices

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

•



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

1.1.6 Material Handling Precautions, ESD



CAUTION

Electrostatic Sensitive Devices

This equipment may contain electrostatic devices

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

Failure to follow this instruction can result in equipment damage

1.1.7 Arc Flash and Electric Shock Hazard



DANGER

Series Circuits have Hazardous Voltages

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

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

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

2.0 Introduction

This section describes the ADB Safegate L-804 ERGL runway guard light. The ERGL runway guard light is an elevated light fixture consisting of two LED Engines mounted side by side in the same housing that alternately flash 45-50 times per minute in yellow to identify taxiway holding position lines. It is also available in red for special applications. The assembly is required by FAA specifications to mount on a heavy duty baseplate and be supplied with a tether. The ERGL is available as either a Mode 1 (current driven) or Mode 2 (voltage driven) fixture.

The light fixture is unidirectional and can be aimed in elevation vertically from 0 to +20 degrees, and horizontally ± 20 degrees.

Figure 1: L-804 ERGL Runway Guard Light (shown without tether)



2.1 LED Elevated Runway Guard Light

Compliance with Standards

FAA:	L-804(L) AC 150/5345-46 (Current Edition) and the FAA Engineering Brief No. 67. Meets the requirements of Low-Visibility Taxiway Lighting Systems as specified by FAA AC 150/5340-30. ETL Certified.
ICAO:	Annex 14, Vol. I, Para 5.3.22 and Appendix 2 Fig. A2-25
CE:	Complies with Directives: 2004/108/EC (EMC) and 2006/95/EC (LV). (See note 6)

Uses

FAA L-804(L) and ICAO

- Runway guard light
- Runway incursion prevention

The L-804(L) Runway Guard Light is an elevated unidirectional flashing yellow light fixture that provides a distinctive warning to pilots that they are approaching a runway holding position and are about to enter an active runway. The L-804(L) is typically installed in pairs, one on either side of the taxiway holding position. The Elevated RGL can also be used in combination with L-852G (In-pavement RGL), L-852S (In-pavement Stop Bar Light), and L-862S (Elevated Stop Bar Light) to provide additional safety under low-visibility conditions on the airfield.

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
- Greatly reduces the load on the CCR

- LED RGLs can be powered with any CCR architecture type
- Light output mimics on/off curve of an incandescent lamp. Can be field modified for instant on/off modification, increasing conspicuity.
- Adjustable Light Beam: 0° to 20° vertically; ±20° horizontally
- Flash Rate: Alternating flashes, 45-50 per minute
- Input:
 - FAA Mode 1: 6.6 A Current-Driven - powered by series lighting circuit; intensity varies with current supplied to the fixture by the series circuit
 - FAA Mode 2: Voltage-Driven – powered from a 120 VAC ± 10%, 50/60 Hz or 240 VAC ±10%, 50/60 Hz parallel lighting circuit and equipped with photocell to control intensity. Photocell energizes LEDs at full intensity during high light levels and then reduces intensity to 30% during low ambient light conditions.
- Fixture is fabricated from corrosion-resistant materials, and all exterior surfaces are painted aviation yellow for added protection and visibility
- The two RGL light sources are surrounded by a black face plate and independent visors to reduce the amount of incident sunlight, thereby maximizing the contrast during the ON/OFF cycle
- For additional features common to all of ADB's elevated LED fixtures, see data sheet 3043.
- High-strength 1832RGL base plate is mandatory for FAA applications and should be used for ICAO applications. For more details see data sheet 2012.
- Includes frangible column and tether

Monitored RGL Applications



For monitored runway guard light applications, use a LINC 360 Remote for connection to the fixture. Contact the ADB SAFEGATE Sales Department for LINC 360 Remote part number.

Operating Conditions

Temperature:	-40 °F to +131 °F (-40 °C to + 55 °C)
Humidity:	0 to 100%
Wind:	Withstands wind velocities up to 300 mph (480 kph)

Packaging

In cardboard box:	30 × 22 × 17 in (76.2 × 55.9 × 43.2 cm)
Net weight (estimated):	37 lb (16.8 kg)

Electrical Supply

FAA Current-Driven

6.6 A through a 6.6 A/6.6 A or 20 A/6.6A isolation transformer.

Unmonitored

Mode	Fixture Load (Max)	Transformer		
		Size	Load	CCR Load

FAA Current-Driven				
Mimics Incand. Curve	46 VA	45 W	13 VA	59 VA
Instant On/Off	68 VA	65 W	15 VA	83 VA
Monitored				
Mode	Fixture Load (Max)	Transformer		
		Size	Load	CCR Load
Mimics Incand. Curve	66 VA	65 W	13 VA	79 VA
Instant On/Off	87 VA	100 W	16 VA	103 VA
FAA Voltage-Driven				
Input Voltage	120 VAC, ±10%, 50/60 Hz, 58 VA ¹ 240 VAC, ±10%, 50/60 Hz, 77 VA ¹			

ICAO Current-Driven				
6.6 A through a 6.6A/6.6 A or 20 A/6.6 A isolation transformer				
Unmonitored				
Mode	Fixture Load (Max)	Transformer		
		Size	Load	CCR Load
Mimics Incand. Curve	85 VA	100 W	15 VA	100 VA
Instant On/Off	92 VA	100 W	18 VA	110 VA
Monitored				
Mode	Fixture Load (Max)	Transformer		
		Size	Load	CCR Load
Mimics Incand. Curve	105 VA	100 W	21 VA	126 VA
Instant On/Off	112 VA	100 W	24 VA	136 VA
ICAO Voltage-Driven				
Input Voltage:	120 VAC, ±10%, 50/60 Hz, 67 VA ¹ 240 VAC, ±10%, 50/60 Hz, 36 VA ¹			

Notes

¹ Maximum for either mimics incandescent curve or instant on/off operation.

2.2 Theory of Operation

The Runway Guard Light is available in two different models: constant current driven (Mode 1) unit and the voltage driven (Mode 2) unit. In the RGL light engine all LEDs are serially connected. Normally an LED failure will open the circuit which discontinues operation of a single light engine.

The brightness control of the current driven ERGL is via the a 2.8A - 6.6A series circuit while the brightness of the voltage driven ERGL is controlled by a photocell input.

The basic operation of the ERGL in both cases is the same. Once powered up, the ERGL alternately flashes one LED light engine and then the other at the commanded brightness setting.

The basic control board has several status LEDs. See [Table 5](#) .

Refer to: [Electrical Diagrams](#) on page 29 for monitor wiring connections. One dry switch contact is available for monitoring. If the unit is powered up and operating correctly, the monitoring contact is closed. If any failure is detected, the contact will open. If either LED array has failed, the unit will default to flashing the good LED array, but will open the fault monitoring contact.



WARNING

Electric Shock

Do not work on either the current driven or voltage driven unit with the power on.

2.2.1 L-804 Runway Guard Light: Required Equipment

Refer to [Table 1](#) for required equipment that is supplied. Refer to [Table 2](#) for required equipment that is not supplied. Refer to the *Parts* section for part numbers.

Table 1: Required Equipment Supplied

Description	Quantity
L-804 runway guard light. Includes LED Engines, frangible column, and 2-pin L-823 cordset, or a 4-pin cordset, or a 5-pin cordset with matching harness.	1
Instruction manual	1 per order

Table 2: Required Equipment Not Supplied

Description	Quantity
Level	1
L-867B light base plate (Part Number 1832RGL). This base plate must be ordered as a separate item. Refer to the Warning below for using the L-867B light base.	1
Wire, 1.3 mm ² (AWG 16) (minimum), 600 V–3.3 mm ² (AWG 12) (maximum) 600 V	As required
Ground wire, 13.3 mm ² (AWG 6), solid copper	As required
Ground rods	As required
Torque wrench	As required



WARNING

FOD

Use only the special L-867B heavy duty light base supplied by ADB Safegate. FAA AC 150/5345-46 (current edition) requires the use of a heavy duty baseplate due to high wind loading requirements. Failure to observe this warning will result in damage to the installed L-804 ERGL caused by high wind loads.

2.2.2 LED Light Engine

Two Assemblies with multiple LEDs.

Flash Rate : Flashes alternately 45-50 times per minute.

Minimum Beam Coverage (Main Beam)

±8 degrees horizontal and, ±8 degrees vertical per FAA specifications and ICAO specifications.

Minimum Intensity (Candela)

The FAA and ICAO require 3000 candela. Refer to [Table 3](#) for average measured intensities for the L-804 RGL.

Table 3: Average Measured Intensities

Color	Average Measured Intensities (Candela)
FAA Traffic Signal Yellow and ICAO Yellow	V: 4246 H: 4136

3.0 Installation



WARNING

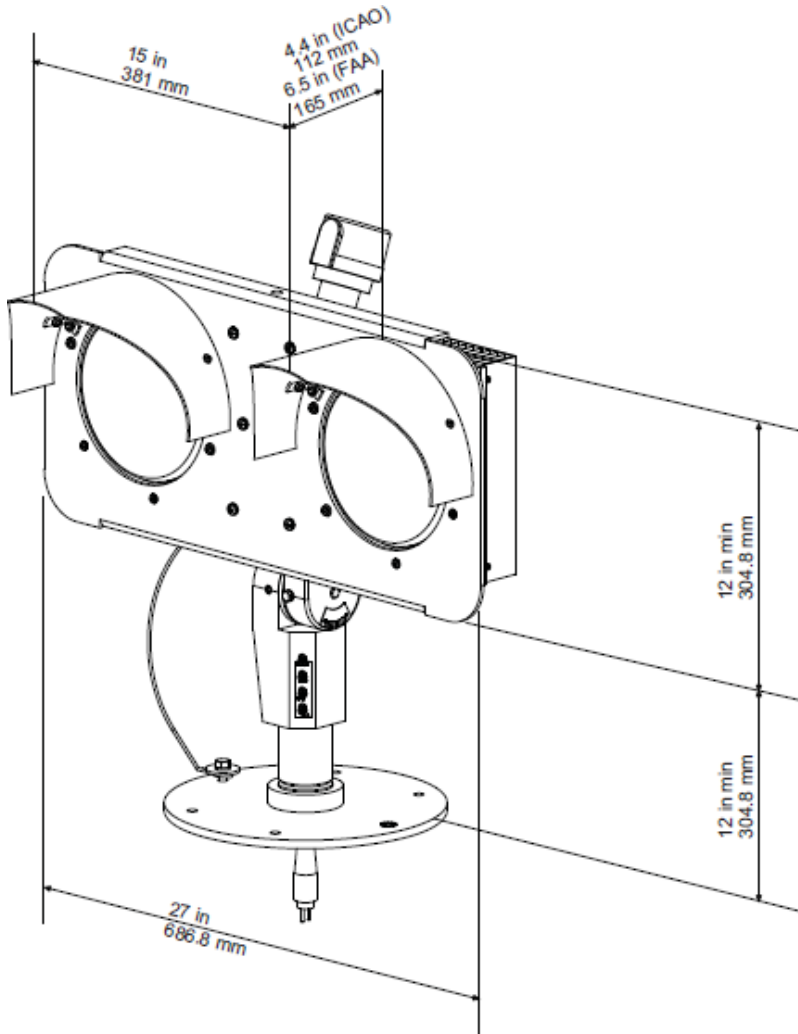
Electric Shock

Read the instructions in their entirety before starting installation. Allow only qualified personnel to perform the following tasks.

- Observe and follow the safety instructions in this document and all other related documentation.
- Also see FAA AC 150/5340-30, Design and Installation Details for Airport Visual Aids.

This section provides instructions for installing the L-804 Runway Guard Light (RGL). Refer to the airport project plans and specifications for the specific installation instructions.

Figure 2: L-804 ERGL Dimensions



3.1 Unpacking

The equipment is shipped ready for installation. Handle equipment very carefully to prevent component damage. Unpack the carton upon receipt and check the contents and their condition. Note any exterior damage to the carton that might lead to detection of equipment damage.

If you note any damage to any equipment, file a claim with the carrier immediately. The carrier may need to inspect the equipment.

3.2 Installing an L-804 Runway Guard Light

L-804 RGLs are installed at a runway holding position to provide a distinctive warning to anyone that they are about to enter an active runway. Normally the L-804 RGLs are installed in pairs, one on either side of the taxiway. Refer to FAA Advisory Circular, AC 150/5340-30, *Design and Installation Details for Airport Visual Aids* for dimensional location of the elevated L-804 RGL.

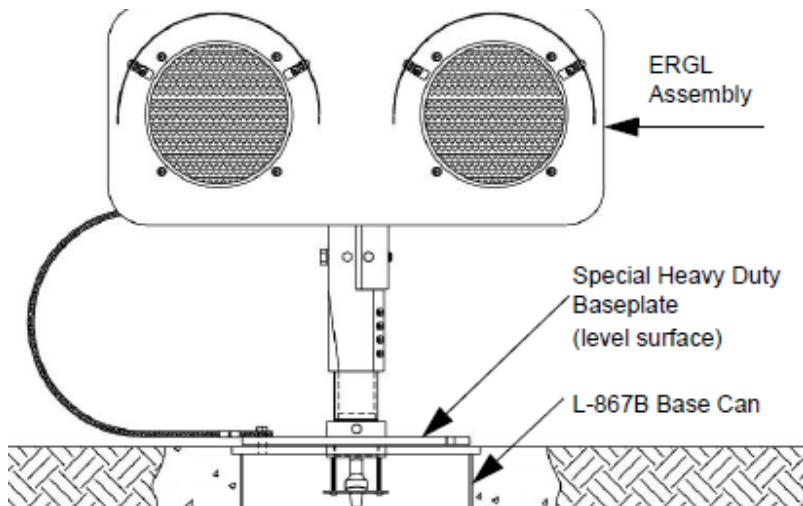
The L-804 RGL is designed to be installed on an L-867B light base housing using an L-867B heavy duty base plate that has been specifically designed per FAA specifications found in FAA AC 150/5345-46 (current edition) to withstand the high bending moments induced on the elevated fixture.

Note
L-804 RGL shall not be stake mounted per FAA AC 150/5345-46 (current edition)

The ADB Safegate mounting system includes a frangible column, L-823 cordset, L-867B heavy duty baseplate, and tether assembly.

3.2.1 Installing an L-867B Base

To install the base, perform the following procedure:



1. Install the L-867B per the site plans and specifications. See FAA AC 150/5340-30 for additional installation instructions.
2. Orient the cable entrance hubs of the base in the proper directions.
3. Level the light base so that the mounting flange surface is level horizontally. Do not tilt the base can to make it flush with the tapered finished grade. See FAA AC 150/5340-30 paragraph 11.50 for further guidance, if needed.
4. With the light base at proper orientation and held at proper elevation, pour concrete around the outside of the base. If the base is installed outside the concrete pad, backfill with compacted earth.
5. Slope top of concrete away from the flange portion of the base.
6. In closed duct systems installed in soil conditions of good drainage, use light bases having a drain hole to prevent water accumulation.
7. Pull field cable and connect the L-830, if specified, in the light base.
8. Install the base plate w/gasket on top of the light base. The baseplate is designed to receive the RGL frangible coupling using a female thread.

3.2.2 Installing an RGL on an L-867B Base

To install the L-804, perform the following procedure:

1. If using the current driven L-804, install the L-804 RGL assembly and frangible column, and connect the L-823 cordset supplied with the RGL to an isolation transformer (see “[Electrical Supply](#)” on page 7). Also see [Figure 12](#) and [Figure 13](#) in “[Electrical Diagrams](#)” on page 29 for wiring connections for current driven monitored and unmonitored versions.

If using the voltage driven L-804, install the L-804 RGL assembly and frangible column, and connect the L-823 cordset supplied with the RGL to 120 or 220-240 Vac input. See [Figure 12](#) and [Figure 13](#) in [Electrical Diagrams](#) on page 29 for wiring connections for voltage driven monitored and unmonitored versions.

2. Bolt the base plate to the light base.



Note

Only use two of the mounting bolts at this time and only hand tighten these bolts. After horizontal aiming has been completed and verified, install the remaining baseplate bolts and then torque bolts to 180 – 190 in-Lbs (244 – 258 N•m).

3. Aim the L-804 RGL both vertically and horizontally per site plans and specifications.

Aiming procedure is as follows:

3.3 Horizontal Aiming



Note

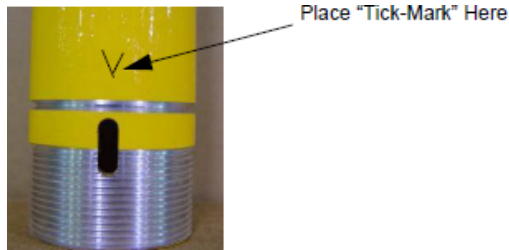
See [Figure 3](#) , [Figure 4](#) and coupling instruction before proceeding. Back out or remove the two hex head set screws that are in the side of the baseplate hub so that the coupling can be screwed into the hub.

Before screwing the coupling into the baseplate, use a black magic-marker to put "tick mark" in line with the slot and above the frangible groove as shown in the photo below.



Note

The tick-mark will aid in locating the slot after the coupling is screwed into the baseplate hub.



1. Apply anti-seize paste on threads and then screw the frangible coupling into the hub on the baseplate until the frangible groove is just above the top edge of the hub.

Locate the set screw hole in the side of the hub that is nearest to the slot in the coupling by locating the "Tick-Mark." Rotate the coupling, either clockwise or counter-clockwise, until the "tick-mark" on the coupling is in line with the set screw hole in the hub.



Note

It is important to make sure that the slot and the set screw hole are aligned because of the close fit between the slot and the ¼-20 screw. The close fit between the screw and the slot prevents the coupling from turning and loosening when the face of the RGL is subjected to jet engine exhaust or wind.

2. Thread the set screw into the hub and through the slot in the coupling. The screw must pass through the slot so it does not tightened against the screw threads on the coupling. Hand-tighten this screw only until final horizontal aiming has been completed.

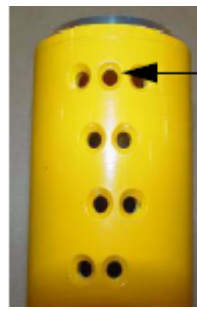
3.3.1 Adjusting the Horizontal Setting

To adjust the horizontal setting, perform the following procedure:

1. Thread the set screw into the hub and through the slot in the coupling. The screw must pass through the slot so it does not tightened against the screw threads on the coupling. Hand-tighten this screw only until final horizontal aiming has been completed.
2. See [Figure 3](#) and photo below. Locate the four Phillips head screws and loosed them so that the frangible coupling can be inserted into the hub. Also, if necessary, loosen the two 3/8-16 Allen hex head set screws in the RGL adjustable joint – Ref to [Figure 3](#) .



Zero ("0") Screw



Zero ("0") Hole

i Note

The Zero ("0") on the horizontal label that is affixed to the frangible coupling, has been aligned at the factory with the index pin pressed into the lower hub of the adjustable arm. This alignment will then allow the 10-32 screw to be screwed into the top center Zero ("0") hole and pass through the Zero ("0") hole that is located at the top of the coupling. See figures above.

3. Rotate RGL assembly until the indicator pin that is found at the bottom edge of the adjustable arm hub is aligned with the desired angle. The horizontal angle label that is affixed to the coupling is marked in 5 degree increments. See the following figure.



Indicator Pin

Horizontal Angle Label

i Note

The appropriate screw to tighten all the way into the mating hole in the frangible coupling is determined by the degrees adjusted. For example, if the horizontal is adjusted to 20 degrees, the top screw marked 20, 0, 20 should go in all the way. Hand tighten all four screws. See photos above.

Verify that the selected angle meets the requirements of the site plans and specifications.

If the horizontal aiming angle is not correct make one or both of the following adjustments:

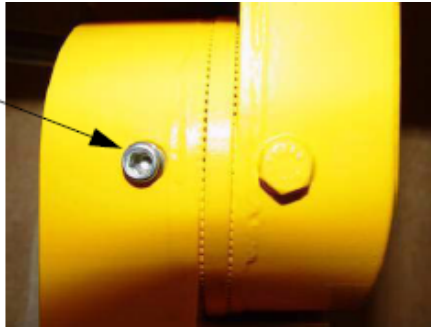
4. Remove the two screws in the side of the baseplate hub and rotate the coupling slot to line up with the other tapped hole in the hub. Repeat horizontal aiming procedure above.
5. If additional adjustment is needed then remove the two mounting bolts used to fasten the baseplate to the L868B light base. Rotate the baseplate either clock or counter-clock wise at least 30 degrees. Repeat the horizontal aiming procedure above.
6. Once horizontal aiming is completed install and torque all mounting hardware that secures the baseplate to the L867B light base.

3.4 Vertical Aiming

To adjust the vertical setting, perform the following procedure:

1. See [Figure 3](#) . Loosen two allen hex set screws on side shown in photo and on opposite side.

Set Screw - 2 Places
180 Degrees Apart



2. Loosen hex bolt (6) on the face (side) of the mount.
3. Adjust the vertical setting to the desired number of degrees in one-degree increments by lining up the indicator pin (9) from 0 to +20 degrees.
4. Tighten the hex bolt (6).
5. Tighten the hex bolts (1).



Note

See [Figure 3](#) for additional installation instructions and bolt torque values.

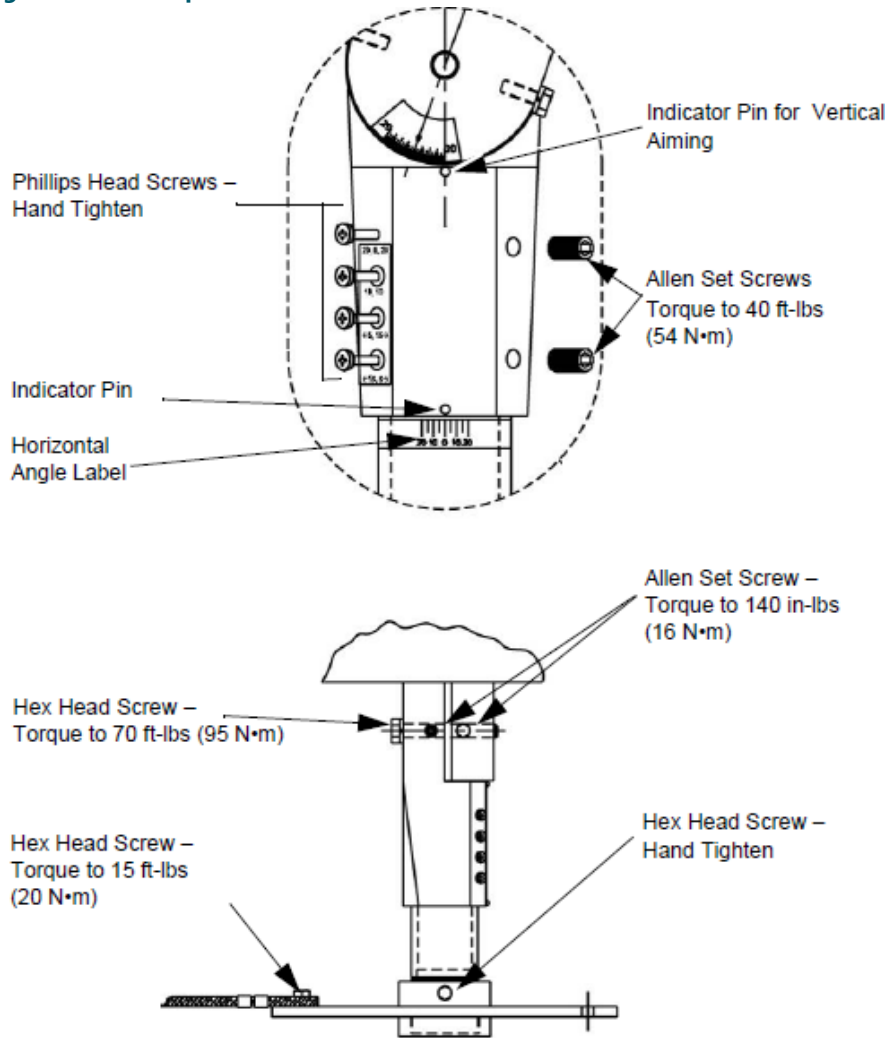
6. After the RGL has been aimed and operation has been verified, install the tether by attaching one end of the tether to one of the bolts on the center housing of the RGL and attach the other end to nearest bolts securing the baseplate to the light base housing.



Note

There are two set screws in the side of the hub. These set screws are used when the RGL is being aimed horizontally.

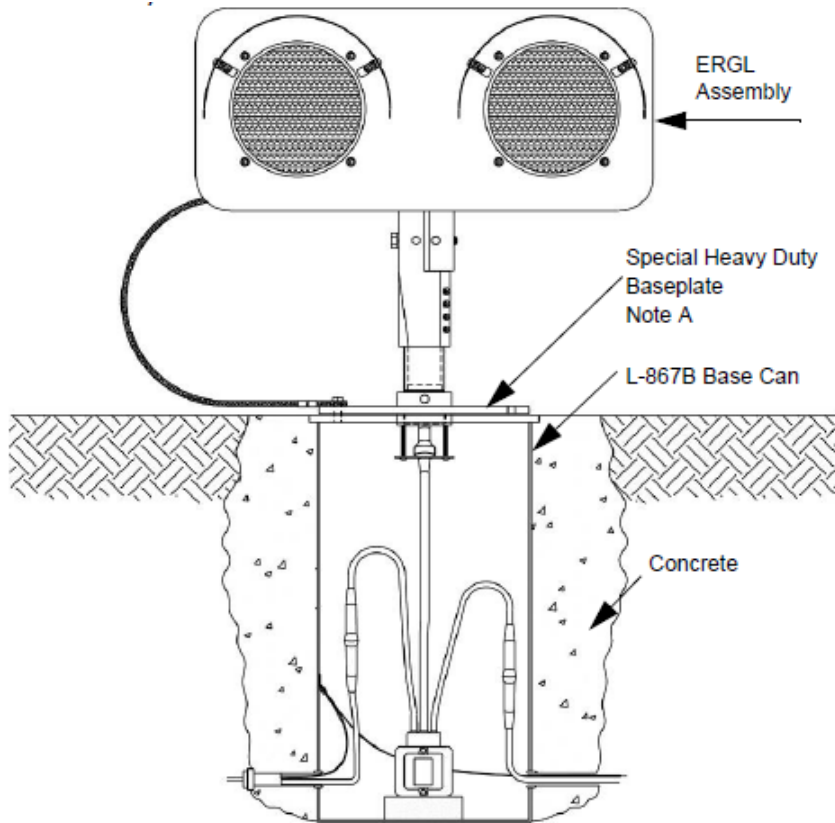
Figure 3: Bolt Torque Values



NOTE: Bolt/Screw Torque Values,
See Figure 3 for location and torque vales for identified screws.
Some screws have multiple locations.

3.5 Installing the Coupling (Unmonitored)

Figure 4: L-804 ERGL L867 Light Base Installation (current driven, unmonitored shown)



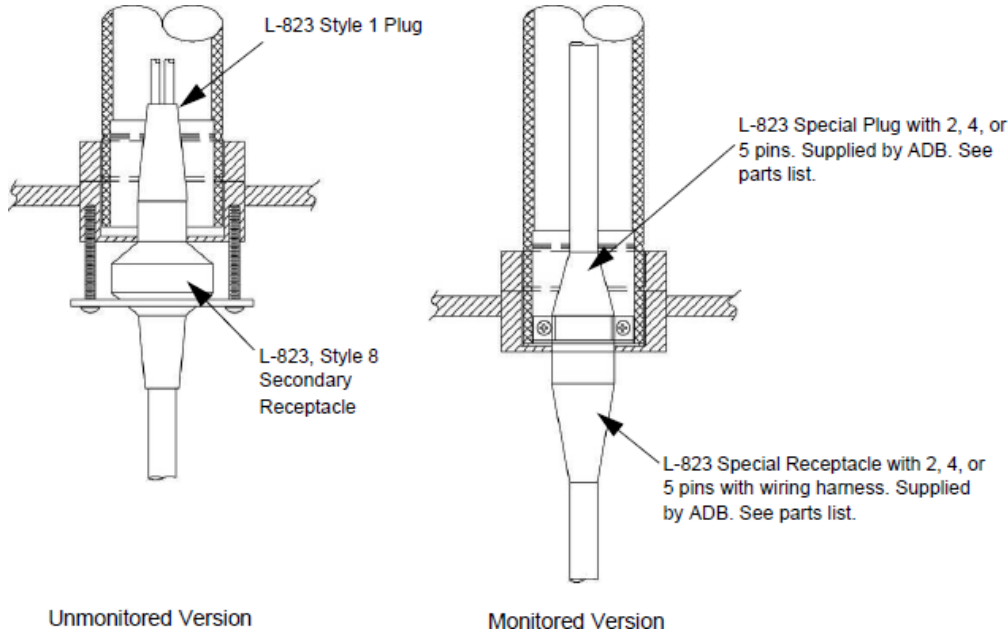
Note A: Fixture and base can leveled with respect to Earth. Do Not Level with respect to slope of the surrounding pavement.

3.6 Current Driven, Unmonitored RGL

See “ [Electrical Diagrams](#) ” on page 29 for the current driven unmonitored wiring schematic.

See [Figure 5](#) . To install the coupling for the current driven unmonitored version, plug the L-830 transformer secondary cordset into the 2-pin L-823 connector.

Figure 5: L-804 ERGL Coupling (Monitored and Unmonitored Versions)



3.7 Voltage Driven, Unmonitored RGL

See [Figure 12](#) and [Figure 13](#) in [Electrical Diagrams](#) on page 29 for the 120 V and the 220- 240 voltage driven unmonitored wiring schematics.

To install the coupling for the voltage driven unmonitored version, perform the following procedure:

1. See [Figure 5](#) . Plug the 2-pin L-823 cable (1) into the L-823 receptacle (2).
2. Wire the free ends to the proper voltage source.

3.8 Installing the Coupling, (Monitored)

This subsection describes how to install the coupling for the current and voltage driven monitored versions of the RGL.

3.8.1 Current Driven, Monitored RGL

See “ [Electrical Diagrams](#) ” on page 29 for the current driven monitored wiring schematic.

To install the coupling for the current driven monitored version RGL, perform the following procedure:

1. See [Figure 5](#) . Plug the 5-pin cordset cable into the 5-pin harness.
2. Wire the monitor leads (orange, red, and green) to the monitor circuit.

3.8.2 Voltage Driven, Monitored RGL

See “ [Electrical Diagrams](#) ” on page 29 for the 120 V and the 220-240 V voltage driven monitored wiring schematics.

To install the coupling for the voltage driven monitored version RGL, perform the following procedure:

1. See [Figure 5](#) . Plug the 5-pin cordset cable into the 5-pin harness.
2. Connect the black and white wires to the proper voltage source.
3. Wire the monitor leads (orange, red, and green) to the monitor circuit.

3.8.3 Adjusting the Photocell

To adjust the photocell, perform the following procedure:

1. See [Figure 6](#) . Open the electronics enclosure and loosen the lock nut (4) holding the photocell (1).
2. Adjust the photocell to the proper direction.

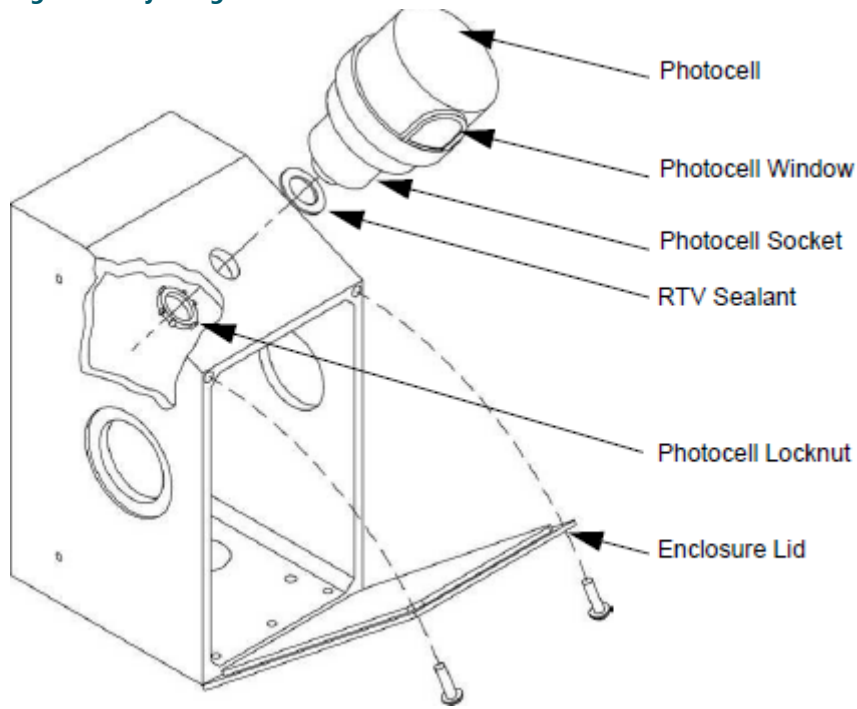


Note

For units with a photocell, the photocell window should be adjusted to point in the northern direction.

3. Re-tighten the lock nut.
4. Close and secure the electronics enclosure.

Figure 6: Adjusting the Photocell



4.0 Troubleshooting



WARNING

Electric Shock

Read installation instructions in their entirety before starting installation.

- Refer to the FAA Advisory Circular AC 150/5340-26, Maintenance of Airport Visual Aids Facilities, for instructions on safety precautions.
- Observe all safety regulations. To avoid injuries, always disconnect power before making any wiring connections or touching any parts. Refer to FAA Advisory Circular AC 150/5340-26.
- 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.
- 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
- Turn off the disconnect switch or main circuit breaker attempting to service the fixture.

Failure to observe these warnings may result in personal injury, death, or equipment damage.

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.



Note

In case of failure of external controller, refer to the maintenance document for the controller.

Table 4: Troubleshooting

Problem	Possible Cause	Corrective Action
1. LED not energizing	Defective LED Engine	Replace LED Engine (s). Refer to Replacing LED Engine in the Maintenance section.
	Input power is incorrect	<ul style="list-style-type: none"> • For series circuit applications, verify that the incoming current is between 2.8 and 6.6 amps using a TRUE RMS ammeter. • For voltage powered applications, verify that the incoming voltage is within tolerance. • Correct if necessary
	Defective PCB	Replace the PCB.
	Deteriorated wire insulation	Replace the damaged wires.
	Moisture inside assembly causing current leakage	Open up light fixture. Inspect lens for cracks. Replace LED and any damaged parts. Refer to Replacing Lamp in the Maintenance section.
	Blown PCB fuse (voltage driven)	Check fuse on the PCB. Replace if necessary.

Table 4: Troubleshooting (Continued)

Problem	Possible Cause	Corrective Action
2. Short LED life	Defective LED Engine	Replace LED Engine. Refer to Replacing Lamp in the Maintenance section.
3. LEDs appear dim	Dirty lens	Clean with soft cotton cloth and glass cleaner or mild detergent.
	Current too low	Replace the PCB. Refer to Replacing LED Engine in the Maintenance section.
4. Both LEDs are on and not flashing	PCB DC power supply failure	Replace the PCB.
5. Current driven RGL won't flash lamps at low current settings	Defective transformer on PCB Assembly or loose connections	Replace the transformer or tighten the connections at the terminal board. Replace the PCB. Refer to Replacing LED Engine in the Maintenance section.
6. LEDs flash at an incorrect rate	50/60Hz jumper in the wrong position on the PCB	Move the jumper to the correct position. See "Schematics" on page 27

Table 5: L-804 LED Functions (Check PCB)

Status LEDs	Voltage Driven Function	Current Driven Function
Lamp A	Lights when lamp B is off	Lights when lamp B is off
Lamp B	Lights when lamp A is off	Lights when lamp A is off
Monitor	Lights when one lamp or the other has failed to flash, or is burned out	Lights when one lamp or the other has failed to flash, or is burned out

5.0 Maintenance and Repair

To keep the L-804 light operating efficiently, follow a preventive maintenance schedule. Refer to [Table 6](#) and, refer to FAA AC 150/5340-26 for more detailed information.



WARNING

Electric Shock

Read installation instructions in their entirety before starting installation.

- Refer to the FAA Advisory Circular AC 150/5340-26, Maintenance of Airport Visual Aids Facilities, for instructions on safety precautions.
- Observe all safety regulations. To avoid injuries, always disconnect power before making any wiring connections or touching any parts. Refer to FAA Advisory Circular AC 150/5340-26.
- 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.
- 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.
- Turn off the disconnect switch or main circuit breaker attempting to service the fixture

Failure to observe these warnings may result in personal injury, death, or equipment damage.

5.1 Maintenance Schedule

Table 6: L-804 Runway Guard Light Maintenance

Interval	Maintenance Task	Action
Daily	Check for burned-out LED Engine.	Replace the PC board or the light fixture. Refer to <i>Replacing LED Engine</i> in this section.
	Check for dim LED.	Clean lens. Replace the PC board or the light fixture, if necessary. Refer to <i>Replacing the LED Engine</i> in this section.
Weekly	Check for vegetation.	Remove vegetation. Use weed killer.
	Check for dirty lens.	Clean the lens.
	Check for incorrect aiming angle.	Adjust elevation setting.
Semiannually	Check for moisture in the fixture.	Check for cracks in the lens or housing. Repair or replace lens or housing.
Annually	Inspect fixture for deterioration.	Repair or replace fixture.
	Inspect cable insulation.	

5.2 Replacing Lens and Lens Gasket

To replace the lens, perform the following procedure:

1. See [Figure 7](#) . Remove the Visors located over each of the lenses.
2. Remove the six screws around each lens that on the face plate. Then remove the six screws found in the middle of the faceplate and remove the faceplate.
3. Remove the damaged lens and gasket. Discard the lens and examine the gasket. If gasket is damage do not reuse. Remove any debris from the gasket and the install the gasket onto the lens. Position and center the lens assembly over the LED engine.



Note

Before replacing mounting hardware remove all dried Loctite compound and place 1 drop new Loctite 242 onto each screw. Torque the mounting hardware as shown in [Figure 7](#) .

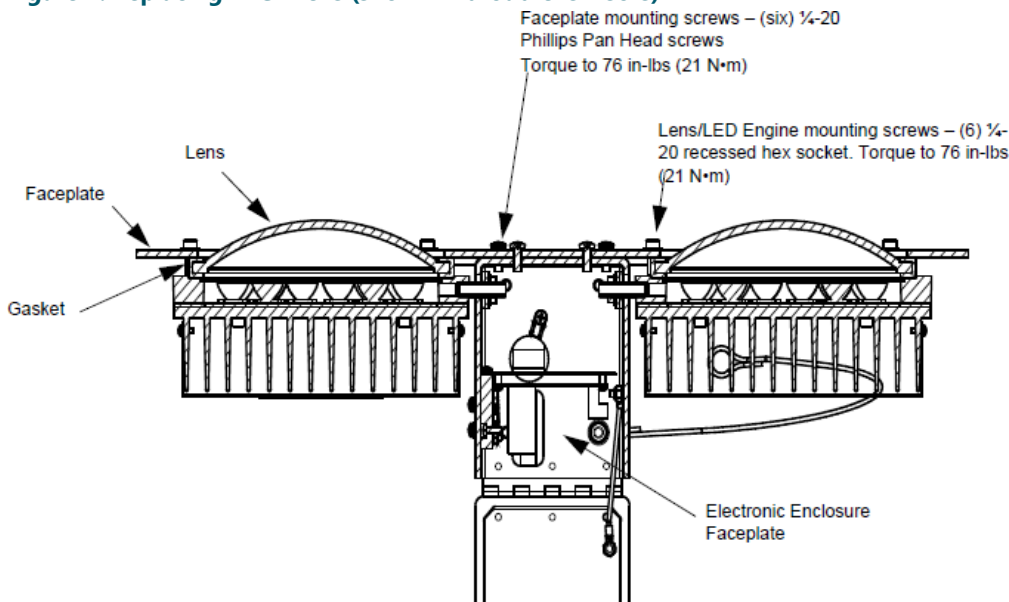
4. Replace the faceplate over the LED engines and align the LED engine and lens assembly with the mating openings in the faceplate. First, fasten the faceplate to the electrical enclosure and then fasten the LED engine assembly and lens to the faceplate.
5. Reinstall the visors.



Note

Refer to the *Parts* section for part numbers.

Figure 7: Replacing ERGL Lens (shown without lens visors)



5.3 Replacing LED Engines

To replace the LED engine, perform the following procedure:



Note

Individual LEDs cannot be replaced.

1. See [Figure 7](#) . Open Enclosure Lid and then disconnect the LED Engine power leads from the PCB Assembly.
2. See [Figure 10](#) . Remove the PCB mounting screws found on the outside of the enclosure.
3. See [Figure 8](#) . Remove both visors from the mounting clips on the face of the faceplate.
4. Next, remove the hex socket shoulder screws head cap screws found around each of the lenses.
5. Now remove the Phillips head screws hex screws found in the middle area of the faceplate and remove the faceplate and set the faceplate assembly on a workbench.
6. See [Figure 15](#) . Reach into the enclosure and remove the Hex Nut and washers from pipe nipple found inside toward the back of the enclosure. Next pull the Light Engine w/attached cooling fins away from the enclosure.
7. See [Figure 14](#) . Remove the four small Phillips head screws that fasten the Heat Sink Cover from the heat sink. Remove the LED Engines from the heat sink by removing the four hex socket screws that are located between the cooling fins on the backside of the heat sink. Inspect the rubber gasket and replace if gasket is damaged.



Note

Depending whether the LED Light Assembly has its power cable come out the side as in [Figure 8](#) or out the back as in [Figure 9](#) will determine which assembly procedure you will follow.



Note

Before replacing mounting hardware remove all dried Loctite compound and place 1 drop of new Loctite 242 onto each screw.

5.3.1 Replacing the same type LED Assembly

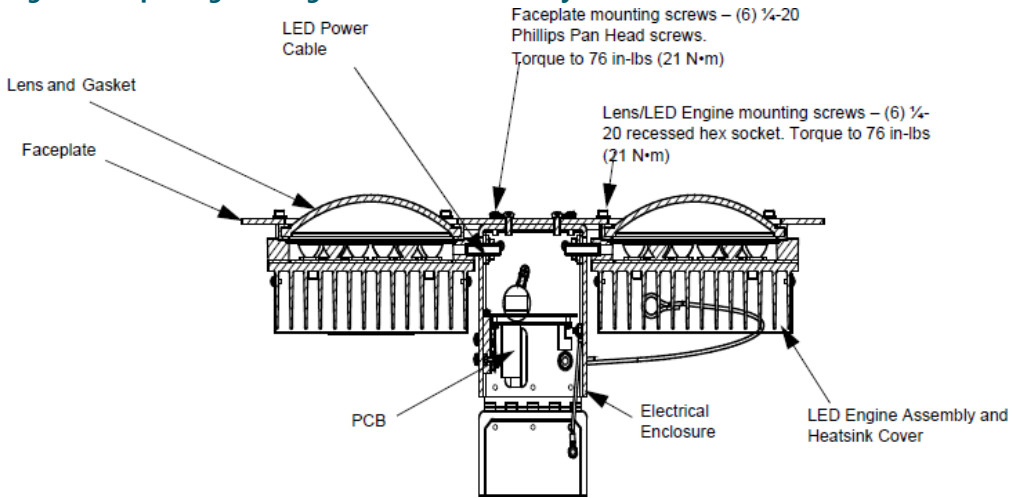
1. Install the new LED Engine Assembly and reassemble ERGL in reverse order as disassembly.
2. Torque the mounting hardware as shown in [Figure 8](#) .



Note

Refer to the *Parts* section for part numbers.

Figure 8: Replacing LED Engine - old LED assembly



5.3.2 Replacing an LED assembly with side power cable with a LED rear power cabled assembly

Figure 9: Replacing LED Engine - new LED assembly

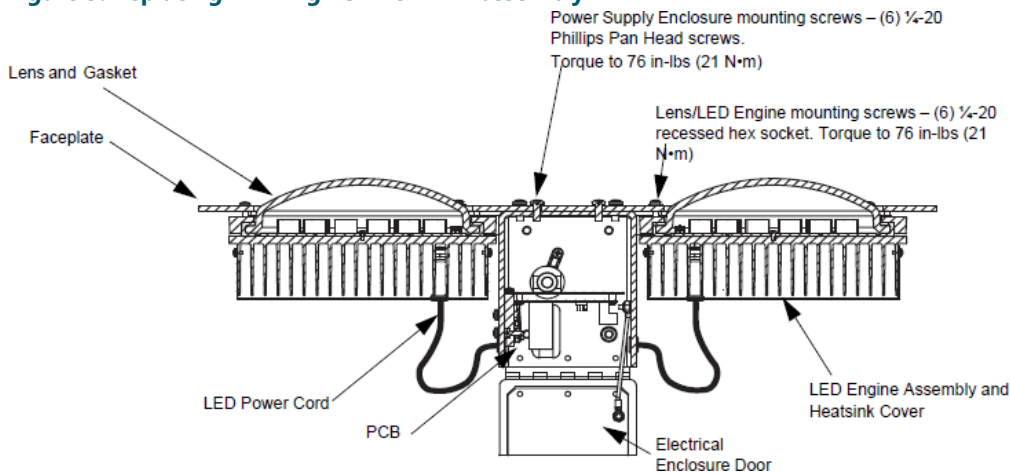


Table 7: 94A0520 LED Light Kit Parts

Part Number	Description	94A0520-1X/ QTY.	94A0520-2X/ QTY.	94A0520-3X/ QTY.
44A7234-Y1	L-804 LED RGL Light Eng Assembly Traffic Signal Yellow	2	2	-
44A7234-R1	L-804 LED RGL Light Eng Assembly Red	-	-	2
63A1125	Hole Plug 5/8 Diameter		2	
64A0177-16	10-32 X 1 Pan Head PHIL		12	
64A0990-12	#10-32 X 3/4 Stainless Steel Stud		4	
65A0015-19	10-32 Hex Nut		8	
66A0015-17	#10 Flat washer		12	
66A0015/24	1/4 Flat washer		12	
66A0026/17	#10 Split Lock washer		12	
77A0222	Liquid Tight Cord Grip NI PL BR 3/8 NPT Cord W/Nut		2	

1. Drill a 0.688-inch (17.5 mm) hole as shown in [Figure 10](#) .
2. Plug the open hole using (2) Hole Plug 5/8 Diameter, as shown in [Figure 10](#) .
3. Replace the four small Phillips head screws that fasten the Heat Sink Cover from the heat sink. Inspect the rubber gasket and replace if gasket is damaged. Connect the LED Engine to the heat sink by replacing the four hex socket screws that are located between the cooling fins on the backside of the heat sink.
4. Reach into the enclosure and connect the Hex Nut and washers from pipe nipple found inside toward the back of the enclosure. Connect the Light Engine w/attached cooling fins to the enclosure.
5. Install the six Phillips head screws in the middle area of the faceplate and attach the faceplate assembly.
6. Install the six hex socket shoulder screws around each of the LED assembly lenses.
7. Replace the visor from the mounting clips on the face of the faceplate. Use two #10-32 X 3/4 Stainless Steel Studs for each visor as shown in [Figure 10](#) . The studs are threaded and are to be screwed in finger-tight.



Note

Connect the five PCB mounting screws to the enclosure. Connect the LED power leads to the PCB assembly.

Figure 10: LED Light Kit Assembly Diagram

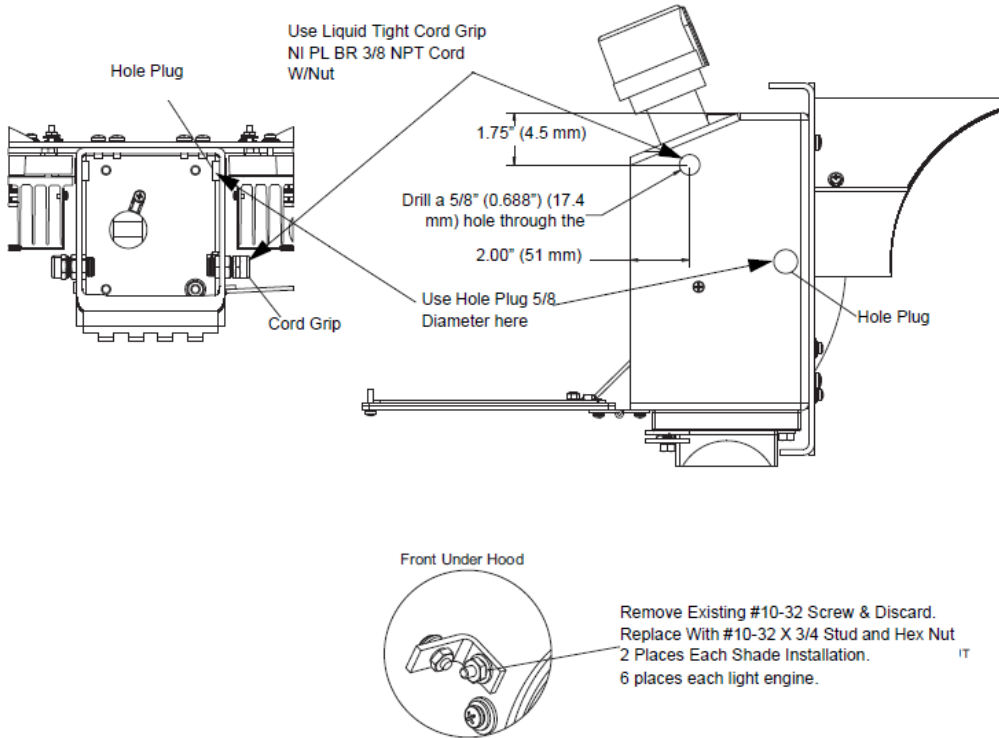
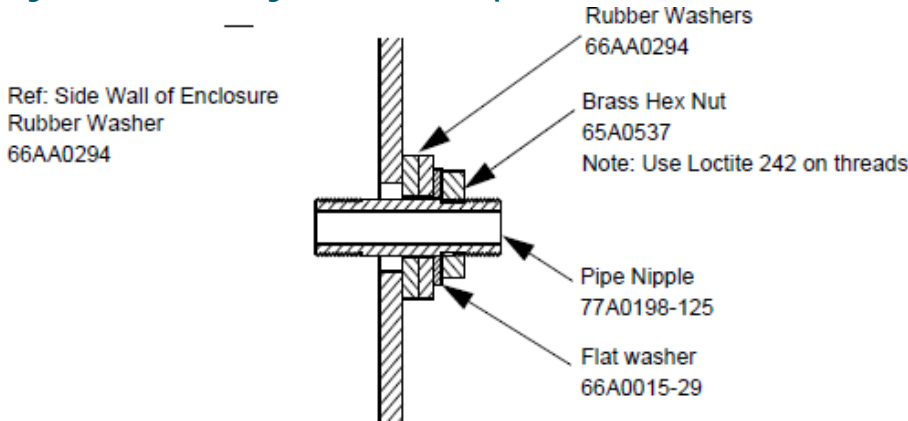


Figure 11: ERGL LED Engine Feed Thru Components



5.3.3 Adjusting Vertical and Horizontal Settings

See installation procedure section on " [Horizontal Aiming](#) " on page 13 thru " [Vertical Aiming](#) " on page 15.

6.0 Electrical Diagrams

Figure 12: 43A3329 LED RGL Current Driven

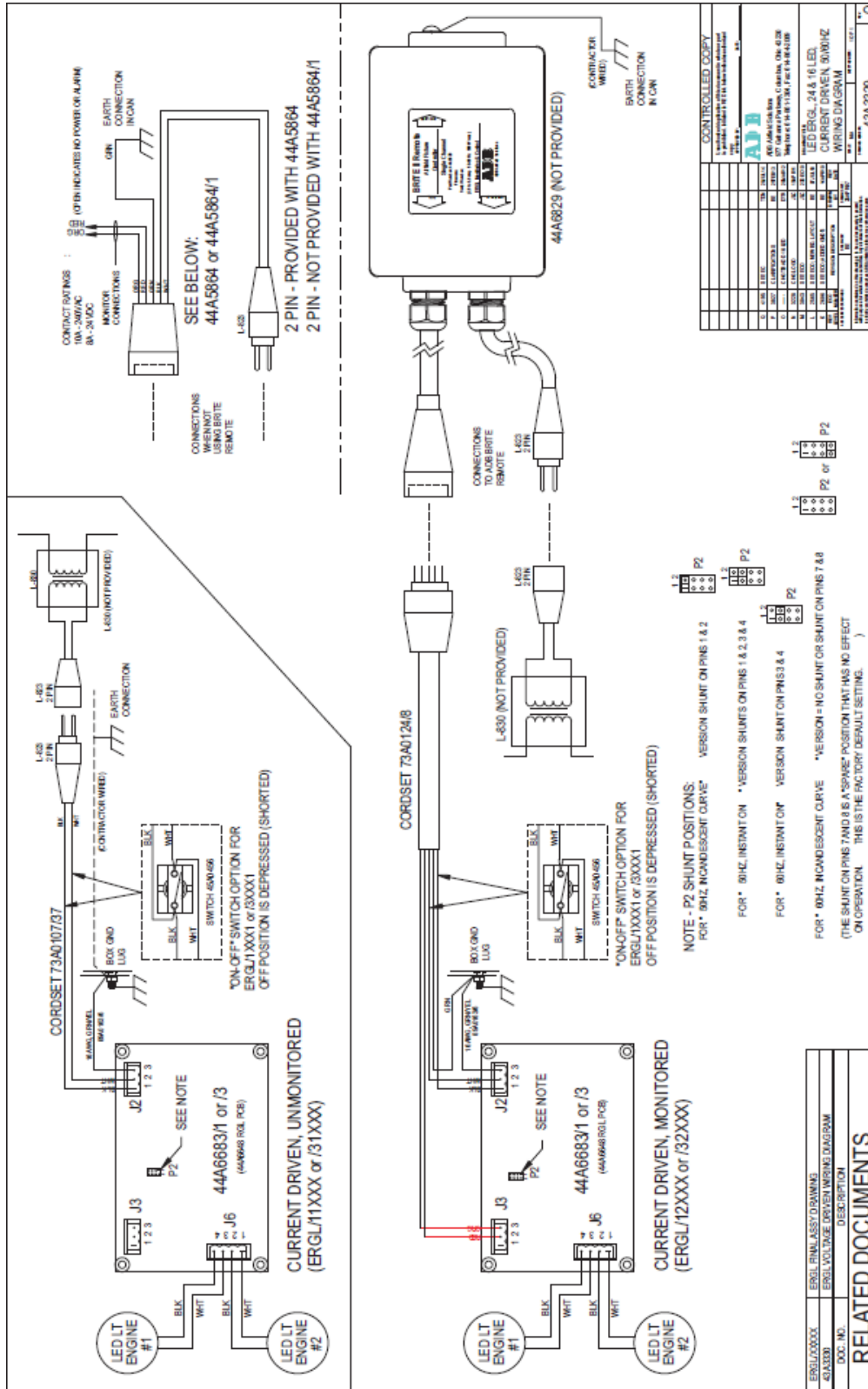
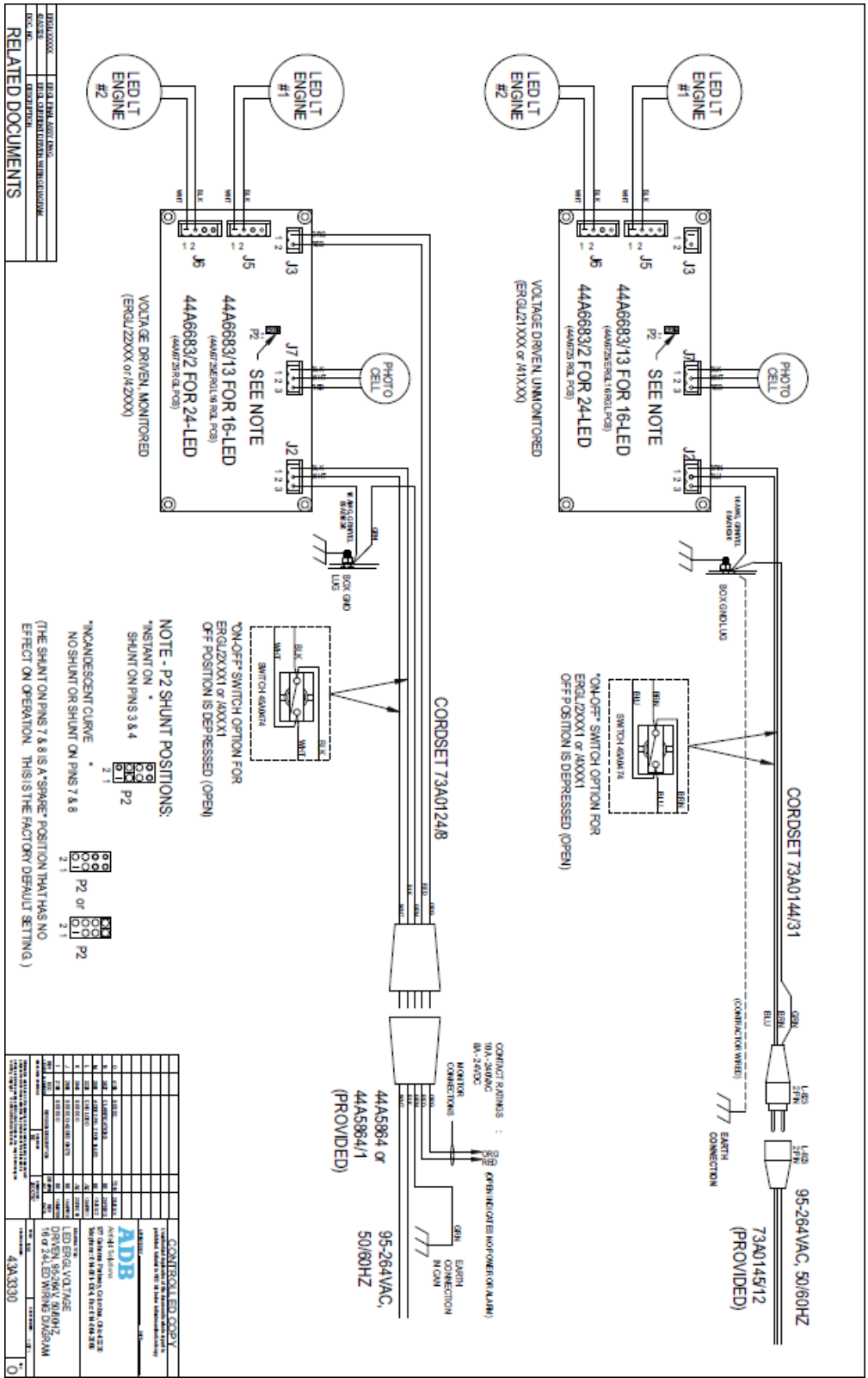


Figure 13: 43A3330 LED RGL Voltage Driven SHEET 1 of 1



7.0 Parts

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

Ordering Code

Power^{3,4}

- 1 = Current-Driven, 60 Hz
- 2 = ICAO Voltage-Driven, 120 VAC, ±10%, 50/60 Hz⁶
- 3 = Current-Driven, 50 Hz
- 4 = ICAO Voltage-Driven, 240 VAC, ±10%, 50/60 Hz⁶
- 5 = FAA Voltage-Driven, 120 VAC, ±10%, 50/60 Hz
- 6 = FAA Voltage-Driven, 240 VAC, ±10%, 50/60 Hz

Monitoring

- 1 = No Monitoring (2-pin cord set)
- 2 = Monitoring Option 1⁷
- 3 = Monitoring Option 2⁸

LED Color

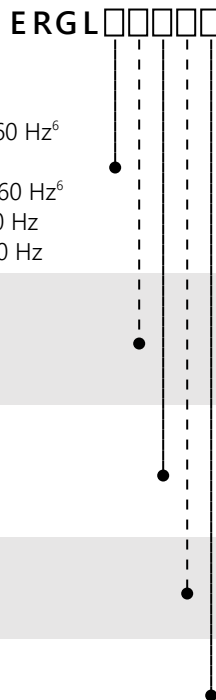
- 1 = FAA Traffic Signal Yellow⁹
- 2 = Traffic Signal Red^{2,5,9}
- 3 = ICAO Aviation Yellow^{1,5,6}

Photocell Feature

- 1 = Without photocell, current-driven only
- 2 = With photocell, voltage-driven only

Incoming Power On/Off Switch

- 0 = No switch
- 1 = With on/off switch



¹ Complies with color and illumination of ICAO Annex 14, Vol. 1, 6th edition specification for Runway Guard Lights. Color only valid with Power options 1-4.

² Color not recognized by the FAA.

³ 1832RGL base plate is ordered and shipped separately. See datasheet 2012 for details.

⁴ Shipped from factory preset for incandescent on/off curve light output. Can be field modified for instant on/off operation. It is recommended that instant on/off be implemented only on dedicated 5-step CCR circuits.

⁵ Not ETL certified.

⁶ The L-804(L) LED part numbers that carry the CE Mark include: ERGL-21320, ERGL-31310, ERGL-41320.

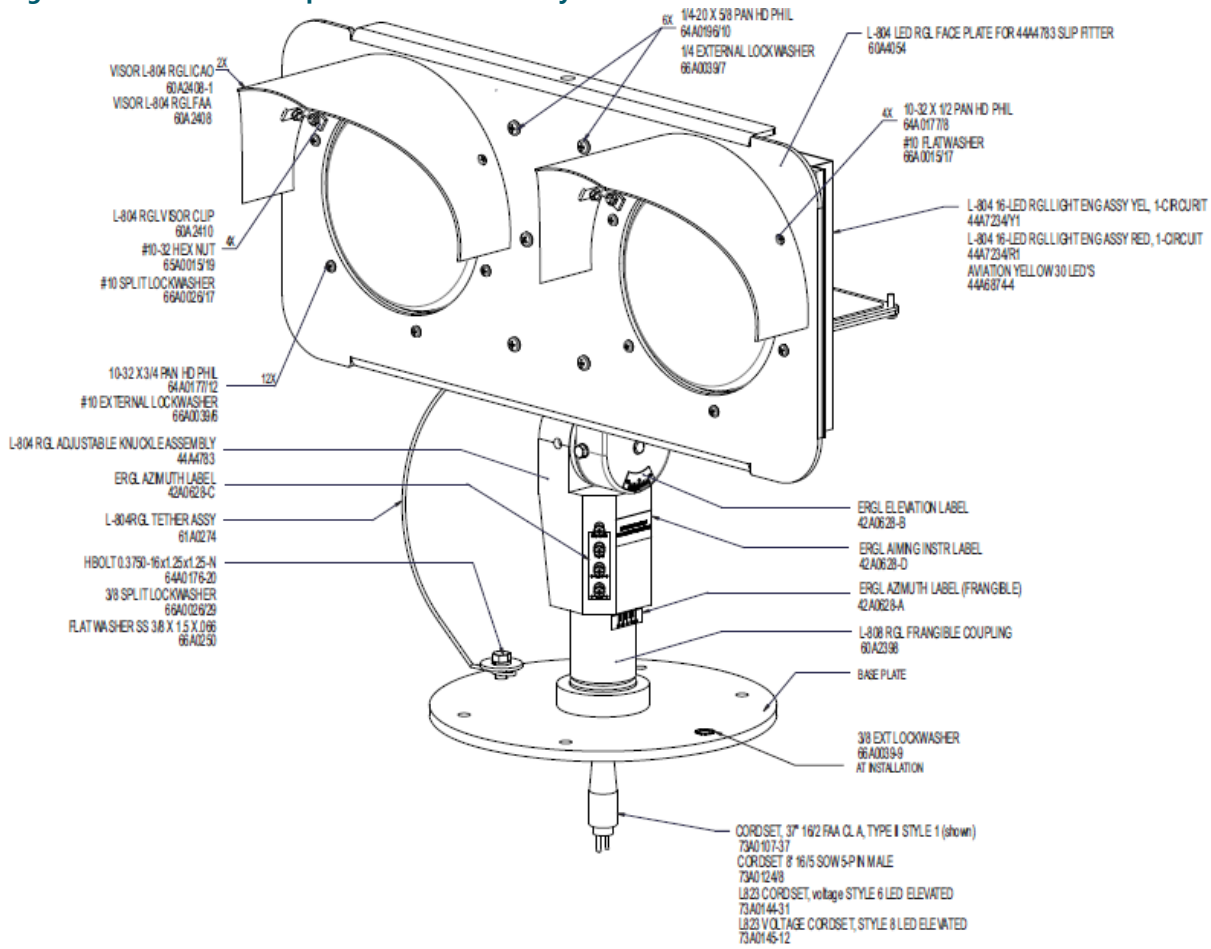
⁷ Monitoring Option 1 provides a fault alarm. A dry contact closure is externally connected via a 5-pin plug (supplied) to indicate alarm status. Alarm status can be communicated using a LINC 360 Remote.

⁸ Monitoring Option 2 provides a fault alarm for LINC 360 applications. A dry contact closure is connected to a LINC 360 Remote (Part No. AGC4170) via a cord set adapter (Part No. 44A7024, both purchased separately).

⁹ Color only valid with Power Options 1, 3, 5 and 6.

7.1 Parts Diagrams

Figure 14: ERGL Main Components Final Assembly

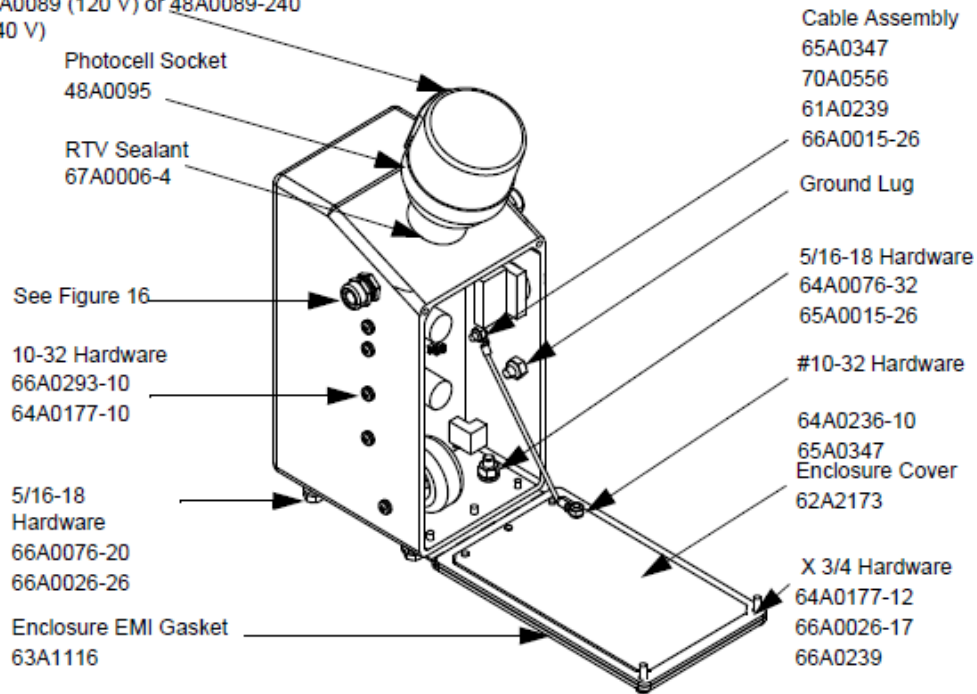


NOTE: See Part List for complete description

Figure 15: ERGL Main Components Enclosure Assembly

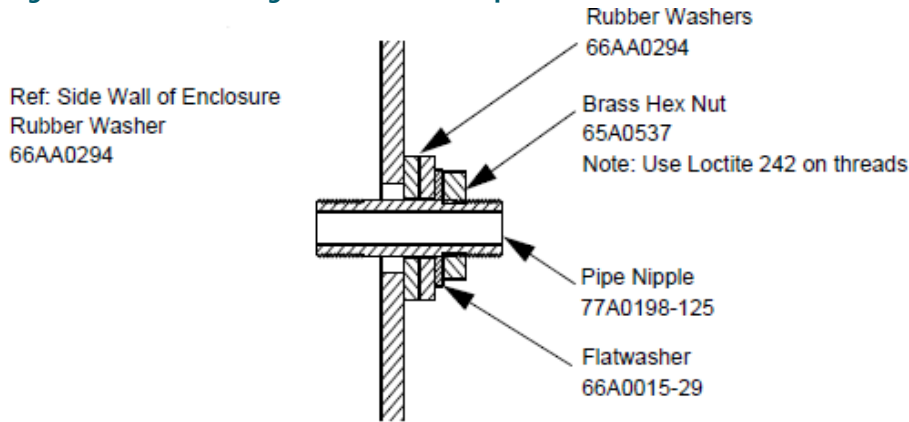
Photocell – Mode 2 Only

48A0089 (120 V) or 48A0089-240 (240 V)



NOTE: See Part List for complete description.

Figure 16: ERGL LED Engine Feed Thru Components

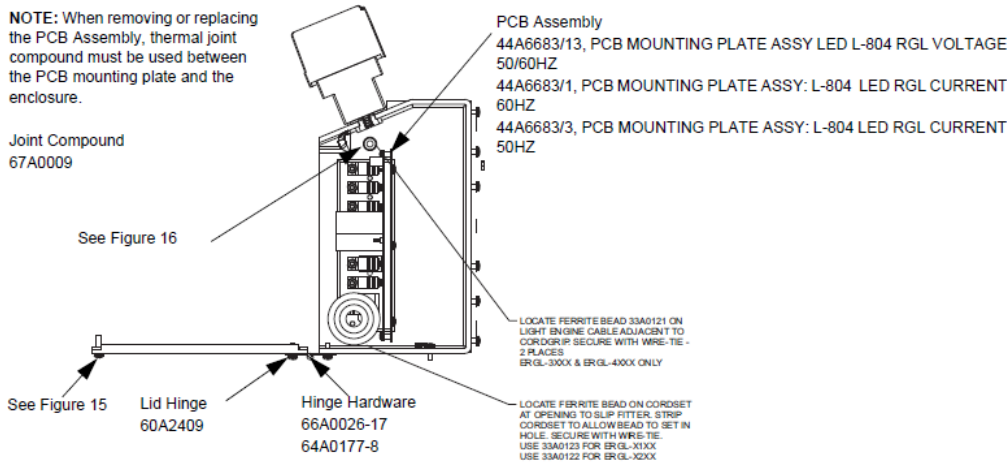


NOTE: See Part List for complete description.

Figure 17: ERGL PCB Assembly

NOTE: When removing or replacing the PCB Assembly, thermal joint compound must be used between the PCB mounting plate and the enclosure.

Joint Compound
67A0009



NOTE: See Part List for complete description

Figure 18: Voltage Driven

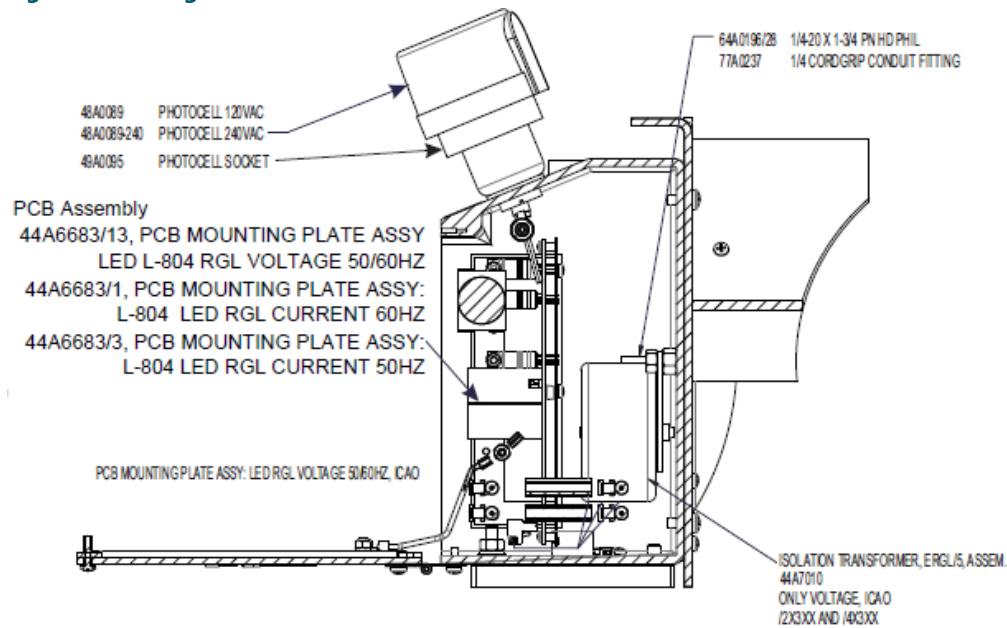
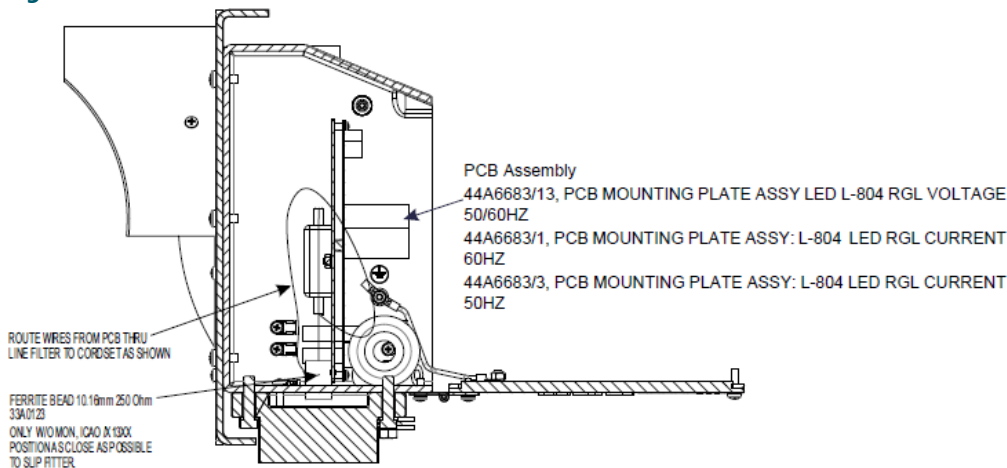


Figure 19: Current Driven



7.1.1 Spare Parts List

Table 8: Spare Parts

Description	Part No.
Base plate, L-867B heavy-duty	1832RGL
Canopy (FAA)	60A2408
Canopy (ICAO)	60A2408-1S
Canopy brackets	60A2410
Frangible column, 2 - 11.5 TPI (Used with 1832RGL)	60A2398
Frangible coupling, 11 TPI threaded (Normally used in metric applications. Not for use with 1832RGL base plate)	60A2398-1
Fuse, 1.5A (voltage-driven, mounted on PCB)	47A0179-5
Gasket, EMI, enclosure	63A1116
Gasket, lens	63A1122
Lens, clear	63A1123
On/Off switch, current-driven	45A0456-1
On/Off switch, voltage-driven	45A0474
Photocell, 120 VAC	48A0089
Photocell, 240 VAC	48A0089-240
Photocell socket	49A0095
Power supply ass'y, 16 or 24 LED light engine,current-driven,60Hz	44A6683-1
Power supply ass'y,16 or 24 LED light engine,current-driven,50Hz ¹	44A6683-3
Power supply ass'y,16 LED light engine,voltage-driven,50/60Hz ¹	44A6683-13
Power supply ass'y, 24 LED light engine, voltage-driven, 50/60 Hz ¹	44A6683-2
Power supply ass'y, 30 LED, 95-264 VAC, 50/60 Hz, ICAO ¹	44A6683-10
Power supply ass'y, 30 LED, current driven, 50 Hz, ICAO ¹	44A6683-11
Power supply ass'y, 30 LED, current driven, 60 Hz, ICAO ¹	44A6683-12

Notes

¹ Includes power supply PC board, heat-sink, and mounting bracket

Appendix A: SUPPORT

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

ADB SAFEGATE Support

Live Technical Support - Americas

If at any time you have a question or concern about your product, just contact ADB SAFEGATE's technical service department. Trained in all areas of system issues, troubleshooting, quality control and technical assistance, our highly experienced Technical support specialists are available 24 hours a day, seven days a week to provide assistance over the phone.

ADB SAFEGATE **Americas Technical Service & Support (US & Canada): +1-800-545-4157**

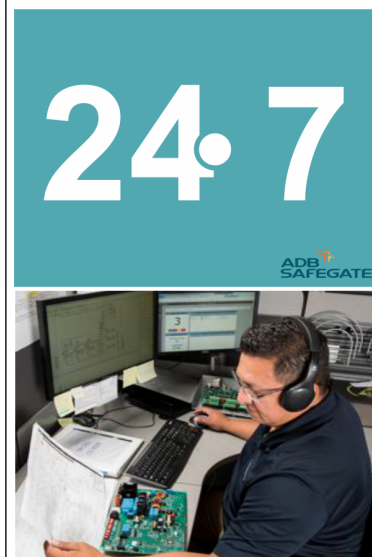
ADB SAFEGATE Americas Technical Service & Support (International): +1-614-861-1304

During regular business hours, you can also Chat with a Service Technician. We look forward to working with you!

Before You Call

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

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



Note

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

Brussels: +32 2 722 17 11

Rest of Europe: +46 (0) 40 699 17 40

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

China: +86 (10) 8476 0106

A.1 ADB SAFEGATE Website

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

A.2 Recycling

A.2.1 Local Authority Recycling

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

A.2.2 ADB SAFEGATE Recycling

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

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

All items returned must be clearly labeled as follows:

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

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

Company Addresses

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