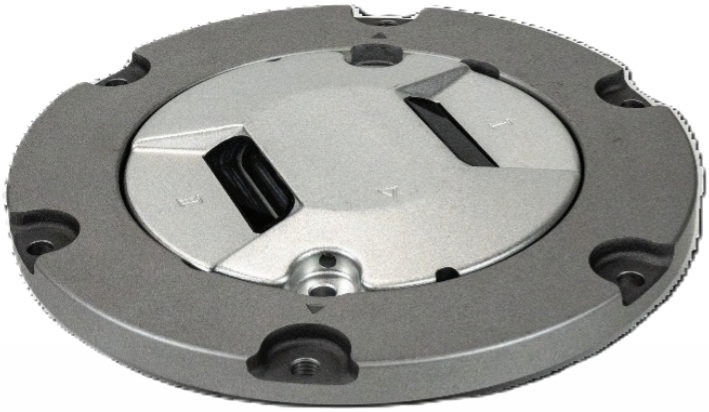
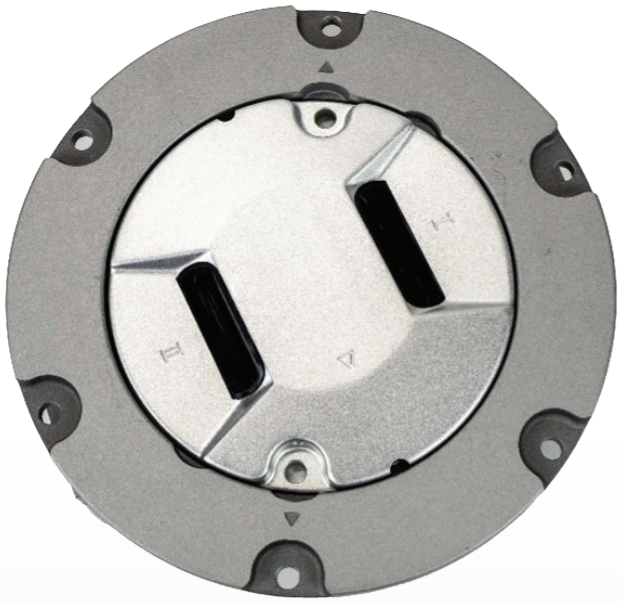
AirportLightingCompany
An ISO 9001:2015 Certified Company

OWNER'S MANUAL





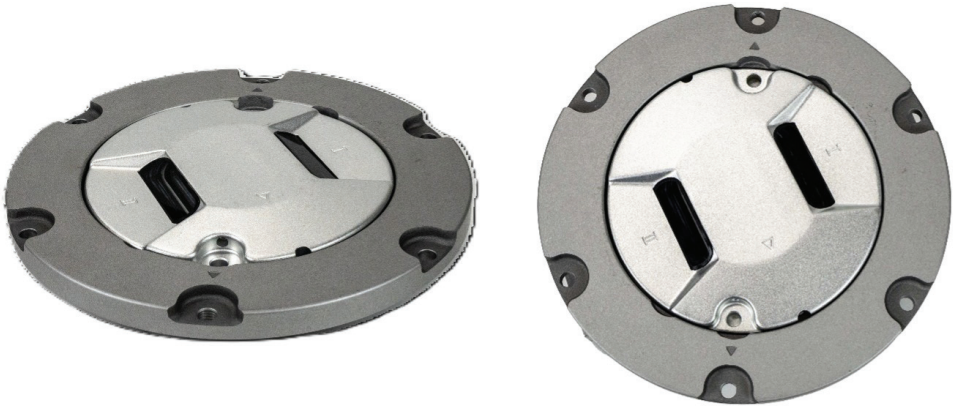
L-850A(L) & L-850B(L)
Runway Inset LED Fixtures

AirportLightingCompany
An ISO 9001:2015 Certified Company

L-850A(L) & L-850B(L) Runway Inset LED Fixtures Owner's Manual

ETL Certified to:
FAA AC 150/5345-46 and EB 67

Compliant to:
ICAO: Annex 14, Volume 1 (Current Edition)
T/C: Transport Canada TP 312



Manufactured by:
Airport Lighting Company
108 Fairgrounds Drive
Manlius, New York 13104
(315) 682-6460

Email: info@airportlightingcompany.com
Website: www.airportlightingcompany.com

TABLE OF CONTENTS

AirportLightingCompany
An ISO 9001:2015 Certified Company

General Inquiry:

PHONE: (315) 682-6460

EMAIL: info@airportlightingcompany.com

Technical Support:

PHONE: (866) 212-1060

EMAIL: support@airportlightingcompany.com

WEBSITE: www.airportlightingcompany.com

AirportLightingCompany
An ISO 9001:2015 Certified Company

108 Fairgrounds Drive
Manlius, New York 13104

Products manufactured by Airport Lighting Company (ALC) which use LEDs as a light source are warranted against mechanical and physical defects in design or manufacture for a period of 2 years from date of installation per the applicable FAA Advisory Circular and against electrical defects in design or manufacture of the LED or LED specific circuitry for a period of 4 years per FAA EB67D. ALC will correct such defects by repair or replacement, at its option, provided the products have been properly handled and stored prior to installation, properly installed and operated after installation, and provided further that the Buyer has notified ALC in writing within the warranty period and within a reasonable time after notice of such defects. Refer to handling, storage, installation and operational instructions for proper procedural guidance that must be followed to maintain warranty provisions.

This warranty is in effect for the specified term as long as the equipment, in ALC's judgment, has not been altered in such a way as to affect the equipment adversely, subject to accident, negligence, improper storage, and has been operated and maintained in accordance with accepted FAA guidelines as described in AC 150/5340-26 and ALC's published operational guidelines.

ALC reserves the right to examine products about which a claim has been made. Equipment must be presented in the same condition as when the defect was discovered. ALC also reserves the right to require the return of equipment to establish any claim.

Statement of Warranty

https://www.airportlightingcompany.com/terms-conditions/

The L850A(L) and L850B(L) Runway Lights are certified as a runway centerline and touchdown zone LED lights. Used to illuminate the center of a runway, often categorized as a "high intensity" light, and designed to meet FAA standards, particularly for Category II and III operations. The low-profile, inset fixture that emits either bi-directional white/red or white/white light or uni-directional white or red to guide pilots during landing and takeoff.

Runway Centerline Lights are typically recommended for CAT I runways greater than 170 ft (50m) in width or when used by aircraft with approach speeds over 140 knots Aircraft Approach Category (AAC).

All internal electrical connections are completed at the factory. All that is required from the contractor is to connect the fixture into the correct electrical supply, bolt the unit to the light base, and ensure proper alignment with the runway centerline or touchdown zone.

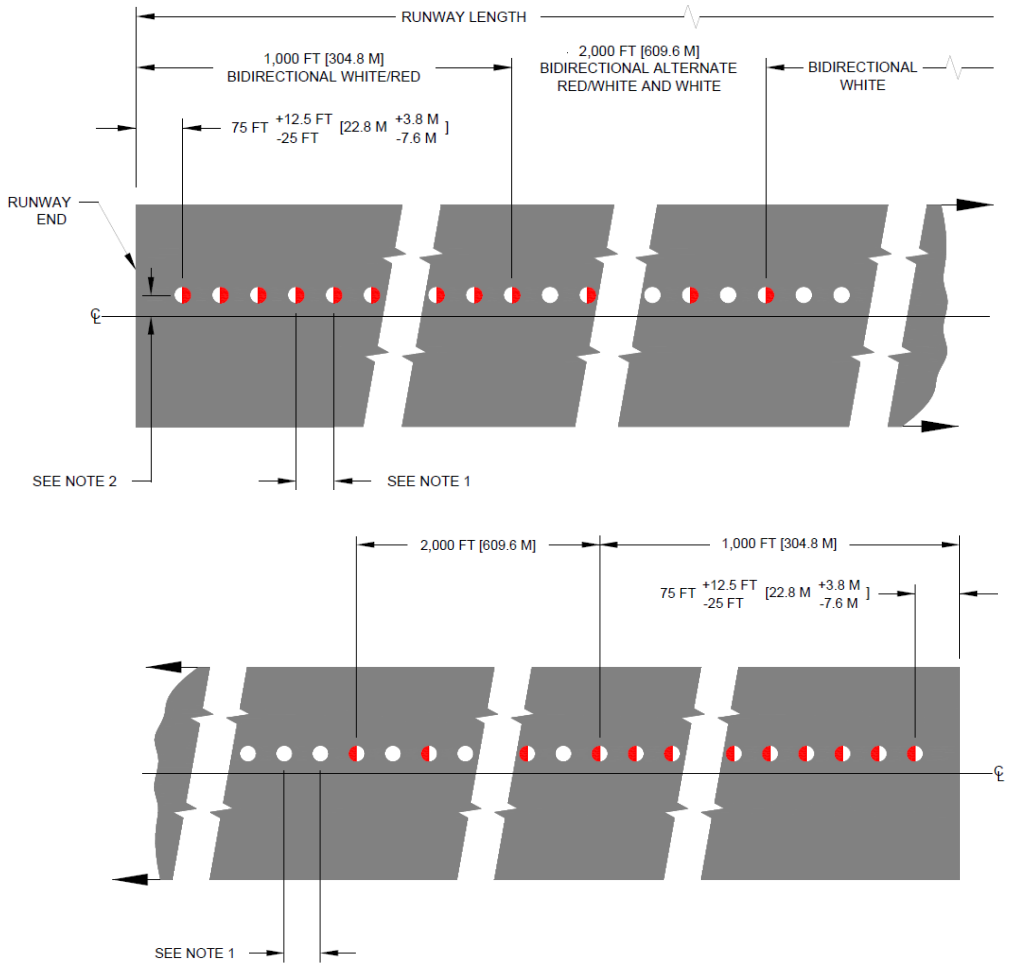
This unit is designed to meet FAA light specifications for 50,000 hours of operation. Internal temperature monitoring automatically adjusts the LED intensity to maintain a steady light output across the operating temperature range. The unit records faults in internal memory so that Airport Lighting Company can review the performance of any unit that is returned to them.

FAA Siting Considerations

The FAA provides the following siting considerations:

Runway Centerline Lighting

The Runway Centerline Lights (RCL) are located along the centerline at 50 ft (15M0 intervals that are equally spaced longitudinally. The tolerance is ±2 ft (0.6m). The following graphic depicts a sample layout of the bi-directional RCLs. The RCLs may uniformly be offset laterally to the same side of the physical runway centerline by a maximum of 2.5 ft (0.8m) ± 1 inch (25.4mm). See figure below from AC 150/5340-30J.



Note:

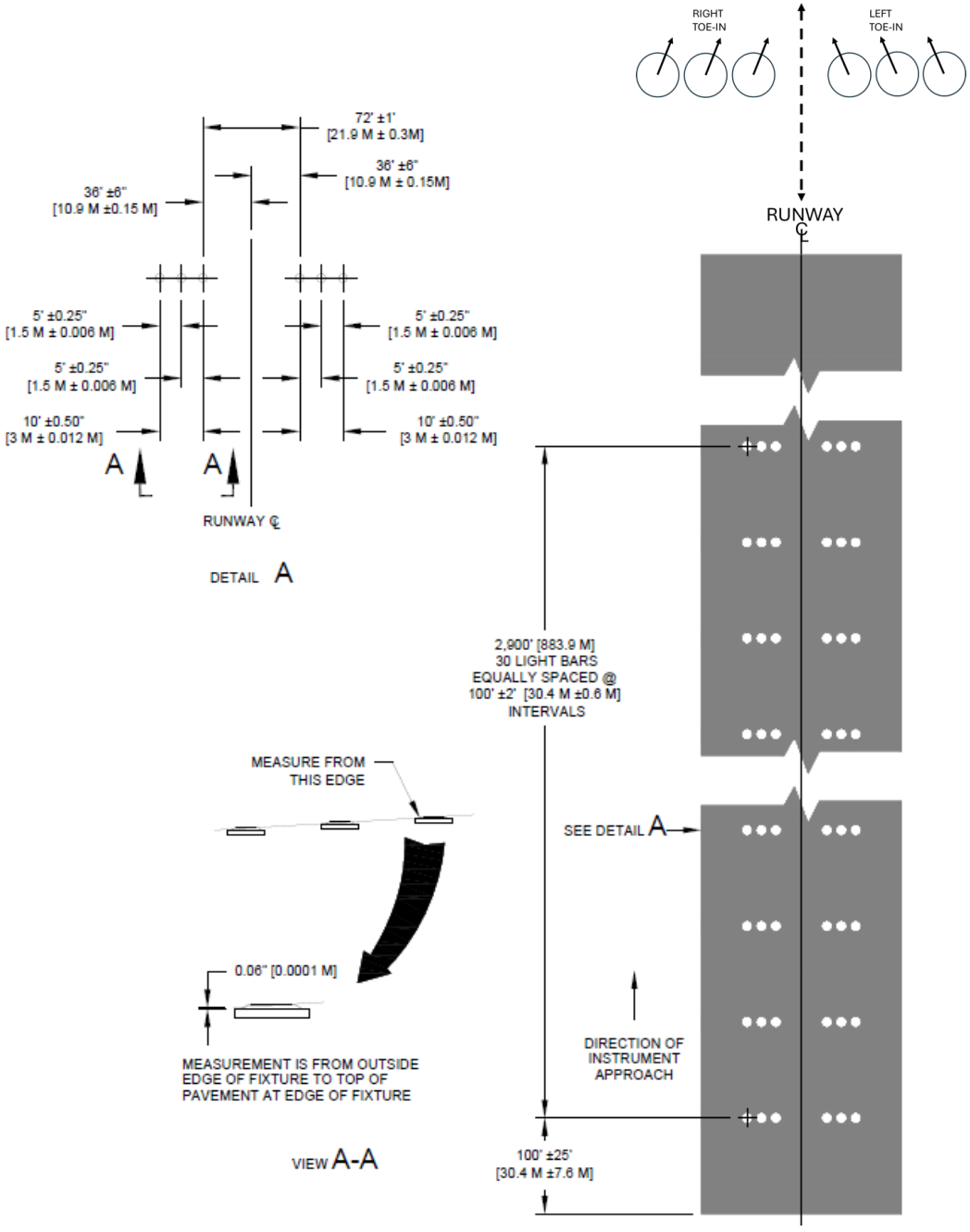
1. ***Refer to AC 150/5345-30J paragraph 3.3.1.1 for placement and tolerances.***
2. ***Space L-850A RCLs equally at 50ft (15.2m), longitudinal tolerance of ±2ft (0.8m).***

Legend:

- BIDIRECTIONAL RCL - WHITE BOTH DIRECTIONS
- BIDIRECTIONAL RCL - RED IN DIRECTION OF SHADED SIDE WHITE IN DIRECTION OF WHITE SIDE

Touchdown Zone Lighting

The Touchdown Zone Lights (TDZ) consist of two rows of transverse light bars located symmetrically about the runway centerline. Each light bar will consist of three (3) uni-directional lights facing the landing threshold. The light output will be toed at an angle of 4° toward the runway centerline. See figure below from AC 150/5340-30J.



Unpacking

Light units should be stored and transported in original ALC shipping containers. Unpacking of lights should be done at the runway location where light will be installed.

Inspect and verify the light nameplate to ensure it corresponds to the site location for installation. Visually inspect the light for any damage. If any damage is noted, immediately contact ALC for a possible warranty claim. Claims should also be filed with the freight/shipping company.

Tools Required

The following are the recommended tools for proper installation:

- Torque wrench set
- Torx/Star type driver set
- Ring Spanner set
- Large Flat head screwdriver to reposition light if required

No special tools are required for installation of light if the base can is properly installed.

The L-850A(L) or L-850B(L) can be installed within one of two methods, Shallow Base Can or Standard Base Can (L-868). Base Cans should be installed in accordance with FAA AC 150/5340-26 and 150/5340-30.

Installation

1. Prior to installation of the light fixture, check and confirm if the light base is correctly installed in accordance with beam direction and in line with ground level.

2. Closely check if any damage on the light base exists.

3. Clean the light base and remove water or moisture in it.

4. Place light fixture on a protective pad with the bottom pad exposed.

5. Ensure L823 connector plugs are free of dirt and debris. Connect the FAA L-823 secondary plug of the light fixture to isolating transformer.

6. Wrap the connector joints in the primary circuit with at least one layer of rubber or synthetic rubber tape and one layer of plastic tape, one-half lapped, extending at least 1-1/2 inches (4 cm) on each side of the joint. Heat-shrink tubing may be substituted.

7. Place the light fixture on the light base and ensure the secondary cable is not twisted.

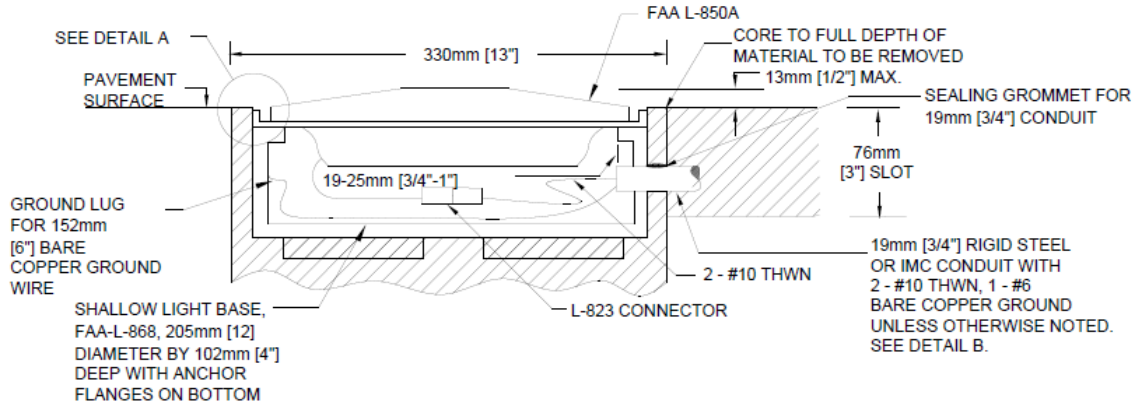
8. Check and make alignment for the light fixture in accordance with correct beam direction, color of light and mentioned arrow.

9. Fix the light fixture on the light base torqued to 22ft-lb (30N-m).

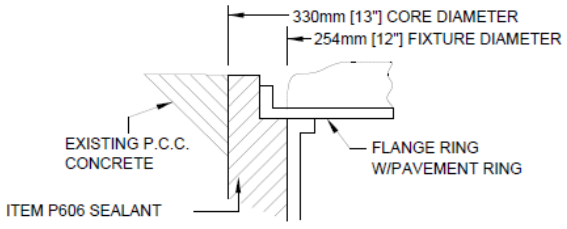
10. Verify proper installation of light fixture and clean the work area of tools, waste and debris.

Installation on Shallow Base

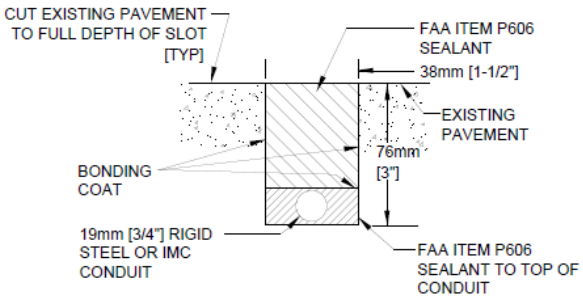
Shallow base installations are used when FAA L-868 base cans are not feasible. The shallow base can is typically installed in a recess cut within the pavement and secured by an adhesive compound. The following details are general overviews for a shallow base and conduit installation. Site plans and engineering specifications should be consulted for actual design, construction and installation of the base can and light. FAA AC 150/5340-30 should also be consulted.



DETAIL - FIXTURE INSTALLATION ON SHALLOW BASE



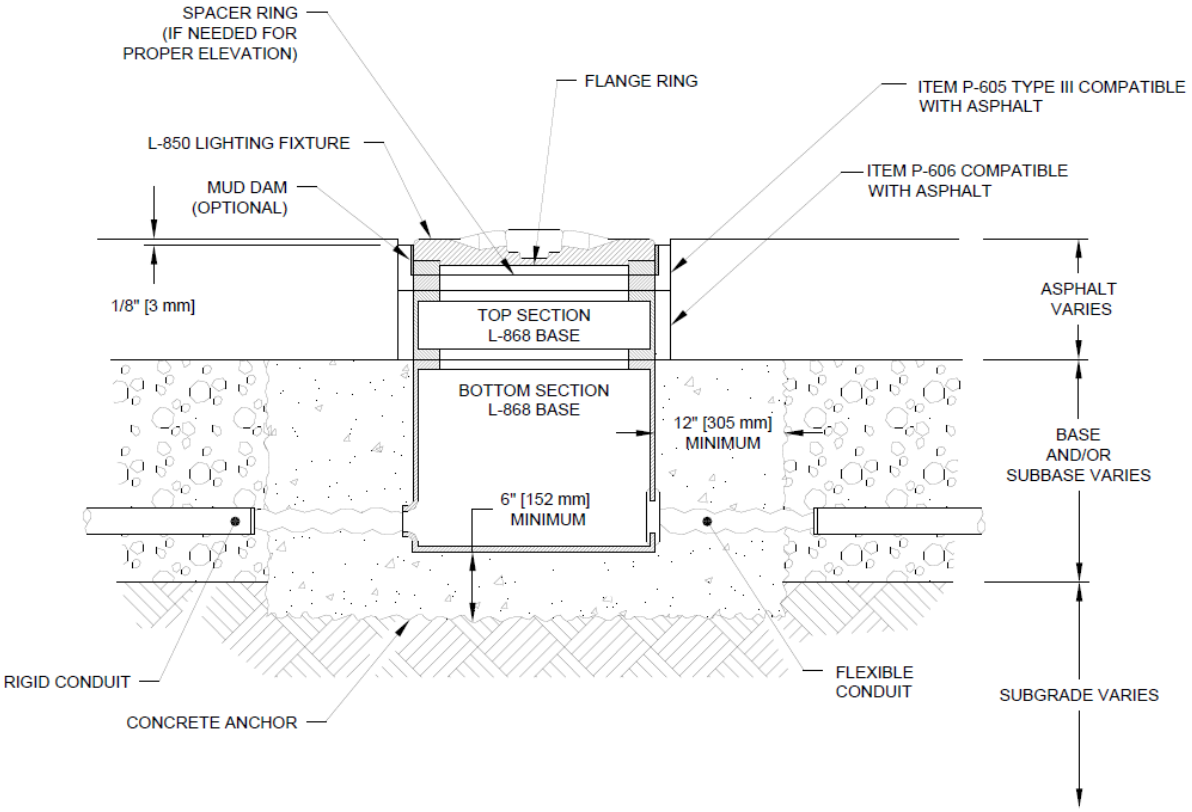
DETAIL A



DETAIL B

Installation on Standard L-868 Base

Type L-868 base cans are used as mounting bases for in-pavement airport light fixtures. The properly sized L-830 isolation transformer will be housed within the base can. The base can must be designed to withstand aircraft and other heavy vehicular loadings. The design must allow the installation of any in-pavement fixture certified to AC 150/5345-46. Site plans and engineering specifications should be consulted for actual design, construction, and installation of base can and light. FAA AC 150/5340-30 should also be consulted.



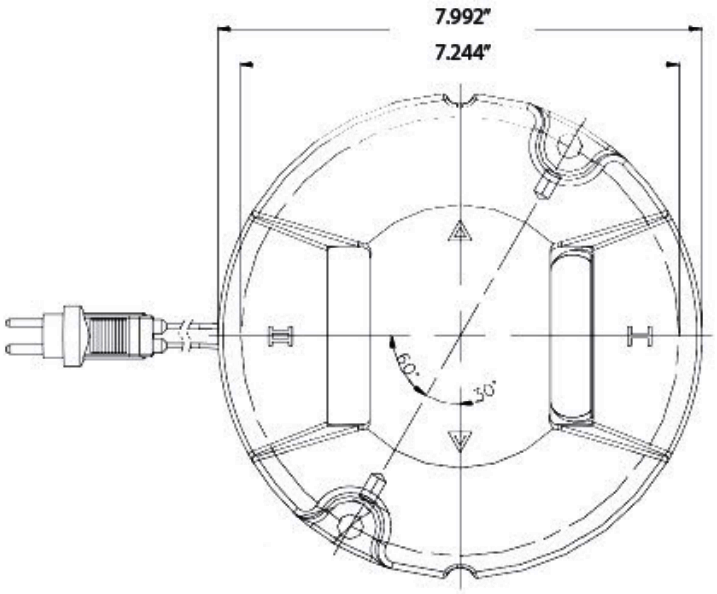
L-850A(L) Runway Centerline Lights

Property	Item	Specification
Environmental	Operating Temperature	-40°F - +130°F (-40°C - +55°C)
	Storage Temperature	-55°F - +130°F (-55°C - +55°C)
	Ingress Protection	IP67
	Salt Fog	Per FAA AC AC 150/5345-46
	Temperature Shock	Per FAA AC AC 150/5345-46
Electrical	Input Mode	Mode 1, 2.8-6.6 Amperes(A), Series Circuit
	Power Consumption (Isolation Transformer)	White/White: 36VA (45W) White/Red: 32VA (45W) White: 33VA (45W) Red: 13VA (25W)
	Lamp Type	LED
	Lamp Life	> 50,000 Hours
Photometric (Nominal)	Light Colors	White/White; White/Red; White; Red
	Main Beam Angle	Vertical: 0.2° to 9°, Horizontal ±5°
	Minimum Average Intensity	White: 5,000cd Red: 750cd
	Minimum Intensity	White: 2,500cd (main beam curve) Red: 375cd (main beam curve)
	10% Minimum Intensity	Vertical: -4° to 13°, Horizontal ±7° White: 500cd Red: 75cd
	Chromaticity Data	White (x 0.348, y 0.353), Red (x 0.695, y 0.301)
Mechanical	FAA Style	Style 3 - <1/4 inch (6.35 mm)
	Dimensions	8.00" x 3.15" (203mm x 80mm)
	Cord Length	15.75" (400mm), L-823 Style 6
	Weight	6.4 lb. (2.9kg)
Composition	Upper Casting	Aluminum
	Lower Cover	Aluminum
	LED Bracket	Aluminum
	Prism	Heat Resistant Glass (Clear Borosilicate)

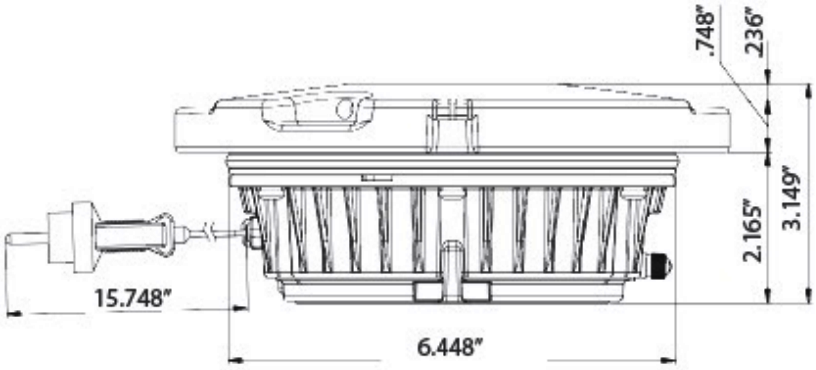
L-850B(L) Touchdown Zone Lights

Property	Item	Specification
Environmental	Operating Temperature	-40°F - +130°F (-40°C - +55°C)
	Storage Temperature	-55°F - +130°F (-55°C - +55°C)
	Ingress Protection	IP67
	Salt Fog	Per FAA AC AC 150/5345-46
	Temperature Shock	Per FAA AC AC 150/5345-46
Electrical	Input Mode	Mode 1, 2.8-6.6 Amperes(A), Series Circuit
	Power Consumption (Isolation Transformer)	White: 33VA (45W)
	Lamp Type	LED
	Lamp Life	> 50,000 Hours
Photometric (Nominal)	Light Colors	White
	Main Beam Angle	Vertical: 0.2° to 9°, Horizontal -1° to 9°
	Minimum Average Intensity	White: 5,000cd
	Minimum Intensity	White: 2,500cd (main beam curve)
	10% Minimum Intensity	Vertical: -0.5° to 11.5°, Horizontal -3° to 11° White: 500cd
	Chromaticity Data	White (x 0.348, y 0.353)
Mechanical	FAA Style	Style 3 - <1/4 inch (6.35 mm)
	Dimensions	8.00" x 3.15" (203mm x 80mm)
	Cord Length	15.75" (400mm), L-823 Style 6
	Weight	6.4 lb. (2.9kg)
Composition	Upper Casting	Aluminum
	Lower Cover	Aluminum
	LED Bracket	Aluminum
	Prism	Heat Resistant Glass (Clear Borosilicate)

Dimensional Drawings



Top View



Front View

Fixture	
Shipping Weight	6.5lb (3.1kg)
Shipping Dimensions	9.5" x 8.5" x 4.5" (241mm x 215mm x 114mm)

MAINTENANCE

AirportLightingCompany
An ISO 9001:2015 Certified Company

For safe air operation, airfield lighting fixtures must receive preventive maintenance. To maintain the elevated runway edge light functioning effectively, check and adhere to the preventive maintenance schedule using the FAA's reference to the table below.

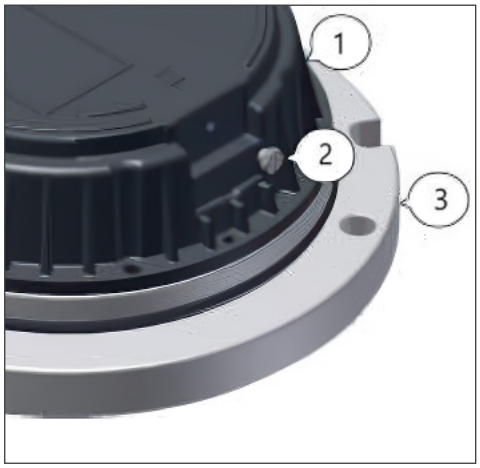
Maintenance	Daily	Weekly	Monthly	Bi-Annually	Annually	Emergency
Lighting Status	•					
Prism Blockage		•				
Cleaning & Damage to Prism		•				
Alignment & Direction of Beam			•			
Lamp & Socket Cleaning			•			
Proper Height Adjustment				•		
Moisture Ingress				•		
Bolt Torque				•		
Prism Sealant					•	
Cable Condition					•	
Cable Resistance					•	
Isolation Transformer Inspection					•	
Deicing & Snow Removal						•

Property	Item	Specification
No Light	Lamp Failure	Replace LED module
	Light connected to secondary plug	Verify proper connections
	Isolation Transformer fault	Verify transformer operation
	Control Board Failure	Replace Control Board
Low Brightness	Lamp Failure	Replace LED Module
	Water Ingress	Check for prism damage Check o-ring Check power cord
	Control Board Failure	Replace Control Board
	Damaged Prism	Replace Prism

Depressurize Procedure

1. Place light fixture upside down to expose bottom pan (1) and fitting plug (2).

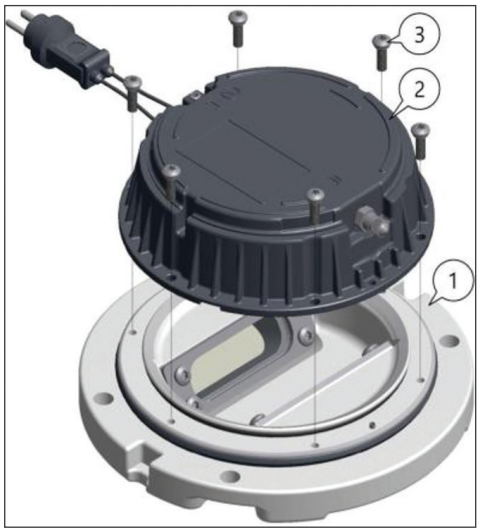
2. Turn the fitting plug (2) by hand counterclockwise to release any pressurized gas.



Bottom Pan Removal

1. Place light fixture (1) upside down.

2. With Bottom Pan (2) exposed, use a T25 Torx driver to remove the six M5 bolts (3).

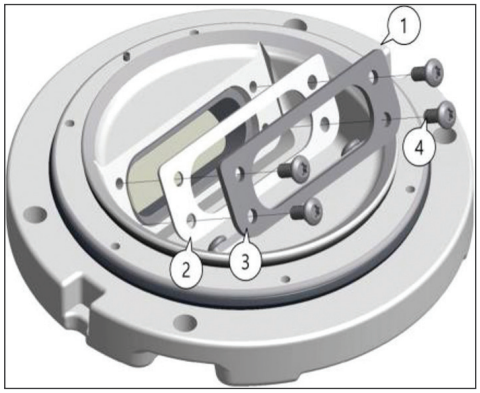


Prism Holding Bracket Removal

1. With bottom pan removed from light fixture (1), locate the four M5 bolts (4).

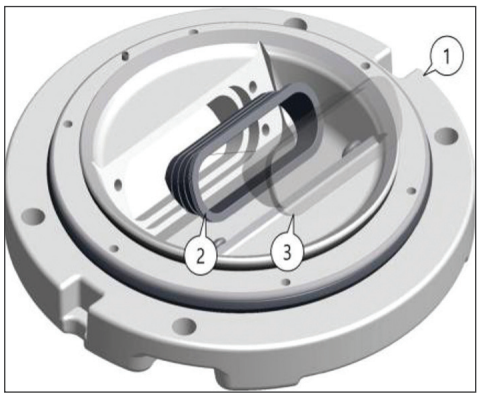
2. Use a T25 Torx driver to remove the four bolts.

3. Remove the holding bracket (3) and prism gasket (2).



Prism Removal

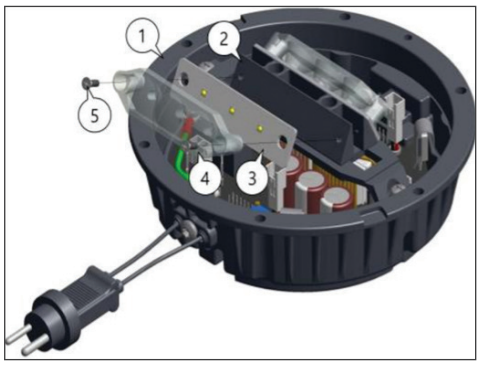
1. With holding bracket and prism gasket removed from the light fixture (1), push out the prism (3) and prism sealant material (2).



Removal of Lens and LED Module

1. With bottom pan (1) electronics exposed, locate the LED clear lens (4) and LED module (3).

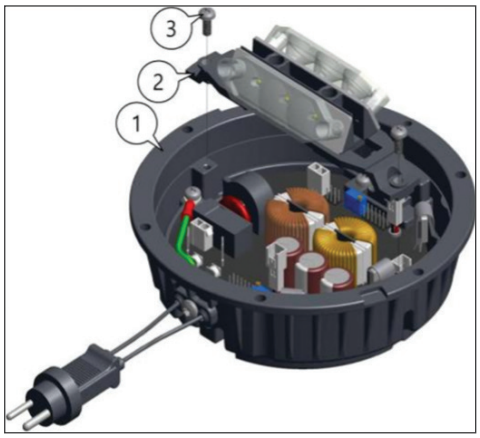
2. Remove the two M3 bolts (5) from the LED module bracket (2).



Removal of LED Module Bracket

1. With Lens and LED Module removed from bottom pan (1), locate the two M4 bolts (3) securing bracket (2) to bottom pan.

2. Use a Phillips screwdriver to remove bolts.

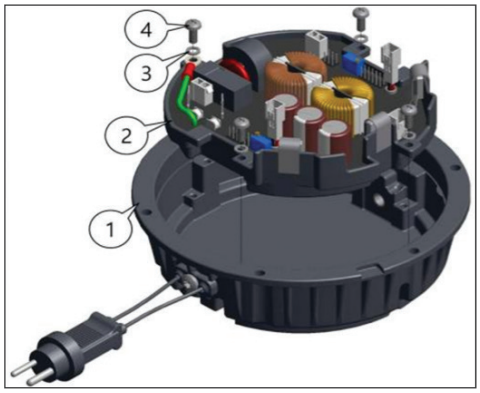


Removal of Control Board

1. With LED Module bracket removed from the bottom pan (1), locate the four M4 bolts (4) securing control board (2) to bottom pan.

2. Use a Phillips screwdriver to remove bolts (4) and washers (3).

3. Disconnect L823 power cord from control board.



The L850 LED fixture is designed to operate in:

- Two different FAA Types (L-850A or L-850B)
- Four different color setups (White/White, White/Red, White or Red)
- Two different fail settings (Fail Open Enabled, Fail Open Disabled)

To properly set the fixture for its intended purpose, the Control Board will need to specific jumpers set. The bottom pan must be removed from the light fixture to gain access to the setting locations.

Follow the Jumper Pin Settings in Table 1 below for the specific application.

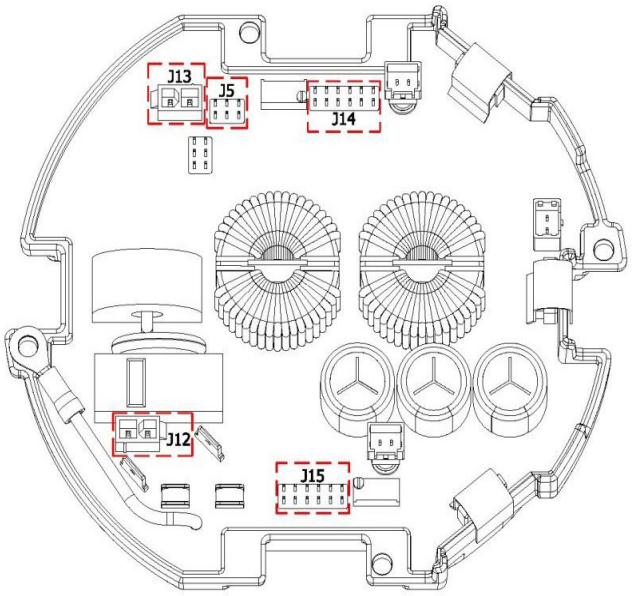
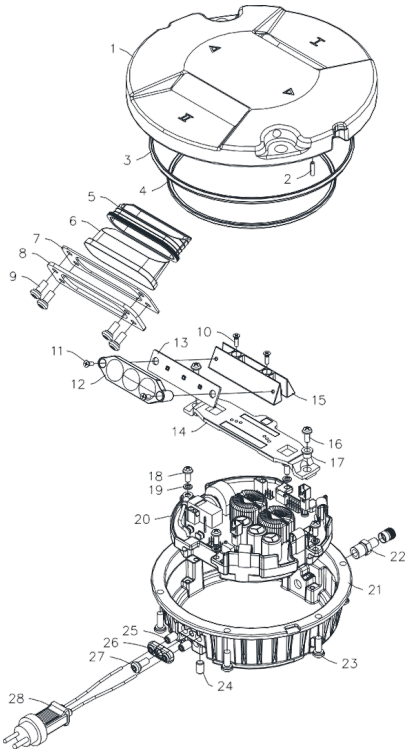


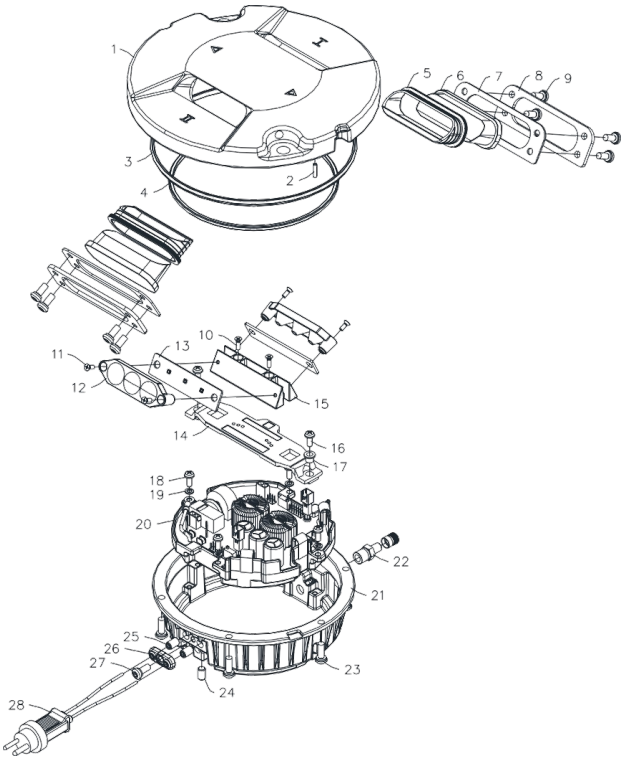
TABLE 1. JUMPER PIN SETTINGS

LIGHTS	TYPE	COLOR	OUTPUT CURRENT SETTINGS		FAIL OPEN					
					ENABLE			DISABLE		
			J14	J15	J5	J12	J13	J5	J12	J13
RCLL	L-850A(L)	WHITE	13 11 9 7 5 3 1 14 12 10 8 6 4 2	2 4 6 8 10 12 14 1 3 5 7 9 11 13	9 7 5 3 1 10 8 6 4 2			9 7 5 3 1 10 8 6 4 2		
		RED	13 11 9 7 5 3 1 14 12 10 8 6 4 2	2 4 6 8 10 12 14 1 3 5 7 9 11 13	9 7 5 3 1 10 8 6 4 2			9 7 5 3 1 10 8 6 4 2		
		WHITE /WHITE	13 11 9 7 5 3 1 14 12 10 8 6 4 2	2 4 6 8 10 12 14 1 3 5 7 9 11 13	9 7 5 3 1 10 8 6 4 2			9 7 5 3 1 10 8 6 4 2		
		WHITE /RED	13 11 9 7 5 3 1 14 12 10 8 6 4 2	2 4 6 8 10 12 14 1 3 5 7 9 11 13	9 7 5 3 1 10 8 6 4 2			9 7 5 3 1 10 8 6 4 2		
RTZL	L-850B(L)	WHITE	13 11 9 7 5 3 1 14 12 10 8 6 4 2	2 4 6 8 10 12 14 1 3 5 7 9 11 13	9 7 5 3 1 10 8 6 4 2			9 7 5 3 1 10 8 6 4 2		

L-850 Uni-directional & Bi-Directional Fixtures

Item	Uni-Directional Quantity	Bi-Directional Quantity	Description	Part Number
3	1	1	O-Ring, 6.5"OD	33-50026
4	1	1	O-Ring, 5.16"OD	33-50006
5	1	2	Prism Sealant	33-44005
6	1	2	Prism	33-40002
7	1	2	Prism Gasket	33-44001
8	1	2	Prism Holding Bracket	33-44009
10-15	1	1	LED Module Kit, White/White	33-81144
10-15	1	1	LED Module Kit, White (Toe Left)	33-82142
10-15	1	1	LED Module Kit, White (Toe Right)	33-82124
10-15	1	1	LED Module Kit, White/Red	33-81143
20	1	1	Control Board	33-34002





AirportLightingCompany
An ISO 9001:2015 Certified Company

L-850A Ordering Code

General Catalog Numbers

850A-□□-8□-□

Color
WW = White/White
WR = White/Red
WO = White/Obscured
RO = Red/Obscured

Dimension
F = 12" (FAA Support Ring)
N = 8"

Option
1 = Prism Hardness Coating

L-850B Ordering Code

General Catalog Numbers

850B-□□-8□-□

Color (Toe In L/Toe in R)
WO = White/Obscured
OW = Obscured/White
WS = White/Obscured (Straight)

Dimension
F = 12" (FAA Support Ring)
N = 8"

Option
1 = Prism Hardness Coating