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September 20, 2008

COOPER Crouse-Hinds

Instruction Manual



Style 3

Runway Centerline Light (RCL) L-850A

Runway Touchdown Zone Light (TDZ) L-850B

Part Number series 850X3-XX-XX

single piece aluminum inset fixture

Cooper Industries
Crouse-Hinds Division
Crouse-Hinds Airport
Lighting
1200 Kennedy Road
Windsor, CT 06095

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For parts and technical service call (860) 683-4300

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Revision Number	Issue/Reissue Letter Number	Description	Checked	Approved
A	A204-100	INITIAL ISSUE	KWF	JMM
B	A204-247	Corrected Headers on sheets 6-11	GFR	10/14/04
C	A206-369	Revised title page copyright and deleted patent pending; 6.2 was Taxiway Centerline Light L-852B	PG	9/28/06
D	A208-188	Paragraph 6.1 & 6.2, FAA AC 150/5345-46C was -46B; 9 Parts List, item 4 was 21137-1, item 5 was 21137-2, item 9 was 21115, item 19 was 10000-469 & added 25; Figure 6, revised to show item 25	PG	9/20/2008

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2 Limited Product Warranty

THE FOLLOWING WARRANTY IS EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED OR STATUTORY, INCLUDING, BUT NOT BY WAY OF LIMITATION, ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

Crouse-Hinds Airport Lighting Products (“the Company”) warrants to each original Buyer of Products manufactured by the Company that such Products are, at the time of delivery to the Buyer, free of material and workmanship defects, provided that no warranty is made with respect to:

- (a) any Product which has been repaired or altered in such a way, in Company’s judgment, as to affect the Product adversely;
- (b) any Product which has, in Company’s judgment, been subject to negligence, accident or improper storage;
- (c) any Product which has not been operated and maintained in accordance with normal practice and in conformity with recommendations and published specification of Company; and,
- (d) any Products, component parts or accessories manufactured by others but supplied by Company (any claims should be submitted directly to the manufacturer thereof).

Crouse-Hinds Airport Lighting Products’ obligation under this warranty is limited to use of reasonable means to repair or, at its option, replace, during normal business hours, at any authorized service facility of Company, any Products which in its judgment proved not to be as warranted within the applicable warranty period. All costs of transportation of Products claimed not to be as warranted and of repaired or replacement Products to or from such service facility shall be borne by Purchaser. Company may require the return of any Product claimed not to be as warranted to one of its facilities as designed by Company, transportation prepaid by Purchaser, to establish a claim under this warranty. The cost of labor for installing a repaired or replacement product shall be borne by Purchaser. Replacement parts provided under the terms of this warranty are warranted for the remainder of the warranty period of the Products upon which they are installed to the same extent as if such parts were original components thereof. Warranty services provided under the Agreement do not assure uninterrupted operations of Products; Company does not assume any liability for damages caused by any delays involving warranty service. The warranty period for the Products is 24 months from date of shipment or 12 months from date of first use whichever occurs first.

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3 Safety Notices

This equipment is normally used or connected to circuits that may employ voltages that are dangerous and may be fatal if accidentally contacted by operating or maintenance personnel. Extreme caution should be exercised when working with this equipment. While practical safety precautions have been incorporated in this equipment, the following rules must be strictly observed:

3.1 KEEP AWAY FROM LIVE CIRCUITS

Operating and maintenance personnel must at all times observe all safety regulations. Do not perform maintenance on internal components or re-lamp with power ON.

3.2 RESUSCITATION

Maintenance personnel should familiarize themselves with the technique for resuscitation found in widely published manuals of first aid instructions.



See FAA Advisory Circular AC 150/5340-26 for additional information.

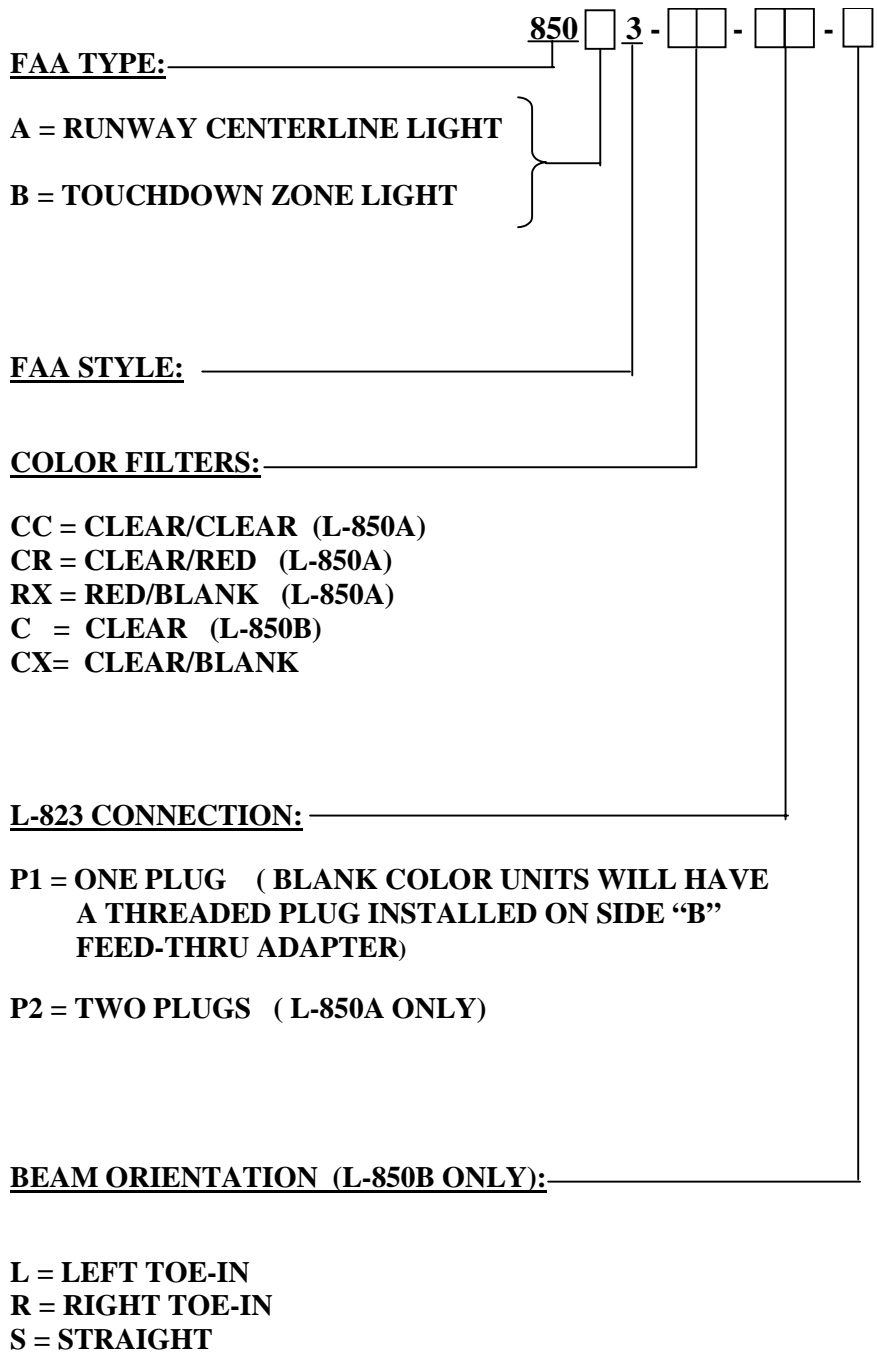
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5 Part Number Explanation – Runway Centerline / Touchdown Zone Light



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The Crouse-Hinds Style 3 Runway Centerline Light is an ITS verified FAA L-850A per FAA AC 150/5345-46C. It is designed for installation at the centerline of runways or any other location where visual guidance of moving aircraft or ground vehicles is desirable. The fixture is designed to fit on a FAA L-868, steel, Size B light base per FAA AC 150/5345-42(latest version), and have a total height above grade/ground level of < .250 inch. The fixture is either uni-directional projecting one beam of light, or bi-directional projecting two beams of light 180° apart. It is weatherproof and will endure roll over loads without damage. The light fixture consists of an aluminum optical assembly and a die cast bottom housing. The bottom housing is attached to the optical housing using six screws. There is an integrated gasket that is bonded to the bottom cover to prevent water from entering the assembled fixture. The fixture is mounted to a light base with six bolts (3/8-16 UNC x7/8 lg., stn. stl.) and lock washers (3/8, stn. Stl.). One or two 32-watt, MR-16 lamps are secured to brackets, which are fastened to the bottom housing. Electrical connections are made at either one or two feed-thru assemblies in the inner cover. The feed-thrus have ITS verified L-823 plugs for connecting to FAA L-830/ L-831 Isolation Transformers. Lenses are held into the aluminum housing with a bracket, gasket, molded elastomeric boot and two screws. The light beam color is changed when it passes through the lens, which can be changed in the field.. All hardware is type 18-8 stainless steel. The complete light unit is 11.94 inches in diameter, 3.63 inches deep, and weighs 12 lbs.

6.2 Touchdown Zone Light, L-850B

The Crouse-Hinds Touchdown Zone Light is an ITS verified FAA L-850B per FAA AC 150/5345-46C. Its design is identical to the L-850A described in section 6.1.



Caution: *Never handle the light assembly by the leads as this can break the waterproof seal*

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7 Installation

The Style 3 RCL/TDZ light units are shipped complete, including the lamp(s), and are ready for installation as received. Installation of a light unit is to be done with primary **POWER OFF** and **SECURED**. At each light location, install a steel, Size B, 12 inch deep minimum, L-868 Light Base per FAA AC 150/5340-4 (latest revision). Install the light base with two opposite bolt holes perpendicular to the runway centerline. Place the properly sized isolation transformer(s) in the light base and make necessary primary power connections using L-823 connectors. The RCL light unit requires either two 45 watt, 6.6A secondary transformers for the two lead version, or one 100 watt, 6.6A secondary transformer for the single lead version. The TDZ light unit requires one 45 watt, 6.6A secondary transformer. Verify that the mounting flange on the light base is clean and the o-ring (optional on deep cans) is coated with Dow Corning FS 1292 grease and is in place on the light base. Connect the plug(s) from the light unit to the secondary(ies) of the previously installed isolation transformer(s). Installation tool, Crouse-Hinds P/N 19999, will ease in the installation and removal of the light unit (See Figure 1). The threaded eyebolts on the lifting tool screw into threaded holes in the light fixture. Lower the light unit straight down onto the base. The light fixture is subject to optical misalignment or mechanical damage if not seated properly. Verify the light beam(s)/color/toe-in are properly orientated for the individual location. Secure the light fixture to the base with six 3/8-16 UNC x 7/8 lg. stn. Stl. bolts and lockwashers and tighten to 225 +0 -10 in-lbs. (18 ft-lbs.). Loctite 242 may be used on the bolts to prevent loosening due to vibration.

8 Maintenance

The preferred method of maintaining these lights is to periodically and systematically replace the Optical Assembly and return it to the maintenance shop for renovation. As an alternative, the Optical Assembly can be serviced in the field. However, it is recommended that field servicing be limited to cleaning the lens as described in section 8.1 and to lamp replacements as described in section 8.2.

8.1 Cleaning Lenses

With a compressed air blast or suitable brushes, remove all accumulated debris from the light channel. Clean the outer surface of the prism with a detergent solution. If the lens is coated with a substance impervious to the detergent, a suitable solvent should be sparingly applied with a wad of cotton or a patch of cloth on the end of a wood splint. After the solvent has acted the remaining solvent and softened coating should be removed with a clean piece of cotton or cloth. Care should be taken to avoid excessive contact between the solvent and the lens seal. Remove all remaining solvent from lens and seal. A gentle air blast may be used.

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Warning - Light assembly parts are hot when lamp is energized and remain hot for a short time after lamp/fixture is turned off.

Remove and secure power to the fixture. Separate the fixture from the base by removing the six bolts. Turn the fixture upside down and remove the six screws holding the inner cover to the optical housing. Disconnect the lamp leads from the feed-thru terminals. Remove the Lamp Assembly by gently pulling up on the lamp reflector base. Inspect the feed-thru terminal for signs of corrosion. Replace feed-thru assemblies per paragraph 8.5. Clean the inside surfaces of the lens(es) with denatured alcohol. Inspect the lamp holder bracket(s) for loose hardware; tighten the mounting screws to 30 in-lbs.



Caution – Touching the quartz bulb with bare fingers may seriously shorten lamp life. If the bulb has been touched, wipe it clean with a piece of lens cleaning tissue or similar material moistened with denatured alcohol.

Install the new lamp by reversing the procedure above. Make certain the rim of the reflector is flush against the bracket and seated against the two pins at the bottom of the bracket. Connect the lamp leads to the feed-thru terminals. Inspect/ replace the inner cover gasket per paragraph 8.3. Assemble the inner cover onto the light housing. The screw hole patterns in the inner cover and light housing are offset to insure proper alignment. Tighten the mounting screws to 30 in-lbs. Perform a pressure test as described in paragraph 8.6..

8.3 Gasket Replacement

Everytime the Optical Assembly is opened the gasket must be closely examined and replaced if necessary. Any gasket that is stretched, torn, has a permanent set or some other defect, which would prevent it from forming a watertight seal must be replaced with a new gasket.



Note – A bad gasket seal is the most common cause of inset fixture leaks. It is strongly recommended that a new gasket be installed every time the Optical Assembly is opened.

Remove the old gasket from the groove in the inner cover. Carefully clean the flange mating surfaces and the inner cover groove. This can be done by carefully scraping. Take care not to damage the mating surface and the bottom and sides of the groove. Coat the gasket (P/N 21140) with a thin layer of Dow Corning FS 1292 Lubricating grease. Position the new gasket in the center of the groove and press it into place. The grease will hold the gasket in place while the inner cover is positioned on the light housing. Torque the inner cover screws to 30 in-lbs. Perform a pressure test as described in paragraph 8.6.



Note – The groove is designed to be wider than the gasket. This provides room for displacement of the gasket when compressed between the housing and mating surface. Properly tightened screws are important in obtaining a complete seal.

8.4 Lens Replacement

If a lens is broken, leaks or is badly pitted or scarred, it must be replaced. It is highly recommended that this task be performed in a clean shop environment. Lens Replacement Kit P/N 21126-C or R contains all

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necessary parts to change a lens. **Remove and secure power to the fixture.** Separate the fixture from the light base by removing the six bolts. Turn the fixture upside down and remove the six screws holding the inner cover to the optical housing. Remove the wedge filter and bracket assembly per paragraph 8.6. Remove the two mounting screws and filter bracket assembly from the optical housing. Remove the two lens retaining bracket screws from the optical housing. Remove the lens-retaining bracket and discard the lens-retaining gasket. Firmly push the lens/boot assembly from the outside of the optical housing; discard the old lens and boot. Thoroughly clean the lens opening with denatured alcohol and allow to dry. Inspect the lens opening for scratches or pits, a damaged lens opening surface will not seal properly. Place a new lens boot (P/N 21103) over the replacement lens (P/N 21102-C or R). Apply a thin coat of Dow Corning FS 1292 grease over the entire outside surface of the lens boot. Align the lens/boot assembly in the lens opening and press it into place. Verify that the lens boot is not pinched in the lens opening. Using a new lens retaining gasket (P/N 21101), fasten the lens retaining bracket (P/N 21100) to the light housing. Torque the mounting screws to 30 in-lbs. Assemble the filter bracket assembly onto the optical housing per paragraph 8.6. Assemble the inner cover onto the optical housing. The screw hole patterns in the inner cover and optical housing are offset to insure proper alignment. Torque the mounting screws to 30 in-lbs. Perform a pressure test per paragraph 8.6. Connect the fixture to the isolation transformer(s), and place the fixture on the light base. Verify the light beam(s)/color/toe-in are properly orientated for the individual location. Torque the mounting bolts to 225 in- lbs.

8.5 Feed-thru Replacement

Remove and secure power to the fixture. Separate the fixture from the light base by removing the six bolts. Turn the fixture upside down and remove the six screws holding the inner cover to the optical housing. Disconnect the lamp leads from the feed-thru terminals. Remove the feed-thru by unscrewing the retaining collar. Clean the mounting surface with Isopropyl Alcohol and allow to dry. Apply a thin coat of Dow Corning FS 1292 grease to the mounting flange of a new feed-thru (P/N 21121 for 2 lamp/ 1 plug, or P/N 21122 for 1 lamp/ 1 plug). Apply a drop of Loctite 242 to the feed-thru adapter threads. Screw the feed-thru retaining collar onto the adapter; refer to Figure 5 for proper inner cover/ feed-thru orientation. Torque the retaining collar to 30 in-lbs. Assemble the inner cover onto the optical housing. The screw hole patterns in the inner cover and light housing are offset to insure proper alignment. Torque the mounting screws to 30 in-lbs . Perform a pressure test per paragraph 8.6. Connect the fixture to the isolation transformer(s), and place the fixture on the light base. Verify the light beam(s)/color/toe-in are properly orientated for the individual location. Torque the mounting bolts to 225 in- lbs.

8.6 Pressure Test

A light fixture should be subjected to a 20-psi air pressure test to verify that it is waterproof whenever it has been opened or components have been replaced. A tire valve style pressure fitting is located on the bottom of the inner cover. Pressurize the fixture to 20-psi then place it in a tub of water or use a soap solution to locate escaping air bubbles. Carefully inspect the areas around the lens, inner cover seal, and feed-thru adapter for leaks. Relieve the internal air pressure before installing the fixture or attempting to repair a leak.



Note – *Do not exceed 20-psi when pressure testing the fixture. Serious injury and/or permanent damage to the fixture may result if a higher air pressure is used. Once the pressure test is complete be sure to relieve the air pressure.*

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8.7 Cleanliness and Workmanship

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

8.8 Maintenance Program

In order to insure maximum light fixture life, the installed units should be subject to a maintenance program in accordance with the following:

A daily operation check should be made of the lighting fixture. The lights should be energized and visually inspected. If any lamps are out, the location of the fixture should be recorded and the lamps replaced at a time when the circuit is de-energized. (See Section 8.2)

- 8.8.1 Regular cleaning is necessary in order to insure that inset lighting fixtures operate at maximum efficiency. The lens and channel in front of the lens should be cleaned periodically with a soft cloth and solvent. The weather and the location of the fixtures will dictate the regularity and type of cleaning.
- 8.8.2 Snowplow operators should exercise extra care not to strike the light fixtures with snowplow blades. After snowplow removal operations, inspect all light fixtures to locate and replace if necessary, any damaged Light Assemblies. Passes over the light rows should be made with a power broom only if practical. Whenever snowplows must traverse in-pavement light fixtures, they should be traveling at less than 5 mph or have the blades lifted clear of the fixtures. Recommended snow removal techniques are described in AC 150/5200-23.
- 8.8.3 The light is designed to exclude both ground and surface water from entering. If the lights are not properly maintained (i.e., bolts tightened and seals in good condition) water may enter the fixture. To prevent this from occurring, it is recommended that each fixture be inspected for the presence of water at least once a month. More frequent inspection is desirable during and following rainy seasons.
- 8.8.4 Optical Assembly hold-down bolts should be checked for proper torque (225 +5, -0 in-lbs.) at least once every three months or whenever a fixture is serviced regardless of the season. Light fixtures in and around the Touchdown Zone area are especially prone to vibration damage if the mounting bolts are not properly torqued. The mounting surface of the light base must be clean and free of foreign matter when checking mounting bolts.
- 8.8.5 If a fixture contains water, the water should be removed and the entire fixture cleaned and dried. Perform a pressure test per paragraph 8.6 to locate the source of the leak. Replace the bottom cover gasket (P/N 21140. See Section 8.3.

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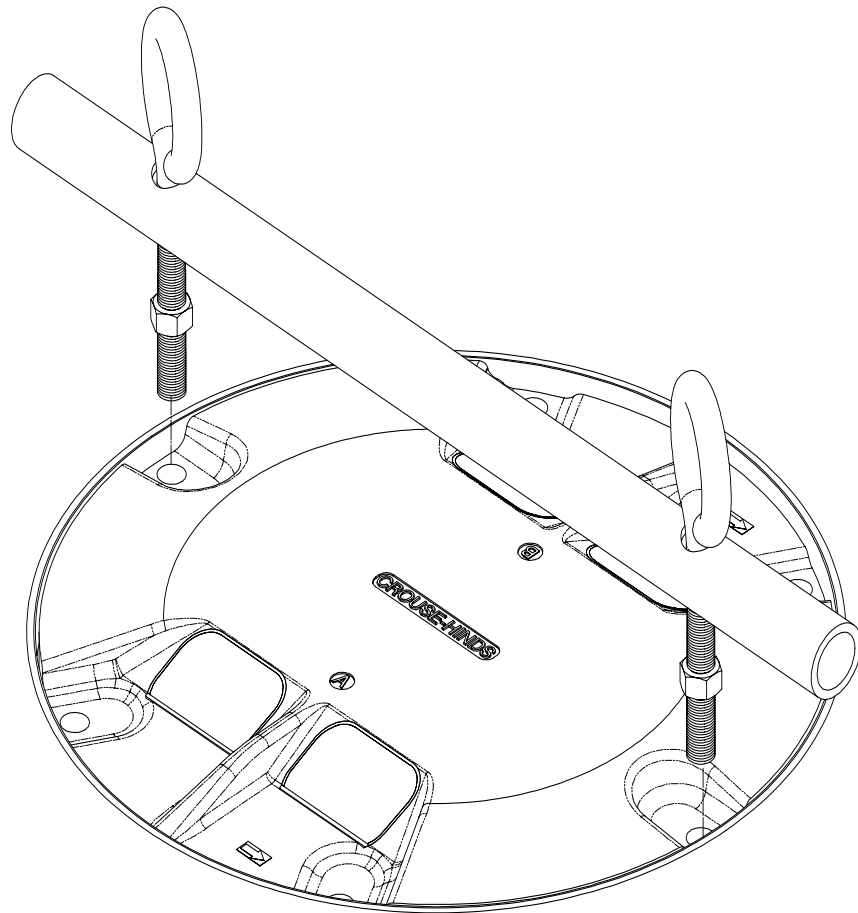


Figure 1 19999 Installation (Lifting) tool

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9 Parts List

ITEM	PART NUMBER	850A3-CC QTY	850AC-CR QTY	850A3-RX QTY	850B3-C QTY	850BC-CX QTY	DESCRIPTION
1	21100	2	2	2	1	2	BRACKET, LENS RETAINING, 18-8 STN STL
2	21126-C	2	1	0	1	1	CLEAR LENS, REPLACEMENT KIT (LENS, GASKET, BOOT, SILICONE, GREASE)
3	21126-R	0	1	1	0	0	RED LENS REPLACEMENT KIT (LENS, GASKET, BOOT, SILICONE, GREASE)
4	21137-9	0	0	0	1	0	OPTICAL HOUSING, MACHINED, TDZ, ALUMINUM
5	21137-7	1	1	1	0	1	OPTICAL HOUSING, MACHINED, RCL, ALUMINUM
6	21143	0	0	1	0	1	GASKET, BLANK COLOR, LENS RETAINING
7	21109	0	0	1	0	1	FEED-THRU PLUG, ALUMINUM
8	21140	1	1	1	1	1	GASKET, BOTTOM COVER
9	21461	2	2	1	1	1	LAMP BRACKET ASSEMBLY, 18-8 STN STL.
10	21116	2	2	1	1	1	LAMP/REFLECTOR ASSEMBLY 48 W, 6.6A
11	21138-1	0	0	0	1	0	BOTTOM COVER, MACHINED, TDZ, ALUMINUM
12	21138-2	1	1	1	0	1	BOTTOM COVER, MACHINED, RCL, ALUMINUM
13	21120	2	2	1	1	1	ADAPTER, THREADED, FEED-THRU
14	21121	A/R	A/R	A/R	A/R	A/R	FEED-THRU ASSEMBLY 2 LAMPS, 1 PLUG
15	21122	A/R	A/R	A/R	A/R	A/R	FEED-THRU ASSEMBLY 1 LAMP, 1 PLUG
16	10035-61	2	2	2	1	2	O-RING, FEED-THRU ADAPTER
17	10000-471	1	1	1	1	1	SCREW, SEMS, PAN HD TYPE 1A CROSS, GREEN, #10-32 X 3/8 LG, 18-8 STN STL
18	10000-468	4	4	4	2	4	SCREW, SEMS, PAN HD TYPE 1A CROSS/DRI-LOC, #10-32 X 1/2 LG, 18-8 STN STL
19	10000-517	12	12	6	6	6	SCREW, SEMS, PAN HD TYPE 1A CROSS, #8-32 X 5/16 STN STL
20	10000-400	6	6	6	6	6	SCREW, HEX WASHER HEAD/DRI-LOC, #10-32 X 3/8 LG, 18-8 STN STL
21	21148	2	2	1	1	1	BRACKET, LAMP MOUNTING
22	10037-795	1	1	1	1	1	FITTING, PRESSURE TEST, 1/8 - NPT
23	10048-25	A/R	A/R	A/R	A/R	A/R	SILICONE GREASE
24	10048-106	A/R	A/R	A/R	A/R	A/R	PIPE SEALANT PASTE
25	21454	6	6	6	3	3	STANDOFF, LAMP MOUNTING

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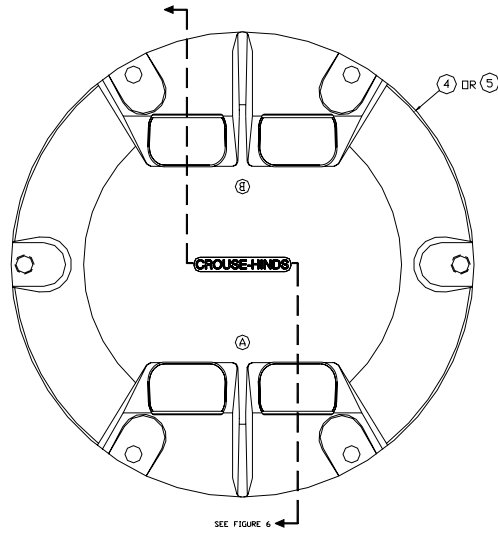


Figure 2 Top View of Fixture

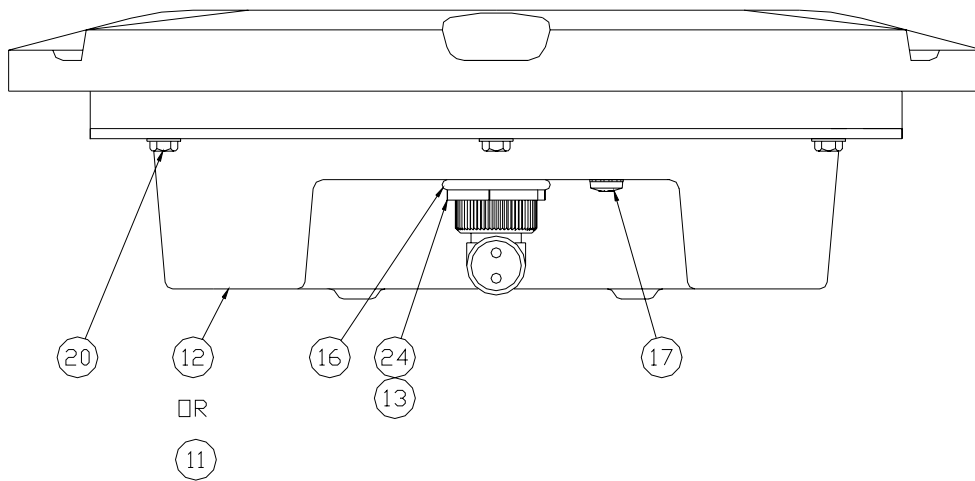


Figure 3 Side View of Fixture

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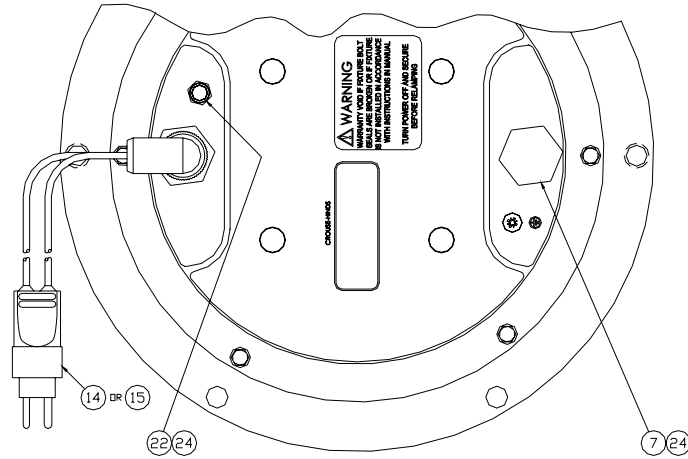


Figure 4 Bottom View of Fixture

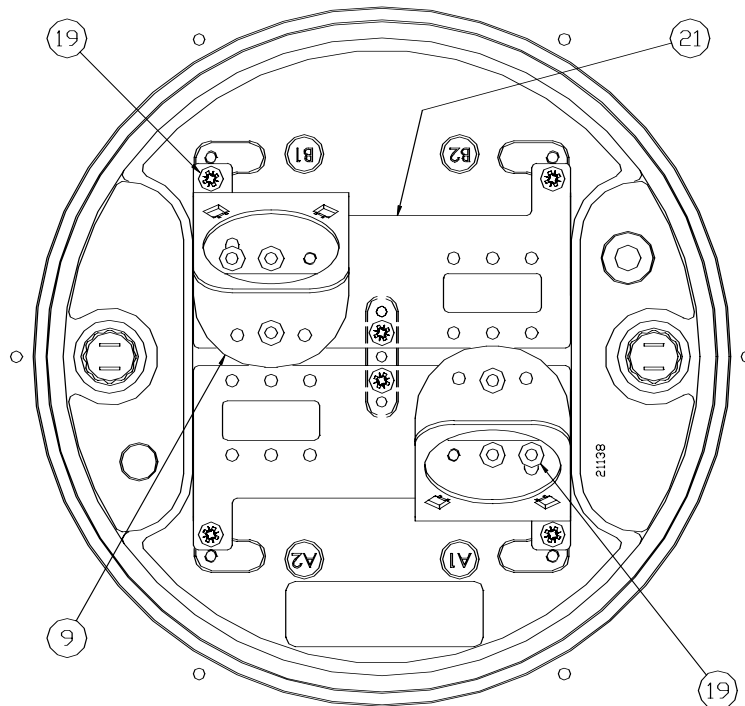


Figure 5 Inner Cover Lamp Bracket Positioning

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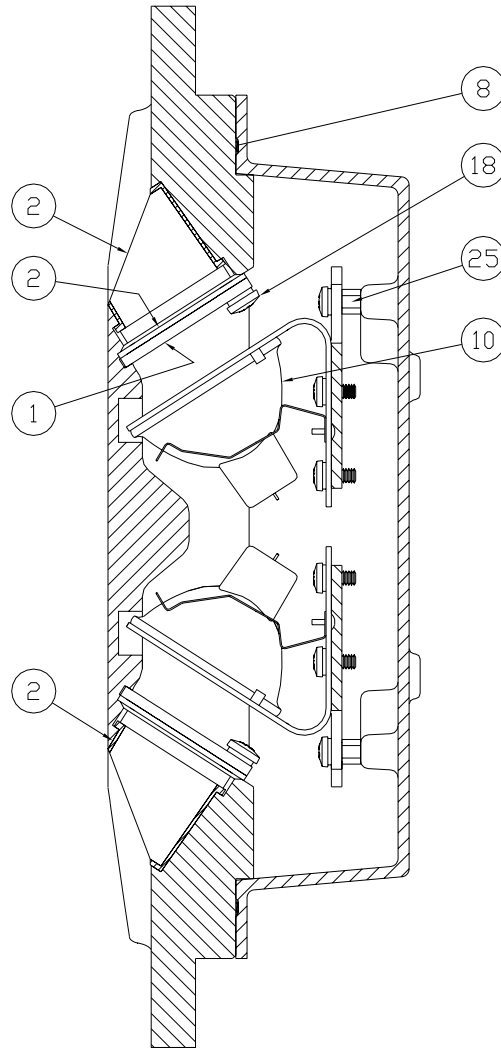


Figure 6 Cut Away View of Fixture