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COOPER Crouse-Hinds

Instruction Manual



Style III

*FAA L-852T & E
Taxiway Omni-Directional Light (TOL) &
ICAO Omni-directional Aircraft Stand Light*

In-pavement Incandescent Fixture

Cooper Industries
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Instruction Manual
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1 Revisions

Revision	Issue/Reissue Letter Number	Description	Created/Updated	Checked	Approved
A	A205-291	INITIAL RELEASE	DAT	KWF	JMM
B	A206-051	WARRANTY VOID NOTICE ADDED; REQUIREMENT FOR THE O-RING REPLACEMENT REVISED	DAT	KWF PR	JMM
C	A207-121	Cover page, para 5 & 6.2, added "ICAO Aircraft Stand Light" information; added copyright to cover page and deleted copyright on interior pages; para 8.2, added pressure test & note on screw pattern; parts list, item 1, added 10.25 dia B.C. P/N and revised 11.25 dia B.C. P/N & qty's for 10.25 B.C. from 1 to 0	PG	KWF	4/11/07
D	A208-078	Fig 5, added item 27; Parts List, added item 27 & item 8 was P/N 10000-506 & qty 12 for 12 inch versions; 8.4, added Support ring to text	PG	KWF	7/3/08
E	A208-230	Parts list item 8 P/N was 10B06-019D32	PG	KWF	1/20/09
F	A209-037	Parts list item 8 P/N was 10000-518 & qty was 12 for 12 inch versions; deleted item 27, P/N 21453 qty 1; Figure 5, deleted item 27	PG	KWF	4/7/09

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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 efforts 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 does 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.



IMPORTANT

IMPORTANT:

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

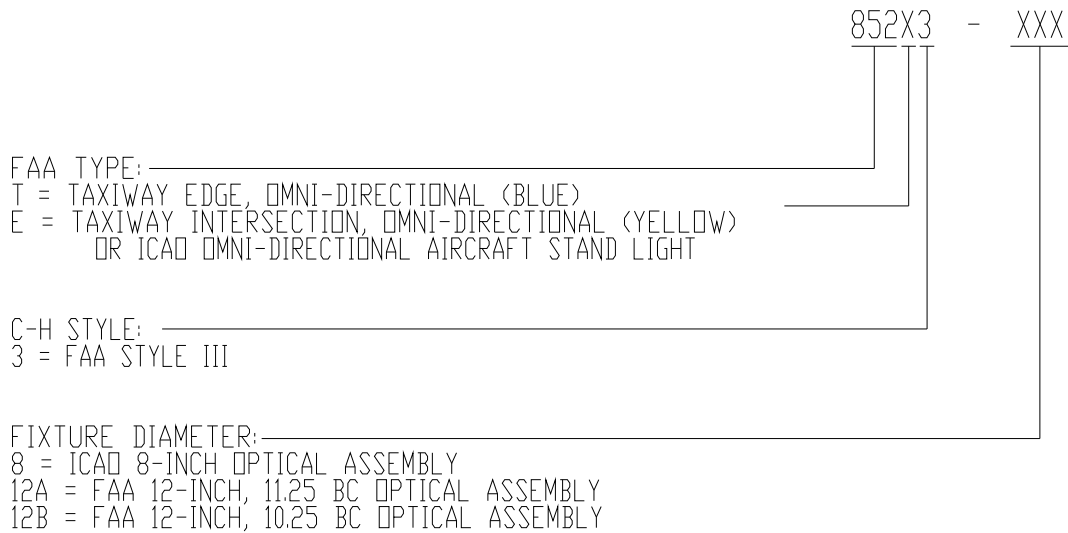
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5 Part Number Explanation – Taxiway Centerline Light, L-852T & E



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Taxiway Omni-directional Light L-852T & E**6 General Description****6.1 Taxiway Omni-directional Light, L-852T**

The Crouse-Hinds Taxiway Omni-directional Light is a Style 3, FAA L-852T per FAA AC 150/5345-46C. It is designed for installation at the taxiway edge 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 or FAA L-867, steel, size B light bases per FAA AC 150/5345-42 (latest version), and have a total height above grade/ground level of < .250 inch. The fixture is omni-directional, projecting the beam of light 360° in the horizontal direction. The light fixture consists of a 1-piece aluminum optical assembly. The aluminum optical assembly is mounted to a light base with six bolts (3/8-16 UNC x 7/8 lg., stn. stl.) and lock washers (3/8, stn. stl.). The aluminum housing has a die cast bottom cover that is attached using 4 screws. A o-ring is used to provide a watertight seal between the inner cover and the optical housing. A single lamp is secured to a centrally installed bracket, which is fastened to the bottom housing using vibration isolators. Electrical connections are made at one feed-thru assembly in the inner cover. The feed-thru has an ITS verified L-823 plug for connecting to FAA L-830/ L-831 Isolation Transformers. The outer lens is held into the aluminum housing with a bracket, gaskets and 6 screws. The inner lens and filter are held into the bracket with 3 spring clips, molded elastomeric boot, and 3 screws. The light beam color can be changed in the field by switching the filter. All hardware is type 18-8 stainless steel except for the 6 screws holding the outer lens bracket onto the aluminum housing, which are type 316 cold worked stainless steel. The complete light unit is 11.94 inches in diameter, 5.13 inches deep, and weighs 10.5 lbs.

6.2 Taxiway Omni-directional Light, L-852E

The Crouse-Hinds Taxiway Omni-directional Light is an ITS verified FAA L-852E per FAA AC 150/5345-46B. Its design is identical to the L-852T described in section 6.1 with the exception of having a yellow filter instead of the blue. The L-852E is also used as an ICAO Aircraft Stand Light.

**CAUTION****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 TOL light units are shipped complete 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). For TOL fixtures, the fixture orientation is not a factor; however, it is recommended that all fixtures be installed in the same way, "Crouse-Hinds" label on the aluminum housing towards the center of the taxiway. Place the properly sized isolation transformer in the light base and make necessary primary power connections using L-823 connectors. The TOL light unit requires a 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 from the light unit to the secondary of the previously installed isolation transformer. Installation tool, Crouse-Hinds P/N 19999, will ease in the installation and removal of the light unit. 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. Secure the light fixture to the base with six 3/8-16 UNC x 7/8 lg., stn. stl. bolts and lock-washers and tighten to 225 - 235 in-lbs. (18 ft-lbs.). It is recommended that Loctite 242 be used on the mounting bolts to prevent loosening due to vibration. Loctite is required for fixtures subjected to repeated aircraft impacts and roll-overs.

8 Maintenance

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



NOTICE

NOTICE:

Warranty is VOID is if other than Crouse-Hinds ALP parts are used to relamping or rebuild fixture.

8.1 Cleaning Lenses

With a compressed air blast or suitable brushes, remove all accumulated debris from the unit. Clean the outer lens surface 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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Taxiway Omni-directional Light L-852T & E**8.2 Relamping****NOTICE*****NOTICE:***

The lamp is hot when fixture is energized and remains hot for a short time after fixture is turned off.

Remove and secure power to the fixture. Turn the fixture upside down and remove the four screws holding the inner cover to the light housing. Disconnect the lamp leads from the feed-thru terminals. Inspect the feed-thru terminal for signs of corrosion. Replace feed-thru assemblies per paragraph 8.5. Clean the surfaces of the filter with denatured alcohol (use sparingly). Install the new lamp by reversing the procedure above and making sure that the screws are tightened to 25 - 30 in-lbs. Inspect/replace the optical housing's o-ring 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 25 - 30 in-lbs. Perform a pressure test as described in paragraph 8.6. Clean the mounting flange area of the base. Place the fixture into the base. Apply Loctite 242 (P/N 10048-30), per manufacturer's instructions, to all mounting bolts and immediately torque them to 225 - 235 in-lbs.

8.3 O-Ring Replacement

Every time the unit is opened, the o-ring must be replaced. Any o-ring that is stretched, torn, has permanent set, or some other defect which would prevent it from forming a watertight seal must be replaced with a new o-ring.

**NOTICE*****NOTICE:***

A bad o-ring seal is the most common cause of inset fixture leaks. A NEW o-ring MUST be installed whenever the Optical Assembly is opened.

Remove the old o-ring from the groove in the optical housing. Carefully clean the o-ring groove and flange mating surface on the inner cover. Take care not to damage the mating surface or the o-ring. Coat the o-ring (P/N 10035-62) with a thin layer of Dow Corning FS 1292 Lubricating grease. Position the new o-ring in the center of the groove and press it into place. Torque the inner cover screws to 25 - 30 in-lbs. Perform a pressure test as described in paragraph 8.6. Clean the mounting flange area of the base. Place the fixture into the base. Apply Loctite 242 (P/N 10048-30), per manufacturer's instructions, to all mounting bolts and immediately torque them to 225 - 235 in-lbs.

**NOTICE*****NOTICE:***

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

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8.4 Lens/Filter Replacement

Outer Lens:

If an outer 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. Outer Lens Replacement Kit P/N 21332 contains all necessary parts to change a lens. **Remove and secure power to the fixture.** Turn the fixture upside down and remove the four screws holding the inner cover to the light housing. Remove the lens retaining bracket screws from the light housing. Remove the lens-retaining bracket and support ring and discard the lens-retaining gasket. Firmly push the lens/boot assembly from the outside of the light housing; discard the old lens and boot. Thoroughly clean the lens opening with isopropyl alcohol and let 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 21256) over the replacement outer lens (P/N 21254). 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 21258), fasten the lens retaining bracket (P/N 21259) and support ring (21453) to the light housing. Torque the mounting screws to 25 - 30 in-lbs; over tightening these screws may cause damage. Inspect/replace the optical housing's o-ring 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. Torque the mounting screws to 25 - 30 in-lbs. Perform a pressure test per paragraph 8.6. Clean the mounting flange area of the base. Place the fixture into the base. Apply Loctite 242 (P/N 10048-30), per manufacturer's instructions, to all mounting bolts and immediately torque them to 225 - 235 in-lbs.

Inner Lens or Filter:

If the inner lens is broken, it must be replaced. It is highly recommended that this task be performed in a clean shop environment. **Remove and secure power to the fixture.** Turn the fixture upside down and remove the four screws holding the inner cover to the light housing. Loosen the screws holding inner lens and filter to the retaining bracket. Remove the inner lens and filter. Replacement can be of the lens, filter, or both. Place the inner lens boot (P/N 21257) over the replacement inner lens (P/N 21255) and filter (21285-B or 21285-Y). Align the lens/filter/boot assembly in the retaining bracket opening and press it into place. Verify that the assembly is not crooked. Align the spring clips (P/N 21260) over the inner lens boot. Apply Loctite 242 (P/N 10048-30) to the mounting screws and torque to 5-10 in-lbs; tightening these screws to a torque greater than 10 in-lbs may cause the filter to crack during operation. Inspect/replace the optical housing's o-ring 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. Torque the mounting screws to 25 - 30 in-lbs. Perform a pressure test per paragraph 8.6. Clean the mounting flange area of the base. Place the fixture into the base. Apply Loctite 242 (P/N 10048-30), per manufacturer's instructions, to all mounting bolts and immediately torque them to 225 - 235 in-lbs.

8.5 Feed-thru Replacement

Remove and secure power to the fixture. Turn the fixture upside down and remove the four screws holding the inner cover to the light housing. Disconnect the lamp leads from the feed-thru terminals. Remove the feed-thru by unscrewing the retaining collar. Clean the mounting surfaces with Isopropyl Alcohol and let dry. Apply a thin coat of Dow Corning FS 1292 grease to the mounting flange of a new feed-thru. Apply a drop of Loctite 242 to the feed-thru adapter threads. Screw the feed-thru retaining collar onto the adapter; refer to Figure 4 for proper inner cover/feed-thru orientation. Torque the retaining collar to 25 - 30 in-lbs. Inspect/replace the optical housing's o-ring 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.

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Torque the mounting screws to 30 in-lbs. Perform a pressure test per paragraph 8.6. Clean the mounting flange area of the support ring. Place the Optical Assembly into the base. Apply Loctite 242 (P/N 10048-30), per manufacturer's instructions, to all mounting bolts and immediately torque them to 225 - 235 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.



WARNING

WARNING:

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.

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 fixtures 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 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 (use rubber blades for added protection to the fixture. 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. Snowplows must NOT traverse TOL fixtures unless they have the blades lifted clear of the fixtures; doing so may cause severe damage to 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

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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 TOL fixtures hold-down bolts should be checked for proper torque (225 -235 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 any 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 o-ring (100035-62), See Section 8.3.

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9 Parts List

	852T3-8	852E3-8	852T3-12A	852E3-12A	852T3-12B	852E3-12B		
1	0	0	1	1	0	0	21273-1	HOUSING, OPTICAL, 12-INCH, 11.25 DIA B.C.
1	0	0	0	0	1	1	21273-2	HOUSING OPTICAL, 12-INCH, 10.25 DIA B.C.
2	1	1	0	0	0	0	21253	HOUSING, OPTICAL, 8-INCH
3	1	1	1	1	1	1	10035-62	O-RING, 3/32 THK, 6.25 I.D., POLYURETHANE, 90 DUROMETER
4	1	1	1	1	1	1	21254	LENS, OUTER
5	1	1	1	1	1	1	21256	BOOT, LENS, OUTER
6	1	1	1	1	1	1	21258	GASKET, LENS RETAINING
7	1	1	1	1	1	1	21259	BRACKET, LENS RETAINING
8	6	6	6	6	6	6	10000-519	SCREW, BUTTON HD SOCKET CAP, #10-32 x 3/4 INCH LG, 316 STN STL, CW
9	1	1	1	1	1	1	21255	LENS, INNER
10	1	0	1	0	1	0	21285-B	FILTER, ABSORPTION, BLUE
11	0	1	0	1	0	1	21285-Y	FILTER, ABSORPTION, YELLOW
12	1	1	1	1	1	1	21257	BOOT, LENS, INNER
13	3	3	3	3	3	3	21260	CLIP, SPRING
14	3	3	3	3	3	3	10000-494	SCREW, PAN HD TYPE 1A CROSS/DRI-LOC, #8-32 x 5/16 LG, 18-8 SS
15	1	1	1	1	1	1	21330	BRACKET, BASE, LAMP ASSEMBLY
16	1	1	1	1	1	1	21116	LAMP, 48W MR-16 ASS'Y
17	2	2	2	2	2	2	10B08-019D16	SCREW, PAN HD, #10-32 x .5 LG, SS
18	2	2	2	2	2	2	19143-2	SPACER
19	6	6	6	6	6	6	20356	GROMMET, RUBBER
20	1	1	1	1	1	1	21264	COVER, BOTTOM
21	1	1	1	1	1	1	21120	ADAPTER, THREADED, FEED-THRU, ALUMINUM
22	1	1	1	1	1	1	10035-61	O-RING
23	1	1	1	1	1	1	21122	FEED-THRU ASS'Y, 1 LAMP/1 PLUG, ALUMINUM
24	1	1	1	1	1	1	10000-471	SCREW, PAN HD TYPE 1A CROSS, GREEN, #10-32 x 3/8 LG, 18-8 SS
25	1	1	1	1	1	1	10037-795	FITTING, PRESSURE TEST, 1/8 NPT
26	4	4	4	4	4	4	10000-470	SCREW, 100° FLAT HD/DRI-LOC, #10-32 x 7/16 LG, 18-8 SS
27								

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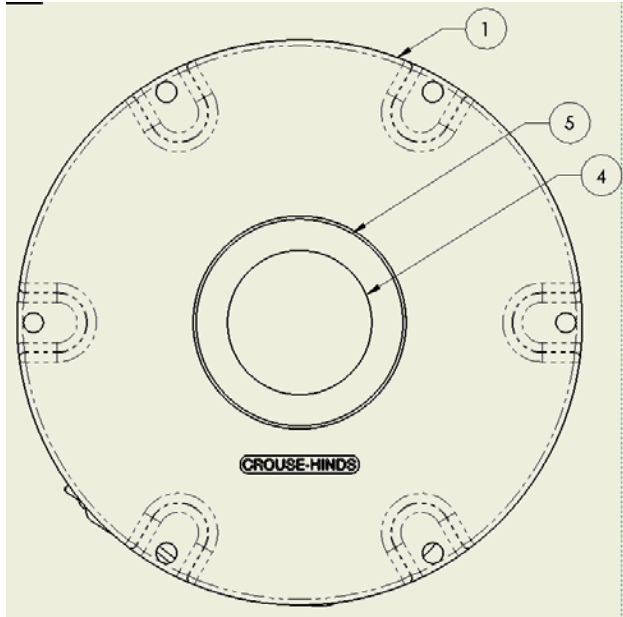


Figure 1: Top View of Fixture

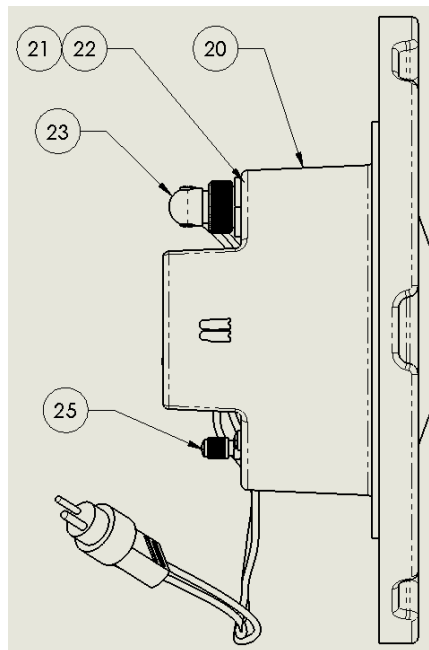


Figure 2: Side View of Fixture

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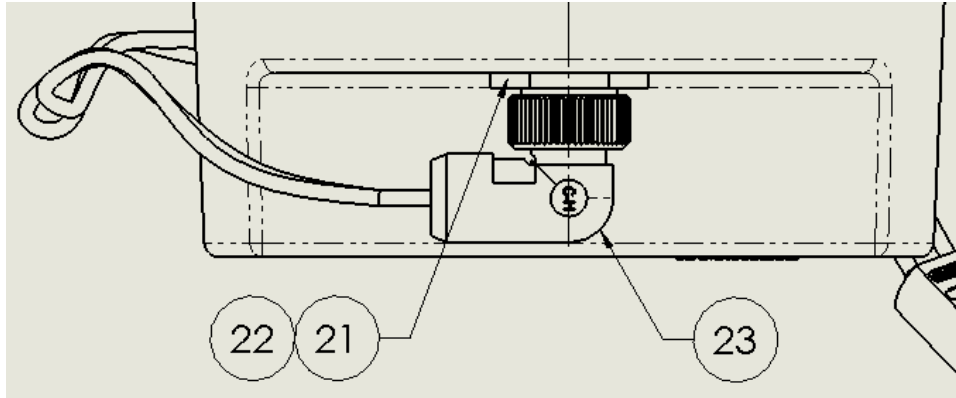


Figure 3: Feed-thru Adapter Detail

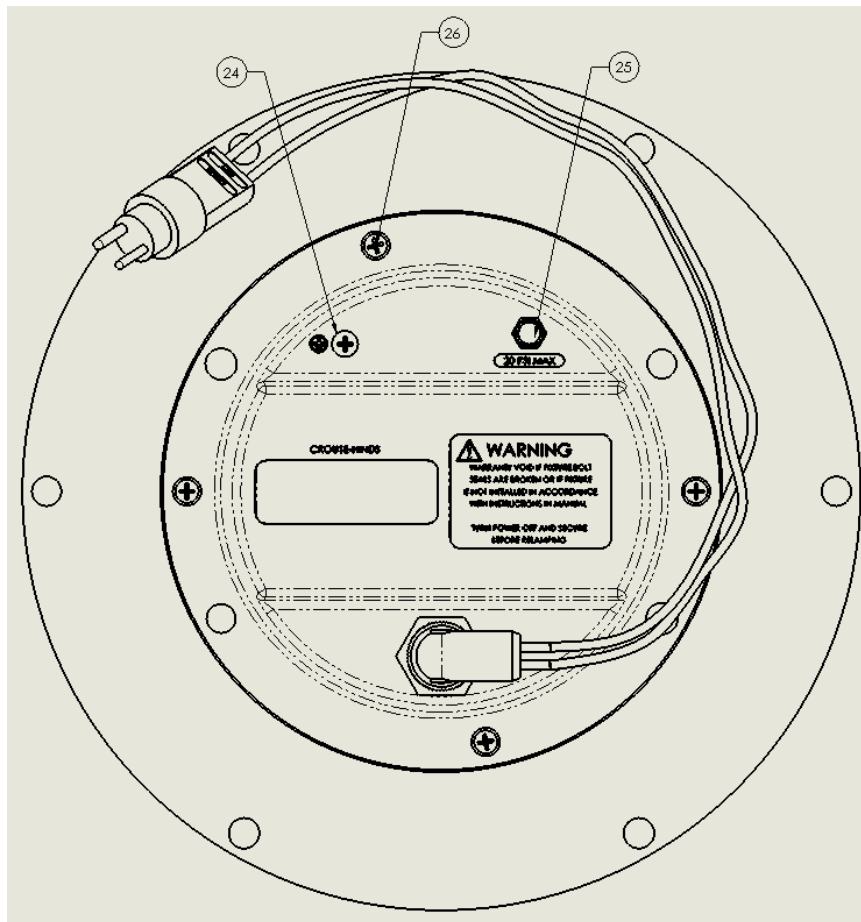


Figure 4: Bottom View of Fixture

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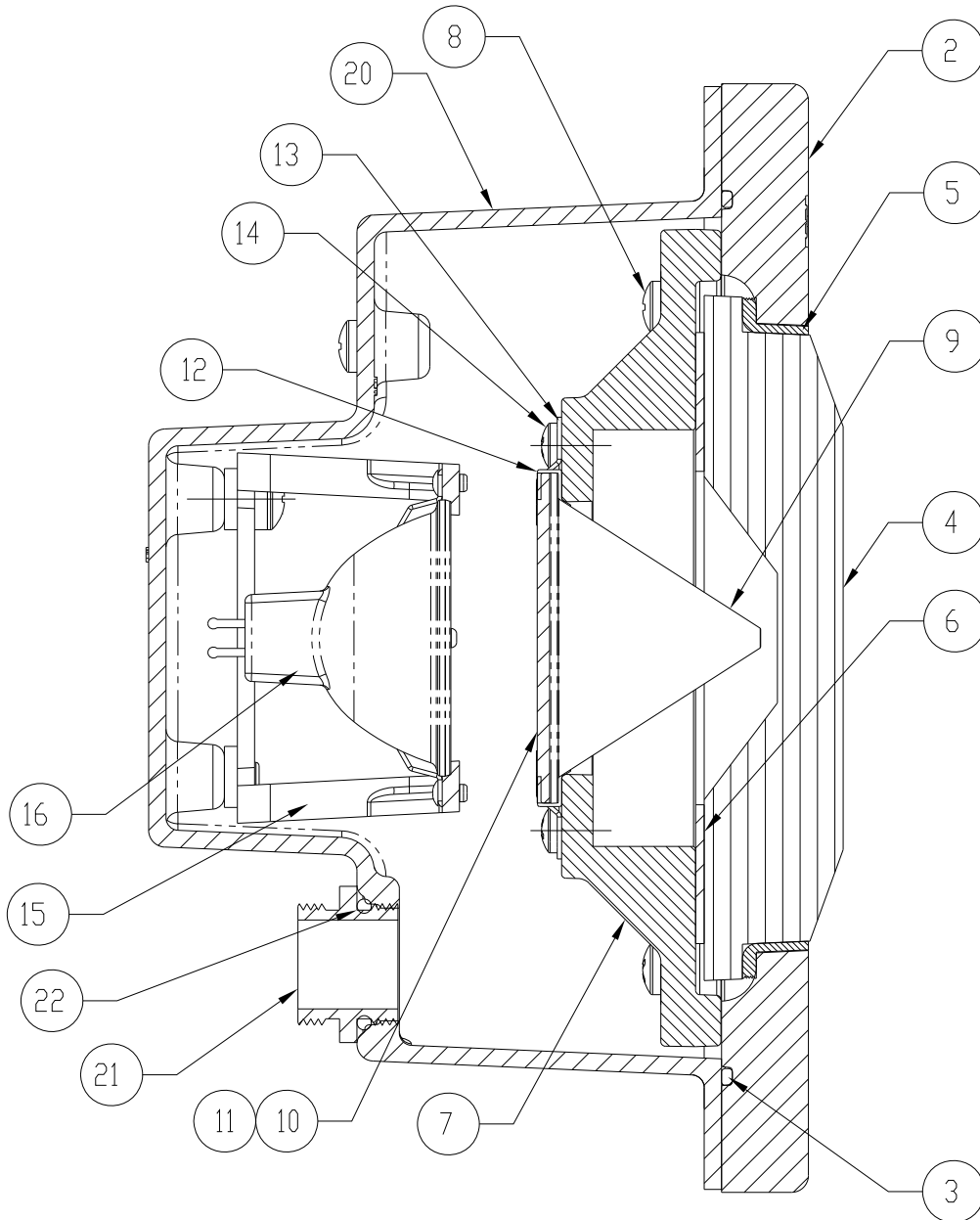


Figure 5: Sectioned View of Fixture