

Installation Instruction Manual

IFH-1700-000
Red (L-864(L)) LED Beacon

IFH-1700-01R
Red/IR (L-864(L)) LED
Beacon



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itl International
Tower Lighting, LLC™

Front Matter

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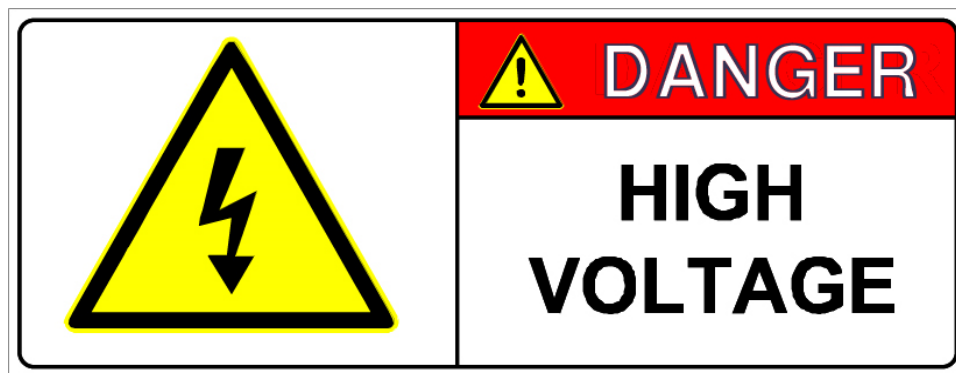
Safety Warning

This equipment uses lethal voltages which can cause serious injury and/or death. Do not attempt to service this equipment with line power applied.

The LED lamps used in this equipment produce brilliant flashes of light and infrared (IR) radiation. Temporary or permanent eye damage may result from looking directly at the LED flash head while it is operating.

Disconnect power at the circuit breaker panel and wait at least 30 seconds before servicing. Do not rely on interlock switches for removing power. Energy storage capacitors can maintain high voltage long after power has been disconnected. Verify that all high voltage warning lights are completely off. Measure all high voltage sources (HV1, HV2) using a DC voltmeter to ensure that power is off and has been completely removed before servicing.

Do not wear any jewelry. Gold and silver are excellent conductors of electricity.



This equipment emits near infrared radiation. Avoid direct eye exposure.



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Introduction

Congratulations, and thank you for choosing an ITL lighting system component.

We trust that ITL's reputation for technical excellence, experience in product development, commitment to our customers and testing will ensure your complete satisfaction.

You have chosen one of the most technologically innovative lighting components available on the market today. This product is the result of many years of engineering with extensive input from field service personnel.

This manual covers the IFH-1700-000 and IFH-1700-0IR. Please take the time to read and familiarize yourself with this manual. It contains the information necessary to install, test and troubleshoot the flash head.

Product Description

The IFH-1700 FAA type L-864(L) is a medium intensity flashing beacon as defined by the FAA's advisory circular, AC150-5345-43H. The IFH-1700 meets or exceeds the specifications as defined in the advisory circular. For more information on those specifications please refer directly to the FAA website www.faa.gov/airports/airtraffic/airports.

The IFH-1700 is designed to operate with an external controller. The IFH-1700 comes with a 10 foot flexible power cable installed.



Figure 1: IFH-1700-000 Red LED Beacon and IFH-1700-0IR Infrared LED Beacon

Specifications

Complies with AC150/5345-43H, Type L-864(L)

Environment

Temperature	-40°C to +55°C
Humidity	less than 95% relative humidity (non-condensing)

Light Output

Night Intensity	2,000 +/-25% effective candelas
Beam Pattern	360° horizontal, ≥3° vertical

Mechanical

Dimension	Height: 11" (28cm)
	Diameter: 16.5" (42cm)
Weight	28lbs (13Kg) max

Electrical

Input Power	120-240VAC, 50/60Hz
Power Consumption	23W ¹ average power, night mode. 13W ¹ average power over 24 hours ² .
Worst Case Power	98W (1x L-864(L) + 5x L-810(L))

(Note 1: At 25°C, 120Vac)

(Note 2: 12 Hours night mode, 12 Hours day mode)

Installation

The following section describes how to install the lighting system.

Unpacking your Lighting System

Please examine the shipping containers and their content thoroughly upon receipt and report any potential shipping damage to the carrier.

Tools for Installation

The following tools are suggested for mounting of the ITL flash head.

- Digital multi-meter
- Nut Drivers and Sockets
- Compact “torpedo” level

Quick Installation Guide

The quick start guide shows how to install the IFH-1700 red/infrared LED beacon..

- Remove power to existing lighting system controller by turning off circuit breaker(s).
- Verify that power has been removed by measuring all input voltages using a multi-meter.
- Remove any packaging material from inside the flash head.
- Install flash head using supplied hardware.
- Connect flash head power cable (see cable/wire identification table below).
- Apply power to lighting system controller.
- Set lighting system controller to night mode operation.
- Verify that IFH-1700 flash head flashes red light at the appropriate rate.
- Verify that the existing lighting system controller does not alarm while operating the IFH-1700.
- All fixtures, enclosures and junction boxes must be mounted in the upright position.

NAME	COLOR	DESCRIPTION
L1	Black	AC Power in
N	White	Neutral
GND	Green	Chassis ground

Figure 2: IFH-1700 Cable/Wire Identification

Flash Head

Flash heads need to be mounted such that all four mounting feet are in direct contact with an unpainted surface in order to allow for proper grounding of the electrical components. It also needs to be mounted such that it will not obstruct access to the internal components for the purpose of installing and maintaining the equipment. The following diagrams detail the mounting dimensions and clearance for proper access.

Leveling

Flash heads need to be leveled properly for correct vertical beam spread. The following diagrams detail how to use a compact “torpedo” level on two axes to ensure that the flash head is mounted level. If the flash head mounting surface is not level already use shims to correct. Do not compromise grounding of the four flash head mounting feet.

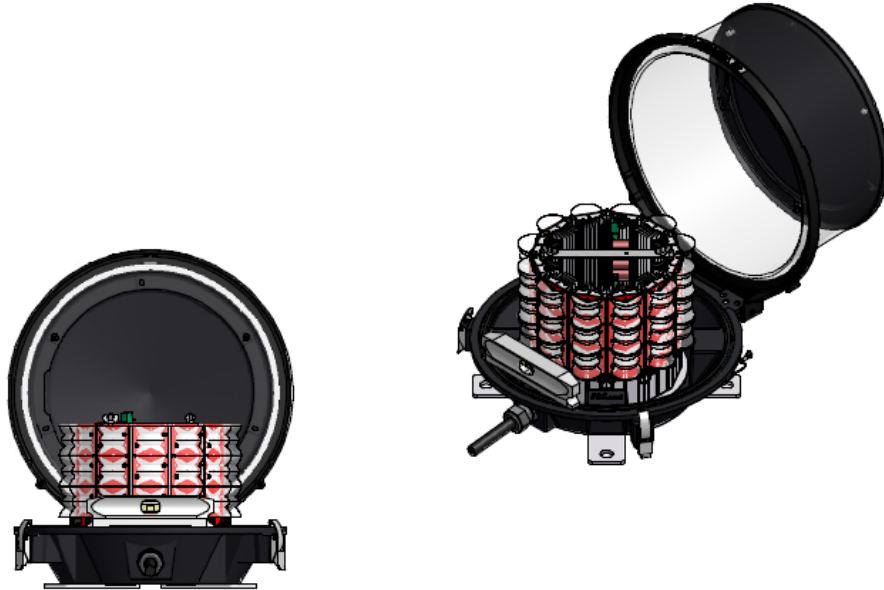


Figure 3: Flash Head Leveling - Axis 1



Figure 4: Flash Head Leveling - Axis 2

IFH-1700 Flash Head Mounting

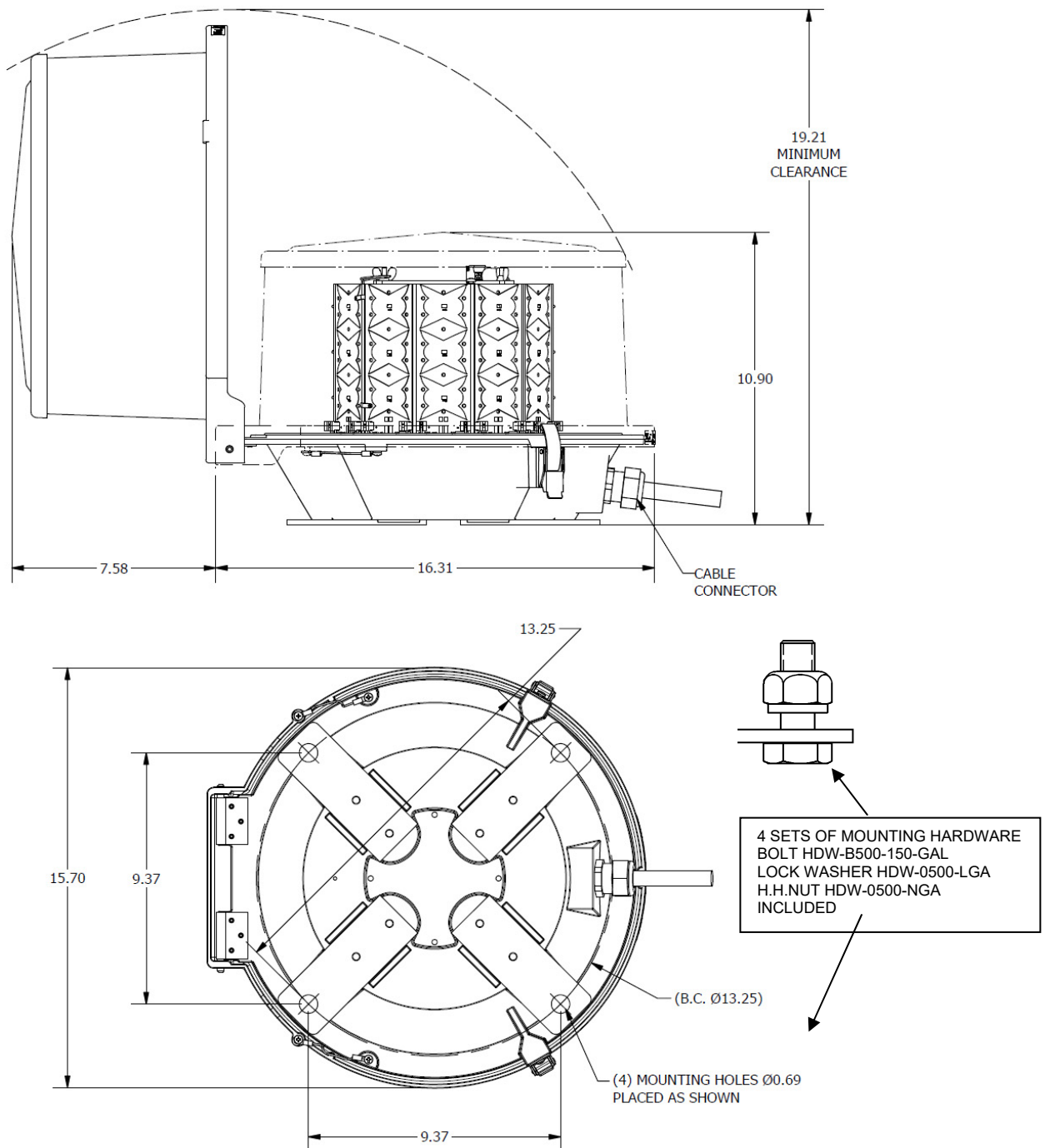


Figure 5: IFH-1700 Flash Head Dimensions and Mounting Detail

System Overview

The major components of the IFH-1700 are shown in the block diagram below. A three conductor flexible cable comes pre-installed to provide power to the IFH-1700. An external controller is required to alternate AC power to the IFH-1700 at appropriately timed intervals to produce the correct flash rate. The IFH-1700 power supply converts AC power into a controlled DC current. The controlled DC current flows through all 12 LED modules in series causing the LEDs to produce light. Each LED module contains three high power LEDs with a custom optic mounted in front of each LED. The optic focuses the light from the LED into the required beam pattern.

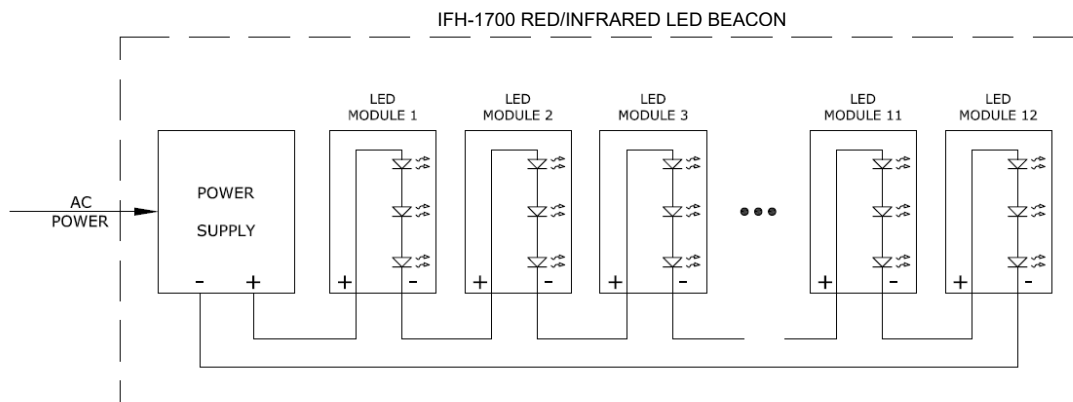


Figure 6: IFH-1700 Block Diagram

Wiring Diagram

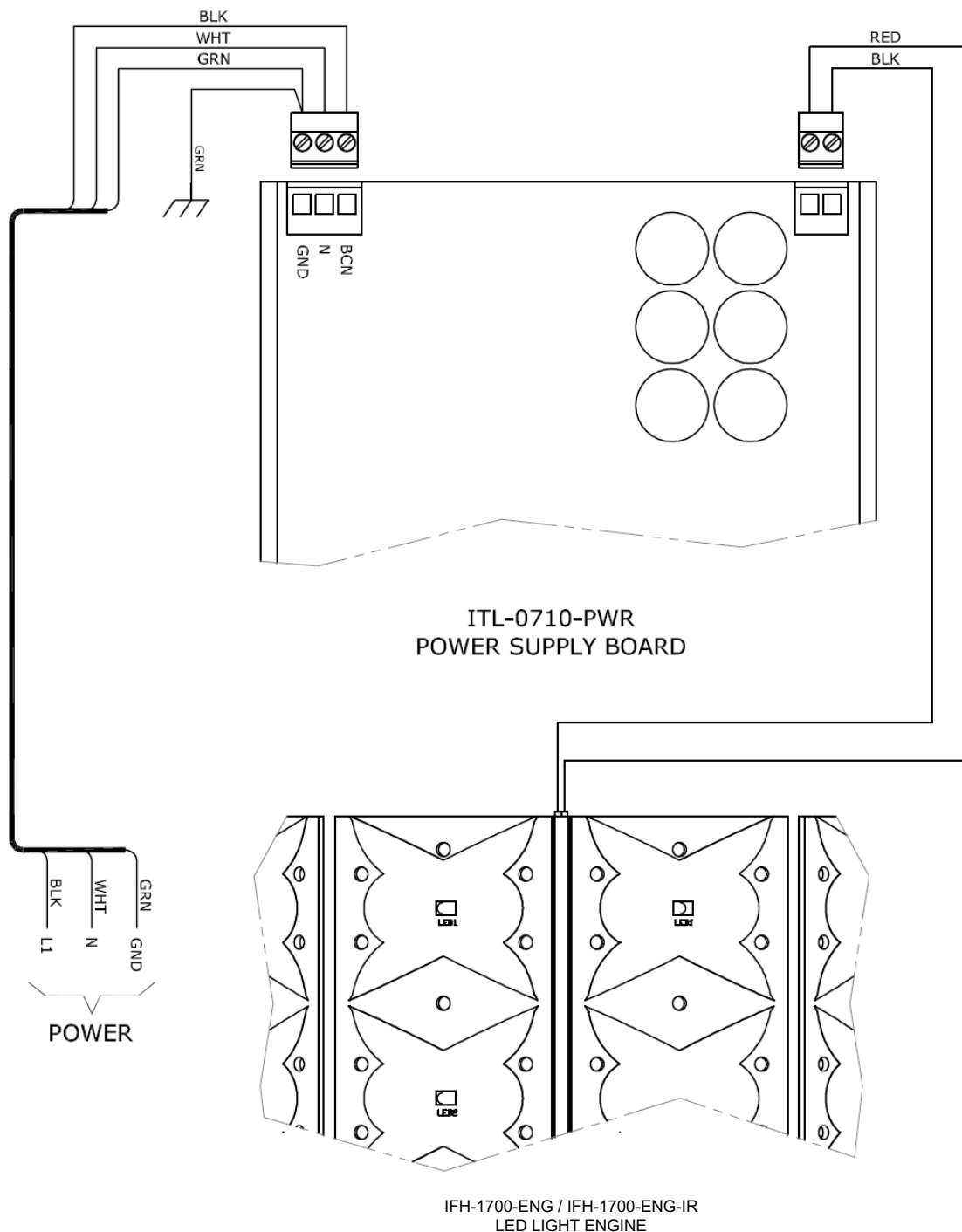


Figure 7: IFH-1700 Wiring Diagram

Maintenance / Trouble-Shooting

Please read section *Safety Warning* in this manual before servicing this equipment. Disconnect power to the tower lighting controller at the circuit breaker(s) before attempting maintenance/trouble-shooting.

Maintenance

The maintenance outlined below should be performed at least once annually. . After 5 years of normal operation is recommended that the light engine be replaced. Periodic cleaning of the clear cover with a standard glass or acrylic cleaner is recommended

- Verify that the fixture is functional in all operating modes with no indication of an alarm condition on alarm indicator lights, alarm dry contacts, or digital monitoring interfaces.
- Verify that the photoelectric control operates the system in the correction operating mode (day/night), light color (white/red) and intensity (day/night intensity) when exposed to light and dark ambient lighting conditions.
- Inspect the fixture for any type of obstruction that could block light output at any point along the 360 degree horizontal output of the fixture. Note that multiple fixtures may be used to achieve 360 degree coverage.
- Inspect lenses and transparent covers for damage.
- Clean the fixture lens or transparent cover using a mild detergent and soft nonabrasive cloth.
- Inspect all electrical wiring connections for corrosion, arcing, damage, insulation degradation or loosening of the connection. Correct, replace or secure as needed.
- Inspect all interconnecting cables and power supply cables and conduits for damage.
- Verify the all cables are fastened securely at appropriate intervals to prevent damage.
- Inspect all electrical components for evidence of damage caused by lightning or power line induced electrical surges. Replace any components showing evidence of damage.
- Inspect fixtures and enclosures for water infiltration and insect infiltration. Replace any damaged gaskets or seals. Install plugs to close any unused conduit ports that may allow insect infiltration.

- Verify that all breathers and drain holes are clear of blockages.

Recommended Tools

The following is a list of recommended electrical equipment for troubleshooting the IFH-1700 red/infrared LED beacons.

- Digital multi-meter
ITL-0705-TST LED Module Tester
(Supplied with KIT-1700-LED for IFH-1710-000 or KIT-1700-0IR for IFH-1710-0IR)
- TOL-1700-LED-2 Wire Installation Tool
(Supplied with KIT-1700-LED for IFH-1710-000 or KIT-1700-0IR for IFH-1710-0IR)
- #2 Phillips Screwdriver (8" or longer blade length)
- Small tip (<0.1") slotted screw driver
- Needle Nose Pliers

Trouble-Shooting

Should the IFH-1700 red/infrared LED beacon fail to produce light, perform the following steps:

Verify that AC power is being supplied to IFH-1700.

Using a digital multi-meter measure the DC voltage from P2-1 to P2-2 (red to black) on the power supply board. Normal operating voltage is 65 to 100VDC.

- A voltage near 180V indicates that one of the twelve LED modules may have failed. Use an ITL-0705-TST Tester to check each LED module and replace as necessary. If an LED module has failed, check for and replace any damaged optics on that module. Be sure that the optics snap into the alignment holes on the LED modules during replacement.
- A voltage under 65V indicates that the power supply may have failed. Replace fuse F1 on the power supply board or replace the power supply board.

Spare Parts & Replacement Parts

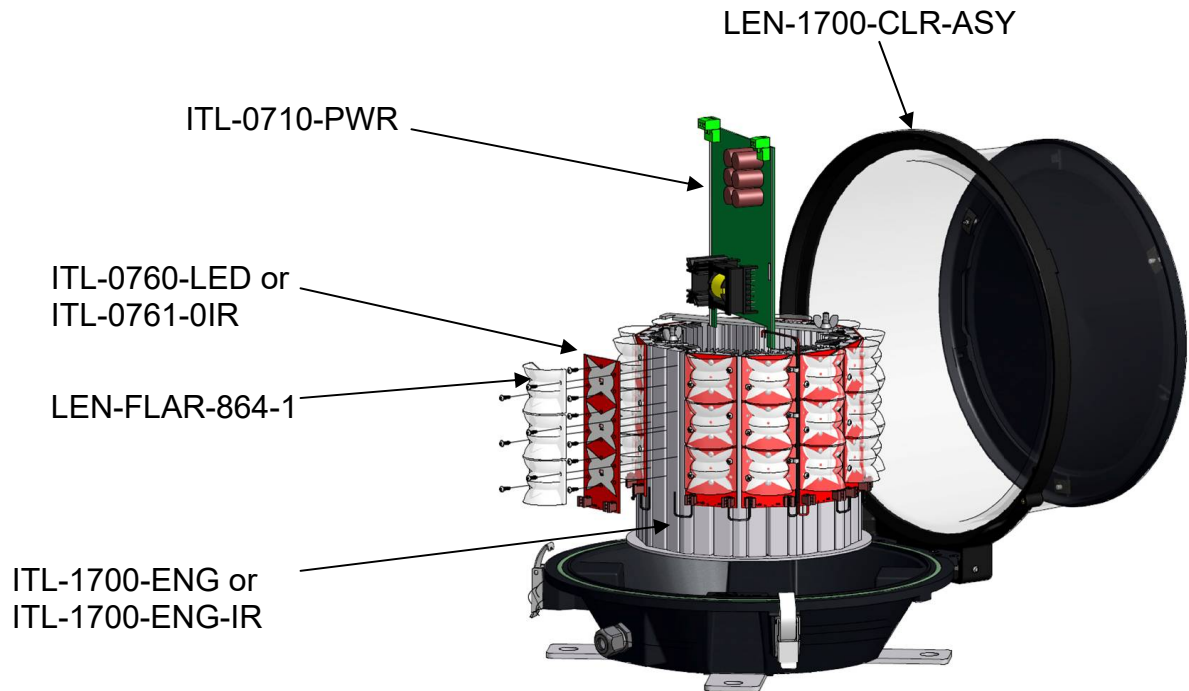


Figure 8: IFH-1700 Replacement Parts Detail

Spare Parts & Replacement Parts continue

PART NUMBER	DESCRIPTION
ITL-1700-ENG	LIGHT ENGINE for IFH-1700-000 (Power Supply & Controller Boards not included)
ITL-1700-ENG-IR	LIGHT ENGINE for IFH-1700-0IR (Power Supply & Controller Boards not included)
ITL-0710-PWR	POWER SUPPLY BOARD
ITL-0760-LED	LED MODULE for IFH-1700-000
ITL-0761-0IR	LED MODULE for IFH-1700-0IR
ITL-0705-TST	LED TESTER
LEN-FLAR-864-1	LED OPTIC
LEN-1700-CLR-ASY	CLEAR LENS ASSEMBLY WITH MOUNTING RING AND COVER FOR IFH-1700
TOL-1700-LED-2	WIRE INSERTION TOOL
KIT-1700-LED For IFH-1700-000	REPAIR KIT. Kit includes one ITL-0760-LED LED module, one LEN-1700-864-1 optic, one ITL-0705-TST LED module tester and one TOL-1700-LED-2 wire installation tool.
KIT-1700-0IR For IFH-1700-0IR	REPAIR KIT. Kit includes one ITL-0761-0IR LED module, one LEN-1700-864-1 optic, one ITL-0705-TST LED module tester and one TOL-1700-LED-2 wire installation tool.

Figure 9: IFH-1700 Flash Head Parts List Table

Technical Support and Contact Info

Contact Info

For information on the ITL lighting systems' basic functions, refer to this manual and the accompanying drawings. For additional help with the installation or operation of any ITL products, please contact ITL, LLC at one of the following below.

Web and Internet Sites

Corporate home page: <http://www.itl-llc.com>



Customer Support Technicians
(8:00 AM - 5:00 PM Central Time)

US and Canada call: +1-615-256-6030

Toll Free: +1-866-624-8309

Email: support@itl-llc.com

RMA

Please contact ITL, LLC before returning equipment for repair and obtain a Return Material Authorization (RMA) number.

Revision	Description of Change	Date	Preparer / Approval
8	Changed from ETL certified ... to Complies with FAA AC 150/5345-43H	10/7/2019	Prepared By: Elke Hinson Approved By: Andy Rudolph
7	Updated warranty from two years to five years.	12/11/2017	Prepared By: Elke Hinson Approved By: Andy Rudolph
6	Added IFH-1700-0IR information. Updated ETL certified reference to 43H.	10/31/2017	Prepared By: Elke Hinson Approved By: Andy Rudolph
5	Updated Replacement Parts List (pg16) Replaced TOL-1700-LED with TOL-1700-LED-2.	4/4/2017	Prepared By: Elke Hinson Approved By: Andy Rudolph
4	Updated Flash Head Dimensions and Mounting Detail.	8/4/2015	Prepared By: Elke Hinson Approved By: Andy Rudolph
3	Replaced ITL-1700-KIT with KIT-1700-LED & updated description (Figure 9 Flash Head Parts List Table)	5/12/2015	Prepared By: Elke Hinson Approved By: Andy Rudolph
2	Added installation note "All fixtures, enclosures and junction boxes ...", Added maintenance outline.	8/29/2014	Prepared By: Elke Hinson Approved By: Andy Rudolph
1a	Changed coversheet title from ILS-1700 to IFH-1700, updated voltage in trouble shooting section.	9/4/2012	Prepared By: Elke Hinson Approved By: Andy Rudolph
1	Updated FAA type to L-864(L), Changed cover, Changed specification from "complies with" into "ETL certified to"	6/25/2012	Prepared By: Elke Hinson Approved By: Andy Rudolph
0b	Update Itl logo, add toll free phone number	9/20/2011	Prepared By: Elke Hinson Approved By: Andy Rudolph