

Supersedes edition 11/03/2014



LED ELEVATED HELIPORT LIGHT

LHE

INSTRUCTION MANUAL FOR USE, INSTALLATION AND MAINTENANCE

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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.

OCEM - ENERGY TECHNOLOGY 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 judgement, as to affect the Product adversely;
- (b) any Product which has, in Company's judgement, 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;
- (d) the breaking of the warranty seals, if present, determines the immediate termination of the warranty; and,

OCEM - ENERGY TECHNOLOGY's obligation under this warranty is limited to use reasonable efforts to repair or, at its option, replace, during normal working hours at the facility of the Company, any Product which in its judgement proved not to be as warranted within the applicable warranty period. All costs of transportation of Products claimed not to be warranted and of those repaired or replaced, to or from the facility of the Company shall be borne by Purchaser. Company may require the return of any Product claimed not to be as warranted to its facility, transportation prepaid by Purchaser, to establish a claim under this warranty. The cost of labour for the installation of a repaired or replaced 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.

IMPORTANT: READ THIS DOCUMENT

Before proceeding to the operations of installation, commissioning, operation, maintenance or disposal, carefully read the entire document.

SAFETY INFORMATION

Extreme caution should be exercised when working with this equipment; it is normally used or connected to circuits that operate at dangerous voltages and can be fatal.

The following section contains important safety information that you must follow when installing and using the apparatus.

Misuse of the equipment or lack of care in applying safety procedures and prescriptions specified in this document, may result in a hazard.

Avoid contact with voltage or current sources.

For no reason the protections and the safety devices must be removed.

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OPERATION ON THE EQUIPMENT - SKILLS

Operation on the equipment and access to its internal parts shall be done by experienced personnel, adequately trained and aware of the risks related to electricity and high voltages.

Safety rules shall be adopted when operating on the equipment, or on cables and other apparatus connected to the it

DO NOT OPERATE ON ENERGIZED CIRCUITS

Do not carry out any operation on the converter or on apparatus connected to it when the circuits are energized.

WHEN HANDLING AND SERVICING THIS EQUIPMENT, OBSERVE PRECAUTIONS FOR HIGH VOLTAGE EQUIPMENT.

Before any access, inspection or intervention, be sure to have switched-off the unit, opened the main circuit breaker and removed the supply to the unit (by opening the circuit breaker/switch on the distribution board at the beginning of the supply line).

Then wait discharge time (at least 5 minutes), ground carefully the system, and check for voltage presence before accessing..

REANIMATION

The maintenance staff must be aware of the risks related to electricity, criteria to prevent the risk of electric shock and resuscitation techniques

CE MARK



This equipment complies with the requirements of European regulations for the CE mark. The user has to respect all prescriptions reported in this document.

This equipment complies with the requirements of the EEC directives 2004/108/EEC and 2006/95/EEC with regard to "Electromagnetic Compatibility" and "Low Voltage Electrical Apparatus" respectively.

OUT OF SERVICE

In case of dismantling, decommissioning, destruction, disposal, the user shall follow all the required precautions for component and material elimination, according to local rules and applicable law.

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EDITIONS

Date

02/10/2013	First issue
11/14/2013	Updated chapter "Cable lead with plug" and "List of the recommended spare parts"
11/03/2014	New address of the Company Deleted § "List of the recommended spare parts" and added relevant attachment
20/03/2018	Replaced gasket, ring nut and added o-ring

REVISIONS

Index	Date	Description	Edited by	Approved by
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LIST OF EFFECTIVE PAGES

From page 1 to page 17

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LIST OF ATTACHMENTS

UC-PU-0279 - LIST OF THE RECOMMENDED SPARE PARTS

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1 GENERAL

LHE elevated LED heliports light is low intensity, omnidirectional steady burning type.

These fixtures are intended for use as helipad area lighting.

LHE lights are in compliance with ICAO Annex 14 Vol.2, IEC TS 61827 and NATO-STANAG 3619.

The fixtures described in this manual are designed to be connected to parallel circuits.

Location of these fittings shall be in compliance with ICAO - Annex 14 or STANAG Specs

2 MAIN FEATURES

The fixture consists of:

- heat resistant transparent glass lens; it is mechanically secured to the body by metal threaded ring with flat gasket
- aluminium body mounted on the pole using three screws. These screws also allow the levelling of equipment
- the power supply/control PCB and the LED circuit are mounted on the aluminium inner body
- steel 1-inch-tube, available in different length, connecting the main body and fragile joint; to lock the tube, the breakable coupling is equipped with one screw
- aluminium breakable coupling provided with a breakable groove 2" GAS
- two, single-pole neoprene cable leads, size 2.5 mm², 0.3 m long, with plug meeting FAA Specs L-823; as alternative a cable lead (L = 2 m exceeding over the breakable coupling) can be provided; a ground cable length 0.2 m
- a LED module, consisting of six LED, mounted on a PCB complete with a dedicated optic to collect the LED luminous flux so to maximize the light output

All hardware is made of stainless steel.

See *"Complete P/N identification"* figure for P/N information.

Power consumption 28 VA and 11 VA (white or green/yellow respectively).

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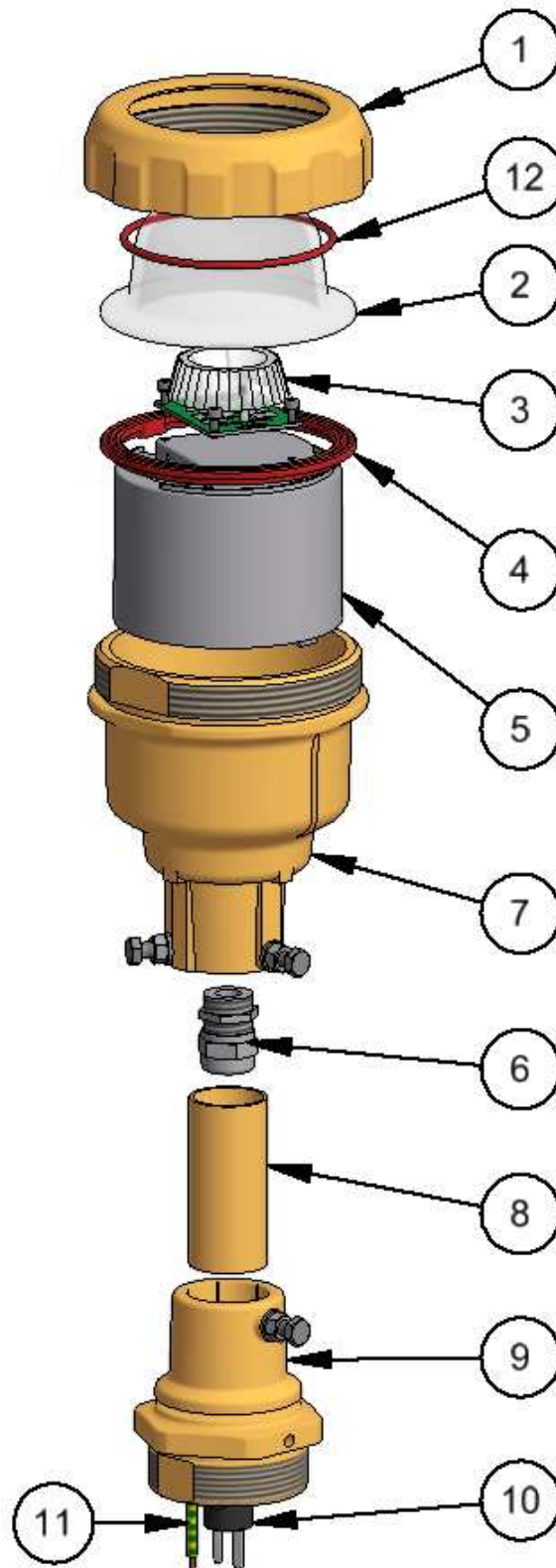


Figure 1 – Exploded View

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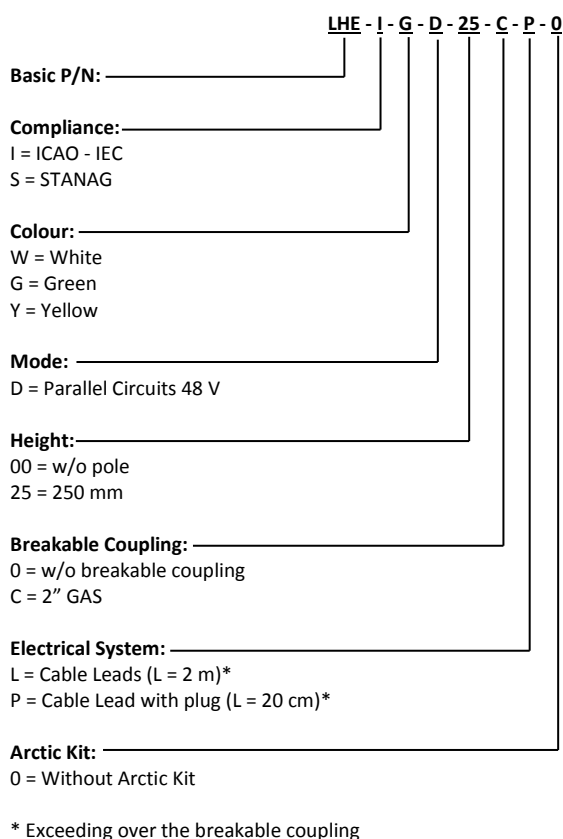
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No.	Description	Qty
1	Lens locking ring.....	1
2	Lens	1
3	Gasket for lens	1
4	LED module with accessories.....	1
5	Electronic	1
6	Cable gland.....	1
7	Body with slipfitter.....	1
8	Standard 1-inch tube	1
9	Breakable coupling	1
10	FAA L-823 plug	1
11	Fixture grounding wire.....	1
12	O-Ring	1

Figure 2 – Part List



Colour Selection				
SPECS	USE	COLOUR		
		WHITE	GREEN	YELLOW
ICAO	FATO and Aiming Point	X		
ICAO	TLOF Heliport Edge		X	
STANAG	TLOF Heliport Edge			X
STANAG	Landing Direction			X

Figure 3 - Complete P/N identification

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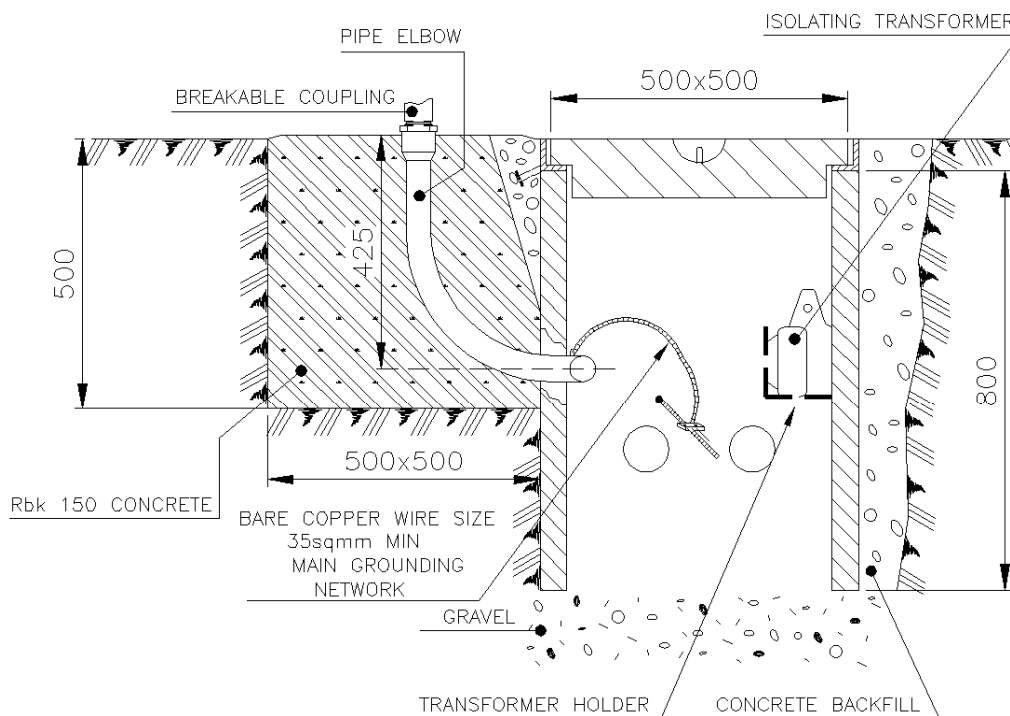
3 INSTALLATION

3.1 CIVIL WORKS

Each light is usually installed on a suitable concrete block, into which a pipe elbows is cemented. The isolating transformer is housed into a separate concrete pit which is normally placed close the above concrete block (Figure 4).

The pit can be placed far from the concrete block too, but in this case a suitable cable duct has to be provided between the pit and the pipe elbow for passing the secondary cable.

As alternative the assembly pit-pipe elbow can be replaced by a steel sheet base, which can be used to house the isolating transformer, complete with an upper steel plate with a threaded sleeve.



IMPORTANT: MAKE SURE THE UPPER END OF THE PIPE ELBOW IS VERTICAL

Figure 4 – Civil Works

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3.2 INSTALLING THE LIGH UNIT

The light is shipped completely assembled including the LED module, except the 1-inch tube and the breakable coupling which are delivered separately inside the same carton.

Note: if the fixture has been ordered with an extra height option, the tubing may be packaged separately.

For the installation of the light the following steps are suggested:

- pass together the secondary cable lead with receptacle and a suitable length of grounding wire (grounded inside the pit) through the pipe elbow
- place the receptacle into the upper threaded section of the pipe elbow, by holding it between the two plastic rings, and pass the grounding wire through the rings (in correspondence of break point provided on the rings)
- slide one end of the 1-inch tube over the fixture cable assembly (cable leads with plug plus yellow-green wire) and into the fixture body until the body bottoms against the tube
- approach, without tighten, the set screws on the side of the body to the 1-inch tube
- slide the frangible coupling over the cable assembly (cable leads with plug plus yellow-green wire) and onto the other end of the 1-inch tube until it bottoms against the tube
- connect the fixture grounding wire to the grounding wire coming from the pit (or from the base): splice both the wires and connect them together by using a crimping connector
- connect the light plug to the secondary receptacle inside the pipe elbow
- slide the frangible coupling down over the plug and tighten it into pipe elbow (or the base plate) until coupling bottoms out. Push any extra cable length into the 1-inch tube. Tighten the tube to the coupling with the setscrew on the coupling
- Place on the lens locking ring the levelling device (P/N 332.3500 available on request) as shown in Figure 5. Levelling the light body by operating the three levelling screws until the bubble is centered
- remove the levelling device

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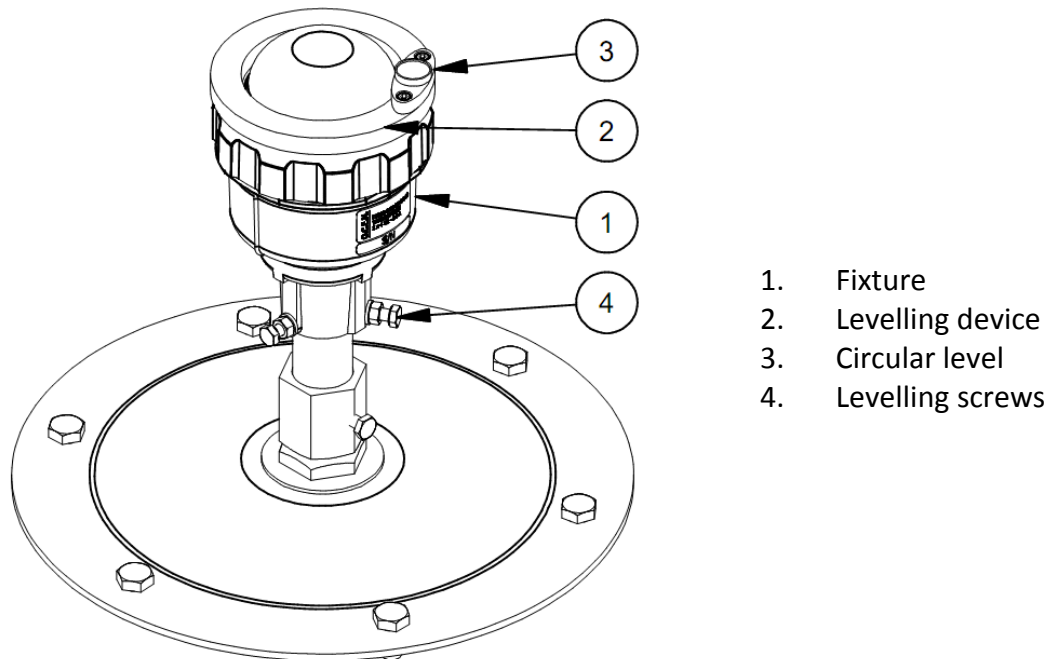


Figure 5 – Levelling Device

4 MAINTENANCE

WARNING
BEFORE ANY MAINTENANCE INTERVENTION, MAKE SURE
THE POWER SUPPLY BE SWITCHED OFF.
DO NOT OPERATE ON LIVE PARTS!!!

LED lighting fixtures do not require frequent maintenance. With well-run installations and handling fixture carefully, avoiding excessive falls or collisions, the only maintenance work to be carried out on the field is to clean the prisms.

4.1 MAINTENANCE PROGRAM

In order to ensure maximum light fixture life, the installed units should be subject to a maintenance program in accordance with the following instructions and taking as

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reference the Airport Service Manual ICAO - Part 9 - Airport Maintenance Practices or FAA AC 150 5340-30.

4.1.1 Periodical Checks

Daily	Burnt-out luminous source
	Broken parts of lights
Monthly	Cleaning of the lenses
	Correct setting of the lights
Semi-Annual	Painting or replacement of rusted parts
Annual	Stability of the civil works
	Stability and assembly of lights
	Electrical connections and insulation degree
	Luminous efficiency of luminous sources
Unscheduled	Condition of all the gaskets
	After unusual atmospheric precipitation, check the light condition and remove any luminous beam obstructions

4.1.2 Snowplow Operations

Snowplow operators should exercise extra care not to strike the light fixtures with snowplow blades. After snow removal operations, inspect all light fixtures to locate and replace, if necessary, any damaged light assemblies.

4.2 REMOVING AND OPENING THE LIGHT UNIT

4.2.1 Removing the fixture

Remove the fixture from base plate or pipe elbow following steps are suggested:

- unscrew the frangible coupling screw
- hold the fixture and unscrew the frangible coupling
- lay the fixture and disconnect plug to the secondary receptacle inside the pipe elbow
- disconnect the fixture grounding wire to the grounding wire coming from the pit (or from the base).

4.3 LENS CLEANING

4.3.1 Prism outside cleaning

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- Removing the fixture is not necessary to clean the outer surface of the prisms, and if already removed is not necessary to open it. Clean the lens surface with non abrasive glass product.

4.4 LENS REPLACEMENT

Unscrew the lens locking ring and remove the broken lens with the relevant gasket from the fixture body.

In order to removal the lens, press down the lens with the palm of one hand and, with the other hand, unscrew the locking ring (Figure 6).

Place a new gasket on the body.

Set the new lens on the body.

Hand tighten the locking ring.

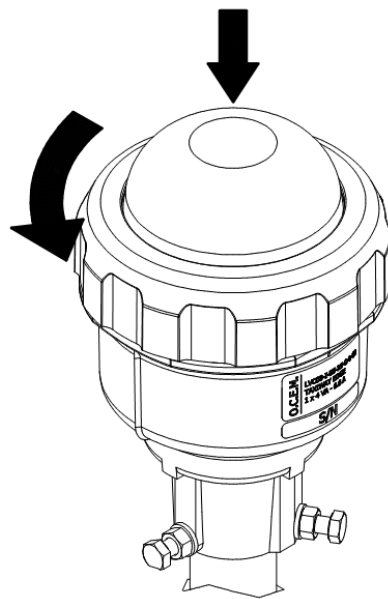


Figure 6 – Removing the Lens

4.5 LED MODULE REPLACEMENT

Remove the lens with gasket as above described and proceed as follow:

- remove the LED module by unscrewing the four M3x8 HSCH screws
- take out the electronic from the body and disconnect the LED module from the PCB
- provide a new LED module and reassembly the unit with reverse procedure

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IMPORTANT: IT IS SUGGESTED TO REPLACE THE LENS GASKET TO NOT AFFECT WATERTIGHTNESS.

Make sure the tooth of the Electronic goes to inserted into its seat on the body (Figure 7).

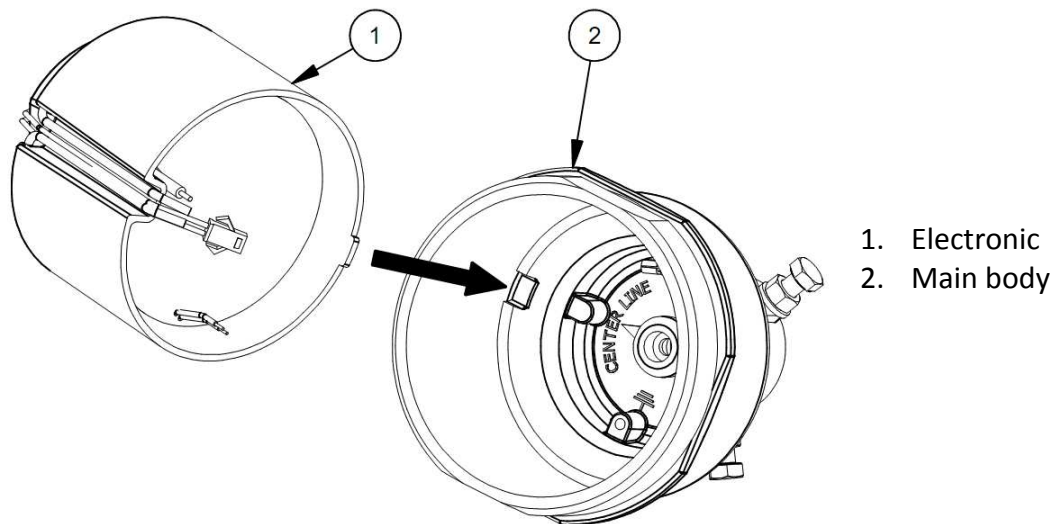


Figure 7 – Reassembly the Light Unit

4.6 ELECTRONIC REPLACEMENT

Remove the lens with gasket as above described and proceed as follow:

- take out the electronic from the body and disconnect the PCB from cable lead with plug and from the LED module
- remove the LED module by unscrewing the four M3x8 HSCH screws
- provide a new electronic and reassembly the unit with reverse procedure

IMPORTANT: IT IS SUGGESTED TO REPLACE THE LENS GASKET TO NOT AFFECT WATERTIGHTNESS.

4.7 BREAKABLE COUPLING REPLACEMENT

Unscrew the lower threaded section of broken breakable coupling from the pipe elbow (or base plate), cut the grounding wire, disconnect the light plug from the secondary receptacle and remove the threaded section.

Remove the upper section of the broken breakable coupling from the 1-inch pipe by releasing the setscrew.

If damaged, replace the 1-inch tube too. To make free the tube, release the setscrew on the main body.

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Provide a new breakable coupling and, if required, a new 1-inch tube.

Reassembly the unit by following the installation steps.

4.8 CABLE LEAD WITH PLUG

4.8.1 Removing the cable lead with plug

The replacement of the cable lead requires the fixture completely disassembled; follow the procedures above described to replace the power supply/control PCB, to replace the breakable coupling and the 1-inch tube.

Unscrew the grounding screw inside the body to make free the grounding cable.

Remove the cable gland from the outside of the fixture body using a double ended deep offset ring wrench CH 20; pull out the damaged cable lead and/or the grounding wire from the sealing insert.

4.8.2 Installing the new cable lead with plug

Replace the cable gland if damaged.

Insert a new cable lead and a new grounding wire (if necessary) into the sealing insert at approx 8 cm from the free extremity of the cable lead. Take care that the grounding wire end with eyelet terminal be at 3-4 cm from the cable gland.

Place the sealing insert into the relevant cable gland seat and tighten it using a double ended deep offset ring wrench CH 20.

Reassembly with reverse procedure.

5 TROUBLESHOOTING

Problem	Possible cause	Solution
Distorted light beam output	Broken or damaged lens	Replace lens
Weak light output	Primary loop with partial short circuit	Check cable assembly
	Defect in the isolation transformer	Replace transformer
	Dirty lens	Clean the light fixture

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Problem	Possible cause	Solution
	One LED of the luminous source damaged in short circuit	Replace the LEDs board
	Wrong power PCB installed	Check parts list and install the correct PCB
Luminous source not working	LEDS DEFECTIVE	Replace the LEDs board
	POWER PCB DEFECTIVE	Replace the Power PCB
	Moisture inside the fixture	Execute leakage test and replace damaged components. Clean and dry the inside area of the fixture
	No connection of primary circuit	Check transformer output current with A-meter
	Defective isolation transformer or secondary wiring	Check power line between the light fixture and the transformer, including connectors
Water or moisture inside the fixture	Lens gasket	Replace the gasket
	Pinched fixture power cables	Replace fixture leads

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