LOW INTENSITY OMINIDIRECTIONAL ELEVATED LIGHT HEOL FOR HELIPORT USE, INSTALLATION AND MAINTENANCE INSTRUCTION MANUAL

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EDITION

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REVISIONS

Index	Date	Description	Written by	Approved by
A	04/22/2010	Replaced lamp 230 V. Concerned Par. 2, 5, 6; pages 7, 8, 24, 26.	D. Roncati	E. Rauli
B	10/07/2010	Corrected the breakable coupling code, par. 6. Spare Parts	N. Marabini	E. Rauli
C	05/02/2019	Replace 070 Lamp with LED lamp	M.Mazzolini	M.Mazzotti

LIST OF VALID PAGES

From page 1 to page 27

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 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.

OCEM's obligation under this warranty is limited to use reasonable efforts to repair or, at its option, replace, during normal business 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 repaired or replacement Products 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 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.

SAFETY NOTICES

This equipment is generally connected to circuits that may operate at dangerous voltages and that may be fatal if accidentally touched by operators or maintenance personnel. Extreme caution should be exercised when working with this equipment. Independently from safeties incorporated in this equipment, the following rules must be strictly observed.

KEEP AWAY FROM LIGHT 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.

RESUSCITATION

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

CE CERTIFICATE

CE This equipment complies with the requirements of the EEC directives 73/23/EEC and 93/68EEC with regard to “Electromagnetic Compatibility”.

PLACING OUT OF SERVICE

In case of dismantling, placing out of service, scrapping, the user shall follow all the required precautions for component and material elimination, according to local rules.

INDEX

LIST OF FIGURES

LIST OF TABLES

1 GENERAL

HEOL lights are low intensity, omnidirectional, elevated, steady burning type. These fittings are used for heliport perimeter lighting and provide a candlepower distribution conforming to ICAO - Annex 14 or STANAG Specs.

The lights described in this manual are manufactured to be powered with 230 V / 24 V - 100 W transformers (to be ordered separately) suitable for parallel circuits or directly connected to 230 V circuits without transformer.

The fittings layout has to be carried out in compliance with the recommendations of ICAO - Annex 14 or STANAG Specs.

2 MAIN FEATURES

HEOL light consists of (see *Figure 1*):

- heat resistant glass symmetric lens clear, green or yellow. It is fastened to the body with a stainless steel clamp. A silicon O-ring between lens and body is provided for watertight;
- cast aluminium body, complete with E27 lampholder;
- cast aluminium breakable coupling to sustain the fixture, that is fastened to it with three screws. The coupling is provided with a breaking groove and a 2" Gas male thread for a proper installation. For approach fixtures a suitable pole is placed between fixture and coupling, provided in several lenghts up to 2 m;
- bipolar cable with plug in compliance with IEC 61823;
- grounding screw;
- 8W LED lamps, 230 V, E27 base, 15000 hours rated life. Quick relamping without special tools. No optical adjustments are required after lamp or lens replacement.

SPEC.	USE	COLOUR		
		CLEAR	GREEN	YELLOW
ICAO	F.A.T.O. and Aiming Point	070		
ICAO	T.L.O.F.		070	
STANAG	Landing Direction			070
STANAG	Approach	070		
070 = 8W - 230 V LED				

Table 1 Lamp choose

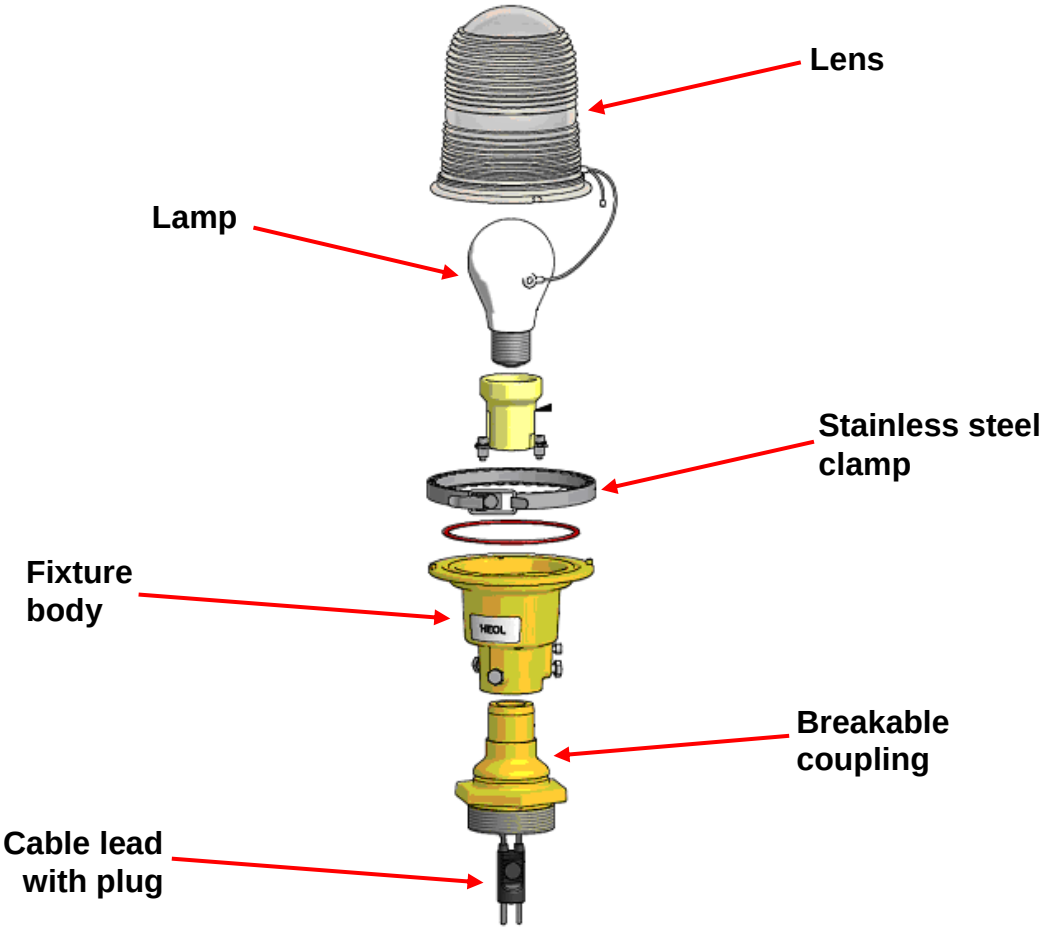


Figure 1 HEOL light

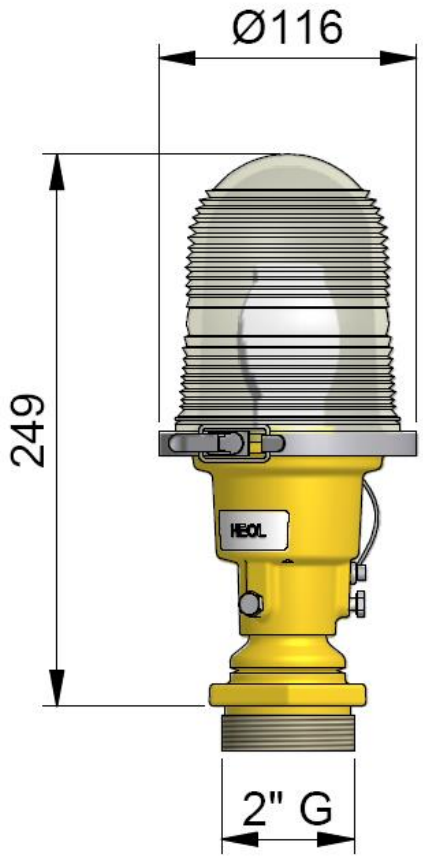


Figure 2 HEOL light - Dimensions

The coating is realized, previous degreasing and phosphating treatments, by electrostatic painting with epoxy powder baked in oven, RAL 1007 yellow colour.

	Light	**Fixture with breakable coupling**	**Fixture with pole**
Weight	1,0 kg	1,3 kg	1,7 kg
Volume	0,009 m^3	0,009 m^3	0,009 m^3

Table 2 Shipping weights and volumes

3 INSTALLATION

The light is shipped completely assembled, lamp included. The light can be shipped with breakable coupling, bipolar cable with plug and grounding cable, or with tripolar cable.

Each light is usually installed on a suitable concrete block, where a 2" elbow pipe is cemented, or on a base FAA L-827 and a base plate (Figure 4 and Figure 6). The transformer is housed into a separate concrete pit which is normally placed close to the concrete block (Figure 3).
The pit can be placed also far from the concrete block, but in this case a suitable cable duct has to be provided between the pit and the elbow pipe for passing of the power supply cable (connection between transformer and light).
As alternative the assembly pit-elbow pipe can be replaced by a galvanized steel sheet base FAA L-827, used to house the transformer, and an upper steel plate with a 2" threaded mouthpiece.
The light can also be installed on tripod (Figure 7) provided with three holes for ground anchoring.

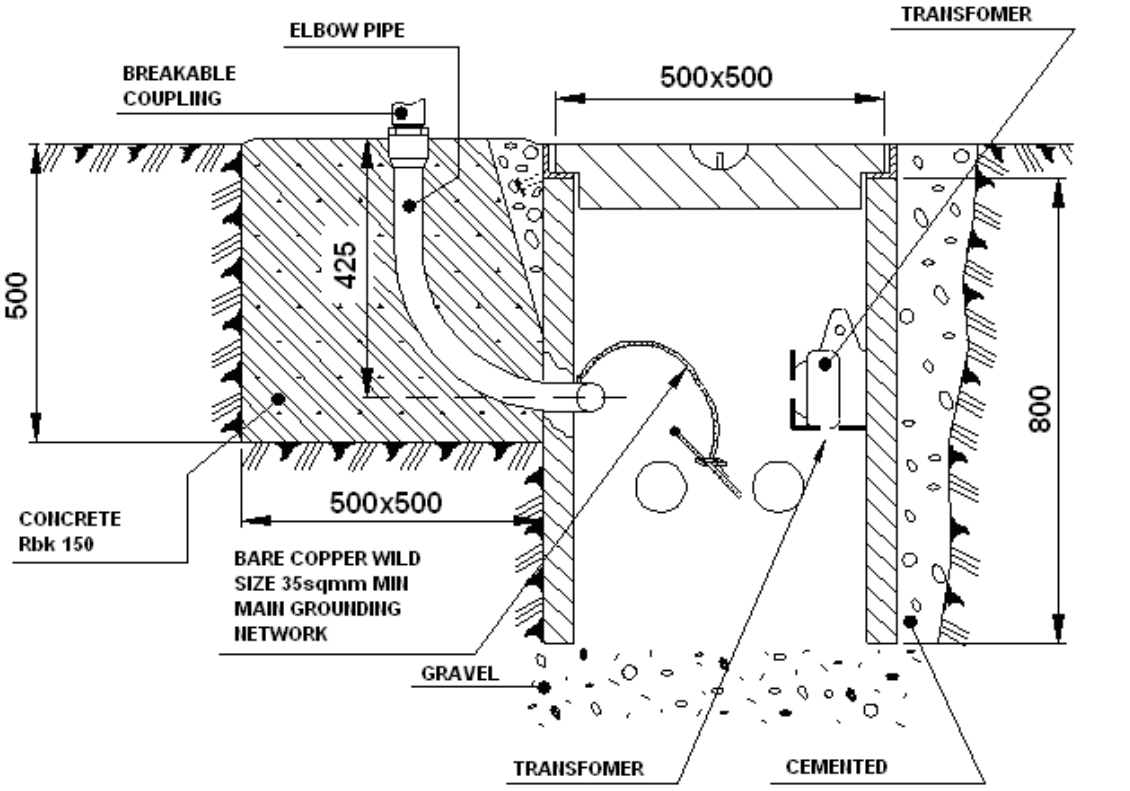


Figure 3 Installation of elevated lights civil work (demonstrative)

3.1 Light Installation on elbow pipe

For the installation of the light on elbow pipe follow these instructions (*Figure 3* and *Figure 4*):

1. Mount the socket (to be ordered separately) on the power supply cable.
2. Pass together the power supply cable lead with socket and a suitable length of grounding wire (grounded inside the pit) through the elbow pipe.
3. Place the socket in the upper threaded section of the elbow pipe, by holding it between the two plastic disks, and pass the grounding wire through the slots presents on the disks.
4. Connect the light plug to the socket inside the elbow pipe and make the connection to ground.
5. Place the breakable coupling on the elbow pipe without screwing it completely.
6. Place the light on the breakable coupling without tightening the three screws on the body of the light.
7. Screw completely the breakable coupling to the elbow pipe.
8. Fix the light to the breakable coupling tightening the three screws on the body of the light.

In the **Approach version** (*Figure 5*), after followed the instructions above in points 1, 2 and 3 proceed as described below:

4. Fix the light to the pole by means of the three screws on the body, by passing the electrical wires inside the pole.
5. Connect the plug of the light with the socket placed inside the elbow pipe and make the connection to ground
6. Tighten completely the breakable coupling on the elbow pipe
7. Insert the pole in the breakable coupling
8. Fix the pole to the coupling by means of the six screws on the coupling.

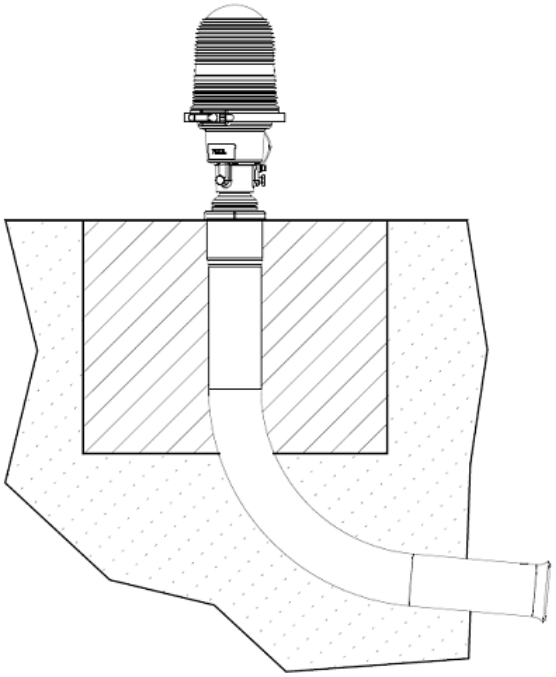


Figure 4 Installation on a elbow pipe

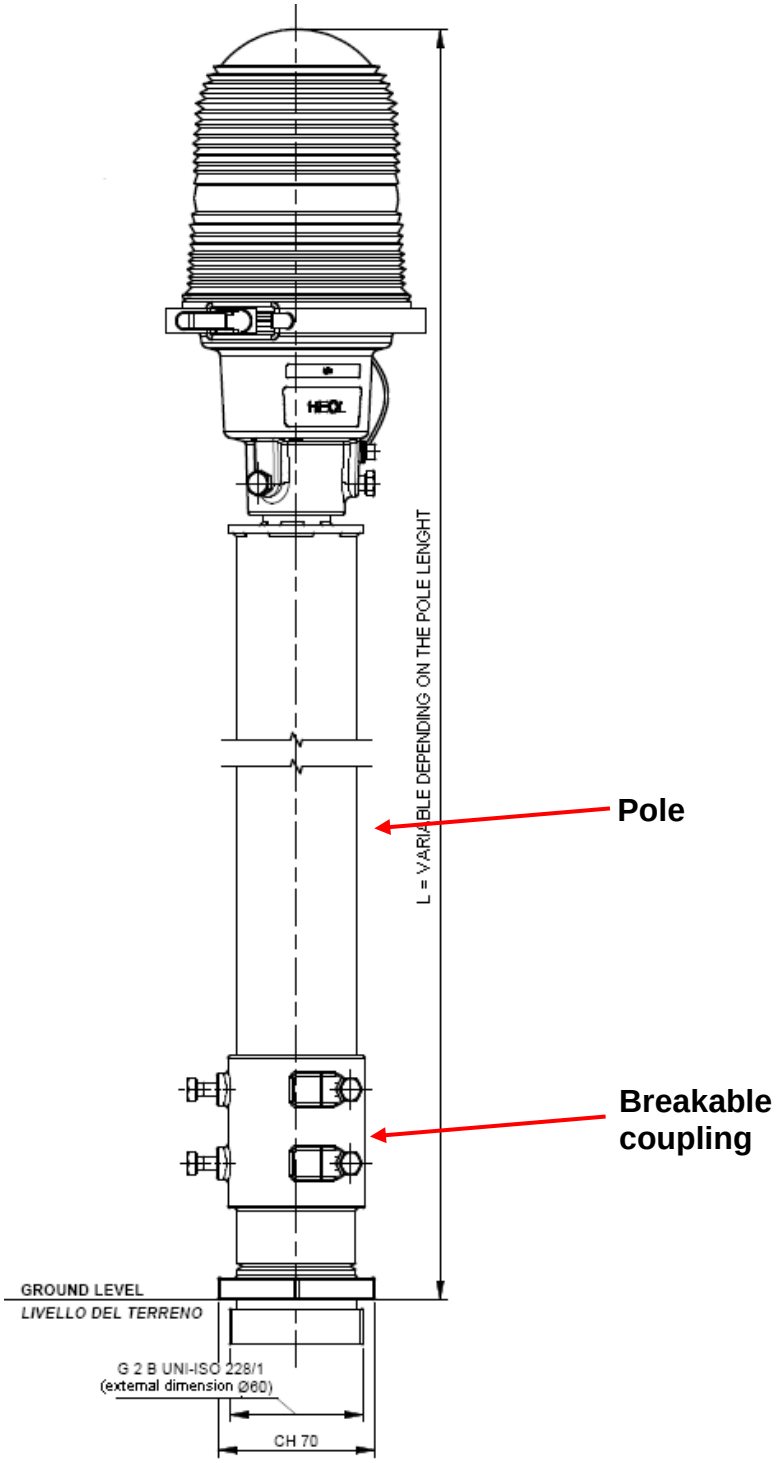


Figure 5 HEOL light Approach version with pole

3.2 Light Installation on an FAA L-867 base with baseplate

For the installation of the light on an FAA L-867 base with base plate follow these instructions (*Figure* 6):

1. Connect the light plug to the socket placed in the upper threaded section of the base plate
2. Place the breakable coupling on the threaded sleeve without screwing it completely
3. Place the light on the breakable coupling without tightening the three screws on the body of the light
4. Screw completely the breakable coupling to the threaded sleeve
5. Tighten the three screws on the body of the light.

In the **Approach version** (*Figure 5*):

1. Fix the light to the pole by means of the three screws on the body, by passing the electrical connections inside the pole.
2. Connect the plug of the light with the socket placed on the upper section of the base plate and make the connection to ground.
3. Tighten completely the breakable coupling on the threaded sleeve.
4. Insert the pole in the breakable coupling.
5. Fix the pole to the coupling by means of the six screws on the coupling.

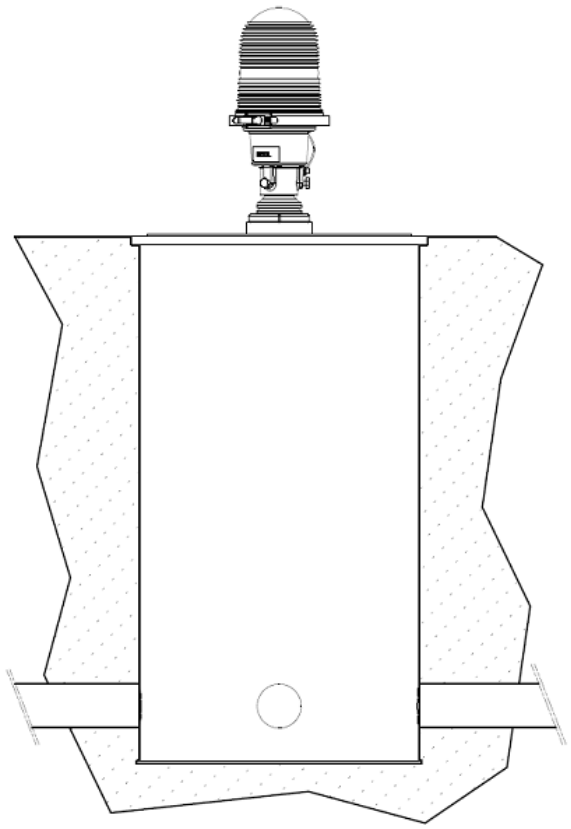


Figure 6 Installation on an FAA L-867 base with baseplate

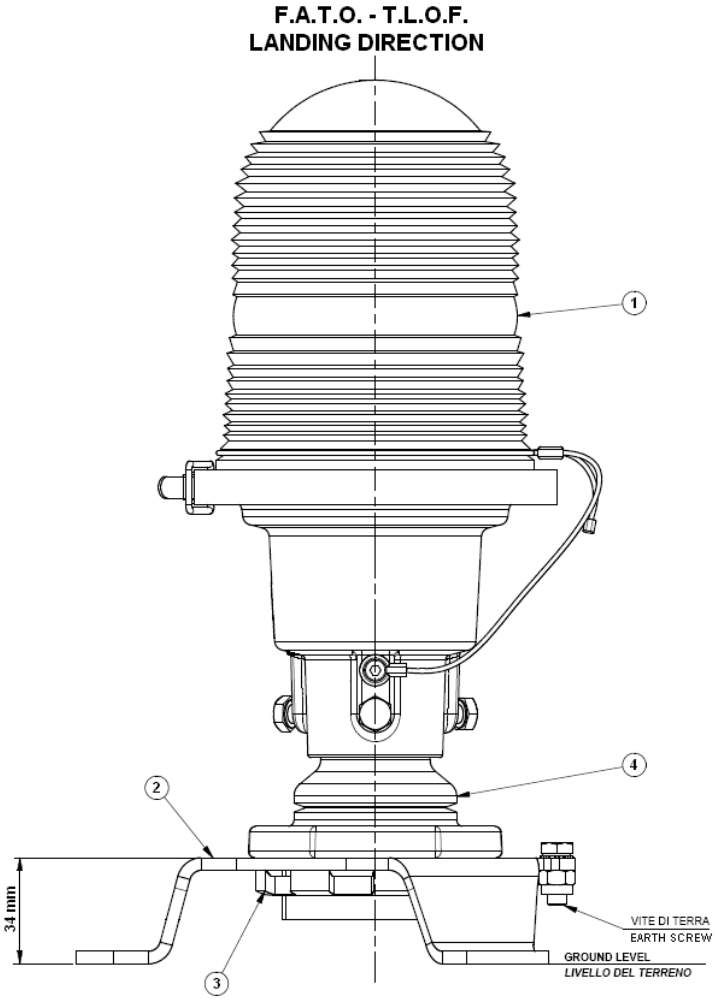
3.3 Light Installation on tripod

For the installation of the light on a tripod follow these instructions (*Figure 7* and *Figure 8*):

1. Fix the breakable coupling to the tripod through the ring nut using the pin wrench (not included) size 80-90.
2. Fix the tripod to the pavement through three rawplugs max M12 (not included).
3. Mount the light on the breakable coupling and tight the three screws on the body.
4. Make the electrical connections in accordance with the current regulations (by the customer).

In the **Approach version** (*Figure 8*) after followed the instructions above in points 1 and 2 proceed as described below:

3. Fix the light to the pole by means of the three screws on the body, by passing the electrical connections inside the pole wires.
4. Fix the pole to the breakable coupling by means of the six screws on the breakable coupling.
5. Make the electrical connections in accordance with the current regulations (by the customer).

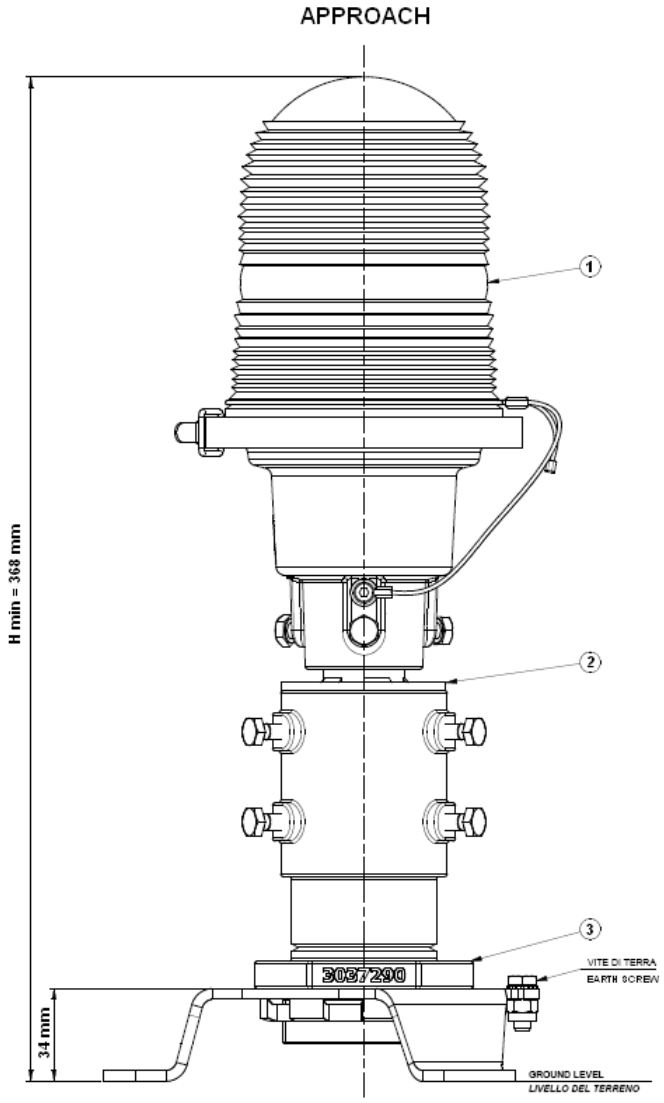


Legend:

1 - HEOL Light versions:
- F.A.T.O.
- T.L.O.F.
- Landing Direction

2 - Tripod
3 - Ring nut 2" G
4 - Breakable coupling

Figure 7 Installation on tripod F.A.T.O., T.L.O.F. and Landing Direction version



Legend:

1 - HEOL Light Approach version
2 - Pole
3 - Breakable coupling

Figure 8 Installation on tripod - Approach version

4 MAINTENANCE

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

The basic purpose of a visual system is to guarantee safe operation for helicopters. Therefore the highest standards of maintenance are required.
Once a system has been installed, its usefulness is dependent on its serviceability which in turn depends upon the effectiveness of the maintenance work carried out.

4.1 Periodic checks

The frequency at which routine inspection, cleaning and servicing are required to be performed will vary according to the type of equipment, its location and use.

A maintenance program must be drawn up for each individual heliport based on past experience and its aim should be to achieve the required service standard.
The following are the guidelines for a preventive maintenance program.

DAILY CHECKS	1) Burn-out lamps
	2) Broken parts of lights

MONTHLY CHECKS	1) Cleaning of the lenses
	2) Correct setting of the lights

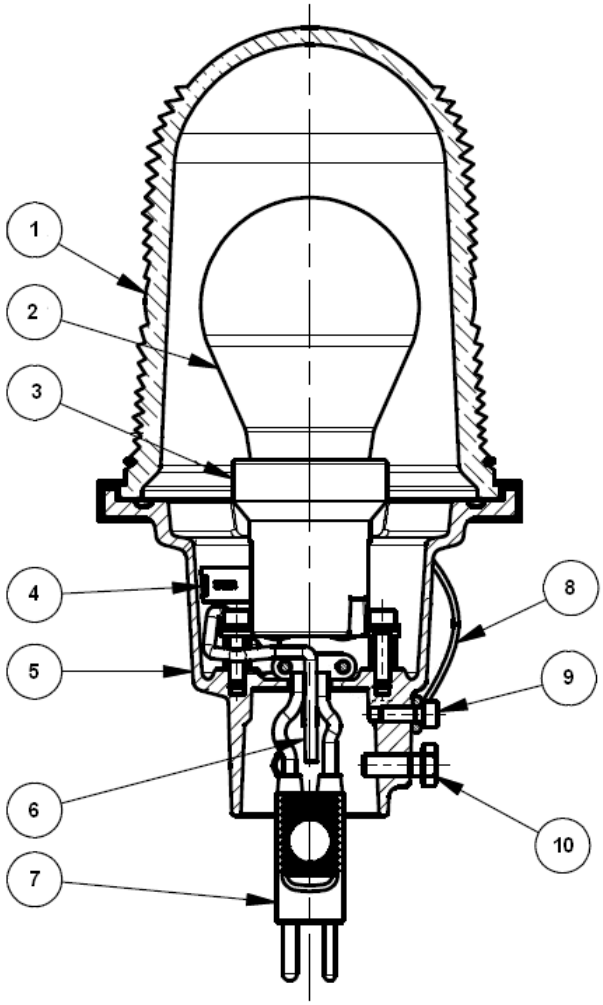
SEMI-ANNUAL CHECKS	1) Painting or replacement of rusted parts

ANNUAL CHECKS	1) Stability of the civil works
	2) Stability and assembly of lights
	3) Electrical connections and insulation degree
	4) Luminous efficiency of lamps
	5) Condition of all the gaskets

4.2 Unscheduled checks

After unusual atmospheric precipitation, check the light condition and remove any obstruction for the luminuos beam.

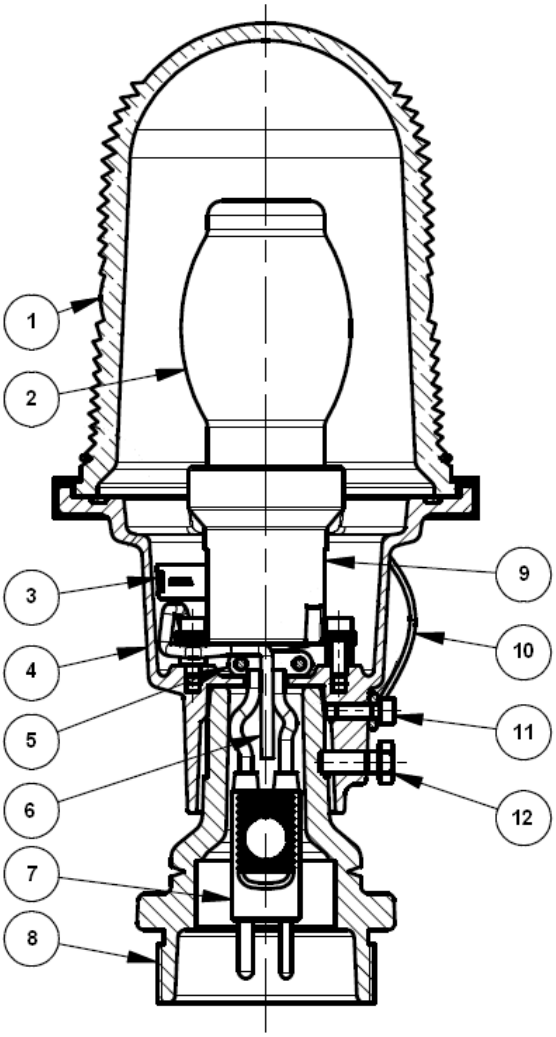
4.3 Maintenance procedures



Legend:

1 - FRESNEL lens
2 - Lamp
3 - E27 lampholder
4 - Identification lamps plate
5 - Fixture Body
6 - Earth cable
7 - Bipolar cable lead
8 - Rope with metallic ring for lens
9 - Screw for rope
10 - Inox screw

Figure 9 HEOL light Approach version with pole - internal view



Legend:

1 - FRESNEL lens
2 - Lamp
3 - Identification lamps plate
4 - Fixture Body
5 - Clamp for cable
6 - Earth cable
7 - Bipolar cable lead
8 - Breakable coupling
9 - E27 lampholder
10 - Rope with metallic ring for lens
11 - Screw for rope
12 - Inox screw

Figure 10 HEOL light F.A.T.O. and T.L.O.F. version - internal view

4.3.1 Cleaning of the lens

Clean the external surface of the lens with a detergent solution.

4.3.2 Replacement of the lens

Unlock the stainless steel clamp and unscrew the screw to remove the lens (*Figure 10* – nr. 11). Mount the new lens screwing the screw and lock the stainless steel clamp (*Figure 10* – nr. 11).

IMPORTANT!

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

4.3.3 Replacement of the lamp

Unlock the stainless steel clamp, open the light and let the lens be attached to the body through the rope (*Figure 10* – nr. 10). Remove the burnt-out lamp from the lampholder and mount the new lamp. Mount the lens and lock the stainless steel clamp. Take care the new lamp be identified by the same P/N of the old one.

CAUTION!

TOUCHING THE QUARTZ BULB WITH YOUR BARE FINGERS MAY SERIOUSLY SHORTEN THE LAMP LIFE. IF THE QUARTZ BULB HAS BEEN TOUCHED, WIPE IT CLEAN WITH A PIECE OF LENS CLEANING TISSUE OR SIMILAR MATERIAL MOISTENED WITH ISOPROPYL ALCOHOL.

4.3.4 Replacement of the lampholder

Unlock the stainless steel clamp and remove the lens unscrewing the screw (*Figure 10* - nr. 11). Remove the lamp and retain it. Unscrew the two screws with washer which fasten the lampholder to the support; retain the hardware.
Disconnect the cables from the lampholder.
Replace the lampholder with a new one reconnecting the electrical connections; take care the new lampholder be identified by the same P/N of the old one.
Reassembly the light by reversing the above procedure.

4.3.5 Replacement of the breakable coupling (F.A.T.O. - T.L.O.F. - Landing Direction versions)

Unscrew the three screws on the body of the light and remove the portion of the breakable coupling from its place. Disconnect the grounding cable and the power supply cable.
Remove the hexagonal coupling portion screwed to the elbow pipe (or to the baseplate).
Complete the installation as described in para. 3.

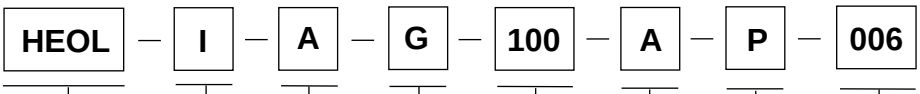
4.3.6 Replacement of the breakable coupling (Approach version)

Unscrew the six screws on the portion of the breakable coupling attached to the mounting pole. Disconnect the grounding cable and the power supply cable.
Remove the hexagonal coupling portion screwed to the elbow pipe (or to the baseplate).
Complete the installation as described in para. 3 using the old mounting pole (if it is not damaged).

4.3.7 Replacement of the power supply cable lead with plug

Unscrew the three screws on the body of the light. Disconnect the grounding cable and the light plug from the secondary socket.
Unlock the stainless steel clamp and remove the lens and the lamp from the lampholder as above described and retain them.
Unscrew the two screws with washer which fasten the lampholder to the support; retain the hardware.
Remove the rope and retain it.
Disconnect the damaged plug from the lampholder and replace the plug with a new one.
Reassembly the light by reversing the above procedure.

5 PART NUMBER IDENTIFICATION



Basic Part Number:

Compliances:
I = ICAO
S = STANAG

Use Code:
A = Approach
D = Landing Direction
F = F.A.T.O. - Aiming Point
T = T.L.O.F. - Perimeter Lights

Colour:
C = Clear
G = Green
Y = Yellow

Lamp (see *Table 1*):

070 = 8W - 230 V halogen

Power Supply:
A = Tripolar Cable Leads (L = 2 m)*
B = Bipolar Cable Leads with plug (L = 20 cm)*

Mounting Assembly:
P = Mounting Pole, Breakable Coupling and Cable Lead INCLUDED

Mounting Assembly Code:
See *Table 3*

* Exceeding the breakable coupling.

POLE CODE	POLE LENGHT (in cm)
001	NO POLE
006	H min = 33,5 cm
050	50
100	100
150	150
200	200

Table 3 Mounting assembly

If necessary, after consultation with our customer service, mountign pole of non-standard lenght can be ordered separately.

6 SPARE PARTS

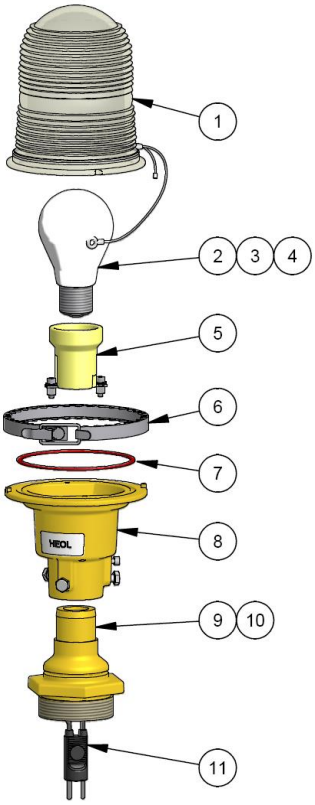


Figure 11 Spare parts

CODE	DESCRIPTION	POSITION
155.9055	Clear lens with metallic ring and hardware	1
155.9056	Green lens with metallic ring and hardware	1
155.9057	Yellow lens with metallic ring and hardware	1
CELCL0004	8 W LED lamp 230 V, option 070	2
166.4070	E27 lampholder	5
334.4175	Stainless steel clamp	6
758.2030	O-Ring for lens	7
152.5720	Fixture body with hardware	8
303.6170	Standard breakable coupling	9
155.2504	Breakable coupling for approach fixture	10
323.2220	Cable lead with plug 0.3 m lenght	11

Table 4 Spare parts list

7 ACCESSORIES

CODE	DESCRIPTION
013.0010	Set of two ryton rings for socket support inside pipe elbow
013.0008	Galvanized steel pipe elbow with upper threaded end only (2” Gas)
315.3210	Galvanized steel pipe elbow with bolt threaded ends (2” Gas)
152.5721	Tripod for fixture complete with ring nut 2” Gas and grounding hardware
315.3210	Ring nut 2” Gas
323.2390	L-823 two-pole socket 1,5 m length
315.1062	Baseplate for L-867 base, size B with 2” Gas thread, gasket and cable clamp
011.1520	Transformer for parallel circuit 100 W 230 V /24 V

Table 5 Accessories list