

Supersedes edition 04/20/2012



ELEVATED RUNWAY EDGE LIGHT

FP150

INSTRUCTION MANUAL FOR USE, INSTALLATION AND MAINTENANCE

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N° Attachments: 1

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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.

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.

EDITIONS

Date

09/29/2000	First issue
04/20/2012	General review
11/03/2014	New address of the Company
	General review
	Deleted § "List of the recommended spare parts" and added relevant attachment
	Added the attachment UT-MT-0770

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REVISIONS

Index	Date	Description	Edited by	Approved by
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LIST OF EFFECTIVE PAGES

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LIST OF ATTACHMENTSUC-PU-0285 - LIST OF THE RECOMMENDED SPARE PARTS
UT-MT-0070 - FP150 – INSTALLATION USING OPTICAL DEVICE

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1 GENERAL

FP150 elevated light is high intensity, unidirectional steady burning type.

These fittings are used for runway edge lighting and provide a candlepower distribution conforming to ICAO Specs - Annex 14 and NATO STANAG 3316 Specs.

The lights described in this manual are manufactured to be powered through isolating transformers by series circuits, fed by constant current regulators.

The layout of the fittings has to be carried out in compliance with the recommendations of ICAO Specs - Annex 14 or NATO STANAG 3316 Specs.

Location of these fittings shall be in compliance with ICAO - Annex 14, STANAG 3316 and FAA.

2 MAIN FEATURES

The fixture consists of:

- heat resistant clear glass **outer Fresnel lens**, to optimize the horizontal candlepower distribution; the inner surface of the lens is prismatic, the outer is completely smooth for easy maintenance
- clear glass **inner Fresnel lens**; when necessary the lens is supplied in two 180° pieces, one or both coloured
- aluminium **body** with grounding bolt, which mounts a suitable support for the lamp. It is balanced on an aluminium column and fixed to it by means of four levelling screws
- aluminium **lens plate** hinged to the body and secured to it by means of a stainless steel clamping spring. The outer lens is fixed to the plate by means of three stainless steel clips with silicone gasket; the inner lens is mounted on the plate with silicone gasket and upper securing block
- aluminium **breakable coupling**, meeting FAA Specs, with a lower 2" male thread. It has to be locked by means of a stainless steel threaded ring nut
- two, single-pole neoprene cable leads, size 2.5 mm², with plug meeting FAA Specs L-823
- tungsten-halogen **lamp**, 150 W, 6.6 A, PK 30/d base, with male faston cable leads, 1000 hour rated life

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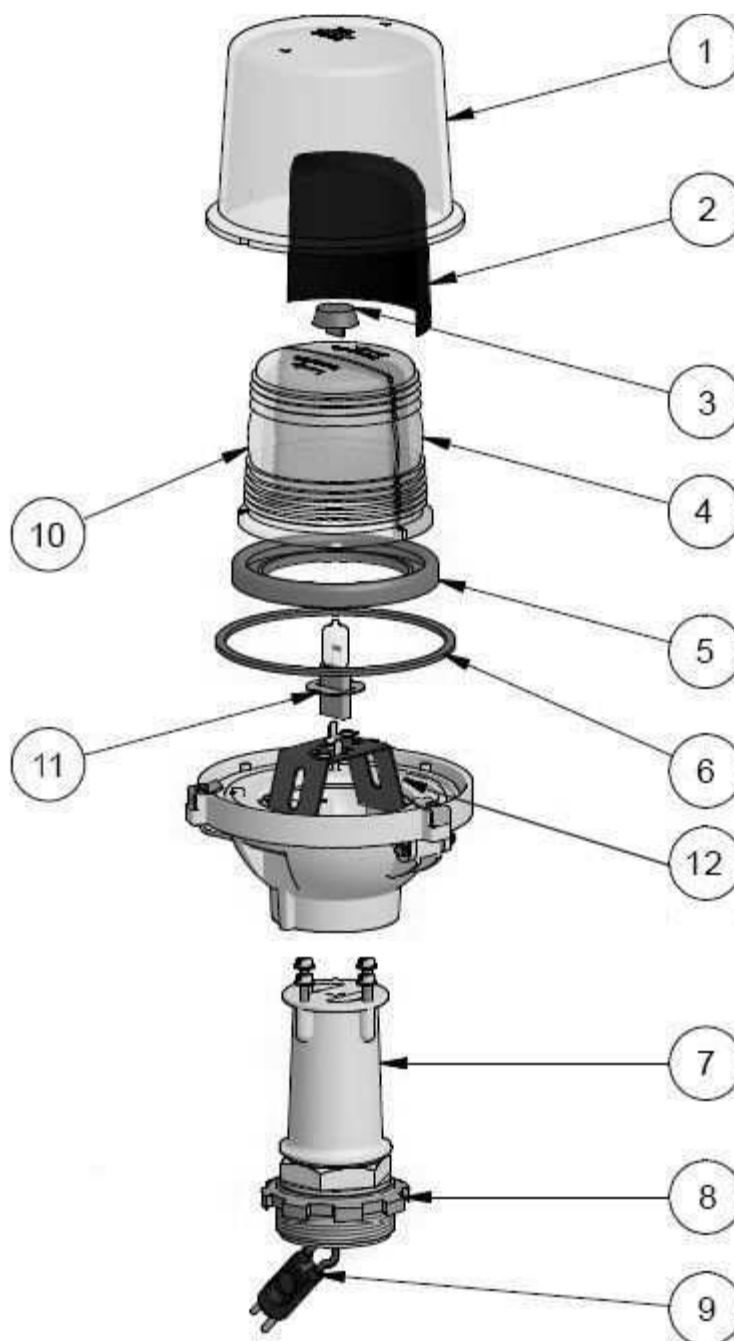


Figure 1 – Exploded View

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No.	Description	Qty
1	White outer lens	1
2	180° screen	1
3	Upper block for inner lens	1
4	180° right inner lens.....	1
5	Gasket for inner lens.....	1
6	Gasket for outer lens	1
7	Breakable coupling.....	1
8	Ring nut	1
9	FAA L-823 plug	1
10	180° left inner lens.....	1
11	Lamp.....	1
12	Lamp support	1

Figure 2 – Part List

- spun aluminium **screen** suitable to be mounted between the inner lens and the outer lens to provide a 180° beam, available on request
- spun aluminium **daymarker cone**, available on request.

All hardware is made of stainless steel.

See “Complete P/N identification” figure for P/N information.

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F	P	1	5	0	-		-			-				-	
---	---	---	---	---	---	--	---	--	--	---	--	--	--	---	--

Basic P/N: _____

Compliance: _____

I = ICAO 60m Runway Edge
S = ICAO 45 m Runway Edge and Instrument Threshold/End
F = FAA Runway Edge

Colour (Side "L")/Colour (Side "R"):* _____

C = White
G = Green
Y = Yellow
R = Red
X = Screened

Lamp Type: _____

150 = 150W 6.6A PK 30/d

Options: _____

C = Daymarker Cone
54 = IP54

* The beams aiming is not field adjustable

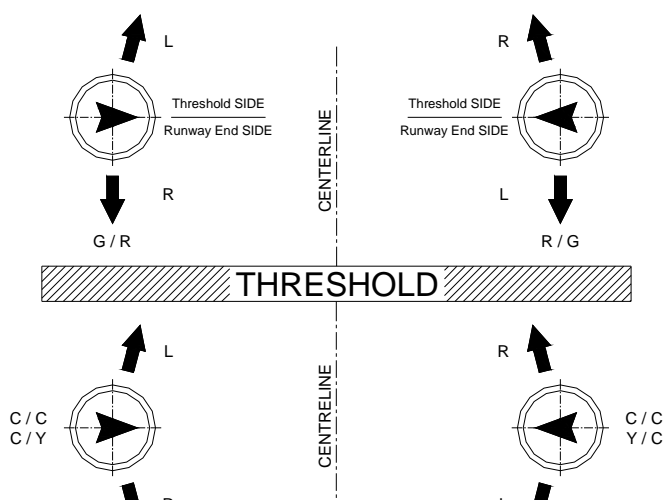


Figure 3 - Complete P/N identification

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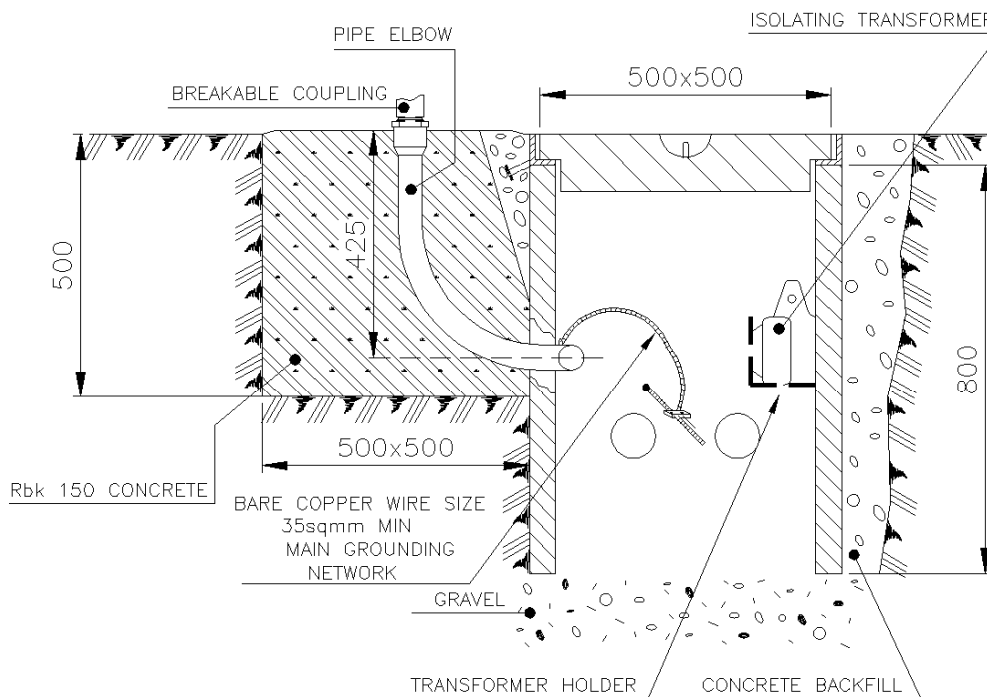
3 INSTALLATION

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 INSTALLATION

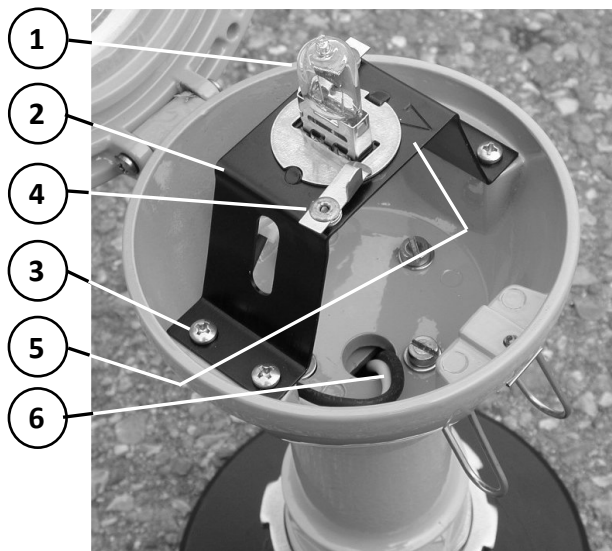
For the installation of the light the following steps are suggested:

- 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)
- open the light, by releasing the clamping spring which secures the lens plate, and make free the cable leads with plug from the clamping seat
- pass the grounding wire through the column and then through the bottom of the body; pull the grounding wire through the inside of the body and make a suitable provision of wire
- clamp a suitable eyelet terminal (the grounding bolt is M5 threaded) to the wire but not connect it to the grounding bolt to avoid the wire twisting during the installation
- connect the light plug to the secondary receptacle inside the pipe elbow and be sure the threaded ring nut is placed close to the top of the column lower threaded section
- screw the column to the pipe elbow; during this operation leave the light open (eventually supporting by hand the assembly lens plate-lenses) and take care to avoid the twisting of the grounding wire and the light cable leads
- after the screwing completion, lock (not tighten) the column to the pipe elbow by means of the threaded ring nut, taking care that the arrow of the outer lens is aimed towards the runway centreline (clamping spring of the lens plate faced to the runway)
- connect the lamp cable leads to the light cable leads with plug and the eyelet terminal of the grounding wire to the light grounding bolt. Insert the light cable leads with plug inside the clamping seat to prevent any strain or tugging
- place on the light body the levelling-alignment device (P/N 332.3250 available on request) in fixed position, level the light body by operating the four levelling screws and then align the light in line with the runway centreline by using the sights of the device
- tighten the threaded ring nut of the slipfitter, taking care to not modify the light alignment. Torque the ring nut at 45 Nm
- remove the levelling-alignment device and close the light, by securing the lens plate to the body by means of the clamping spring
- If provided, mount the daymarker cone on the suitable supporting plate of the body, by fastening it by means of the four screws.

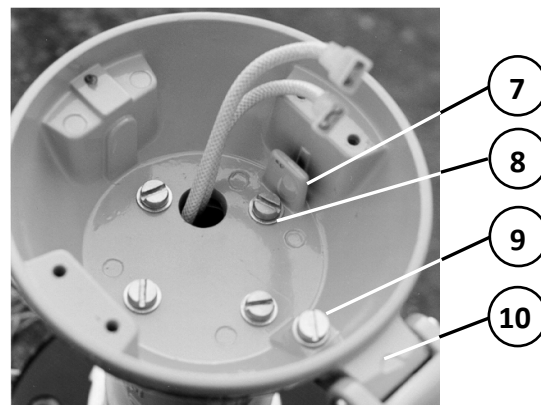
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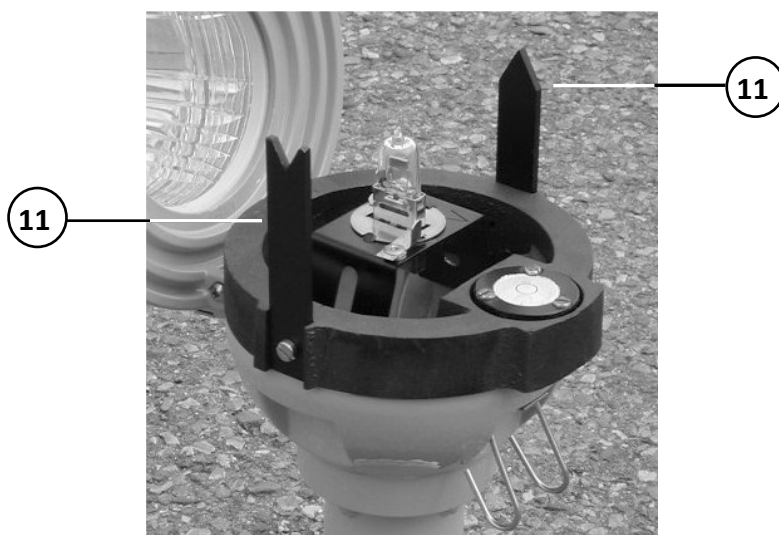
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- 1 - Lamp
- 2 - Support for lamp
- 3 - Screws for lamp support fastening
- 4 - Elastic mountings for lamp locking
- 5 - Arrow marked on the lamp support
- 6 - Cable leads with plug



- 7 - Clamping seat for cable leads with plug
- 8 - Light levelling screws
- 9 - Grounding bolt
- 10 - Hinge between lens plate and body



- 11 - Levelling and alignment device

Figure 5 - FP150 light - Details

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NOTE: take as reference the document UT-MT-0770 in case it is available the optical device P/N 332.4401 to level and align the light.

4 MAINTENANCE

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

The preferred method of maintaining these lights is replacing each fixture periodically and systematically and return it to the maintenance shop for renovation.

Field servicing shall be limited to cleaning 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 reference the Airport Service Manual ICAO - Part 9 - Airport Maintenance Practices or FAA AC 150 5340-30.

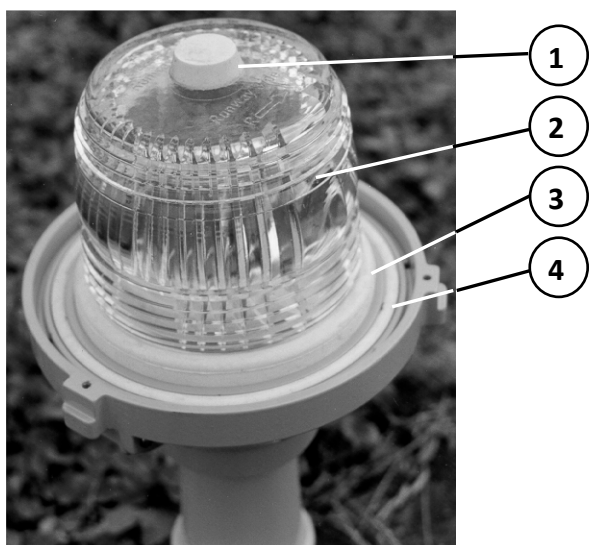
4.1.1 Periodical Checks

Daily	Burnt-out lamps
	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 lamps
Unscheduled	Condition of all the gaskets
	After unusual atmospheric precipitation, check the light condition and remove any luminous beam obstructions

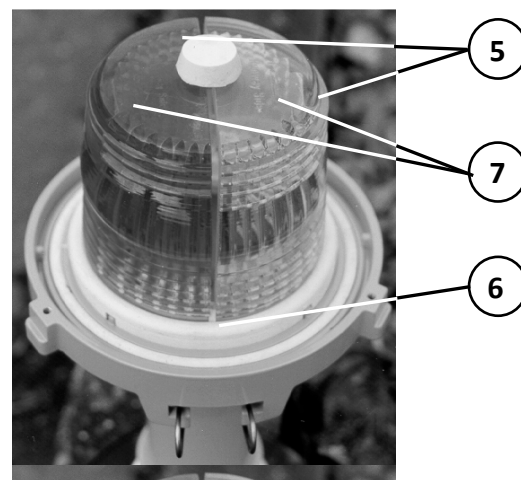
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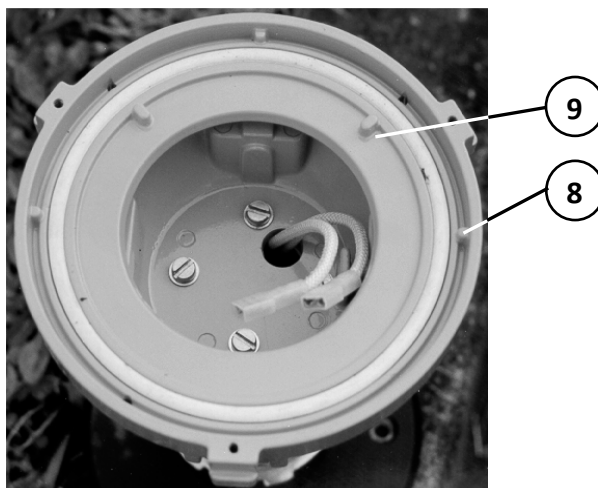
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- 1 - Upper securing block for inner lens
- 2 - Clear inner lens
- 3 - Gasket for inner lens
- 4 - Gasket for outer lens



- 5 - Coloured half-lens (two pieces)
- 6 - Silicone small spacers between half-lenses
- 7 - Mark and arrow on the top of the half-lenses



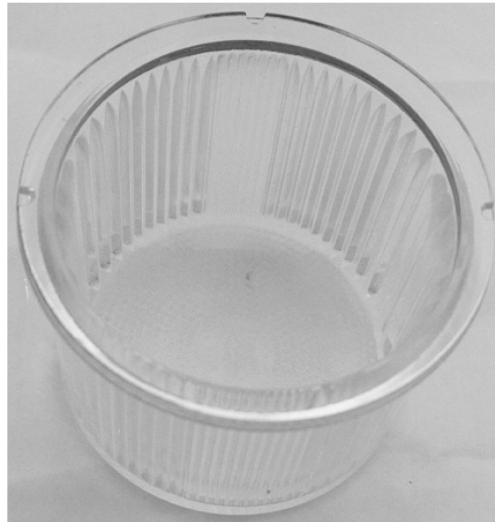
- 1 - Reference on the body for outer lens proper mounting
- 2 - Reference on the body for inner lens proper mounting

Figure 6 - FP150 light - Details

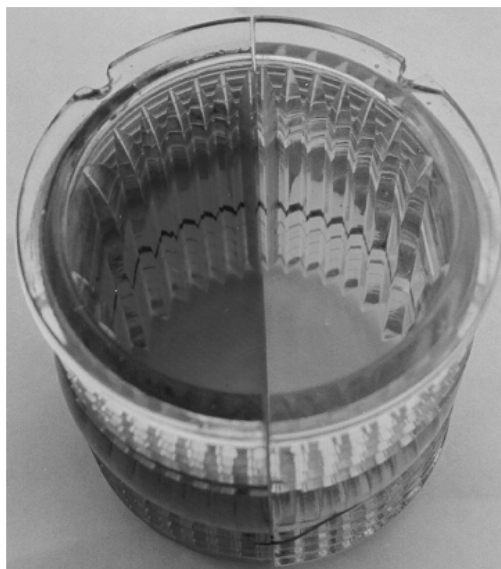
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1 - References on the outer lens for
proper mounting on the body



2 - Reference/s on the internal lens/es
to mount the gasket in fixed position

Figure 7 - FP150 light - Details

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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.

Recommended snow removal techniques are described in Airport Service Manual ICAO - Part 9 - Airport Maintenance Practices or FAA AC 150/5200-30.

4.2 CLEANING OF THE OUTER LENS

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

4.3 RELAMPING

Open the light by releasing the clamping spring. Remove the cable leads with plug from the clamping seat and disconnect the faston connections between the light cable leads and the lamp cable leads.

Remove the lamp by releasing the two elastic mountings. Mount the new lamp in fixed position and reassembly by reversing the above procedure.

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.

4.4 REPLACEMENT OF THE OUTER LENS

Remove the three stainless steel clips, which locks the outer lens, by unscrewing the relevant screws; retain the hardware. Remove the damaged outer lens and mount the new one in fixed position. Reassembly by reversing the above procedure.

If necessary, recheck the light aiming.

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

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4.5 REPLACEMENT OF THE CLEAR INNER LENS (ONE PIECE)

Remove the three stainless steel clips, which locks the outer lens, by unscrewing the relevant screws; retain the hardware. Remove the outer lens and then the damaged inner lens complete with upper block and gasket. Mount a new gasket on the new inner lens in fixed position and then the above assembly on the lens plate in fixed position; place the upper block on the top of the inner lens and reassembly by reversing the above procedure. The arrows on the top of the inner lens must be directed as the arrow of the outer lens.

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

4.6 REPLACEMENT OF THE TWO COLOUR INNER LENS (TWO PIECES)

Remove the three stainless steel clips, which locks the outer lens, by unscrewing the relevant screws; retain the hardware. Remove the outer lens and then the inner lens (in two pieces) complete with upper block and gasket. Recover the eventual half-lens not damaged and the two silicone small spacers placed between the two half-lenses. Replace the damaged half-lens with a new one of the same colour and top mark.

NOTE

Each half-lens is top marked with the letter R (right beam) or the letter L (left beam) to provide the proper aiming of the beam in the horizontal plane as shown in Fig. 3.

Between the two half-lenses place in low position the two silicone small spacers and in up position the silicone securing block. To fix spacers and block use Loctite 601. Mount a new gasket on the above assembly in fixed position and then the above assembly on the lens plate in fixed position; reassembly by reversing the above procedure. The arrows on the top of the two inner half-lenses must be directed as the arrow of the outer lens

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

4.7 REPLACEMENT OF THE COLUMN

Open the light, by releasing the clamping spring, and remove the grounding connection, by unscrewing the grounding bolt; retain the hardware.

Cut the wire to remove the eyelet terminal.

Remove the cable leads with plug from the clamping seat and disconnect the faston connections between the light cable leads and the lamp cable leads.

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Unscrew the four levelling screws making free the assembly body-lens plate-lenses from the column; retain the hardware. Support the above assembly by hand and pull the cable leads with plug and the grounding wire outside the bottom of the body. Unscrew the broken column and pull the cable leads with plug and the grounding wire through the column. Disconnect the light plug from the secondary receptacle. Pass the cable leads with plug through the new column and then through the hole in the bottom of the light body. Mount the assembly body-lens plate-lenses on the new column and fix it to the column by means of the four levelling screw.

4.8 REPLACEMENT OF THE CABLE LEAD

Open the light, by releasing the clamping spring, and remove the grounding connection, by unscrewing the grounding bolt; retain the hardware. Cut the wire to remove the eyelet terminal. Remove the cable leads with plug from the clamping seat and disconnect the faston connections between the light cable leads and the lamp cable leads.

Unscrew the light and pull the cable leads with plug and the grounding wire through the bottom of the body and the column. Disconnect the light plug from the secondary receptacle. Pass the new cable leads with plug through the column and then through the hole in the bottom of the light body.

4.9 REPLACEMENT OF THE SUPPORT FOR LAMP

Open the light, by releasing the clamping spring, and remove the cable leads with plug from the clamping seat; disconnect the faston connections between the light cable leads and the lamp cable leads and remove the lamp by releasing the two locking springs.

Unscrew the four screws which fasten the lamp support to the body; retain the hardware.

Remove the damaged lamp support and mount the new one.

The arrow marked on the support must be aimed as the arrow of the outer lens in the case of STANAG or ICAO-45 m lights, while it must be aimed on the contrary in the case of ICAO 60 m lights.

Reassembly by reversing the procedure.