# HIGH INTENSITY UNIDIRECTIONAL <br> ELEVATED FLASHING LIGHT FOR APPROACH AND REIL 

(THREE LEVELS - PARALLEL POWER SUPPLY)

## OC62A-P-3-X OC62R-P-3-X

## INSTRUCTION MANUAL FOR USE, INSTALLATION AND MAINTENANCE

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## Edition 07/20/12

Supersedes edition 03/04/05
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## LIST OF EFFECTIVE PAGES

| PAGE REV | PAGE |
| :---: | :---: |
| 1 | 21 |
| 2 | 22 |
| 3 | 23 |
| 4 | 24 |
| 5 | 25 |
| 6 | 26 |
| 7 | 27 |
| 8 | 28 |
| 10 | 29 |
| 11 | 30 |
| 12 | 31 |
| 13 | 32 |
| 14 | 33 |

15
16
17
18
19

## 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; and,
(d) any Product, component parts or accessories manufactured by others but supplied by Company (any claims should be submitted directly to the manufacturer thereof).

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## SAFETY NOTICES

This equipment is normally used or connected to circuits that may employ voltages which are dangerous and may 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:

## 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.

## RESUSCITATION

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

## CE CERTIFICATE

CThis equipment complies with the requirements of the EEC directives 89/336/EEC, 92/31/EEC and 93/68/EEC 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.
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TABLE OF CONTENTS
TITLE PAGE ..... 1
REVISIONS ..... 2
LIST OF EFFECTIVE PAGES ..... 3
LIMITED PRODUCT WARRANTY. ..... 4
SAFETY NOTES. ..... 5
TABLE OF CONTENTS. ..... 6
1 GENERAL ..... 8
2 MAIN FEATURES ..... 8
3 SPECIAL VERSIONS ..... 19
4 INSTALLATION AND STARTING. ..... 19
5 MAINTENANCE ..... 25
5.1 Periodic checks ..... 25
5.2 Maintenance procedures ..... 26
5.2.1 Control box ..... 26
5.2.2 OC62A/OC62R flashing head. ..... 30
5.2.3 Breakable coupling. ..... 31
5.3 Troubleshooting ..... 31
6 RECOMMENDED SPARE PARTS LIST. ..... 33
7 LIST OF THE ATTACHMENTS ..... 34

## LIST OF FIGURES

FIGURE 1 - OC62A/OC62R FIXTURE - GENERAL VIEW ..... 9
FIGURE 2 - OC62A/OC62R FIXTURE - CONTROL BOX - INTERNAL VIEW ..... 10
FIGURE 3 - OC62A/OC62R FIXTURE -CONTROL BOX - REMOVABLE SUPPORTING FRAME ..... 12
FIGURE 4 - OC62A/OC62R FIXTURE - 220/240 VAC POWER SUPPLY - THREE BRIGHTNESS LEVELS - WIRING DIAGRAM ..... 13
FIGURE 5 - REIL AND APPROACH SEQUENCE FLASHING SYSTEMS - 220/240 VAC, SINGLE-PHASE OR THREE-PHASE POWER SUPPLY - THREE BRIGHTNESS LEVELS - WIRING DIAGRAM ..... 14
FIGURE 6 - REIL AND APPROACH SEQUENCE FLASHING SYSTEMS - 220/240 VAC, SINGLE-PHASE POWER SUPPLY - THREE BRIGHTNESS LEVELS - WIRING DIAGRAM ..... 15
FIGURE 7 - OC62A/OC62R FIXTURE - OVERALL DIMENSIONS AND WEIGHTS ..... 17
FIGURE 8 - OC62A/OC62R FIXTURE - IDENTIFICATION LABELS ..... 18
FIGURE 9 - OC62A/OC62R FIXTURE - COMPLETE PART NUMBER IDENTIFICATION ..... 18
FIGURE 10 - OC62A/OC62RFIXTURE - CIVIL WORKS ..... 20
FIGURE 11 - OC62A/OC62R FIXTURE (MOUNTING N) - TYPICAL CIVIL WORKS ..... 22
FIGURE 12 - OC62A/OC62R FIXTURE - WITHDRAWABLE CARD E 855/3S - DIP-SWITCH AND PILOT SWITCH SETTING ..... 23
FIGURE 13-OC62A/OC62R FIXTURE - LAMP WIRING ..... 27
LIST OF TABLES
TABLE A - HORIZONTAL AND VERTICAL AIMING OF THE LIGHT BEAM ..... 25
TABLE B - MAJOR TROUBLESHOOTING SYMPTOMS ..... 32
TABLE C - FAULT LOCATOR (SYMPTOMS FROM TABLE B) ..... 32

Edition 07/20/12 Supersedes edition 03/04/05<br>HIGH INTENSITY UNIDIRECTIONAL ELEVATED FLASHING LIGHT FOR APPROACH AND REIL (THREE LEVELS - PARALLEL POWER SUPPLY) OC62A-P-3-X OC62R-P-3-X INSTRUCTION MANUAL FOR USE, INSTALLATION AND MAINTENANCE

## 1 GENERAL

The OC62A/OC62R lights are of the high intensity, unidirectional, elevated, flashing type.
These fittings are used on lighting approach systems supplementing the approach centerline barrettes, taking into account the nature of meteorological conditions.
The lamps are flashed in sequence towards the threshold, beginning from the outer end of the system (landing direction), with a frequency of two cycles per second.

The OC62A/OC62R lights are used also on thresholds for additional conspicuity or where other approach lighting aids cannot be provided. Two lights only are used in this case, symmetrically mounted aside the threshold. They flash contemporary at the rate of two cycles per second.

The lights described in this manual are manufactured to be powered by parallel circuits, 220/240 VAC, $50 / 60 \mathrm{~Hz}$ single-phase, and to provide three brightness steps.
For correct operation, independent control circuits are required for approach and REIL lights.

## 2 MAIN FEATURES

Each OC62A/OC62R fixture practically consists of a flashing head and a control box, mounted on two supporting pipes with upper cap and breakable coupling in the lower side. The box, provided with two flanges in the rear side, is fixed to each pipe by means of two collars.

The flashing head consists of (Figs. 1-13):

- cast aluminium body with stainless steel clips, securing the PAR-56 lamp. It contains a safety microswitch, which cuts off the power supply if the lamp is not properly in place. The ignitor and the terminal strip, fixed on an insulated support, are mounted on the rearside of the lamp, by using one of the lamp screw terminals;
- cast aluminium graduated support, complete with graduated scales to check horizontal and vertical aiming. The body is hinged to the support for vertical aiming and locked to it by means of two screws; the support can rotate on the special flange and is fixed to it by means of three screws;


## Edition 07/20/12

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FIG. 1-OC62A/OC62R FIXTURE - GENERAL VIEW

1. Flashing head body
2. Graduated support
3. Special flange
4. Supporting pipes
5. Breakable couplings
6. Control box
7. Control box supporting profiles
8. Collars with accessories
9. Upper cap for supporting pipe
10. HVI-734-Q lamp, PAR-56
11. Grounding bolt
12. Lamp clip
13. Flexible pipe with wiring
14. Control box grounding bolt
15. Identification label
16. Warning label

OCEM


FIG. 2 - OC62A/OC62R FIXTURE - CONTROL BOX INTERNAL VIEW

1. Removable supporting frame
2. Safety microswitch
3. Power supply card E 730
4. Control card E 855/3S
5. HV card E 729/S/P
6. Cable glands for power supply cables
7. Cable glands for control cables
8. Cable glands for lamp control
9. Plexiglas card protection
10. Door grounding plait

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HIGH INTENSITY UNIDIRECTIONAL ELEVATED FLASHING LIGHT FOR APPROACH AND REIL
(THREE LEVELS - PARALLEL POWER SUPPLY) OC62A-P-3-X OC62R-P-3-X
INSTRUCTION MANUAL FOR USE, INSTALLATION AND MAINTENANCE

- flashing xenon lamp, PAR-56 bulb, type HVI-734-Q, screw terminals, with clear front glass.
Lamp characteristics:
. energy input per flash, at two flashes per second: 60 W sec (Joule);
. peak intensity (instantaneous), in white light: $25 \times 10^{6} \mathrm{~cd}$;
. effective intensity, in white light: minimum 8,000 eff cd (over a 10 degree vertical and 30 degree horizontal pattern);
. flash duration at $1 / 2$ peak: between 120 and $150 \mu \mathrm{sec}$;
. rated anodic voltage: 2,000 VDC ( $\min 1,850$ VDC - max 2,250 VDC);
. rated triggering voltage: $12,000 \mathrm{~V}(\min 6,500 \mathrm{VDC}-\max 18,000 \mathrm{VDC})$;
. rated life, at two flashes per seconds: 1000 hours;
- the grounding of the flashing head may be done through suitable bolt and nut.

The unit complies with ICAO - Annex 14 requirements, and moreover with FAA-E-2628 for approach sequence flashing pattern and with FAA Specs L-849 (AC 150/5345-51) for runway threshold identification.

The power supply of each OC62A/OC62R flashing head is made through a control box (Fig. 1), containing a removable supporting frame (Figs. 2-3) which all electric and electronic components are mounted on. In detail (see Fig. 3):

- the two-pole, main switch with 4 A fuses, $10.3 \times 38$, mounted on the same profile of the main terminal strip;
- the fixed card, E 741P (motherboard);
- the withdrawable card, E 730 (power supply card), which provides the rectified power supply and all the auxiliary voltages;
- the withdrawable card, E 855/3S (control card), which controls the charging voltage of the capacitor, the ignitor operation and the proper flashing synchronization; the circuit includes a "JP3" switch to make the fixture FEAC or REIL, a pilot switch to make the control box MASTER or SLAVE, six dip-switches to program the instant of the light flash in the sequence and other six dip-switches to set the duration time of the flash sequence (flashing rate). This card is also equipped with a five position rotary switch (REM-OFF-Low-Medium-High) to locally select the brightness level;
- withdrawable card, E 729/S/P (HV card), which provides the charge of the capacitor battery and the proper voltage for the ignitor;
- the cards, type E 753-1 and E 753-2 (capacitor cards), each equipped with fifteen (15) $1 \mu \mathrm{~F}$ capacitors; they are connected so the lamp may provide three brightness steps as required by FAA Specs: 15000 eff cd (HIGH LEVEL), 1500 eff cd (MEDIUM LEVEL) and 300 eff cd (LOW LEVEL) with a tolerance of 50 percent;


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FIG. 3 - OC62A/OC62R FIXTURE - CONTROL BOX REMOVABLE SUPPORTING FRAME

1. Main switch
2. 4 A fuse, $10.3 \times 38$
3. Motherboard E 741P
4. Relay card F 126
5. First capacitor card E 753-1
6. Second capacitor card E 753-2
7. Terminal board
8. Gemov for power supply lines
9. Gemov for reset/control/monitoring lines

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Supersedes edition 03/04/05
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FIG. 4 - OC62A/OC62R FIXTURE - 220/240 VAC POWER SUPPLY THREE BRIGHTNESS LEVELS - WIRING DIAGRAM

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REIL


FIG. 5 - REIL AND APPROACH SEQUENCE FLASHING SYSTEMS 220/240 VAC, SINGLE-PHASE OR THREE-PHASE POWER SUPPLY - THREE BRIGHTNESS LEVELS - WIRING DIAGRAM

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FIG. 6 - REIL AND APPROACH SEQUENCE FLASHING SYSTEMS 220/240 VAC, SINGLE-PHASE POWER SUPPLY - THREE BRIGHTNESS LEVELS - WIRING DIAGRAM

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(THREE LEVELS - PARALLEL POWER SUPPLY) OC62A-P-3-X OC62R-P-3-X
INSTRUCTION MANUAL FOR USE, INSTALLATION AND MAINTENANCE

- the fixed card, type F 126 (ex E 752) (relay card), which permits to select the proper capacitor battery according to the brightness level fixed by the remote control or locally; it is mounted on two insulators, one of which is used for the lamp HV cable connection too. This card can be equipped with a toroid to detect the proper flashing of the lamp; this version is always provided for REIL fixtures;
- the terminal board for the power supply and control cables;
- a safety microswitch, which cuts off the power supply when the control box door is removed, to prevent contacts with live parts.
Average power consumption (at HIGH level): approx 250 VA.
The three withdrawable cards are plugged with multipole connector with safety mechanical interlock, to avoid wrong connections in case of incorrect insertion.
The logic counter on the printed circuit E 855/3S controls the light flash, according to the setting of the dip-switches, with no need of external master control.

NOTE: the use of the card F 126 (ex E752) w/o toroid on a REIL light affect only the possibility to switch- off the REIL system in case of one lamp failure.

For the correct flash sequence, all the control boxes of the system must be linked to two wires, minimum size $1 \times 1.5$ sqmm (RESET) (Figs. 5-6).
For the runway threshold identification system the RESET wires permit also to switch-off the system in the case of one of the two lamps fails.

For the remote selection of the three brightness steps, four wires, minimum size $1 \times 1.5$ sqmm, are required from the Control Tower to the first light of the system and among all the control boxes (Figs. 5-6). These wires must be connected in Control Tower to a three position, single-pole rotary switch (LOW-MEDIUM-HIGH). When the system is powered at 220-240 VAC, all lights will start to flash according to the step fixed by the rotary switch position.

Therefore at least four wires, size 1.5 sqmm , are required between the Control Tower and the first light of the system and six wires, size 1.5 sqmm, among all the other control boxes.

If the proper flashing of the lamps has to be remotely monitored, all lights must be equipped with the card F 126 (ex E 752-1) with toroid. For monitoring purpose a dry contact, NC when the lamp is properly working, is made available through additional terminal strips.
The number of wires of the control/monitoring cable has to be increased as follows:

- two additional wires only for cumulative remote signalling;
- a number of wires equal to the number of fixtures of the system plus one (COMMON wire) for independent remote signalling.
Refer to attachment $\mathrm{N}^{\circ} 1$ for more information about this option.


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Supersedes edition 03/04/05
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(THREE LEVELS - PARALLEL POWER SUPPLY) OC62A-P-3-X OC62R-P-3-X
INSTRUCTION MANUAL FOR USE, INSTALLATION AND MAINTENANCE

The electrical connection between each control box and the relevant flashing head consists of:

- $1 \times 0.93$ sqmm cable, insulated for 3000 V operation;
- four wires, size $1 \times 1.5$ sqmm, insulated for 750 V operation;
- a grounding wire, size $1 \times 6$ sqmm.

All wires are 1.35 m long; for mechanical protection they are contained in a flexible plastic pipe, 0.750 m long.

The finishing of the flashing head is realized by phosphating and baked polyester electrostatic powder yellow coating, RAL 1007.

See Fig. 7 for overall dimensions and weight and Fig. 8 for the identification labels.
See Fig. 9 for the complete identification of the part number.

## NOTE

To limit the effect of external overvoltages, in correspondence of the power supply and the reset/control/monitoring cable entrance the box mounts suitable gemovs, respectively type V275LA40 and V68ZA10.


FIG. 7 - OC62A/OC62R FIXTURE - OVERALL

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FIG. 8 - OC62A/OC62R FIXTURE - IDENTIFICATION LABELS


## Options :

L 1 = cumulative lamp failure monitoring
$\mathrm{L} 2=$ selective lamp failure monitoring (max 21 flashing lights)
$\mathrm{L} 3=$ selective lamp failure monitoring (max 30 flashing lights)
FIG. 9 - OC62A/OC62R FIXTURE - COMPLETE PART NUMBER IDENTIFICATION

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## 3 SPECIAL VERSIONS

Wen required the flashing head, normally supplied on the same supporting structure of the control box - Mounting C, can be separately supplied. In this case the flashing head has to be mounted on a proper independent frangible support: supporting pole with breakable coupling at the base for length up to 2 m and lowering/frangible aluminium pole for length exceeding 2 m .
The frangible support must be separately ordered according to the customer needs.
When the distance between flashing head and control box is less than approx 10 m (Mounting N) the electrical connection consists of:
$-1 \times 0.93$ sqmm cable, insulated for 3000 V operation;

- four wires, size $1 \times 1.5$ sqmm, insulated for 750 V operation;
- a grounding wire, size $1 \times 6$ sqmm.

The length of the wires and of the protective flexible pipe will depend on the customer requirements (see Fig. 9): max available 10 m .

When the distance between flashing head and control box is greater than approx 10 m (Mounting F) the electrical connection consists of:
$-1 \times 6$ sqmm cable, insulated for 3600 V operation;
$-5 \times 2.5$ sqmm cable, insulated for 1000 V operation.
The length of the cables will depend on the customer requirements (see Fig. 9): max available length 50 m . The protection of the cables is at customer charge, depending on local needs.

## 4 INSTALLATION AND STARTING

The fixture is shipped completely assembled, the flashing head and the control box mounted on the supporting pipe, except the breakable coupling and the lamp which are delivered separately for safety purpose.

Each light-control box assembly is usually installed on a suitable concrete block, which includes two pipe elbows (by customer) and two 2" dia threaded anchors (both included in the supply) (see Fig. 10).

NOTE: when the flashing head is separately installed (Mountings N or F), the relevant concrete block will depend on the features and dimensions of the supporting pole. See Fig. 11 for typical civil works.

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Dimensions in mm
IMPORTANT: THE ANCHORS MUST BE CAST SO TO ASSURE A
VERTICAL MOUNTING OF THE SUPPORTING PIPES.

FIG. 10 - OC62A/OC62R FIXTURE - CIVIL WORKS

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Use the pipe elbows for passing the power supply cables (one incoming from the Power Station or from the previous control box and the other to fed the following one), the control cables (one incoming from the Control Tower or from the previous control box and the other towards the following one) and the grounding wire.

Screw the breakable coupling(s) on the cemented 2" dia threaded anchor(s). Tighten the breakable coupling(s) by means of the special bush (P/N 332.4010, available on request) to be used with a dynamometric wrench. Torque the breakable coupling at 100 Nm .
Mount the assembly on the breakable coupling(s) and tighten the six screws, making a rough parallelism with the runway centreline (only for FEAC fixture). Any fine alignment will be done on the flashing head. Torque the screws at 6.5 Nm .

Remove the door from the box and provide the wirings to the terminal board taking as reference the Fig. 4.

Provide a suitable protection in correspondence of the exit of the cables from top of the pipe elbows by using plastic or rubber caps or filling material (for example 3M Scotchcast compound 4411).

To program the dip-switches, the "JP3" switch and the pilot switch, extract the withdrawable card E 855/3S. See para. 5.2 for information about the procedures to extract the printed card.
Take as reference the Fig. 12.
A first group of dip-switches (group "A") is used to fix the duration time of the flash sequence (flash frequency).
This group is factory pre-set for the combination 25, corresponding to a time of 500 msec ( $25 \times 20 \mathrm{msec}$ ) in order to obtain two sequences per second at 50 Hz .

In case of 60 Hz frequency the group of dip-switches is factory pre-set for the combination 32 , corresponding to 512 msec ( $32 \times 16 \mathrm{msec}$ ).
WARNING: all the lights of a flashing system must have the dip-switch group "A" set for the same combination. Moreover the combination must never be less than 25 to allow the proper recharging of the capacitor battery.

A second group of dip-switches (group "B") is used to fix the instant of light flashing in the sequence.
This group is factory pre-set so for each light the numeric combination corresponds to the light position in the approach path.
For example the outer light of the system (the farthest form the threshold), which is the first one to flash in the sequence, must be identified by the combination 1; the dipswitches of its E855/3S PCB are set for such combination.
The following light is identified by the combination 2 and so on.

## Edition 07/20/12

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Dimensions in mm
IMPORTANT : THE ANCHORS MUST BE CAST SO TO ASSURE A
VERTICAL MOUNTING OF THE SUPPORTING PIPES.

FIG. 11-OC62A/OC62R FIXTURE (MOUNTING N) - TYPICAL CIVIL WORKS

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FIG. 12 - OC62A/OC62R FIXTURE -WITHDRAWABLE CARD E 855/3S DIP-SWITCH AND PILOT SWITCH SETTING

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Because the lights are all identical each to other, it is also possible to install randomly them (not considering the factory pre-setting), however taking care to re-program the E855/3S PCBs, so their combination corresponds to the light position in the system.
In case of a REIL system the dip-switch group " $B$ " of both lights, which have to flash at the same time, must be set for the same combination.
This combination may be anyone if the REIL system must flash independently by the eventual approach flashing system, while it has to exceed of one or more units the combination of the last light of the approach flashing system if the REIL lights must be syncronized with the flashing path.

Set the "JP3" switch in OFF position (mark not visible) or in ON position (mark visible) to make the fixture FEAC or REIL respectively.

Finally set in ON position only the pilot switch of the light, which has been chosen as MASTER, and in OFF position those of the other lights, which must to operate as SLAVE.

## WARNING: IN ANY FLASHING SYSTEM ONLY ONE LIGHT CAN BE MASTER; ALL THE OTHERS MUST BE SLAVE. THE MASTER LIGHT CAN BE ANYONE.

After the completion of the programming, re-insert the card into the proper seat.
Turn in ON position the main switch.
Install the control box door, making sure the safety microswitch is operating, and lock it by means of the six screws, to assure the protection degree.

Make the electrical connection to the lamp screw terminals (see Fig. 13):

- the HV cable from the control box to the "WHITE" terminal;
- the complete insulated support with ignitor to the "BLACK" terminal;
- the free (brown) wire from the ignitor to the "RED" terminal.

Mount the lamp on the body and lock it by means of the clips, making sure the relevant gasket be properly in seat and the microswitch is operating.

Place the levelling-alignment device (P/N 332.3270, available on request) on the flashing head body in fixed position and, after having loosen the three screws of the graduated support, align the flashing head in line with the runway centreline by sighting a suitable reference rod placed in front of the flashing head. Level the flashing head body by operating the three screws of the graduated support and taking as reference the bubble of levelling-alignment device. Mark a reference on the special flange in correspondence of the zero of the horizontal graduated scale.

Provide the eventual horizontal aiming (see the following table A): rotate the flashing head at the required angle and tighten again the screws being sure the flashing head be always in level. Torque the screws at 6.5 Nm .
Provide the eventual vertical aiming (see the following table A): loosen the two screws locking the body to the graduated support, rotate the body at the required angle and tighten again the screws. Torque the screw at 3.5 Nm .

## Edition 07/20/12

Supersedes edition 03/04/05
HIGH INTENSITY UNIDIRECTIONAL ELEVATED FLASHING LIGHT FOR APPROACH AND REIL
(THREE LEVELS - PARALLEL POWER SUPPLY) OC62A-P-3-X OC62R-P-3-X INSTRUCTION MANUAL FOR USE, INSTALLATION AND MAINTENANCE

| USE ICA | TABLE A |  |  |  | VERT. AIMING |
| :---: | :---: | :---: | :---: | :---: | :---: |
|  | STANAG |  |  |  |  |
|  | HORIZ. AIMING | VERT. AIMING | USE | HORIZ. AIMING |  |
| REIL | -159*) | $\left.+109^{*}\right)$ | REIL | $-10 \pm 1^{\circ}$ | $+7^{\circ} 8^{\circ}$ |
| APPROACH threshold to 315 m | $0^{\circ}$ | +5,5 ${ }^{\circ}$ | APPROACH <br> threshold to 300 m | $0^{\circ}$ | +4,5 ${ }^{\circ}$ |
| 316 m to 475 m | $0^{\circ}$ | $+6^{\circ}$ | 301 m to 450 m | $0^{\circ}$ | $+5^{\circ}$ |
| 476 m to 640 m | $0^{\circ}$ | $+7^{\circ}$ | 451 m to 600 m | $0^{\circ}$ | +5,5 ${ }^{\circ}$ |
| 641 m to 900 m | $0^{\circ}$ | $+8^{\circ}$ | 601 m to 900 m | $0^{\circ}$ | $+6^{\circ}$ |
| NOTE: the horizontal angles are positive when the light is rotate towards the runway centreline; the vertical angles are referred to the horizontal plane. (*) FAA data (AC150-5340/14B |  |  |  |  |  |

When the installation of the entire flashing system is complete, power supply it and operate the control rotary switch in Control Tower for brightness adjustment.

## 5 MAINTENANCE

### 5.1 Periodic checks

Daily checks
a) Burnt-out lamps.
b) Broken parts of lights.
c) Proper operation of the entire flashing system.

Monthly checks
a) Cleaning of the lamp front glasses.

Correct setting of the lights.

## Edition 07/20/12 Supersedes edition 03/04/05

HIGH INTENSITY UNIDIRECTIONAL ELEVATED FLASHING LIGHT FOR APPROACH AND REIL
(THREE LEVELS - PARALLEL POWER SUPPLY) OC62A-P-3-X OC62R-P-3-X INSTRUCTION MANUAL FOR USE, INSTALLATION AND MAINTENANCE

## Semi-annual checks

a) Painting or replacement of rusted parts.
b) Check the proper insertion of the mobile part of all the connectors to the relevant fixed part on the E741P PCB and remove eventual oxidation traces from the connector pins.

## Annual checks

a) Stability of the concrete slabs.
b) Stability and assembly of lights and control boxes.
c) Electrical connections and insulation degree.
d) Luminous efficiency of lamps.
e) Condition of all the gaskets.

Unscheduled checks
a) After unusual atmospheric precipitation, check the light condition and remove any luminous beam obstructions.

### 5.2 Maintenance procedures

WARNING: BEFORE ANY MAINTENANCE INTERVENTION ON CONTROL BOXES OR LIGHTS, MAKE SURE THE POWER SUPPLY BE SWITCHED-OFF AND WAIT AT LEAST THIRTY SECONDS TO PERMIT THE CAPACITORS DISCHARGE. DO NOT OPERATE ON LIVE PARTS.

### 5.2.1 Control box

BY REMOVING THE CONTROL BOX DOOR THE SAFETY MICROSWITCH CUTS OFF THE POWER SUPPLY TO THE ELECTRICAL AND ELECTRONIC EQUIPMENT OF THE CONTROL BOX, BUT NOT TO THE TERMINAL BOARD.
IF NECESSARY, ONE OR MORE FIXTURES CAN BE EXCLUDED FROM THE SYSTEM BY TURNING IN OFF POSITION THE MAIN SWITCH, WITHOUT THE SYSTEM BE AFFECTED. IF ONE OF THE EXCLUDED FIXTURES IS THE MASTER ONE IT IS ENOUGH TO SET ANY OTHER FIXTURE AS MASTER ONE.

## Edition 07/20/12

Supersedes edition 03/04/05
HIGH INTENSITY UNIDIRECTIONAL ELEVATED FLASHING LIGHT FOR APPROACH AND REIL
(THREE LEVELS - PARALLEL POWER SUPPLY) OC62A-P-3-X OC62R-P-3-X INSTRUCTION MANUAL FOR USE, INSTALLATION AND MAINTENANCE


FIG. 13 - OC62A/OC6`.2R FIXTURE - LAMP WIRING

1. Xenon lamp
2. Insulated support with ignitor and terminal strip
3. Lamp RED terminal
4. Lamp WHITE terminal
5. Lamp E3LACK terminal

Edition 07/20/12 Supersedes edition 03/04/05<br>HIGH INTENSITY UNIDIRECTIONAL ELEVATED FLASHING LIGHT FOR APPROACH AND REIL<br>(THREE LEVELS - PARALLEL POWER SUPPLY) OC62A-P-3-X OC62R-P-3-X<br>INSTRUCTION MANUAL FOR USE, INSTALLATION AND MAINTENANCE

## Replacement of the fuses

Switch-off the power supply and wait for at least thirty seconds.
Remove the door of the control box, turn to OFF position the fuseholder/main switch and open it; remove the blown out fuses and install new ones of identical rating.
After the replacement, operate by reversing the procedure.

Replacement of the withdrawable card E 730
Switch-off the power supply and wait for at least thirty seconds.
Remove the door of the control box, turn to OFF position the main switch and extract the faulty withdrawable card.
Make on the new card a coloured mark as per its mounting position in the frame and insert it, taking care be properly seated in the relevant guides to allow the correct plug-in to the female connector on the motherboard.
Turn to ON position the main switch, install the control box door, making sure the safety microswitch is operating, and lock it by means of the six screws, to assure the protection degree.

Replacement of the withdrawable card E 855/3S
Switch-off the power supply and wait for at least thirty seconds.
Remove the door of the control box, turn to OFF position the main switch and extract the faulty withdrawable card.
Set the dip-switches, the "JP3 switch and the pilot switch on the new card as those on the faulty one.
Make on the new card a coloured mark as per its mounting position in the frame and insert it, taking care be properly seated in the relevant guides to allow the correct plug-in to the female connector on the motherboard.
Turn to ON position the main switch, install the control box door, making sure the safety microswitch is operating, and lock it by means of the six screws, to assure the protection degree.

Replacement of the withdrawable card E 729/S/P
Switch-off the power supply and wait for at least thirty seconds.
Remove the door of the control box, turn to OFF position the main switch, disconnect the wire linked to the card F 126 (ex E 752) and extract the faulty withdrawable card.
Make on the card a coloured mark as per its mounting position in the frame and insert it, taking care be properly seated in the relevant guides to allow the correct plug-in to the female connector on the motherboard.
Connect the wire linked to the card F 126 (ex E 752) to the new card E 729/S/P.

Turn to ON position the main switch, install the control box door, making sure the safety microswitch is operating, and lock it by means of the six screws, to assure the protection degree.

Replacement of the cards E 753-1 and E 753-2
Switch-off the power supply and wait for at least thirty seconds.
Remove the door of the control box, turn to OFF position the main switch and extract the three withdrawable cards as above described.
Disconnect the cables of the faulty card E753 from the fixed card F 126 (ex E 752), extract the faulty card and replace it with a new one, taking care be properly seated in the relevant guides.
Re-insert the three withdrawable cards, following all the above instructions.

Replacement of the card F 126 (ex E 752)
Switch-off the power supply and wait for at least thirty seconds.
Remove the door of the control box, turn to OFF position the main switch and extract the three withdrawable cards and the two capacitor cards as above described.
Disconnect the wire (coming from the motherboard E 741P) connected to the screw "- LAMP"; then disconnect from the motherboard E 741P the four pole female connector (with three wires) and, in the case of F 126 (ex E 752-1) with toroid. the two pole female connector (with two wires from toroid).
Replace the faulty card and re-insert all the removed cards by following the reverse procedure.

Replacement of the removable supporting frame
Switch-off the power supply and wait for at least thirty seconds.
Remove the door of the control box, turn to OFF position the main switch and extract the three withdrawable cards and the two capacitor cards as above described.
Disconnect the lamp HV cable from the card F 126 (ex E 752), the four pole female connector (with four wires coming from the lamp) from the male connector on the motherboard, the lamp grounding cable from the terminal board and the grounding cable (coming from the terminal board) from the grounding bolt of the control box.
Disconnect the power supply and control cables from the terminal board. Unscrew the six screws which locks the supporting frame to the bottom of the box and remove the assembly.
Any damaged components can be now easily replaced, by disconnecting the relevant wiring and, after the replacement, reversing the procedure. In any case it is possible to install a new complete removable supporting frame.

Edition 07/20/12<br>Supersedes edition 03/04/05<br>HIGH INTENSITY UNIDIRECTIONAL ELEVATED FLASHING LIGHT FOR APPROACH AND REIL<br>(THREE LEVELS - PARALLEL POWER SUPPLY) OC62A-P-3-X OC62R-P-3-X<br>INSTRUCTION MANUAL FOR USE, INSTALLATION AND MAINTENANCE

NOTE: ALL REMOVABLE SUPPORTING FRAME ARE IDENTICAL FOR QUICK AND EASY MAINTENANCE; REMIND THAT THOSE FOR REIL FIXTURE ARE ALWAYS EQUIPPED WITH THE CARD F 126 (EX E 752-1) COMPLETE WITH TOROID TO DETECT THE LAMP FLASH.

### 5.2.2 OC62A/OC62R flashing head

Replacement of the lamp
Switch-off the power supply and wait for at least thirty seconds.
Remove the door of the control box and turn to OFF position the main switch.
Remove the lamp by releasing the three clips. Disconnect the cables and the complete insulated support with ignitor from the screw terminals in the rearside of the lamp.
Make the electrical connection to the screw terminals of the new lamp (see Fig. 13):

- the HV cable from the control box to the "WHITE" terminal;
- the complete insulated support with ignitor to the "BLACK" terminal;
- the free (brown) wire from the ignitor to the "RED" terminal.

Mount the lamp on the body and lock it by means of the clips, making sure the relevant gasket be properly in seat and the microswitch is operating.
Turn to ON position the main switch.
Install the control box door, making sure the safety microswitch is operating, and lock it by means of the six screws, to assure the protection degree.

## IMPORTANT: IT IS SUGGESTED TO REPLACE THE LAMP GASKET IN THE CASE OF LAMP REPLACEMENT TO ASSURE WATERTIGHTNESS.

Cleaning of the lamp
Clean the external surface of the front glass of the lamp with a detergent solution.

Replacement of the insulated support with ignitor
Switch-off the power supply and wait for at least thirty seconds.
Remove the door of the control box and turn to OFF position the main switch.
Remove the lamp by releasing the three clips. Disconnect the (brown) cable from the ignitor and the complete insulated support with ignitor from the screw terminals in the rearside of the lamp.
Disconnect from the terminal strip on the insulated support the two cables coming from the control box and connect them to the terminal strip of the new insulated support (Fig. 4).
Install the new insulated support with ignitor, by providing the electrical connection to the screw terminals of the lamp as follows (see Figs. 4-13):

- the complete insulated support with ignitor to the "BLACK" terminal;
- the free (brown) wire from the ignitor to the "RED" terminal.

Edition 07/20/12 Supersedes edition 03/04/05<br>HIGH INTENSITY UNIDIRECTIONAL ELEVATED FLASHING LIGHT FOR APPROACH AND REIL<br>(THREE LEVELS - PARALLEL POWER SUPPLY) OC62A-P-3-X OC62R-P-3-X<br>INSTRUCTION MANUAL FOR USE, INSTALLATION AND MAINTENANCE

Mount the lamp on the body and lock it by means of the clips, making sure the relevant gasket be properly in seat and the microswitch is operating.
Turn to ON position the main switch.
Install the control box door, making sure the safety microswitch is operating, and lock it by means of the six screws, to assure the protection degree.

### 5.2.3 Breakable coupling

The flashing head-control box assembly must be supported by hand.
Loosen the six screws of the breakable coupling(s), raise the assembly and unscrew the broken breakable coupling.
Screw the new breakable coupling on the cemented 2" dia threaded anchor and tighten it by means of the special bush ( $\mathrm{P} / \mathrm{N} 332.4010$, available on request) to be used with a dynamometric wrench. Torque the breakable coupling at 100 Nm .
Mount the assembly on the breakable coupling(s) and tighten the six screws, making a rough parallelism with the runway centreline (only for FEAC fixture). Any fine alignment will be done on the flashing head. Torque the screws at 6.5 Nm .
See Table A for correct aiming values.

### 5.3 Troubleshooting

The most effective troubleshooting procedures begins with observing the light's behaviour. This often leads directly to the cause such as a faulty component or other abnormal condition. Table B lists many of the symptoms which a malfunctioning flashing light might exhibit. In Table C these symptoms are correlated with components or conditions, which if defective or abnormal, could cause the flashing light to behave as observed. Each item in Table C is weighted to indicate the estimated likelihood that it would be causing the problem.
Each fixture should be inspected as stand-alone unit, by disconnecting at least the two RESET wires and setting the fixture as MASTER.
For example, suppose the light does not flash at all but some of its circuits are still functioning: i.e. fuses are not blown, relays operate, etc. This is symptom C in Table B. Table C indicates that symptom C behaviour would most likely be caused by defective lamp or ignitor, or defective electrical connections to the light or between the control box terminal board and the motherboard E741P. The next most likely cause would be the defective control card E 855/3S, and so on.

TABLE B - MAJOR TROUBLESHOOTING SYMPTOMS

| Flash condition |  |  |  |  |
| :---: | :---: | :---: | :---: | :--- |
| Code | HIGH | MED | LOW | Comments |
| A | NO | NO | NO | All circuits are dead |
| B | NO | NO | NO | Primary line fuse repeatedly blows |
| C | NO | NO | NO | Some circuits functioning |
| D | NO | NO | NO | After some flashes, the fixture doesn't work |
| E | OK | OK | NO |  |
| F | LOW | LOW | OK |  |
| G | LOW | OK | OK |  |
| H | SKIPS | SKIPS | SKIPS |  |

TABLE C - FAULT LOCATOR (SYMPTOMS FROM TABLE B)

| Probable Cause | A | B | C | D** | E | F | G | H |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Power supply cable electrical connections | 1 |  |  |  |  |  |  |  |
| Control cable electrical connections |  |  |  |  | $1^{*}$ | $1^{*}$ | $1^{*}$ | $1^{*}$ |
| Power supply fuses | 2 |  |  |  |  |  |  |  |
| Control box microswitch | 3 |  |  |  |  |  |  |  |
| Power supply card E730 | 5 | 2 | 7 |  |  |  |  |  |
| Control card E855/3S |  |  | 5 | 3 | 3 | 3 | 3 |  |
| HV card E729/S/P |  |  | 6 |  |  |  |  |  |
| Capacitor cards E753-1 and/or E753-2 |  |  | 10 |  | 4 |  |  | 4 |
| Relay card F 126 (ex E752) |  |  | 9 | 2 | 2 | 2 | 2 |  |
| Electrical connections between terminal board and E741P | 4 | 1 | 4 |  |  |  |  |  |
| Electrical connection between the toroid on F 126 (ex <br> E752-1) and E741P (check carefully the connections between <br> wires and toroid on F 126 (ex E752-1); then reverse the insertion of the two- <br> pole mobile connector inside the fixed one on the E741P) (ex E752) and |  |  |  | 1 |  |  |  |  |
| Electrical connections between F 126 (ex <br> E729/S/P |  |  | 8 |  |  |  |  |  |
| Electrical connection to flashing head |  |  | 3 |  |  |  |  |  |
| Flashing head microswitch | 3 |  |  |  |  |  |  |  |
| Lamp |  |  | 1 |  |  |  |  | 2 |
| lgnitor |  |  | 2 |  |  |  |  | 3 |

[^0]
## 6 RECOMMENDED SPARE PARTS LIST

## CODE DESCRIPTION

760.1910 HVI-734-Q lamp

FIG.
ITEM
1
10
341.0750 Lamp clip 12
325.0160 Lamp silicone gasket
150.1123 Insulated strip with ignitor and terminal strip

13
2
491.0111 Microswitch for lamp body
155.2210 Flexible pipe with wiring for OC62A-P-3-C or OC62R-P-3-C 1 13

| 155.2200 | Flashing head complete with lamp, / <br> graduated support and wiring |
| :--- | :--- |

155.2561 | Complete control box for OC62A-P-3-C / / |
| :--- |
| or OC62A-P-3-N |

155.2562 / / Complete control box for OC620R-P-3-C / $\begin{array}{ll}\text { or OC62R-P-3-N }\end{array}$
155.2563 Complete control box for OC62A-P-3-F
155.2564 Complete control box for OC62R-P-3-F
150.1051 Motherboard E 741P 3
150.0911 Withdrawable card E 7302
150.0909 Withdrawable card E 729/S/P 2
150.1298 Withdrawable card E 855/3S 2
Edition 07/20/12 Supersedes edition 03/04/05
HIGH INTENSITY UNIDIRECTIONAL ELEVATED FLASHING LIGHT FOR APPROACH AND REIL (THREE LEVELS - PARALLEL POWER SUPPLY) OC62A-P-3-X OC62R-P-3-X INSTRUCTION MANUAL FOR USE, INSTALLATION AND MAINTENANCE
CODE DESCRIPTION FIG. ITEM
150.3425 Fixed relay card F 126 (ex E 752) ..... 3 ..... 4
150.3071 Fixed relay card F 126 with toroid (ex E 752-1) ..... 3 ..... 4
150.0915 First capacitor card E 753-1 ..... 3 ..... 5
150.0916 Second capacitor card E 753-2 ..... 3 ..... 6
462.0279 Main switch for control box ..... 3
487.0212 4 A fuse, 10.3×38 ..... 3 ..... 2
491.0110 Microswitch for control box ..... 2 ..... 2
155.2502 Breakable coupling for OC62A ..... 1 ..... 5
155.2503 Breakable coupling for OC62R ..... 1 ..... 5
754.0002 Collar for box mounting, complete with nuts ..... 1 ..... 8 and washers
495.0105 Gemov type V275LA40 ..... 3 ..... 8
495.0124 Gemov type V68ZA10 ..... 3 ..... 9

## 7 LIST OF THE ATTACHMENTS

ATTACHMENT 1 High intensity unidirectional flashing light (three levels (10 pages) parallel power supply) - OC62A-P-3-X - OC62R-P-3-X Option: lamp failure monitoring - Edition 07/20/12


[^0]:    * Check the control cable connections only if the fixture properly works as stand-alone unit. If as stand-alone unit it doesn't work, start any inspection from suggestion number 2.
    ** Typical faulty condition due to the REIL interlock intervention. If after the disconnection of the RESET wires the fixture properly works, inspect the other REIL fixture. If it doesn't work, follows the suggested checks.

