

LERE

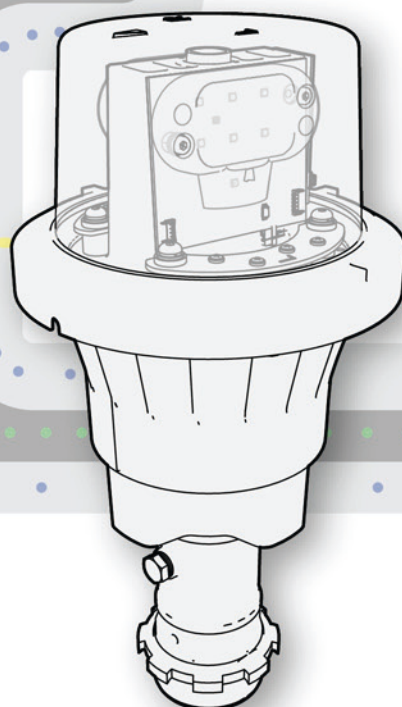
NEW AND
IMPROVED



Use and Maintenance Manual

Translation of Original Instructions

LED Elevated Runway Edge and threshold/end light



UT-MT-0971_1.6_11/07/2025 (EN)

EN



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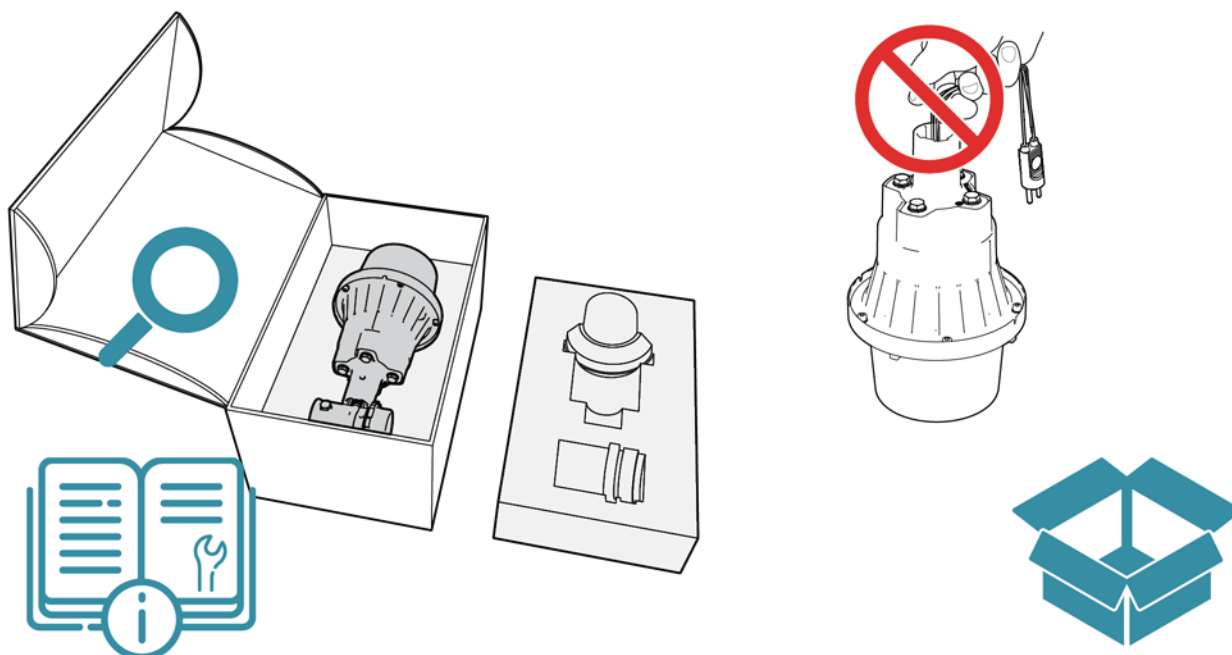
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1 GENERAL INFORMATION

1.1 Package content



The LERE of OCEM Airfield Technology is an elevated LED fixture, high intensity type, for IFR instrument runways, for bidirectional emissions (with 360° guidance system) and unidirectional, with adjustable height and with steady light designed for the following use:

- FAA: runway edge, threshold/runway end;
- ICAO: runway edge (up to 60 m), threshold/runway end (up to 45 m).

Immediately check for visible damages of the containing box. Carefully remove the device and check for visible damages. Before proceeding read all warnings on the packaging.



Store the device in its original packaging until the time of installation.
Do not lift the device from the supply cables to avoid damaging the cables or the watertightness of the device.



The fixtures described in this manual have been designed to be supplied with series circuits, through isolation transformers, connected to constant current regulators from 2,8 A to 6,6 A.

1.2 Manual reference guide

This document contains all the information related to the equipment and describes the procedures to follow during the installation of the product and during ordinary maintenance. The document is intended for all operators that must intervene on the equipment.

This document does not replace in any manner applicable laws, rules or regulations, included the standards FAA and ICAO.

The precautions provided in the manual are always preceded by a symbol as illustrated below:



Indicates the warnings, the notes, the suggestions and other points on which is intended to draw the attention of the reader.



Indicates the operations to be carried out mandatorily or the information which should be carefully read to avoid possible risks.



Indicates particular risks connected with the power supply. It reports the operations to be carried out mandatorily or the information which should be carefully read to avoid possible risks.

These precautions safeguard the personal security of everyone who work on and/or are in proximity of the equipment and of the relative supply circuits.

The failure to comply with the instructions (in particular those preceded by danger, warning, caution precautions) can cause serious injury or death.

1.3 Safety instructions



CAREFULLY READ THIS DOCUMENT.

The improper use of the equipment or the failure to comply all the precautions indicated implies life danger and serious injury to persons and damages to things.



HAZARD OF ELECTRICAL SHOCK, EXPLOSION OR ELECTRIC ARC

Carefully read the enclosed documentation before installing or starting to use the equipment. Do not install the equipment until the completion of all construction works required to carry out the work.



DO NOT OPERATE ON POWERED CIRCUITS

Do not carry out any operation on powered circuits.

Before every access, inspection or intervention on the equipment, ensure to have switched off the equipment by opening the main power switch and by removing the supply from the unit (open the power switch at the beginning of the line or switch off the constant current regulator).

The failure to comply all the precautions indicated implies life danger and serious injury to persons.

1.4 Safety symbols

The symbols illustrated in the following table are used in the user and maintenance manual and on the device. These symbols indicate the existence of any dangerous situations, to indicate obligations and prohibitions in relation to the situations that may represent an hazard for the operator or indicate the behaviour to adopt to minimize the risk for the operator.

Warning signs		Prohibition and obligation signs	
	W001 General warning sign		P001 General prohibition sign
	W004 Laser beam		M001 General mandatory sign
	W005 Non-ionizing radiation		M002 Refer to instruction manual/booklet
	W006 Magnetic field		M005 Connect an earth terminal to the ground
	W012 Electricity		M009 Wear protective gloves
	W017 Hot surface		M015 Wear high visibility clothing
	W027 Optical radiation		M021 Disconnect before carrying out maintenance or repair

1.5 Definition of operator

All operations on devices and on its internal parts must be performed by professional staff, properly formed and aware of the risks connected with the power supply and to the use of low and high voltage circuits.



Take all the precautions in compliance with the safety standards for the work carried out on electrical installations and however for the works carried out using electrical installations or in buffer zones of the installations and of the electrical devices.

All operations on equipments and on its internal parts must be performed by professional staff, properly trained for Cardio Pulmonary Resuscitation (CPR) techniques.



Never operate on devices if there is not at least another operator properly trained for CPR techniques.

Check that Operators do not operate outside their own specific fields of competence and responsibility. OCEM Airfield Technology declines any and all liability arising from wrong operations carried out by untrained personnel in the use of the devices, or deriving from the non compliance of general safety standards.

1.6 Limited warranty

OCEM Airfield Technology assures that all the LERE products marketed are free of manufacturing defects at the time of shipment. This limited warranty will be valid for the period indicated in the sales agreement. **THIS LIMITED WARRANTY IMMEDIATELY DECAYS IF THE PRODUCT IS USED FOR PURPOSES OTHER THAN ORIGINALLY INTENDED.**

This limited warranty is provided by OCEM Airfield Technology to the original purchaser of LERE products as identified by the documents issued at the time of purchase. This limited warranty can be transferred to the subsequent purchasers of the Product, only on condition that this Product is resold as NEW and with the original packaging.



Each change and/or tampering made to the product immediately terminates the warranty. OCEM Airfield Technology cannot be held responsible for any damage to items or persons deriving from the failure to comply with instructions relating to installation, use and maintenance of the product, and to the installation and storage environmental conditions stipulated by the Manufacturer or by applicable rules regarding electrical devices and systems.

In case of potential defects or non-usability of the Goods supplied, the applicable warranty that excludes any other legal warranty and agreement - applies to the defects of materials, in the design, and/or in the installation of the Goods supplied. The warranty consists, depending on the Supplier, in the repair or replacement, at the expense of the Supplier, of each faulty component or malfunctioning component from the beginning, but is not extended to damages arising from negligence or wear.



**For more details on warranty conditions, please refer to the document “General Sales Conditions” updated to latest version.
Please see online: <https://ocem.com/en/terms-conditions/>**



The Supplier undertakes to repair or replace the components in the shortest possible time without prejudice to the fact that for the so called commercial components and more generally for the components supplied by third-party manufacturers, will only be applied the terms of the respective original manufacturer's warranties.

The warranty absolves from all liability the Supplier and does not apply to the damage of any kind, caused by: improper use by the Customer or by the Customer's staff, use of inadequate materials, or incorrect or insufficient treatments; installation of equipments or spare parts not approved by the Supplier; installation and operating working of the Goods received without following the indications and the instructions provided by the Supplier's Technical staff; improper or excessive use, insufficient maintenance, and/or works not carried out in compliance with the information provided in the use and maintenance instructions; any other reason not attributable to the Supplier. The Customer must shoulder, at its own cost and employing its own staff, without involving the Supplier, those repairs that on the base of the Supplier's opinion are considered compliant at a moderate level of technical know-how.

The Customer must, under penalty of expiration, communicate the complaint concerning the defect or the non-compliance to the Supplier **within 8 days from the date of discovery of the defect**, and must send a written request to activate the intervention under warranty. The intervention request under warranty must be sent to:

**OCEM Airfield Technology | via della Solidarietà, 2/1 | 40056 Valsamoggia BO (Italia)
info@ocem.com**

The Customer must bear the travel and accommodation costs borne by the technical staff of the Supplier that must complete on the installation site any intervention associated with the guarantee.

The warranty excludes any other damage, included those resulting from economic loss and from low production capacity; direct, indirect or consequential damages; and the Contract termination.

The Supplier is not in any manner responsible for any other compensation or indemnity, including damage derived from missed or reduced production, from the loss of chance, from the missed or reduced profit, from the loss of contracts, impossibility of use or in general the partial use, in addition to indirect and/or consequential damages.

1.7 CE marking



This equipment complies with the requirements of European legislation for the CE marking. The user should carefully read this document and respect all the requirements quoted.

This equipment meet the requirements in relation to health and safety of the main EC directives, and in particular of the EMC Directive on electromagnetic compatibility (2014/30/EU) and of the LV Directive relating to electrical equipment designed for use within certain voltage limits (2014/35/EU).

1.8 Confidentiality, industrial property rights

The Customer needs to adopt the maximum confidentiality with respect to all the information of technical nature (including, by way of example and not exhaustively, plans, programmes, documentation, formulas, recipes, setting and correspondence) received by the Supplier or in any case assimilated or gained during the conclusion of the Contract of sale.

Any right regarding intellectual and industrial property connected to equipment and to any other element included in the supplied Goods as indicated in the Contract remain exclusive property of the Supplier.

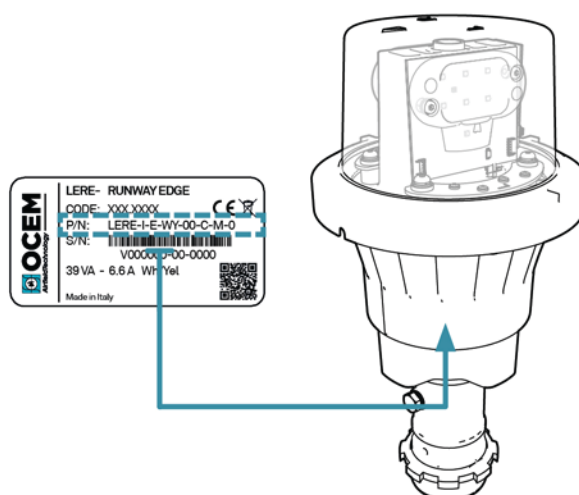
1.9 Disposal



At the end of use, the user must confer all the waste in suitable differentiated waste collection centres. It is the responsibility of the user the correct disposal of the equipment in accordance with the WEEE Directive and with the respective national laws in force at the time of disposal. These equipments must never be disposed of in the household waste.

1.10 Article identification

On each equipment there is an identification plate of the article, where the article code is reported; on the plate there are additional data: the name of the model, employments or use, power supply features, any trademarks and/or marks that attest the agreement of the equipment to specific regulations or legislations.



1.11 Photo-biological risk

The fixtures LERE are designed and manufactured in compliance with current regulations, but if used unsafely or without precautions, the light emitted by the fixture, reaching even high levels of intensity, can be harmful not only to those who use the light fixture locally, but for anyone within the light beam range.

The optical radiation issued by the equipment does not present any particular photo-biological risks, however can be harmful.



Don't look directly inside the light source during high intensity operation. Wear appropriate personal protective equipment (goggles or similar protections).

2 FIXTURE DESCRIPTION

2.1 General characteristics

The fixtures LERE are designed for the purpose of providing visual guidance to aircrafts on ICAO CAT I, II and III, FAA (IFR precision instrument), militar runways in the following applications:

- Runway edge: FAA AC150/5345-46 L-862, ICAO up to 45 m, ICAO up to 60 m.
- Runway threshold: FAA AC150/5345-46 L-862, L-862E, ICAO up to 45 m.
- Runway end: FAA AC150/5345-46 L-862E, ICAO up to 45 m.

The LERE is compliant with the rules:

ICAO (Annex 14 - Volume I [Paragraph 5.3.9.8/9])

IEC (TS 61827)

CAA (CAP 168)

ENAC (Airport Construction Regulation)

CASA (Manual of Standards Part 139)

FAA (AC150/5345-46, EB67 [L-862 E(L)])

NATO (Stanag 3316)

TCAA (TP312)

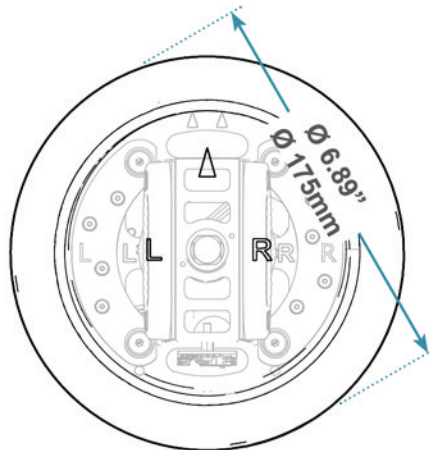
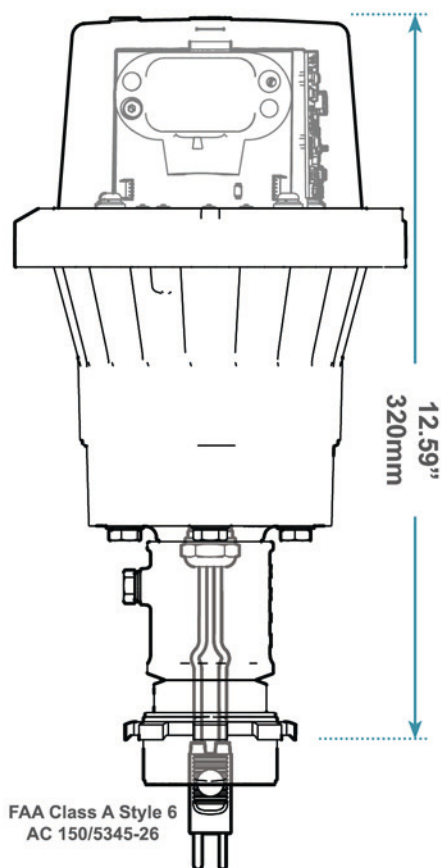
EASA (CS-ADR-DSN - Volume I [figures U-13, U-14, U-7, U-12])



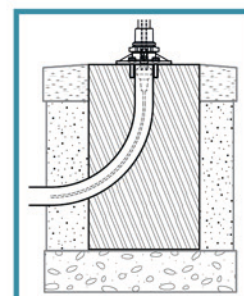
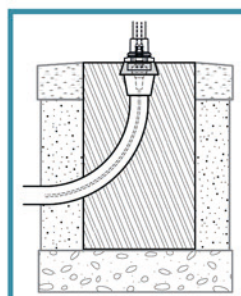
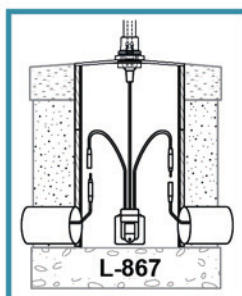
The fixtures LERE described in this manual have been designed to be installed on bases L-867 conforming to FAA AC 150/5345-42 mounting base plate included for elevated fixtures conforming to FAA AC 150/5345-46.



The supply circuits for the fixtures LERE can be positioned within the bases established (FAA L-867) or within plastic or metallic pipes permanently laid in the ground, equipped with appropriate coupling devices.



INGRESS PROTECTION



2.2 Article number

example: LERE F - E - WR - 14 - C - M - 0 - 0 - C

Standard

- F = FAA (compliance currently not certified)
 S = ICAO (45 m)
 I = ICAO (60 m) *

Use

- E = Runway edge
 T = Threshold/Runway end

Colour (L left-R right)¹

Use (T) Threshold/End

(E) Runway edge

- | | |
|------------------------|-----------------------------------|
| GR = Green-Red | WW = White-White |
| RG = Red-Green | YW = Yellow-White |
| MG = Green (Unidir. R) | WY = White-Yellow |
| GM = Green (Unidir. L) | MW = White (Unidir. R) |
| MR = Red (Unidir. R) | WM = White (Unidir. L) |
| RM = Red (Unidir. L) | MY = Yellow (Unidir. R) |
| | MW = Yellow (Unidir. L) |
| | MG = Green (Unidir. R) (only FAA) |
| | GM = Green (Unidir. L) (only FAA) |
| | MR = Red (Unidir. R) |
| | RM = Red (Unidir. L) |
| | YG = Yellow-Green (only FAA) |
| | GY = Green-Yellow (only FAA) |
| | YR = Yellow-Red |
| | RY = Red-Yellow |
| | WR = White-Red |
| | RW = Red-White |

Height

- 00 = Without pole (only ICAO)
 14 = Pole height 14" [355 mm]
 20 = Pole height 20" [508 mm]
 24 = Pole height 24" [609 mm]
 30 = Pole height 30" [762 mm]

Frangible coupling

- A = 1" 1/2 - 12 UNF ** (only FAA)
 B = 2" - 11 1/2 NPS ** (only FAA)
 C = 2" - 11 GAS ***
 D = 2" - 11 GAS (in snow areas, with pole EMT) (only ICAO)

Monitoring option

- 0 = Without monitoring
 M = With monitoring

Arctic kit option

- 0 = Without arctic kit
 A = With arctic kit

Circular guide option at fixed luminosity²

- 0 = Without circular guide
 CG = With circular guide (only W and Y colours)

Component improved

* Compatible only with E use (runway edge)

** forced coupling with FAA fixtures (Regulations: F) of height 14-30

*** Forced coupling with ICAO fixtures (Regulations: I, S) without pole (height: 00)

¹ Attention: the light beams aiming is not field adjustable² Attention: not defined by FAA

2.3 Wiring

The LERE fixture can be connected through connectors FAA L-823 style 6 to an isolation transformer in series FAA L-830/L831 (60/50 Hz).

The consumption varies depending on the number of light sources installed and on the presence of any arctic kit. The nominal values related to the greater absorption configuration (measured during the operational phase at 6.6 A*) are given in the table below:

	Primary Conductor isolation transformer		Fixture	
Without Arctic Kit	49.8 VA	48.9 W	38.1 VA	37.4 W
With Arctic Kit	60.8 VA	60.6 W	49.1 VA	48.8 W

* Measured at 6,6 A with toroidal isolation transformer 65 W. The value reported refers to the minimum value between the configurations and the available options (worst case).

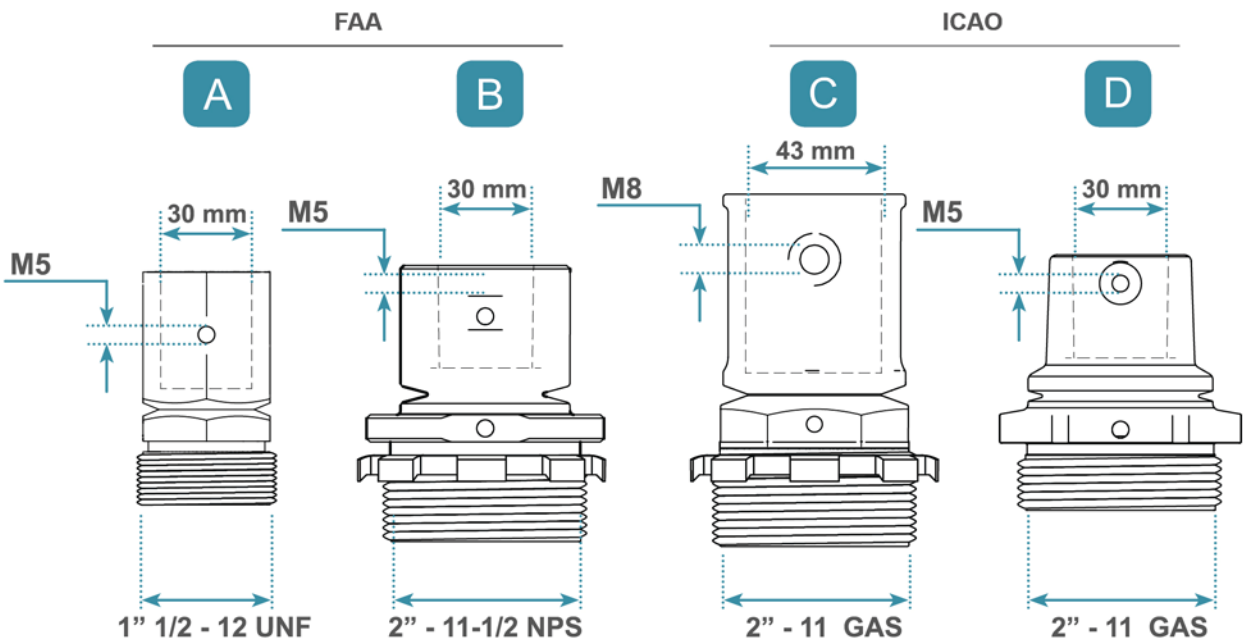
The power factor values are given in the table below:

	2.8 A	6.6 A
Without Arctic Kit	0.99	0.98
With Arctic Kit	0.99	0.99

2.4 Mounting system

Based on the height specified in the part number a tubular support of suitable length is provided to allow the fitting in the different configurations: 14" - 30" [355 - 762 mm].

The frangible coupling of the fixture to the base is available in different configurations.



2.5 Arctic Kit

A The arctic kit option meets the FAA specifications (Engineering Brief N.67) preventing the formation of ice on the protective transparent dome by heating the upper body near the dome. The heater automatically activates when the temperature falls below -1°C and is turned off when the detected temperature is higher than $+10^{\circ}\text{C}$.



2.6 Circular guide option

CG The circular guide option (not defined by FAA) provides a light component of circular guide with fixed luminosity. Available for white LED modules (>30 cd from 2.8 A and >50 cd from 4.1 to 6.6 A) or yellow (>15 cd from 2.8 A, >50 cd only 6.6 A).

3 INSTALLATION

3.1 Fixture placement

The signalling devices, in combination with horizontal and vertical fixtures, provide information to the pilots and therefore represent a fundamental driving aid.

These devices must always be in operating condition and must be clean, maintained and, if necessary, replaced as soon as their visibility is affected.

The chromatic features of signalling optical devices must be compliant with the dispositions of competent bodies and with the regulations in force.

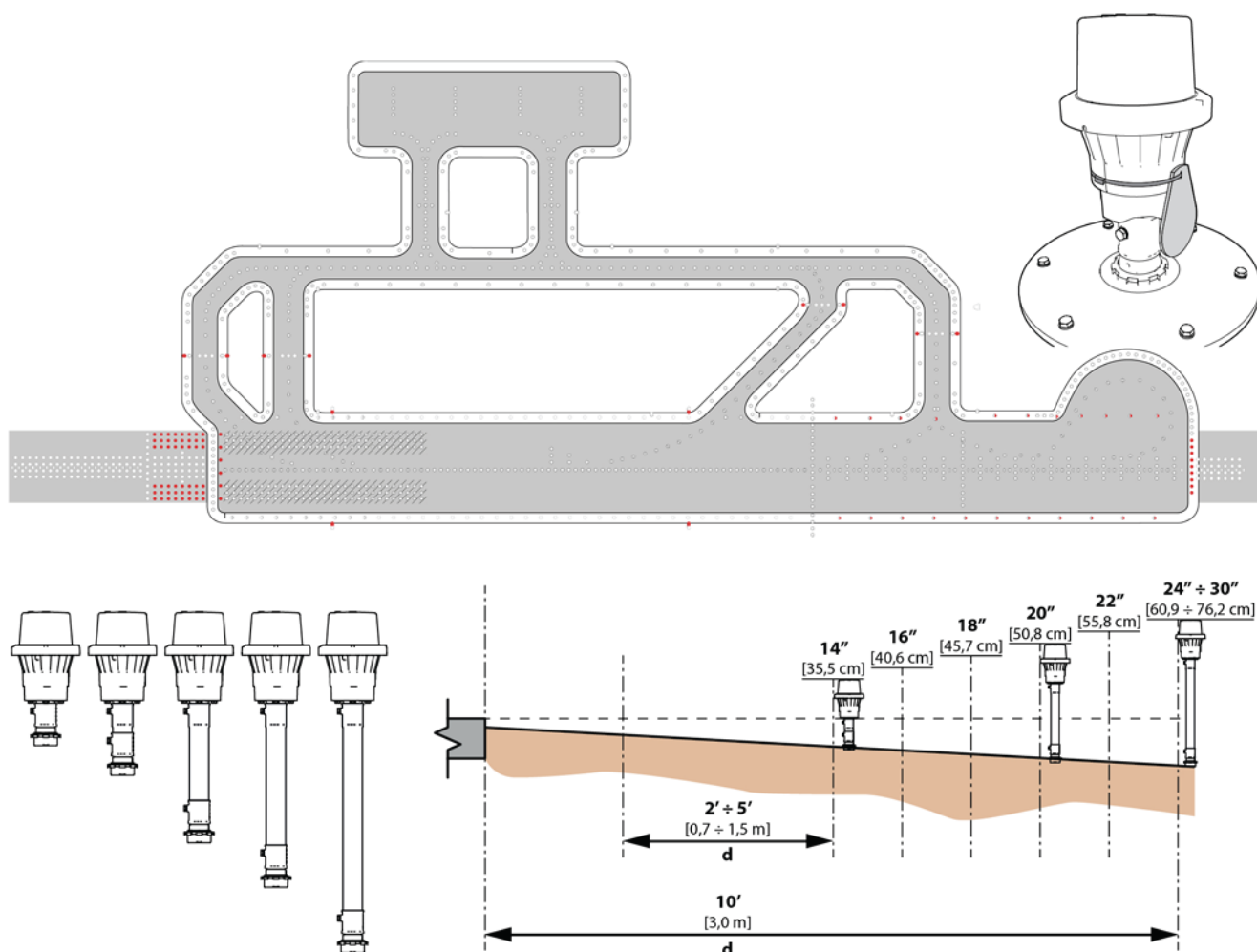
The light sources must be aligned to the runway edge and typically it is installed at a distance d included within $2 \div 10$ ft [$0,6 \div 3,0$ m].

The height is variable depending on the installation position and in particular on the distance from the limit of the envisaged runway.



For the positioning of the fixtures always refer to the requirements of the relevant Standards:

- FAA 150/5345-46 for the construction and operation of airports;
- CASA MOS Civil Aviation Safety Authority Manual of Standards (Part 139);
- TCAA TP-312 (Aerodrome Standards and Recommended Practices).
- ENAC Airport Construction Regulation
- NATO Stanag 3316



3.2 Preliminary operations

Use the fixture only in combination with compatible supports. The fixture is normally installed on a concrete block.

Ensure the verticality of the upper part of the support.

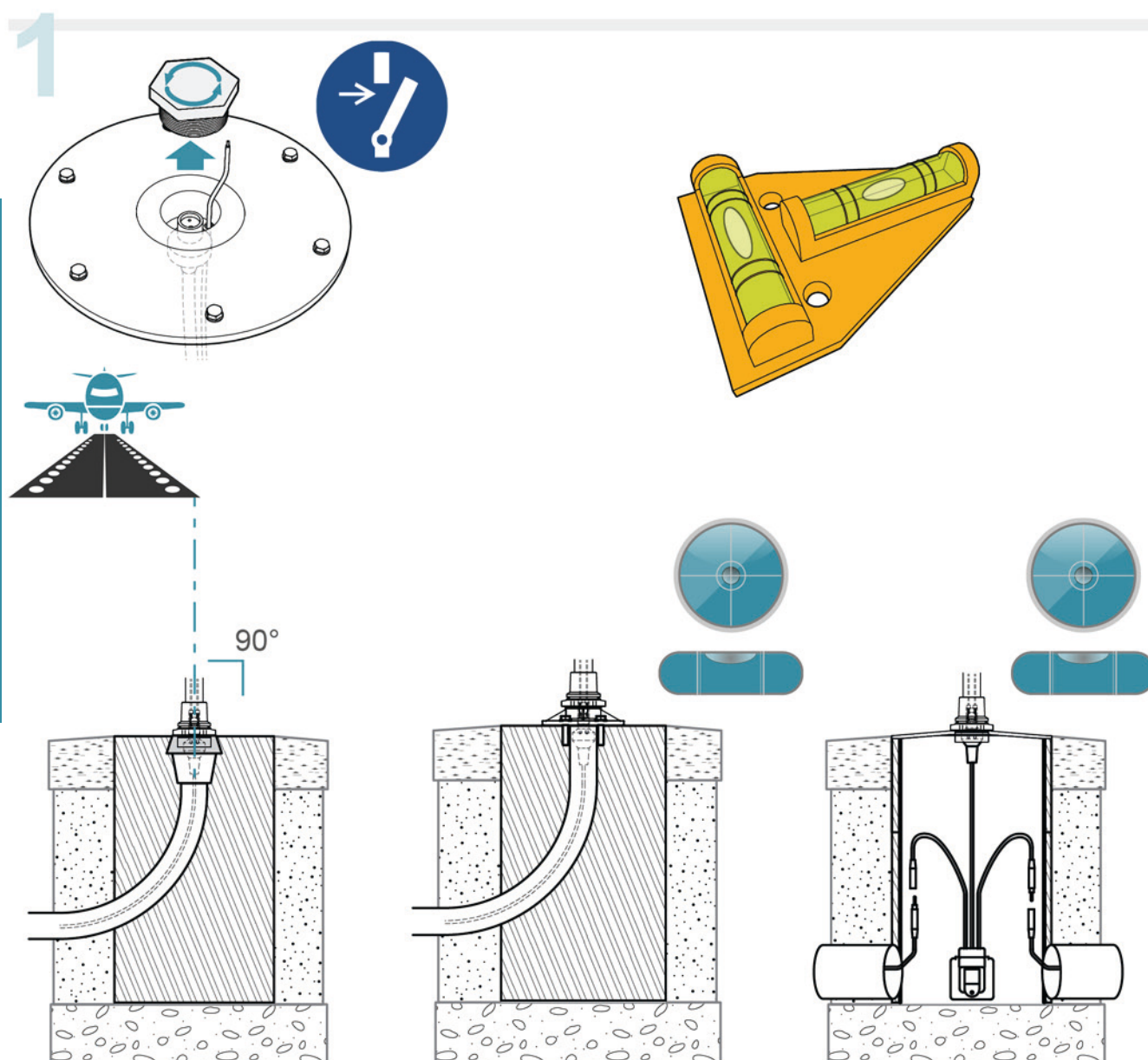


Using a bubble level check that the fastening surface of the flange (on the concrete or on the base plate) is perfectly at level.

In the case of an elbow pipe, ensure the verticality of the upper part of the pipe.



Do not proceed with installation if the supports are damaged or not aligned.



3.3 Installation of the Light fixture



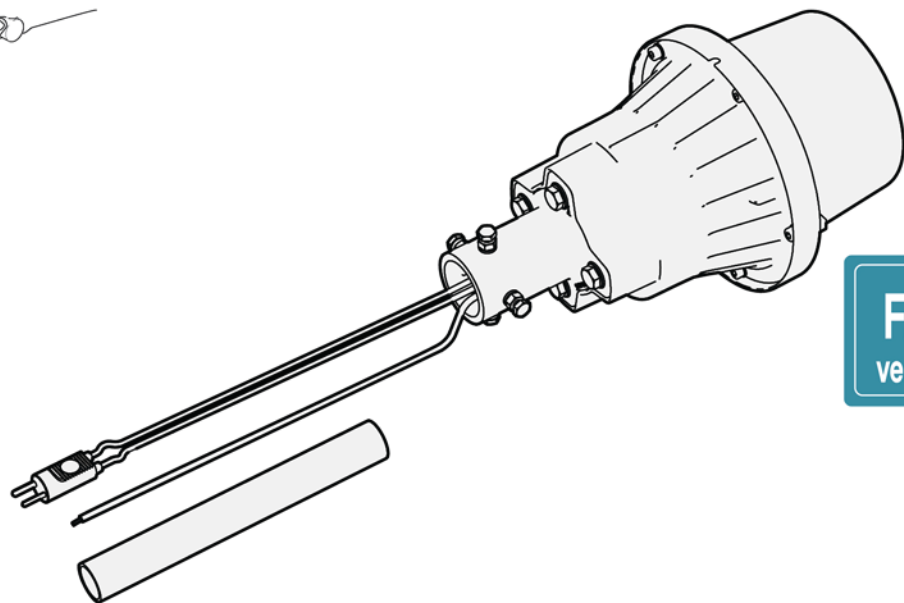
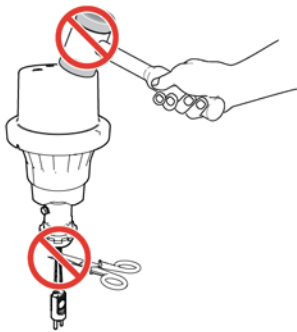
Store the device in its original packaging until the time of installation. Proceed assembling the fixture and check the supply features before installing the fixture. Pay particular attention to the proper positioning of the fixture on the base.

Use the fixture only in combination with compatible supports.

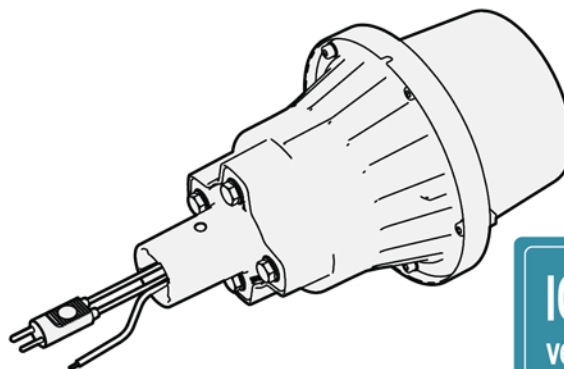


Before carrying out any intervention on the device, cut off all external power sources and place appropriate work-in-progress warnings on the systems. Wait for the discharging time (at least 5 min) and check using appropriate instruments that there are no residual energies before accessing the electrical equipment.

1



FAA
version



ICAO
version

Joint arrangement

If the breakable coupling system (A-D) is not equipped with ring nut, screw and tighten the coupling

If the breakable coupling system (B-C) is equipped with ring nut, screw the coupling at the base without tightening.

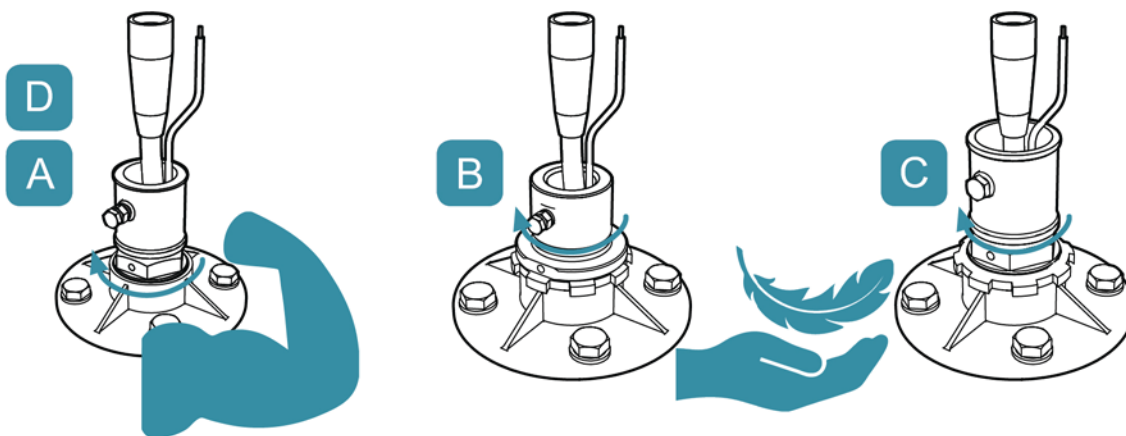


Insert inside the coupling the cable of the secondary of the transformer (with socket) and the ground cable (ground connected inside the base).

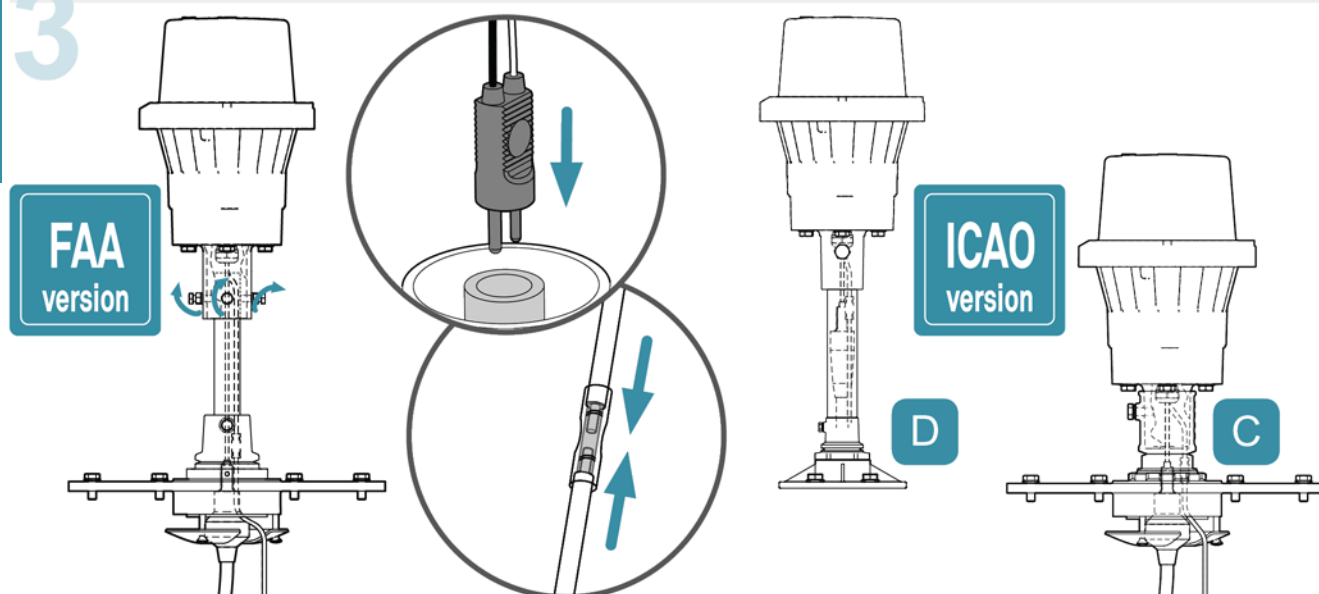
Make the electrical connections: insert the plug of the fixture in the socket coming from the transformer and joint the ground cable with the protective conductor coming from the base.

If foreseen, insert the pole and tighten uniformly the screws present on the body of the fixture until stopping the fixture on the pole (without tightening).

2



3



3.4 Fixture pointing

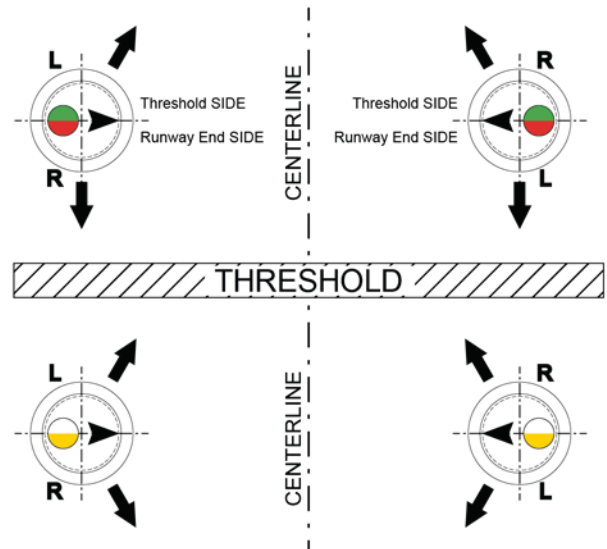
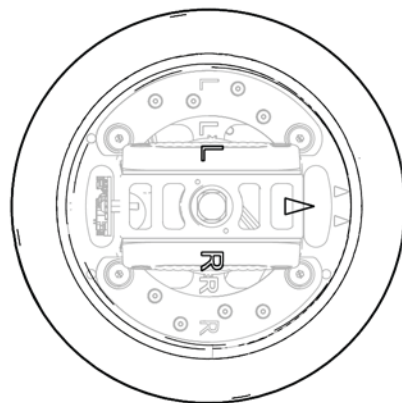
Make an initial pointing of the fixture by hand, using the references on the dome. Rotate the body of the fixture until orienting the arrow towards the runway edge.



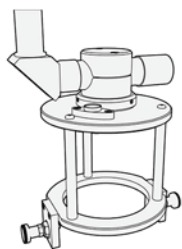
**The positioning of the light elements varies depending on the use.
Check the correct use of the device for the intended use in accordance with the installation project**

Install the pointing tool on the body of the fixture and proceed to adjust the light beams

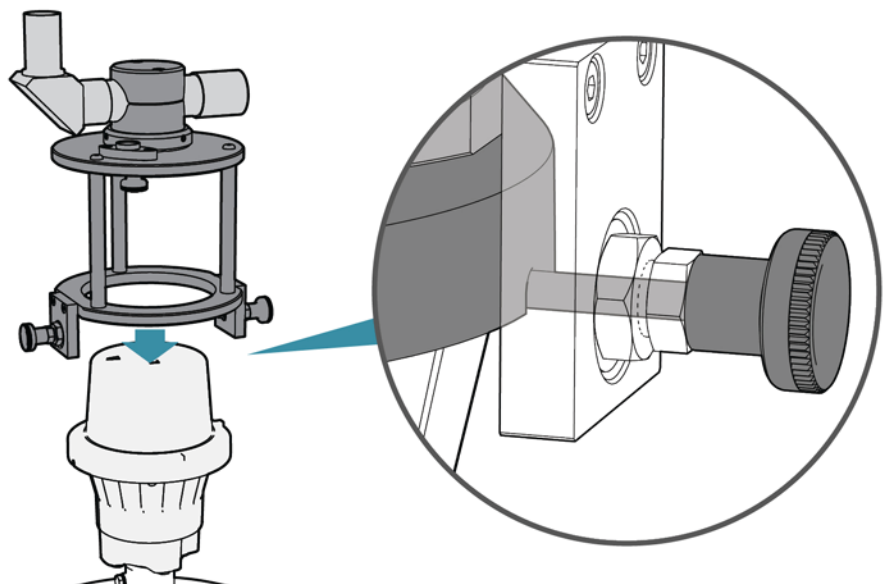
1



2



P/N 332.3500



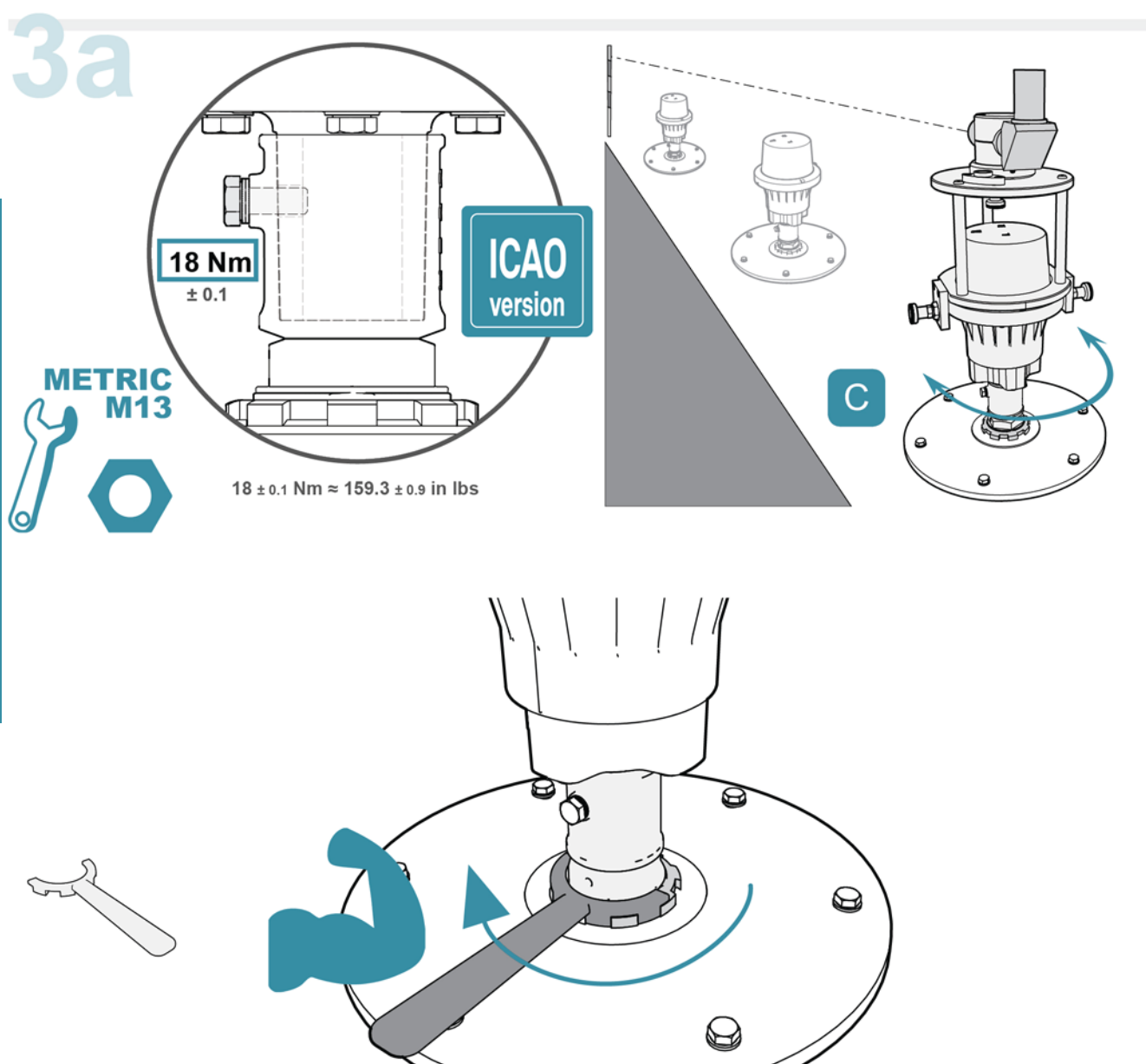
Align the fixture.

For the ICAO version of the fixture, if the breakable coupling system (C) is equipped with ring nut, tighten the locking screw present on the coupling to the indicated torque and align the fixture.



**Use the optical pointer to correctly align the light beams. Use a reference pole installed on the runway edge, or if necessary refer to fixtures already correctly pointed.
Check that the reference arrow faces the runway.
Make small movements until reaching the right position.**

Keeping the alignment fixed, carefully tighten the flange on the base using the relevant key.



For the FAA version of the fixture, if the breakable coupling system (B) is equipped with ring nut, align the fixture and carefully tighten the flange on the base using the relevant key.

For the ICAO version of the fixture, directly pass on the next phase.



Use the optical pointer to correctly align the light beams. Use a reference pole installed on the runway edge, or if necessary refer to fixtures already correctly pointed.
Check that the reference arrow faces the runway.
Make small movements until reaching the right position.

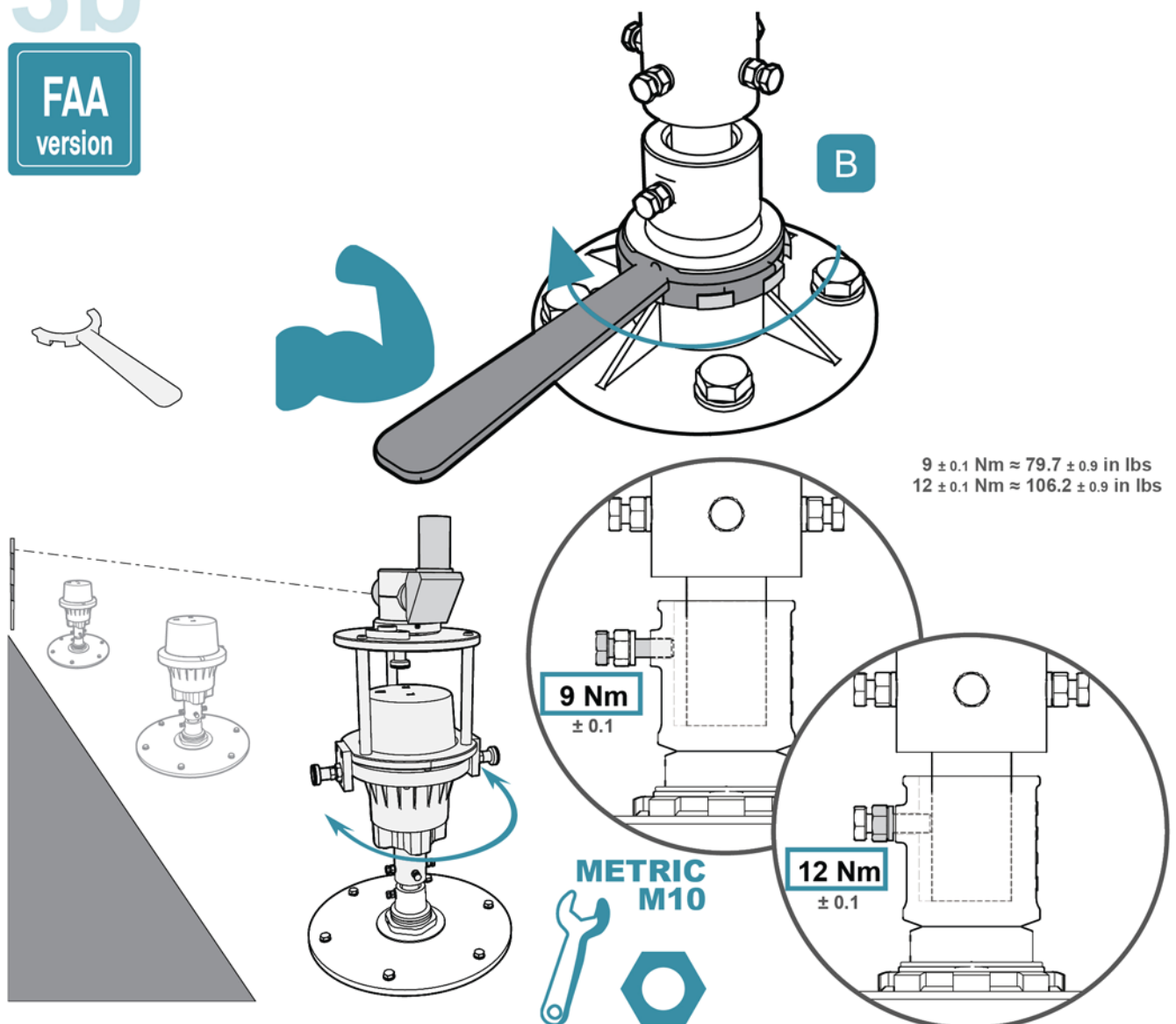
Keeping the alignment fixed, tighten the screw present on the coupling to the indicated torque paying attention not to send the locking nut to stroke on the coupling.



Carry out alignment procedures carefully.
Only for the FAA version of the fixture is possible recover small misalignments even during subsequent pointing phases.

3b

FAA
version



Level the fixture.

For the FAA version of the fixture, proceed preliminarily to a rough levelling adjustment. If necessary loosen the locking screws slightly.



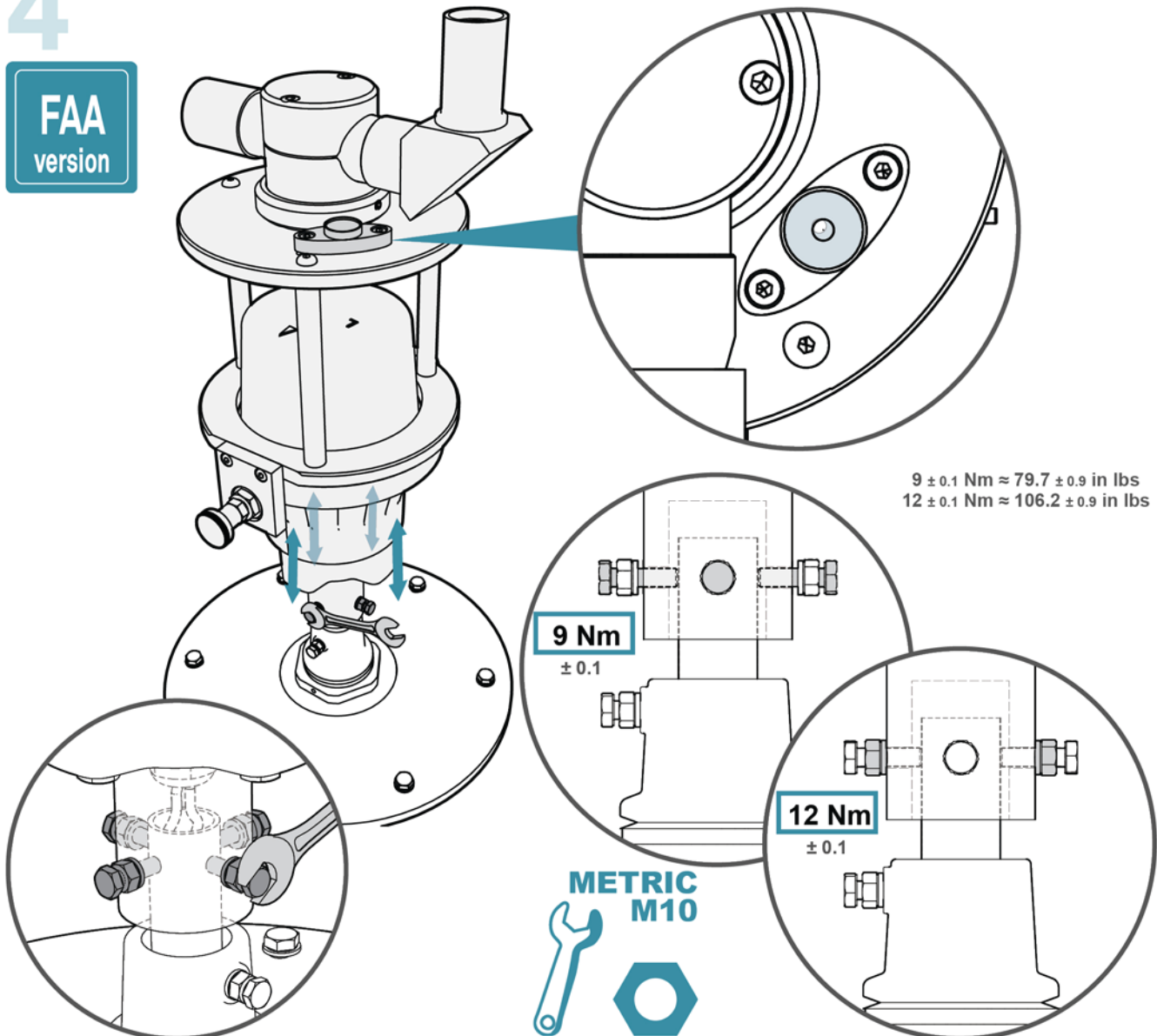
**Use the level present on the pointing tool to correctly level the fixture.
Make small movements until reaching the right position.**

Check that the fixture has maintained the correct alignment and if necessary make the necessary corrections. Keeping the alignment fixed, tighten the screws present on the support acting alternately on each of them. Once reached the desired position, tighten the nuts to the indicated torque.

4

FAA
version

INSTALLATION



Proceed to fine adjustments of the levelling using the adjusting screws present on the lower part of the body of the fixture.



**Make small movements until reaching the right position.
Screw tightening values must all be within the permitted range.**

Alternatively act on the adjusting screws until reaching with all the minimum tightening torque (tightening sequence 1-3-2-4).

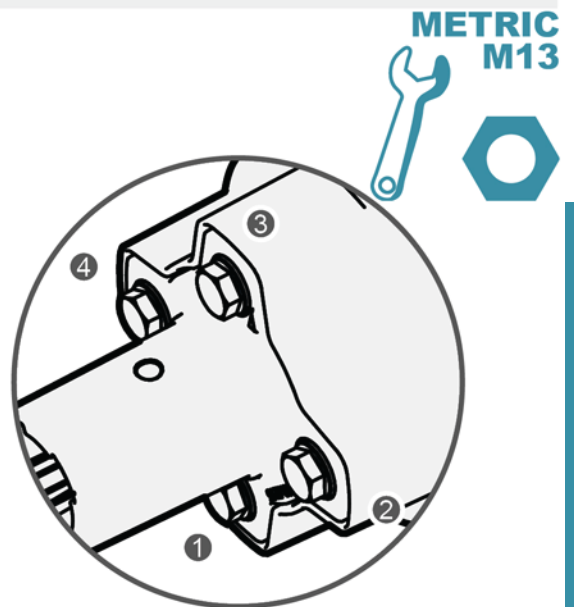
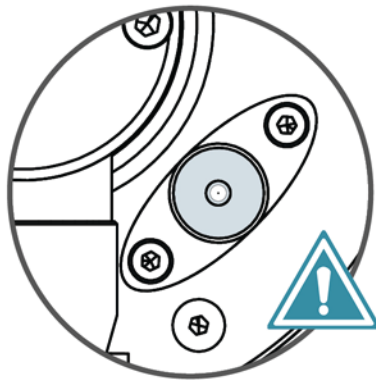
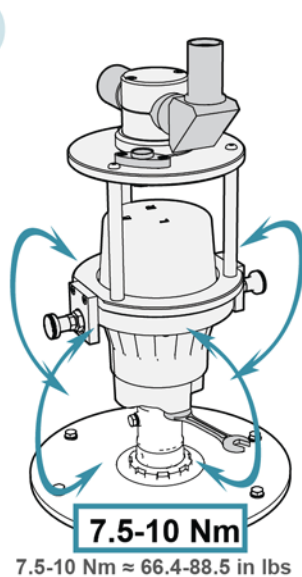
Therefore tighten the screws until reaching the right position.



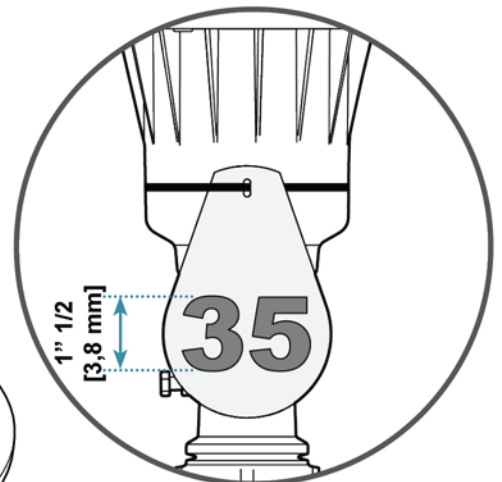
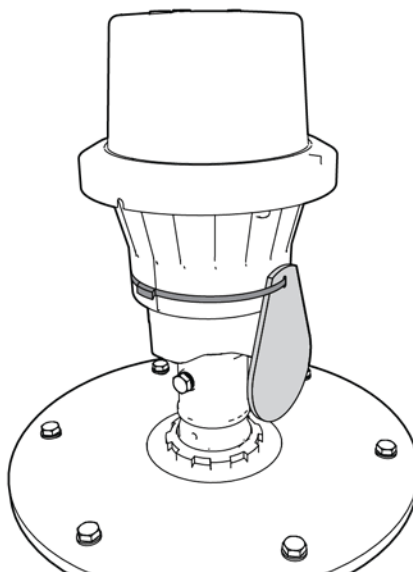
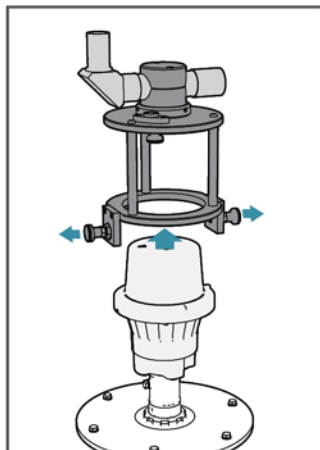
If the maximum permitted tightening value is exceeded during adjustment by acting on an adjusting screw, correct the problem by reducing the tightening torque until bringing it within the permitted range and compensate the misalignment by acting on the opposed screw.

At the end of the operations remove the tool and complete the installation.

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3.5 Removal of the Light signal



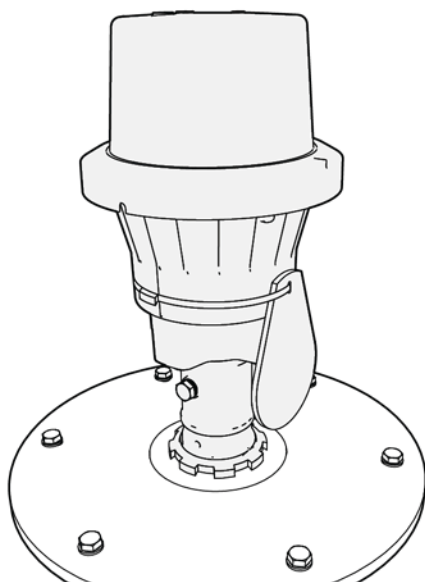
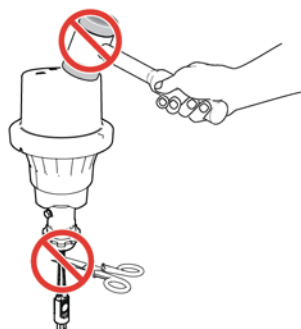
Ensure that the energy sources are cut before proceeding.

Do not try to remove the fixture from the base by using different tools of the extraction equipments indicated by OCEM Airfield Technology.

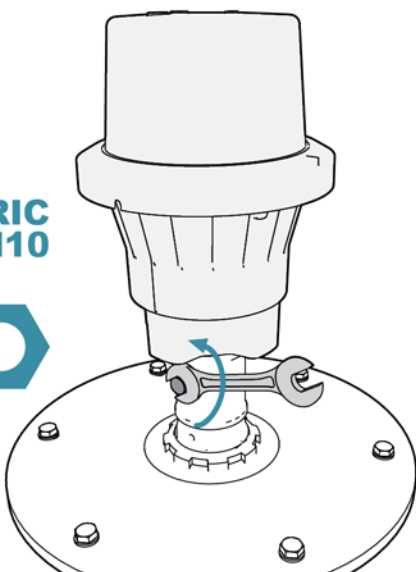


Before carrying out any intervention on the device, cut off all external power sources and place appropriate work-in-progress warnings on the systems. Wait for the discharging time (at least 5 min) and check using appropriate instruments that there are no residual energies before accessing the electrical equipment.

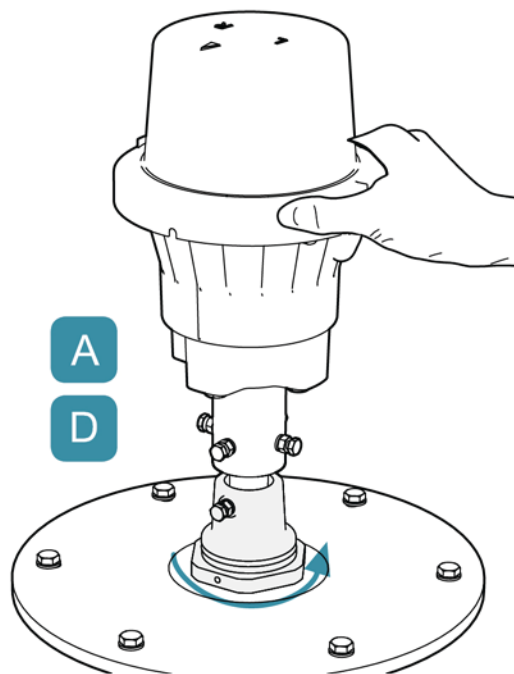
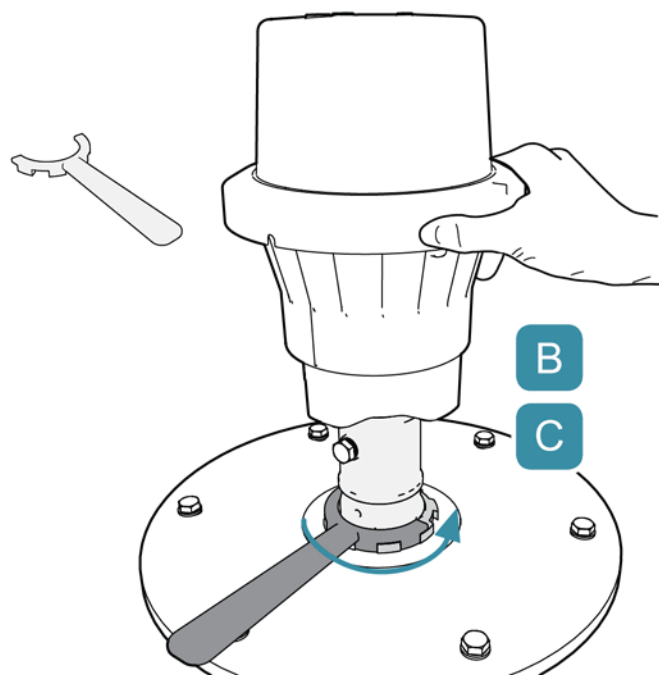
1



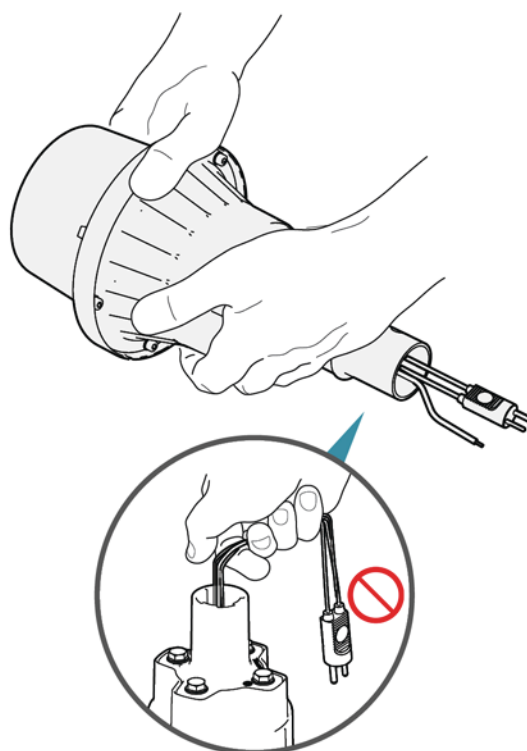
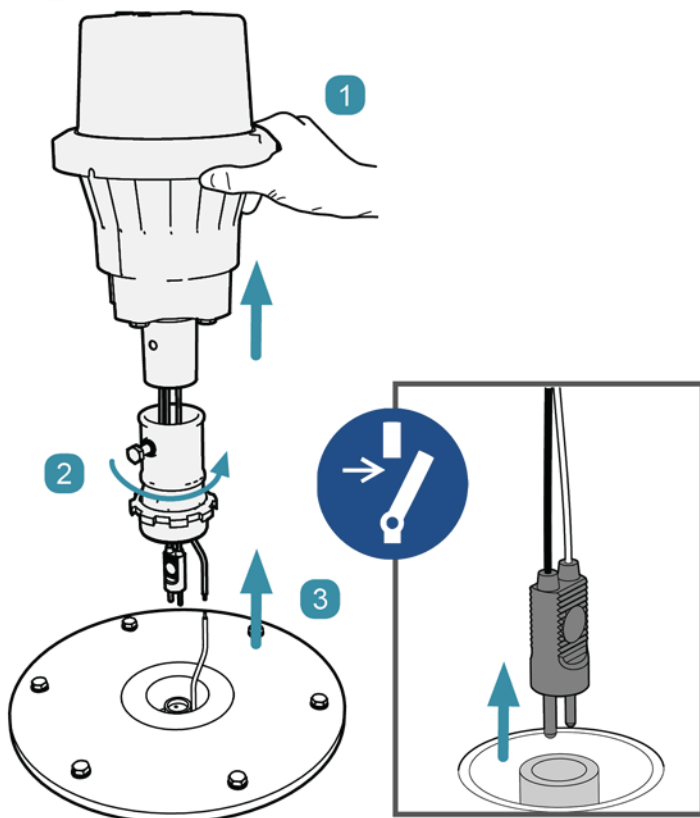
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4 ADJUSTMENTS AND MAINTENANCE



Before carrying out any intervention on the device, cut off all external power sources and place appropriate work-in-progress warnings on the systems. Wait for the discharging time (at least 5 min) and check using appropriate instruments that there are no residual energies before accessing the electrical equipment.

To minimize operations, always pay the greatest attention to handling and storage of devices and carry out installation procedures with extreme precision.

4.1 Scheduled maintenance

In accordance with the suggestions contained in the documents FAA AC 150/5340-26C and ICAO Airport Service Manual Part 9: Airport Maintenance Practices, LERE fixtures must be subjected to regular maintenance. We remark that the frequency of checks may vary from facility to facility and from runway to runway depending upon the amount of traffic and age of the fixtures.

In order to assure the proper functioning of the fixture and the maximum duration of the operating lifetime of the device all the checks and periodical audits must be carried out and, if necessary, the necessary corrective procedures must be activated to restore and ensure operative safety levels foreseen by the standards.



Do not let running devices not properly maintained or fixtures presenting signs of damage or fault.

Each maintenance operation carried out on the devices must be noted on the maintenance register.

Frequenza	Descrizione
every day	Check correct operation of the fixture.
	Visual check broken components and cleanliness of lenses in the installed fixture. Repair/ Replace as necessary. ⁽¹⁾⁽²⁾⁽³⁾
monthly	External cleaning of the prisms/lenses of the runway fixtures.
	External cleaning of the prisms/lenses of the taxiway fixtures.
	Check correct setting/installation of the light. Fix/re-align if needed.
semi-annually	Check photometric performance.
annually	Visual check of the installation condition (integrity of resin, poles, breakable joints,...).
	Check for the presence of water inside the installation base. ⁽¹⁾
	Check for possible water ingress and corrosion. ⁽¹⁾⁽²⁾⁽³⁾
unscheduled	After unusual atmospheric precipitation, check the light condition and remove any luminous beam obstructions.
	Removal of snow / vegetation from around light when necessary. ⁽⁴⁾
	After snow removal, check for possible damaged light fixtures. Repair/Replace as necessary. ⁽¹⁾⁽²⁾⁽³⁾

(1) Replace the external gasket(s) between the inset fixture and the base every time the light is removed from the base and re-installed. Visual check of the integrity of the power cable and the electrical connections every time the elevated or inset light is removed and re-installed.

(2) Replace the internal mounting seal(s) every time the light is opened for check or repair.

(3) Replace the prism/lens gasket every time the component is removed for check or repair.

(4) Techniques for snow removal are described in the ICAO Airport Service Manual - Part-9: Airport Maintenance Practices and in the FAA AC 150/5200-30 specifications.

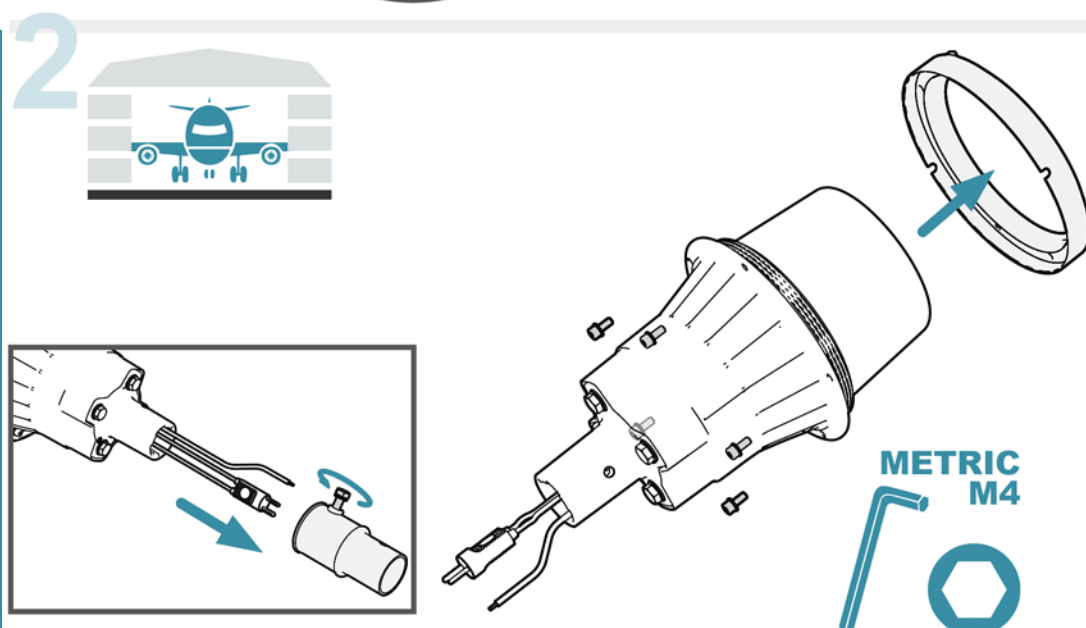
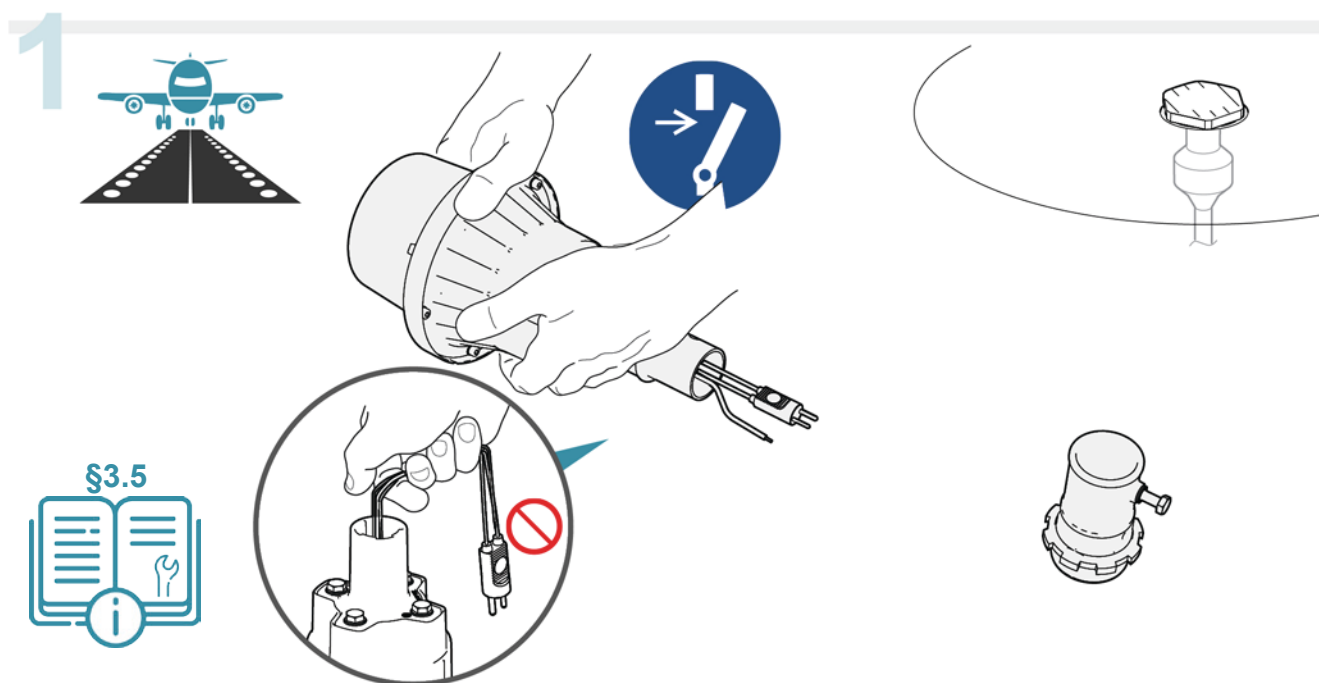
4.2 Signal Opening



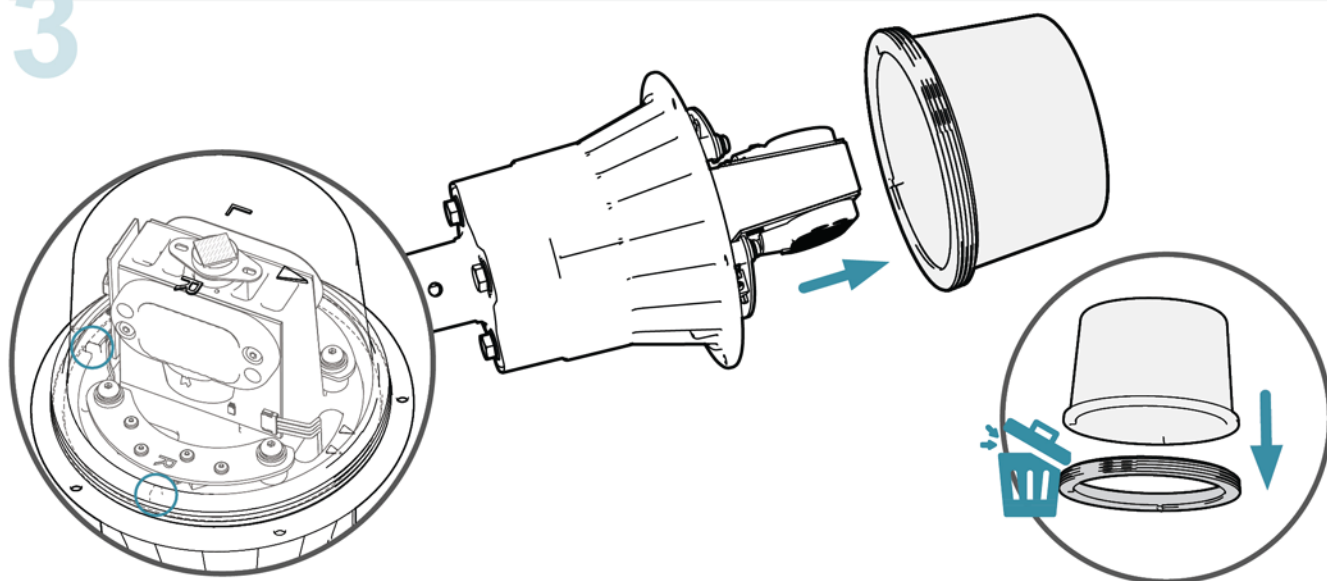
Every time that the fixture body is opened, all the seals must be replaced: use only original spare parts by OCEM Airfield Technology.

Whenever the LERE fixture is opened, it must be ensured that:

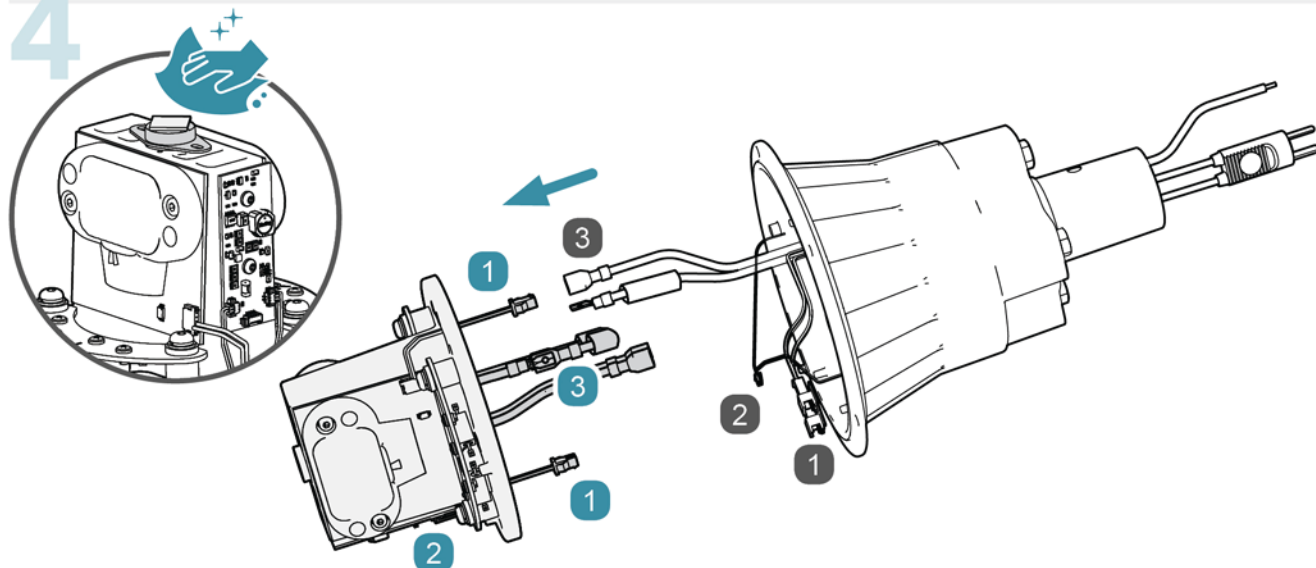
- the optical unit is undamaged and clean;
- the gasket of the glass dome does not have breakdowns;
- the supply cables and the connectors are undamaged and do not have breakdowns or abrasions.



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4.3 Signal Closing



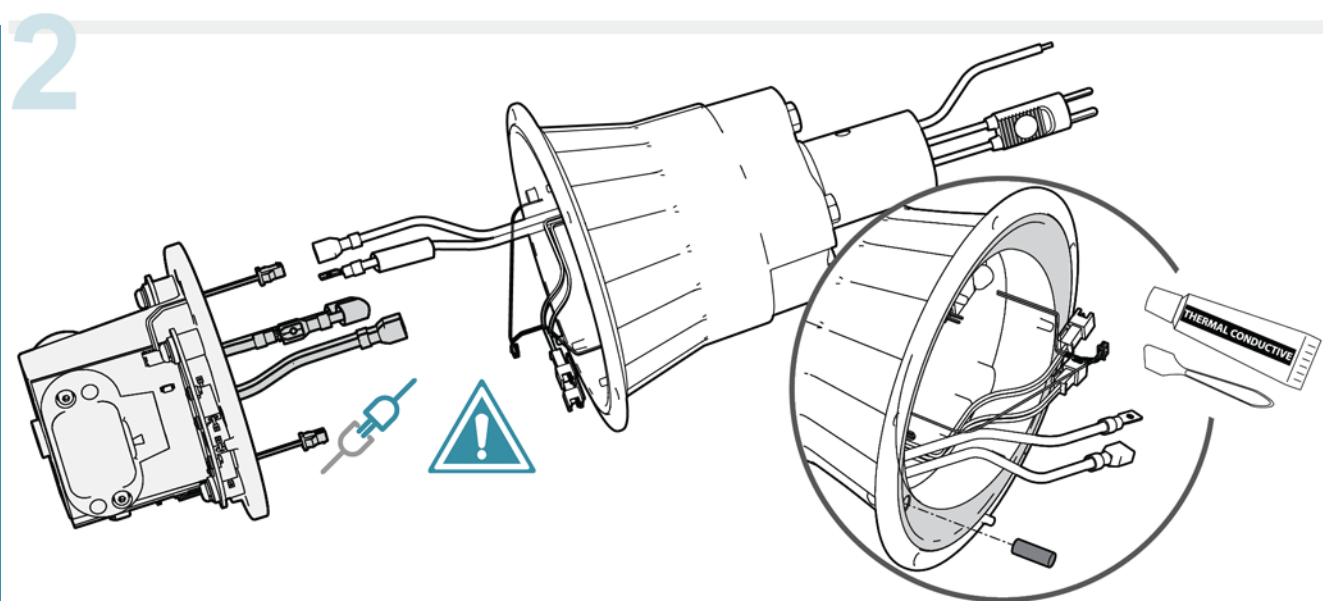
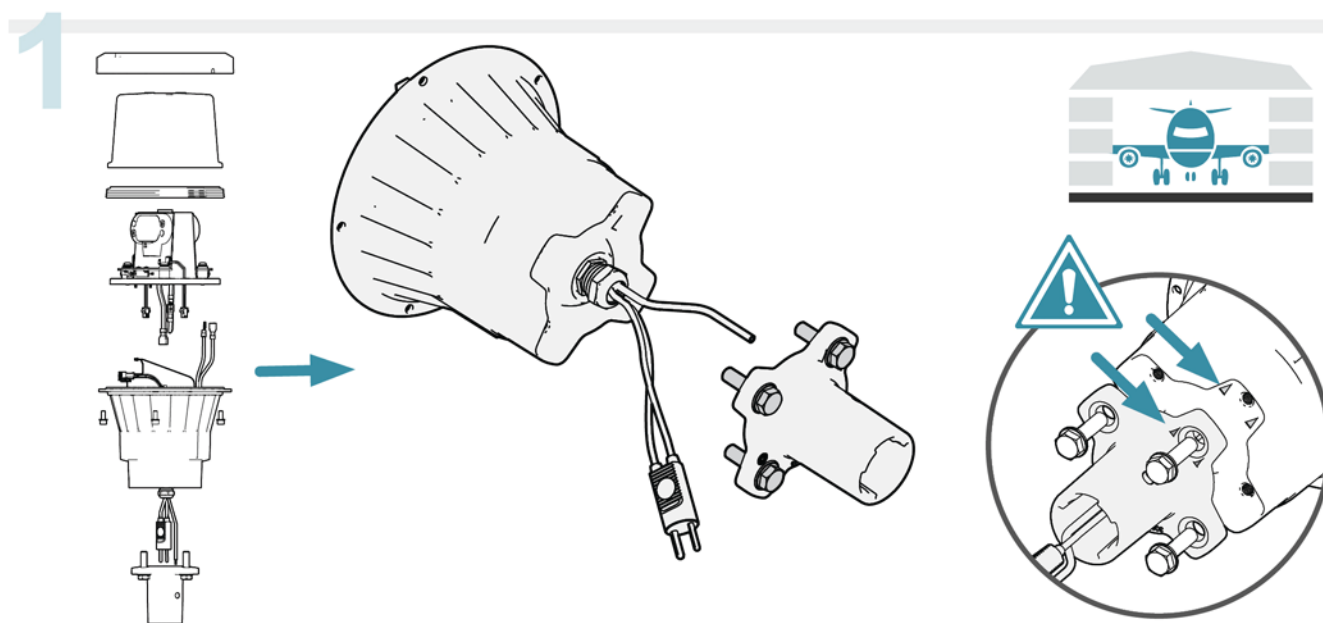
Every time that the fixture body is opened, all the seals must be replaced: use only original spare parts by OCEM Airfield Technology.



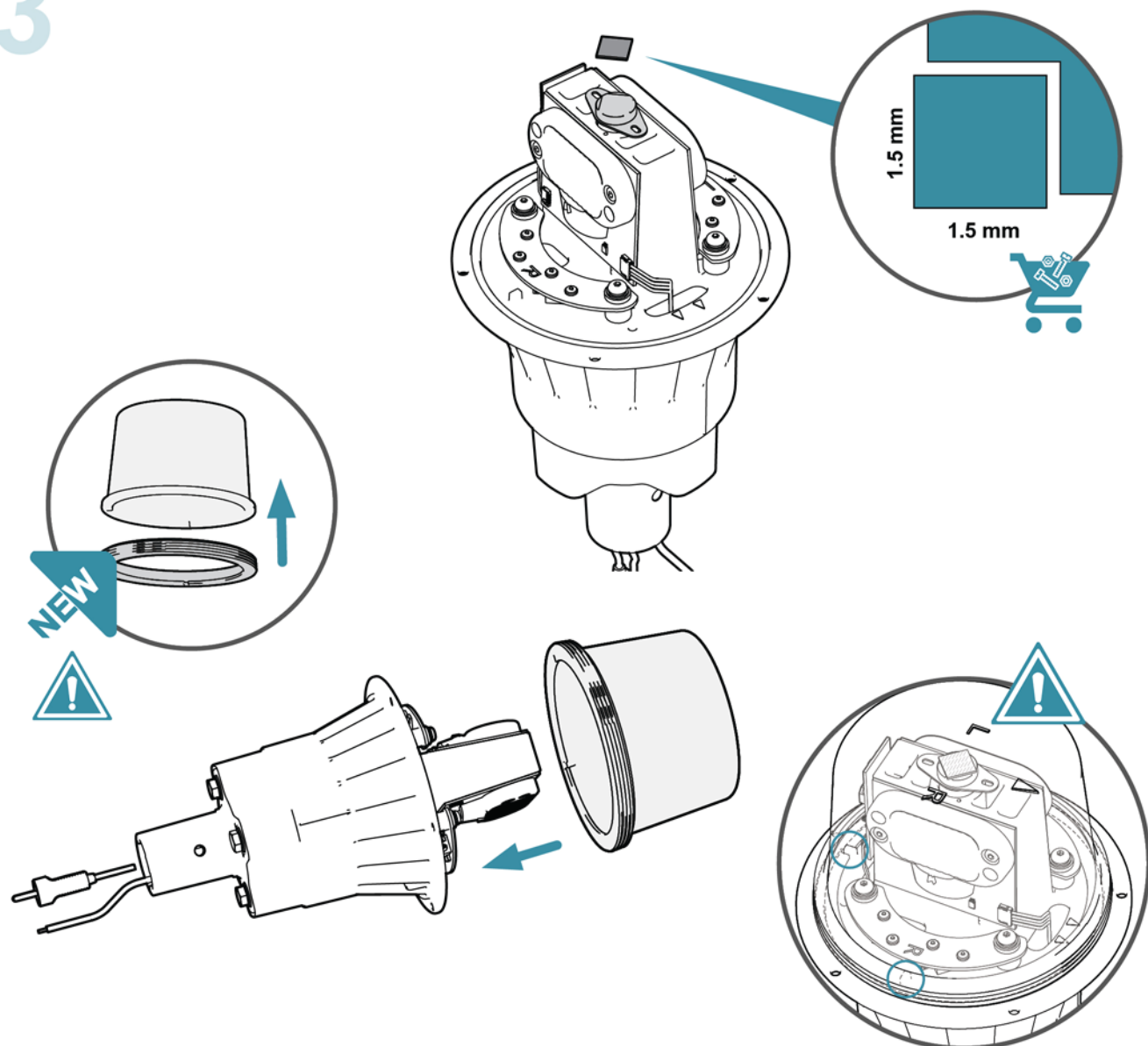
Respect the direction of the dome and of cards during assembly phase. Tighten the screws with the indicated torque values.

Every time a maintenance operation is concluded, is necessary to carry out the ignition test, to check the correct light emission, depending on the configuration of the fixture.

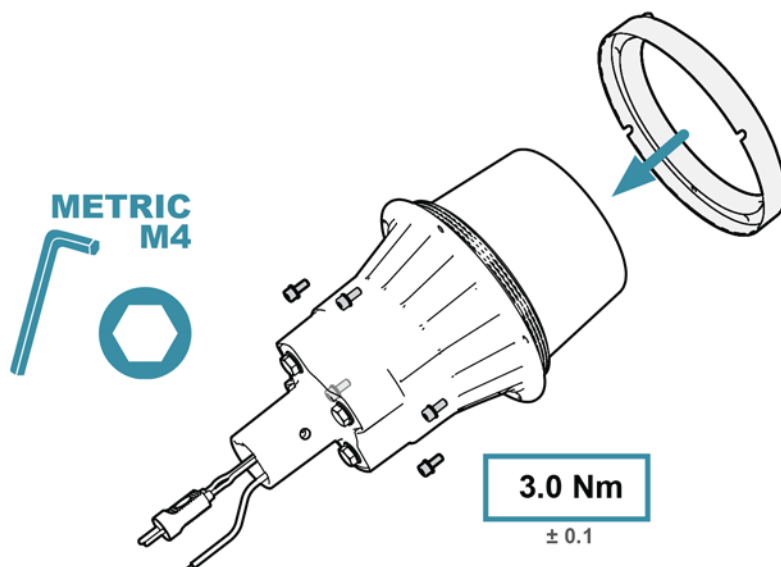
The proper alignment of the fixture must be tested only after being placed on the runway.



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$3 \pm 0.1 \text{ Nm} \approx 26.6 \pm 0.9 \text{ in lbs}$

4.4 Cleaning of the glass dome



Before carrying out any intervention on the fixture, cut off all external power sources and place appropriate work-in-progress warnings on the systems. Wait for the discharging time (at least 5 minutes) and check using appropriate instruments that there are no residual energies before accessing the electrical equipment.

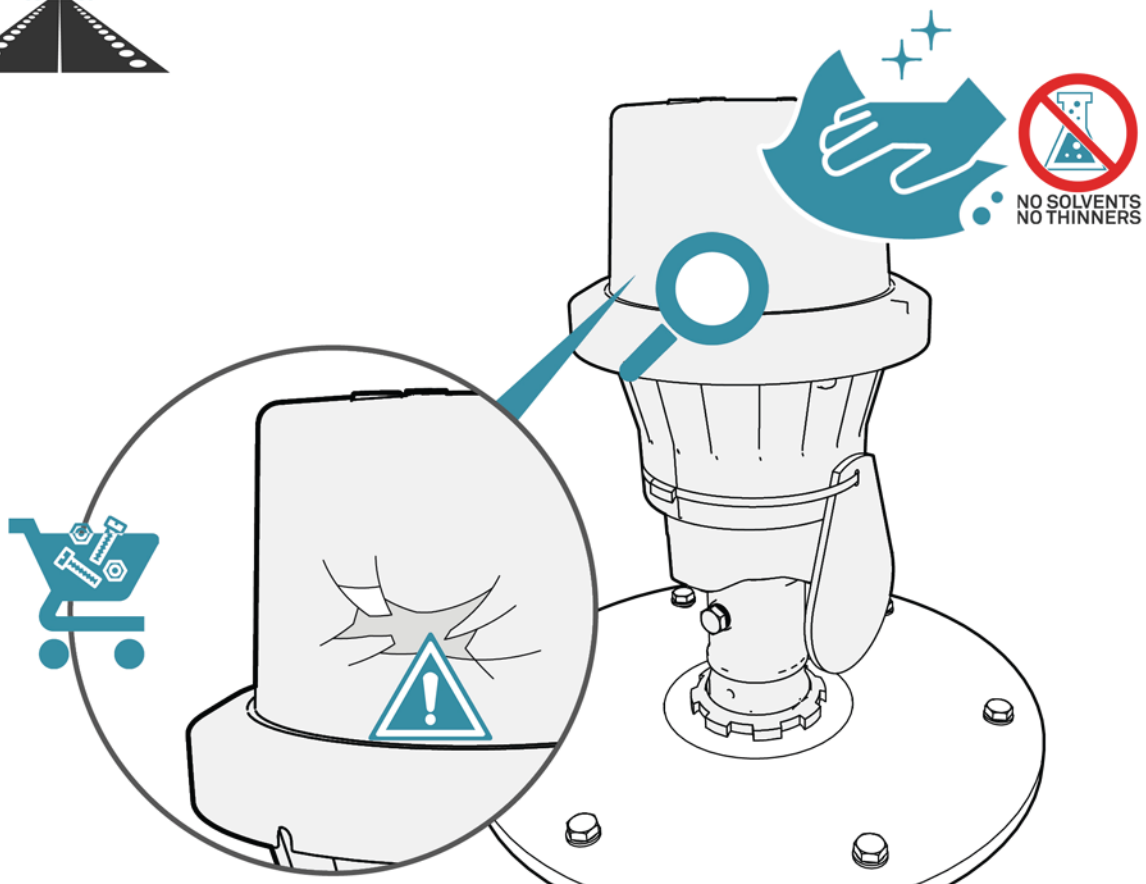
Clean the external surface of the glass dome with neutral and non-abrasive products using clean clothes.

The external cleaning operation of the glass dome take place directly on the runway and do not require the removal or the opening of the fixture. In normal conditions of use it is not necessary to clean the glass dome internally.



Do not use solvent or diluent products to avoid damaging the glass dome. In case the dome is damaged, replace it.

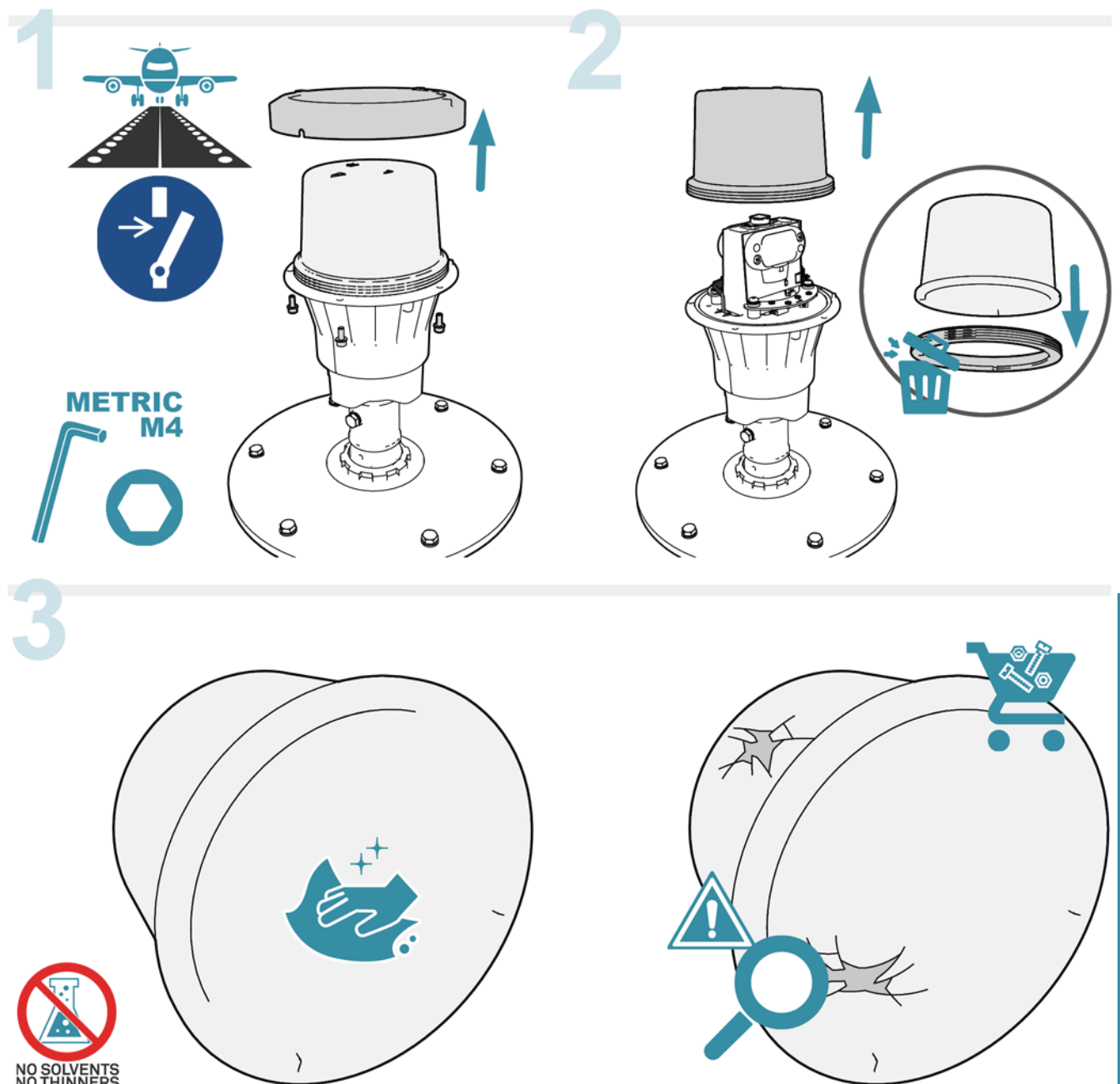
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If necessary, clean the internal surface of the glass dome.



Do not use solvent or diluent products to avoid damaging the glass dome.
Dry thoroughly the internal sides of the device.
In case the dome is damaged, replace it.





Clean the seat of the dome scraping with caution the walls without damaging them. Do not use solvent or diluent products to avoid damaging the glass dome. Dry thoroughly the internal sides of the device.

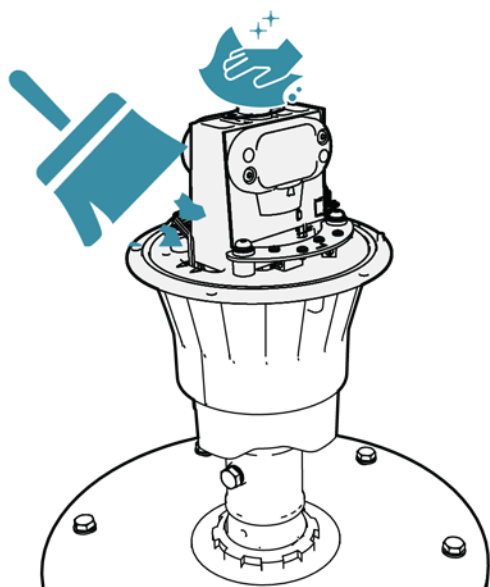


Check that the replacement glass dome correspond to the desired code of use.

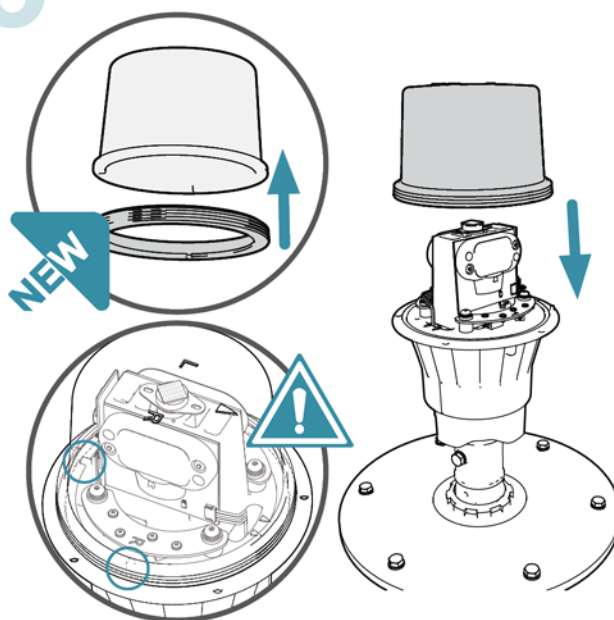


Reassemble the unit. Tighten the screws with the indicated torque values.

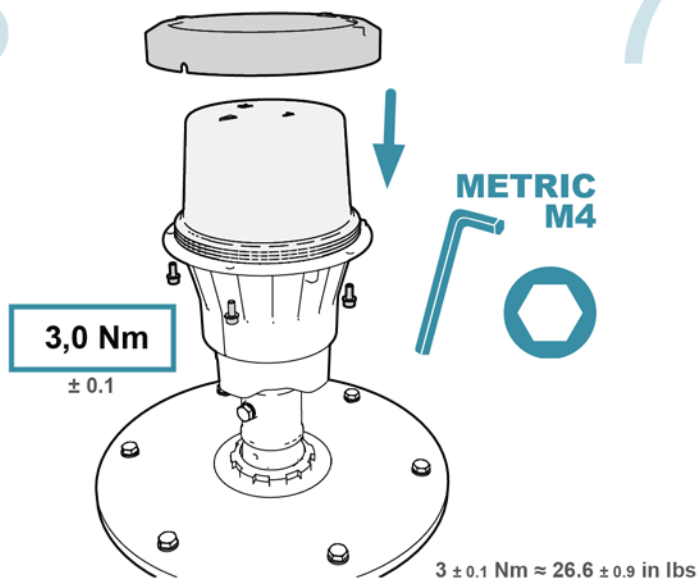
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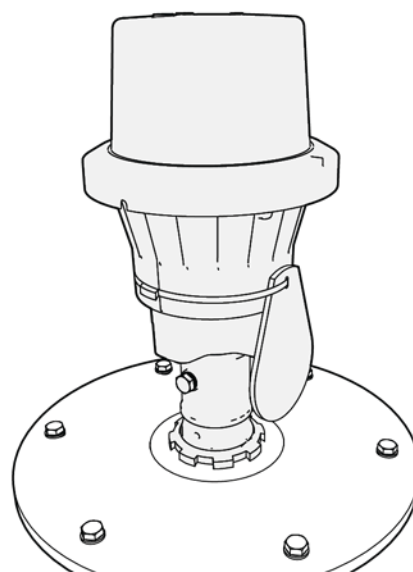
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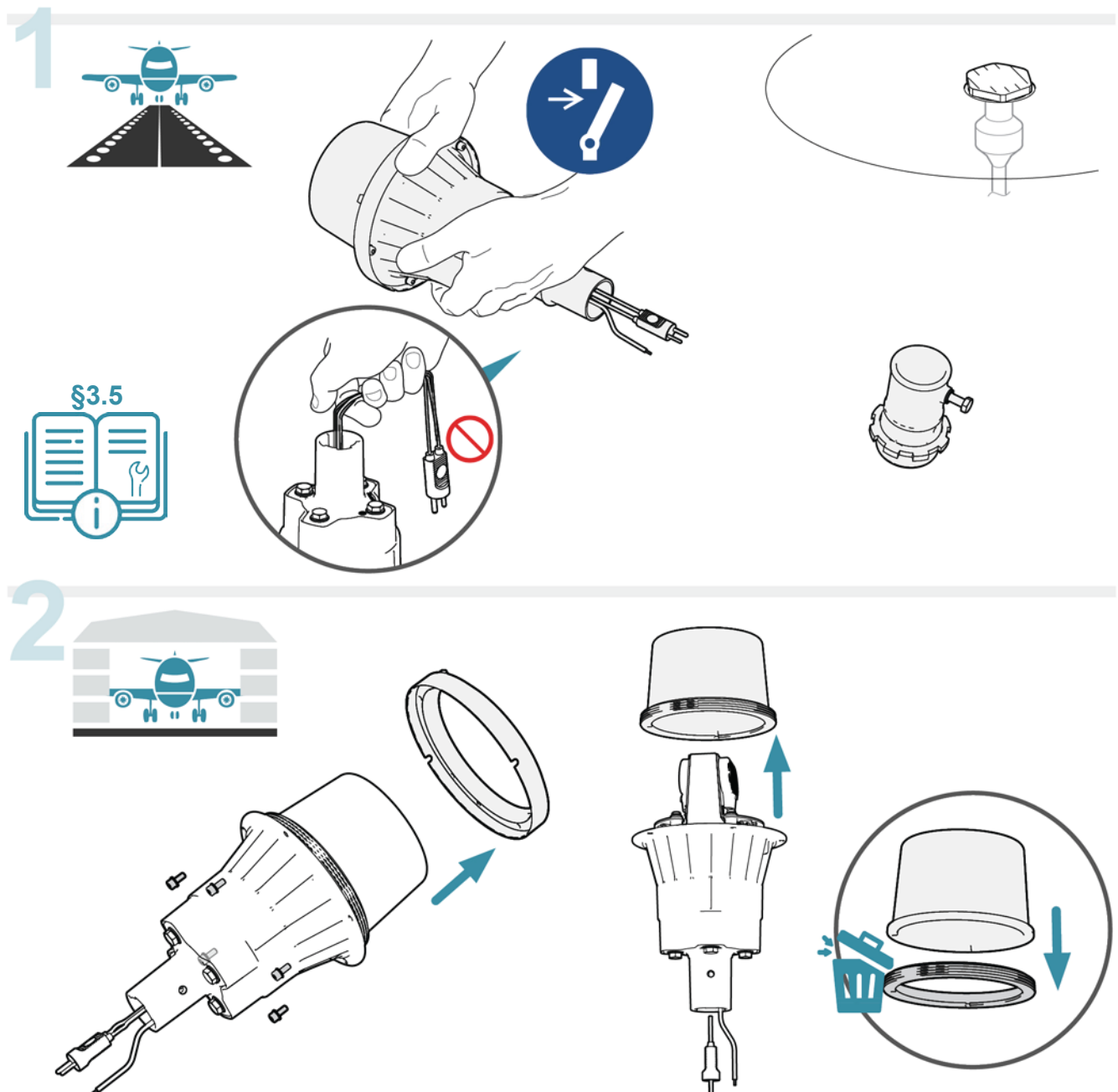
4.5 Replacement of the LED module



Before carrying out any intervention on the device, cut off all external power sources and place appropriate work-in-progress warnings on the systems. Wait for the discharging time (at least 5 minutes) and check using appropriate instruments that there are no residual energies before accessing the electrical equipment.

Remove the fixture from the base (see the related paragraph in the chapter "INSTALLATION") and bring it to the workshop to complete maintenance.

Open the dome to access the LED module.



Disconnect the connector and remove the LED module to be replaced and the thermal pad. Check that the lens are not damaged.



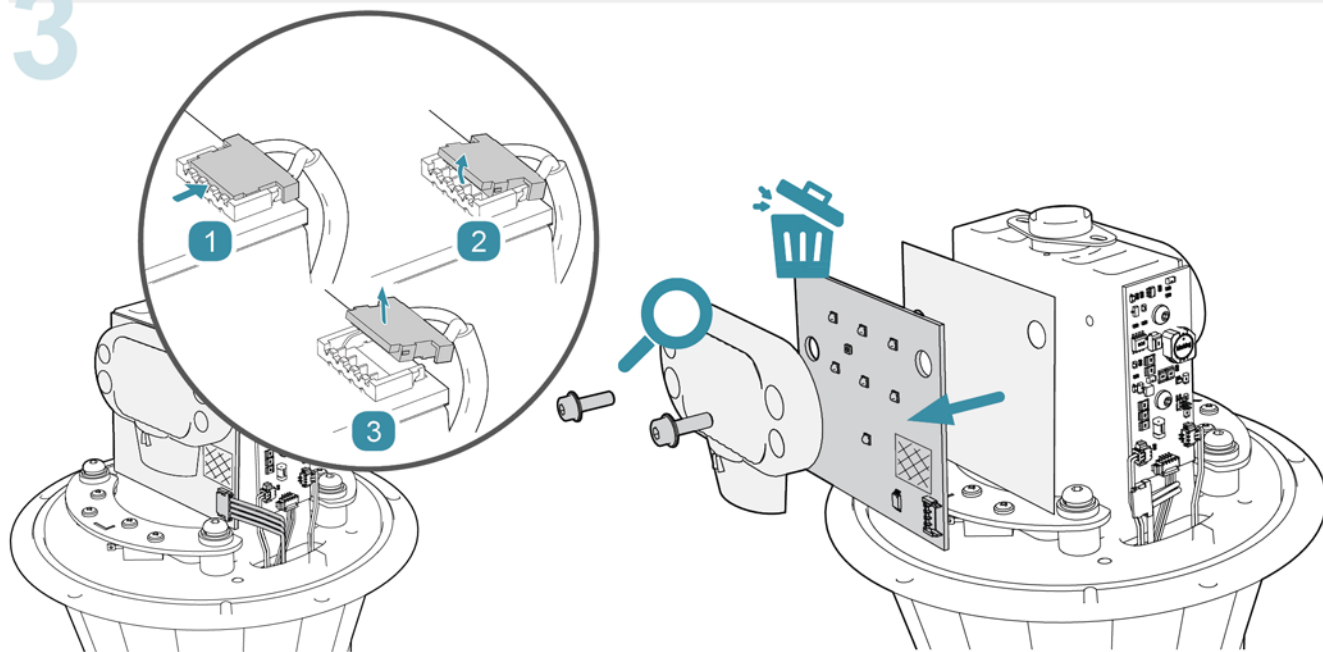
Before disassembling the unit make note of the orientation of the dome and of the LED module installed in order to restore the exact configuration of the fixture.

Clean the installation site of the LED module.

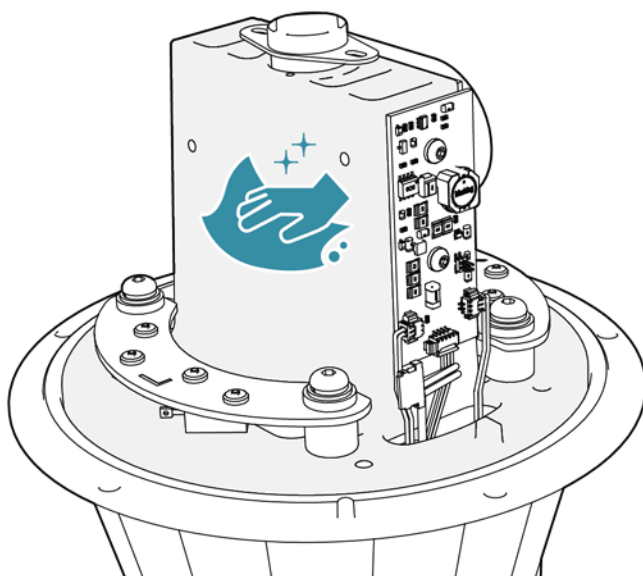


Do not use solvent or diluent products to avoid damaging the dome. Dry thoroughly the internal sides of the device.

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Check that the replacement LED module match the desired colour configuration.
If necessary, replace the lens with spare parts matching the original configuration.

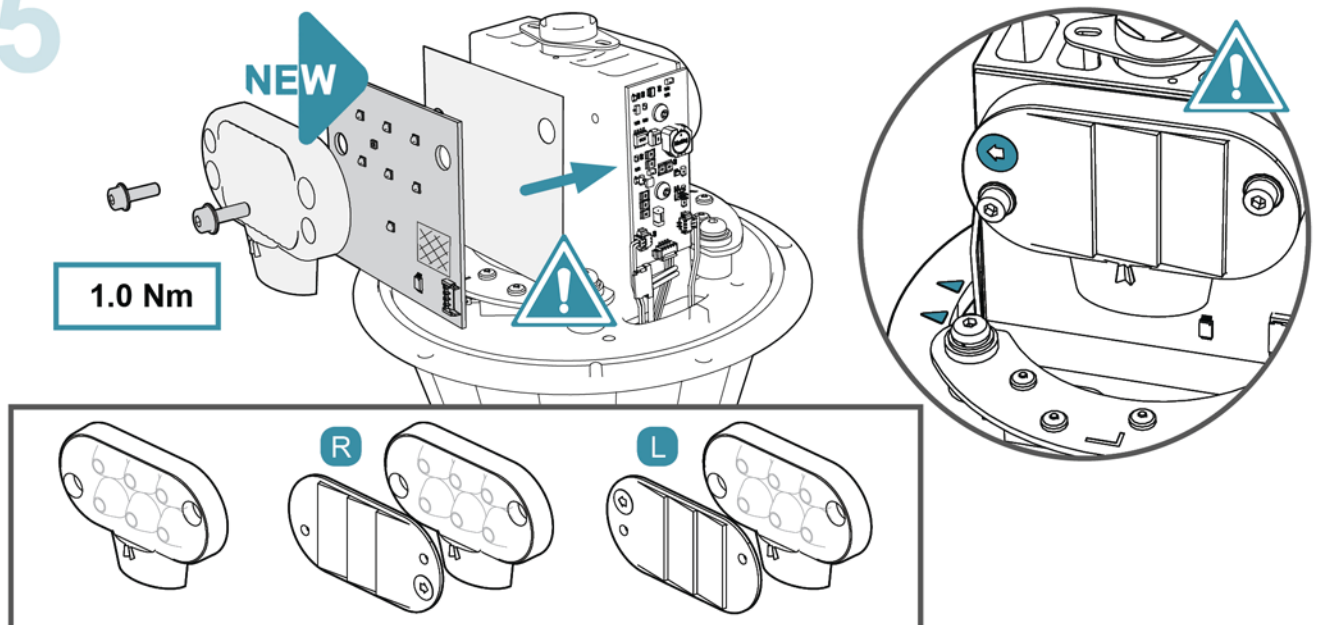
Position the LED module, complete with lens and thermal pad, centring it on the predisposed holes.



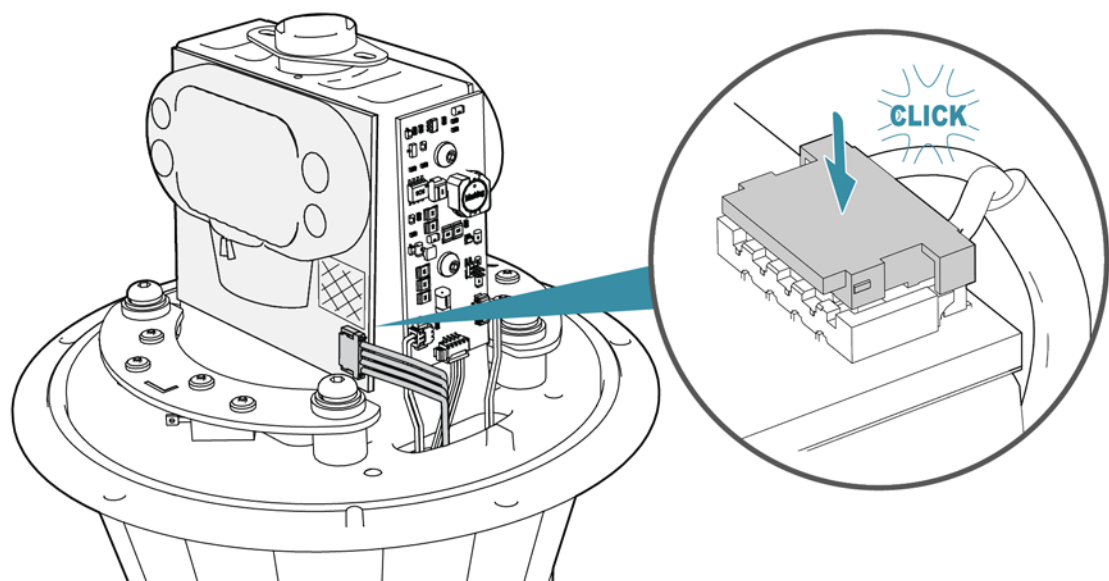
Check that the lens package is perfectly rested on the LED module.
Check that the lens package is properly configured.
Tighten the screws with the indicated torque values.

Connect the connector.

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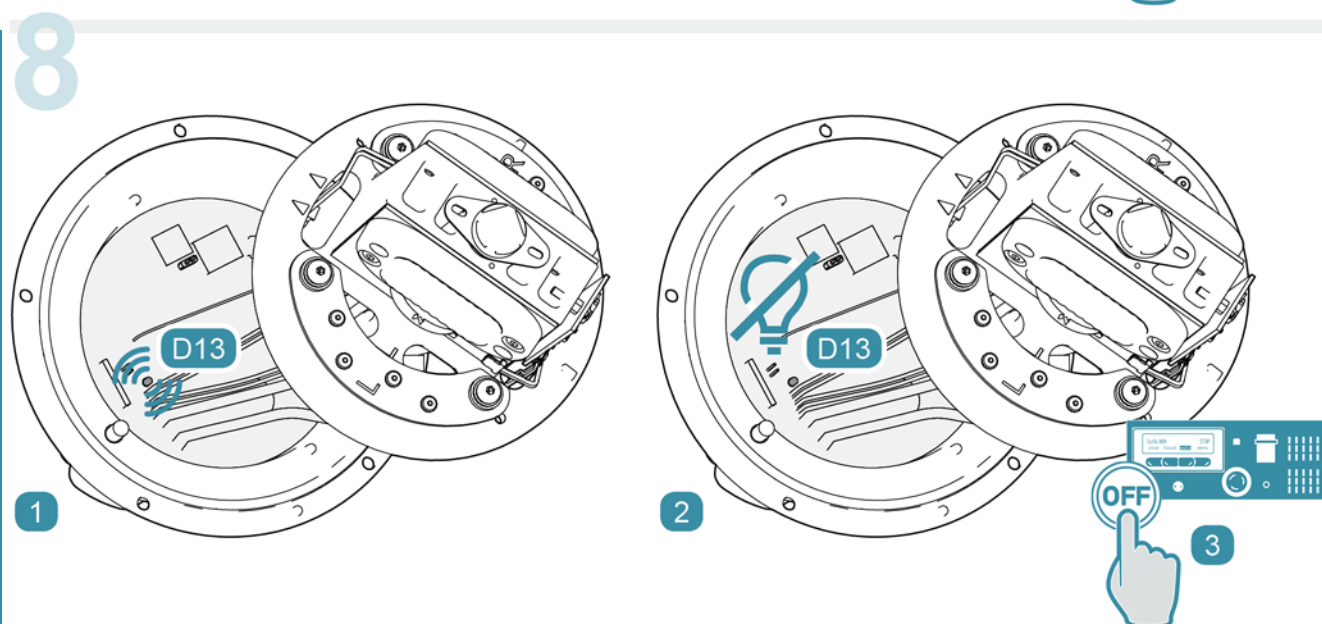
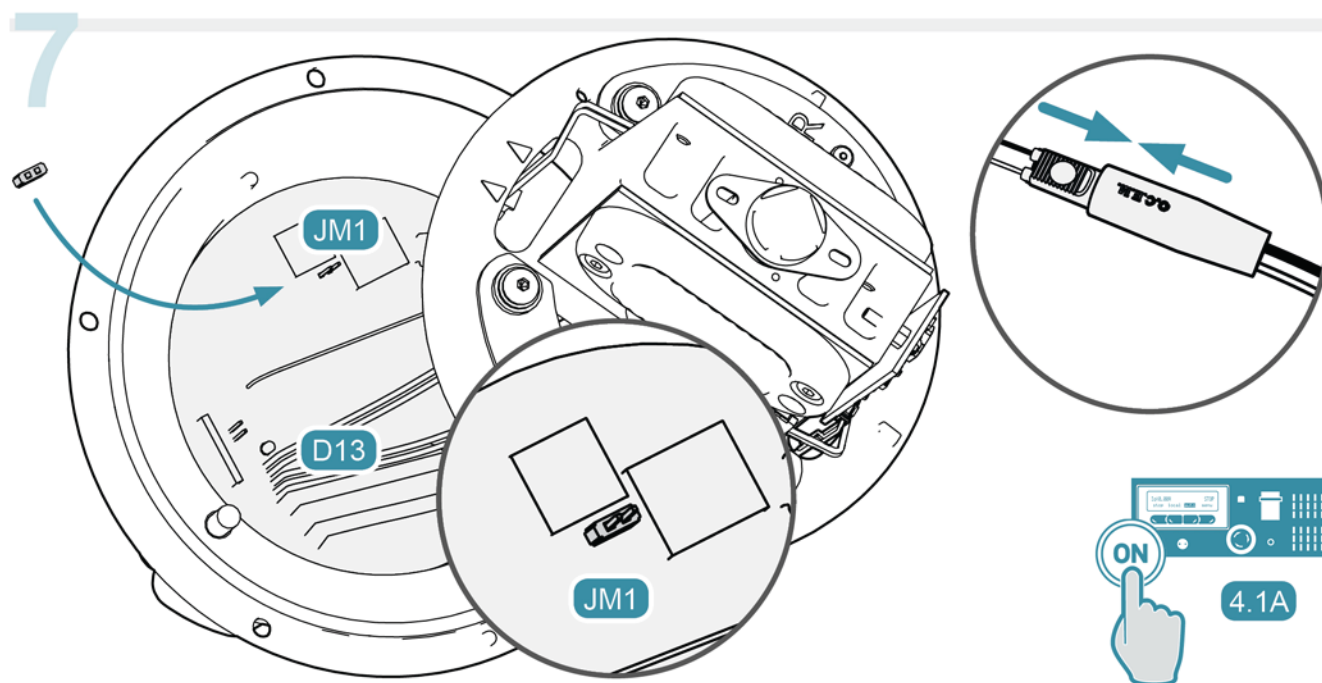


If the fixture is equipped with monitoring device, restore the monitoring circuit before proceeding to close the fixture.

Lift the LRD unit from the base, and access the internal resinated body.

Position the JUMPER on the JM1 pins present on the resinated body.

Connect the fixture to the supply test and set the current to 4.1 A (step 3). Power the fixture and wait that the LED D13 switches off. Interrupt the supply test.



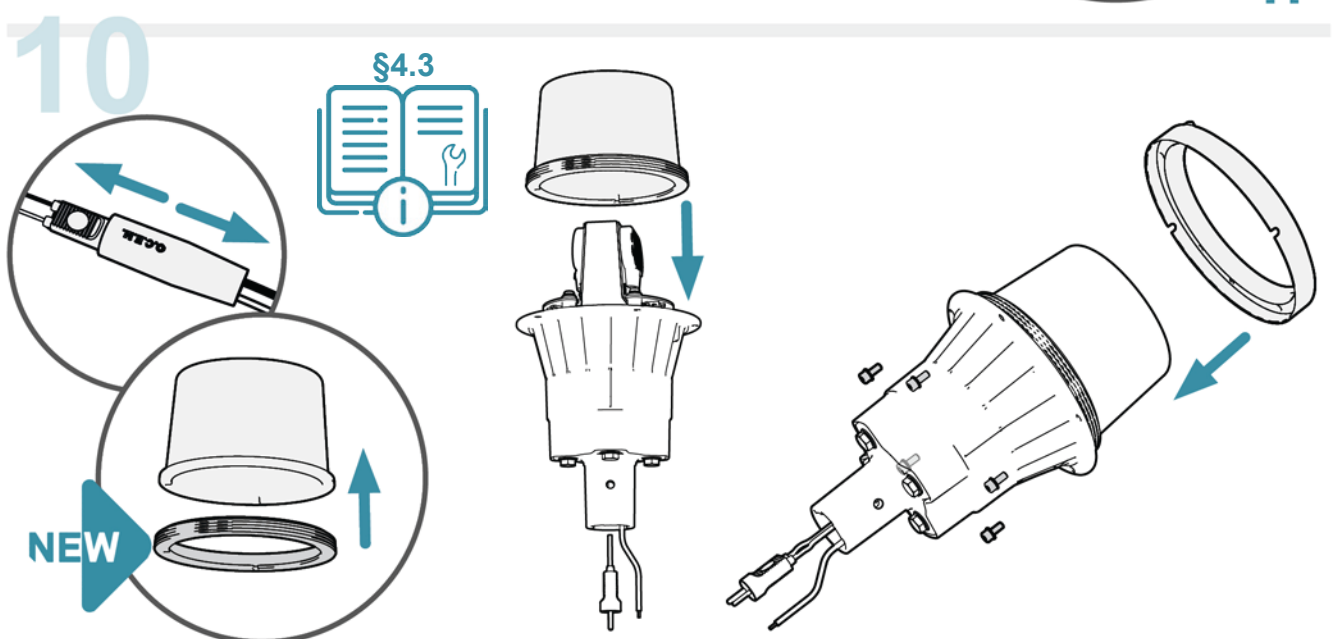
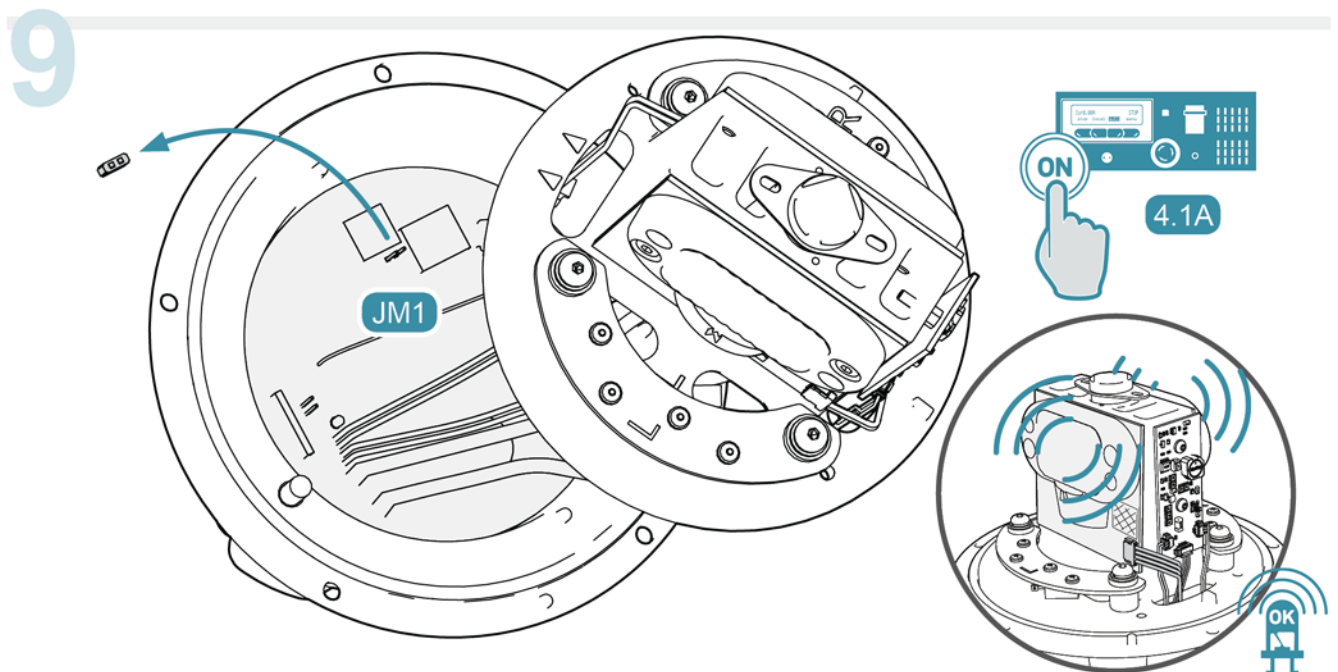
Remove the JUMPER from the JM1 pins present on the resinated body.

Power the fixture and check that the LED light up correctly. Interrupt the test feed and disconnect the fixture.

Reassemble the unit (see the related paragraph in the chapter “ADJUSTMENTS AND MAINTENANCES”). The device now is ready for the installation on the runway.



The fixture will self-calibrate during the first test ignition of the circuit: keep the circuit powered with a constant current of 6.6 A for at least 10 consecutive minutes.



4.6 Replacement of the base card



Before carrying out any intervention on the device, cut off all external power sources and place appropriate work-in-progress warnings on the systems.
Wait for the discharging time (at least 5 minutes) and check using appropriate instruments that there are no residual energies before accessing the electrical equipment.

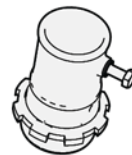
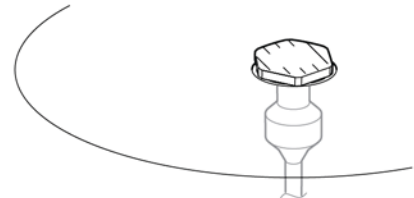
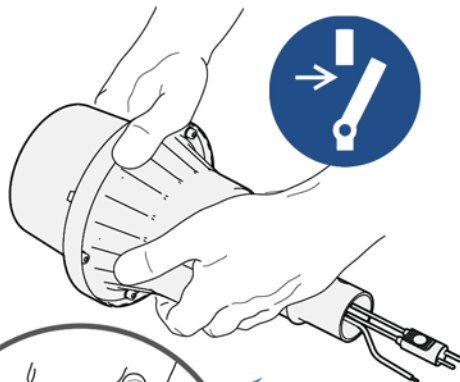
Remove the fixture from the base (see the related paragraph in the chapter “INSTALLATION”) and bring it to the workshop to complete maintenance.

Open the fixture (see the related paragraph in the chapter “ADJUSTMENTS AND MAINTENANCE”).

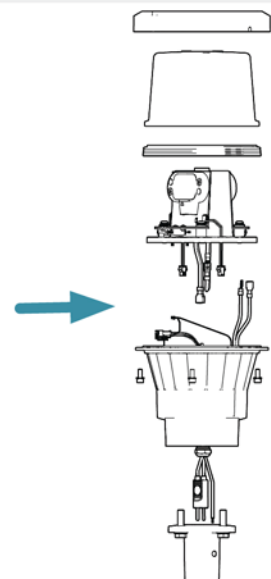
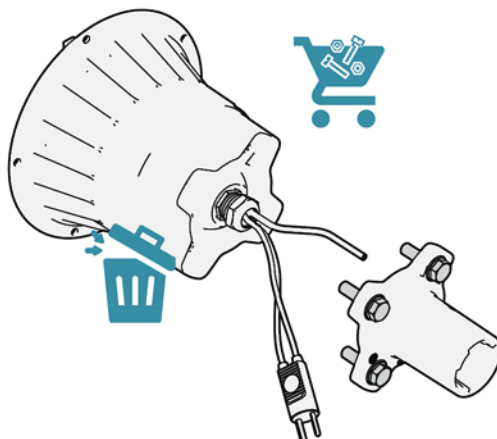


In case of bidirectional fixtures, before disassembling the unit make note of the orientation of the dome and of the LED module installed in order to restore the exact configuration of the fixture.

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Pay particular attention to the disconnection phase of the power cable of the fixture. According to the version the positioning of the connectors may differ.



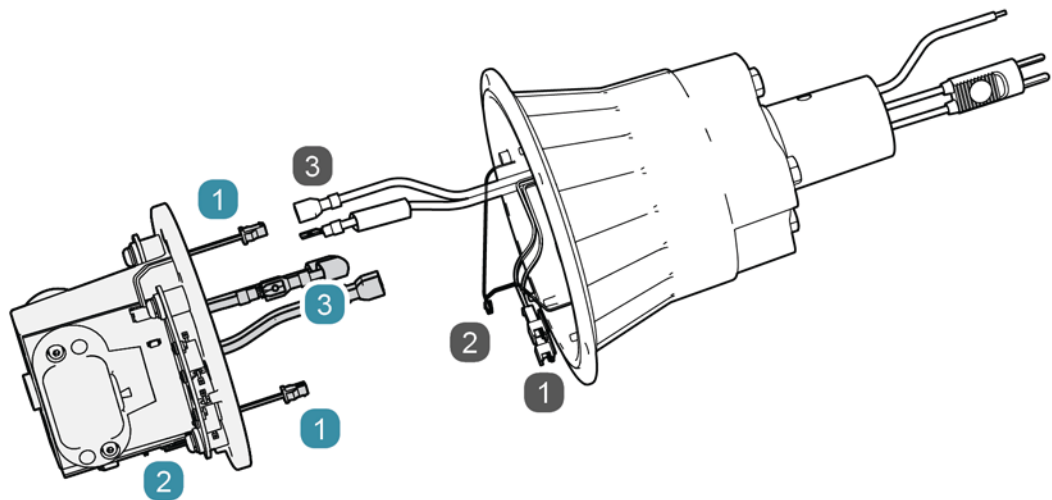
**In case of damage, replace the power cable of the LED module.
Do not reconnect connectors or damaged cables.**

Carefully disconnect the power connectors of the arctic module, if present.

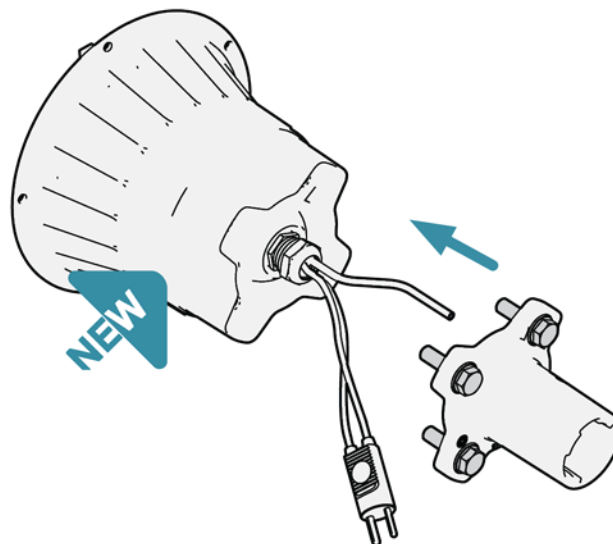


**Check that the Driver Board spare part matches the component installed on the fixture.
ATTENTION: Check the product codes before reconnecting the component.**

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Before installing the LED unit, apply a layer of conductive paste on the profile of the resinated body.
Respect the direction of the LED unit and of the dome during assembly phase.

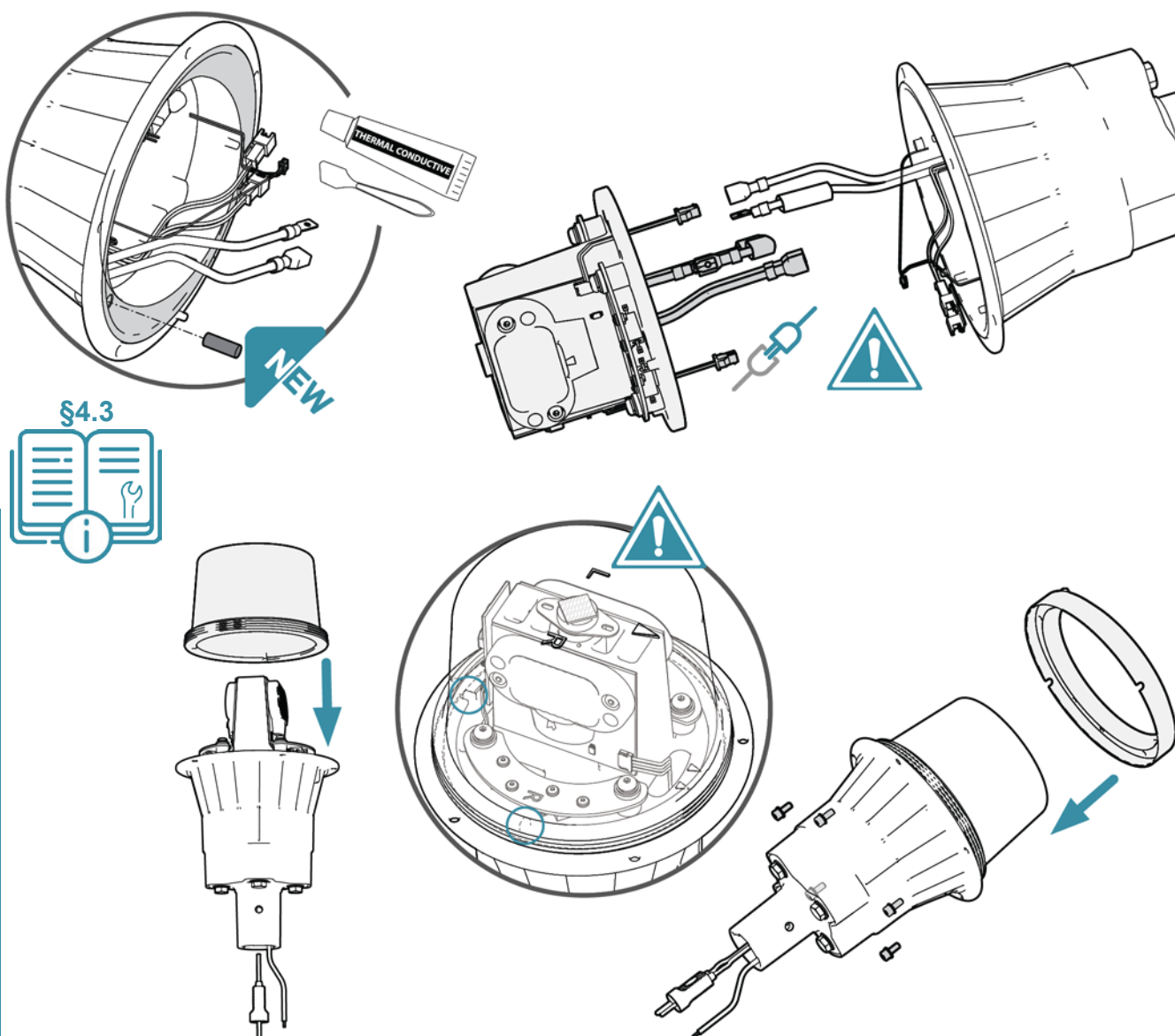
Clean the internal surface of the glass dome.



Do not use solvent or diluent products to avoid damaging the glass dome.
Dry thoroughly the internal sides of the device.

Reassemble the unit (see the related paragraph in the chapter “ADJUSTMENTS AND MAINTENANCE”).

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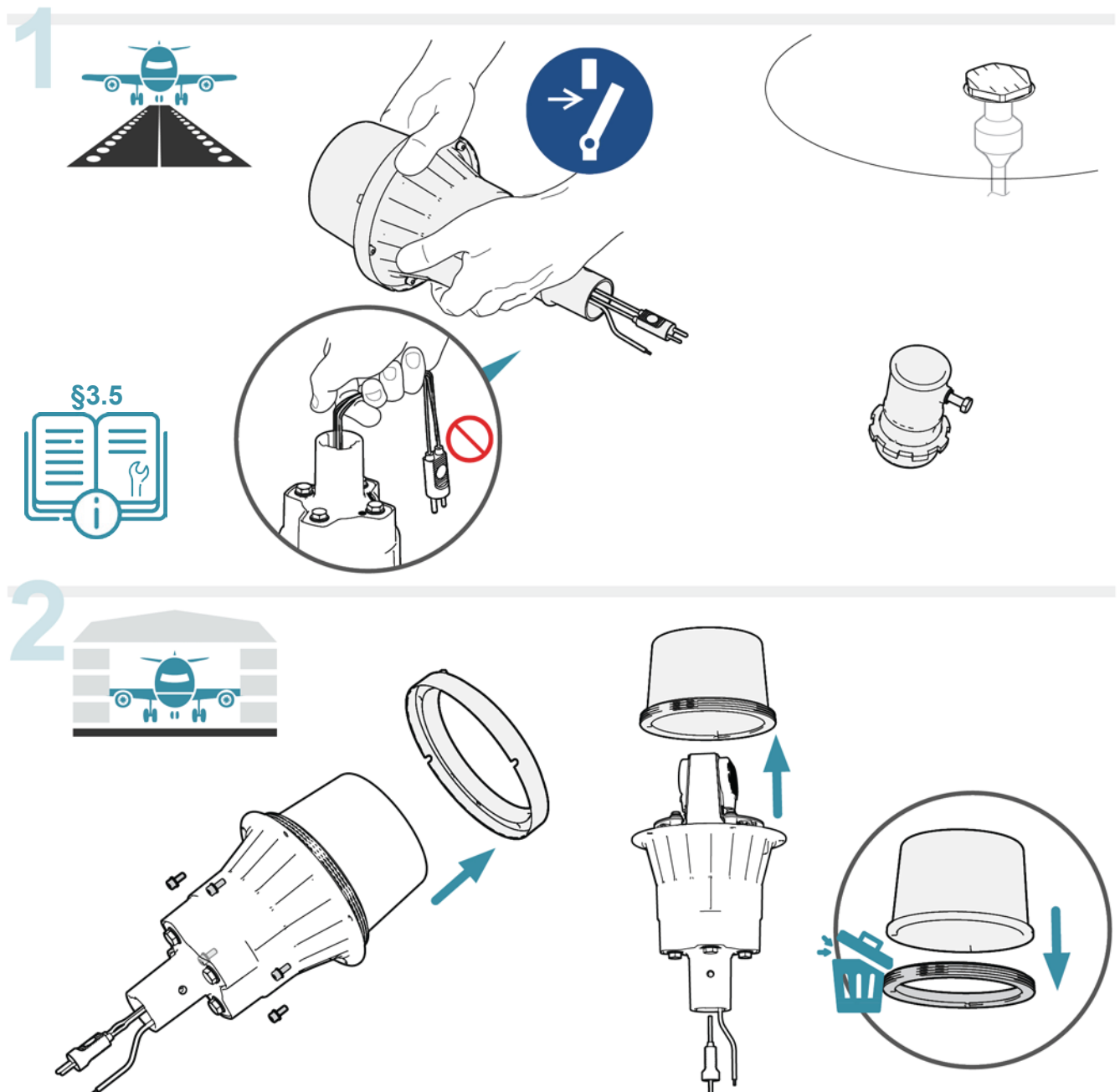
4.7 Replacement of the arctic kit



Before carrying out any intervention on the device, cut off all external power sources and place appropriate work-in-progress warnings on the systems. Wait for the discharging time (at least 5 minutes) and check using appropriate instruments that there are no residual energies before accessing the electrical equipment.

Remove the fixture from the base (see the related paragraph in the chapter "INSTALLATION") and bring it to the workshop to complete maintenance.

Open the dome to access the internal components.



Disconnect the connectors and remove the LED unit.



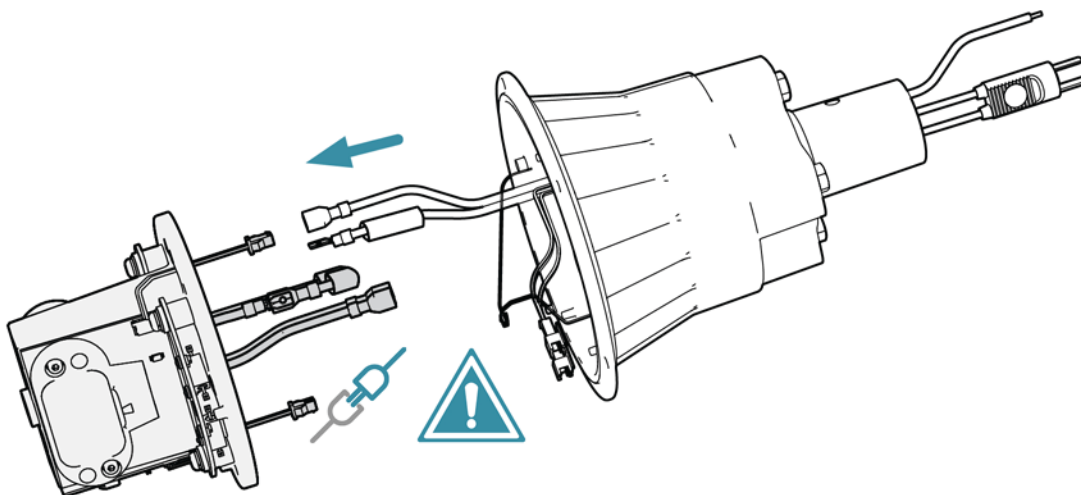
Before disassembling the unit make note of the orientation of the dome and of the LED unit installed in order to restore the exact configuration of the fixture.

Disconnect and remove the heaters of the arctic kit. Remove the thermostat. Clean the installation site of the arctic kit.

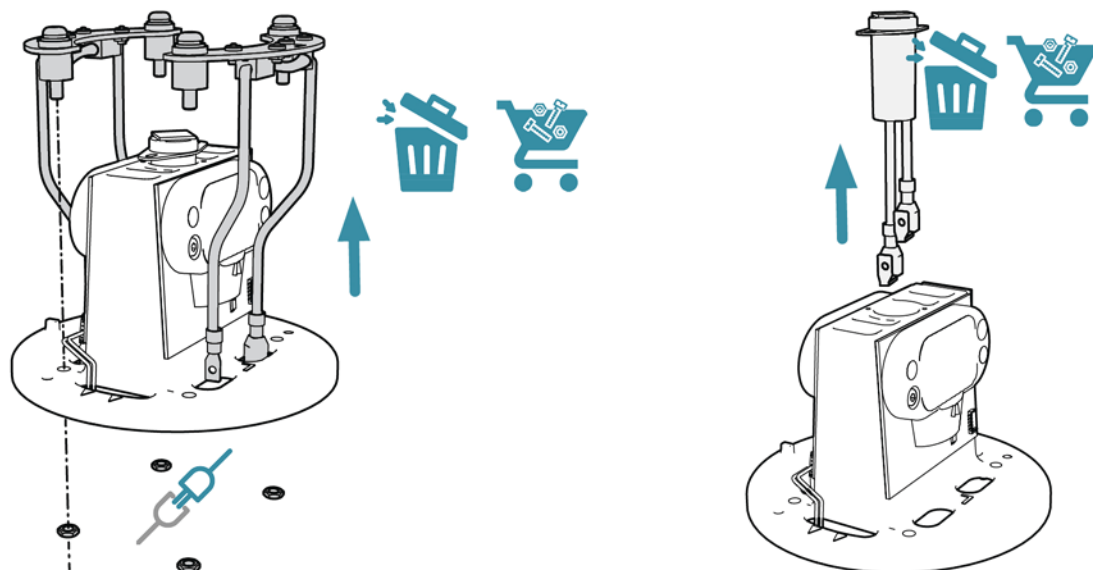


Do not use solvent or diluent products to avoid damaging the components. Dry thoroughly the internal sides of the device.

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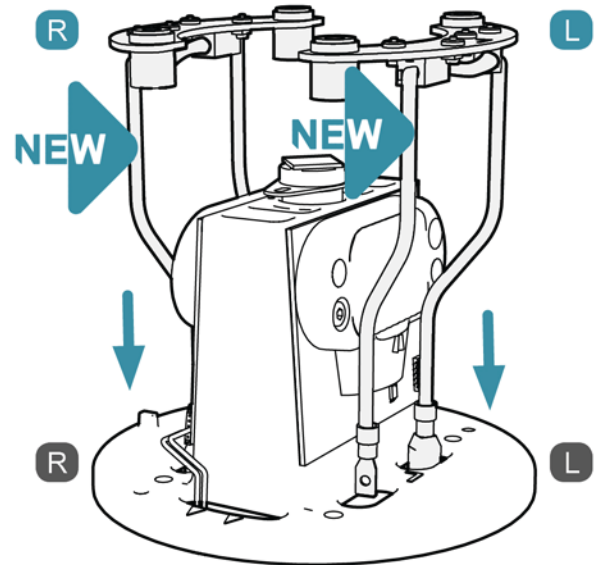
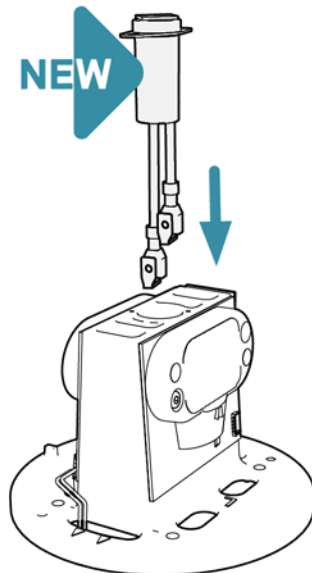
Position the thermostat without damaging the associated cables.

Position the heaters of the arctic kit, respecting the orientation L/R and centring it on the predisposed holes. Insert the screws and the fastening nuts.

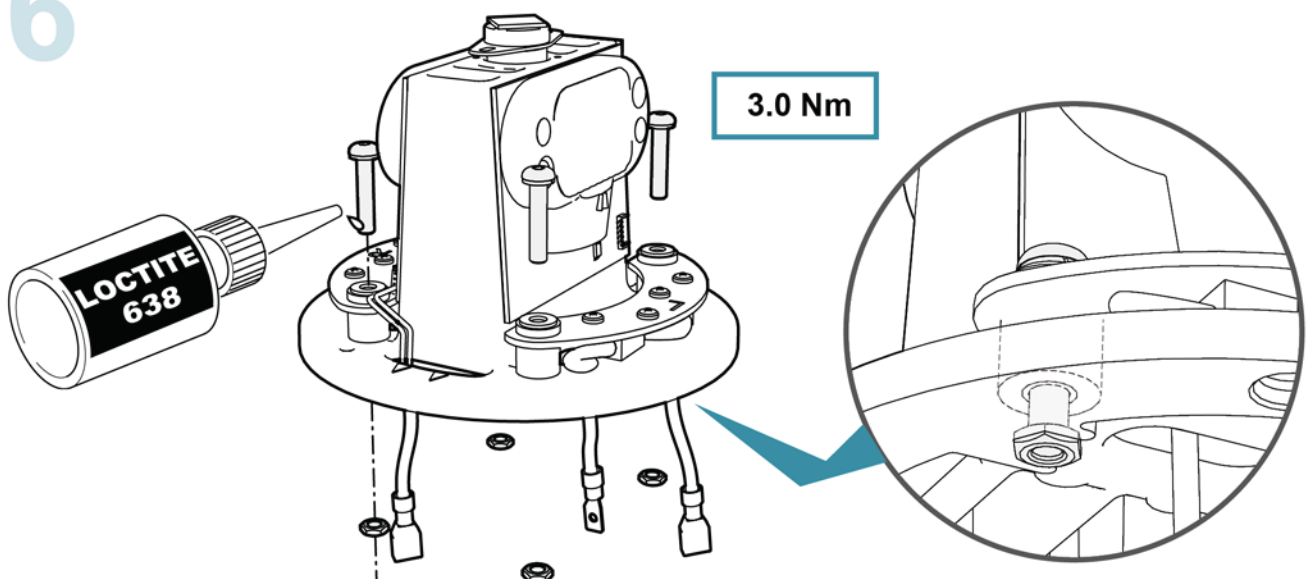


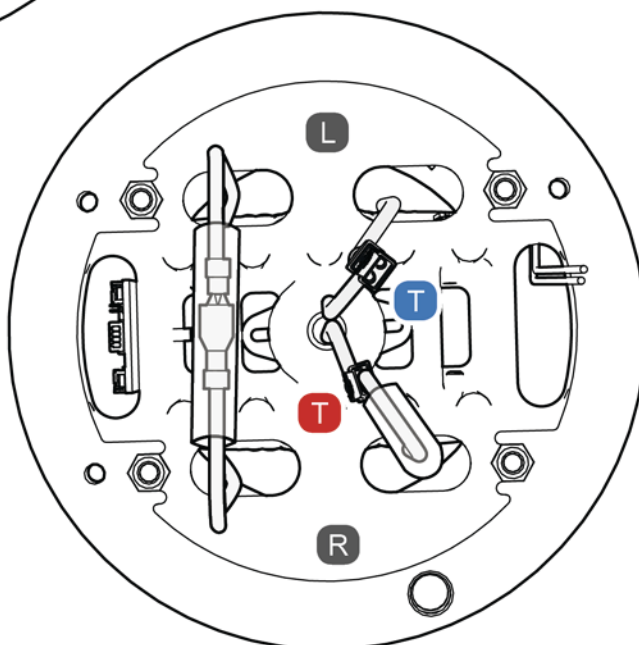
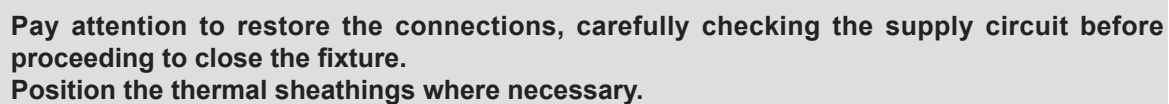
Tighten the screws with the indicated torque values.

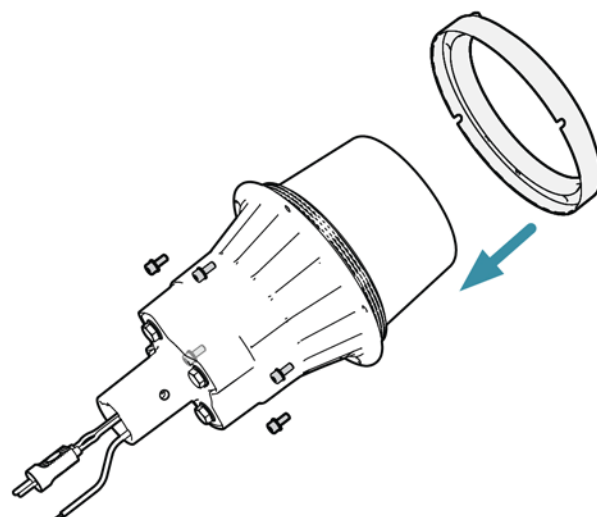
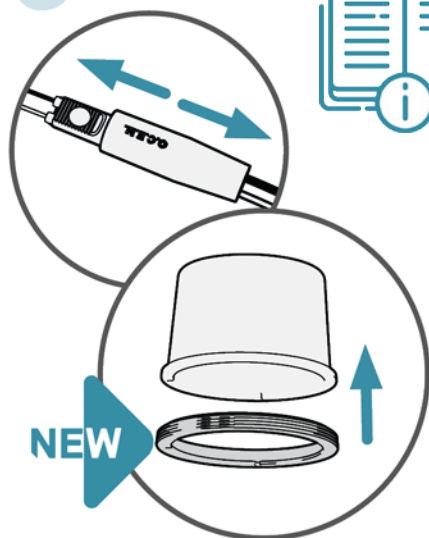
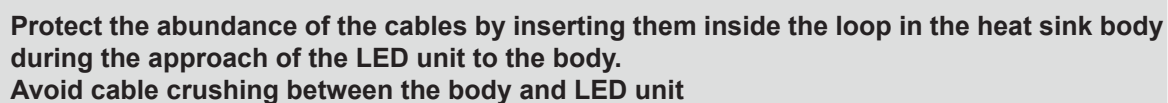
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4.8 Troubleshooting



Carefully read the manual, and in particular safety information, before proceeding with the resolution of common faults.

Problem	Possible cause	Solution
When the fixture is powered, the light flow appears distorted.	The lens could be broken or damaged.	Replace the damaged lens (for more details please see chapter §4.5).
When the fixture is powered, the light flow appears weak.	The primary circuit may have a partial short-circuit.	Check the status of the power cable and, if necessary, restore the connection.
	The isolation transformer could be faulty.	Check the status of the isolation transformer with appropriate instruments and, if necessary, replace the damaged component. For further details, please refer to the use and maintenance manual of the damaged component.
	The glass dome could be dirty or damaged.	Clean the glass dome (for more details please see chapter §4.4).
	If the fixture is not equipped with monitoring circuit, the LED module could be faulty or short-circuited.	Replace the damaged LED module (please see chapter §4.5).
	If the fixture has recently been under maintenance, the electronic board installed could not be correct.	Check that the original configuration of the device matches the one actually installed. when an error occurs replace the electronic board with the correct spare part (for more details please see chapter §4.6).

Problem	Possible cause	Solution
When the fixture is powered, the LEDs do not light up.	If the fixture is not equipped with monitoring circuit, the LED module could be faulty or short-circuited.	Replace the damaged LED module (please see chapter §4.5).
	The installed electronic board could be faulty.	Replace the damaged electronic board (for more details please see chapter §4.6)
	Humidity may be present inside the fixture.	Check the presence of humidity inside the fixture. Clean and dry all internal parts inside the fixture. Check the status of the gaskets. If necessary replace the gaskets and reassemble the fixture (for more details please see chapter §4.3).
	The primary circuit may have a partial short-circuit.	Check the status of the power cable and, if necessary, restore the connection.
	The isolation transformer could be faulty.	Check the status of the isolation transformer with appropriate instruments and, if necessary, replace the damaged component. For further details, please refer to the use and maintenance manual of the damaged component.
	If the fixture is equipped with monitoring circuit and has recently been under maintenance for the LED module replacement, the monitoring device may not have been restored.	Restore the monitoring device (for more details please see chapter §).

Problem	Possible cause	Solution
During periodic inspection is detected the presence of humidity or condensation inside the fixture.	The gaskets could be damaged.	Clean and dry all internal parts inside the fixture. Check the status of the gaskets. If necessary replace the gaskets and reassemble the fixture (for more details please see chapter §4.3).
	The cables could be damaged: the presence of cracks or holes in the cable insulation and the breaking of the rubber of the cable gland could allow humidity to enter the fixture.	Clean and dry all internal parts inside the fixture. Check the status of the power cable and, if necessary, restore the connection.



If after trying the proposed solutions the problem persists, contact OCEM technical support. Do not let running fixtures presenting signs of damage or fault.

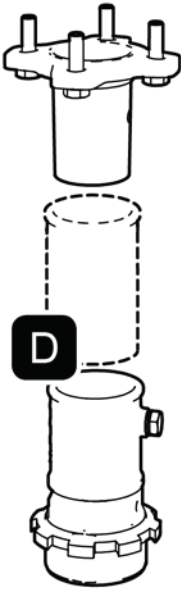
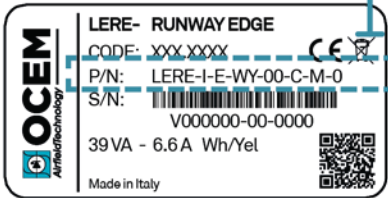
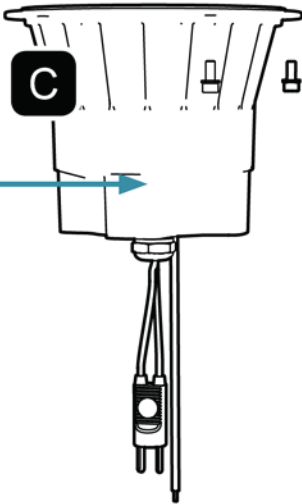
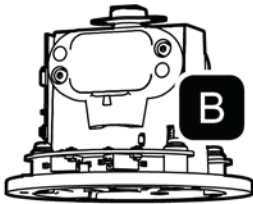
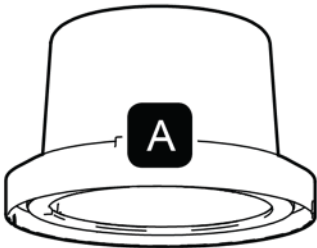
4.9 Spare parts



Always check the version of the fixture installed and the accessories present.

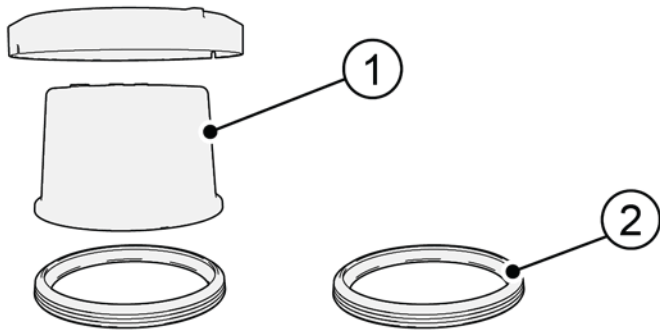
LERE fixture	
A	Dome Unit
B	Fixture Electronics
C	LED unit
D	Fastening System

Accessories	Code Art.
Thermoconductive paste	
Thermoconductive film	



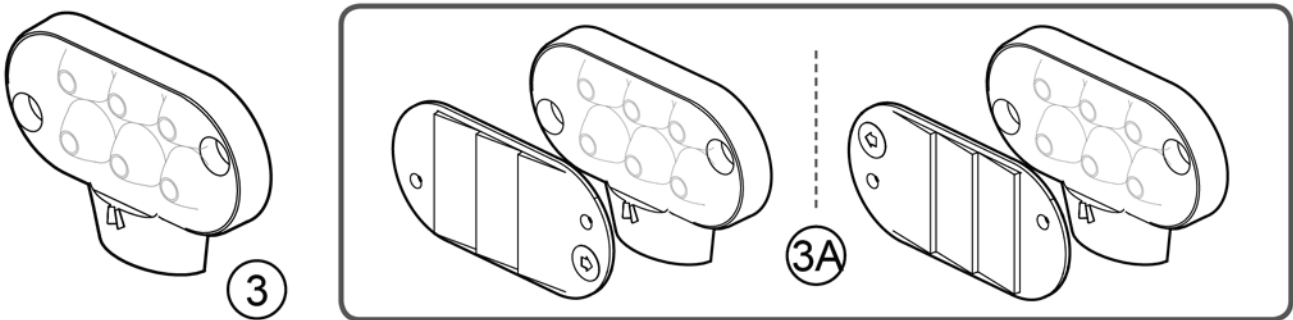
4.9.1 Dome Unit

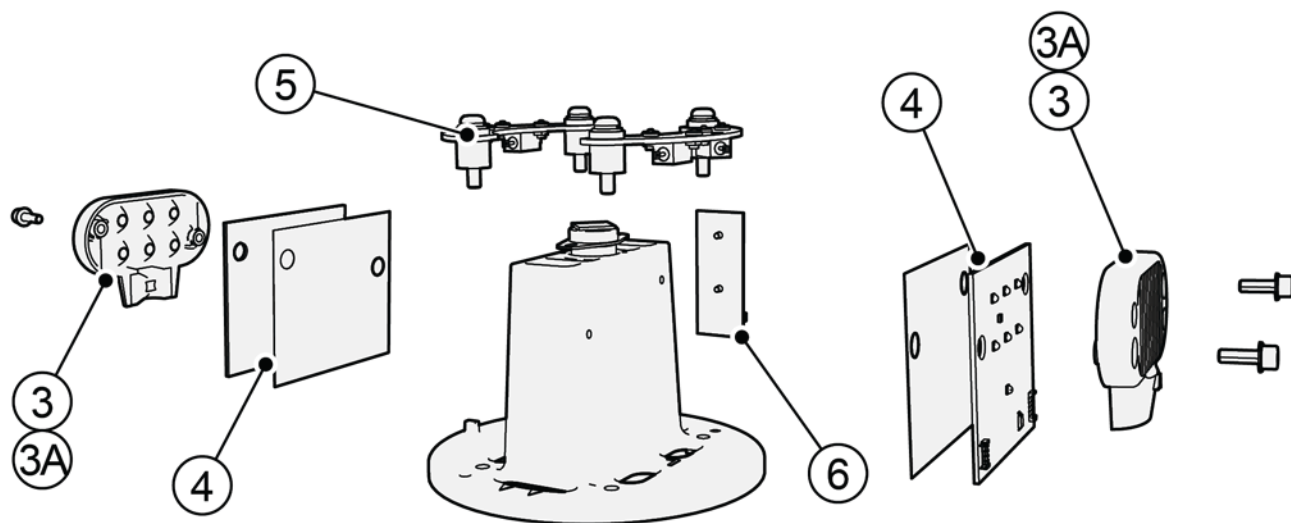
Pos	Description	Fixture Code	Code Art.
1	Fastening ring dome and gaskets KIT	always valid	RISL30001
2	Gasket of the spare part dome	always valid	



4.9.2 Fixture Electronics

Pos	Description	Fixture Code	Code Art.
3	Right side lens for runway edge	F-E- - - - - - - - -C	RIOC30001
		I-E- - - - - - - - -C	
		S-E- - - - - - - - -C	
		F-T-RG- - - - - - - -C	
		F-T-MG- - - - - - - -C	
	Left side lens for runway edge	F-E- - - - - - - - -C	RIOC30002
		I-E- - - - - - - - -C	
		S-E- - - - - - - - -C	
		F-T-GR- - - - - - - -C	
		F-T-GM- - - - - - - -C	
3A	STRAIGHT lens	F-T-RG- - - - - - - -C	RIOC30003
		F-T-GR- - - - - - - -C	
		F-T-RR- - - - - - - -C	
		F-T-RM- - - - - - - -C	
		S-T-RM- - - - - - - -C	
	Connectable lens kit (right/left)	S-T-GR- - - - - - - -C	RIOC30004
		S-T-RG- - - - - - - -C	
		S-T-GM- - - - - - - -C	
		S-T-MG- - - - - - - -C	

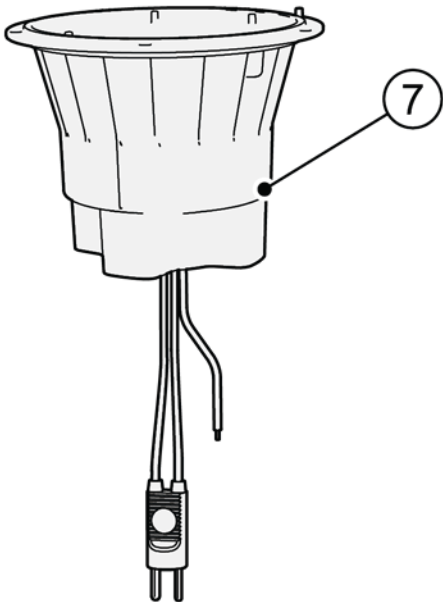




Pos	Description	Fixture Code	Code Art.
4	F398 LED WHITE	F- -W- - - - - - - 0 -C F- -W- - - - - - - 0 -C I- -W- - - - - - - 0 -C I- -W- - - - - - - 0 -C S- -W- - - - - - - 0 -C S- -W- - - - - - - 0 -C	RIOC30005
	F398 LED YELLOW	- - -Y- - - - - - - 0 -C - - -Y- - - - - - - 0 -C	RIOC30006
	F398 LED RED	F-T-R- - - - - - - 0 -C F-T- R- - - - - - - 0 -C S-T-R- - - - - - - 0 -C S-T- R- - - - - - - 0 -C	RIOC30007
	F398 LED RED	F-E-R- - - - - - - -C F-E- R- - - - - - -C I-E-R- - - - - - - -C I-E- R- - - - - - -C S-E-R- - - - - - - -C S-E- R- - - - - - -C	RIOC30008
	F398 LED GREEN	F- -G- - - - - - - -C F- -G- - - - - - - -C	RIOC30009
	F398 LED GREEN	S- -G- - - - - - - -C S- -G- - - - - - - -C	RIOC30010
	F398 LED WHITE version CG	F-E-W- - - - - - - -CG-C F-E- W- - - - - - - -CG-C I-E-W- - - - - - - -CG-C I-E- W- - - - - - - -CG-C	RIOC30011
	F398 LED YELLOW version CG	F-E-Y- - - - - - - -CG-C F-E- Y- - - - - - - -CG-C I-E-Y- - - - - - - -CG-C I-E- Y- - - - - - - -CG-C	RIOC30012
5	ARCTIC KIT (for fixtures produced starting from 05/2019)	F- - - - - - - - A- - -C	RIOC30014
6	Electronic board LED supply version CG	- - - - - - - - -CG-C	RIOC30013

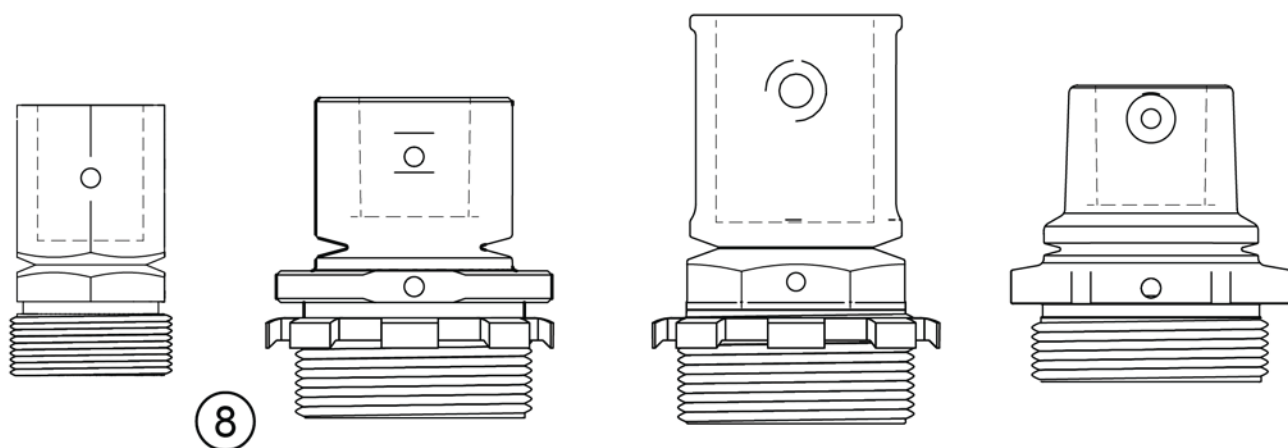
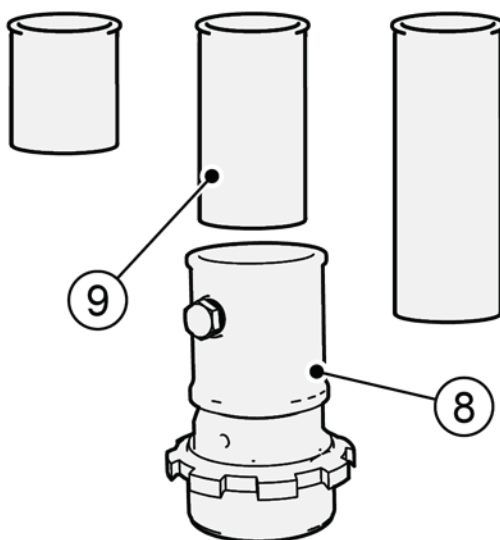
4.9.3 LED unit

Pos	Description	Fixture Code	Code Art.
7	Resinated Body with monitored 1I/2O electronics	- - - - - M- 0 - 0 - C	RISL30013
	Resinated Body with monitored 1I/2O electronics (arctic kit)	- - - - - M- A - 0 - C	RISL30046
	Resinated Body with not monitored 1I/2O electronics	- - - - - 0 - 0 - 0 - C	RISL30014
	Resinated Body with not monitored 1I/2O electronics (arctic kit)	- - - - - 0 - A - 0 - C	RISL30047
	Resinated Body with monitored 1I/1O electronics	- - M - - - - M- 0 - 0 - C - - M - - - - M- 0 - 0 - C	RISL30015
	Resinated Body with monitored 1I/1O electronics (arctic kit)	- - M - - - - M- A - 0 - C - - M - - - - M- A - 0 - C	RISL30048
	Resinated Body with not monitored 1I/1O electronics	- - M - - - - 0 - 0 - 0 - C - - M - - - - 0 - 0 - 0 - C	RISL30016
	Resinated Body with not monitored 1I/1O electronics (arctic kit)	- - M - - - - 0 - A - 0 - C - - M - - - - 0 - A - 0 - C	RISL30049
	Resinated Body with not monitored 1I/2O electronics special version CG	- - - - - 0 - 0 - CG - C	RISL30043
	Resinated Body with not monitored 1I/2O electronics special version CG	- - - - - 0 - A - CG - C	RISL30050
	Resinated Body with monitored 1I/2O electronics special version CG	- - - - - M- A - CG - C	RISL30045
	Resinated Body with monitored 1I/2O electronics version CG (arctic kit)	- - - - - M- 0 - CG - C	RISL30051



4.9.4 Fastening system

Pos	Description	Fixture Code	Code Art.
8	Breakable coupling system 1" 1/2 - 12 UNF	F - - - - A - - - - C	RISL30030
	Breakable coupling system 2" - 11 1/2 NPS	F - - - - B - - - - C	RISL30031
	Breakable coupling system 2" 1/2 - 12 GAS	I - - - - C - - - - C S - - - - C - - - - C	RISL30032
	Breakable coupling system 2" 1/2 - 12 GAS	I - - - - D - - - - C S - - - - D - - - - C	RISL50005
9	Pole kit 1" - length 14" [355mm]	F - - - 14 - - M - - - C	RISL30033
	Pole kit 1" - length 20" [508mm]	F - - - 20 - - M - - - C	RISL30034
	Pole kit 1" - length 24" [609mm]	F - - - 24 - - M - - - C	RISL30035
	Pole kit 1" - length 30" [762mm]	F - - - 30 - - M - - - C	RISL30036



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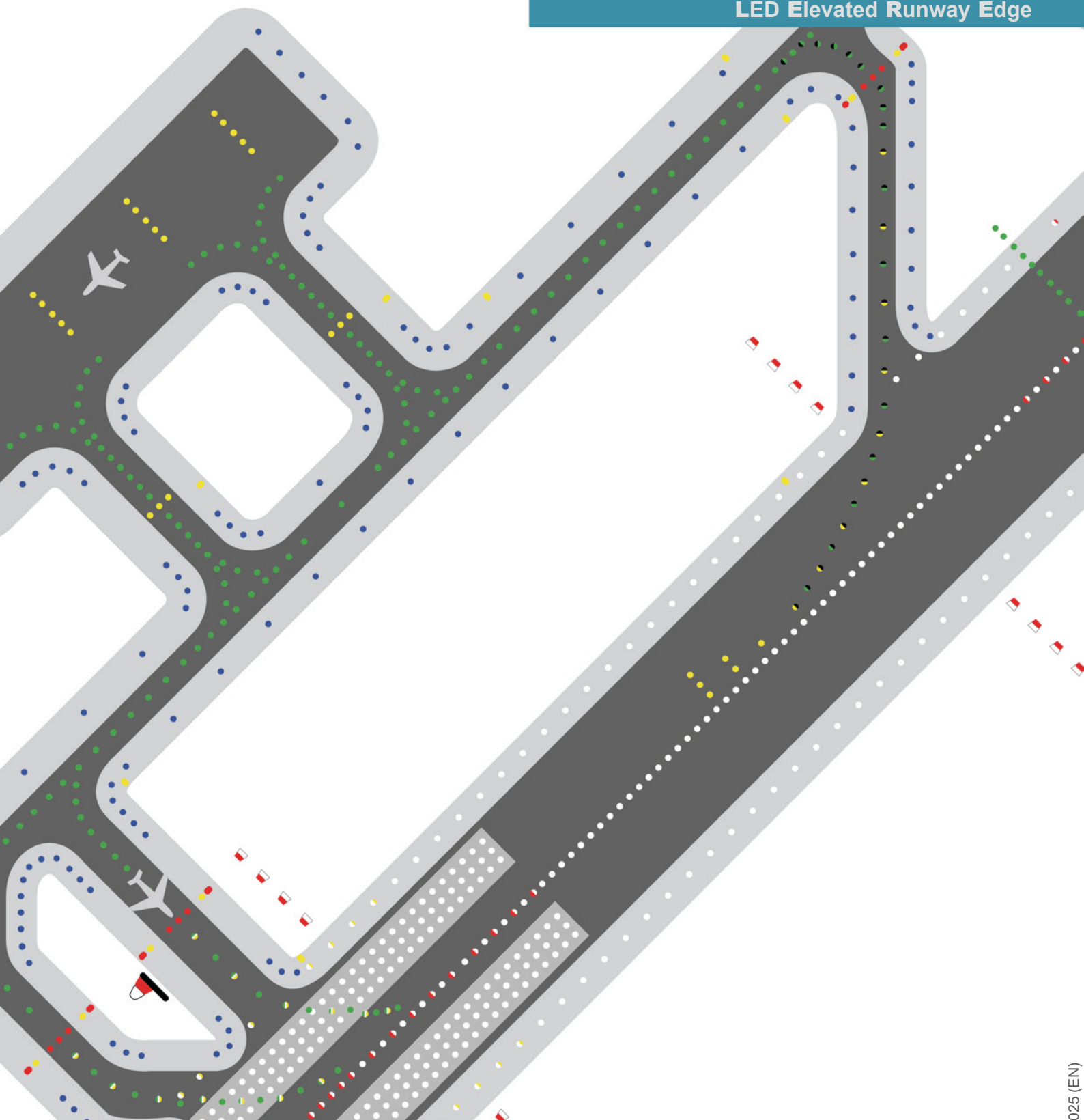


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LED Elevated Runway Edge



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