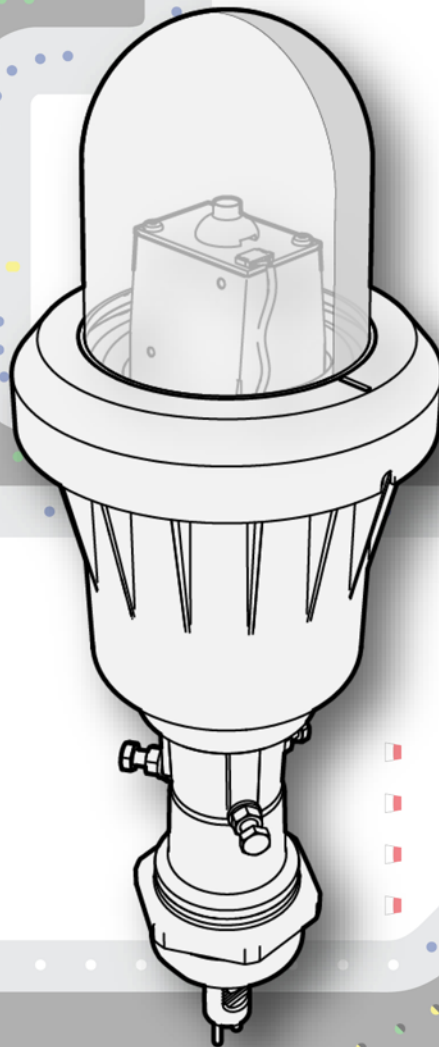


Use and Maintenance Manual

Led Elevated Medium Intensity Runway Light

RUNWAY EDGE
RUNWAY THRESHOLD
RUNWAY END
SHIFTED THRESHOLD
STOPWAY
LANDING ZONE
APPROACH
FILLET'S EDGE (CONNECTOR)



UT-MT-0925_3.1_01-12-2022 (EN)



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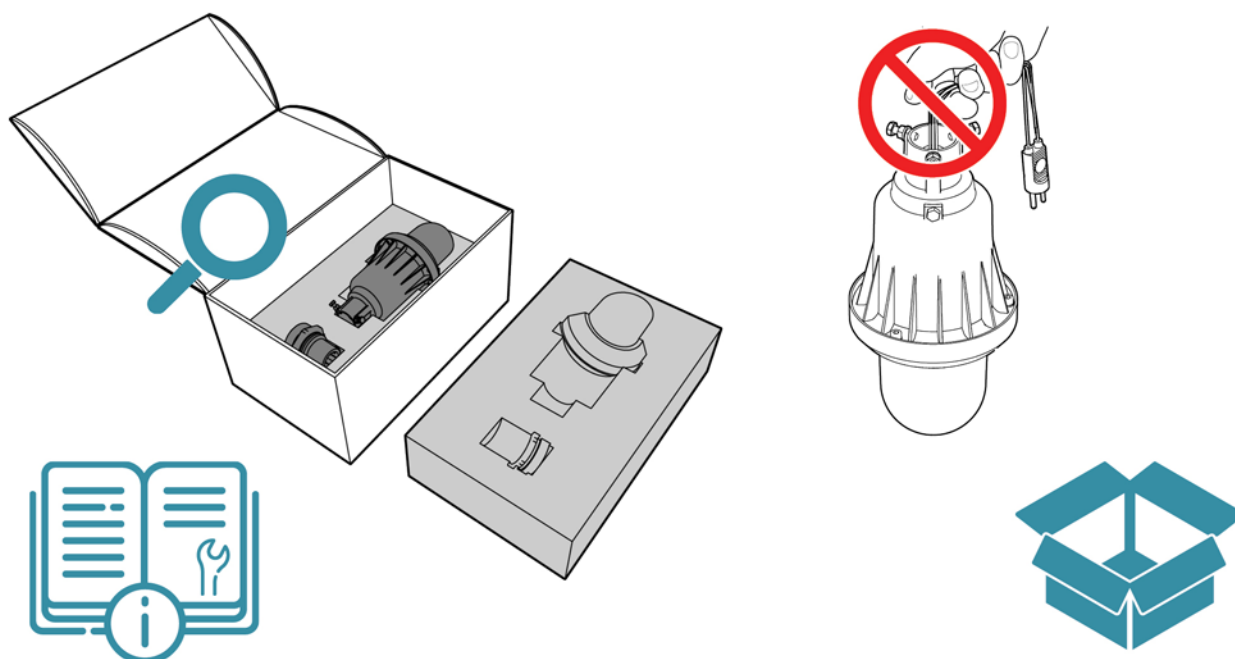
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1 GENERAL INFORMATION

1.1 Package content



The LEMIRL of OCEM Airfield Technology is an elevated LED fixture, medium and low intensity type, omnidirectional, bidirectional or unidirectional, with adjustable height and with steady light designed for the following use:

- FAA: runway edge, threshold/runway end, displaced threshold and IFR non-precision instrument runways;
- AP-170: approach area, runway edge, threshold and runway end, wing bars, landing zone, fillets lights (rapid exit), stopway;
- CASA MOS: runway edge (medium and low intensity), threshold (medium and low intensity), threshold/runway end (medium and low intensity), displaced threshold (low intensity);
- TP-312: runway edge, threshold.

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 LEMIRL 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 LEMIRL 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.

This warranty lasts for at least 12 months after the date on which the received Goods are put into service, but will not in any case exceed 24 months from the shipping date.

FAA

For FAA certified products this warranty lasts for at least 4 years after the date on which the received Goods are put into service, but will not in any case exceed 5 years from the shipping date.

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.

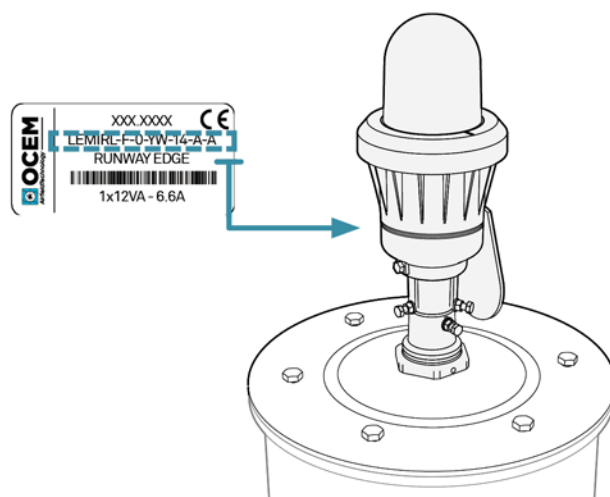
1.9 Disposal



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 LEMIRL 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 bar 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 LEMIRL are designed for the purpose of providing visual guidance to aircrafts in the following applications:

- FAA: runway edge, threshold/runway end, displaced threshold and IFR non-precision instrument runways;
- AP-170: approach area, runway edge, threshold and runway end, wing bars, landing zone, fillets lights (rapid exit), stopway;
- CASA MOS: runway edge (medium and low intensity), threshold (medium and low intensity), threshold/runway end (medium and low intensity), displaced threshold (low intensity);
- TP-312: runway edge, threshold.

The LEMIRL is compliant with the rules:

FAA (AC150/5345-46, EB67)

CASA (Manual of Standards Part 139)

AP-170 (Chapter 3.1)

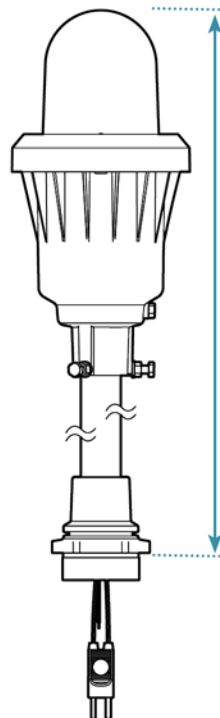
TP-312 (Aerodrome Standards and Recommended Practices)



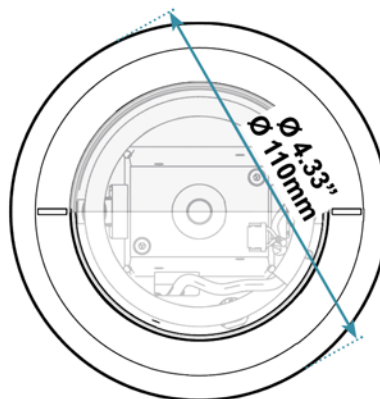
The fixtures LEMIRL described in this manual have been designed to be installed on bases L-867 conforming to FAA AC 150/5345-42 mounting base plate included for elevated fixtures conforming to FAA AC 150/5345-46.



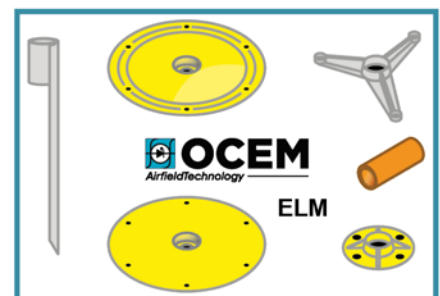
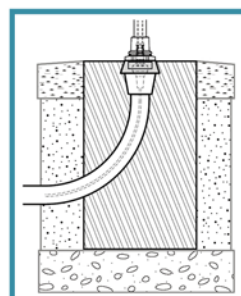
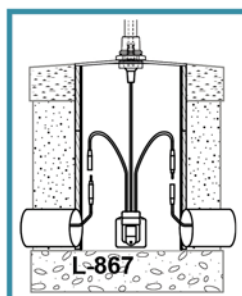
The supply circuits for the fixtures LEMIRL can be positioned within the bases established (FAA L-867) or within plastic or metallic pipes permanently laid in the ground, equipped with appropriate coupling devices.



FAA Class A Style 6
AC 150/5345-26



INGRESS
PROTECTION



2.2 Article number

example: **LEMIRL -F-E-RG-14-A-0**

Reference standards:

F = FAA/ICAO/TP312*
R = AP-170
C = CASA MOS
T = FUTURE USE
S = Special version

Code of conduct (according to the regulations):

0 = L-861 (L) M = Medium intensity
F E = L-861E (L) C D = Displaced threshold
S = L-861SE (L) L = Low intensity

A = Approach S N = Unregulated
R R = Runway edge
T = Threshold/Runway end

LED colour [sideA-sideB]:

W = White
Y = Yellow
R = Red*
G = Green
M = Obscured side

Height H [inches]:

14 = 14" [35,5 cm]
20 = 20" [50,8 cm]
24 = 24" [60,9 cm]
30 = 30" [76,2 cm]

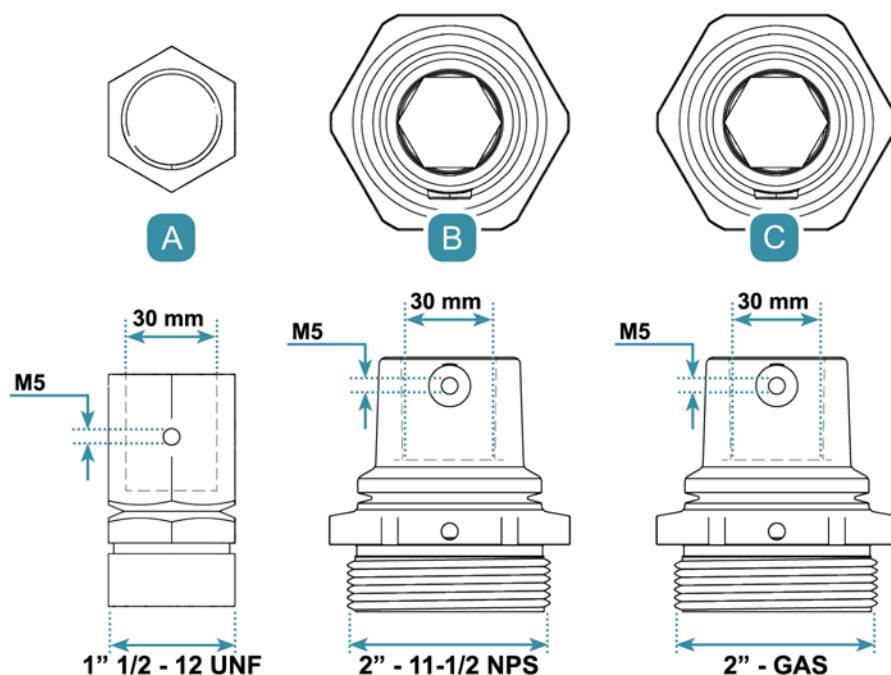
Breakable coupling element:

A = 1" 1/2 - 12 UNF
B = 2" - 11 1/2 NPS
C = 2" GAS - Not valid for FAA

Arctic Kit:

0 = Without Arctic Kit
A = With Arctic Kit

* runway end version not compliant with TP-312 requirement



2.3 Reference standards and colour composition

FAA (F)	AP-170 (R)	CASA MOS (C)	FUTURE USE (T)	(S)
L861 ○ (0)	Approach ○ (A) Runway edge ○ (R)	Medium intensity ○ (M) Shifted threshold ● (D) Low Intensity ○ (L)	Runway edge ○ (R)	● (N)
L861 ● (0) L861E ● (E) L861SE ● (S)	Runway edge ● (R) Threshold/Runway end ● (T)	Medium intensity ● (M) Low Intensity ● (L)	Runway edge ● (R) Threshold/Runway end ● (T)	○ (N)
L861E ● (E) L861SE ● (S)	Runway edge ● (R) Threshold/Runway end ● (T)	Shifted threshold ● (D)	Threshold ● (T) Runway end ● (T)	● (N)

2.4 Wiring

The LEMIRL 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:

Power factor** >0,98		Primary Conductor isolation transformer		Fixture	
FAA L-861	Without Arctic Kit	21.9W	21.9VA	12.4W	12.5VA
	With Arctic Kit	42.2W	42.2VA	33.2W	33.3VA
FAA L-861 E	Without Arctic Kit	18.5W	18.6VA	9.0W	9.1VA
	With Arctic Kit	39.0W	39.1VA	29.5W	29.6VA
FAA L-861 SE	Without Arctic Kit	24.8W	24.9VA	14.9W	15.0VA
	With Arctic Kit	45.6W	45.7VA	34.9W	34.9VA
AP-170	Without Arctic Kit	31.1W	32.0VA	15.9W	16.2VA
	With Arctic Kit	53.1W	53.8VA	38.1W	38.4VA
CASA MOS	Without Arctic Kit	32.1W	33.2VA	17.1W	17.3VA
	With Arctic Kit	54.6W	54.9VA	39.2W	39.4VA

*| Measured at 6,6 A with toroidal isolation transformer 30 / 45W. The values reported refer to the maximum power absorbed between configurations and available colours (worst case). For further details please refer to the product manual.

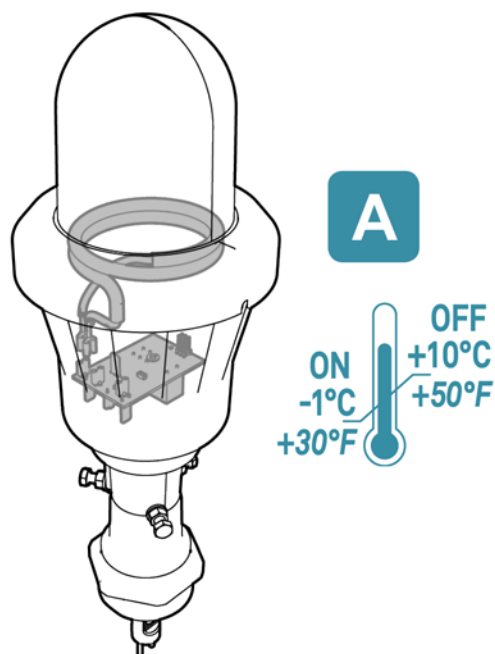
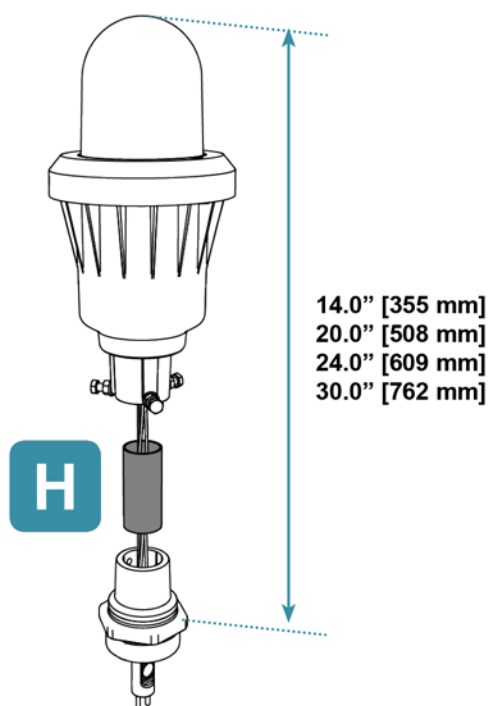
**| Measured at 6,6 A. The value reported refers to the minimum value between the configurations and the available options (worst case).

2.5 Mounting system

H 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.

2.6 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 $+10^{\circ}\text{C}$.



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.

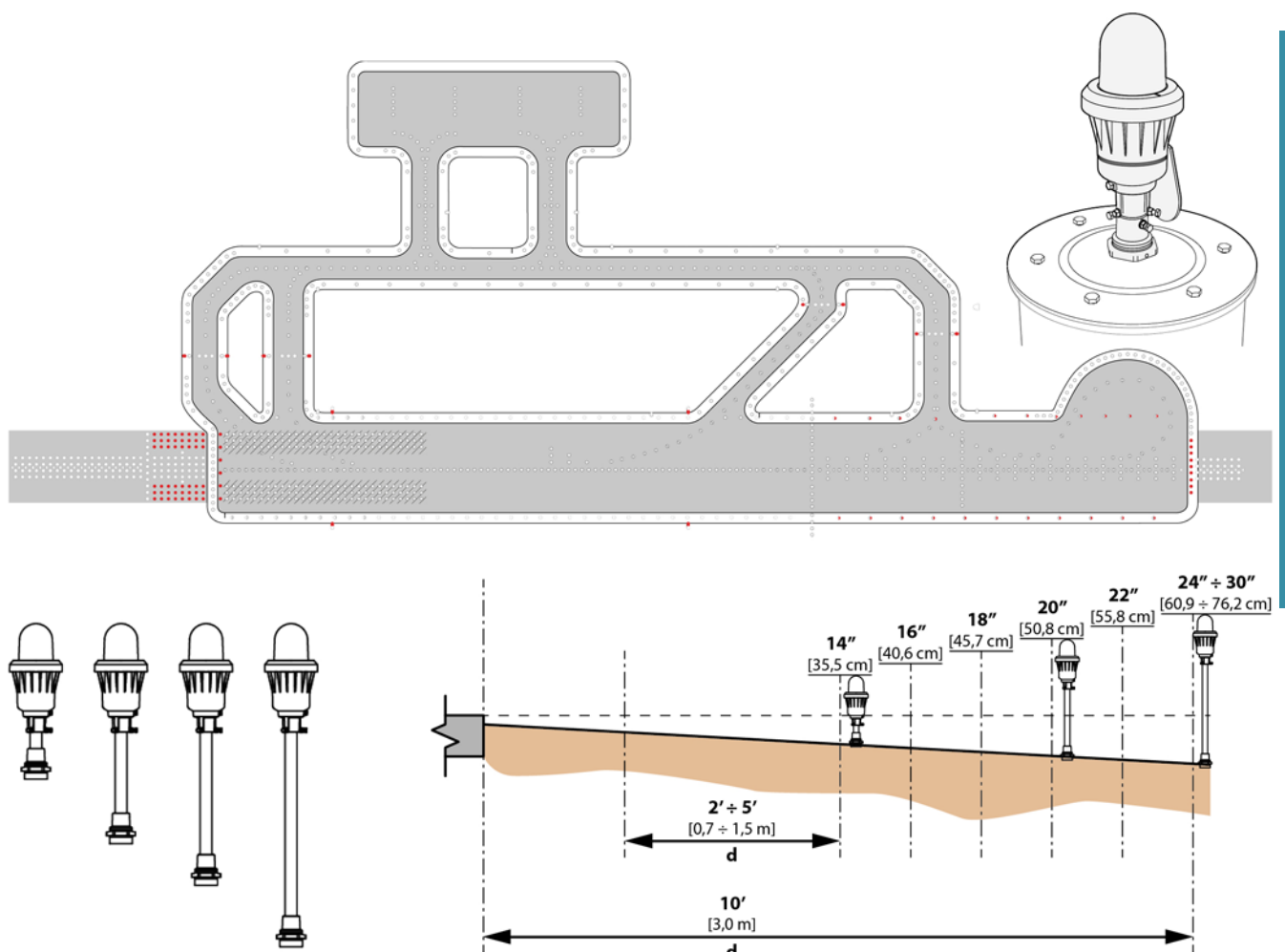
The light sources must be aligned to the runway edge and typically it is installed at a distance d included within $2 \div 10$ ft [$0,6 \div 3,0$ m].

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;
- AP-170 (volume II) Interstate Aviation Committee;
- CASA MOS Civil Aviation Safety Authority Manual of Standards (Part 139);
- TP-312 (Aerodrome Standards and Recommended Practices).



3.2 Installation of the Light fixture



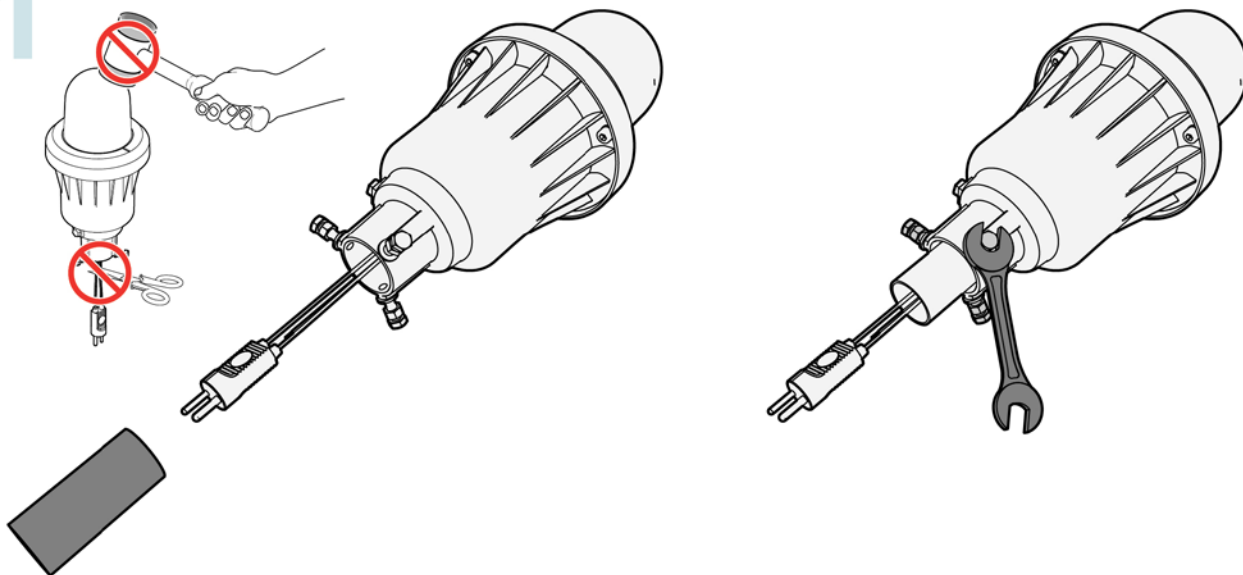
Store the device in its original packaging until the time of installation.
Proceed assembling the fixture and check the supply features before installing the fixture.
Pay particular attention to the proper positioning of the fixture on the base.

Use the fixture only in combination with compatible supports. At the end of installation check the proper alignment of the fixture. In case of incorrect positioning optical misalignments of luminous bars may occur.

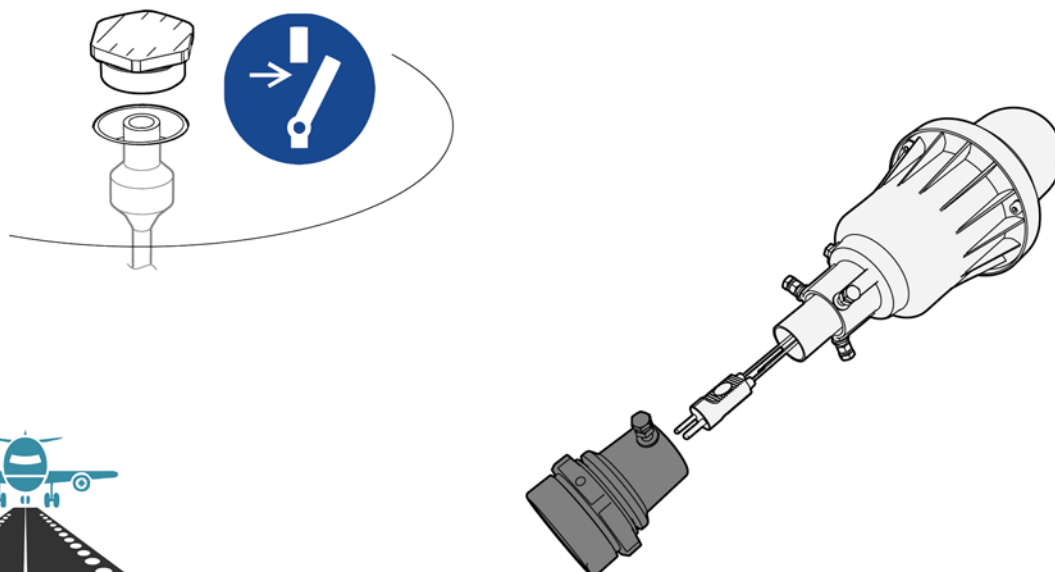


Before carrying out any intervention on the device, cut off all external power sources and place appropriate work-in-progress warnings on the systems.
Wait for the discharging time (at least 5 min) and check using appropriate instruments that there are no residual energies before accessing the electrical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

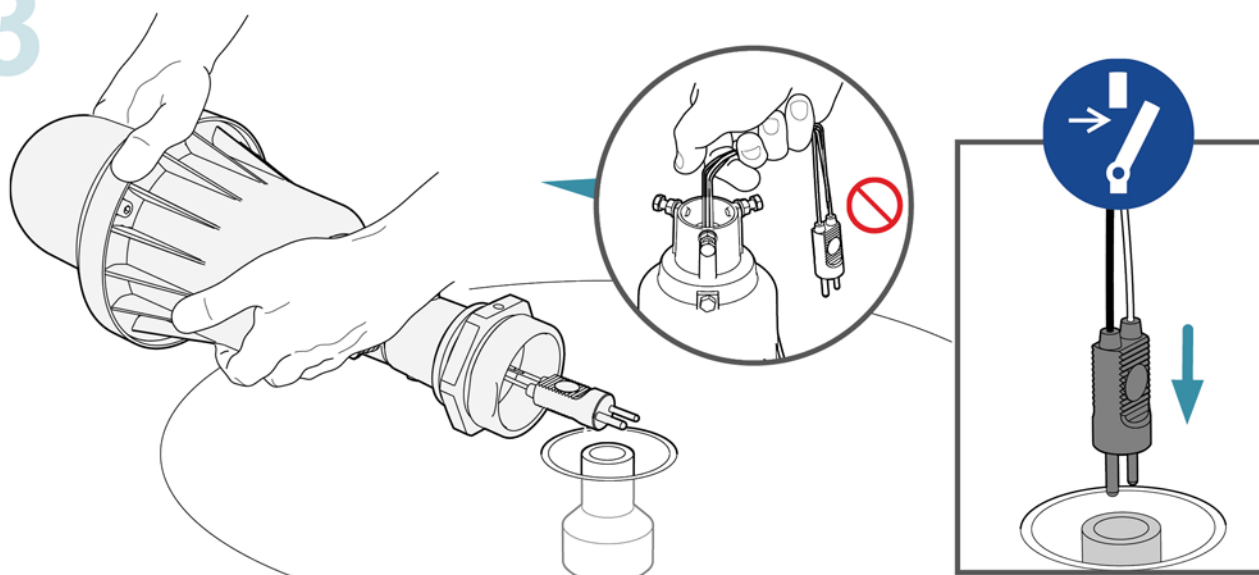
1



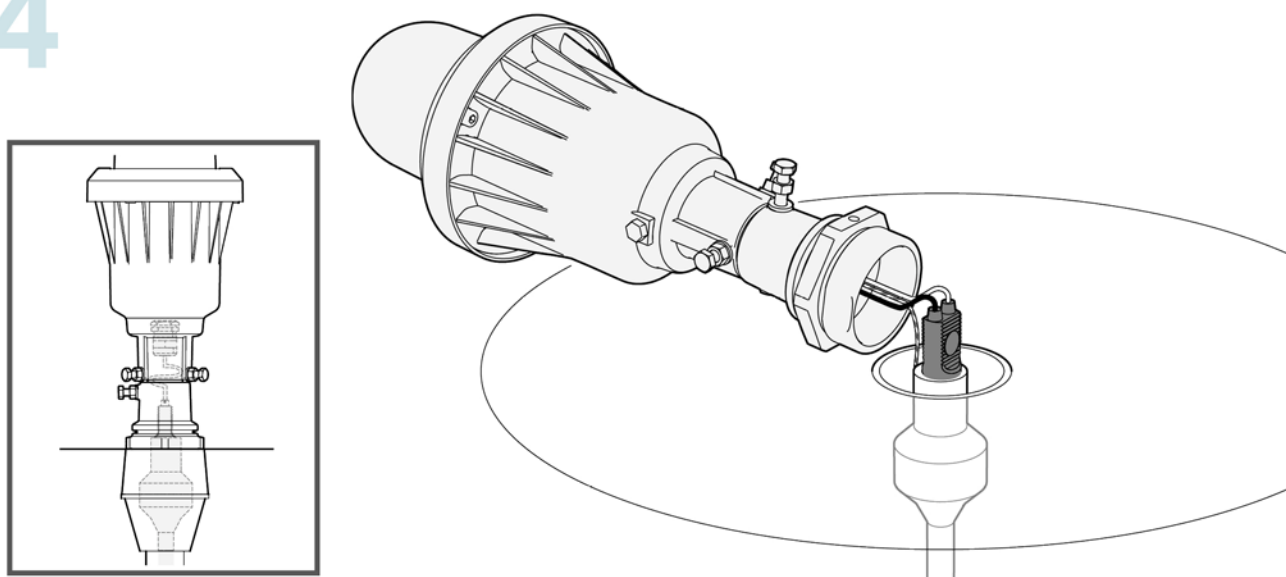
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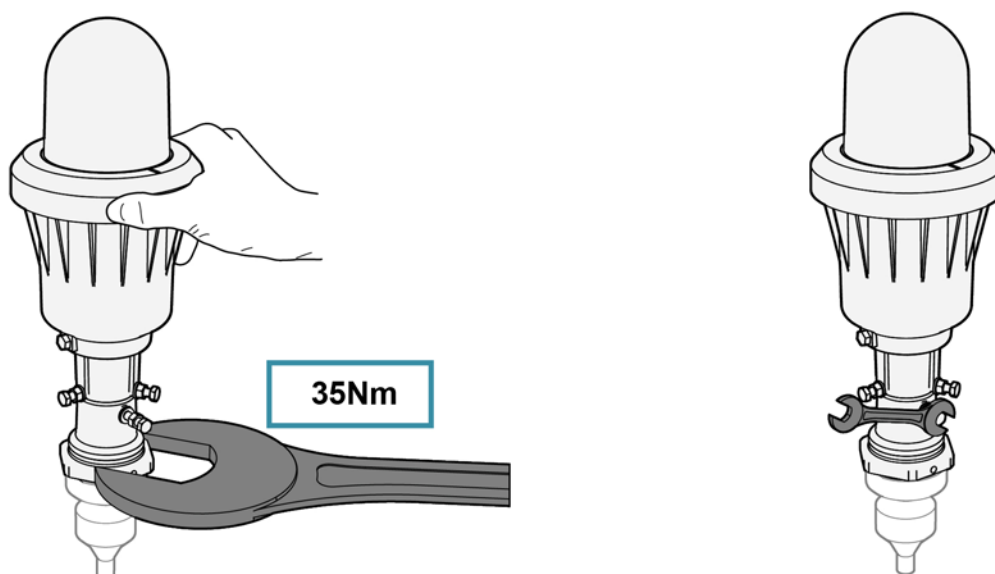
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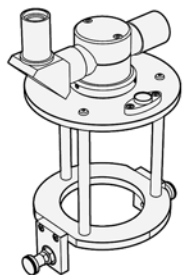
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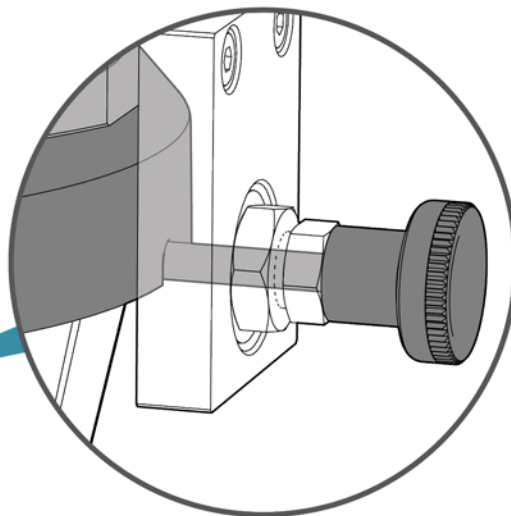
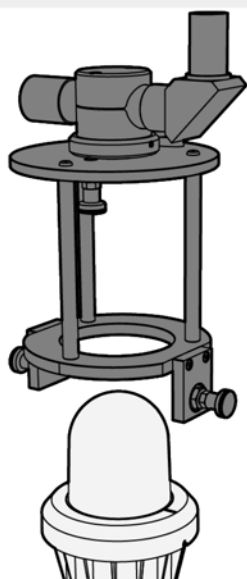
5



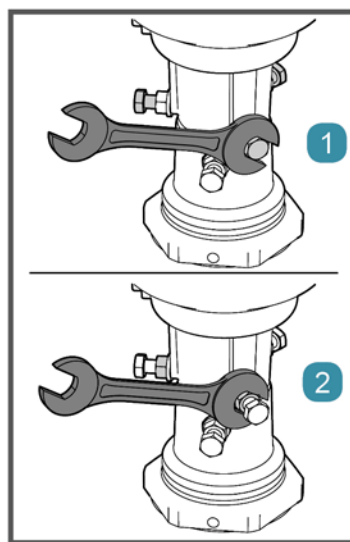
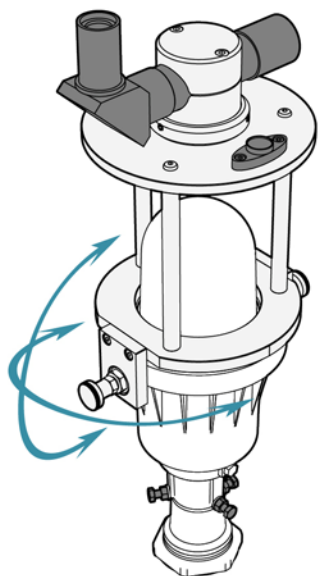
6



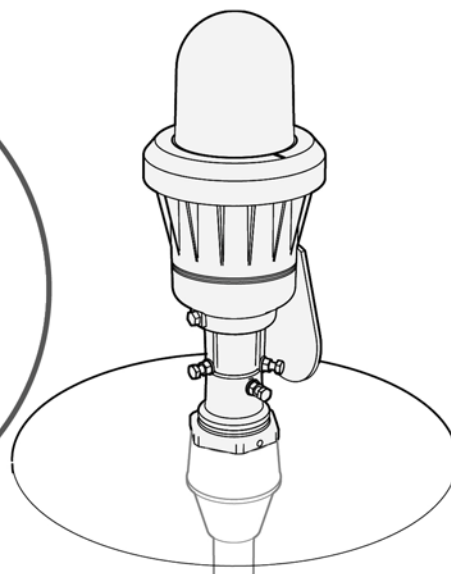
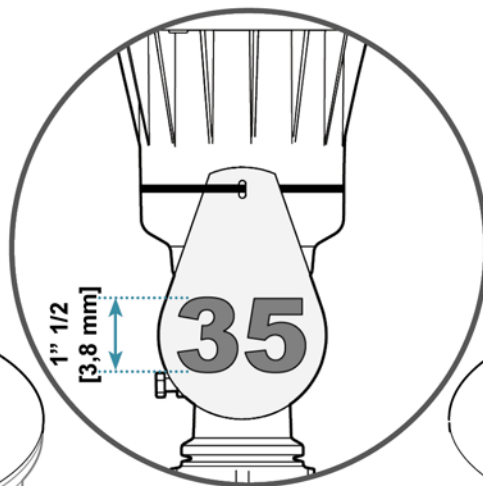
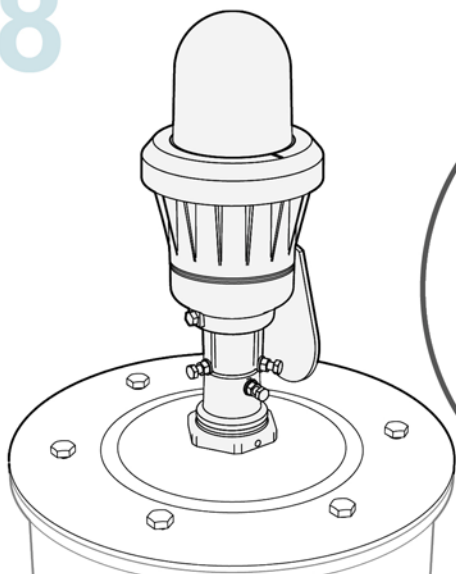
P/N PAALS0001



7



8



3.3 Removal of the Light signal

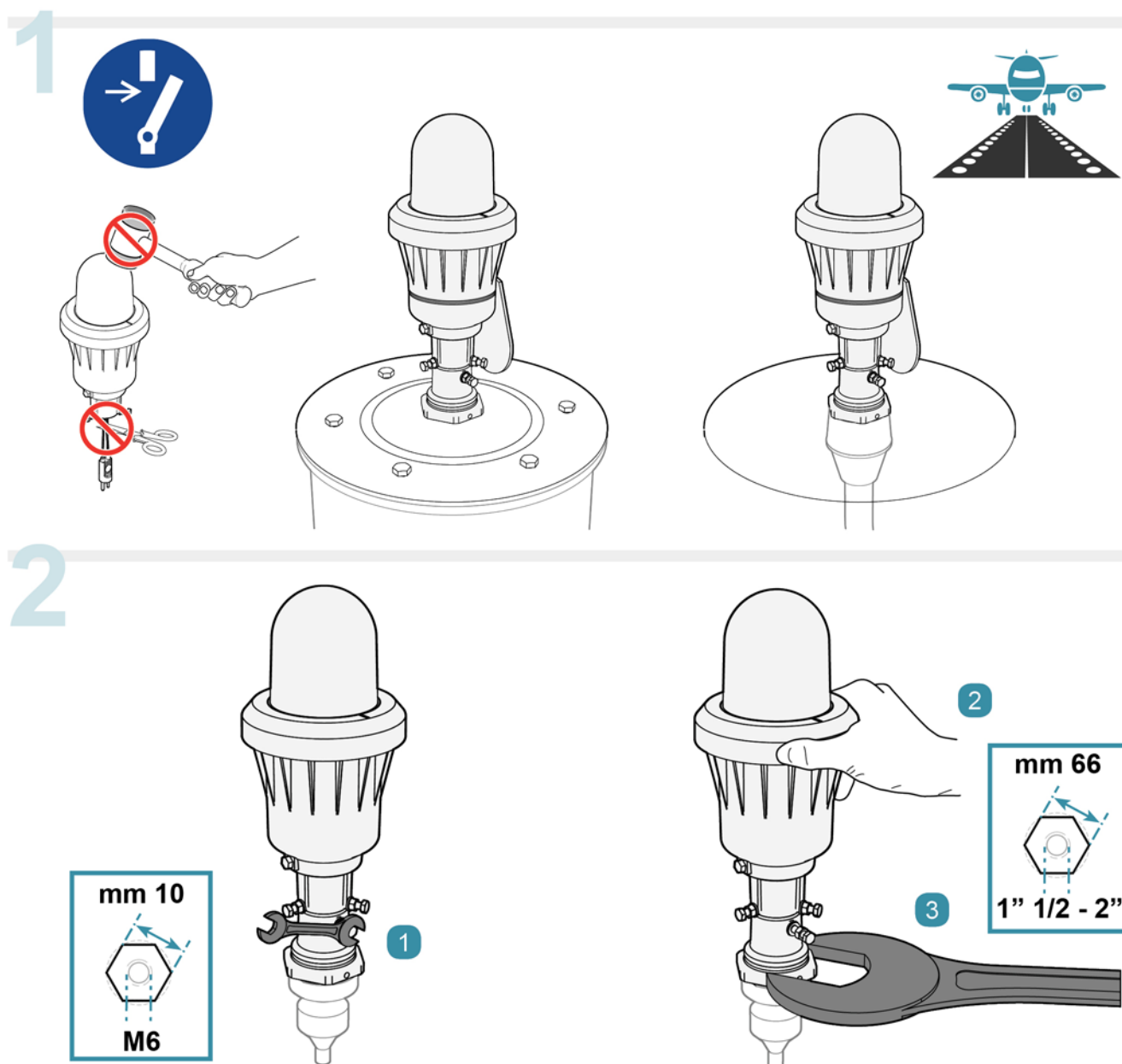


Ensure that the energy sources are cut before proceeding.

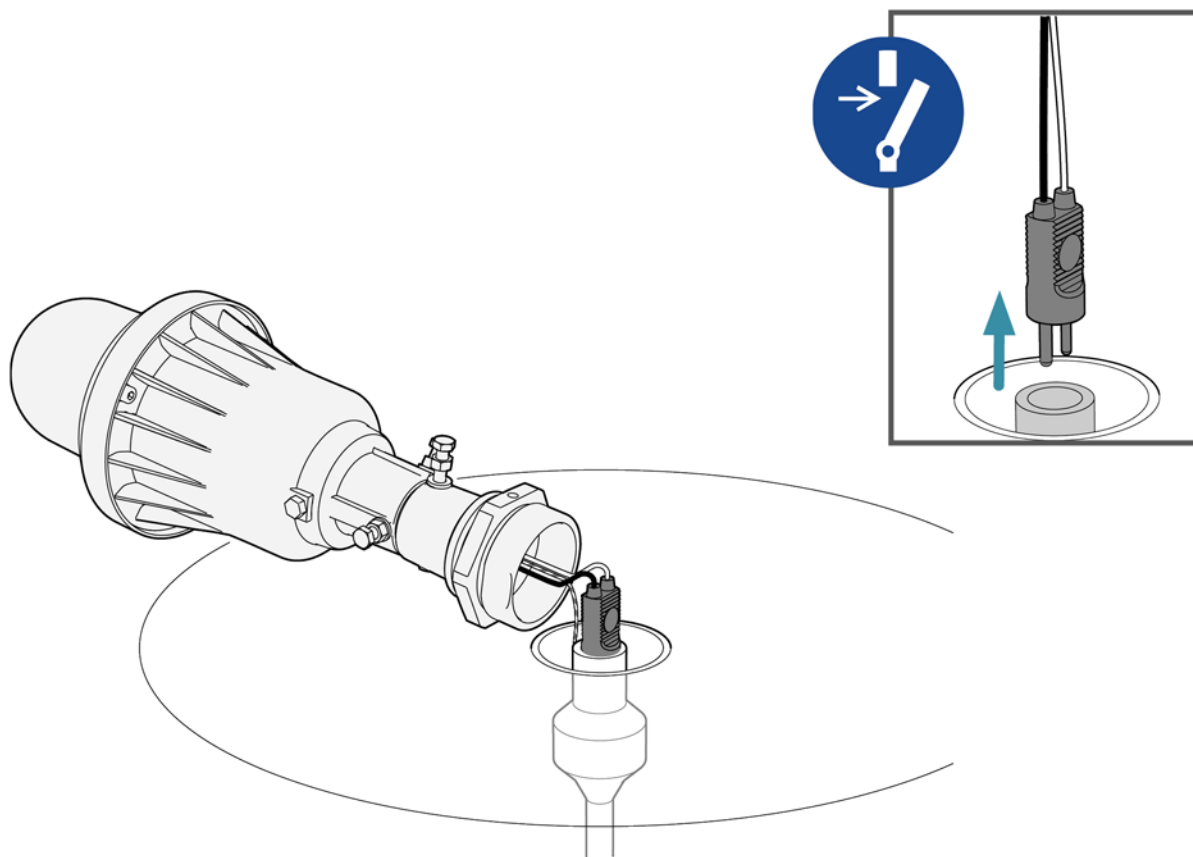
Do not try to remove the fixture from the base by using different tools of the extraction equipments indicated by OCEM Airfield Technology.



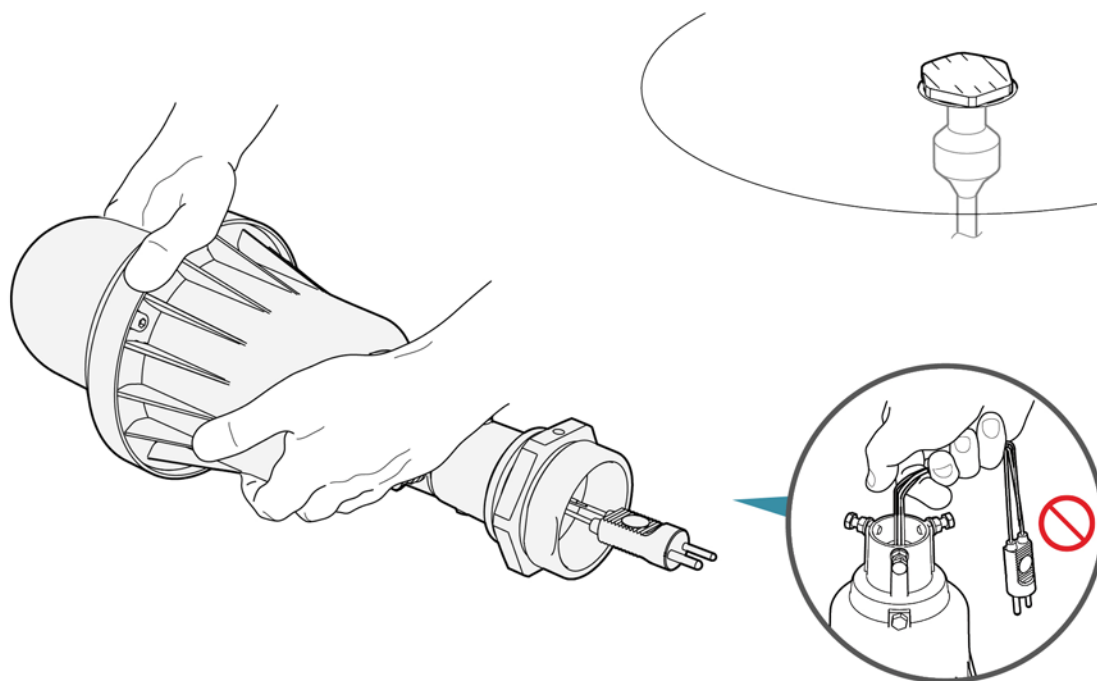
Before carrying out any intervention on the device, cut off all external power sources and place appropriate work-in-progress warnings on the systems. Wait for the discharging time (at least 5 min) and check using appropriate instruments that there are no residual energies before accessing the electrical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



3



4



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 document FAA AC 150 5340-30, LEMIRL must be subjected to regular maintenance.

In order to assure the proper functioning of the fixtures 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.

Frequency	Description
every day	Check of the normal operation of the fixture.
weekly	Replacement of fixtures presenting breakdowns or malfunctions.
monthly	External cleaning of the protective glass dome.
every year	Check the stability of the civil works.
unscheduled	Check for the presence of water inside the installation bases (to be carried out during intervention requiring the removal of the fixture).
	Check of the electrical connections and of the isolation degree of the system (to be carried out during intervention requiring the removal of the fixture).
	Check of the mounting seals (to be carried out during intervention requiring the fixture opening).
	Check of the integrity of the electric cables (to be carried out during intervention requiring the removal of the fixture from the base).
	Removal of snow (when necessary).

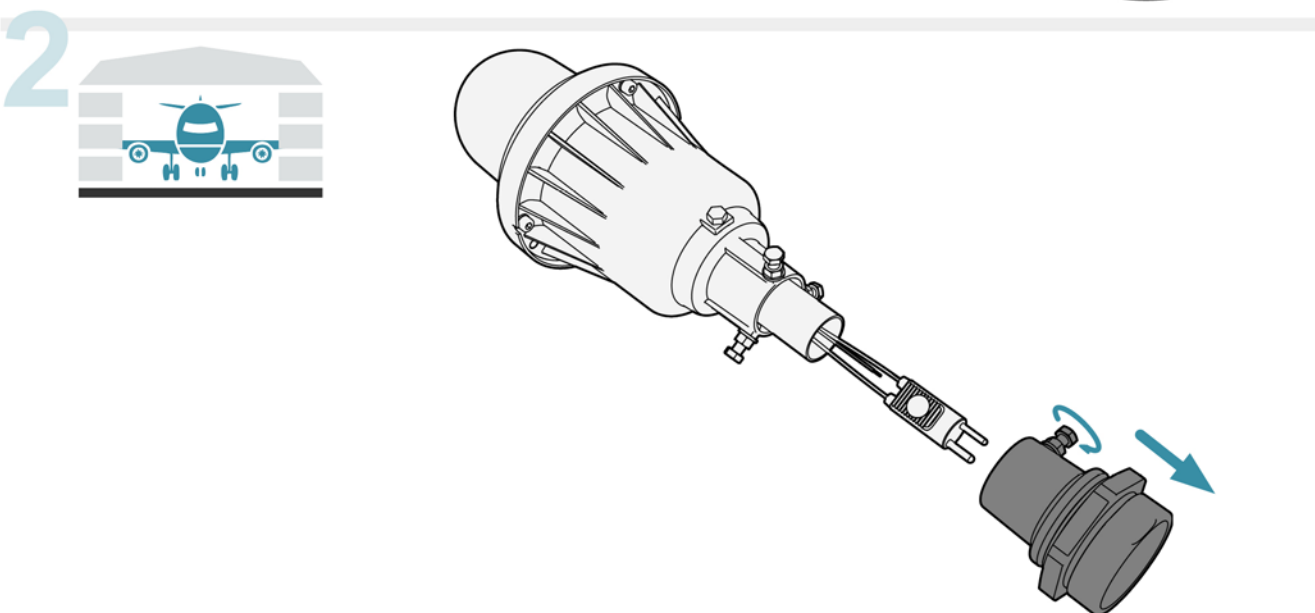
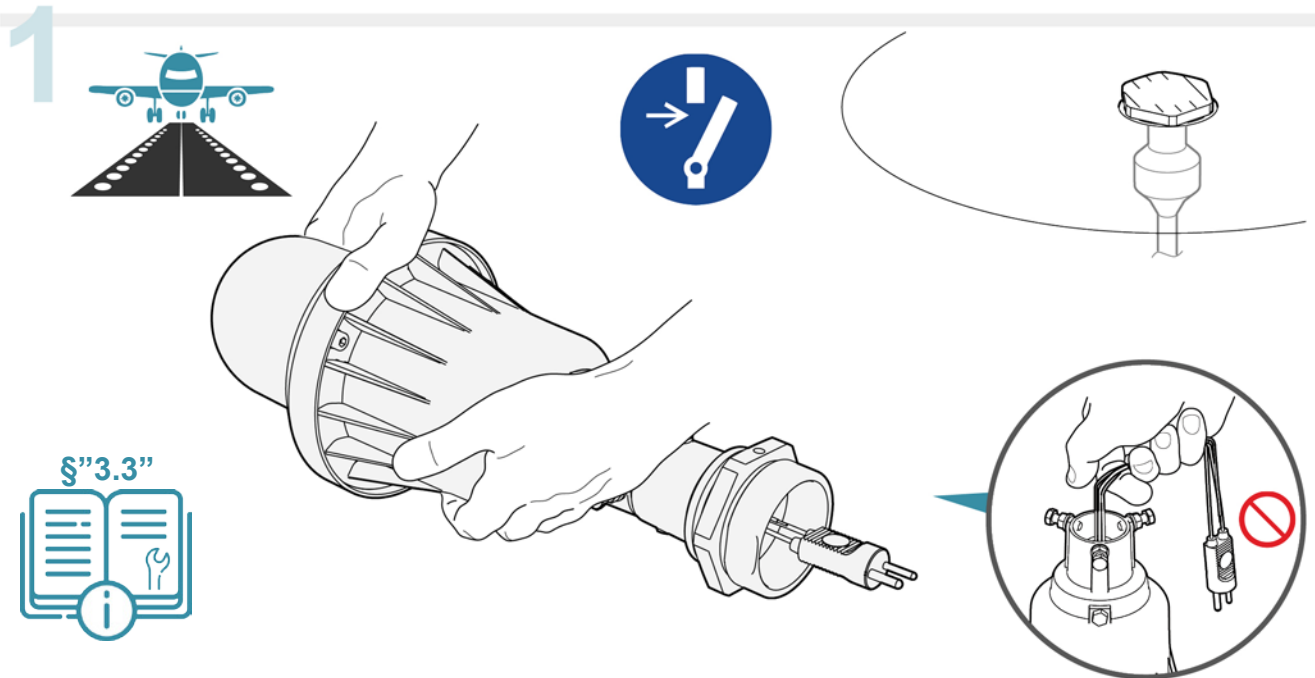
4.2 Signal Opening



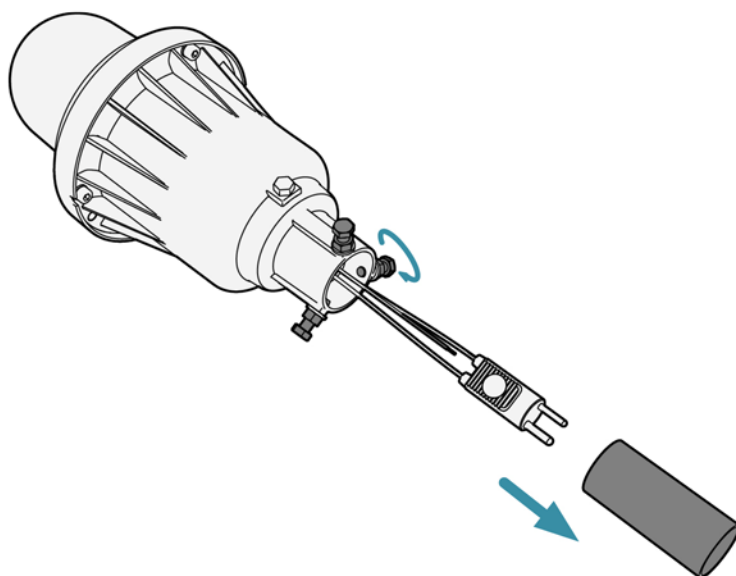
Every time that the fixture body is opened, all the seals must be replaced: use only original spare parts by OCEM Airfield Technology.

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

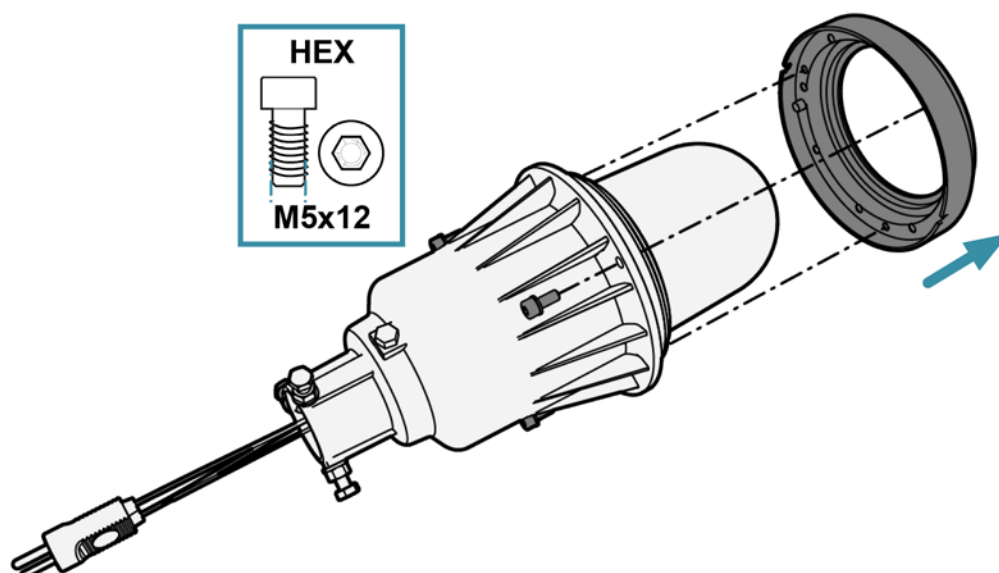
- the optical unit is undamaged and clean;
- the seal of the glass dome does not have breakdowns;
- the supply cables and the connectors are undamaged and do not have breakdowns or abrasions.



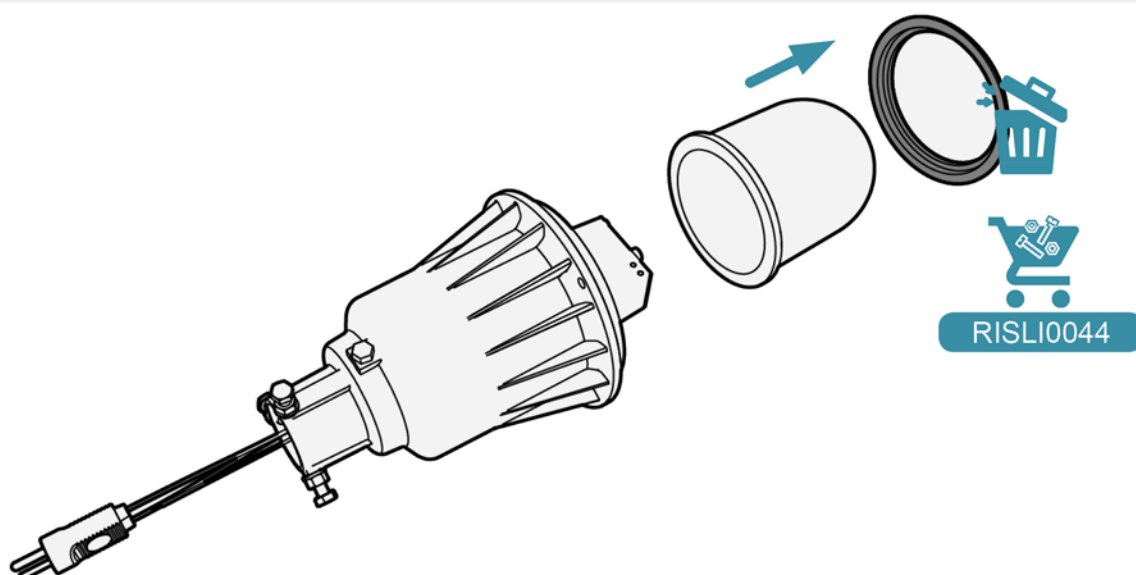
3



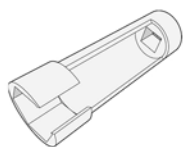
4



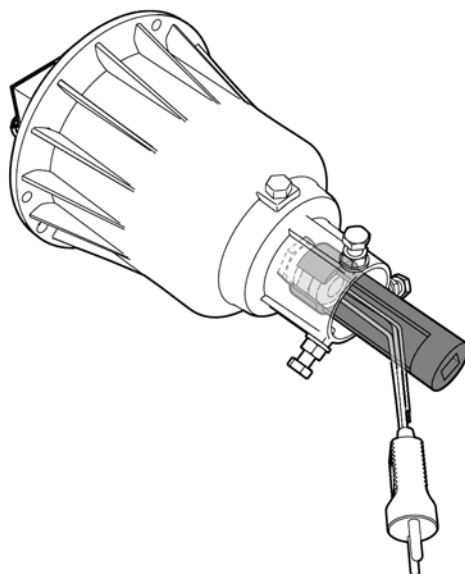
5



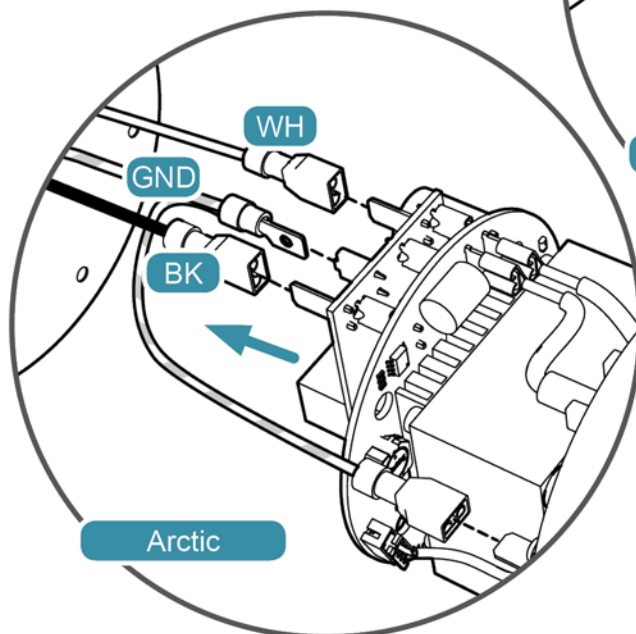
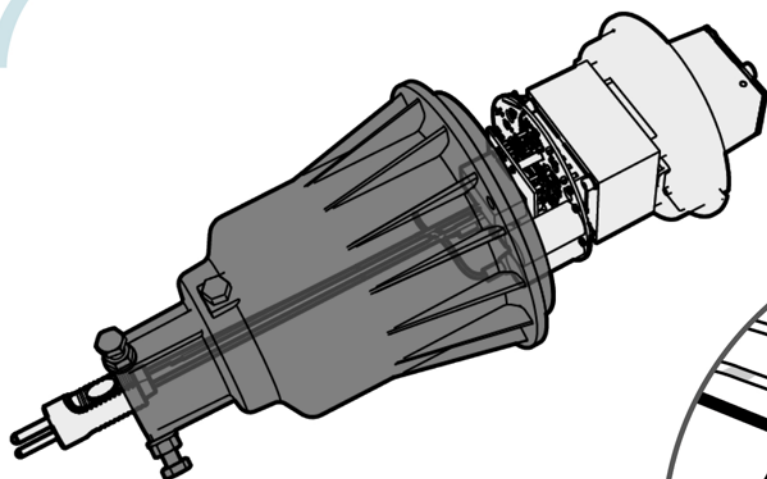
6



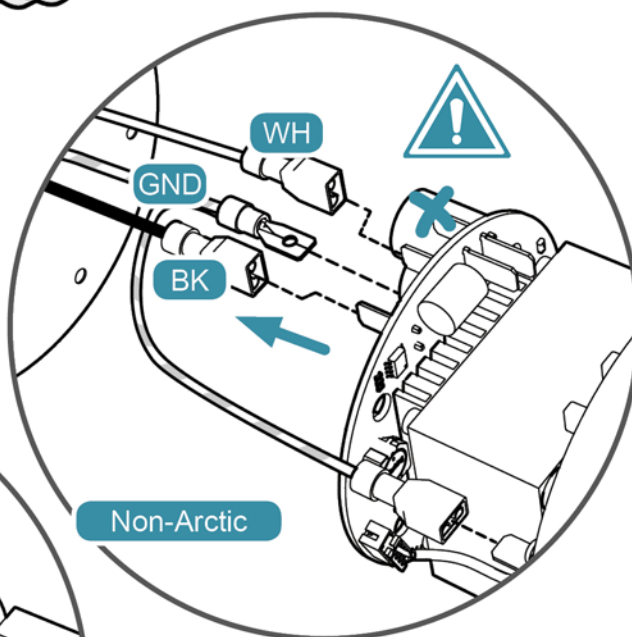
M20



7



Arctic



Non-Arctic

4.3 Signal Closing

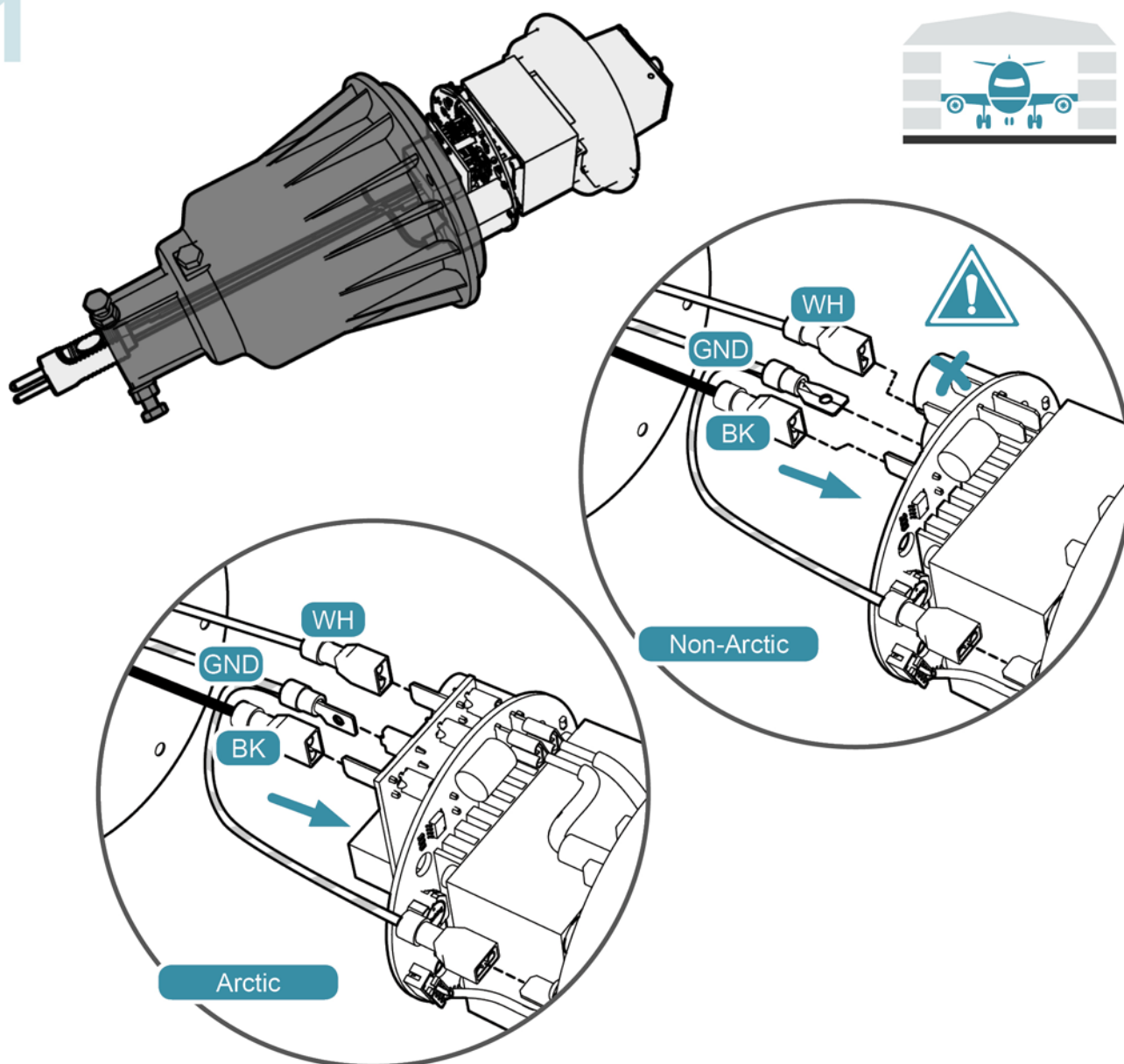


Every time that the fixture body is opened, all the seals must be replaced: use only original spare parts by OCEM Airfield Technology.

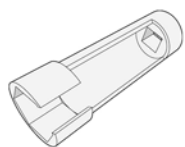


Respect the direction of the dome and of cards during assembly phase.

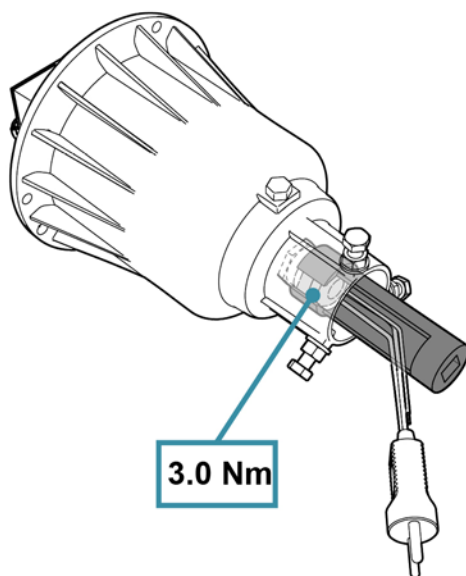
1



2

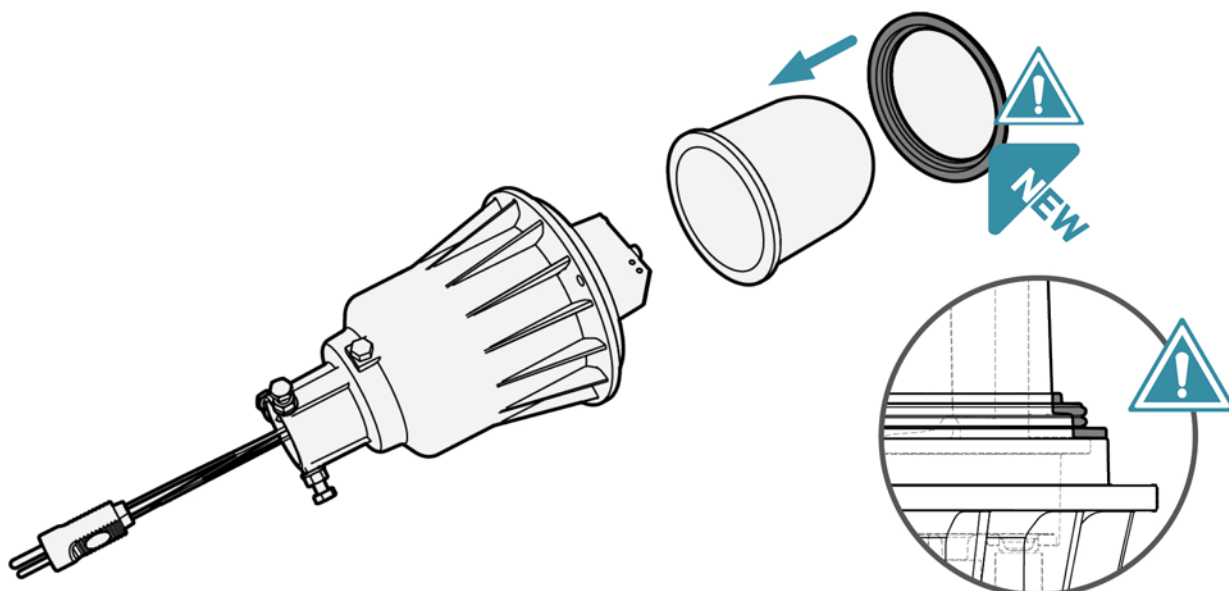


M20



3.0 Nm

3



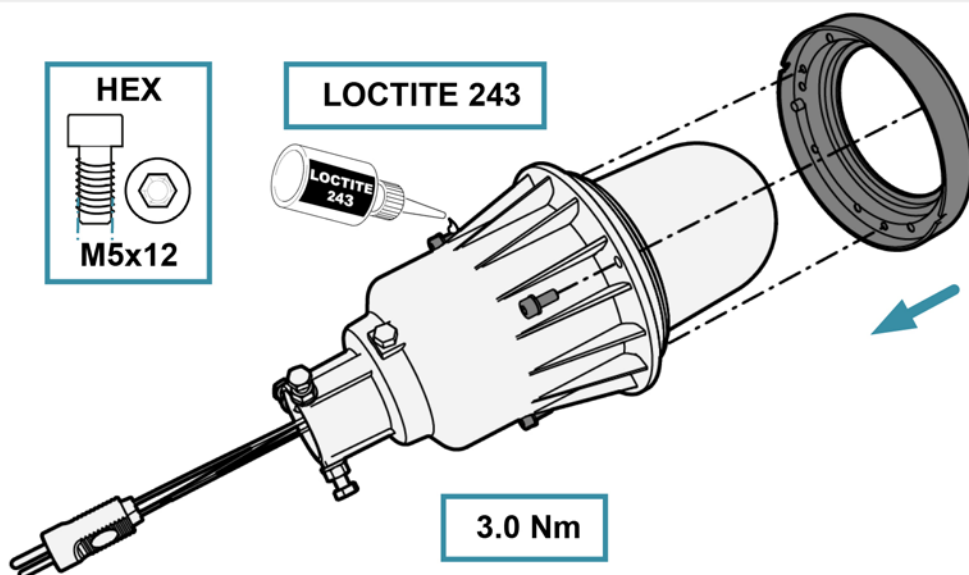
4



HEX

M5x12

LOCTITE 243



3.0 Nm

4.4 Cleaning of the glass dome



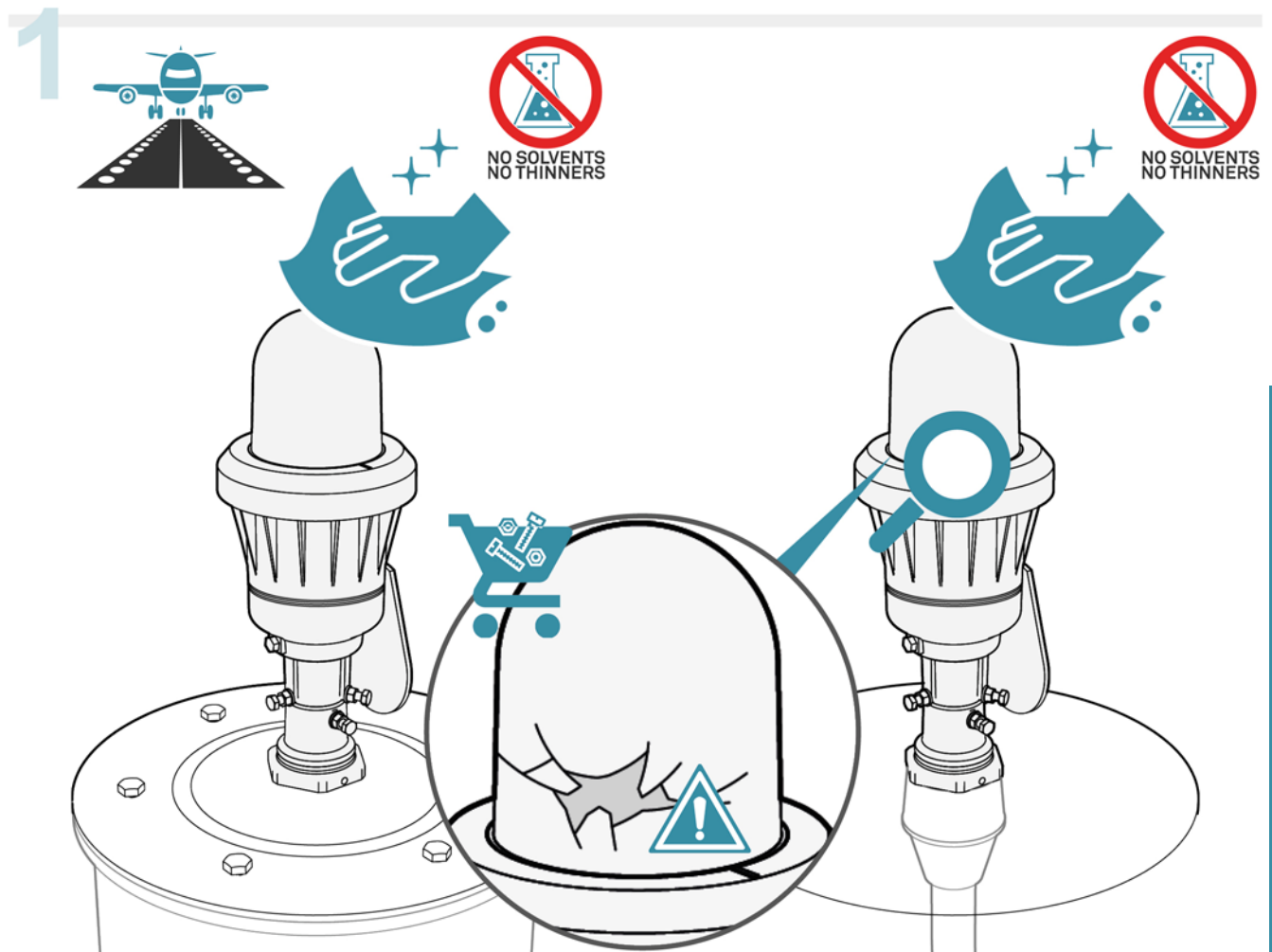
Before carrying out any intervention on the fixture, cut off all external power sources and place appropriate work-in-progress warnings on the systems. Wait for the discharging time (at least 5 minutes) and check using appropriate instruments that there are no residual energies before accessing the electrical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



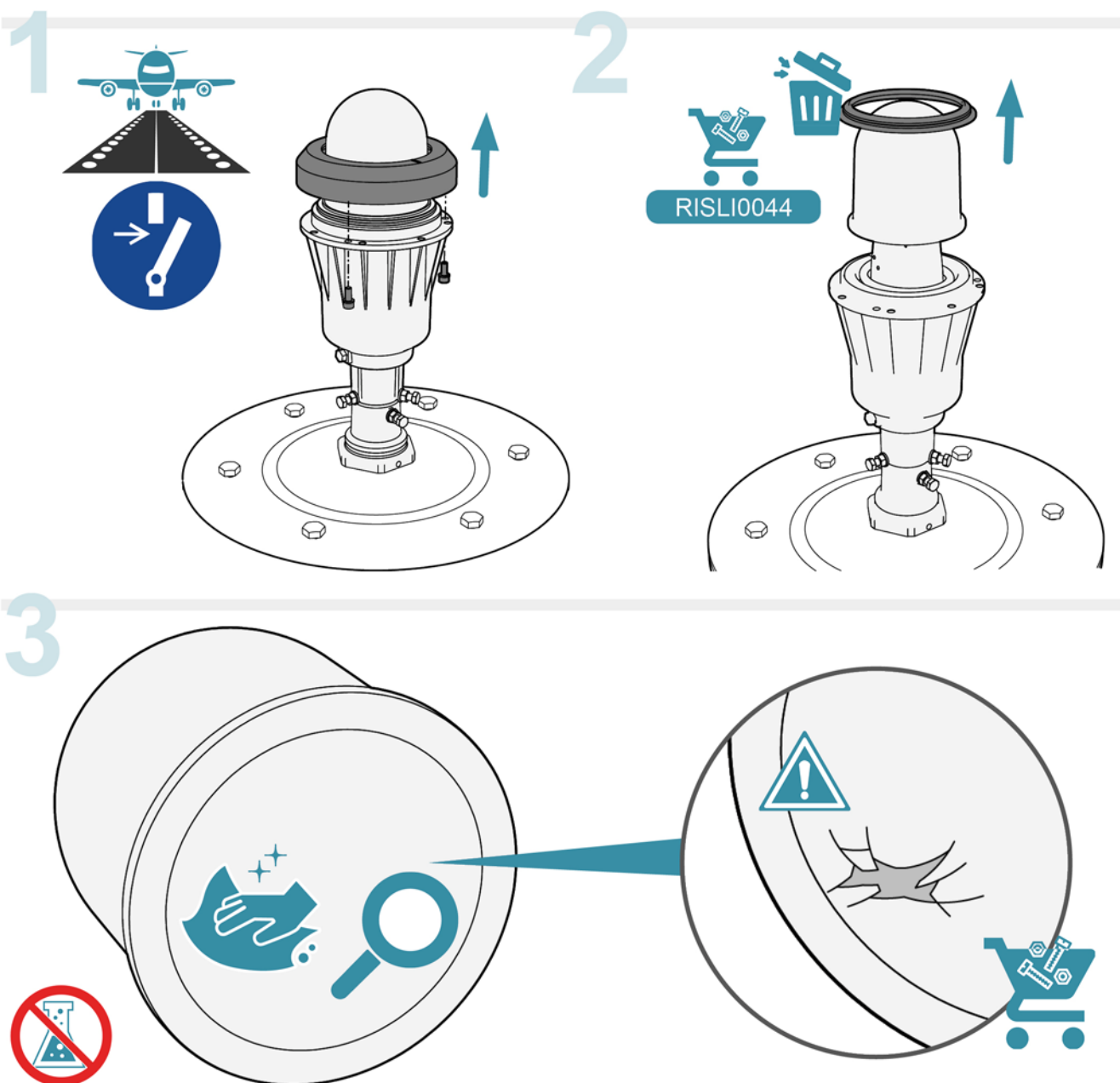
Do not use solvent or diluent products to avoid damaging the glass dome. In case the dome is damaged, replace it.



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.

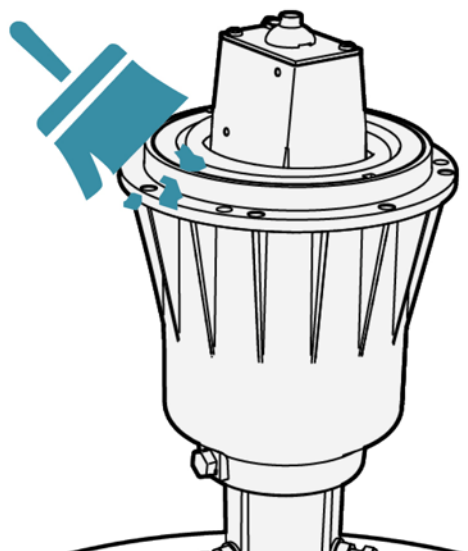


Check that the replacement glass dome correspond to the desired code of use.

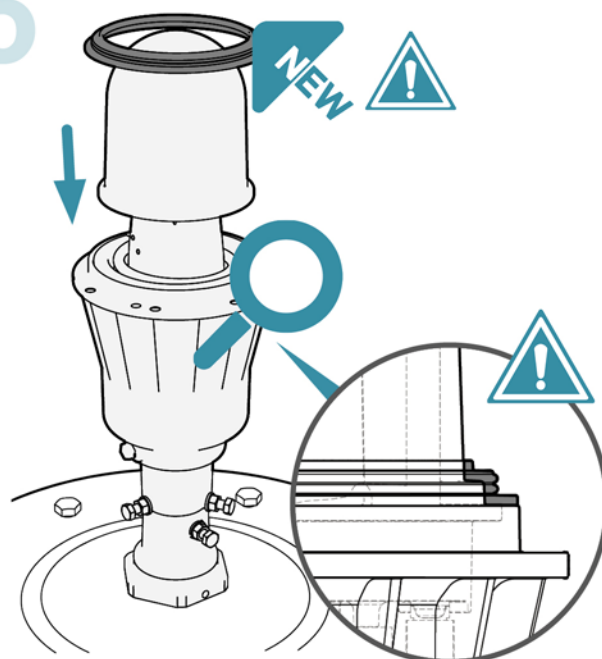


Reassemble the unit. Tighten the screws with the indicated torque values.

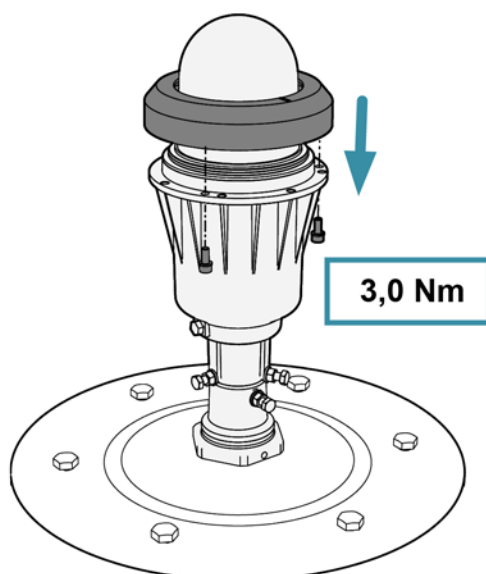
4



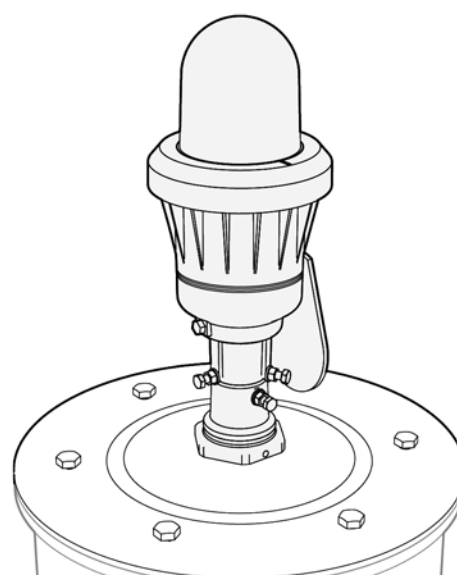
5



6



7



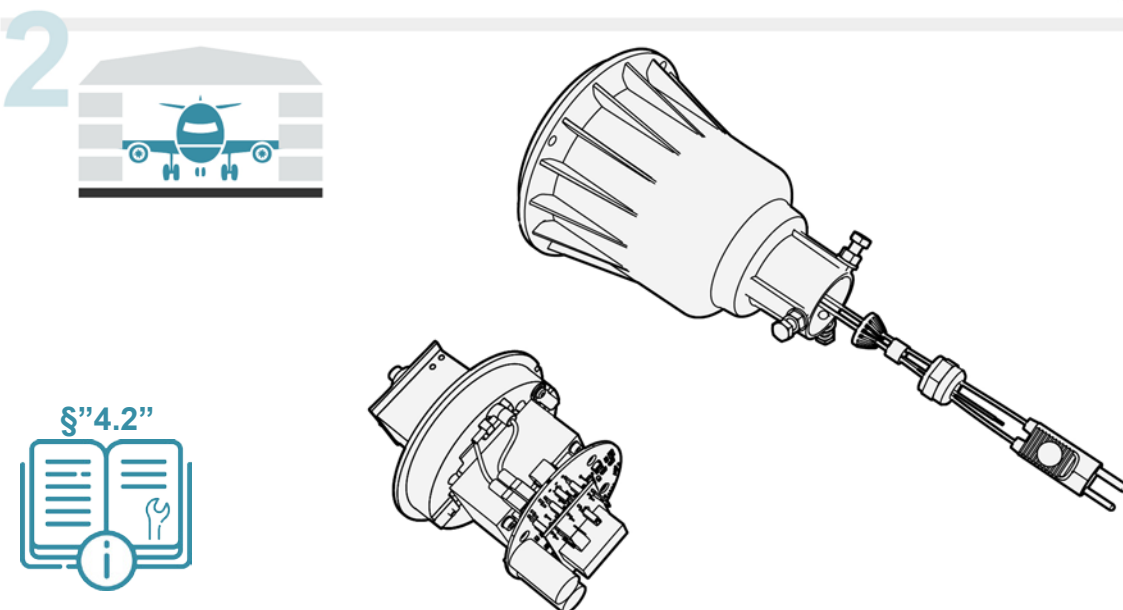
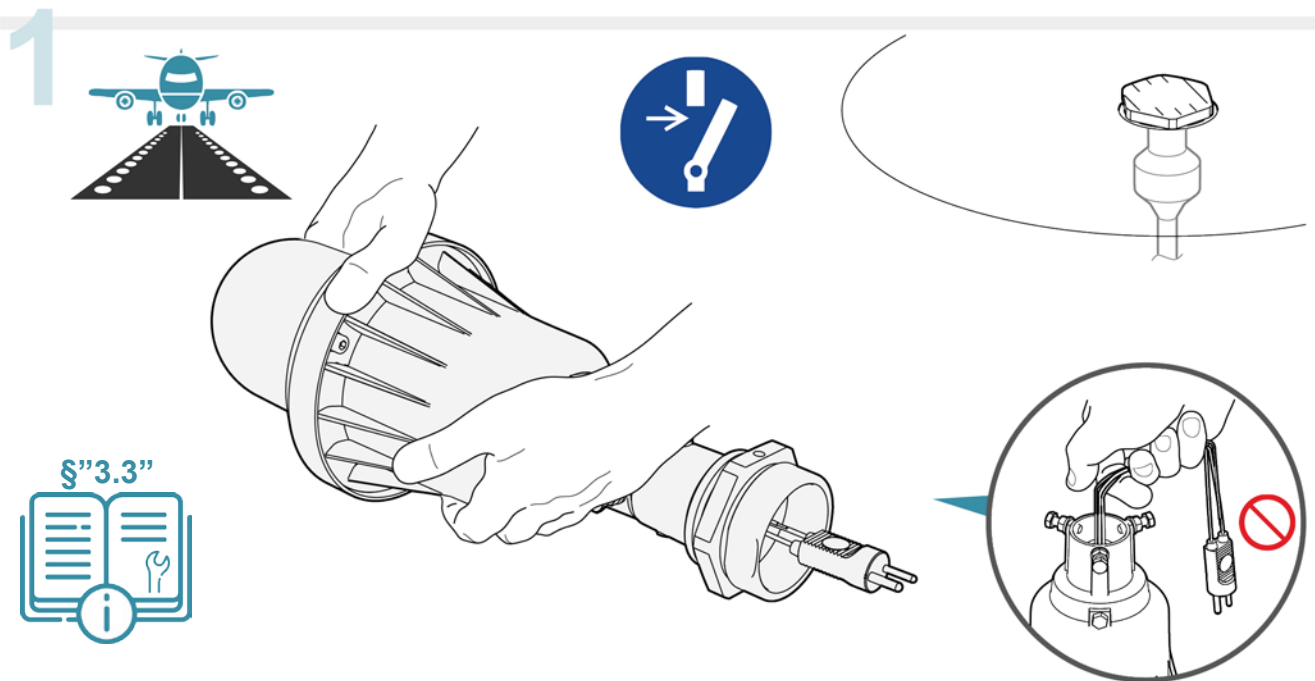
4.5 Replacement of the power cable



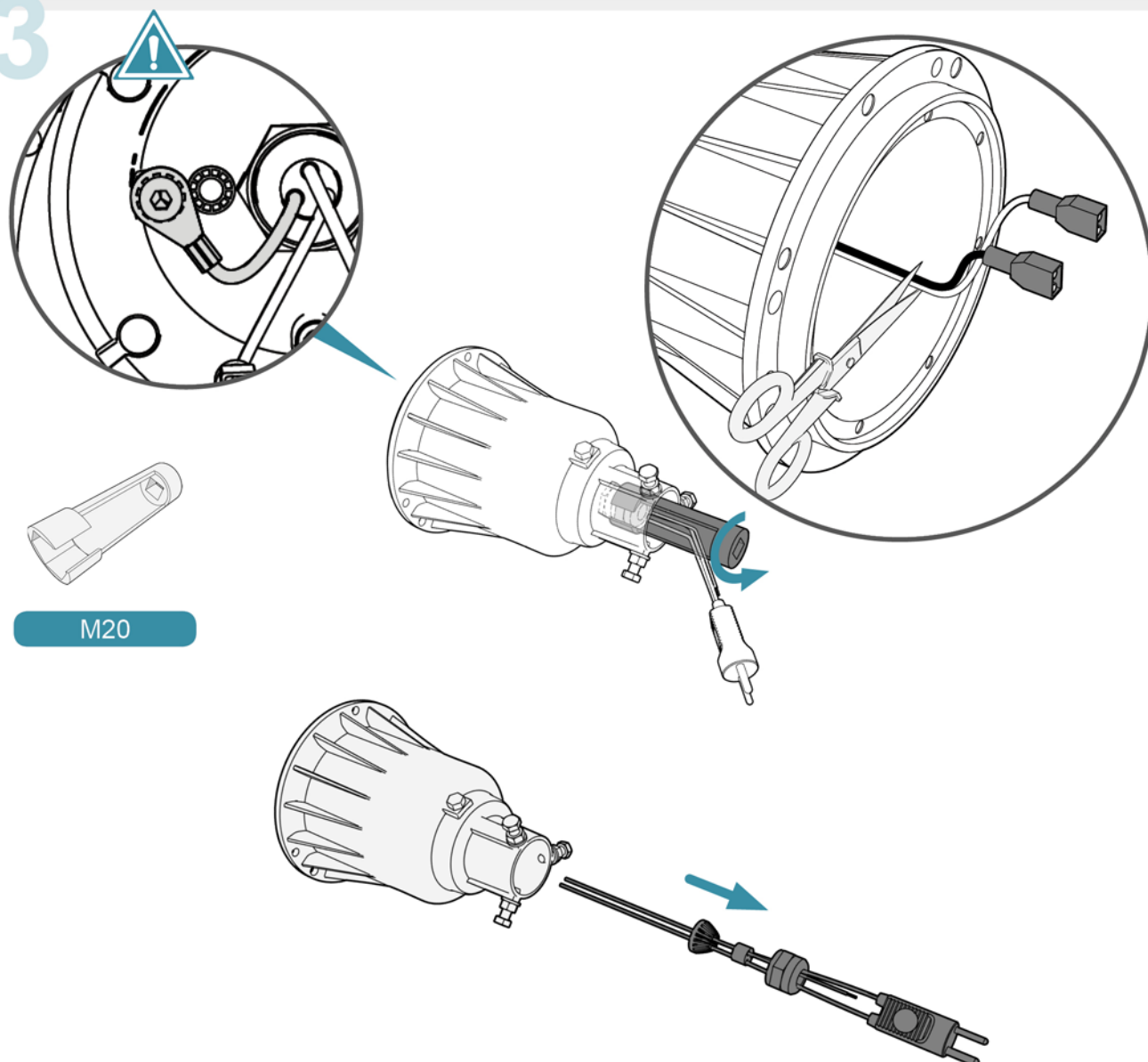
Before carrying out any intervention on the device, cut off all external power sources and place appropriate work-in-progress warnings on the systems.

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.

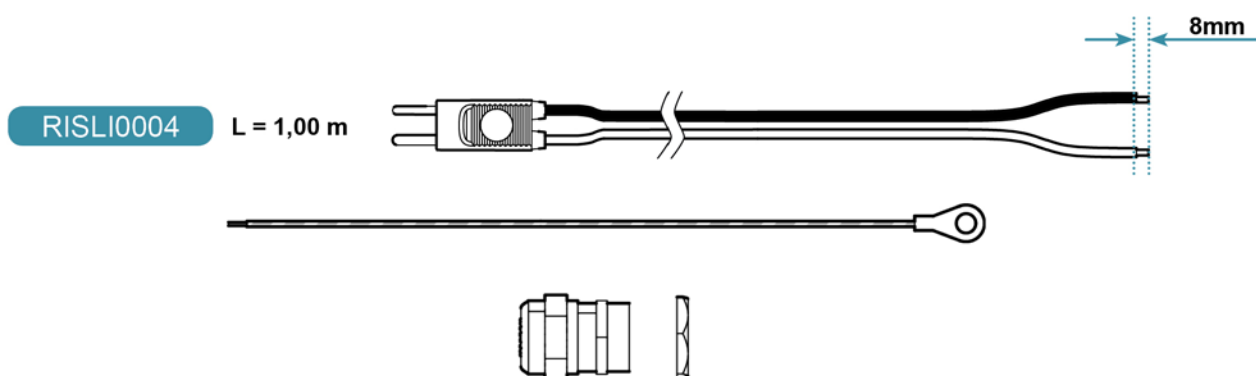
Remove the fixture from the base (see the related paragraph in the chapter "INSTALLATION") and bring it to the workshop to complete maintenance. Open the fixture (see the related paragraph in the chapter "ADJUSTMENTS AND MAINTENANCE").



3



4

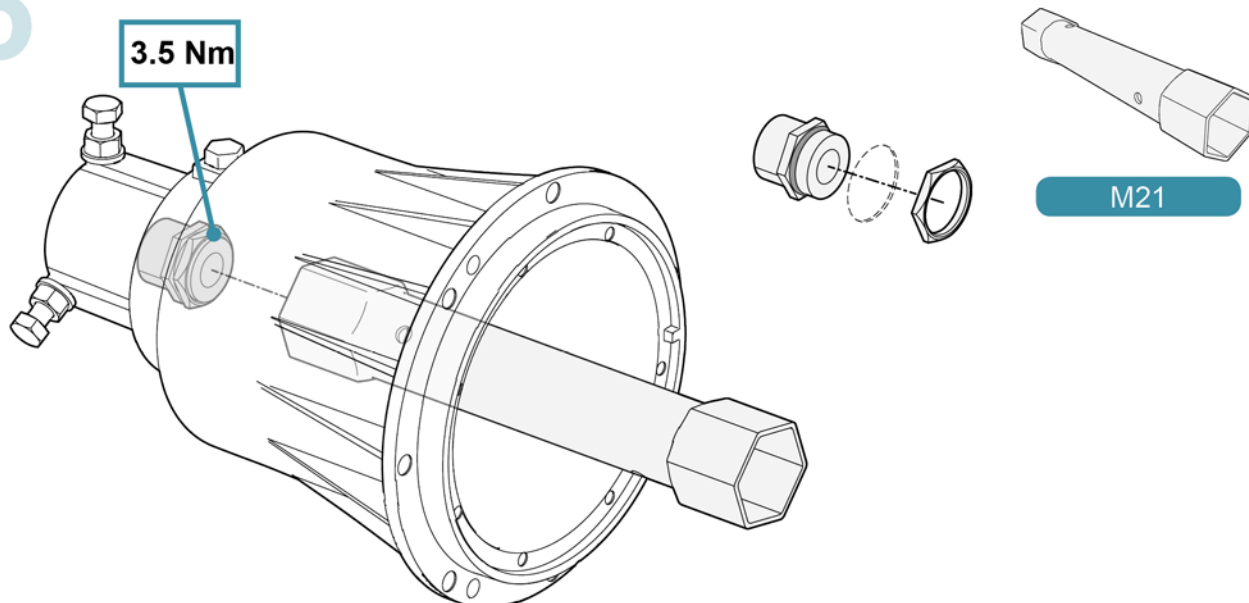




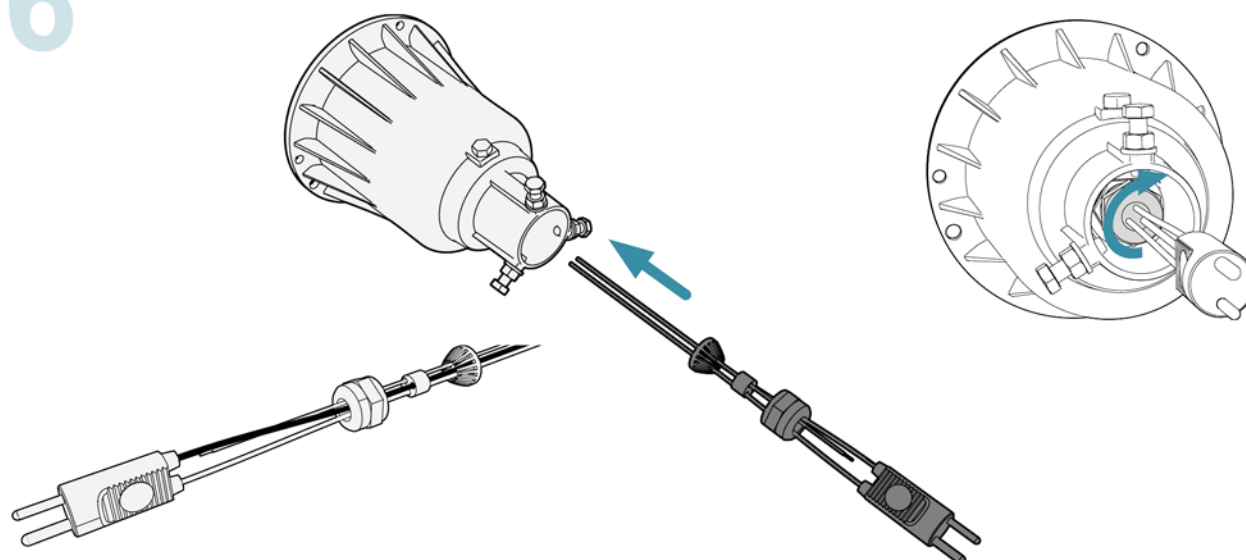
Tighten the parts with the indicated torque values.

Prepare the new power cable, insert the cable, connect the ground cable and crimp the power connectors.

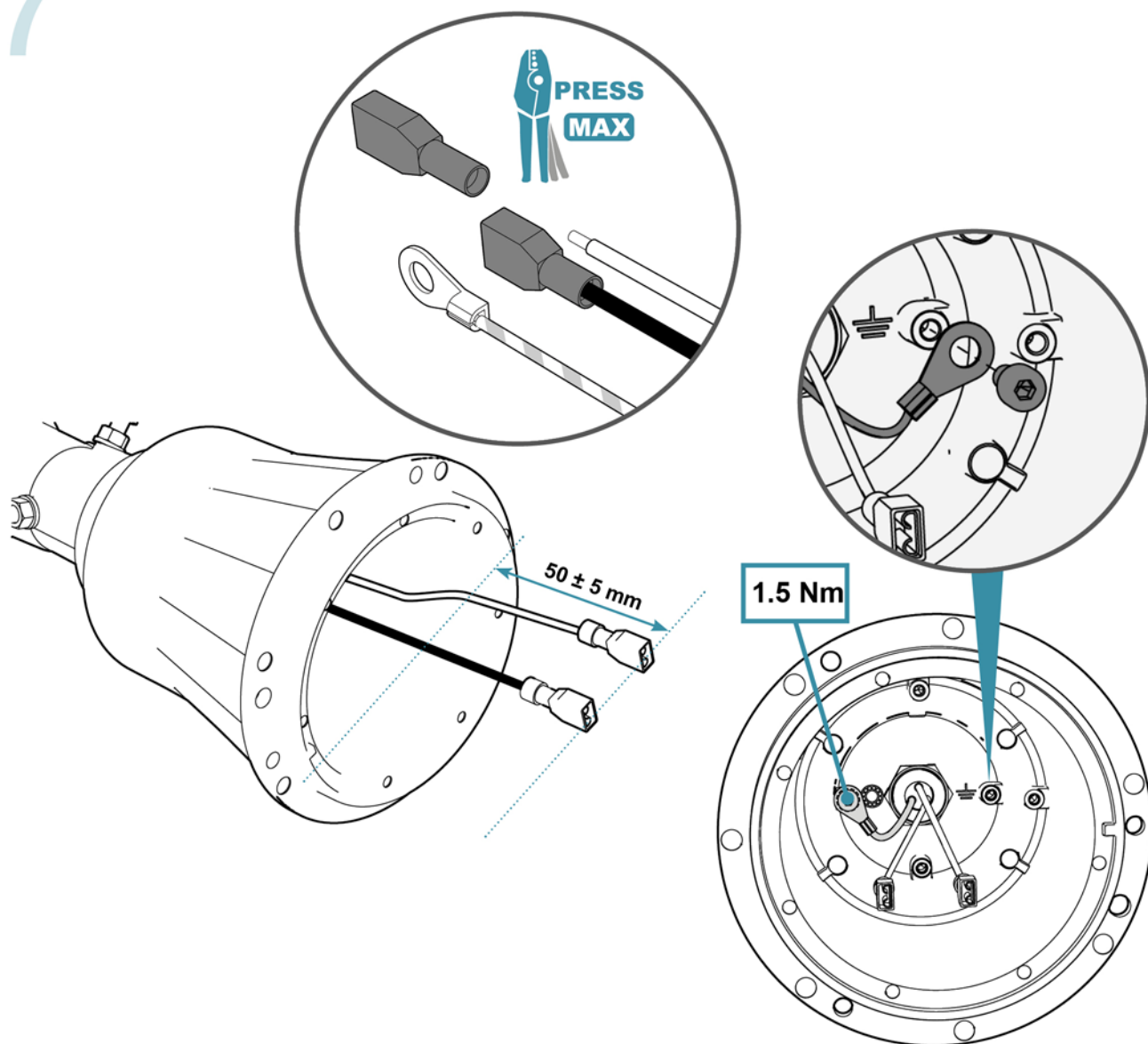
5



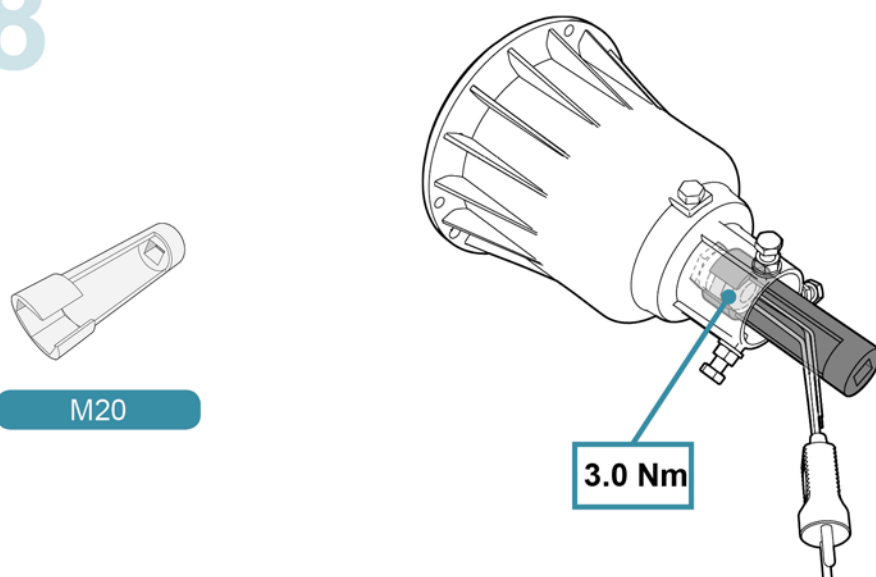
6



7



8





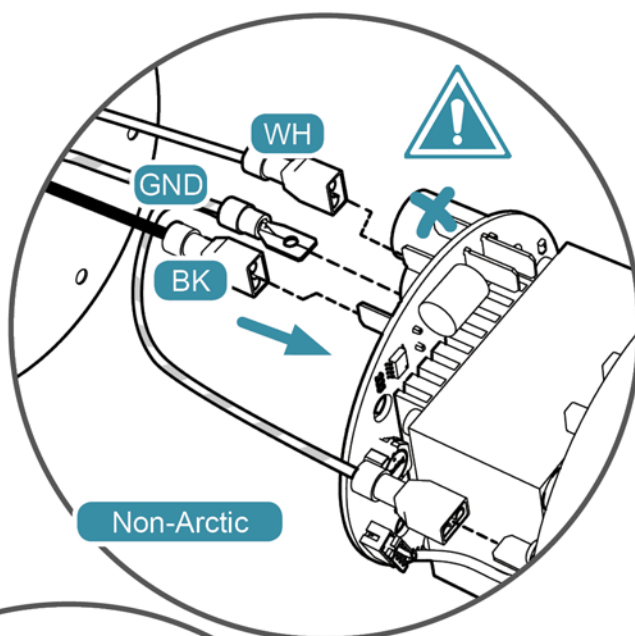
Tighten the parts with the indicated torque values.



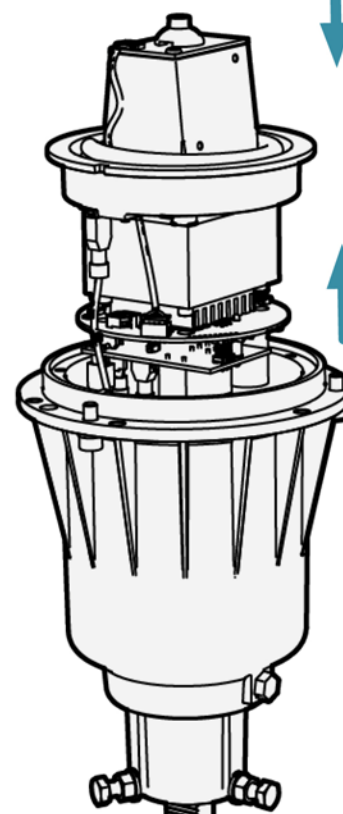
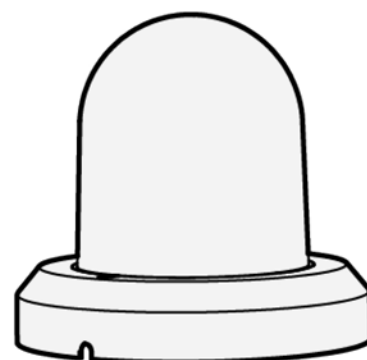
Respect the direction of the dome and of cards during assembly phase.

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

9



Non-Arctic



Arctic

4.6 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.

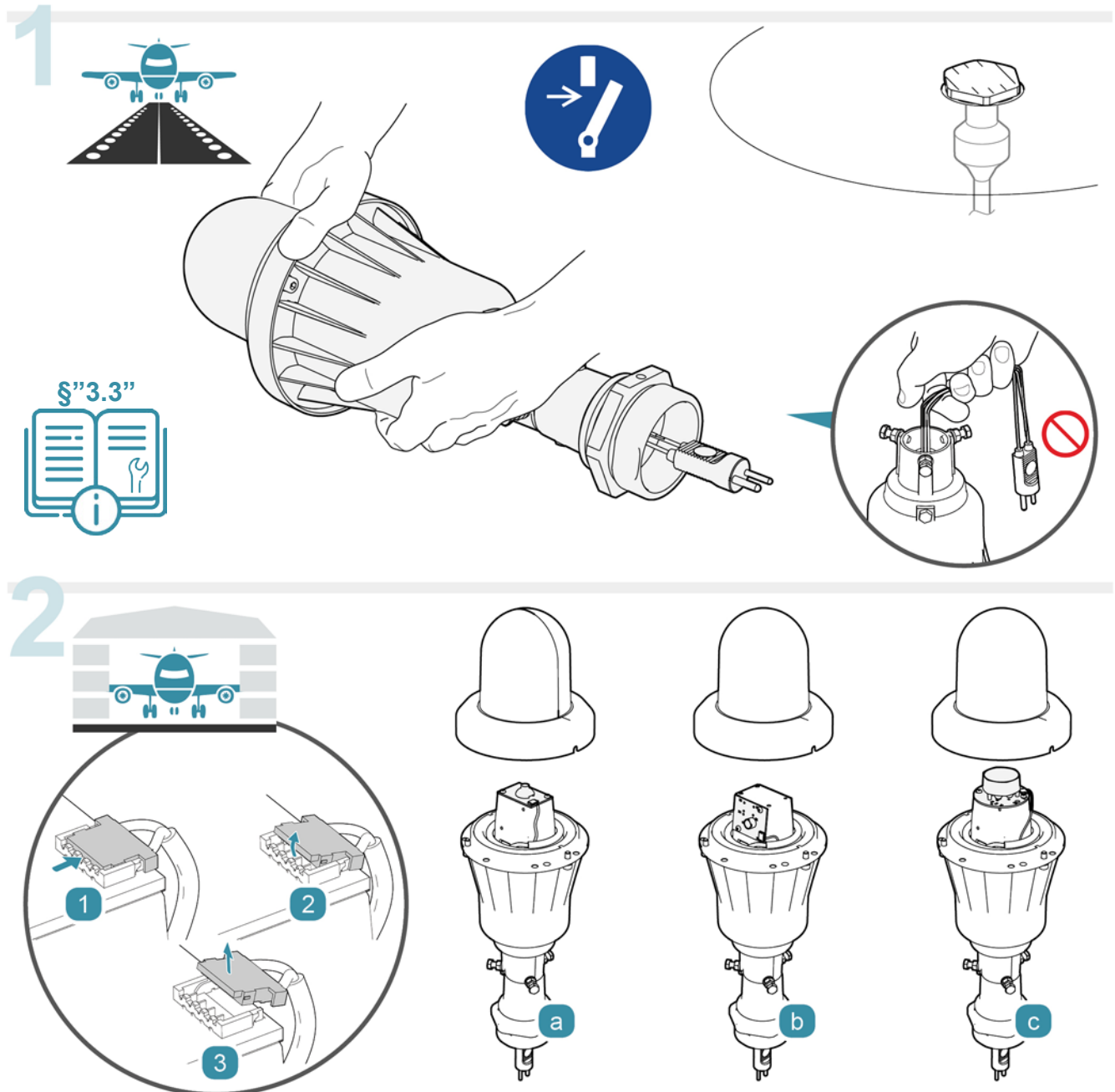
Remove the fixture from the base (see the related paragraph in the chapter "INSTALLATION") and bring it to the workshop to complete maintenance.



RESET PROCEDURE

Before the LED module is replaced, a reset procedure is needed, that allows the fixture to be correctly calibrated at the end of the replacement with self-calibrating procedure.

Open the dome and disconnect the power connector of the LED module.





With the LED module disconnected, re-close the dome.
For safety purposes the next step have to be performed with the cabling not accessible.

Connect the fixture to a series power supply and feed the fixture for at least 60 seconds. Then disconnect the fixture.

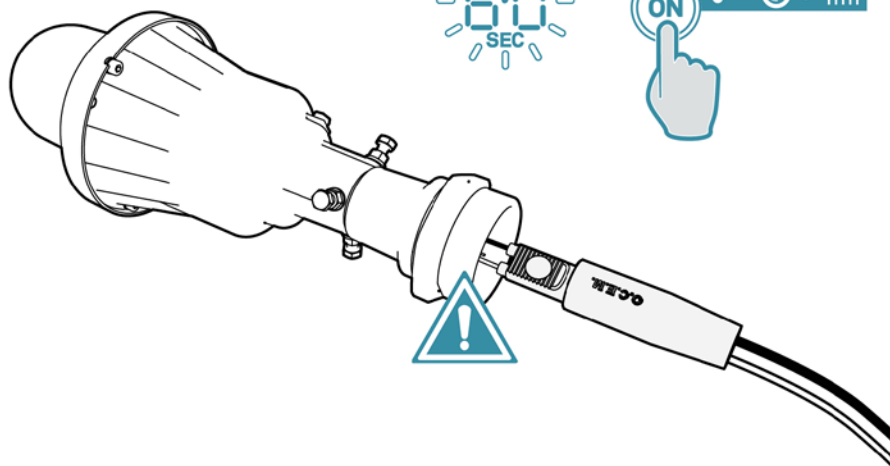
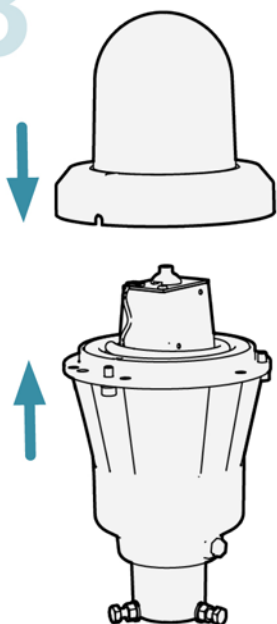
The device now is ready for the subsequent replacement and self-calibration phases.

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

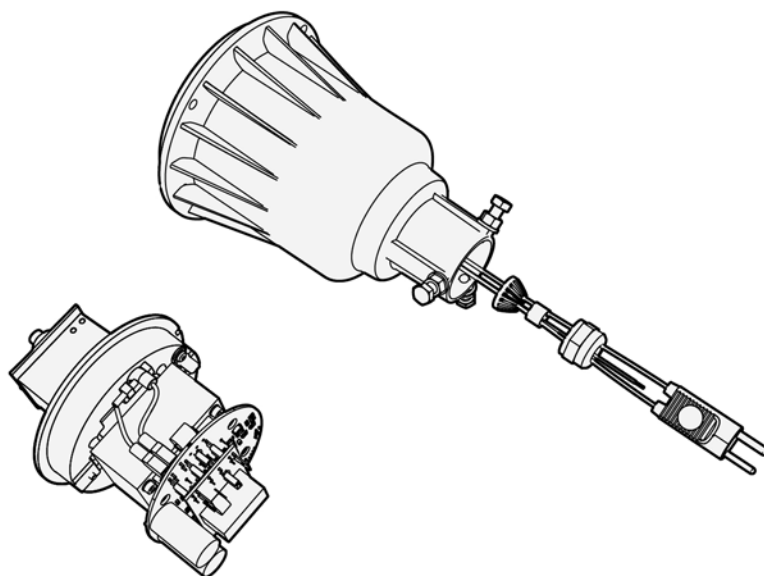


In case of bidirectional fixtures, before disassembling the unit make note of the orientation of the dome and of the LED module installed in order to restore the exact configuration of the fixture.

3



4

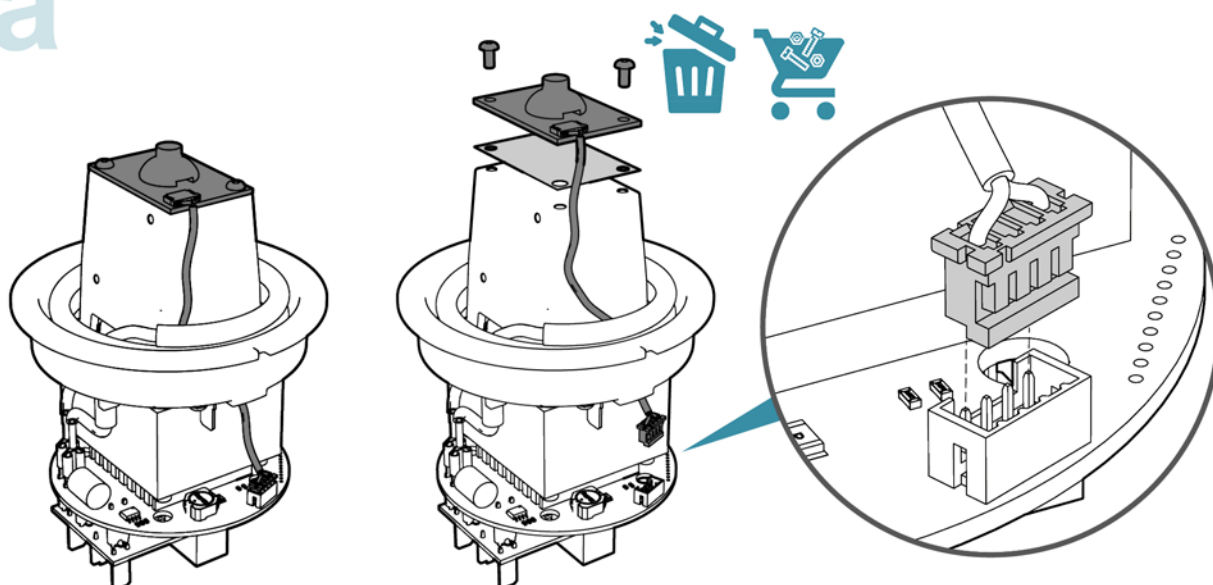




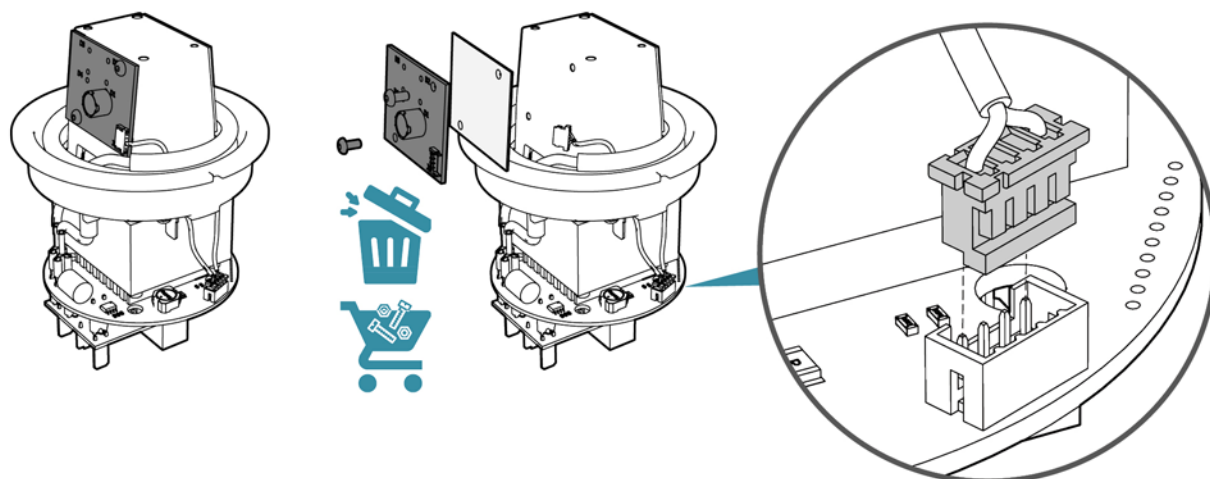
Check that the replacement LED module match the desired colour configuration. **ATTENTION:** Check the references reported on the module surface before reconnecting the part.

Disconnect the connector and remove the LED module to be replaced and the thermal pad.

5a



5b





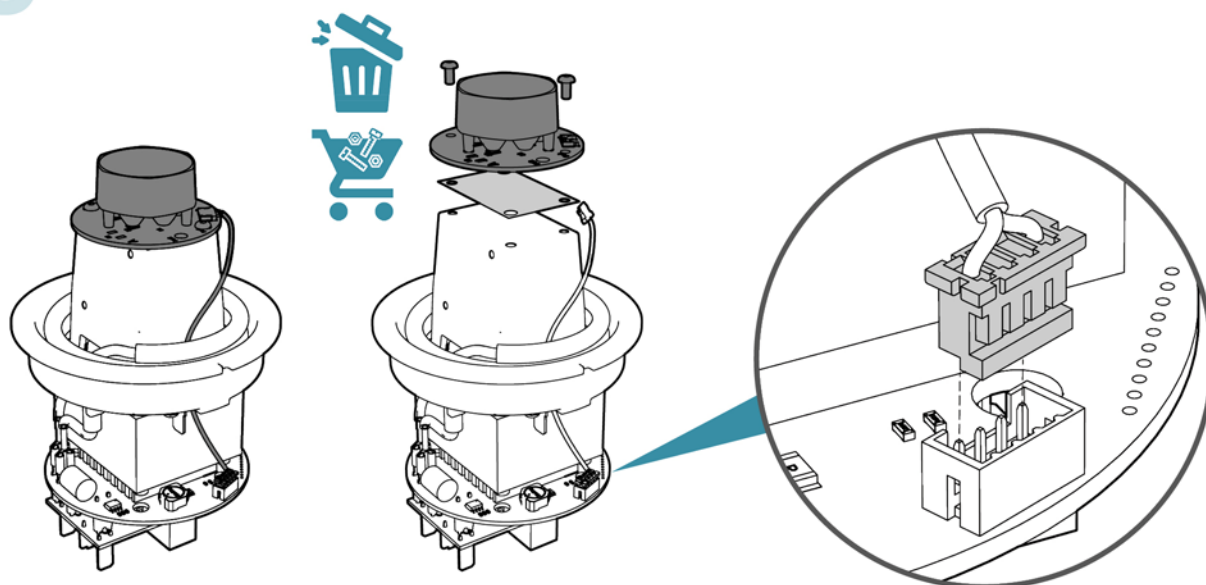
Do not use solvent or diluent products to avoid damaging the dome.
Dry thoroughly the internal sides of the device.



Replace the power cable of the LED module.

Pass the power cable in the predisposed passages and reconnect the connector.

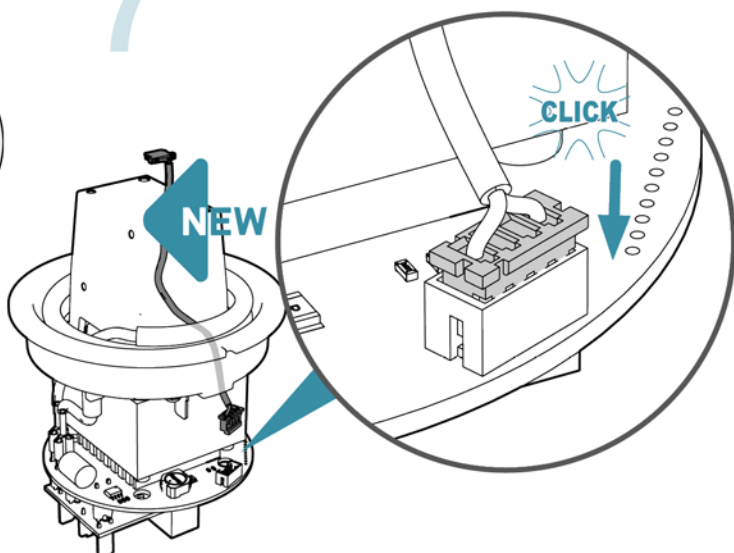
5c



6



7





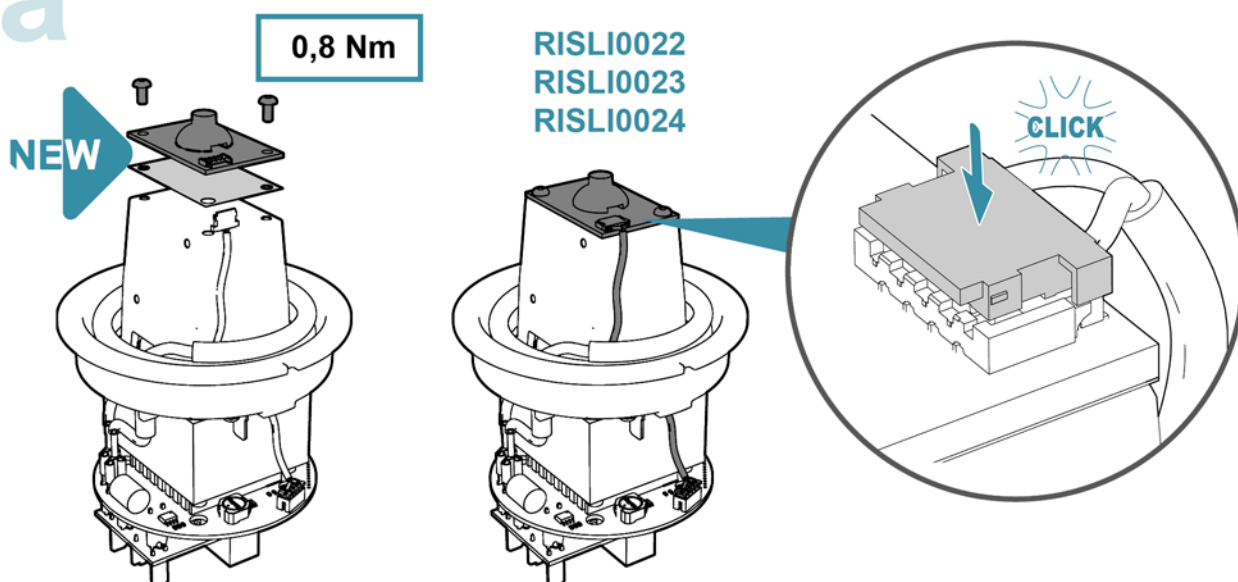
Before fastening the new LED module, position the thermal PAD included in the spare part.



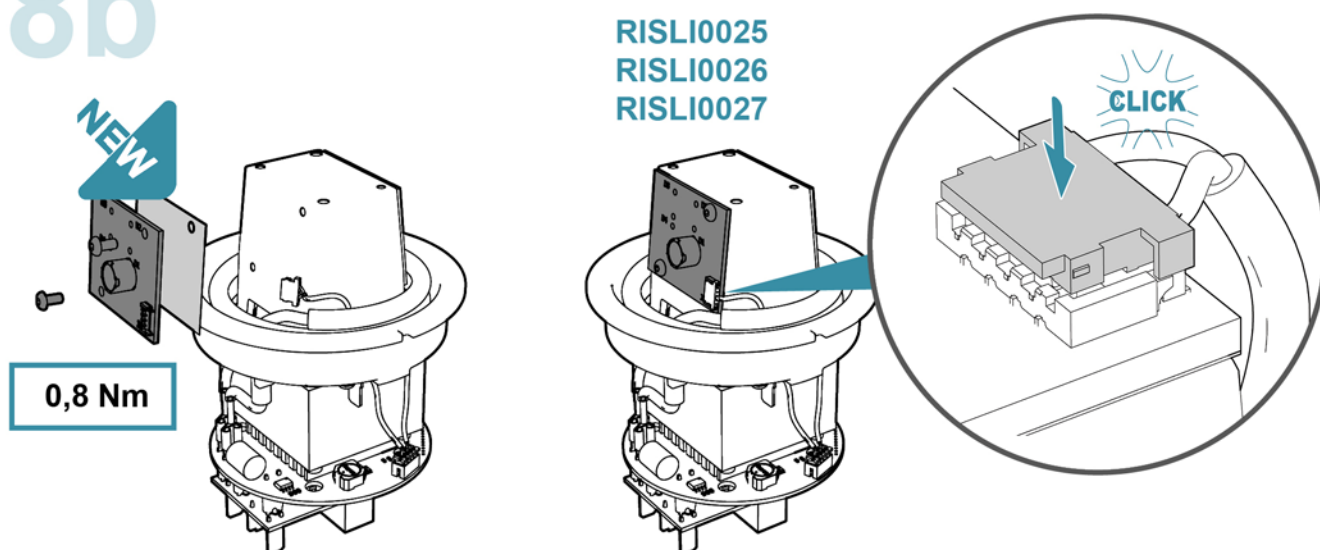
Tighten the screws with the indicated torque values.

Position the LED module, centring it on the predisposed holes.

8a



8b





Before fastening the new LED module, position the thermal PAD included in the spare part.



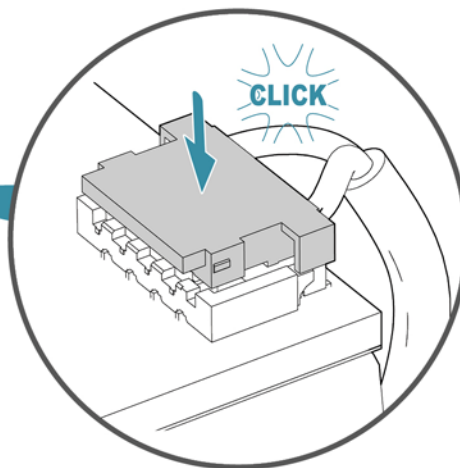
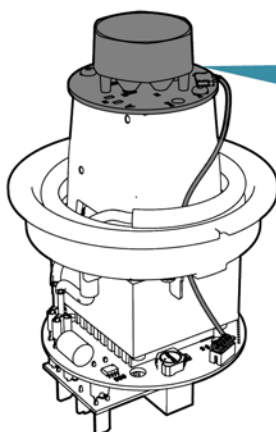
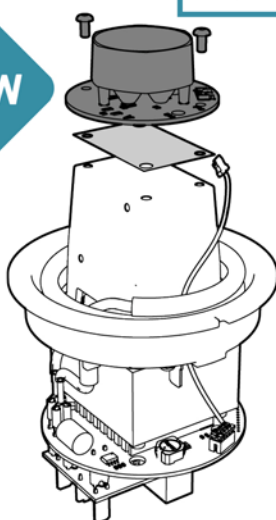
Tighten the screws with the indicated torque values.

Position the LED module, centring it on the predisposed holes.

8c

NEW

0,8 Nm

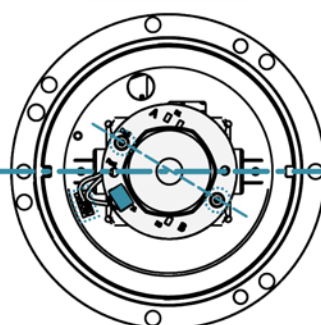
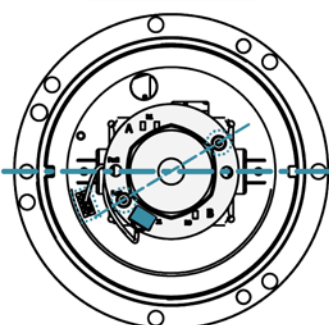


POS1
M3x6

POS2
M4x6

A

B



RISLI0017
RISLI0019
RISLI0020

RISLI0014
RISLI0015
RISLI0016
RISLI0018
RISLI0021

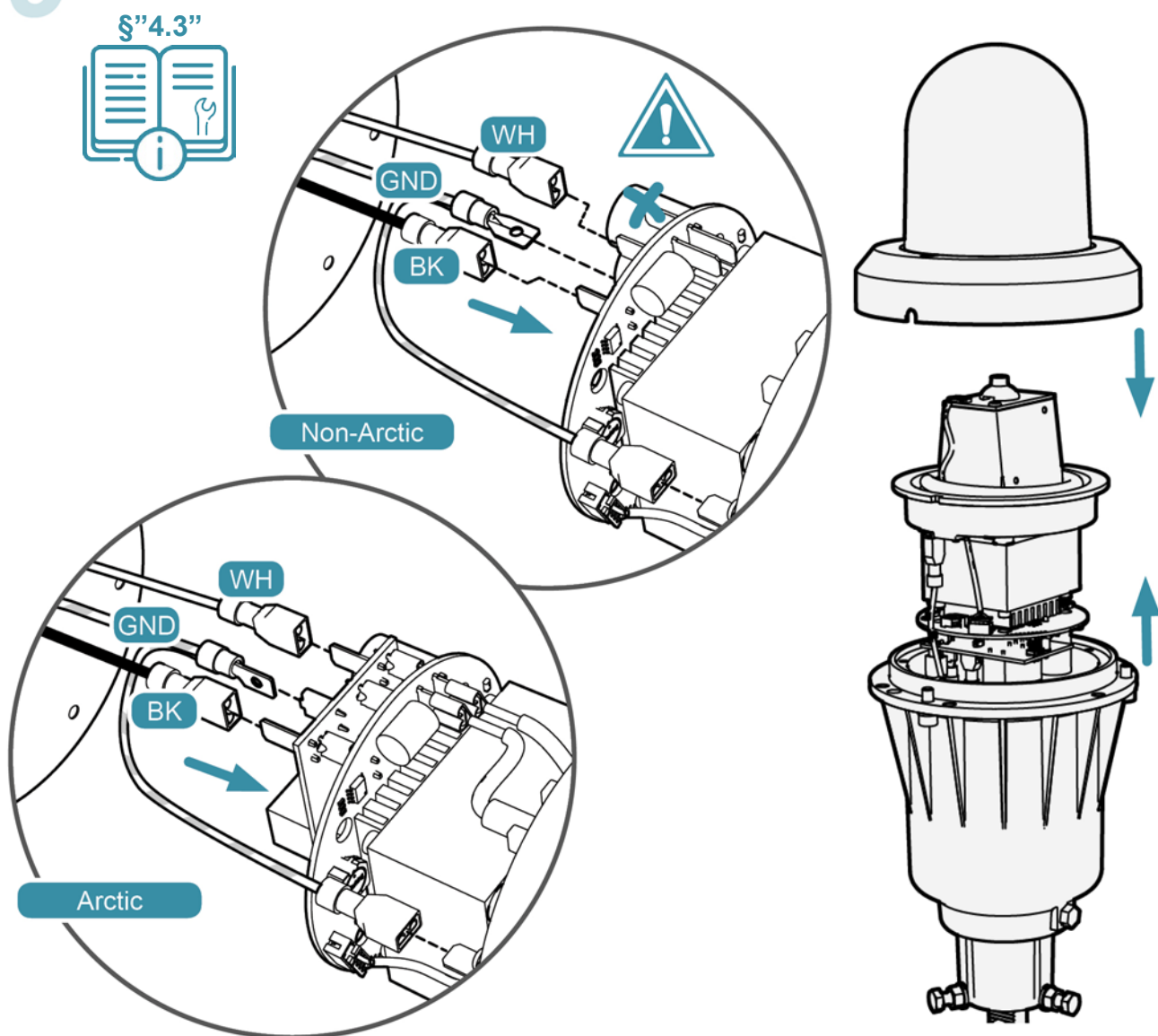




Respect the direction of the dome and of cards during assembly phase.

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

9



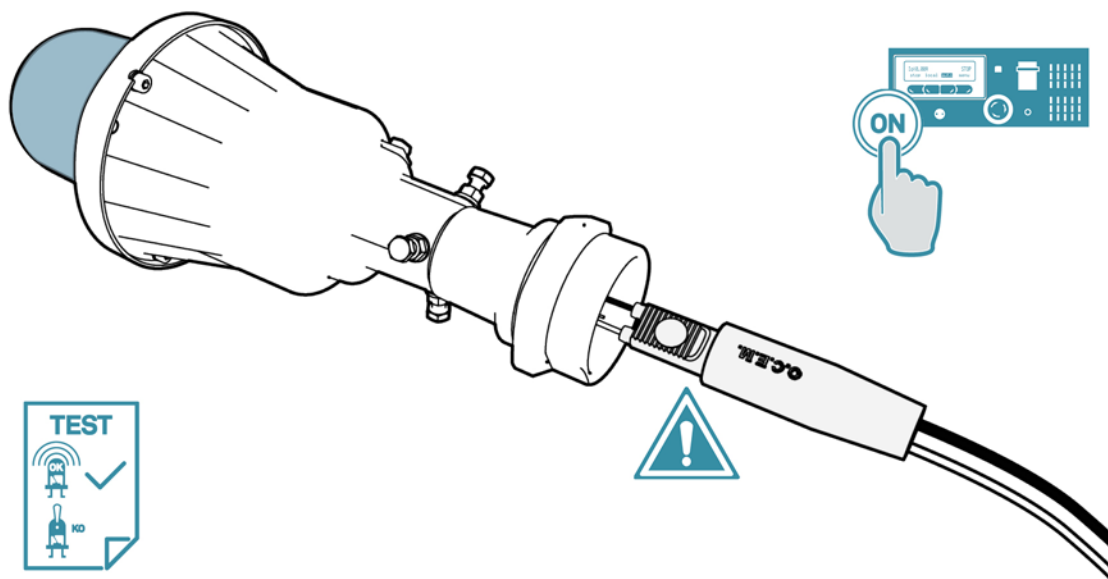
Connect the fixture to the test feed. Feed the fixture and check the proper functioning of the fixture. Interrupt the test feed and disconnect the fixture.

The device now is ready for the installation on the runway.

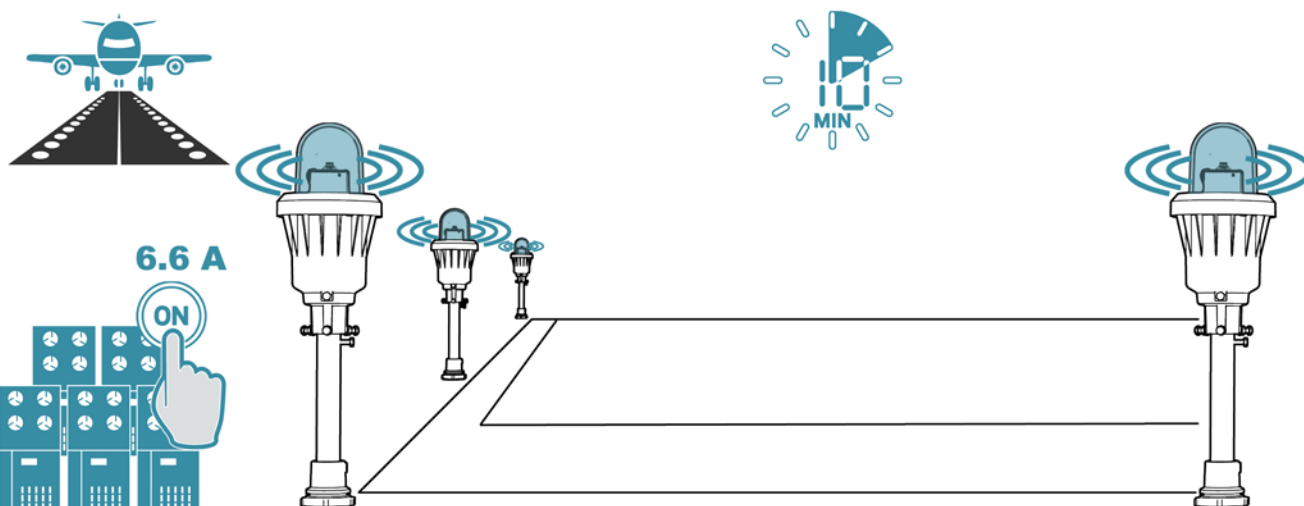


The fixture will self-calibrate during the first test ignition of the circuit: keep the circuit powered with a constant current of 6.6 A for at least 10 consecutive minutes.

10



11



4.7 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.

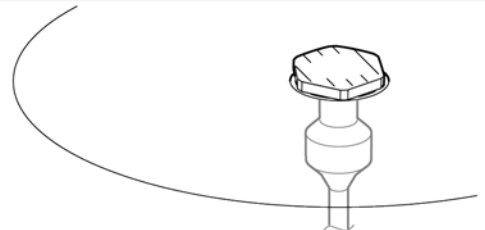
Remove the fixture from the base (see the related paragraph in the chapter "INSTALLATION") and bring it to the workshop to complete maintenance.

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

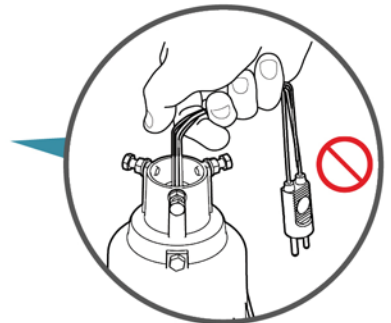


In case of bidirectional fixtures, before disassembling the unit make note of the orientation of the dome and of the LED module installed in order to restore the exact configuration of the fixture.

1



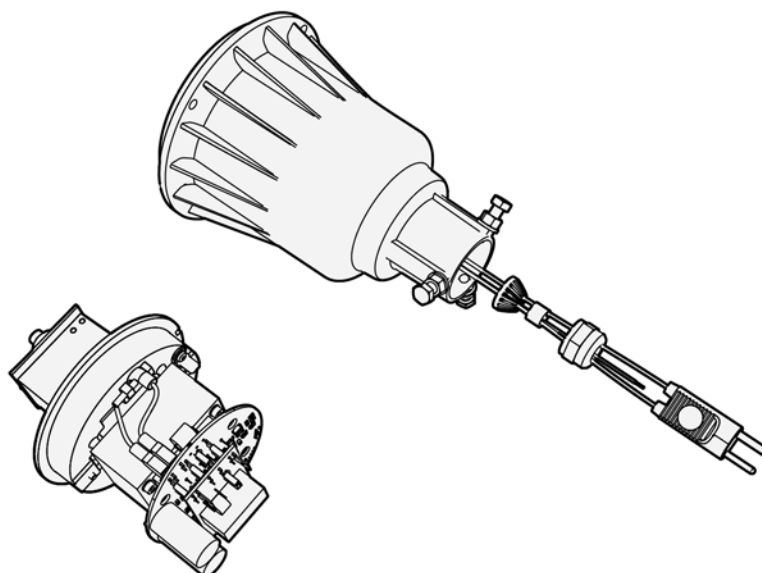
§"3.3"



2



§"4.2"

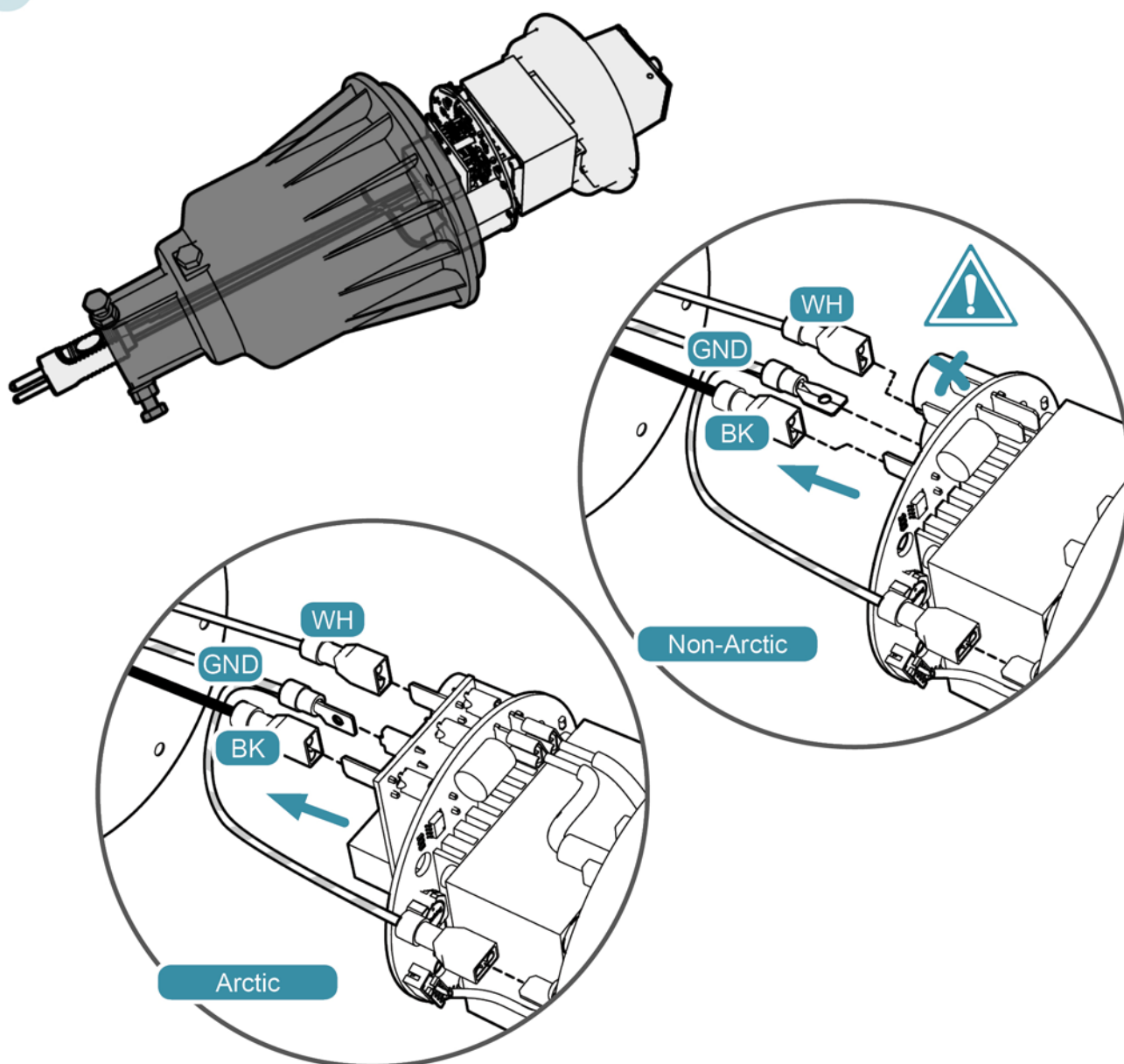


Pay particular attention to the disconnection phase of the power cable of the fixture. According to the version the positioning of the connectors may differ.



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

3



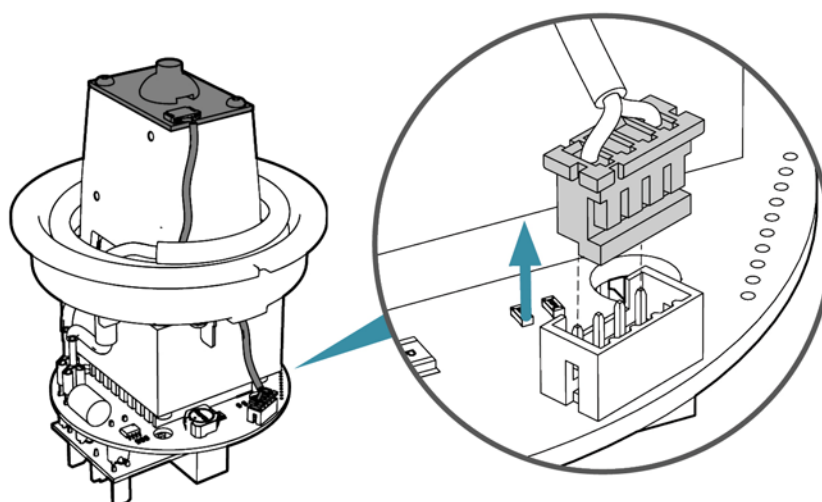
Carefully disconnect the power connector of the LED module taking care not to damage it.



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

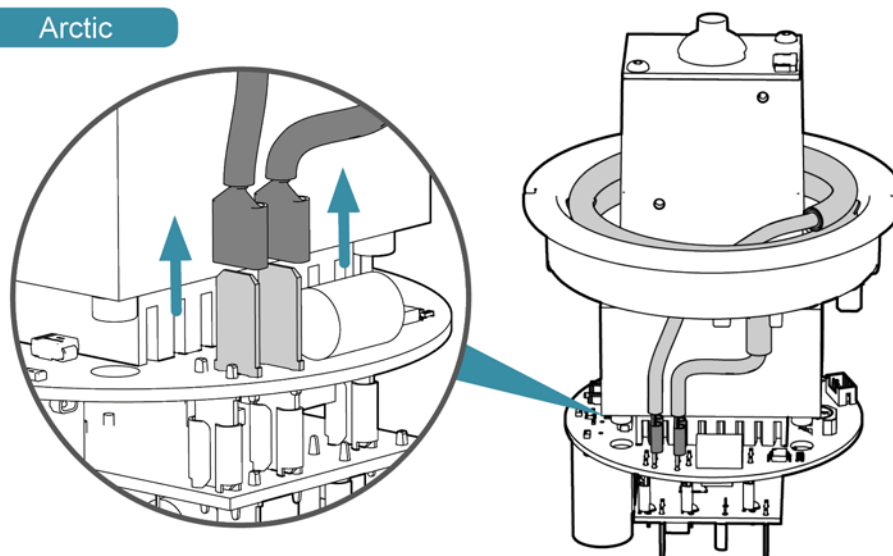
Carefully disconnect the power connectors of the arctic module, if present.

4



5

Arctic

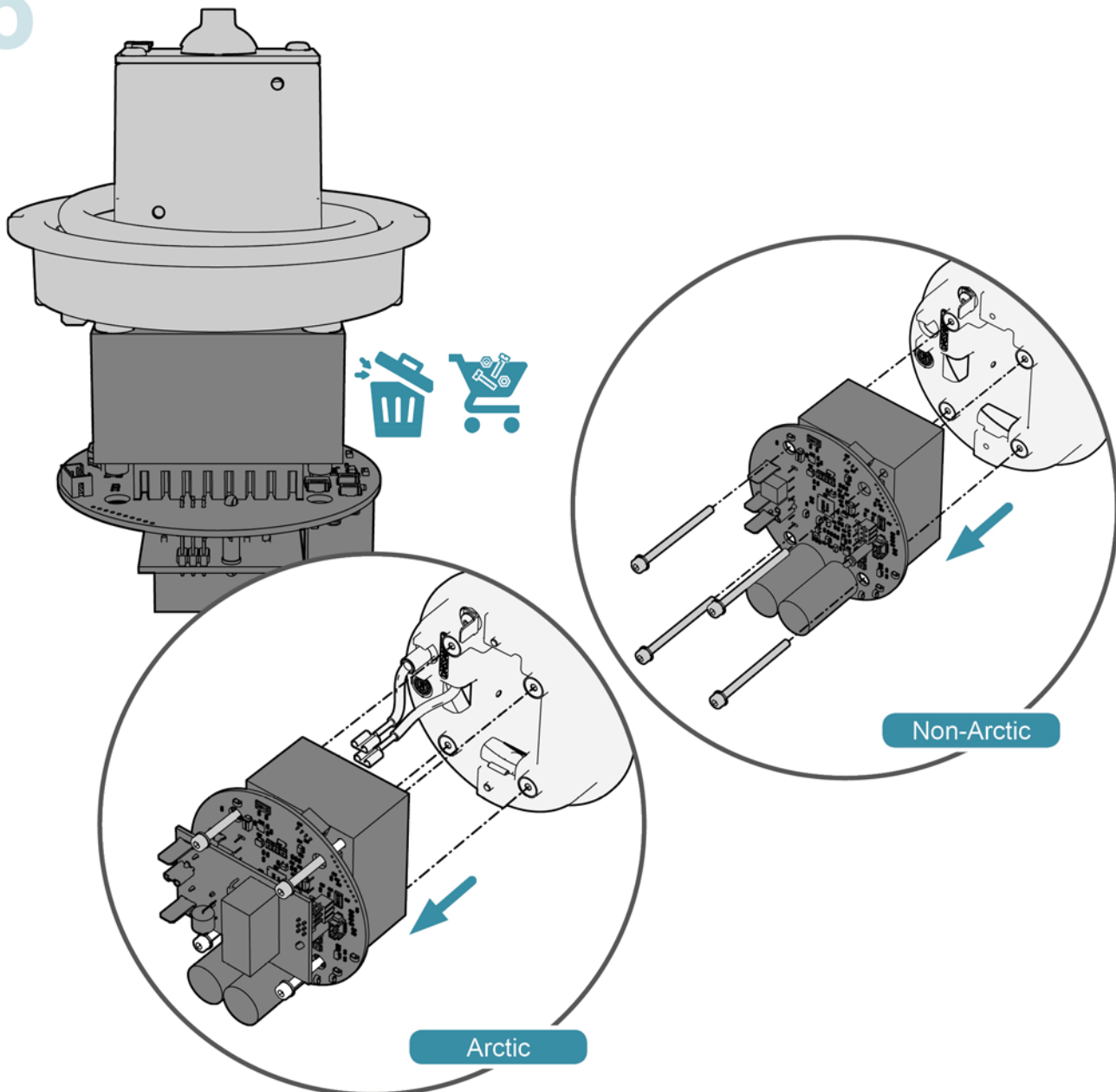


Unscrew the four screws and remove the Driver Board from the body.



Screws are accessible through holes present on the Driver Board. During the disassembly phase pay utmost attention to avoid damaging the components.

6





Clean the seat of the Driver Board, if necessary by scraping the surface without damaging it. Do not use solvent or diluent products to avoid damaging the components. Dry thoroughly the internal sides of the device.

Position the new card by aligning the connectors present on the card with the openings made on the LED module support.

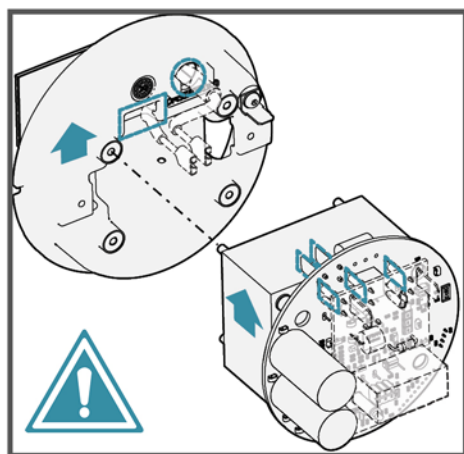
Carefully insert the four fastening screws in the holes predisposed on the card.

Tighten the screws and fasten the Driver Board on the body.



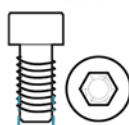
Tighten the screws with the indicated torque values.

7

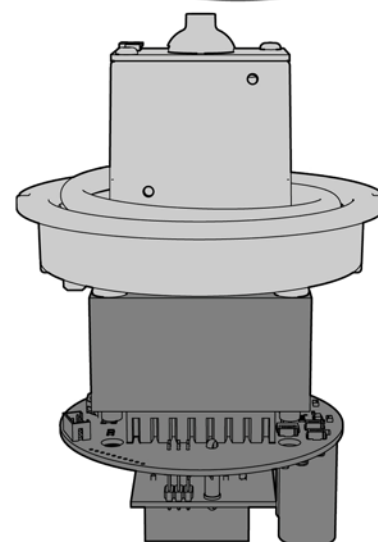
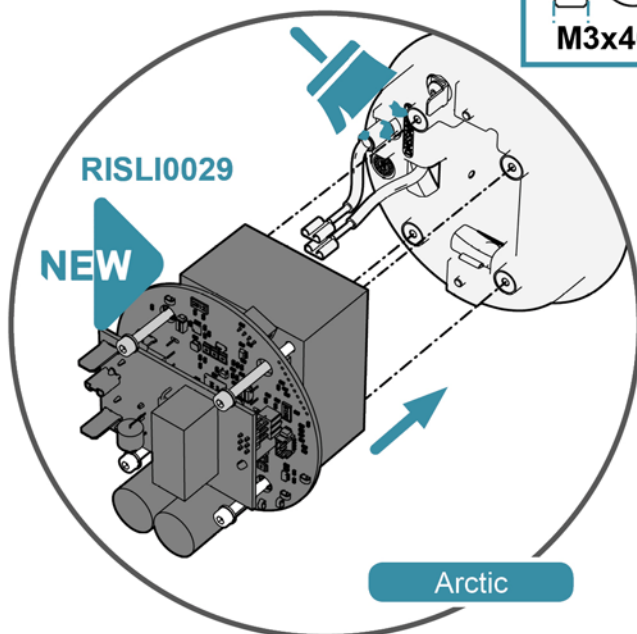
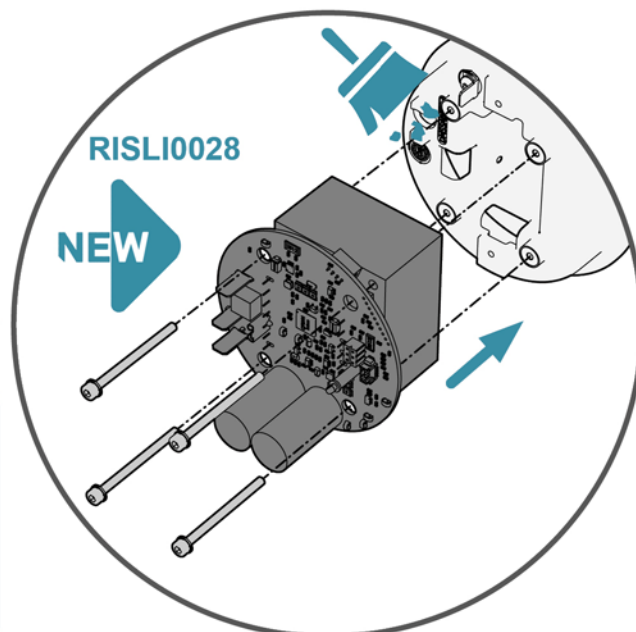


0,8 Nm

HEX



M3x40



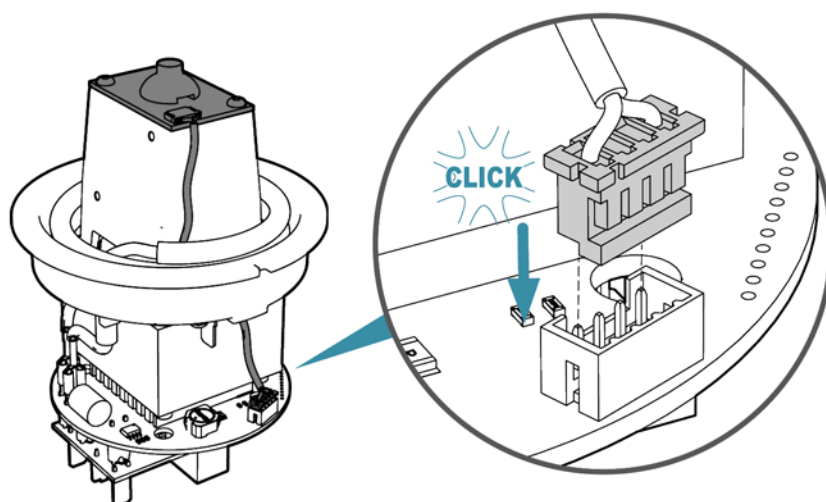
Carefully connect the power connector of the LED module taking care not to damage it.



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

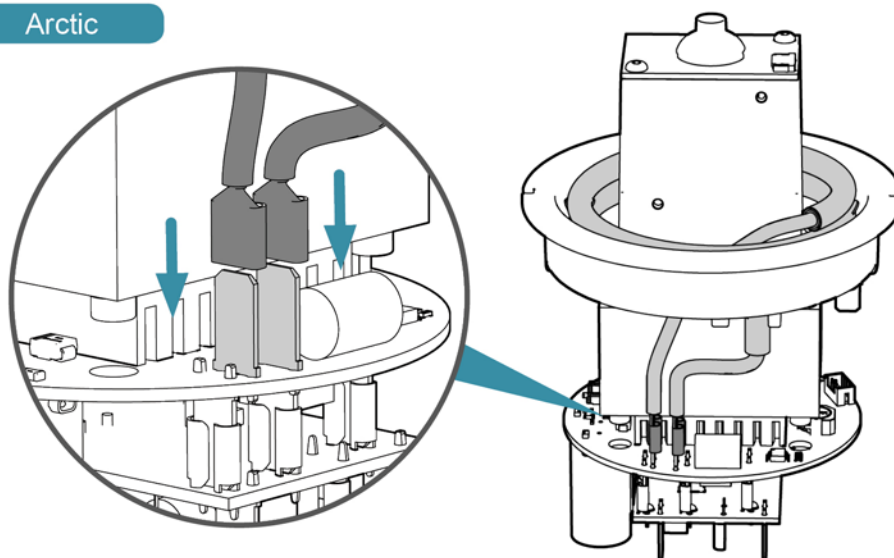
Carefully connect the power connectors of the arctic module, if present.

8



9

Arctic





Respect the direction of the dome and of cards during assembly phase.

Clean the internal surface of the glass dome.

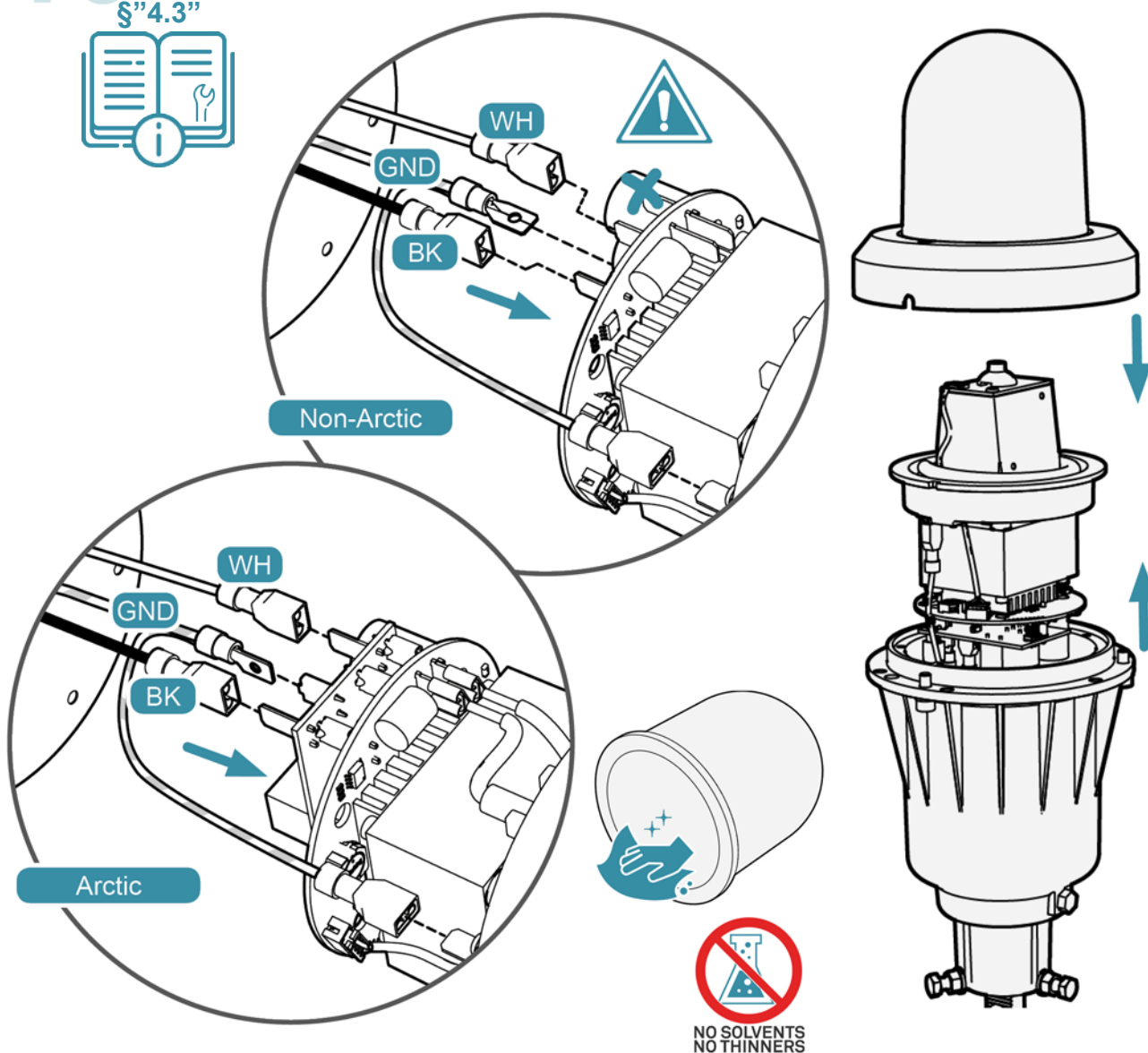


Do not use solvent or diluent products to avoid damaging the glass dome.
Dry thoroughly the internal sides of the device.

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

10

§"4.3"



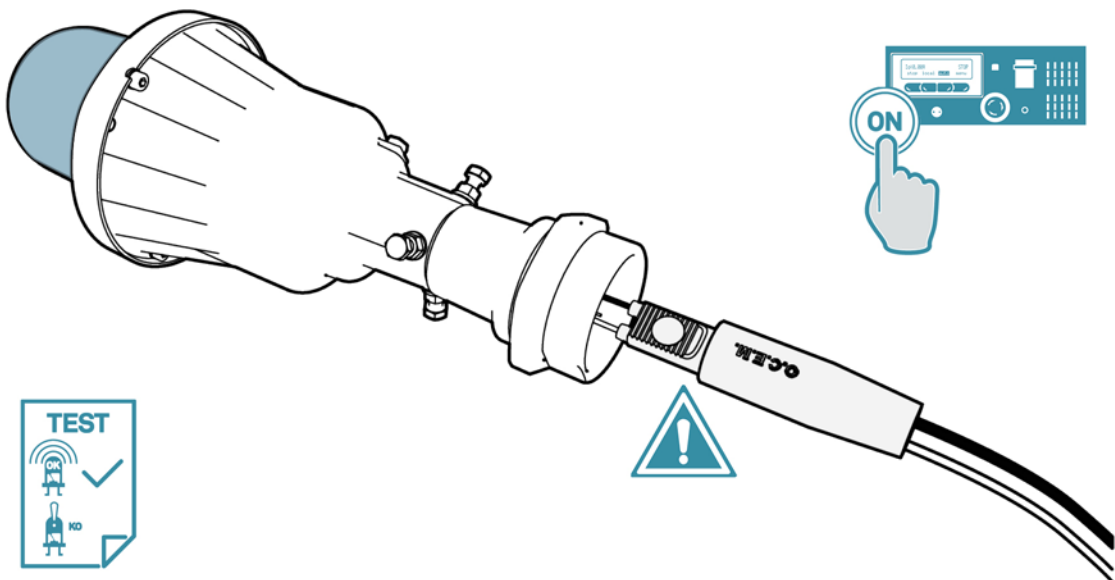
Connect the fixture to the test feed. Feed the fixture and check the proper functioning of the fixture. Interrupt the test feed and disconnect the fixture.

The device now is ready for the installation on the runway.

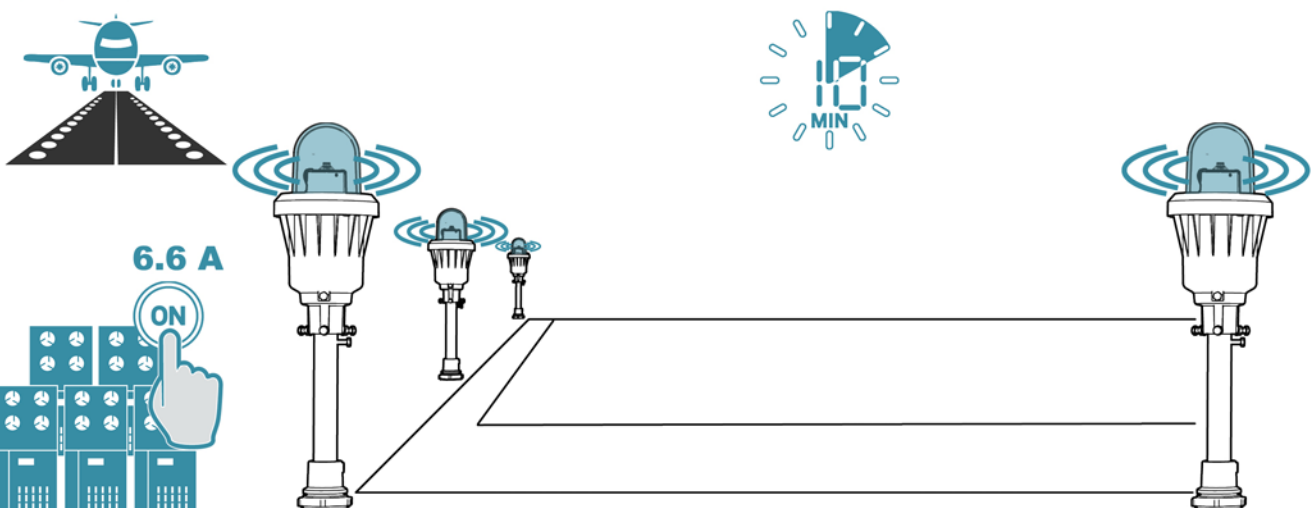


The fixture will self-calibrate during the first test ignition of the circuit: keep the circuit powered with a constant current of 6.6 A for at least 10 consecutive minutes.

11



12

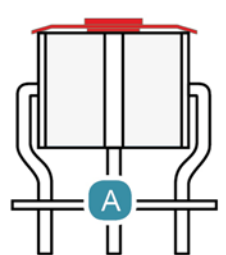
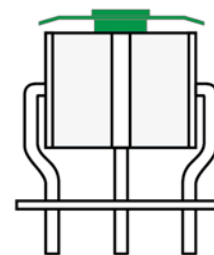
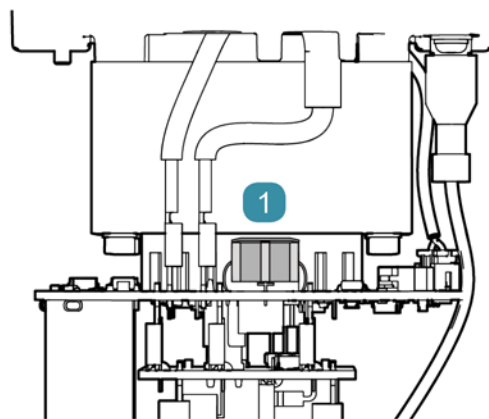
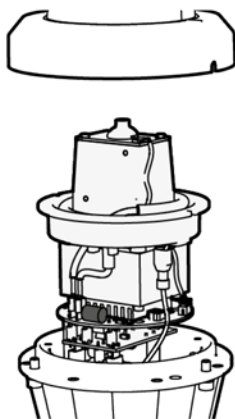


4.8 Troubleshooting



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 LEDs light up for a few seconds and then switch off.	One or more LEDs may be faulty in short-circuit mode.	Replace the damaged LED module (please see chapter §"4.6").
When the fixture is powered, the LEDs do not light up.	One or more LEDs may be faulty in open circuit mode.	Replace the damaged LED module (please see chapter §"4.6").
	The power cable of the faulty LED module may be disconnected or interrupted.	Check the status of the power cable of the LED module and, if necessary, restore the connection. In case of fault, replace the power cable of the damaged LED module (please see chapter §"4.6").
	The power cable of the fixture may be disconnected or interrupted.	Check the status of the power cable of the fixture and, if necessary, restore the connection. In case of fault, replace the power cable of the fixture (please see chapter §"4.5").
	The overvoltage protection device (1) located on the Driver Board (internal to the fixture) has tripped.	Check the status of the overvoltage protection device: if tripped (A), replace the Driver Board (please see chapter §"4.7").



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

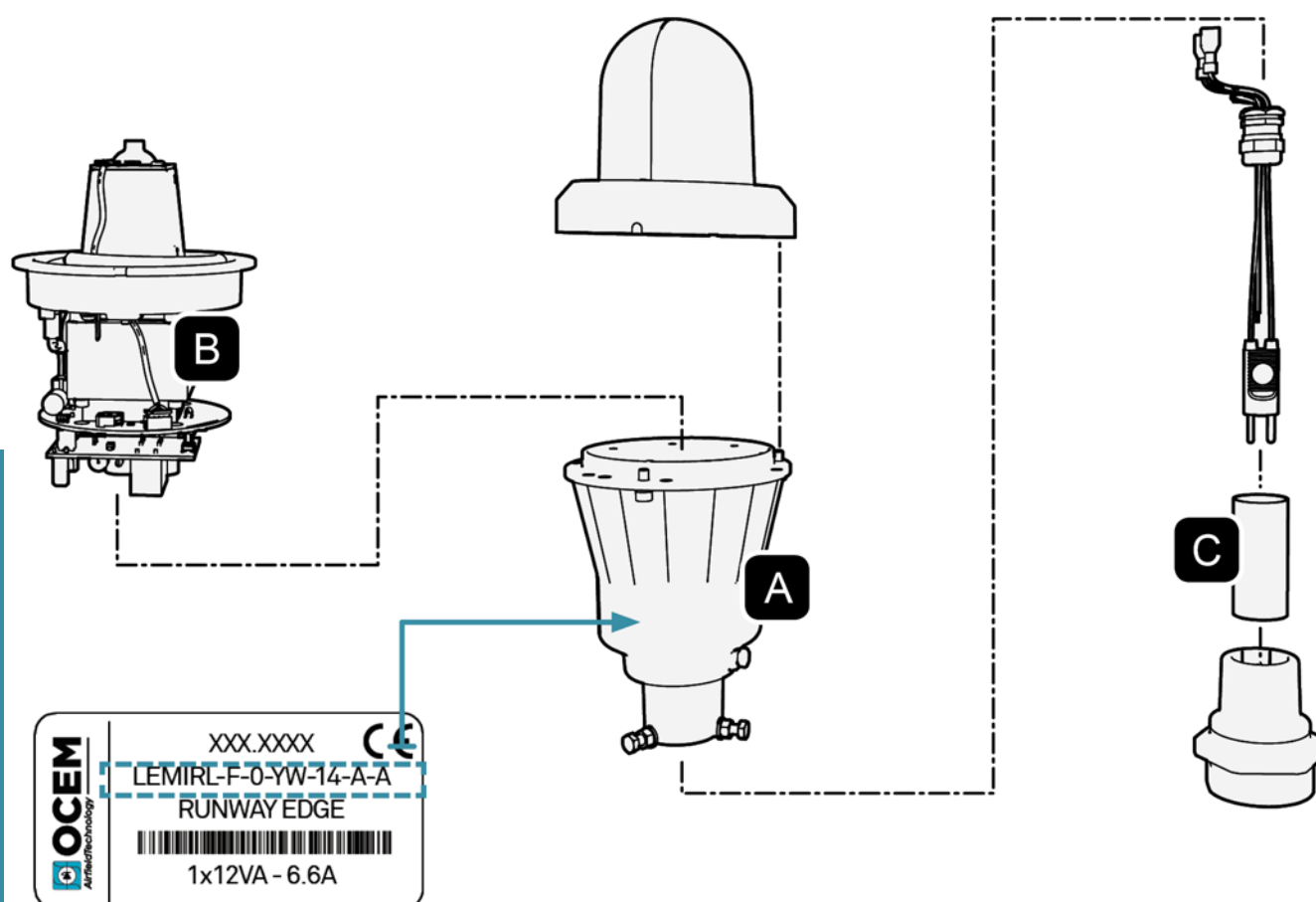
4.9 Spare parts



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

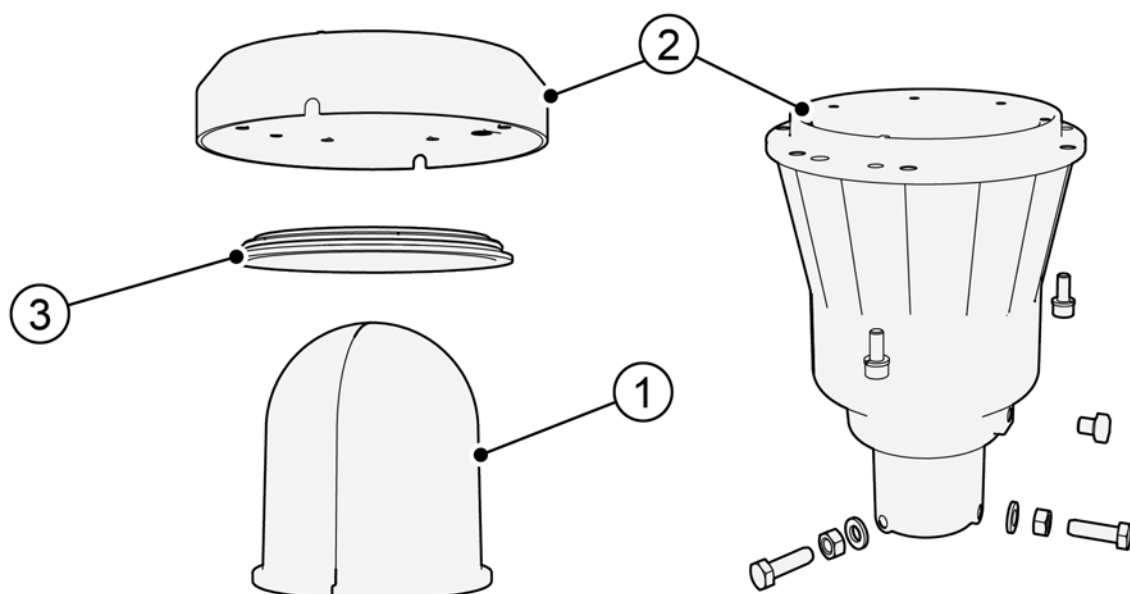
LEMIRL fixture	
A	Dome Unit
B	Fixture Electronics
D	Fastening System

Accessories	Code Art.
Seal grease (400 gr)	RISLX0003
Anaerobic adhesive for threads (LOCTITE 243)	RISLX0007



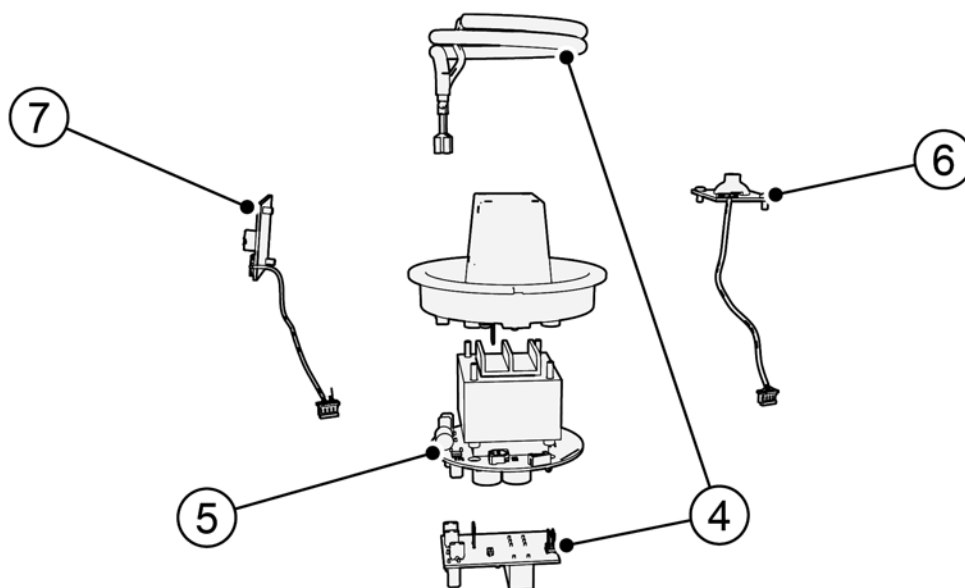
4.9.1 Dome Unit

Pos	Description	Fixture Code	Code Art.
1	Red/Black Dome with Fastenings LEMIRL	R-T-RM- - - - S-N-RM- - - -	RISLI0043
	White/Green Dome with Fastenings LEMIRL	S-N-GW- - - -	RISLI0042
	Yellow/Black Dome with Fastenings LEMIRL	R-R-YM- - - -	RISLI0041
	White/Black Dome with Fastenings LEMIRL	R-R-WM- - - -	RISLI0040
	Red Dome with Fastenings LEMIRL	F-E-RR- - - - S-N- R - - -	RISLI0039
	Green/Black Dome with Fastenings LEMIRL	F-E-GM- - - - F-S-GM- - - -	RISLI0037
	Green/Red Dome with Fastenings LEMIRL	F-E-RG- - - - F-S-RG- - - -	RISLI0036
	Yellow/Green Dome with Fastenings LEMIRL	F-O-GY- - - -	RISLI0035
	Yellow/Red Dome with Fastenings LEMIRL	F-O-YR- - - - R-R-YR- - - -	RISLI0034
	White/Red Dome with Fastenings LEMIRL	F-O-WR- - - - R-R-WR- - - -	RISLI0033
	White/Yellow Dome with Fastenings LEMIRL	F-O-YW- - - - R-R-YW- - - -	RISLI0032
	Yellow Dome with Fastenings LEMIRL	F-O- Y - - - - R-R- Y - - - -	RISLI0031
	White Dome with Fastenings LEMIRL	F-O- W - - - - R-A- W - - - - R-R- W - - - - R-T-GR- - - - R-T-GM- - - - C-M- W - - - - C-M- G - - - - C-M-GR- - - - C-D- G - - - - C-D-GM- - - - C-L- G - - - - C-L-GR- - - - C-L- W - - - -	RISLI0030
2	Assembled Body without Cable LEMIRL	always valid	RISLI0013
3	Dome seal	always valid	RISLI0044



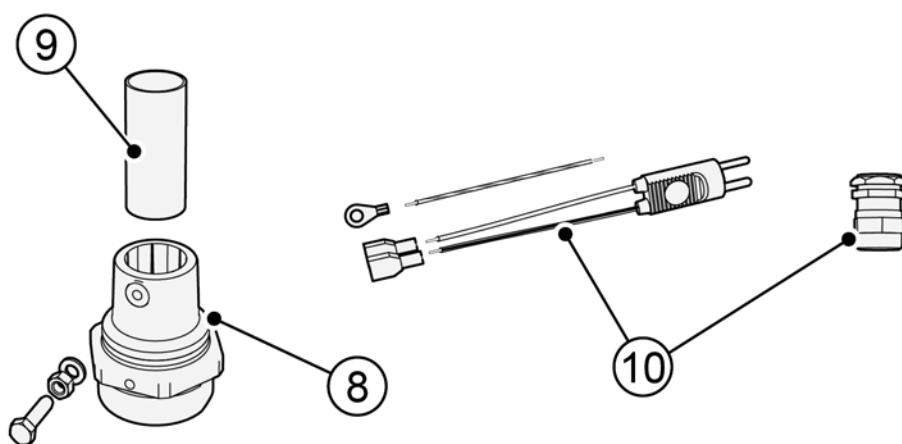
4.9.2 Fixture Electronics

Pos	Description	Fixture Code	Code Art.
4	Complete Arctic Kit F384+F385 LEMIRL	always valid	RISLI0029
5	F384 Driver Board LEMIRL	always valid	RISLI0028
6	F347 1 LED WHITE 500mA LEMIRL	F-0- W - - - - F-0- Y - - - - F-0-YW- - - - F-0-WR- - - - F-0-YR- - - - R-R- W - - - - R-R- Y - - - - R-R-YM- - - - R-R-YW- - - - R-R-WR- - - - R-R-YR- - - - R-R-WM- - - - R-T-RM- - - -	RISLI0022
	F347 1 LED WHITE 750mA LEMIRL	R-A- W - - - -	RISLI0024
	F347 1 LED WHITE 325mA LEMIRL	C-L- W - - - -	RISLI0023
	F377 6 LED WHITE 450mA LEMIRL	C-M- W - - - -	RISLI0018
	F377 6 LED CIANO 600mA LEMIRL	C-M- G - - - - C-D- G - - - -	RISLI0014
	F377 6 LED CIANO 250mA LEMIRL	C-L- G - - - -	RISLI0016
	F377 3LED GR+3LED WH LEMIRL	F-0-GY- - - - S-N-GW- - - -	RISLI0021
	F377 2LED CI+2LED RD 250mA LEMIRL	R-T-GR- - - - C-L-GR- - - -	RISLI0020
	F377 2LED CI+2LED RD 600mA LEMIRL	C-M-GR- - - -	RISLI0019
	F377 2 LED CIANO 600mA LEMIRL	R-T-GM- - - - C-D-GM- - - -	RISLI0017
7	F348-01 1 LED WHITE LEMIRL	F-E-RG- - - - F-E-RR- - - - F-S-RG- - - - S-N-RM- - - -	RISLI0027
	F348-01 1 LED GREEN LEMIRL	F-E-GM- - - - F-E-RG- - - -	RISLI0026
	F348-01 4 LED GREEN LEMIRL	F-S-GM- - - - F-S-RG- - - -	RISLI0025



4.9.3 Fastening system

Pos	Description	Fixture Code	Code Art.
8	Breakable coupling system 1" 1/2 - 12 UNF	- - - - A -	RISLI0005
	Breakable coupling system 2"- 11 1/2 NPS	- - - - B -	RISLI0006
	Breakable coupling system 1" 1/2 - 12 GAS	- - - - C -	RISLI0007
9	Pipe 1" - length 14" [355mm]	- - - 1 4 - -	RISLI0012
	Pipe 1" - length 20" [508mm]	- - - 2 0 - -	RISLI0008
	Pipe 1" - length 24" [609mm]	- - - 2 4 - -	RISLI0009
	Pipe 1" - length 30" [762mm]	- - - 3 0 - -	RISLI0010
10	Connection cable FAA L-823 Style 6 L=1.0m	always valid	RISLI0004



4.10 Product catalogue

Code Art.			Fixture type	Use		Dome	LED module	
				Standard	Reference		(A)	(B)
LEMIRL-F-0- W - - - - -0			OMNIDIRECTIONAL (White)	FAA/ICAO	L861 (L)	RISLI0030	RISLI0022	
LEMIRL-F-0- W - - - - -A			OMNIDIRECTIONAL (White)	FAA/ICAO	L861 (L)	RISLI0030	RISLI0022	
LEMIRL-F-0- Y - - - - -0			OMNIDIRECTIONAL (Yellow)	FAA/ICAO	L861 (L)	RISLI0031	RISLI0022	
LEMIRL-F-0- Y - - - - -A			OMNIDIRECTIONAL (Yellow)	FAA/ICAO	L861 (L)	RISLI0031	RISLI0022	
LEMIRL-F-0- YW - - - - -0			BIDIRECTIONAL (Yellow/White)	FAA/ICAO	L861 (L)	RISLI0032	RISLI0022	
LEMIRL-F-0- YW - - - - -A			BIDIRECTIONAL (Yellow/White)	FAA/ICAO	L861 (L)	RISLI0032	RISLI0022	
LEMIRL-F-0- WR - - - - -0			BIDIRECTIONAL (White/Red)	FAA/ICAO	L861 (L)	RISLI0033	RISLI0022	
LEMIRL-F-0- WR - - - - -A			BIDIRECTIONAL (White/Red)	FAA/ICAO	L861 (L)	RISLI0033	RISLI0022	
LEMIRL-F-0- YR - - - - -0			BIDIRECTIONAL (Yellow/Red)	FAA/ICAO	L861 (L)	RISLI0034	RISLI0022	
LEMIRL-F-0- YR - - - - -A			BIDIRECTIONAL (Yellow/Red)	FAA/ICAO	L861 (L)	RISLI0034	RISLI0022	
LEMIRL-F-0- GY - - - - -0			BIDIRECTIONAL (Yellow/Green)	FAA/ICAO	L861 (L)	RISLI0035	RISLI0021	
LEMIRL-F-0- GY - - - - -A			BIDIRECTIONAL (Yellow/Green)	FAA/ICAO	L861 (L)	RISLI0035	RISLI0021	
LEMIRL-F-E- RR - - - - -0			BIDIRECTIONAL (Red/Red)	FAA/ICAO	L861E (L)	RISLI0039	RISLI0027	
LEMIRL-F-E- RR - - - - -A			BIDIRECTIONAL (Red/Red)	FAA/ICAO	L861E (L)	RISLI0039	RISLI0027	
LEMIRL-F-E- RG - - - - -0			BIDIRECTIONAL (Red/Green)	FAA/ICAO	L861E (L)	RISLI0036	RISLI0027	
LEMIRL-F-E- RG - - - - -A			BIDIRECTIONAL (Red/Green)	FAA/ICAO	L861E (L)	RISLI0036	RISLI0027	
LEMIRL-F-E- GM - - - - -0			UNIDIRECTIONAL (Green)	FAA/ICAO	L861E (L)	RISLI0037	RISLI0026	
LEMIRL-F-E- GM - - - - -A			UNIDIRECTIONAL (Green)	FAA/ICAO	L861E (L)	RISLI0037	RISLI0026	
LEMIRL-F-S- RG - - - - -0			BIDIRECTIONAL (Red/Green)	FAA/ICAO	L861SE (L)	RISLI0036	RISLI0027	
LEMIRL-F-S- RG - - - - -A			BIDIRECTIONAL (Red/Green)	FAA/ICAO	L861SE (L)	RISLI0036	RISLI0027	
LEMIRL-F-S- GM - - - - -0			UNIDIRECTIONAL (Green)	FAA/ICAO	L861SE (L)	RISLI0037	RISLI0025	
LEMIRL-F-S- GM - - - - -A			UNIDIRECTIONAL (Green)	FAA/ICAO	L861SE (L)	RISLI0037	RISLI0025	
LEMIRL-R-A- W - - - - -0			OMNIDIRECTIONAL (White)	AP170	Approach	RISLI0030	RISLI0024	
LEMIRL-R-A- W - - - - -A			OMNIDIRECTIONAL (White)	AP170	Approach	RISLI0030	RISLI0024	
LEMIRL-R-R- W - - - - -0			OMNIDIRECTIONAL (White)	AP170	Runway	RISLI0033	RISLI0022	
LEMIRL-R-R- W - - - - -A			OMNIDIRECTIONAL (White)	AP170	Runway	RISLI0033	RISLI0022	
LEMIRL-R-R- Y - - - - -0			OMNIDIRECTIONAL (Yellow)	AP170	Runway	RISLI0031	RISLI0022	
LEMIRL-R-R- Y - - - - -A			OMNIDIRECTIONAL (Yellow)	AP170	Runway	RISLI0031	RISLI0022	
LEMIRL-R-R- YW - - - - -0			BIDIRECTIONAL (Yellow/White)	AP170	Runway	RISLI0032	RISLI0022	
LEMIRL-R-R- YW - - - - -A			BIDIRECTIONAL (Yellow/White)	AP170	Runway	RISLI0032	RISLI0022	

Code Art.	Fixture type		Use		Dome		LED module	
			Standard	Reference			(A)	(B)
LEMIRL-R-R- WR - - - - -0	BIDIRECTIONAL (White/Red)		AP170	Runway		RISLI0033	RISLI0022	
LEMIRL-R-R- WR - - - - -A	BIDIRECTIONAL (White/Red)		AP170	Runway		RISLI0033	RISLI0022	
LEMIRL-R-R- YR - - - - -0	BIDIRECTIONAL (Yellow/Red)		AP170	Runway		RISLI0034	RISLI0022	
LEMIRL-R-R- YR - - - - -A	BIDIRECTIONAL (Yellow/Red)		AP170	Runway		RISLI0034	RISLI0022	
LEMIRL-R-R- YM - - - - -0	UNIDIRECTIONAL (Yellow)		AP170	Runway		RISLI0041	RISLI0022	
LEMIRL-R-R- YM - - - - -A	UNIDIRECTIONAL (Yellow)		AP170	Runway		RISLI0041	RISLI0022	
LEMIRL-R-R- WM - - - - -0	UNIDIRECTIONAL (White)		AP170	Runway		RISLI0040	RISLI0022	
LEMIRL-R-R- WM - - - - -A	UNIDIRECTIONAL (White)		AP170	Runway		RISLI0040	RISLI0022	
LEMIRL-R-T- GR - - - - -0	BIDIRECTIONAL (Green/Red)		AP170	Threshold/End		RISLI0030	RISLI0020	
LEMIRL-R-T- GR - - - - -A	BIDIRECTIONAL (Green/Red)		AP170	Threshold/End		RISLI0030	RISLI0020	
LEMIRL-R-T- RM - - - - -0	UNIDIRECTIONAL (Red)		AP170	Threshold/End		RISLI0043	RISLI0020	
LEMIRL-R-T- RM - - - - -A	UNIDIRECTIONAL (Red)		AP170	Threshold/End		RISLI0043	RISLI0022	
LEMIRL-R-T- GM - - - - -0	UNIDIRECTIONAL (Green)		AP170	Threshold/End		RISLI0030	RISLI0017	
LEMIRL-R-T- GM - - - - -A	UNIDIRECTIONAL (Green)		AP170	Threshold/End		RISLI0030	RISLI0017	
LEMIRL-C-M- W - - - - -0	OMNIDIRECTIONAL (White)		CASA MOS	Medium Intensity		RISLI0030	RISLI0017	
LEMIRL-C-M- W - - - - -A	OMNIDIRECTIONAL (White)		CASA MOS	Medium Intensity		RISLI0030	RISLI0018	
LEMIRL-C-M- G - - - - -0	OMNIDIRECTIONAL (Green)		CASA MOS	Medium Intensity		RISLI0030	RISLI0014	
LEMIRL-C-M- G - - - - -A	OMNIDIRECTIONAL (Green)		CASA MOS	Medium Intensity		RISLI0030	RISLI0014	
LEMIRL-C-M- GR - - - - -0	BIDIRECTIONAL (Green/Red)		CASA MOS	Medium Intensity		RISLI0030	RISLI0019	
LEMIRL-C-M- GR - - - - -A	BIDIRECTIONAL (Green/Red)		CASA MOS	Medium Intensity		RISLI0030	RISLI0019	
LEMIRL-C-D- G - - - - -0	OMNIDIRECTIONAL (Green)		CASA MOS	Displaced Threshold		RISLI0030	RISLI0015	
LEMIRL-C-D- G - - - - -A	OMNIDIRECTIONAL (Green)		CASA MOS	Displaced Threshold		RISLI0030	RISLI0015	
LEMIRL-C-D- GM - - - - -0	UNIDIRECTIONAL (Green)		CASA MOS	Displaced Threshold		RISLI0030	RISLI0017	
LEMIRL-C-D- GM - - - - -A	UNIDIRECTIONAL (Green)		CASA MOS	Displaced Threshold		RISLI0030	RISLI0017	
LEMIRL-C-L- W - - - - -0	OMNIDIRECTIONAL (White)		CASA MOS	Low Intensity		RISLI0030	RISLI0023	
LEMIRL-C-L- W - - - - -A	OMNIDIRECTIONAL (White)		CASA MOS	Low Intensity		RISLI0030	RISLI0023	
LEMIRL-C-L- G - - - - -0	OMNIDIRECTIONAL (Green)		CASA MOS	Low Intensity		RISLI0030	RISLI0016	
LEMIRL-C-L- G - - - - -A	OMNIDIRECTIONAL (Green)		CASA MOS	Low Intensity		RISLI0030	RISLI0016	
LEMIRL-C-L- GR - - - - -0	BIDIRECTIONAL (Green/Red)		CASA MOS	Low Intensity		RISLI0030	RISLI0020	
LEMIRL-C-L- GR - - - - -A	BIDIRECTIONAL (Green/Red)		CASA MOS	Low Intensity		RISLI0030	RISLI0020	

Code Art.	Fixture type	Use		LED module	
		Standard	Reference	Dome (A)	(B)
LEMIRL-S-N- GW - - - -0	BIDIRECTIONAL (Green/White)	special version	Not regulated	RISLI0042	RISLI0021
LEMIRL-S-N- GW - - - -A	BIDIRECTIONAL (Green/White)	special version	Not regulated	RISLI0042	RISLI0021
LEMIRL-S-N- RM - - - -0	UNIDIRECTIONAL (Red)	special version	Not regulated	RISLI0043	RISLI0027 ---
LEMIRL-S-N- RM - - - -A	UNIDIRECTIONAL (Red)	special version	Not regulated	RISLI0043	RISLI0027 ---

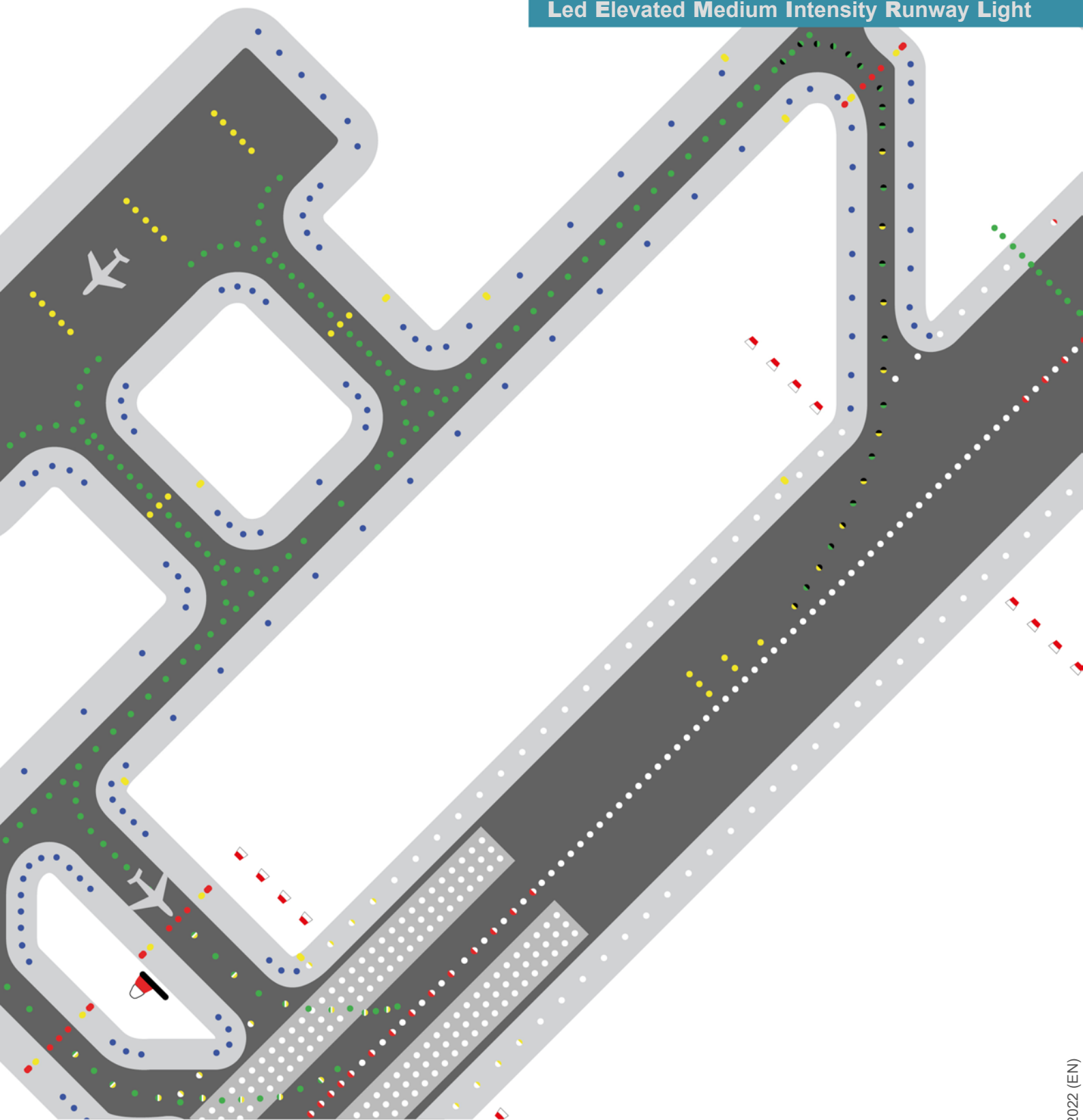
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Led Elevated Medium Intensity Runway Light



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OCEM AIRFIELD

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