



# Installation and Maintenance Manual

## Elevated Fixture - HIRE

## Preface



Please read carefully and understand the contents of this manual.

Failure to read the manual may result in serious injury or even death, or serious damage to equipment.

Make sure this manual is always accessible for all users and ensure you have read and understood the contents.

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The English version of this document is the original version; this language version is verified by the manufacturer. All other language versions are translations of the original English language version.

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# 1 About this manual

This manual contains information about the installation, de-installation, maintenance and troubleshooting of the CEDD Elevated Fixture - HIRE. It also contains guidance for taking the product out of service and its safe disposal.

## 1.1 Symbols Used

The following marking conventions are used in this manual to draw attention to specific topics or actions.



**DANGER**

indicates a hazardous situation that, if not avoided, will result in death or serious injury.



**WARNING**

indicates a hazardous situation that, if not avoided, could result in death or serious injury.



**CAUTION**

indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.

**NOTICE**

is used in this manual to indicate a situation that could result in damage to property or equipment.

The following symbols are used on equipment and in this manual to warn of potential hazards:



Danger of electrical shock or arc flash. Failure to observe this warning will result in serious injury or death.



Warning or Caution: where this symbol is used on the equipment, it is mandatory to consult the manual to find out the nature of potential hazards and any actions which have to be taken to avoid them.

## 1.2 Storing the Manual

This manual is a part of your product. Store the manual in a location that can be easily accessed by personnel working on the product.

It is the responsibility of the company operating this equipment to ensure that its personnel is provided with a copy of this manual.

## 1.3 Limitations of the Document

TKH Airport Solutions reserves the right to revise this document without notification.

The data provided in this document is based on the most recent information at the time of publication. TKH Airport Solutions is continually seeking to ensure that its products are developed to the latest technological standards. As a result, it is possible that there may be some differences between the product and the information in this manual.

For further information regarding adjustment, maintenance or repair which is not described in this document, please contact the Customer Service department of TKH Airport Solutions.

The information in this document concentrates solely on use of the products as intended by the manufacturer.

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## 1.4 Terms and Abbreviations

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This document may include the terms and abbreviations as listed below.

AGL	Airfield Ground Lighting
CEDD	Contactless Energy and Data Distribution
EASA	European Aviation Safety Agency
HIRE	High Intensity Runway Edge
HPS	High Power System
ICAO	International Civil Aviation Organization
IEC	International Electrotechnical Committee
LED	Light Emitting Diode
NUID	Node Unique Identification

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## 1.5 Trademarks

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CEDD® is a registered trademark of USE System Engineering Holding B.V. in the European Union. Other product names mentioned may be trademarks of TKH Airport Solutions B.V., USE System Engineering Holding B.V., or their affiliated companies.

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## 1.6 Liability and Warranty

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TKH Airport Solutions cannot be held responsible for injuries or damage resulting from non-standard, unintended use, faulty or improper installation of its equipment, or failure to follow the instructions and safety guidelines in this manual. The safety of any system incorporating the Elevated Fixture - HIRE is the responsibility of any site installation, commissioning, maintenance, and operational personnel using the system.

**NOTICE** Disregarding the safety instructions in this manual will result in the loss of warranty in case of damage.

Refer to the general TKH Airport Solutions Terms and Conditions document supplied with your sales order contract for a complete liability and warranty description.

## 1.7 Manufacturer Details

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For service requests, please contact the TKH Airport Solutions Customer Service department [service@tkh-airportsolutions.com](mailto:service@tkh-airportsolutions.com)

## 1.8 Document Information

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For the latest version of this document see <https://www.tkh-airportsolutions.com/airfield-products/> or scan

## 2 Safety

When performing installation, maintenance or service activities, always carry out these activities with the greatest caution to avoid injuries or damage to the CEDD Elevated Fixture - HIRE. All activities may only be performed by qualified and authorized personnel (see below). It is the responsibility of those in charge of preparing and/or supervising such work to take the necessary actions to ensure safe working conditions.

Always work safely and comply with procedures, regulations and local standards. If any of the warnings or safety requirements in this document are in conflict with existing local regulations, then the strictest regulation must take precedence.

Thoroughly read and observe all safety instructions in this document.

**⚠ WARNING** Disregarding the safety instructions in this manual could result in serious injury or death.

### 2.1 Qualified Personnel

Only qualified and authorized personnel are allowed to install, operate or maintain this equipment.

The term "qualified personnel" is defined here as individuals who thoroughly understand the equipment and its safe installation, operation or maintenance. Qualified personnel are physically capable of performing the required tasks, are familiar with all relevant and local safety rules and regulations, and have been trained to safely install, operate or maintain the equipment. It is the responsibility of the company installing, operating or maintaining this equipment to ensure that its personnel meet these requirements.

### 2.2 Intended Use

The CEDD Elevated Fixture - HIRE is designed and intended only for the purpose of Airfield Ground Lighting (AGL) at airfields and airports as described in this manual. Intended use also includes the observance of all procedures, inspection and maintenance instructions described in this manual.

Any other usage that is not described in this manual is considered unintended use. Unintended use includes but is not limited to the following actions:

- allowing unskilled personnel to perform any task on or with the equipment
- making changes to the equipment that have not been recommended or described in this manual or using parts that are not approved by TKH Airport Solutions.
- using materials or auxiliary equipment that are inappropriate or incompatible with TKH Airport Solutions equipment.
- failing to make sure that auxiliary equipment complies with approval agency requirements, local codes, and all applicable safety standards, provided that they are not in violation of national regulations

**⚠ WARNING** Using this equipment in ways other than described in the manual could result in serious injury or death and/or material damage.

The CEDD Elevated Fixture - HIRE may only be used with CEDD system components approved by TKH Airport Solutions:

- CEDD Elevated Base
- CEDD Cable
- CEDD HPS Terminator
- CEDD HPS Basestation
- CEDD Master CMS
- CEDD Master AM

**NOTICE** It is not allowed to connect the CEDD Fixtures to components other than approved CEDD components.

## 2.3 General safety rules

Become familiar with the general safety instructions in this section of the manual before installing, operating, maintaining or repairing this equipment.

- Make this manual available to personnel installing, operating, or maintaining this equipment.
- Only qualified personnel are allowed to install, operate or maintain this equipment (see *Qualified Personnel* on page 8).
- Always use the required personal protective equipment (PPE).
- Never look directly in the light source while the fixture is switched on.
- Always follow safe electrical work practices.
- Follow all applicable safety procedures required by your company, industry standards and government or other regulatory agencies.
- Read all system component manuals before operating this equipment. A thorough understanding of system components and their operation will help you to operate the system safely and efficiently.
- Do not deactivate or bypass automatic safety interlocks or locked-out electrical disconnects.
- Protect equipment with safety devices as specified by applicable safety regulations.
- Use this equipment only in the environments for which it is rated.
- Never operate equipment with a known malfunction. If a malfunction occurs, turn the equipment OFF immediately.
- In any of the following cases the equipment must be taken out of service and locked away from unauthorized use. This is necessary:
  - If the housing or the electrical wiring is visibly damaged
  - If the housing or the electrical wiring has loose parts
  - If the equipment malfunctions
  - After excessive transportation stress (for example in damaged or defective packaging)

## 2.4 Electrical hazards

- ⚠ WARNING** • Never open the equipment while the power supply is switched ON.
- Never touch exposed electrical connections on this equipment while the power supply is switched ON.
- Do not attempt to operate or service electrical equipment if standing water is present.
- When working on the equipment always wear appropriate protective clothing.

## 2.5 Transport and Storage

- If the equipment is stored before installation, it must be protected from the weather in a dry and secure environment, free of condensation and dust.
- Keep the equipment in the original packing it was shipped in, until it is going to be installed.

## 3 About the CEDD Elevated Fixture - HIRE

### 3.1 About CEDD

CEDD is an innovative contactless energy and communication technology. Energy and data transport are combined in a two-wire cable system, a basestation, and contactless user points. With this structured cable concept, lighting on airfields can easily be installed or replaced without making electrical contact with the power or data cable.

The CEDD system has been specifically designed for the operation of Airfield Ground Lighting (AGL) systems on airports, with the highest possible reliability.

### 3.2 About the CEDD Elevated Fixture - HIRE

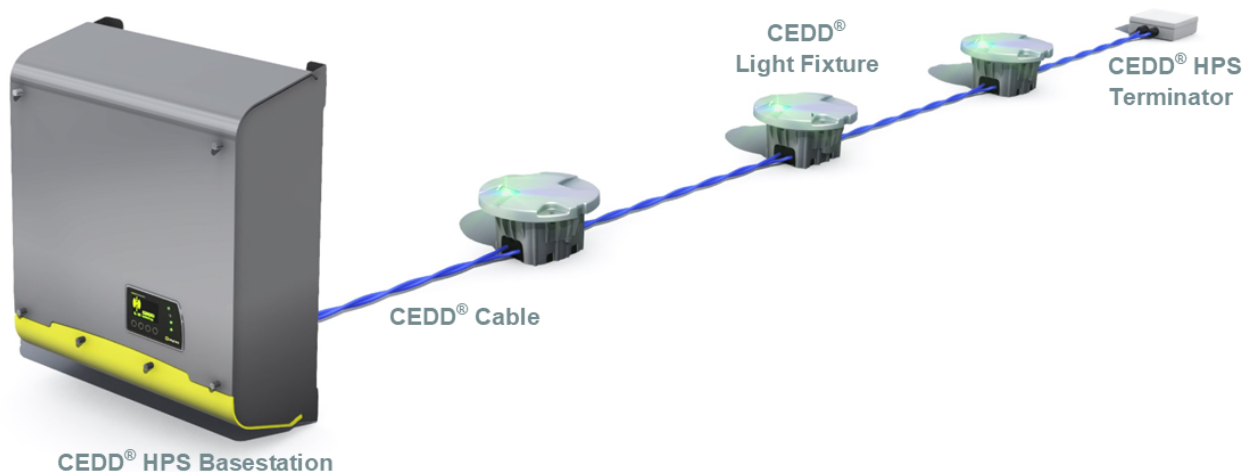
The CEDD Elevated Fixture - HIRE can be used as a Runway Edge (REH) or Threshold/Runway End (THRE) light.

Most of the TKH Airport Solutions fixtures are available in CEDD.

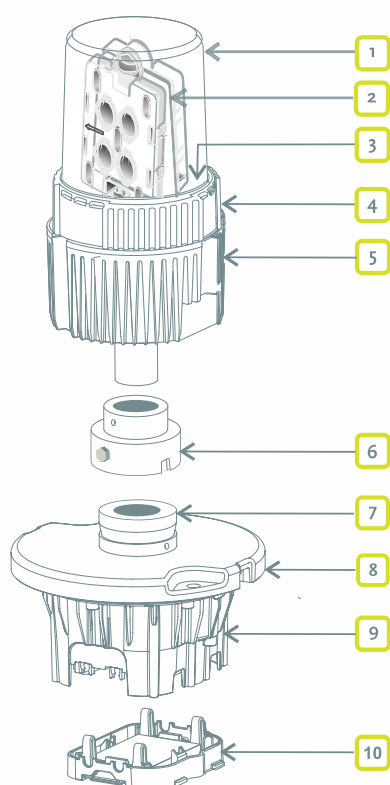
Refer to our website <http://www.tkh-airportsolutions.com> to see all the available variants of CEDD fixtures.

#### 3.2.1 Position in the CEDD AGL System

A typical CEDD AGL System consists of a CEDD HPS Basestation that provides power to the CEDD AGL LED fixtures and bi-directional communication to all the CEDD AGL LED fixtures connected to the CEDD cable. A CEDD HPS Terminator matches the correct characteristic impedance of the CEDD cable with the connected CEDD AGL LED fixtures.



### 3.2.2 CEDD Elevated Fixture - HIRE: Parts



1. Glass dome
2. LED module holder
3. Silica gel bags and covers (not visible here, inside the housing)
4. Plastic closure ring
5. Electronic driver/heat sink
6. Breakable coupling type C (CEDD )
7. Coupling collar
8. CEDD Elevated base top cover
9. CEDD Inductive clamp
10. Inductive clamp lid

#### Spare parts for CEDD Elevated Fixture - HIRE

Pos.	Name	Order code
1a	Glass dome	200.833-007
1b	Flat gasket for glass dome	230.063-017
2a	LED module A white	
2b	LED module B white	
2c	LED module A yellow	
2d	LED module B yellow	
2g	LED module A green	
2h	LED module B green	
2e	LED module A red	
2f	LED module B red	
3a	Silica gel bag	P-650140
3b	Cover for silica bag	230.274-00
4	Plastic ring for dome	230.066-017
5	Heat sink/Electronic Driver	201.150-10
6	Breakable coupling type C (CEDD)	790902/2

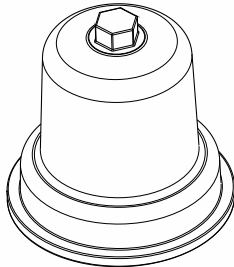


### 3.2.3 Accessories

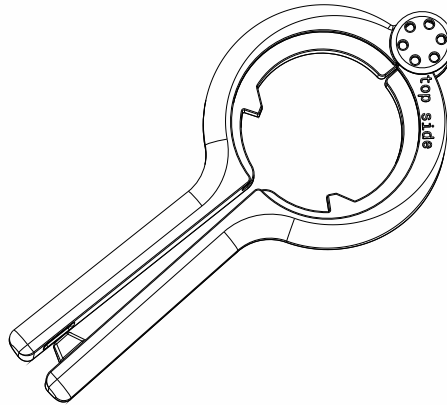
The following accessories are available for the CEDD Elevated Fixture - HIRE and the CEDD Elevated Base:

**HIRE Assembly Tool 796104** consists of 2 parts (see *Opening and Closing the Fixture* on page 31)

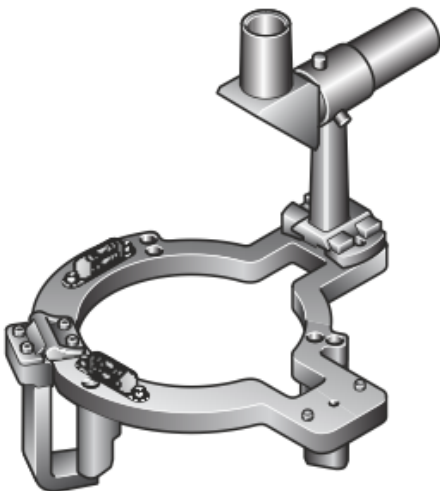
**HIRE Mounting Hood**



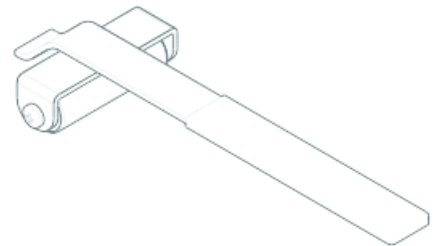
**HIRE Holder Key**



**HIRE Adjustment Tool 796101** (see *Aligning the Lights* on page 20)



**302312 Lifting tool** for removing the CEDD Elevated Base from a shallow base



Please contact our Sales team to know which accessories are required for your application.

### 3.2.4 Specifications

Refer to the datasheet of your fixture to read the specifications of the product.

<http://www.tkh-airportsolutions.com/airfield-products>

## 4 Inspection

### Inspect the transport boxes

Before installation, the transport boxes must be inspected for damage and defects. If the transport box appears to be damaged, keep the transport box and cushioning material until the contents of the box have been checked for completeness and the CEDD fixture is checked mechanically and electrically.

**NOTICE** If the CEDD fixture has been damaged during transport, put the product and all other parts back into the transport box and contact your shipper and carrier.

### Inspect the contents of the transport boxes

The transport boxes must contain the following items:

- CEDD Elevated Fixture - HIRE
- Breakable Coupling type C (CEDD) attached to the fixture, including 2 M6 Hex screws
- CEDD Elevated Base type 2

Inspect the contents of the transport boxes. If any item is missing, contact TKH Airport Solutions Customer Service.

### Inspect the CEDD fixture and accessories

Unpack and inspect the CEDD Elevated Fixture - HIRE and CEDD Elevated Base. If there is any visible damage or defect, contact your local TKH Airport Solutions agent, or TKH Airport Solutions Customer Service [service@tkh-airportsolutions.com](mailto:service@tkh-airportsolutions.com).

## 5 Installation

- ⚠ WARNING**
- Before you begin working on the CEDD Elevated Fixture - HIRE, you must make sure that AC mains power and Logic AC mains power of the CEDD HPS Basestation have been shut off. The circuit breakers must be in the OFF position
  - Wait a minimum of 15 minutes for the system to de-energize.

**NOTICE** It is essential that the shallow bases are precisely aligned with the runway edge, threshold or runway end, to ensure that the lights will be properly aligned for use.

Install the CEDD Elevated Base and mount the Elevated Fixture - HIRE with breakable coupling in the following order:

1. *Installing a CEDD Elevated Base in 8" Shallow Base* on page 16.
2. *Mounting a Fixture onto the CEDD Elevated Base* on page 18

### 5.1 Tools and Materials Needed

#### Tools

- A clean, flat working surface
- A piece of foam packaging material with a hole in the center to support the collar on top of the Elevated Base
- A bag to collect any debris removed from the shallow base
- Non-caustic cleaning agent
- Calibrated torque wrench (with 10 mm socket)
- A Hex socket (17 mm)
- Allen key (3 mm)
- Allen key (5 mm) for light alignment
- HIRE Adjustment Tool

#### Materials

- CEDD Elevated Base type 2 for installation in a shallow base
- Shallow base (8")
- M10 hex bolts and washers (as supplied with the shallow base)
- 2 M10 hex socket positioning screws

## 5.2 Installing a CEDD Elevated Base in 8" Shallow Base

1. Remove any debris from the shallow base and collect in a bag. No material may be left inside the shallow base. Clear the inner rim of sand and dust. Clean the inside of the shallow base using a non-caustic cleaning agent.



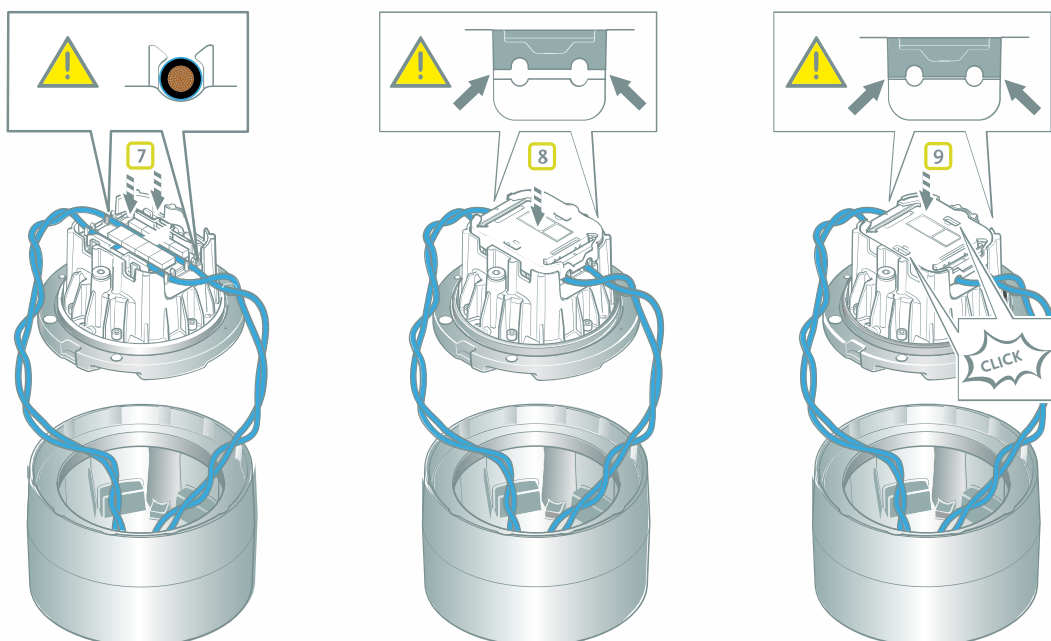
2. Remove the CEDD Elevated Base from its packaging and carefully put it upside down on a clean, flat working surface. Use a piece of foam packaging material with a hole in the center to support the collar.

**NOTICE** Avoid applying excessive force on the rubber receptacle.

3. Record the NUID of the CEDD Elevated Base (QR-code on the sticker) and its aeronautical name.

**NOTICE** Information about NUIDs and their related aeronautical names is vital for commissioning and operation of the CEDD AGL system.

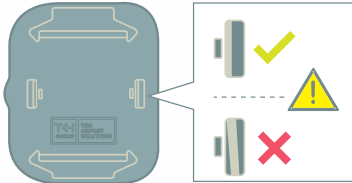
4. Unlock the CEDD inductive clamp by pressing the two flanges on both sides inwards.
5. Lift the inductive clamp lid with small tilting movements and remove it.
6. Make sure the O-ring is properly seated in the groove in the top cover of the CEDD Elevated Base.



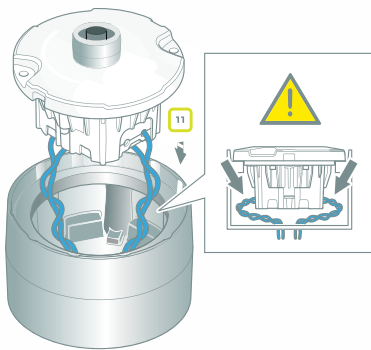
8. Reposition the CEDD inductive clamp lid. The inductive clamp lid only fits in one way. The rounded notch on one side and the plastic retention protrusions make sure of this.
9. Firmly push down the inductive clamp lid until you hear the metal retention brackets click into place.

**NOTICE** Do not apply excessive force on the inductive clamp lid, as this could damage the CEDD Elevated Base and ferrite parts.

10. Verify that the two metal retention brackets are visible and aligned straight with the inductive clamp.



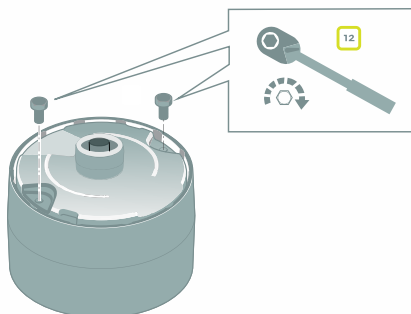
11. Turn the CEDD Elevated Base the right way up and guide the elevated base and cables into the shallow base.



It is important to position the CEDD Elevated Base in the shallow base correctly to ensure the required light output direction. The positioning screw on the coupling collar (1) must be aligned opposite to the runway arrow (2) on the LED module in the fixture.

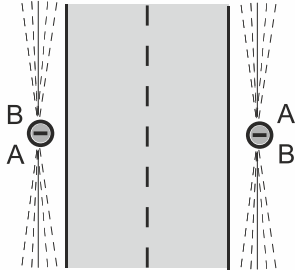


12. Mount the CEDD Elevated Base onto the shallow base with 2 bolts and washers. Tighten the bolts using a calibrated torque wrench to the torque value given in the shallow base installation instructions.



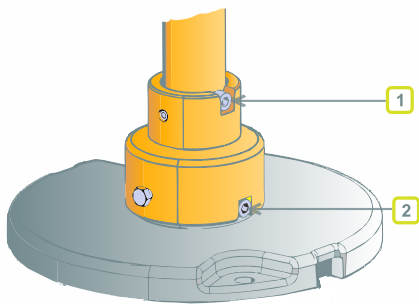
## 5.3 Mounting a Fixture onto the CEDD Elevated Base

1. Position the fixture at 0 degrees to the runway (with the label facing the runway). Make sure that the colors on the A and B-sides are facing in the required light output direction along the runway. The colors on each side are written on the fixture label.



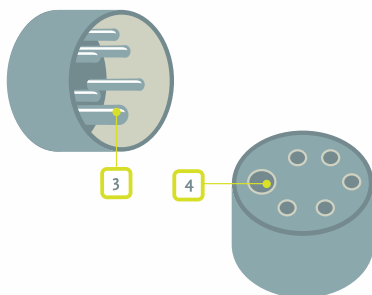
**NOTICE** An arrow on the LED module points in the direction of the runway side.

2. Mount the positioning screws in the fixture foot (1) and in the coupling collar (2) of the CEDD Elevated Base. The positioning screws ensure that the fixture is installed in the right direction on the Elevated Base
3. Lower the fixture over the collar ensuring that the recess in the coupling slides over the positioning screw in the coupling collar (2).



4. Press the fixture down firmly until the connector plugs into the receptacle on top of the CEDD Elevated Base.

When correctly positioned, the positioning pin in the fixture connector (3) will be aligned with the hole in the receptacle of the Elevated Base (4).



5. Tighten the 2 coupling screws onto the collar with a torque wrench (9 Nm).



**NOTICE** Do not try to rotate the light fixture on the elevated base after connection – this can break the connector. If you need to turn the elevated base by 180° you must de-install the elevated base and re-install it in the shallow base the right way round (see *Installing a CEDD Elevated Base in 8" Shallow Base* on page 16, step 11).

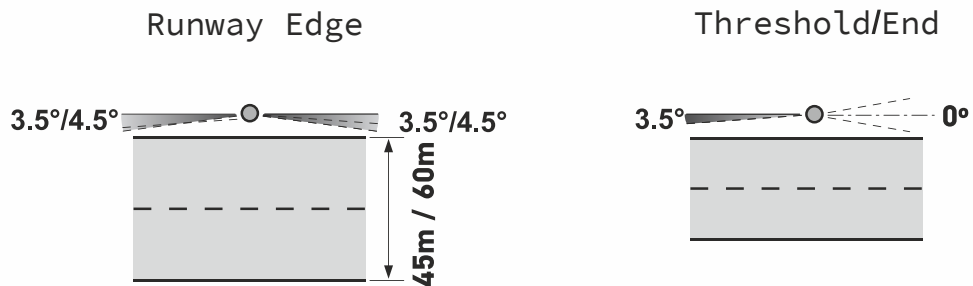
## 5.4 Checking the Installation

Visually inspect the CEDD fixture after installation to check that:

- the CEDD Elevated Fixture - HIRE is undamaged
- the top cover of the CEDD Elevated Base is undamaged
- the top cover of the CEDD Elevated Base is fitted flush to the shallow base all around the circumference.
- all bolts are secure

After installation each light must be precisely aligned with the adjacent light on the runway edge or threshold end. See *Aligning the Lights* on page 20.

**NOTICE** The correct toe-in angle for runway edge or threshold end is preset in the fixture type. It is therefore essential that the fixture is installed at 0 degrees to the runway edge or threshold/runway end.

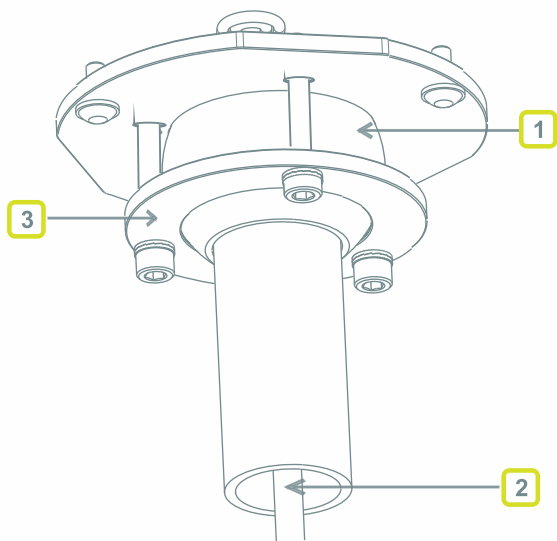


## 5.5 Aligning the Lights

After each fixture is installed, it must be precisely aligned with the adjacent light on the runway edge or threshold end.

The CEDD Elevated Fixture - HIRE is mounted on an adapter ball (1) in the lower part of the fixture housing. An internal cable (2) passes through the center of the adapter ball from the light to the connector plug. To precisely align the lights along the runway edge or threshold end, you can adjust the adapter ring (3) to allow a few degrees of rotational movement in the fixture.

If you need to rotate the fixture by more than 180°, you should de-install the fixture and the CEDD Elevated Base, and turn the fixture 180° in the shallow base. You can then fine-adjust the fixture using the adapter ring.

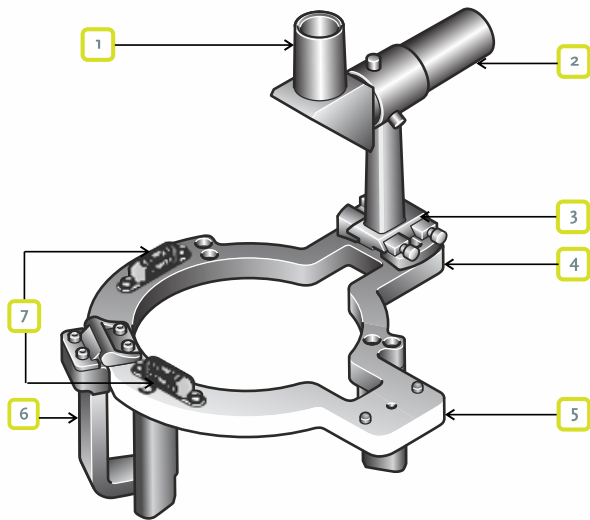


### Tools needed:

The HIRE Adjustment tool allows you to see whether the light is precisely aligned with the adjacent light.



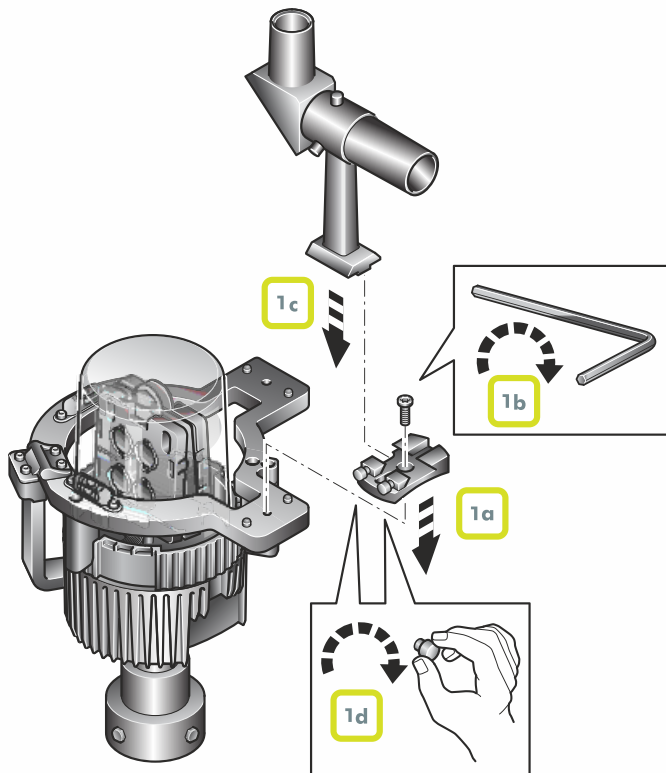
## 5.5.1 Setting up the HIRE Adjustment Tool



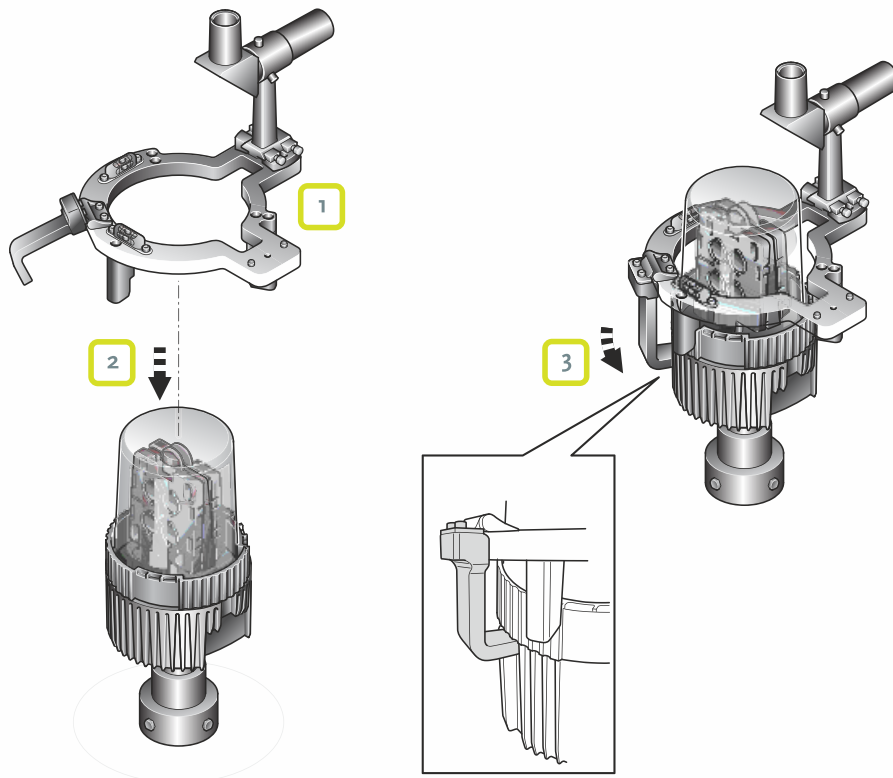
1. Viewfinder
2. Telescope
3. Viewfinder shoe
4. Mounting position 1
5. Mounting position 2
6. Positioning bracket
7. Level

The telescope is mounted on mounting position 1 for Runway Edge lights, and on position 2 for Threshold/End lights.

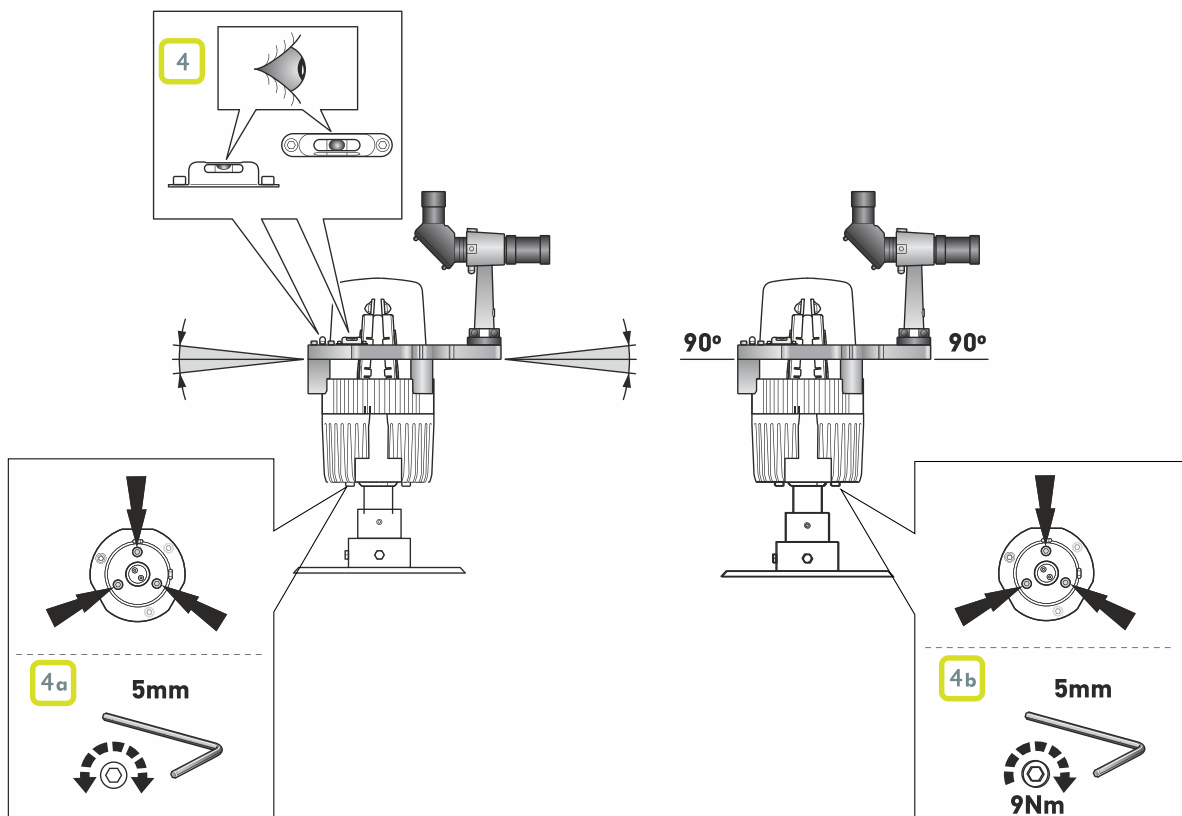
1. To mount the telescope onto the adjustment tool:



- a. Place the viewfinder shoe onto the appropriate mounting plate (1 or 2).
  - b. Attach the shoe to the mounting plate with the top bolt using an Allen key.
  - c. Lower the telescope onto the mounting plate.
  - d. Screw in the side bolt by hand.
2. Mount the adjustment tool with telescope onto the light fixture.



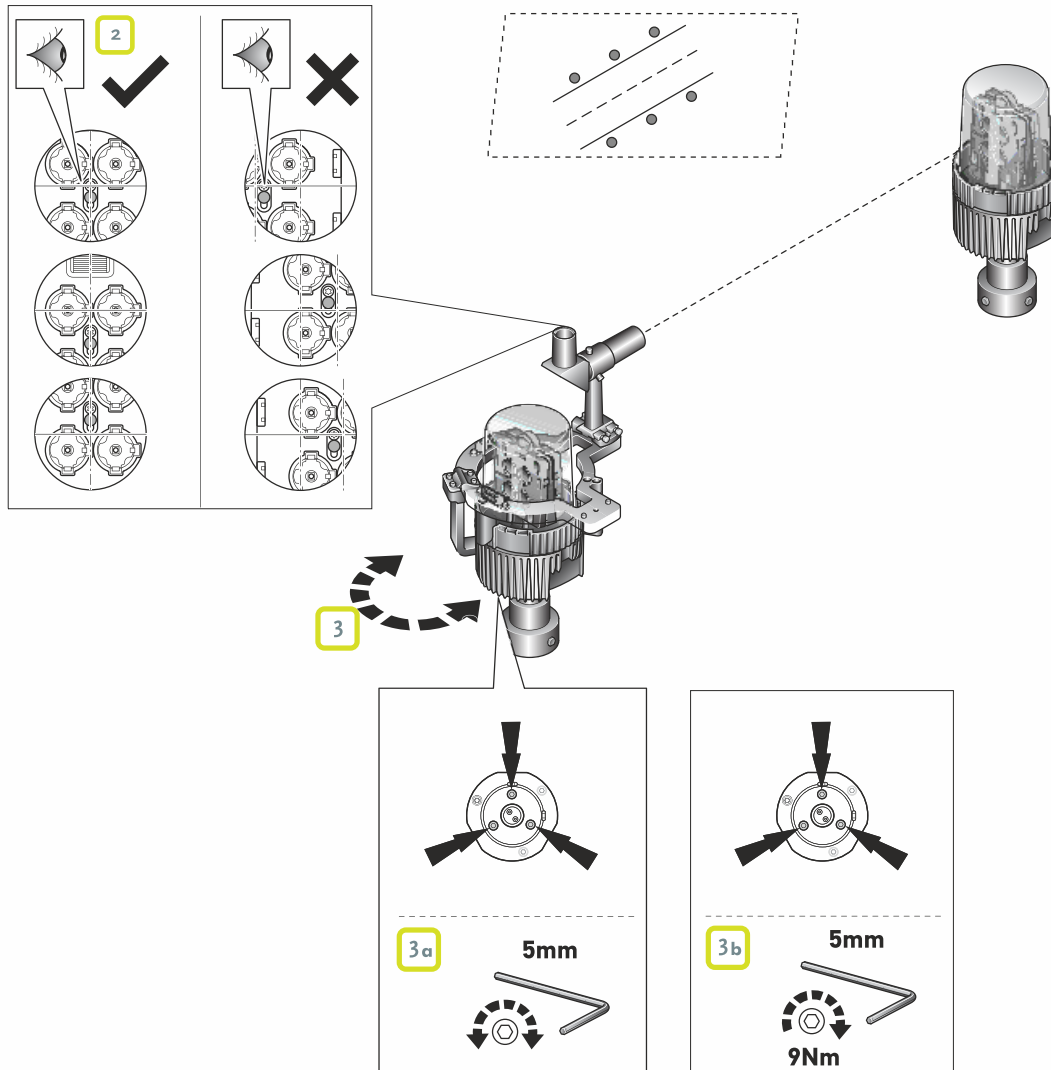
3. Clip the positioning bracket of the tool under the rim of the fixture housing.
4. Check that the adjustment tool is mounted horizontally using the level on the tool.
  - a. Adjust the 3 screws on the adapter ring using a 5 mm Allen key until the tool is horizontal.
  - b. Retighten the screws to 9 Nm.



## 5.5.2 Aligning High Intensity Runway Edge Lights

To align the lights on a runway edge, follow the steps below.

1. Mount the telescope onto mounting position 1 (at 90° to the surface of the LED light module). Mount the adjustment tool onto the fixture. (See *Setting up the HIRE Adjustment Tool* on page 21).
2. Look at the adjacent light fixture through the viewfinder. You should see the reticle centered on the surface of the LED module of the other light as shown here.



3. If the LED module of the adjacent light is not centered in the reticle:
  - a. Loosen the 3 screws on the adapter ring and rotate the ring carefully to the left or right until you see the reticle centered on the LED module.

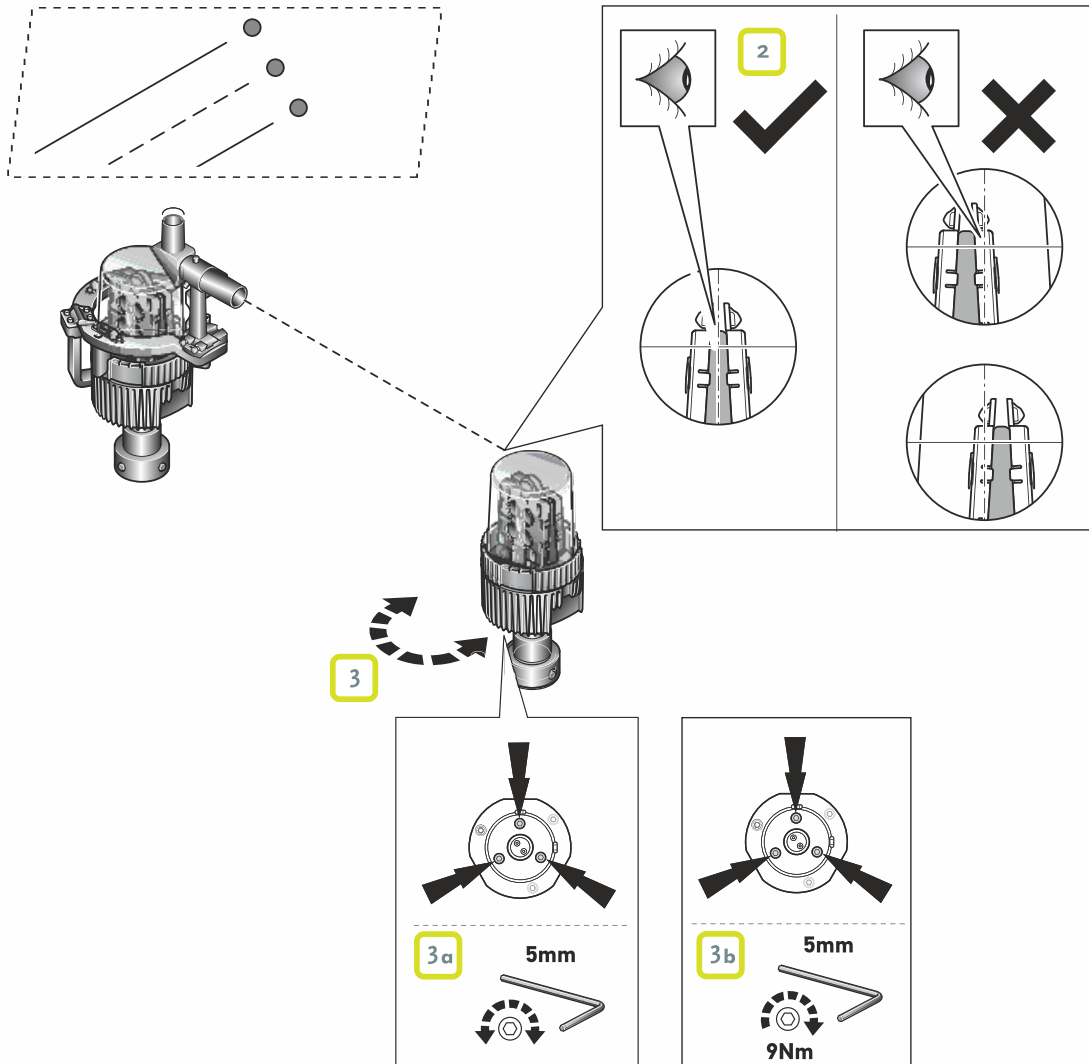
**NOTICE** Do not rotate the adapter ring by more than a few degrees - this can overtighten the internal cable .

- b. Check that the adjustment tool is still horizontal using the level on the tool (See *Step 4 in Setting up the HIRE Adjustment Tool*).
  - c. Retighten the screws on the adapter ring to 9 Nm.
4. Remove the adjustment tool from the fixture. (See *Removing the Adjustment Tool* on page 25).

### 5.5.3 Aligning Threshold/End Lights

To align threshold/end lights, follow the steps below:

1. Mount the telescope onto mounting position 2, at the side of the LED light module. Mount the adjustment tool with telescope onto the light fixture. (See *Setting up the HIRE Adjustment Tool* on page 21.)
2. Look at the adjacent light fixture through the viewfinder. You should see the reticle centered on the surface of the LED module of the other light as shown here.



3. If the LED module of the adjacent light is not centered in the reticle:
  - a. Loosen the 3 screws on the adapter ring and rotate the ring carefully to the left or right until you see the reticle centered on the LED module.

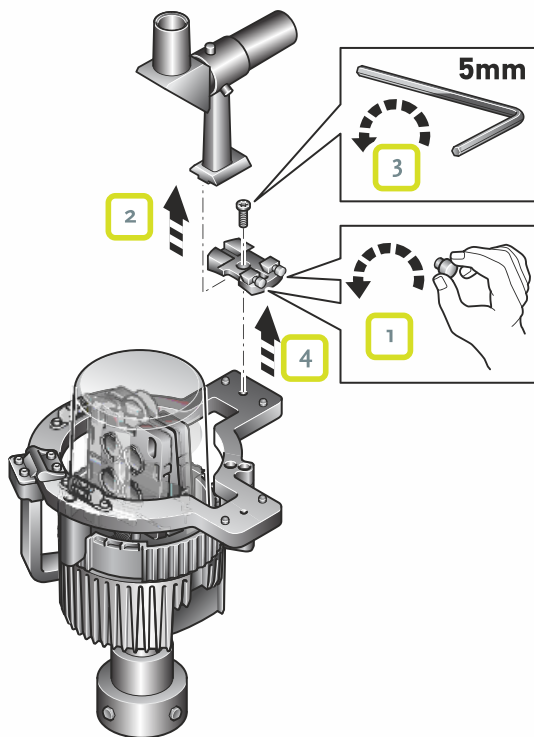
**NOTICE** Do not rotate the adapter ring by more than a few degrees - this can overtighten the internal cable.

- b. Check that the adjustment tool is still horizontal using the level on the tool (See *Step 4 in Setting up the HIRE Adjustment Tool*).
  - c. Retighten the screws on the adapter ring to 9 Nm.
4. Remove the adjustment tool from the fixture (See *Removing the Adjustment Tool* on page 25.)

## 5.5.4 Removing the Adjustment Tool

To remove the adjustment tool from the fixture:

1. Unscrew the bolt on the side of the telescope shoe by hand.



2. Remove the telescope.
3. Unscrew the bolt on the top of the telescope shoe.
4. Remove the telescope shoe.
5. Pack the adjustment tool and all its parts into the case.

## 6 Operation and Commissioning

When installing or replacing a CEDD fixture, the 05\_CEDD-AGL\_System\_Instructions\_03\_70079 manual describes how to configure the new fixture in the CEDD AGL system and check that it is functioning correctly.

**NOTICE** It is essential that you record the NUID and related aeronautical name of every fixture that is installed or de-installed.

## 7 Maintenance

- ⚠ WARNING** • Before you begin working on the CEDD Elevated Fixture - HIRE, you must make sure that AC mains power and Logic AC mains power of the CEDD HPS Basestation have been shut off. The circuit breakers must be in the OFF position
- Wait a minimum of 15 minutes for the system to de-energize.

- ⚠ WARNING** • Only trained and qualified personnel is allowed to maintain the equipment.
- Replace any malfunctioning components according to the instructions provided in this manual.

Maintenance frequency depends on the conditions under which the runway is used (climate, traffic, etc.). Contact TKH Airport Solutions Customer Service if extreme local conditions demand additional maintenance. The recommended practices for maintenance are described in the FAA advisory circular No.AC150/5340-26 and in the ICAO Aerodrome Design Manual, Part 9 Airport Maintenance Practices.

Maintenance instructions differ for the CEDD Elevated Base and the CEDD Elevated Fixture - HIRE.

- *Preventive Maintenance CEDD Elevated Base*
- *Corrective Maintenance CEDD Elevated Fixture - HIRE*
- *Corrective Maintenance CEDD Elevated Base*
- *Corrective Maintenance CEDD Elevated Fixture - HIRE*

### 7.1 Preventive Maintenance - CEDD Elevated Fixture - HIRE

The assembly's service life depends to a large extent on its waterproofness. All metal mating surfaces and seals must be clean, smooth, dry and free of all foreign particles if the light fixture is to operate for extended periods without requiring maintenance.

Perform a regular external check of the Elevated Fixture - HIRE for dirt or damage:

- Check that the lens is not obscured with rubber or grease. If necessary, clean the glass dome using a non-caustic cleaning agent.
- Check for visible moisture ingress. If you see moisture inside the glass dome, contact TKH Airport Solutions Customer Service.
- Check whether any of the fixture components is damaged (gasket, glass dome, LED module, heat sink unit, or breakable coupling). If any parts need to be replaced, see *Corrective Maintenance - CEDD Elevated Fixture - HIRE* on page 29)
- Check the correct alignment of the light (see *Aligning the Lights* on page 20).
- Check the light output.

### 7.2 Preventive Maintenance - CEDD Elevated Base

Due to the contactless CEDD technology, minimal preventive maintenance is required. Apart from normal airfield cleaning procedures, perform regular visual inspections of the exterior of the CEDD Elevated Base.

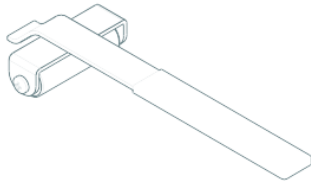
## 7.3 Corrective Maintenance - CEDD Elevated Base

If the CEDD Elevated Base is damaged or defective it must be replaced. De-install the whole base and return it to TKH Airport Solutions.

To de-install the fixture and base, follow the instructions in *De-installing a CEDD Elevated Fixture - HIRE* on page 28 and *De-installing a CEDD Elevated Base* on page 28.

### 7.3.1 Tools and Materials Needed

- Hex socket wrench (17 mm)
- Lifting tool for removing the fixture from the shallow base



- Optional – a suitable blind plate to fit the shallow base

### 7.3.2 De-installing a CEDD Elevated Fixture - HIRE

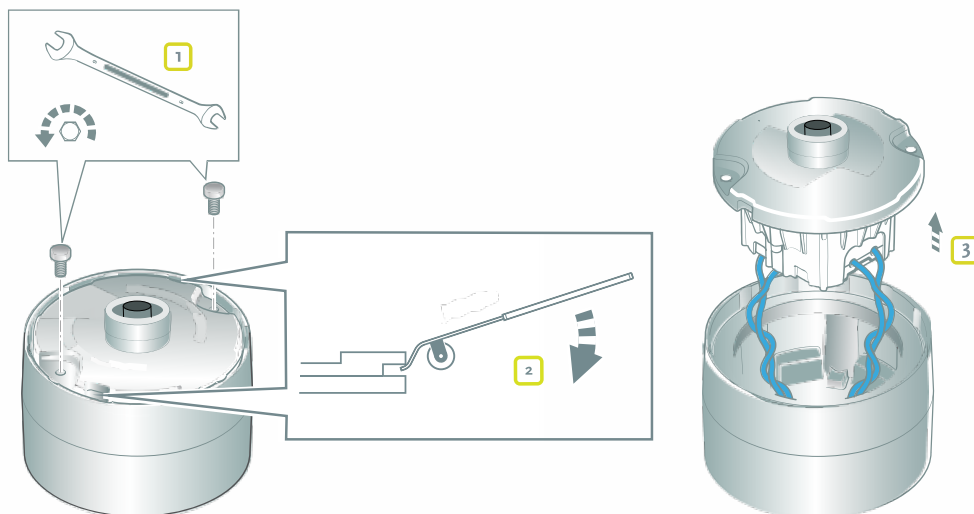
To remove a CEDD Elevated Fixture - HIRE from the CEDD Elevated Base, follow the steps below.

1. Remove the screws from the lower part of the breakable coupling using a Hex socket wrench.
2. Carefully unplug the connector and lift the fixture with coupling off the CEDD Elevated Base.
3. Record the NUID of the fixture (see the QR-code on the sticker) and its aeronautical name.

**NOTICE** If the fixture is not replaced immediately, remove the elevated base (see *De-installing a CEDD Elevated Base* on page 28) and fix a blind plate over the shallow base.

### 7.3.3 De-installing a CEDD Elevated Base

1. Remove the bolts using a Hex socket wrench.



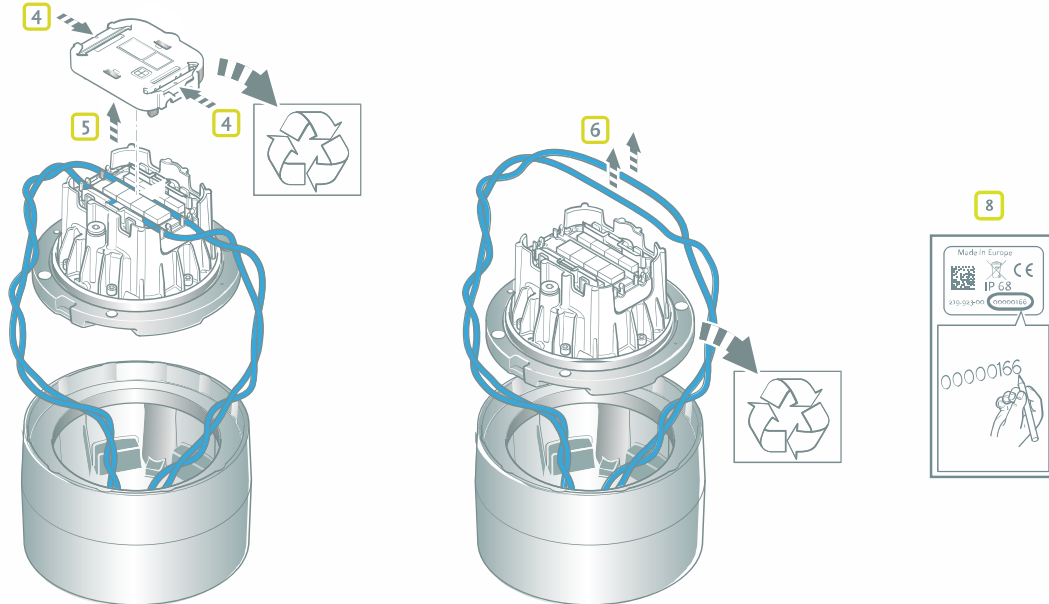
2. Pry the CEDD Elevated Base out of the shallow base using the lifting tool.



- Lift the CEDD Elevated Base and carefully turn it upside down on a clean, flat working surface. Use a piece of foam packaging material with a hole in the center to support the collar.

**NOTICE** Avoid forces on the rubber connector receptacle that may damage the CEDD Elevated Base.

- Release the CEDD inductive clamp by pressing the two flanges on both sides inwards.



- Lift the CEDD inductive clamp lid with small tilting movements and remove it.
- Take the cables from the slots and remove the fixture.
- If the fixture and CEDD Elevated Base will not be replaced immediately, fix a suitable blind plate over the shallow base.
- Record the NUID of the CEDD Elevated Base (see the QR-code on the sticker) and its aeronautical name.

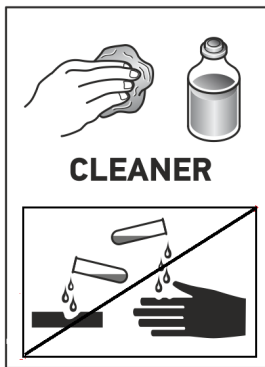
**NOTICE** Information about NUIDs and their related aeronautical names is vital for commissioning and operation of the CEDD AGL system.

## 7.4 Corrective Maintenance - CEDD Elevated Fixture - HIRE

When it is necessary to replace or repair malfunctioning components in the CEDD Elevated Fixture - HIRE remove the fixture from the CEDD Elevated Base (see *De-installing a CEDD Elevated Fixture - HIRE* on page 28) and take the fixture to the workshop. The following components can be replaced in the workshop:

- LED module
- glass dome
- flat gasket
- heat sink unit/electronics driver
- breakable coupling

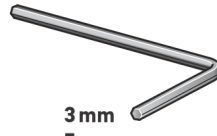
## 7.4.1 Tools Needed



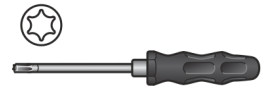
Non-caustic cleaning agent



SW50  
SW10  
SW32



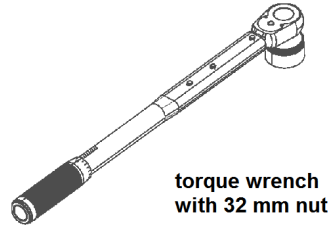
3 mm  
5 mm



10 IP (TX10)  
25 IP (TX25)



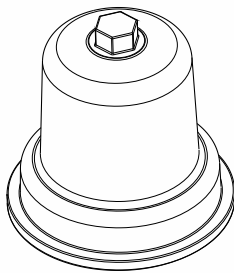
socket wrench



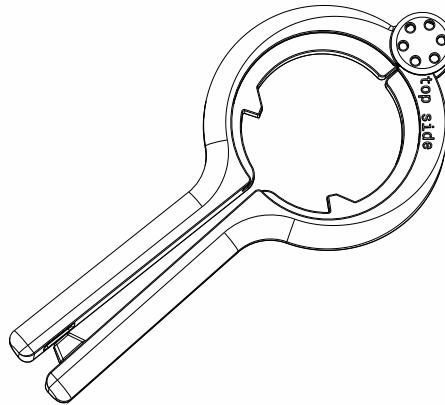
torque wrench  
with 32 mm nut

HIRE Assembly Tool 796104 consists of 2 parts (see *Opening and Closing the Fixture* on page 31)

HIRE Mounting Hood



HIRE Holder Key



## 7.4.2 De-installing a CEDD Elevated Fixture - HIRE

To remove a CEDD Elevated Fixture - HIRE from the CEDD Elevated Base, follow the steps below.

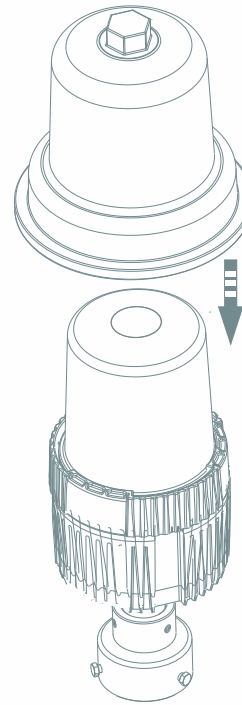
1. Remove the screws from the lower part of the breakable coupling using a Hex socket wrench.
2. Carefully unplug the connector and lift the fixture with coupling off the CEDD Elevated Base.
3. Record the NUID of the fixture (see the QR-code on the sticker) and its aeronautical name.

**NOTICE** If the fixture is not replaced immediately, remove the elevated base (see *De-installing a CEDD Elevated Base* on page 28) and fix a blind plate over the shallow base.

## 7.4.3 Opening and Closing the Fixture

### 7.4.3.1 Opening the Fixture

1. Place the HIRE mounting hood over the fixture until it covers the plastic ring. Do not push down with force. (There are 3 possible positions.)

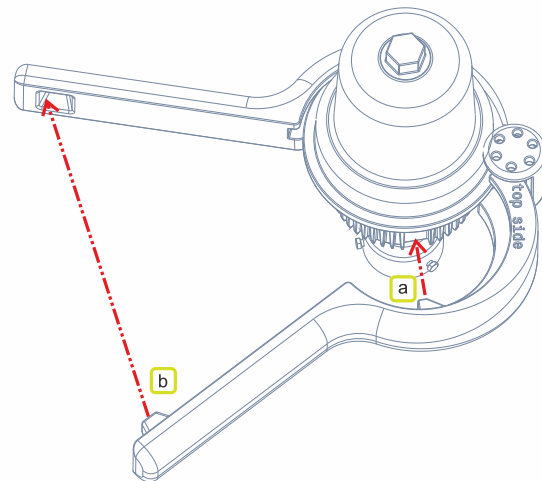


2. Position the HIRE holder key around the base of the mounting hood in 2 steps with the “top side” marking upwards:

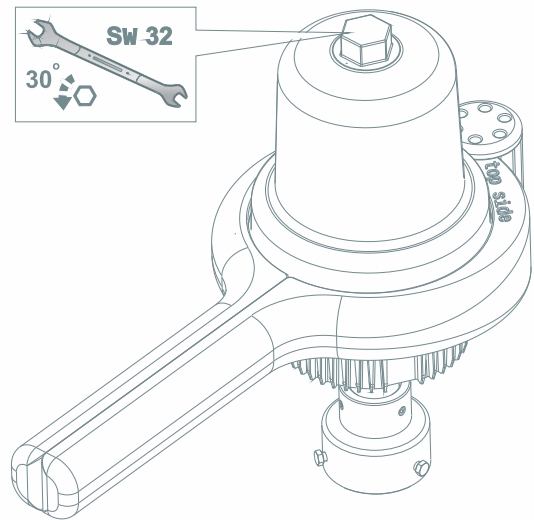
**a.** Position the holder so that the key (a) slides onto the flat part of the heat sink.

**b.** Pull the two arms of the holder together until the key (b) fits into the slot on the other arm.

If the holder key does not close completely, dismount the holder and repeat step 2.



- 3 Hold the handles of the holder key and use a SW32 wrench to turn the nut on top of the mounting hood by about 30° anticlockwise. This will release the yellow plastic ring.



- 4 Carefully release and remove the 2 parts of the HIRE assembly tool.

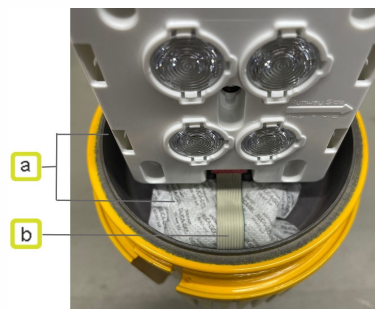
**NOTICE** After opening the fixture, always remove and dispose of the flat gasket and silica gel bags. For instructions, see *Replacing the Flat Gasket* on page 39.

### 7.4.3.2 Closing the Fixture

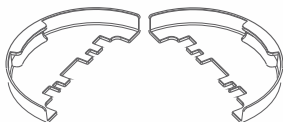
**NOTICE** This operation should be carried out by 2 people, if possible.

**NOTICE** Before closing the fixture, always replace the flat gasket and silica gel bags. To do this, you first need to loosen the 2 LED modules. For instructions, see *Replacing the Flat Gasket* on page 39.

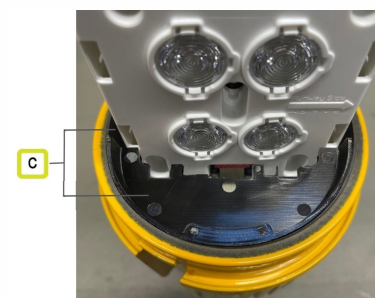
1. Place 2 new silica gel bags flat on the bottom of the heat sink unit, one on each side of the LED module holder (a).
2. Position the LED module with flat cable (b) on the module holder in the upper position.



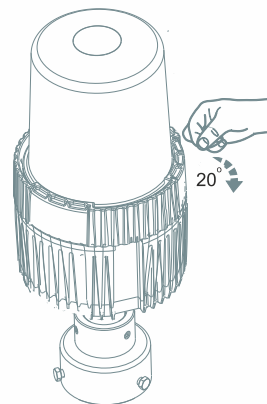
3. Fit the 2 covers (c) over the flat cables.



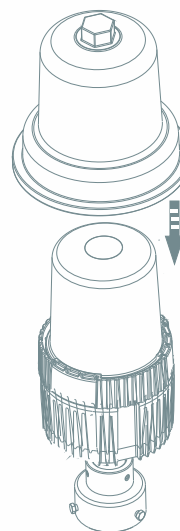
4. Push down the LED modules and tighten the screws (see *Replacing the Flat Gasket* on page 39).



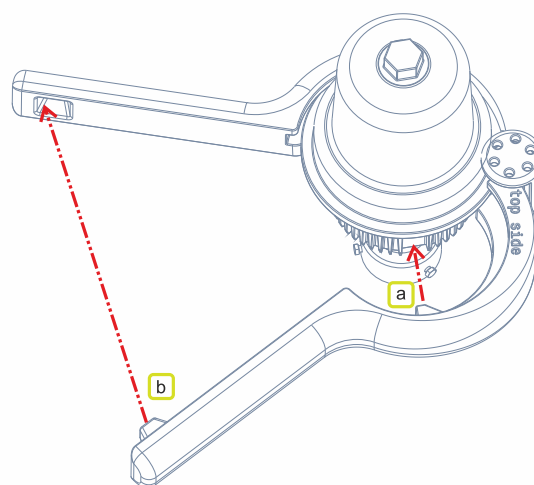
- 5 Place the gasket on the metal housing surface and make sure it fits nicely to the inner metal edge.
- 6 Place the glass dome straight on top of the gasket. Do not move the dome once it is in place, to avoid displacing the gasket.
- 7 Place the yellow plastic ring over the glass dome. Turn the ring carefully by hand by about 20° clockwise. Do not use any force.



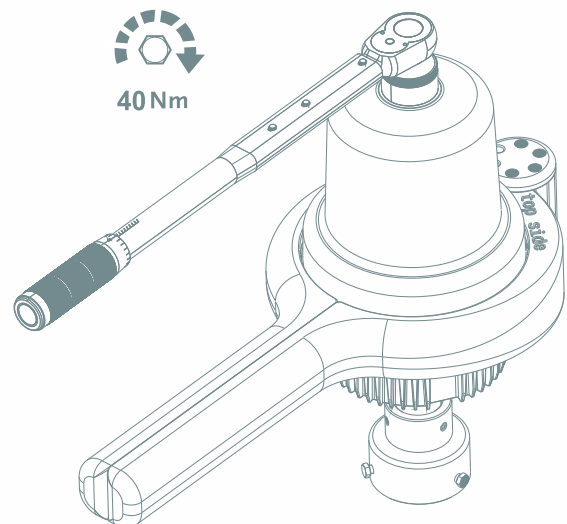
- 8 Place the HIRE mounting hood over the fixture until it covers the plastic ring. Do not push down with force. (There are 3 possible positions.)



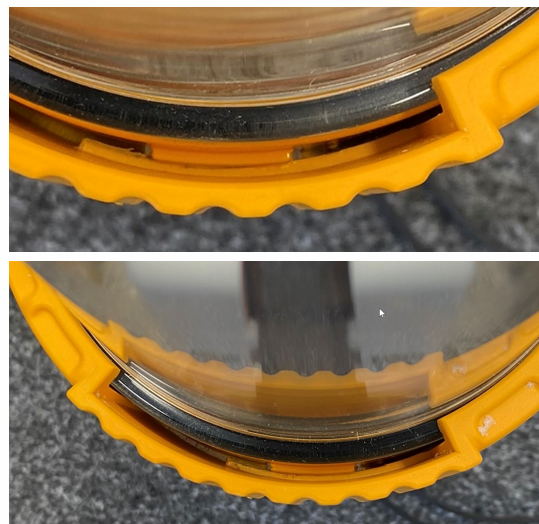
- 9 Position the HIRE holder key around the base of the mounting hood in 2 steps with the “top side” marking upwards:
  - a. Position the ring so that the key (a) slides onto the flat part of the heat sink.
  - b. Pull the two arms of the holder together until the key (b) fits into the slot on the other arm.
 If the holder key does not close completely, dismount the holder key and repeat step 8.



- 10 Hold the handles of the holder key and use a torque wrench with SW32 nut to tighten the nut on top of the mounting hood to 40 Nm. This will tighten the yellow plastic ring onto the fixture.

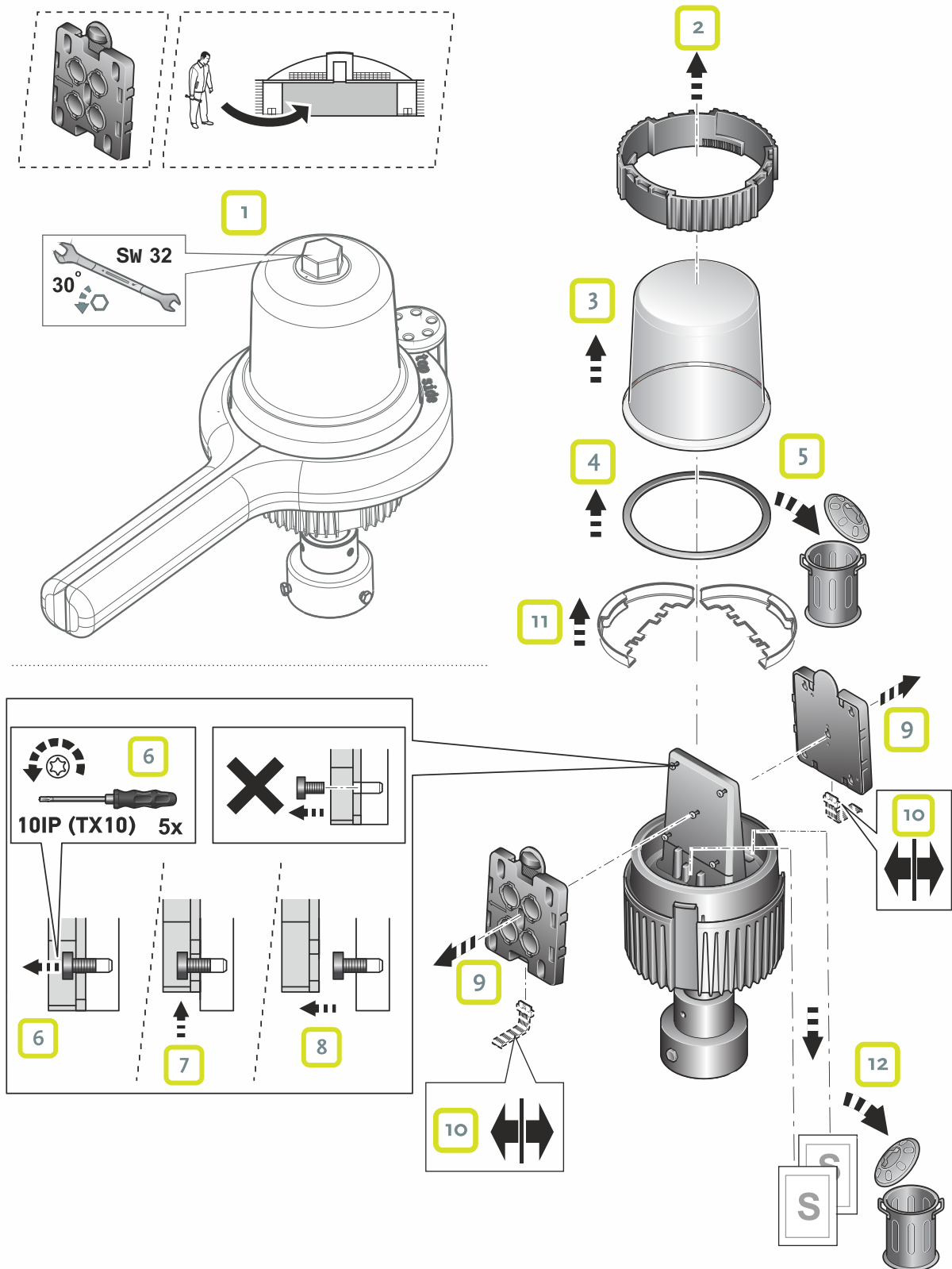


- 11 Carefully release and remove the 2 parts of the HIRE assembly tool.
- 12 Verify that the fixture is closed properly and has not been over-forced. Look at the fixture from above. If the black gasket is fully visible, the fixture is properly closed. The pictures show a gasket that has been displaced.

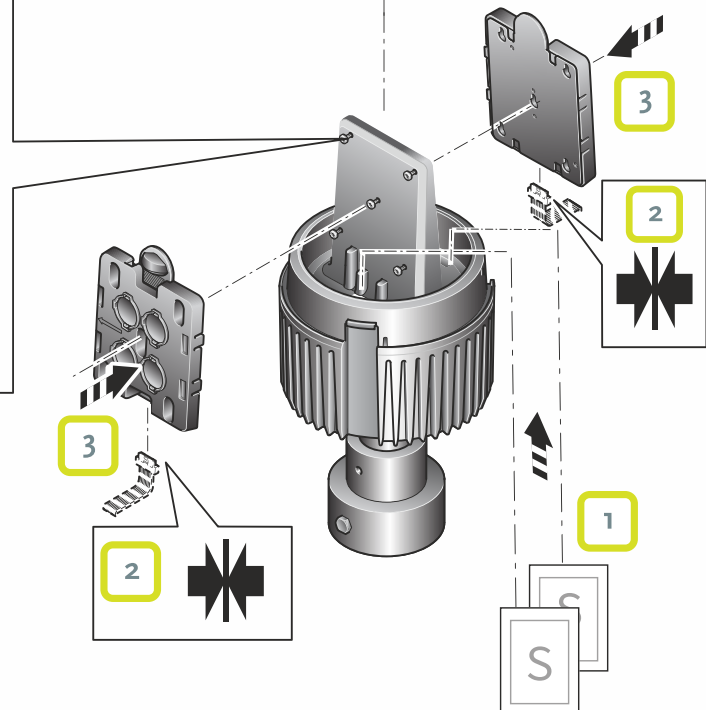
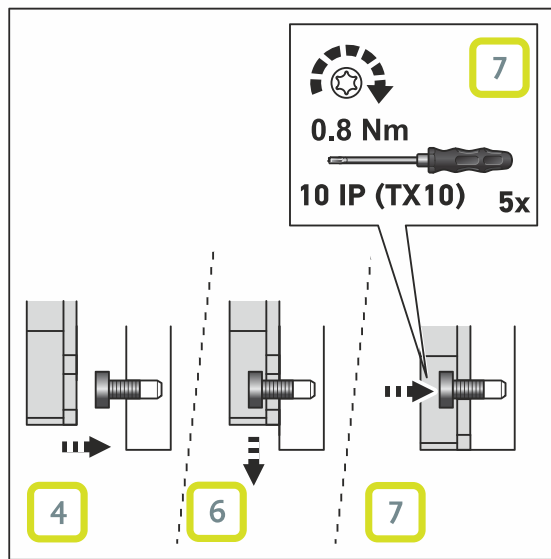
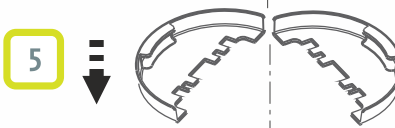
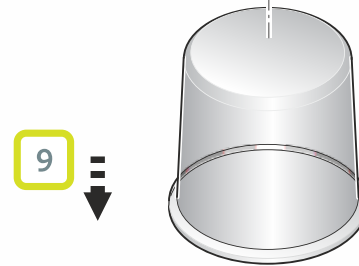
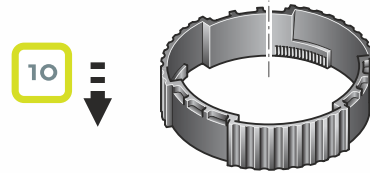
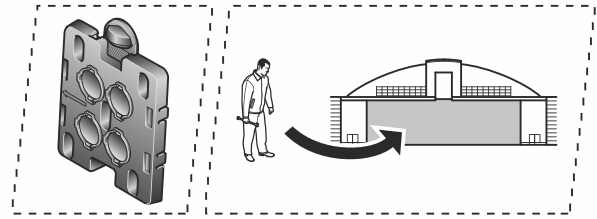
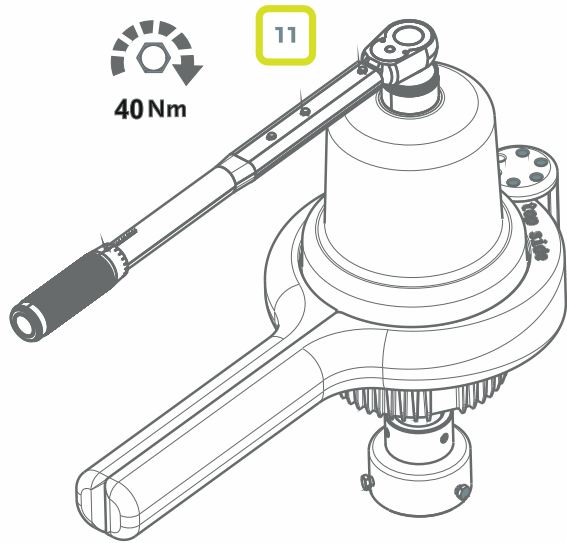


## 7.4.4 Exchanging LED Modules

**NOTICE** To open the fixture use the HIRE Assembly Tool (*Opening the Fixture* on page 31).







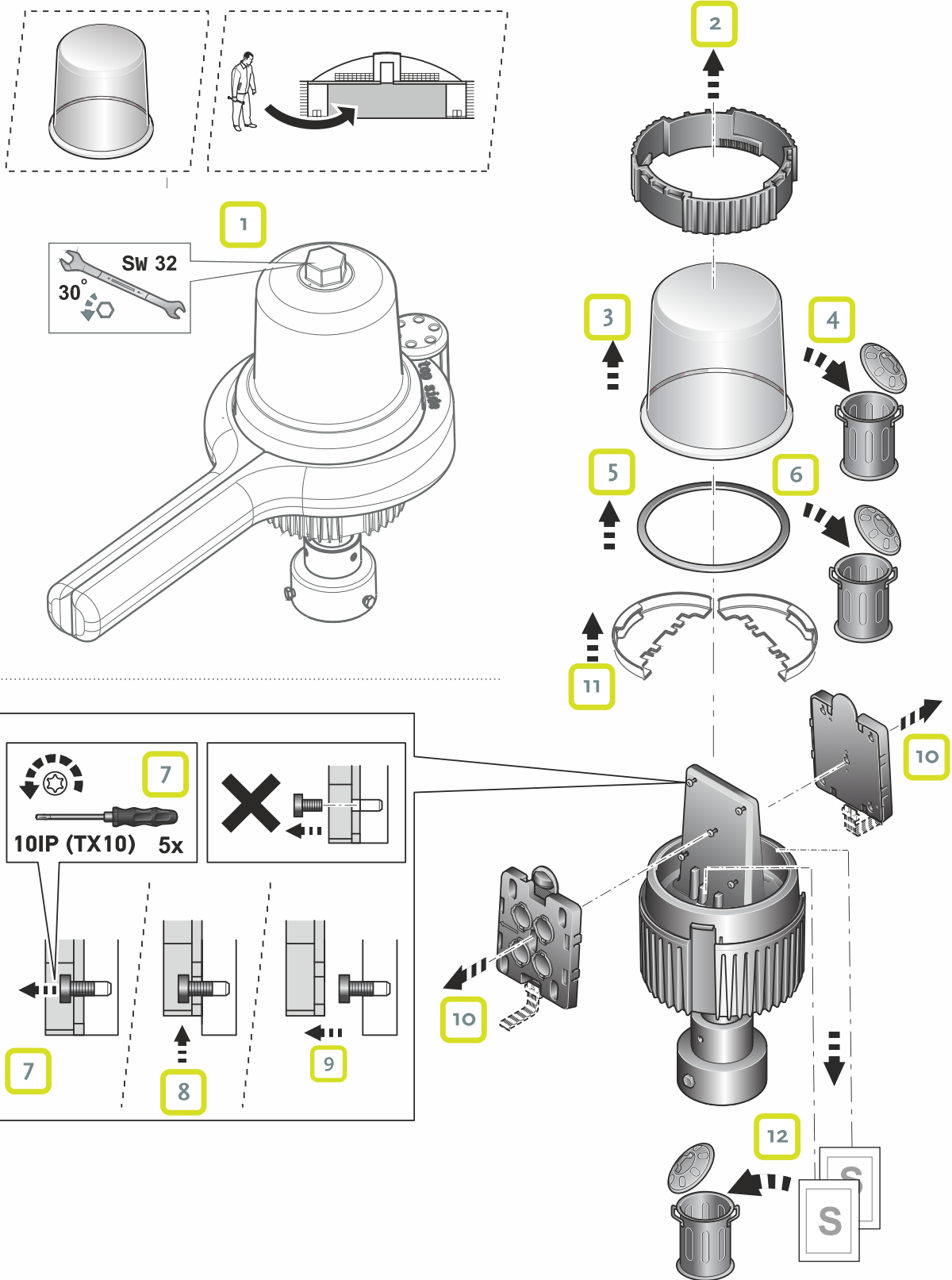
**NOTICE**

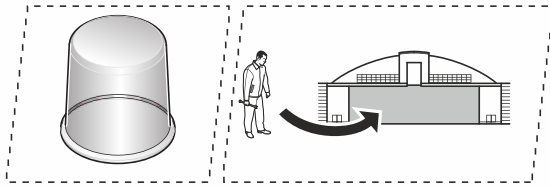
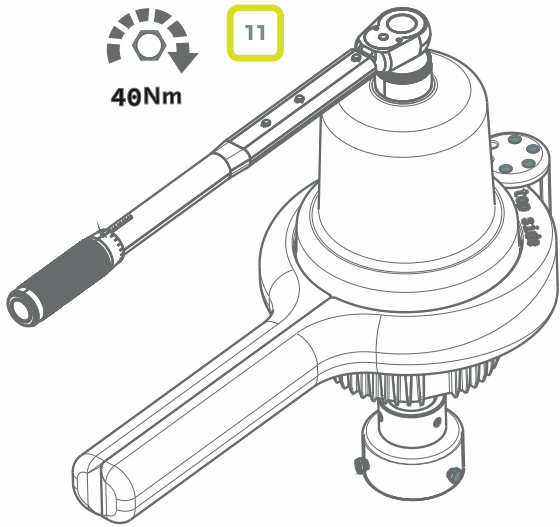
To close the fixture tightly, use the HIRE Assembly Tool (*Closing the Fixture* on page 32).



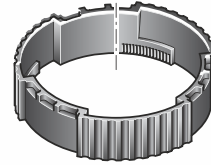
## 7.4.5 Replacing the Glass Dome

**NOTICE** To open the fixture use the HIRE Assembly Tool (*Opening the Fixture* on page 31).

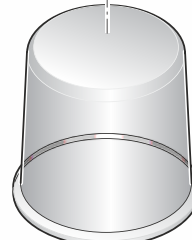




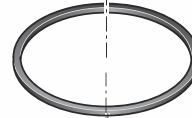
10



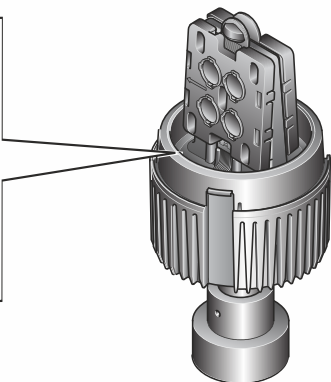
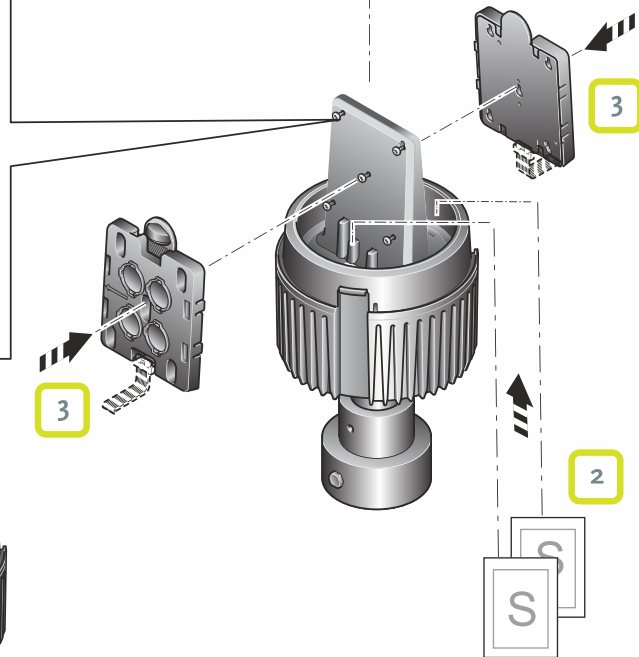
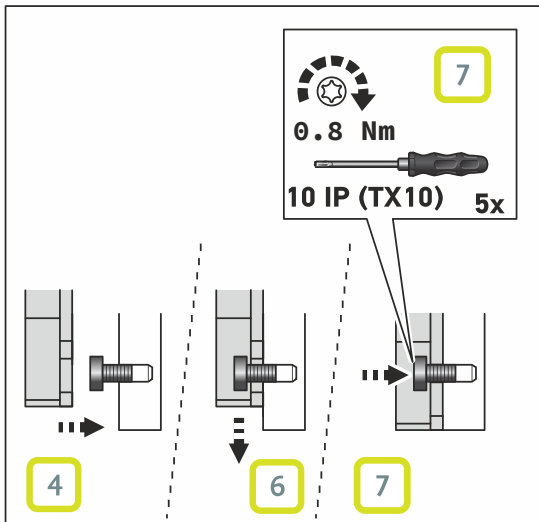
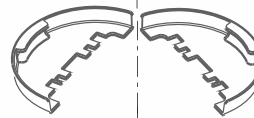
9



8



5

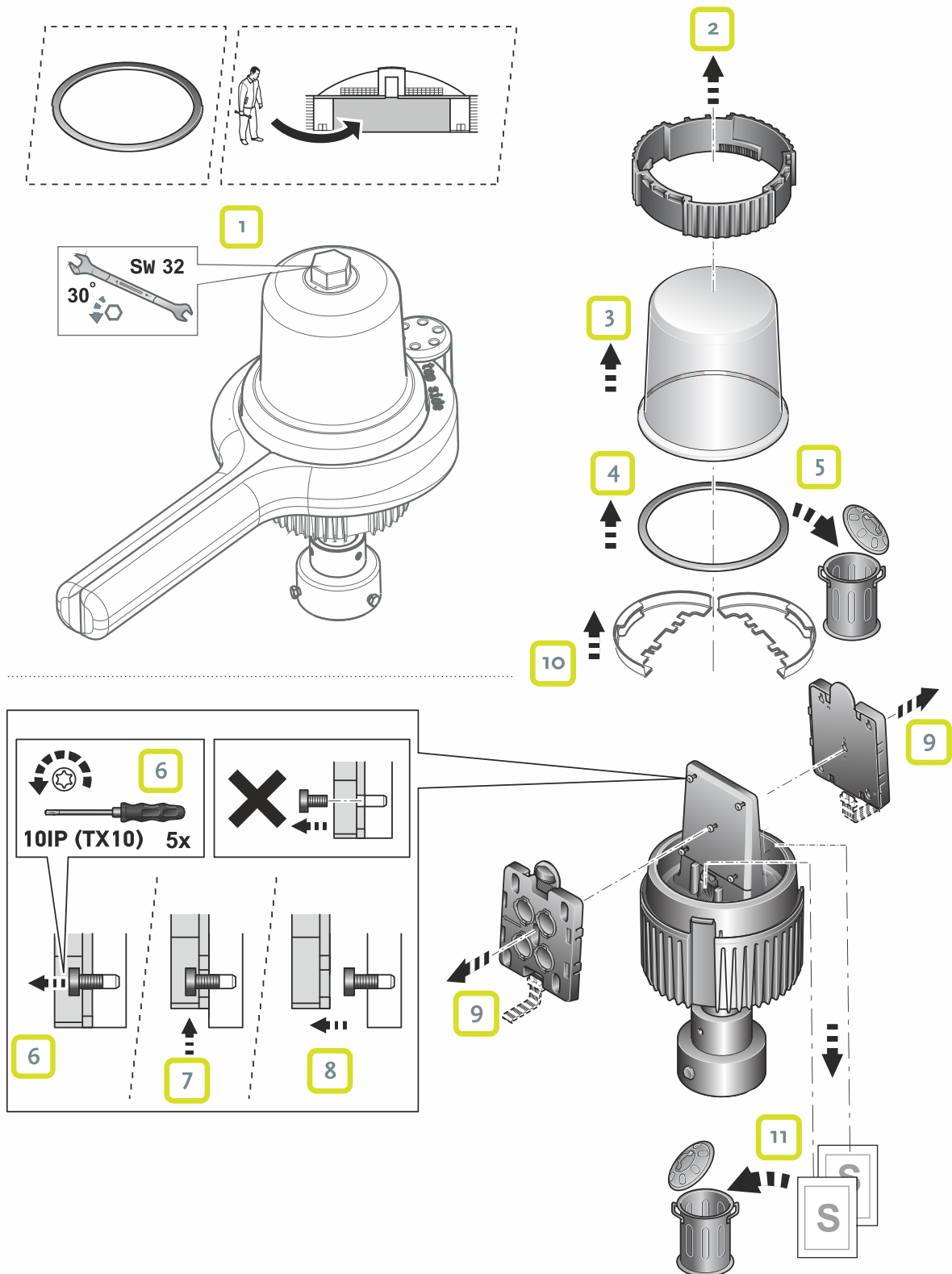


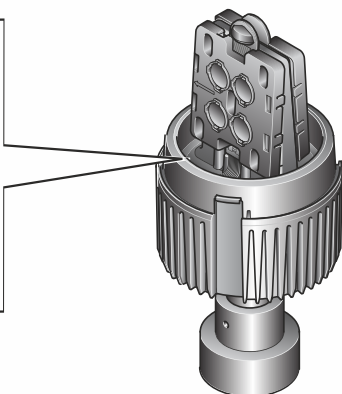
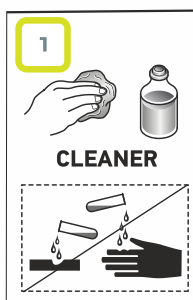
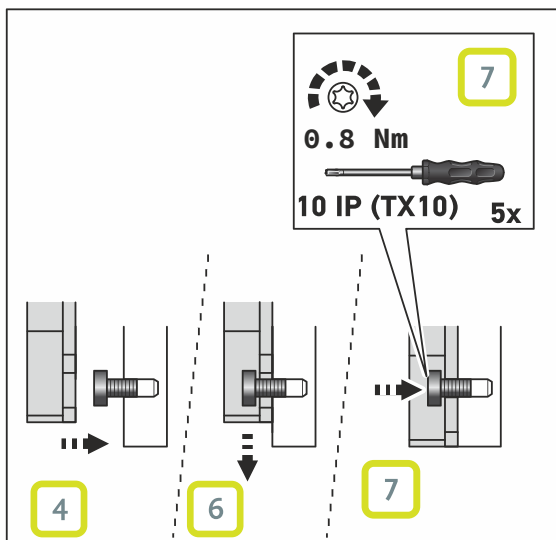
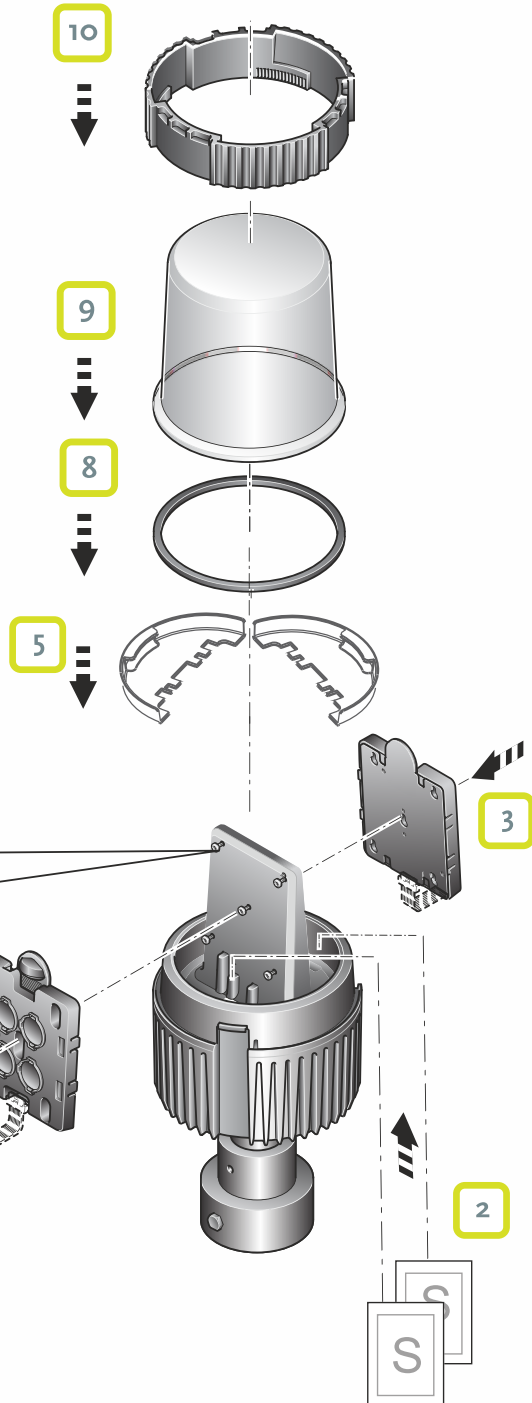
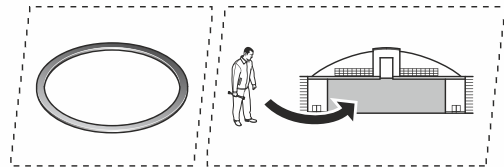
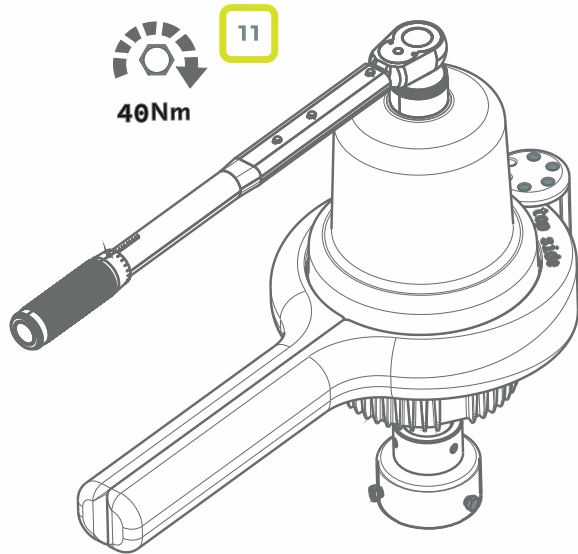
**NOTICE**

To close the fixture tightly, use the HIRE Assembly Tool (*Closing the Fixture* on page 32).

## 7.4.6 Replacing the Flat Gasket

**NOTICE** To open the fixture use the HIRE Assembly Tool (*Opening the Fixture* on page 31).



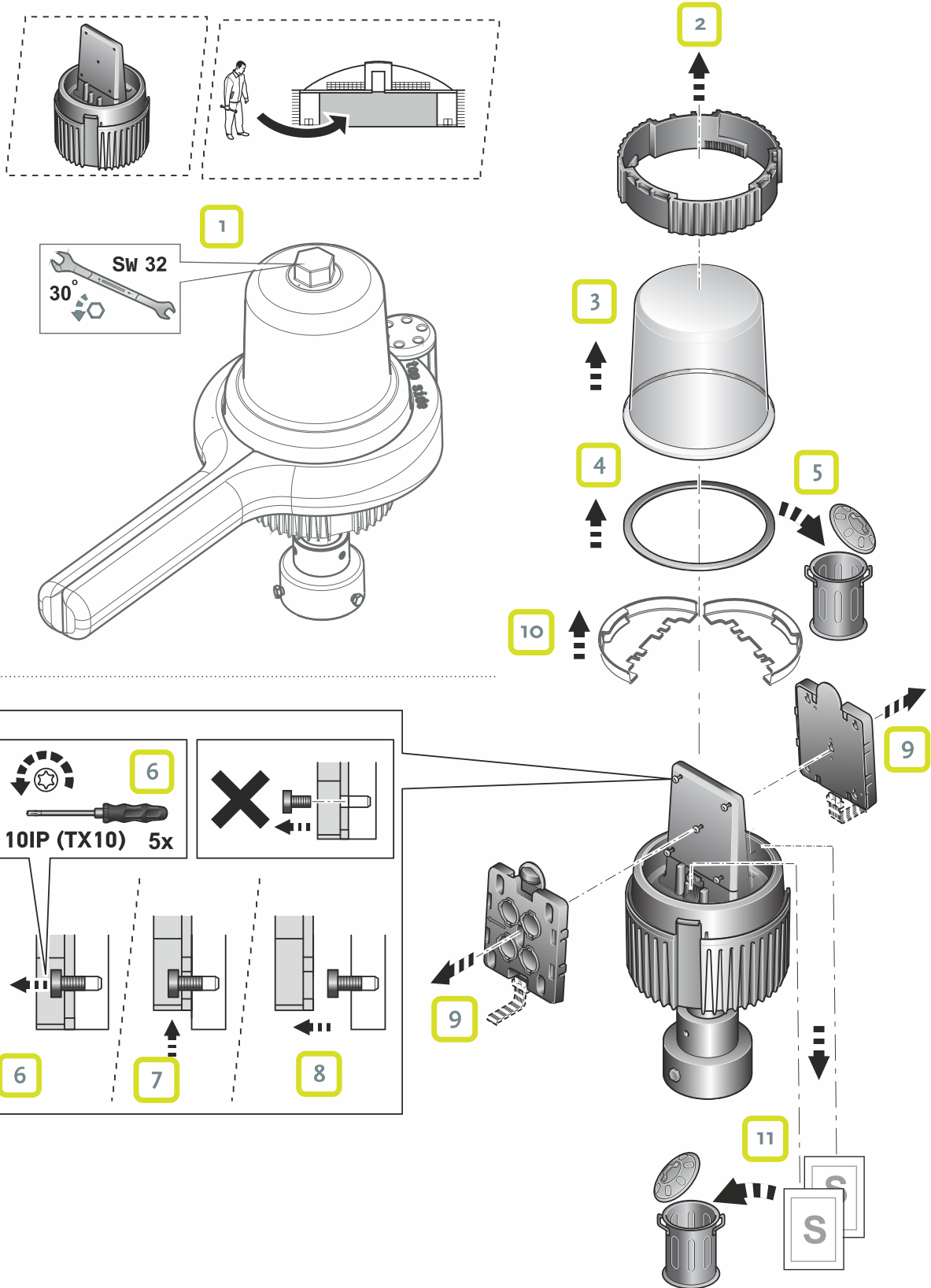


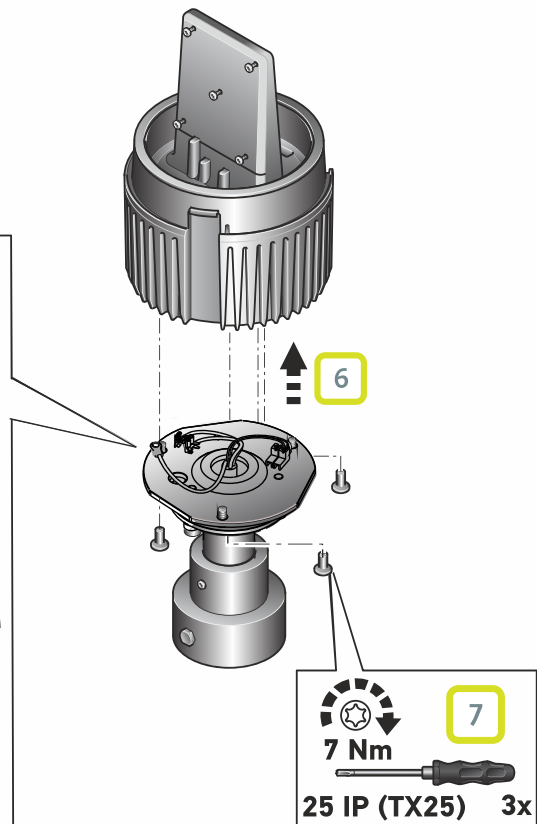
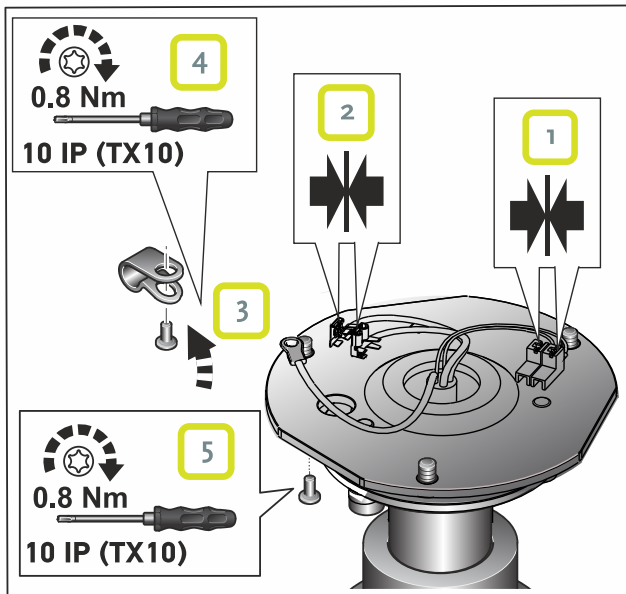
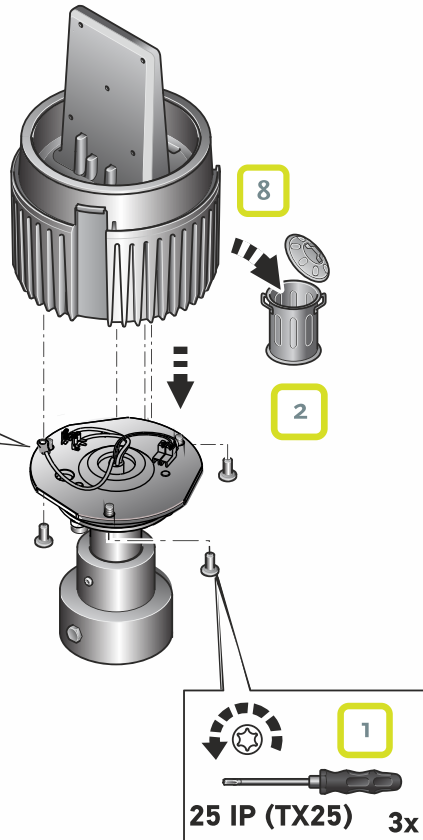
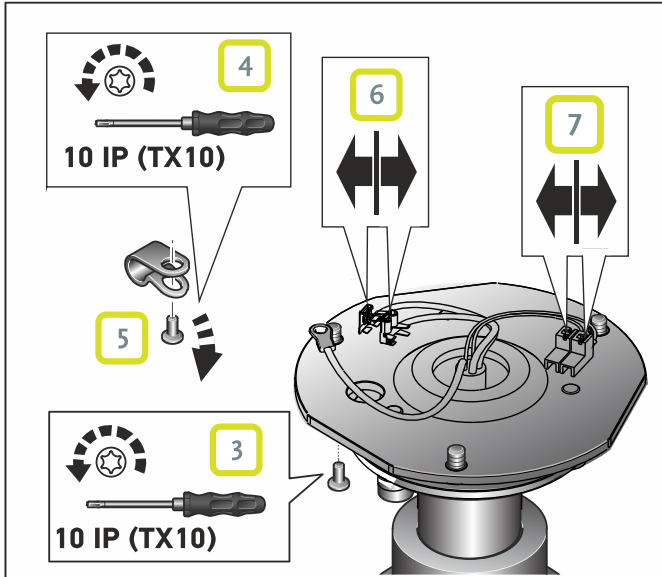
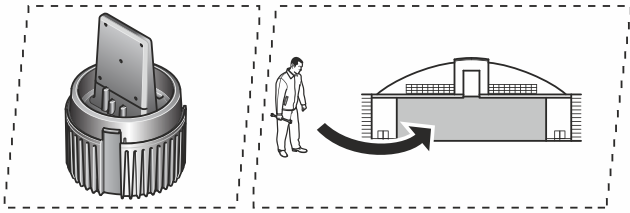
**NOTICE**

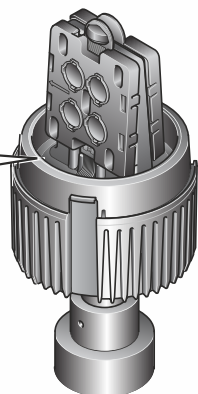
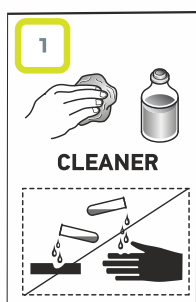
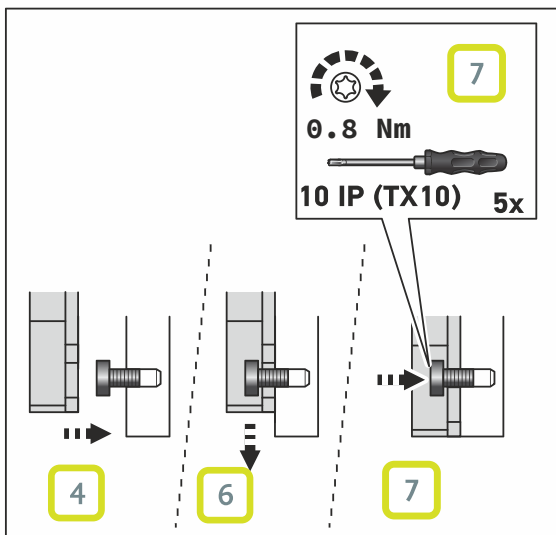
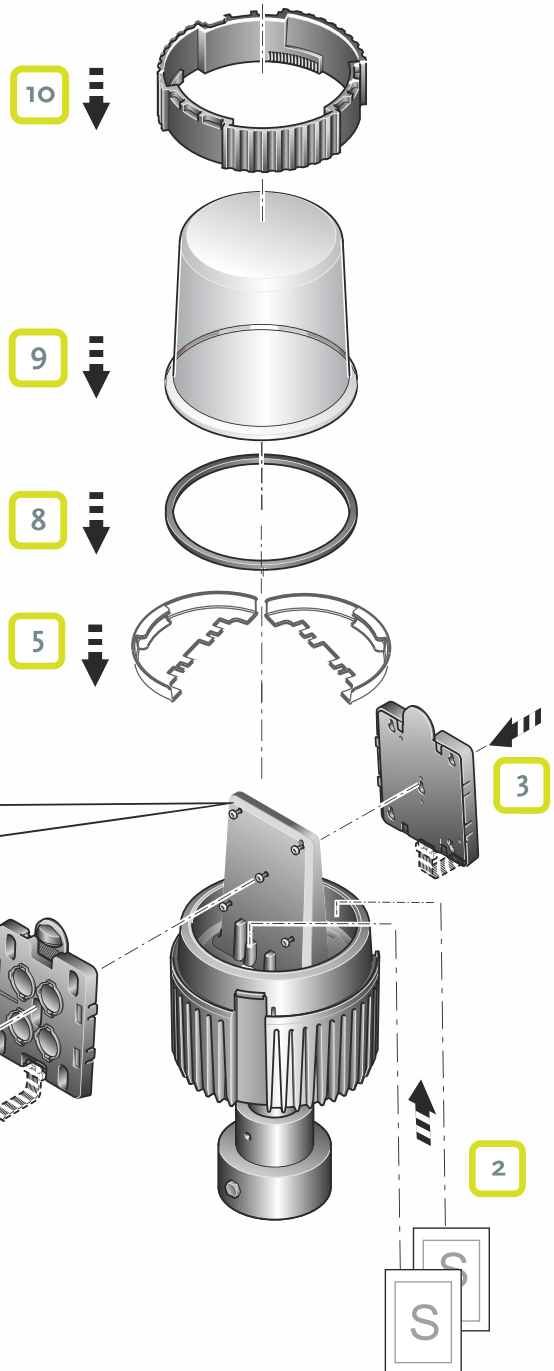
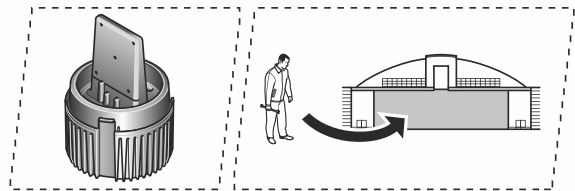
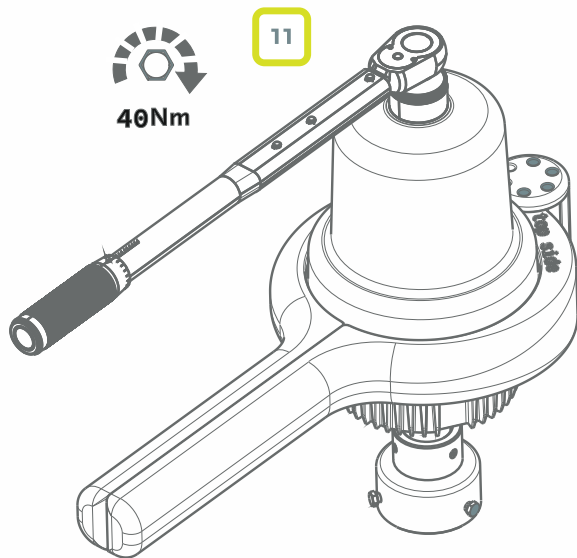
To close the fixture tightly, use the HIRE Assembly Tool (*Closing the Fixture* on page 32).

## 7.4.7 Replacing the Heat Sink Unit/Electronic Driver

**NOTICE** To open the fixture use the HIRE Assembly Tool (*Opening the Fixture* on page 31).



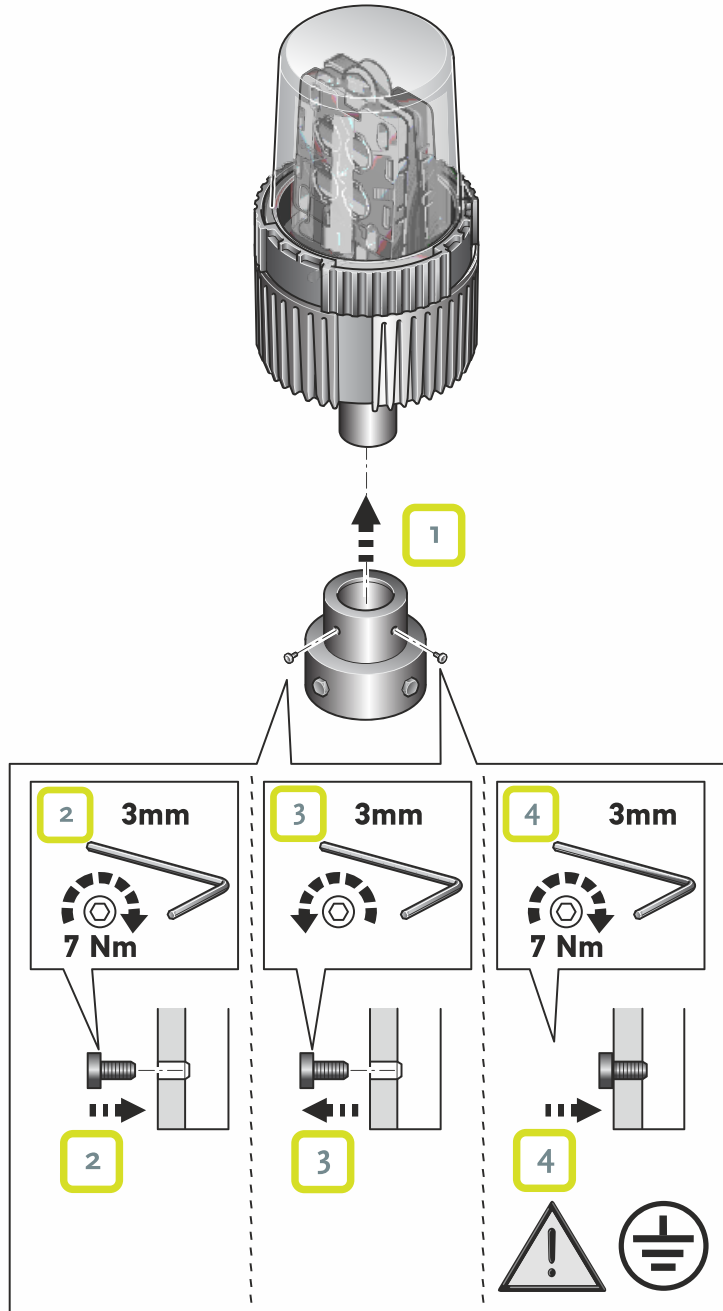
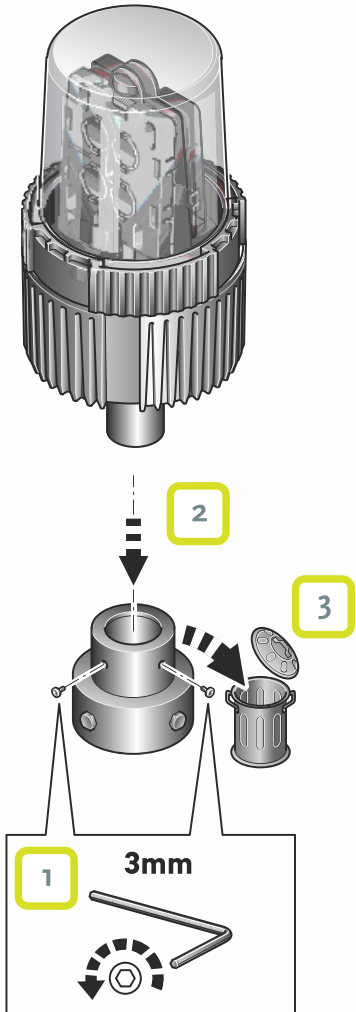
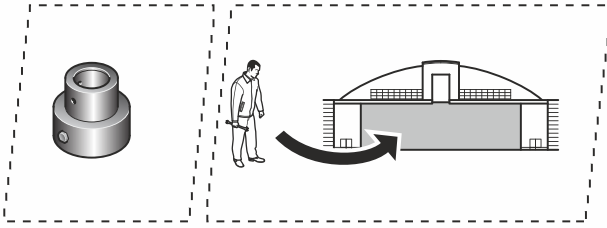




**NOTICE** To close the fixture tightly, use the HIRE Assembly Tool (*Closing the Fixture* on page 32).



## 7.4.8 Replacing the Breakable Coupling





## 8 Troubleshooting

This chapter describes how to diagnose the most common problems with the CEDD Elevated Fixture - HIRE and their corrective actions. For software and communication checks, see the validation procedures in the CEDD AGL System Instructions (03-70079).

- ⚠ WARNING** • Before you begin working on the CEDD Elevated Fixture - HIRE, you must make sure that AC mains power and Logic AC mains power of the CEDD HPS Basestation have been shut off. The circuit breakers must be in the OFF position
- Wait a minimum of 15 minutes for the system to de-energize.

If a fixture is not working correctly do the following hardware checks to diagnose the problem.

If the fixture is still not working after these checks, contact TKH Airport Solutions Customer Service [service@tkh-airportsolutions.com](mailto:service@tkh-airportsolutions.com).

### 8.1 Visual Fixture Check

This procedure describes how to check whether the fixture has exterior damage.

1. CEDD Elevated Fixture - HIRE:
  - a. Check that the glass dome is clean, and that the lens is not obscured with rubber or grease. If necessary, clean the glass dome.
  - b. Check whether any of the fixture components is damaged. Some components can be replaced in the workshop: gasket, glass dome, LED modules, heat sink/electronic driver, or breakable coupling. See *Corrective Maintenance - CEDD Elevated Fixture - HIRE* on page 29. Available spare parts are listed in *CEDD Elevated Fixture - HIRE: Parts* on page 12.
2. CEDD Elevated Base:
  - a. Check that there are no cracks or other physical damage in the CEDD Elevated Base cover.
  - b. If the CEDD Elevated Base is damaged or defective it should be replaced. De-install the fixture and the CEDD Elevated Base (see *Corrective Maintenance - CEDD Elevated Base* on page 28) and return the faulty item to TKH Airport Solutions.

### 8.2 Fixture Connector Check

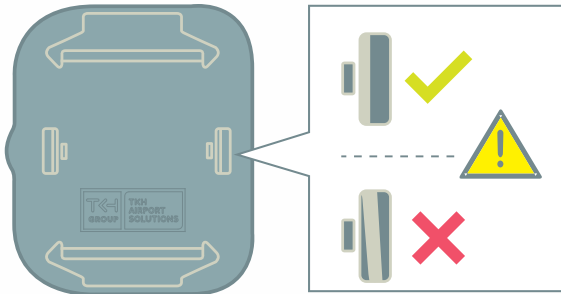
This procedure describes how to check the connection between the fixture and the CEDD Elevated Base.

1. Loosen the bolts and remove the fixture from the CEDD Elevated Base (see *De-installing an Elevated Fixture*).
2. Check the connectors on the CEDD Elevated Base and on the fixture for any debris or corrosion, and clean if necessary.
3. Reconnect the fixture to the base and check whether the light now works.
4. If the light still does not work, or if there is heavy corrosion, the fixture and/or the CEDD Elevated Base need to be replaced. De-install the fixture and the CEDD Elevated Base (see *Corrective Maintenance - CEDD Elevated Base* on page 28) and return the faulty item to TKH Airport Solutions.

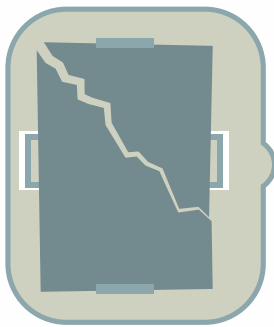
## 8.3 CEDD Elevated Base: Ferrites and Clamp Check

This procedure describes how to determine whether the problem is caused by an open CEDD inductive clamp or by damaged ferrite parts.

1. Make sure that the CEDD inductive clamp is closed and the metal retention brackets are positioned correctly.

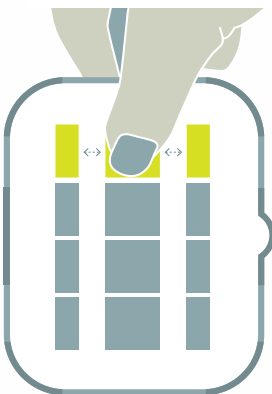


2. Remove the CEDD inductive clamp lid and release both CEDD cables from the cable clips.
  - a. Check for mechanical damage to the inductive clamps.
  - b. Check that the metal spring in the inductive clamp is working.
  - c. Inspect the I-plate of the inductive clamp.



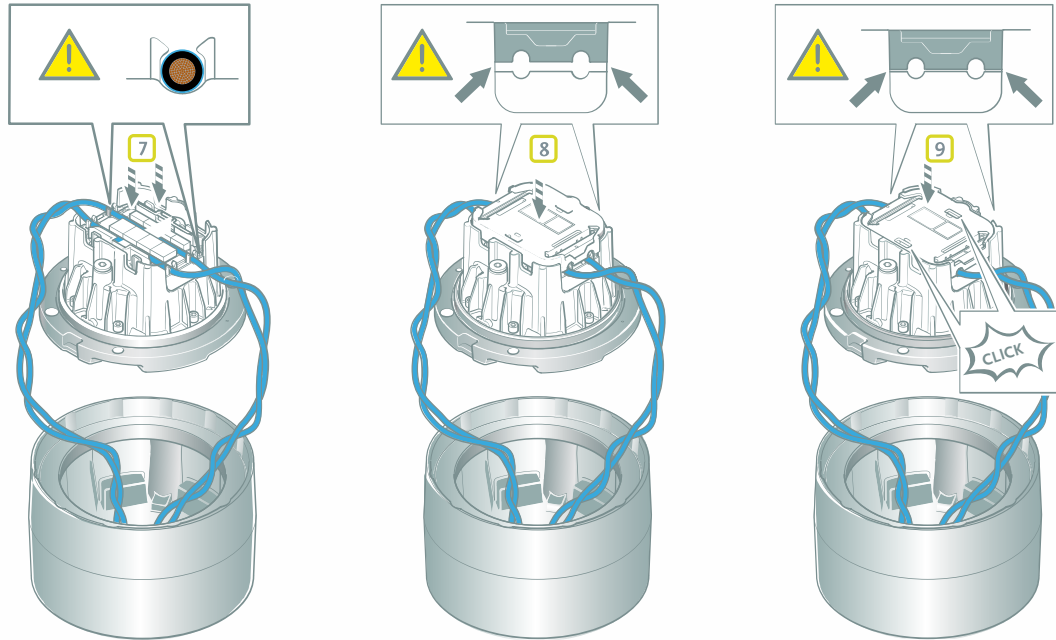
If the I-plate is damaged (chipped or broken) it needs to be replaced. Contact TKH Airport Solutions Customer Service.

3. Inspect each individual E-core of the unit.



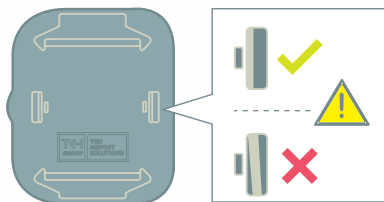
- a. Remove any ferrite debris.
- b. Remove any grease or oil on the E-core surfaces.
- c. Check that there are no cracks or gaps between the blocks.
- d. Press down on each center block in turn - the side blocks should lower at the same time. If the E-core is damaged, the CEDD Elevated Base needs to be replaced.

4. Reposition the cables in the cable clips and close the inductive clamp:
  - a. Align the CEDD cables with the two slots and click these into the small clamps on both sides.
  - b. Reposition the inductive clamp lid. The inductive clamp lid only fits in one way. The rounded notch on one side and the plastic retention protrusions make sure of this.
  - c. Firmly push down the inductive clamp lid until you hear the metal retention brackets click into place.



**NOTICE** Do not apply excessive force on the inductive clamp lid, as this could damage the Elevated Base and ferrite parts.

- d. Verify that the two metal retention brackets are visible and aligned straight with the inductive clamp.



## 8.4 CEDD Cable Check

This procedure describes how to make sure that the CEDD cables are undamaged and correctly placed in the CEDD Elevated Base.

1. Remove the fixture and the CEDD Elevated Base from the shallow base (see *De-installing a CEDD Elevated Fixture - HIRE* on page 28 and *De-installing a CEDD Elevated Base* on page 28).
2. Turn the CEDD Elevated Base upside down and unlock the CEDD inductive clamp by pressing the two flanges on both sides inwards. Lift the inductive clamp lid and remove it.
3. Check that the cables can move freely in the slots.
4. Check for physical damage to the cables. For cable repair instructions, see the CEDD Cable Installation and Maintenance Manual.

## 9 Taking Out of Service

### **CEDD Elevated Fixture - HIRE**

De-install the fixture as described in *De-installing a CEDD Elevated Fixture - HIRE* on page 28.

### **CEDD Elevated Base**

De-install the CEDD Elevated Base as described in *De-installing a CEDD Elevated Base* on page 28.

Return the CEDD Elevated Base to TKH Airport Solutions for repair or disposal. Contact TKH Airport Solutions Customer Service [service@tkh-airportsolutions.com](mailto:service@tkh-airportsolutions.com) for the correct address.

### **Disposal**

All electrical and electronic products must be disposed of separately from normal waste at the end of their useful life.



### Company profile:

TKH Airport Solutions offers a complete range of LED-based airfield ground lighting products that are designed to be easy to install, operate, and maintain, and are compliant with international aviation standards. Our products meet the needs of our customers and contribute to a better future for the aviation industry. Being part of the TKH Group, our company can build on a history of more than 90 years in smart connectivity, energy distribution and AGL.

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