



TKH
AIRPORT
SOLUTIONS



Installation and Maintenance Manual

Elevated Fixture – type 797

Preface

- Please read carefully and understand the contents of this manual.
- Failure to read the manual may result in serious injury, or serious damage to equipment.
- Make sure these instructions are always accessible for all users and ensure that you have read and understood the contents.

Document Information

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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 - type 797. This manual covers two versions; a CEDD Elevated Fixture 797 mounted on a CEDD Elevated Base and a CEDD Elevated Fixture 797 mounted on an approach pole. This manual 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! - This sign indicates a hazardous situation that, if not avoided, will result in death or serious injury.



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





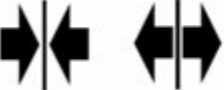



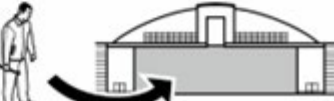


CAUTION - This sign indicates a hazardous situation that, if not avoided, could result in minor or moderate injury.



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

The following symbols are used in pictures for explanation or an action:

<p>Correct / Incorrect</p> 	<p>Look / See</p> 	<p>Location / position</p> 	<p>Movement</p> 
<p>Connect / Disconnect</p> 	<p>Photobiological safety</p> 	<p>ESD warning</p> 	
<p>Work carried out on runway</p> 		<p>Work carried out in workshop</p> 	

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.

1.4 Terms and Abbreviations

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
HPS	High Power System
ICAO	International Civil Aviation Organization
IEC	International Electrotechnical Committee
LED	Light Emitting Diode
NUID	Node Unique Identification

1.5 Trademarks

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.

1.6 Liability and Warranty

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 CEDD Elevated Fixture - type 797 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

TKH Airport Solutions

Elektrostraat 17
7483 PG Haaksbergen
The Netherlands

- Tel.: +31 (0)53 5741456
- Email: info@tkh-airportsolutions.com
- Internet: www.tkh-airportsolutions.com

For service requests, please contact the TKH Airport Solutions Customer Service department:

- Email: service@tkhairportsolutions.com

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 - type 797. 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 conflict with existing local regulations, then the strictest regulation must take precedence.

Thoroughly read and observe all safety instructions in this document.



WARNING: Switch the main power off at the CEDD HPS base station when any installation, maintenance or replacement is done on the CEDD Elevated Fixture - type 797. Or use a Break Out Box to ensure power is off at the CEDD system.



WARNING

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 - type 797 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**

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 - type 797 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

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.
- For fixtures/spare parts marked with the photobiological safety symbol avoid prolonged staring in the switched ON fixture.
- 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

The CEDD AGL system components (e.g. CEDD cable, CEDD AGL LED Fixtures, and CEDD HPS Terminator) should not be touched or worked on if the CEDD AGL system is operational (meaning constant current AGL series circuit energized). The constant current AGL series circuit must be de-energized before any (maintenance/service) work on the CEDD AGL system and its components can start. Before any work can start the CEDD HPS Basestation must be switched off and must be protected against accidental re-energizing.

When installing this equipment always follow these safety rules:



Switch the power supply **OFF** at the location of the CEDD HPS Basestation when any installation, maintenance or replacement is done on the CEDD Elevated Fixture - type 797.

The use of a disconnecting device is mandatory. The **OFF** position at the CEDD HPS Basestation must be clearly marked and the disconnection device must be easily accessible. A switch or other disconnecting device for functional purposes may be provided.



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 - type 797

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 - type 797

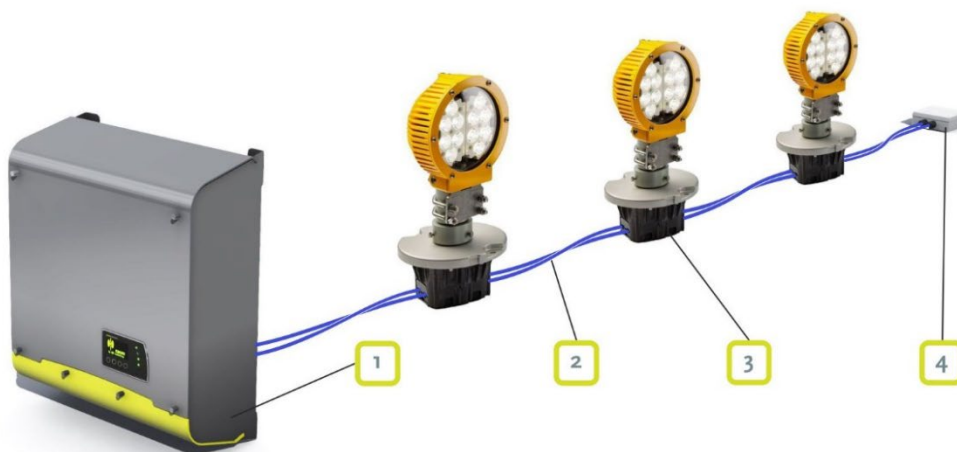
The CEDD Elevated Fixture 797 can be used as an Approach Light (APH), a Side Row Light (SR), a Threshold Light (THR), a Threshold Wingbar Light (THRW), a Runway End Light (RWE) or a Stop Bar Light (STB). The CEDD Elevated Fixture 797 can be installed on an CEDD Elevated Base or on an approach pole.

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

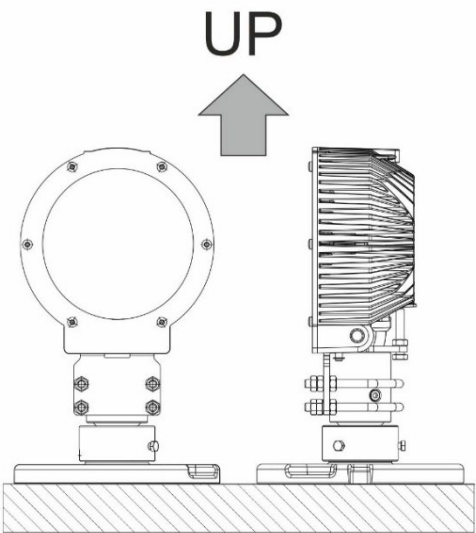
A typical CEDD AGL System consists of a CEDD HPS Basestation (1) that provides power to the CEDD AGL LED fixtures (3) and bi-directional communication to all the CEDD AGL LED fixtures connected to the CEDD cable (2). A CEDD HPS Terminator (4) matches the correct characteristic impedance of the CEDD cable with the connected CEDD AGL LED fixtures.



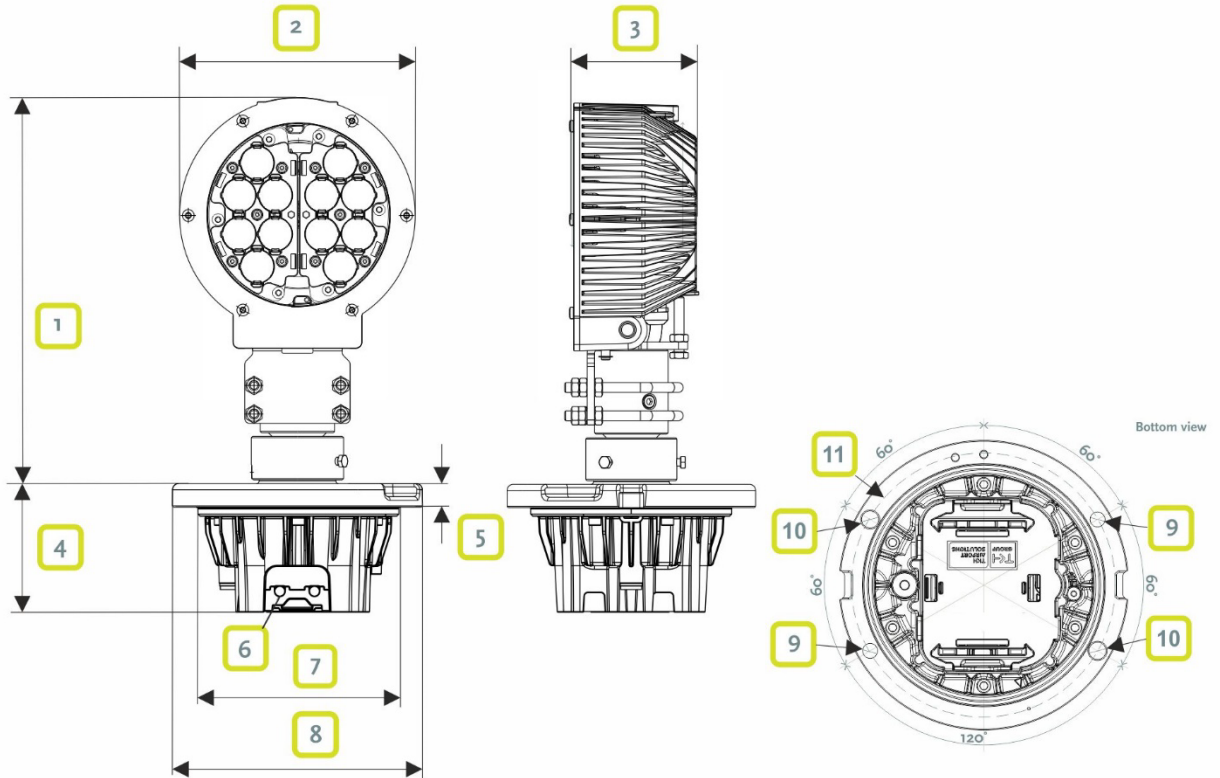
3.3 Operation Information

The CEDD Elevated Fixture 797 is intended for outdoor use only for dedicated airfield installation. General operation information can be found below or on the datasheet of the CEDD Elevated Fixture 797.

Power consumption (CEDD-regulated):	
Standard model APH	33 W (W)
Standard model SR	40 W (R)
Standard model THR	49 W (G)
Standard model THRW	49 W (G)
Standard model RWE	24 W (R)
Standard model STB	9 W (R)

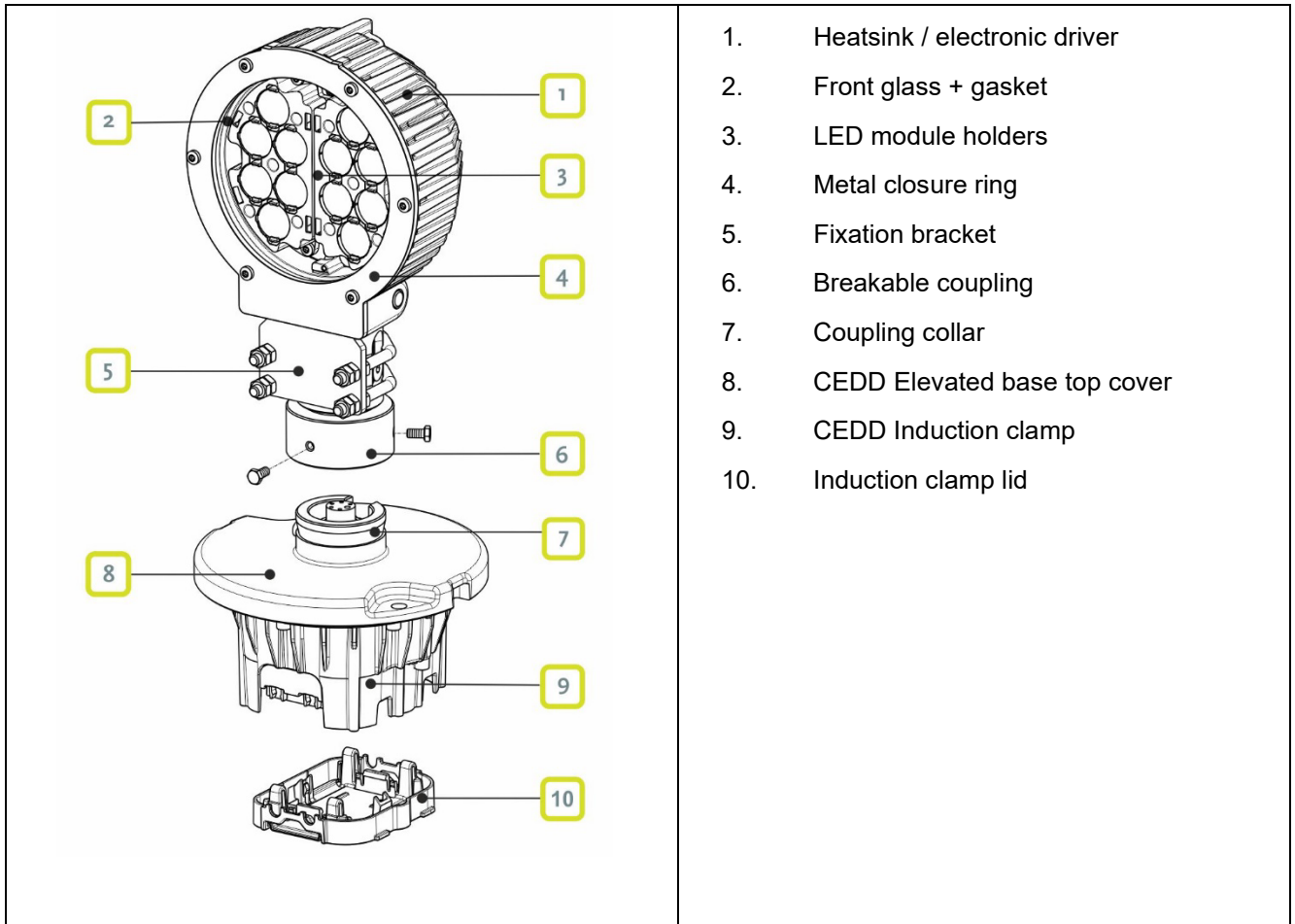
Ambient operating temperature:	-40°C (40°F) / +75°C (+167°F)
Dust and water tightness:	IP68, IP69
Altitude:	up to 2000 m
Weight:	Approx 3.75 - 4.25 kg
Operation position: (note: drawing is indicative only)	

3.4 Dimensions



Pos.	Description	Values
1	Total height of fixture with frangible coupling	311 mm
2	Fixture diameter	190 mm
3	Fixture depth	100 mm
4	Elevated base height	105.7 mm
5	Elevated base cover thickness	19 mm
6	Cable diameter	Max. 7.9 mm
7	Flange diameter	164.9 mm
8	Elevated base cover diameter	201.7 mm
9	Elevated base diameter of mounting bolt holes (2x)	Ø 10.8 mm
10	Elevated base diameter of pilot holes (2x)	Ø 12 mm
11	Elevated base mounting hole center line	184 mm

3.5 CEDD Elevated Fixture - type 797 for CEDD Elevated Base: Parts

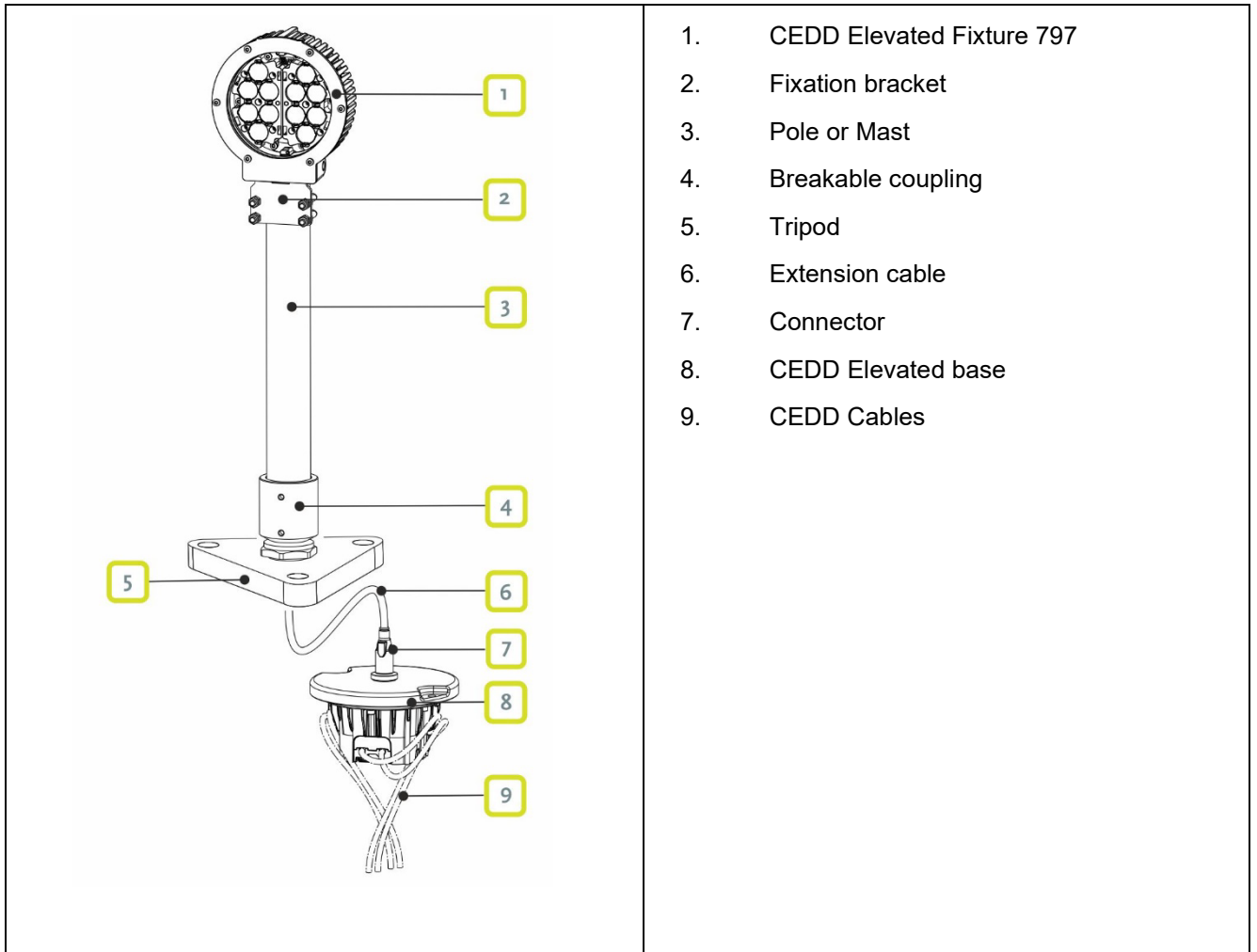


1. Heatsink / electronic driver
2. Front glass + gasket
3. LED module holders
4. Metal closure ring
5. Fixation bracket
6. Breakable coupling
7. Coupling collar
8. CEDD Elevated base top cover
9. CEDD Induction clamp
10. Induction clamp lid

3.5.1 Spare parts for CEDD Elevated Fixture – type 797 – Elevated Base mounted

Pos.	Name	Order code
1	Heat sink / electronic driver	
2a	Front glass	230.235-01
2b	Flat gasket for front glass	230.233-00
3	LED Module holder	
4	Metal closure ring	230.061-00
5.	Mounting bracket	230.190-01
6.	Breakable coupling	230.253-01
7-10	CEDD Elevated base	CPS-CEDD-0-0x0-P2-8-FO-3

3.6 CEDD Elevated Fixture - type 797 pole mounted: Parts

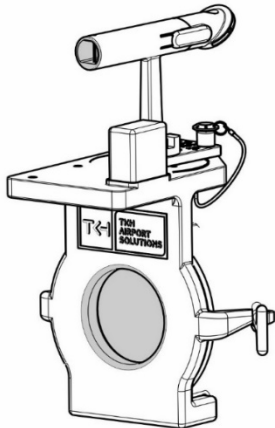
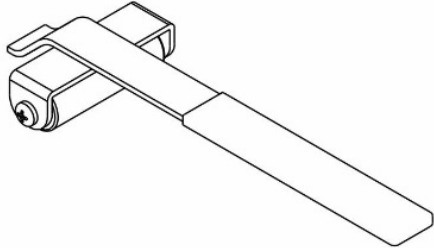

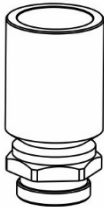
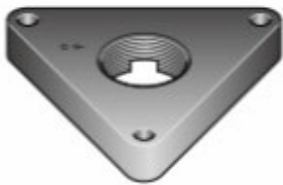


3.6.1 Spare parts for CEDD Elevated Fixture – type 797 – pole mounted

Pos.	Name	Order code
2	Fixation bracket	230.190-01
4	Breakable coupling	301125
5	Tripod	P-381095
6/7	Extension cable + connector	230.046
8	CEDD Elevated base	CPS-CEDD-0-0x0-P2-8-FO-1

3.7 Accessories

The following accessories are available for the CEDD Elevated Fixture - type 797 and the CEDD Elevated Base:

<p>Adjustment Tool 017-000-027 (see Aligning the Lights)</p> 	<p>Lifting tool 302312 for removing the CEDD Elevated Base from a shallow base</p> 
<p>Breakable coupling 230.253-01 for the CEDD Elevated Fixture 797 when installed on the CEDD Elevated Base.</p> 	<p>Breakable coupling 301-125 BL for an Approach Pole or Tube.</p> 
<p>Tripod</p> 	

3.8 More Information

- For technical data refer to the datasheet for your product at <https://www.tkh-airportsolutions.com/airfieldproducts/> or scan:
- If you have any questions about installation or maintenance, please contact TKH Airport Solutions Customer Service on service@tkh-airportsolutions.com.



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

Inspect the contents of the transport boxes. Elevated Fixtures can be delivered with or without breakable coupling, with or without components for pole mounting etc. Compare the contents of the transport boxes with the applicable order. If any item is missing, contact your local TKH Airport Solutions agent, or TKH Airport Solutions Customer Service.

Inspect the CEDD fixture and accessories

Unpack and inspect all parts. If there is any visible damage or defect, contact TKH Airport Solutions Customer Service service@tkh-airportsolutions.com.

5. Installation

This chapter contains instructions for installing the CEDD Inset Fixtures.

Before installing the CEDD Elevated Fixture - type 797 read the Installation Safety instructions below.



Disregarding these safety instructions will result in the loss of warranty in case of damage. TKH Airport Solutions is not liable for any injuries to personnel or any equipment damage.

Install the CEDD Elevated Base and mount the Elevated Fixture - type 797 with breakable coupling in the following order:

1. Installing a CEDD Elevated Base in 8" Shallow Base on page 22.
2. Mounting a the CEDD Elevated Fixture 797 onto the CEDD Elevated Base on page 26.

5.1 Installation Safety



The CEDD AGL system components (e.g. CEDD cable, CEDD AGL LED Fixtures, and CEDD HPS Terminator) should not be touched or worked on if the CEDD AGL system is operational (meaning constant current AGL series circuit energized). The constant current AGL series circuit must be de-energized before any (maintenance/service) work on the CEDD AGL system and its components can start. Before any work can start the CEDD HPS Basestation must be switched off, and must be protected against accidental re-energizing.

High voltage may still be present in the system after switching off. Wait for at least 15 minutes before starting installation.



The CEDD AGL system must be installed in a restricted access area. In any of the following cases the equipment must not be installed and must be kept out of reach from unauthorized use:

- if the CEDD cable or Fixtures are visibly damaged
- after storage under unfavourable circumstances (for example, outdoors or in moist environments)
- after excessive transportation stress (for example in damaged packaging)
- if the equipment is not in the original packaging



It is recommended to earth the shallow base in locations presenting a high risk of lightning strikes. Refer to the Installation Instructions for the shallow base.

5.2 Tools and Materials Needed

Tools

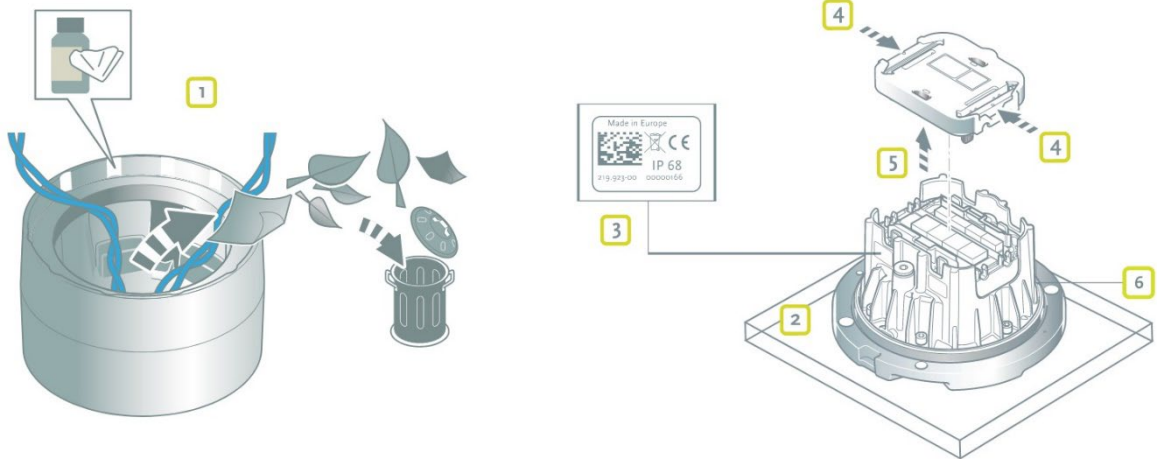
- A clean, flat working surface
- A piece of foam packaging material with a hole in the center to support the collar on top of the Elevated Base
- A bag to collect any debris removed from the shallow base
- Non-caustic cleaning agent
- Calibrated torque wrench 0-10 Nm
- Hex socket adapters for torque wrench (4 mm to 14 mm)
- Allen adapters for torque wrench (H3 to H8)
- Torx adapters for torque wrench (T10-T40)
- Manual Wrench set
- Calibrated torque wrench 20-40 Nm with Hex socket adapters
- Pliers
- Adjustment Tool for Elevated Fixture 797

Materials

- CEDD Elevated Base 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
- CEDD Elevated Fixture 797

5.3 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.

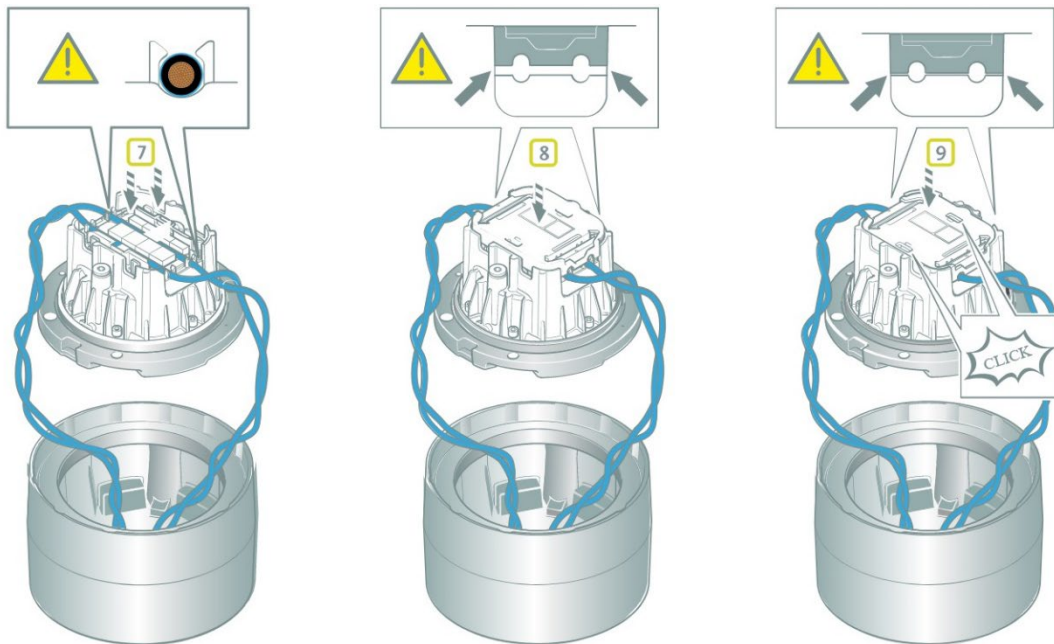
3. Record the NUID of the CEDD Elevated Base (QR-code on the sticker) and its aeronautical name.

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.

- Align the CEDD cables with the two slots and click these into the small clamps on both sides.

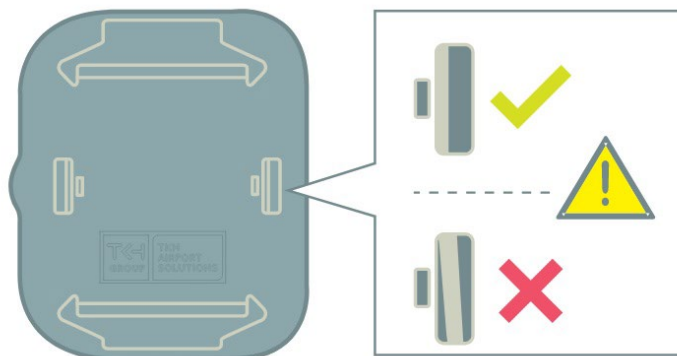


- Reposition the CEDD inductive clamp lid. The inductive clamp lid only fits in one way. The rounded notch on one side and the plastic retention protrusions make sure of this.
- Firmly push down the inductive clamp lid until you hear the metal retention brackets click into place.

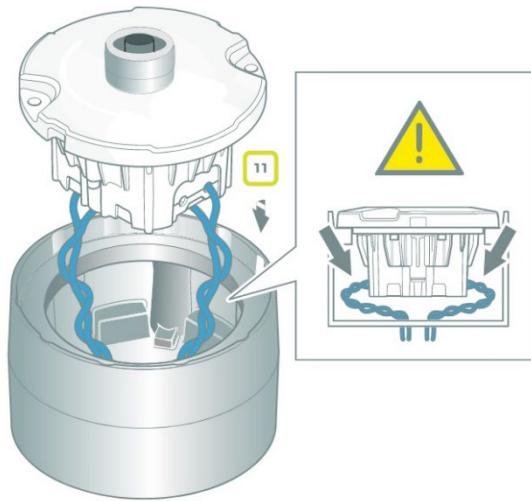
NOTICE

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

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



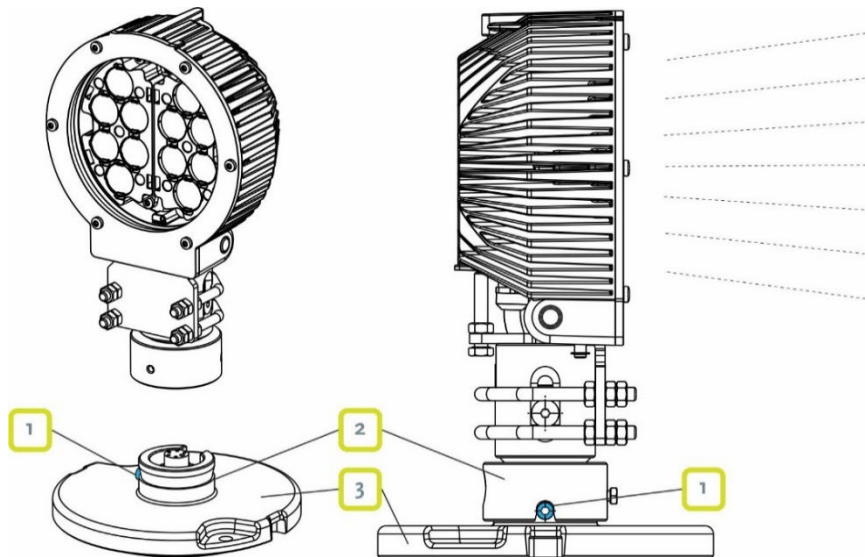
11. Turn the CEDD Elevated Base the right way up and guide the elevated base and cables into the shallow base.



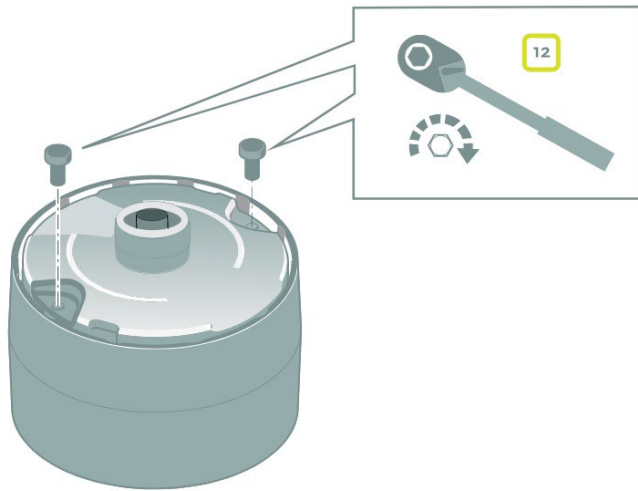
NOTICE

It is important to position the CEDD Elevated Base in the shallow base correctly to ensure the required light output direction. Refer to the Airport AGL lay-out for the positions of the CEDD Elevated Fixture 797.

Make sure that the positioning screw (1) in the coupling collar (2) of the CEDD Elevated Base (3) is on the left-hand side when facing the fixture in front (see picture below and refer to section 5.4 of this manual: Mounting an CEDD Elevated Fixture 797 onto the CEDD Elevated Base.)

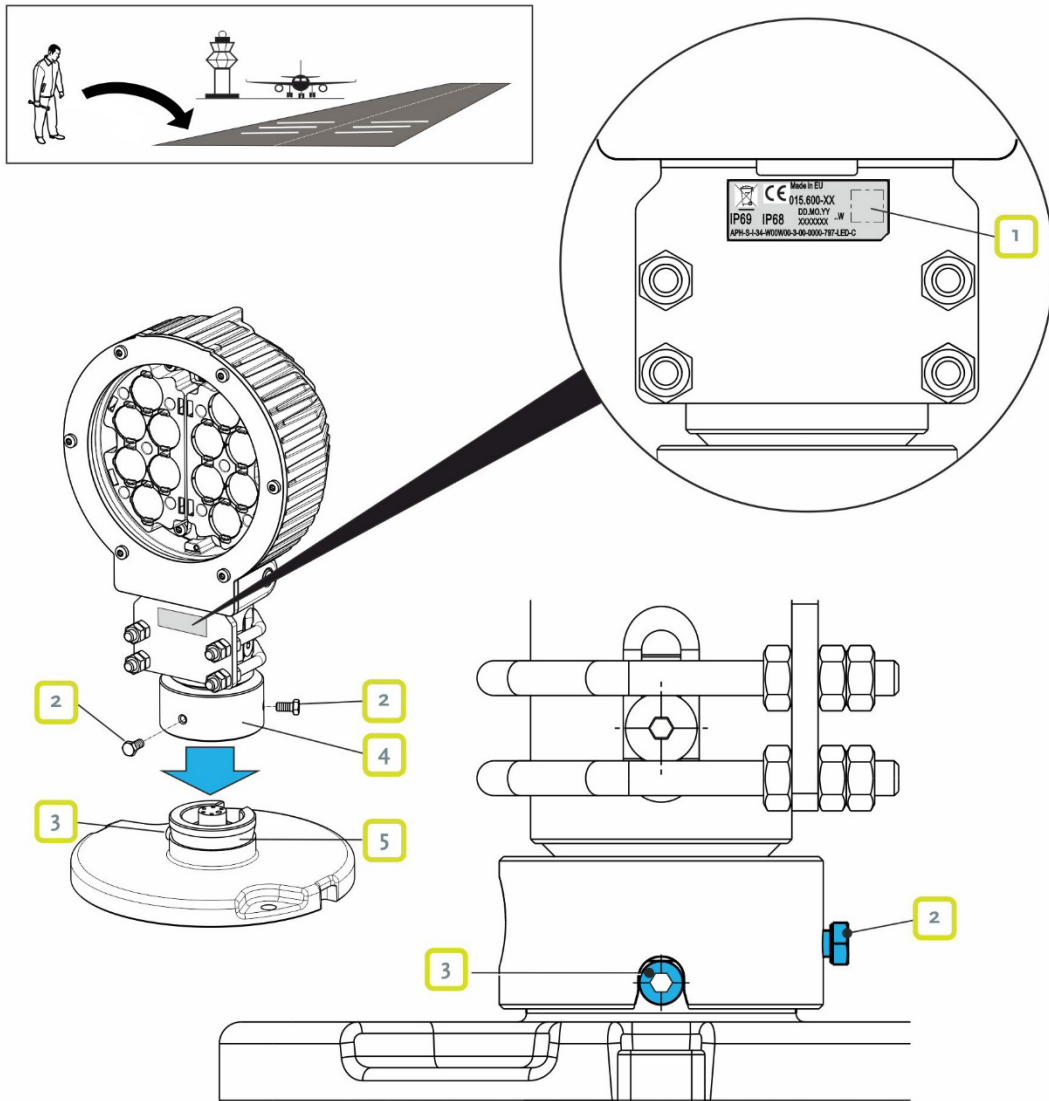


12. Mount the CEDD Elevated Base onto the shallow base with 2 bolts and washers. Tighten the bolts using a calibrated 17 mm torque wrench to 30 Nm. Refer to the shallow base installation instructions.



5.4 Mounting an CEDD Elevated Fixture 797 onto the CEDD Elevated Base

1. Position the fixture to the appropriate set-up to the runway. If the fixture is mounted onto an approach pole, refer to chapter 5.6 on page 30.
2. Mount the 2 hexagon head screws (2) in the fixture foot (4) and 1 positioning screw (3) in the coupling collar (5) of the CEDD Elevated Base. The positioning screw (3) ensures that the fixture is installed in the right direction on the Elevated Base. More information about the Elevated Fixture can be found on the type plate (1).

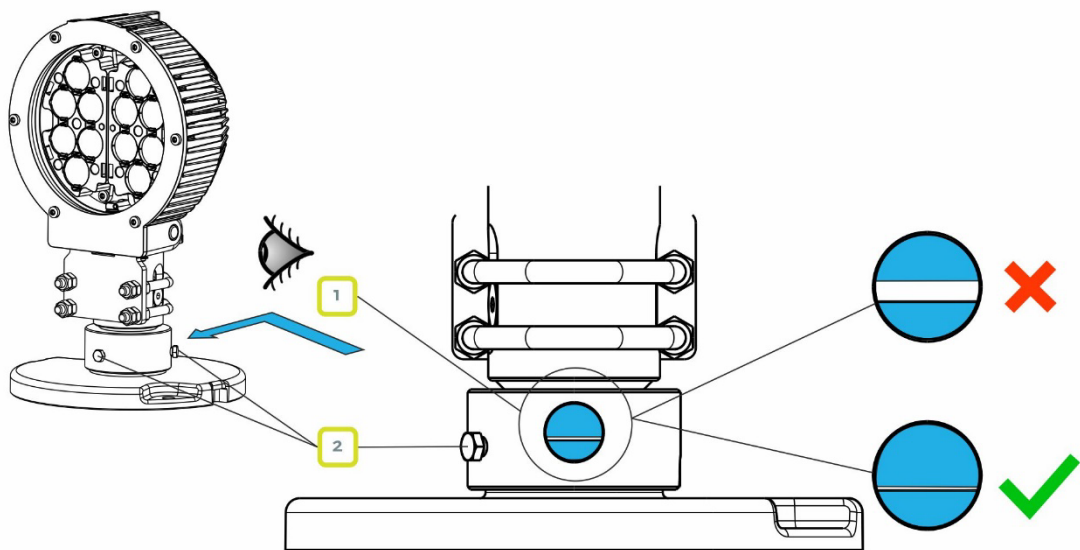


3. Lower the Fixture 797 over the collar ensuring that the recess in the coupling slides over the positioning screw in the coupling collar (2). The positioning pin in the fixture connector must be aligned with the hole in the receptacle of the Elevated Base.

4. Press the fixture down firmly until the connector plugs into the receptacle on top of the CEDD Elevated Base (see picture below).

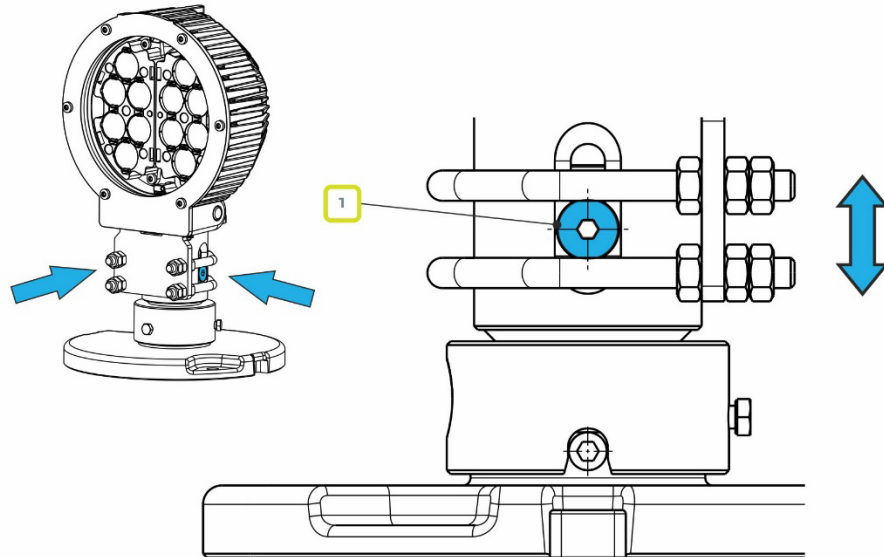


5. Check through the inspection hole (1) on the rear side of the fixture foot if the fixture connector is correctly connected with the receptacle of the Elevated Base.



6. When correctly positioned, tighten the 2 hexagon head screws (2) onto the collar with a torque wrench (9 Nm).

- When not correctly positioned, loosen the 2 countersunk screws (1) on the outside of the breakable coupling. Adjust the fixture connector to the correct position and check again through the inspection hole. When position is OK, tighten the screws with a torque wrench (10 Nm)



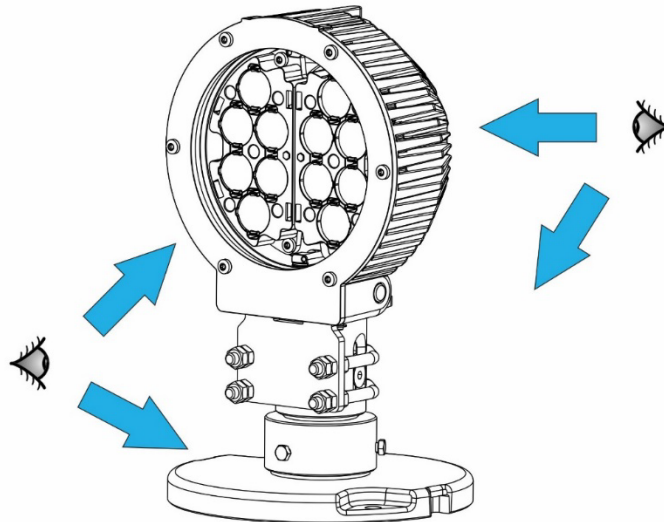
NOTICE

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).

5.5 Checking the Installation

Visually inspect the CEDD fixture after installation to check that:

- the CEDD Elevated Fixture - type 797 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



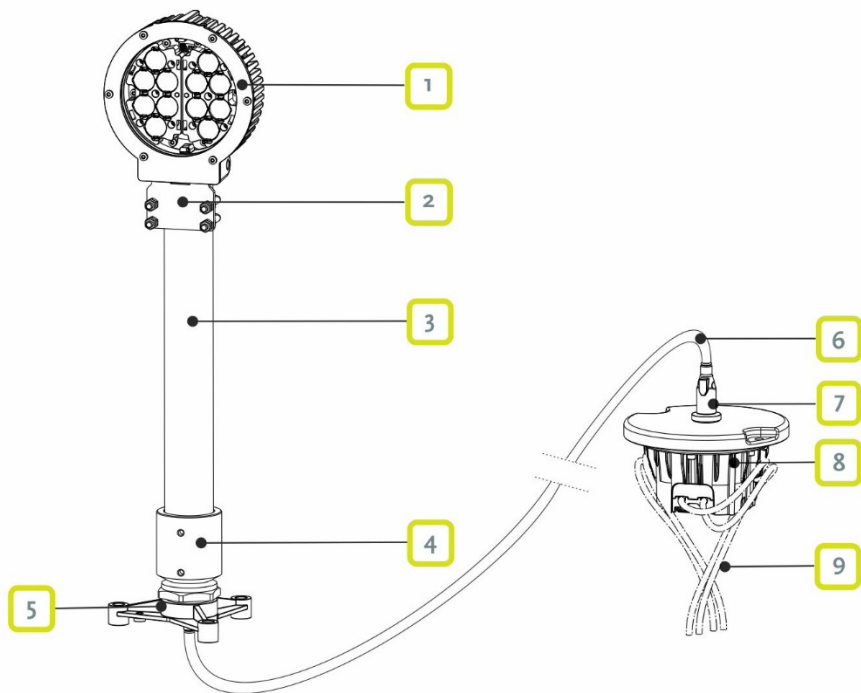
- After installation each light must be precisely aligned (depending on its function). See [Aligning the Lights](#).
- Check that the lighting system is working perfectly.

5.6 Mounting a CEDD Elevated Fixture 797 onto a runway approach pole

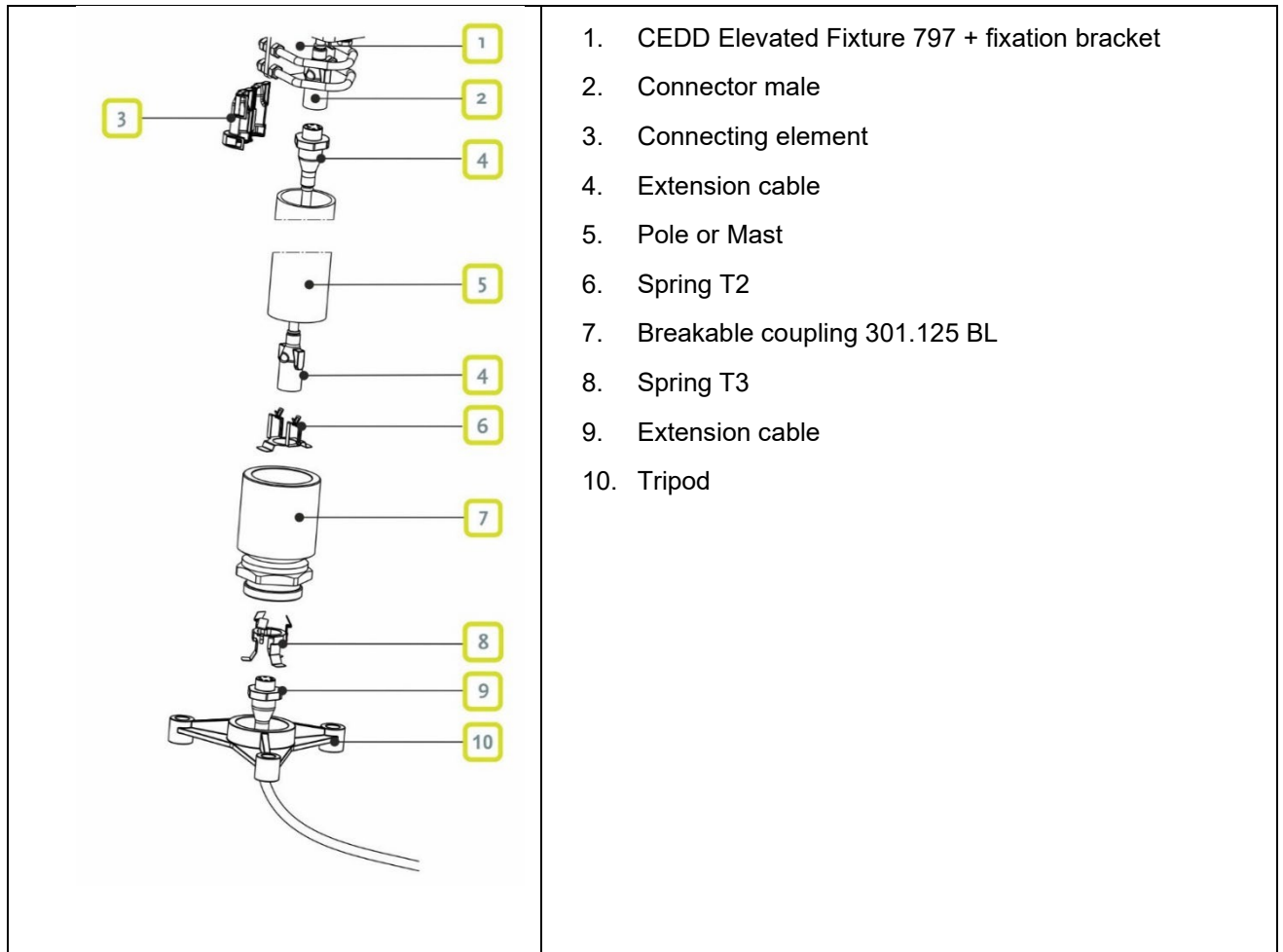
When the CEDD Elevated Fixture 797 is mounted onto a runway approach pole (3), the installation is different compared to the installation direct onto a CEDD Elevated Base. The CEDD Elevated base units (8) are positioned in a box or manhole near the approach poles. A cable (6) connects the CEDD Elevated Base to the frangible connection inside the breakable coupling (4) of the pole (3). An elevated cable is installed inside the pole and connects to the CEDD Elevated Fixture (1).

NOTICE

Avoid any sharp bending of the CEDD cables (9) en (6). Avoid any sharp edges around the CEDD cable. Refer to the Cable Manual how to install and handle the CEDD cables.



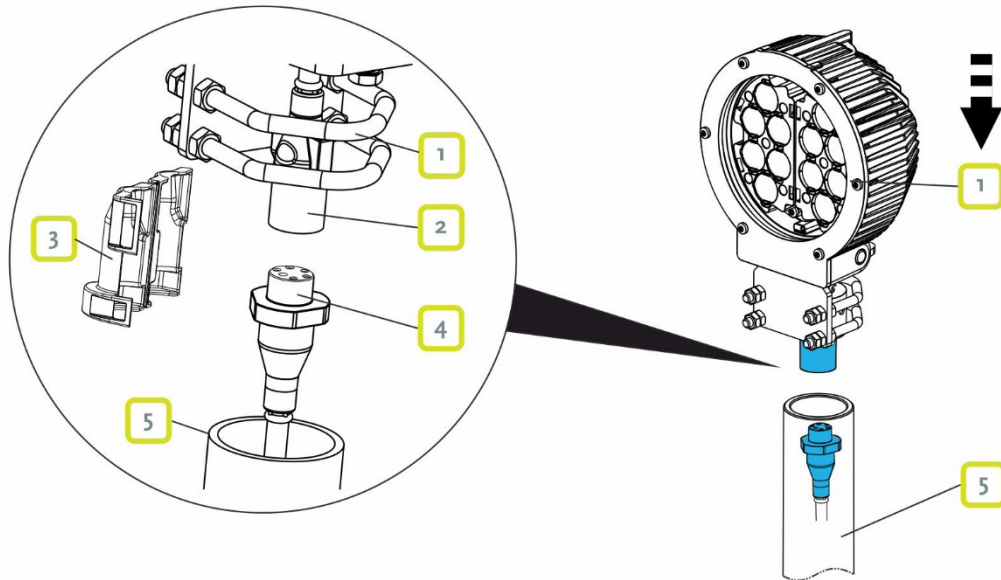
5.6.1 Description of parts inside the pole



5.6.2 Mounting procedure:

1. Clamp the spring (8) onto the cable connector (9)
2. Position the spring (8) and cable (9) inside the tripod (10).
3. Mount the breakable coupling (7) into the tripod (10) including spring (8) and cable (9)
4. Use pliers to mount the spring (6) on the male lower end of the cable (4).
5. Guide cable (4) through the pole (5).
6. Mount the pole (5) into the breakable coupling (7).

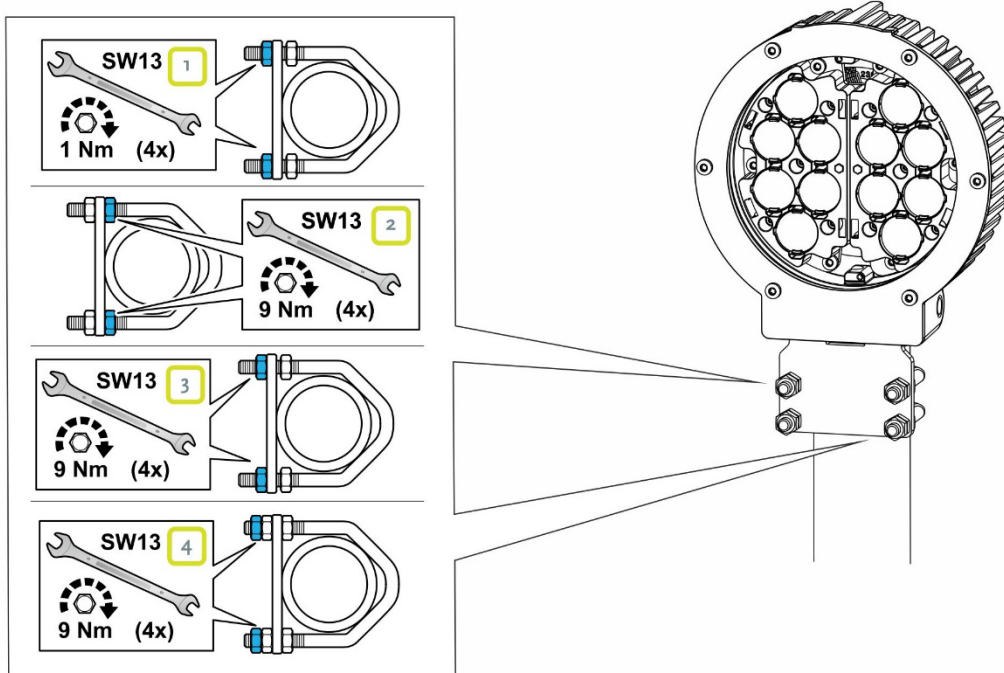
7. Take the CEDD Elevated Fixture 797 (1) and connect cable (2) with cable (4)



8. Clip the connecting element (3) around the cable connectors (2) and (4)

9. Place the CEDD Elevated Fixture 797 (1) on top of the pole (5) with the fixation bracket.

10. Tighten the nuts of the fixation brackets in the order and with the applicable torque shown below.



5.7 Aligning the Fixture

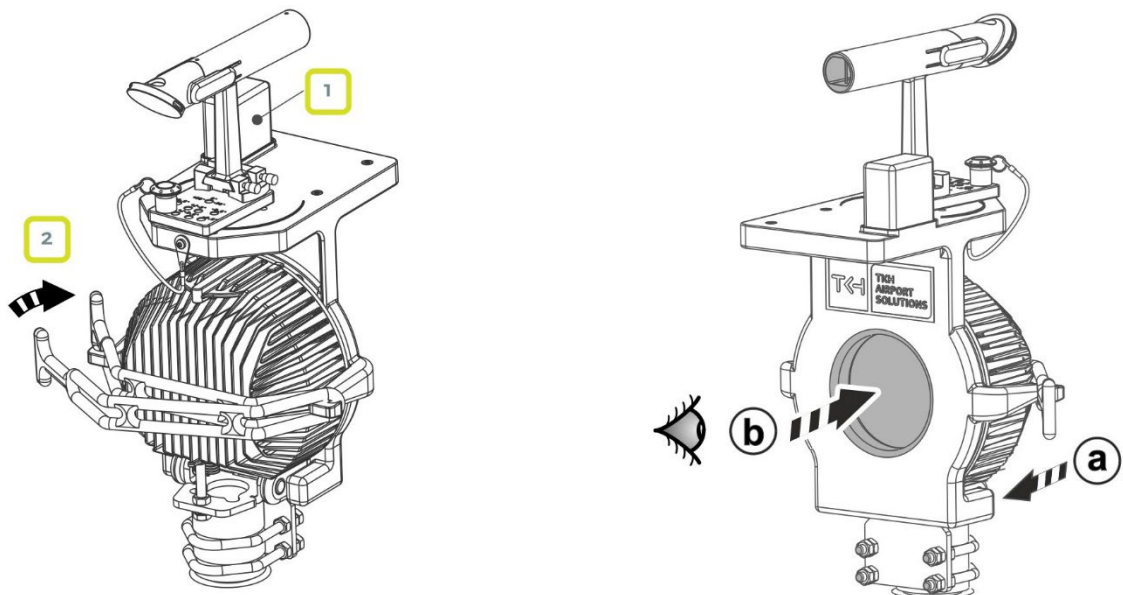
After each CEDD Elevated Fixture - type 797 is installed, either on the CEDD Elevated Base or on an Approach Pole, it must be aligned with the adjacent lights. First mount the tool onto the fixture and level the fixture; then adjust the horizontal toe-in of the light and finally set the vertical angle of inclination of the light.

Tools required:

- Adjusting Tool (Part number 017.000-027)
- Torque wrench size 13 (M8)

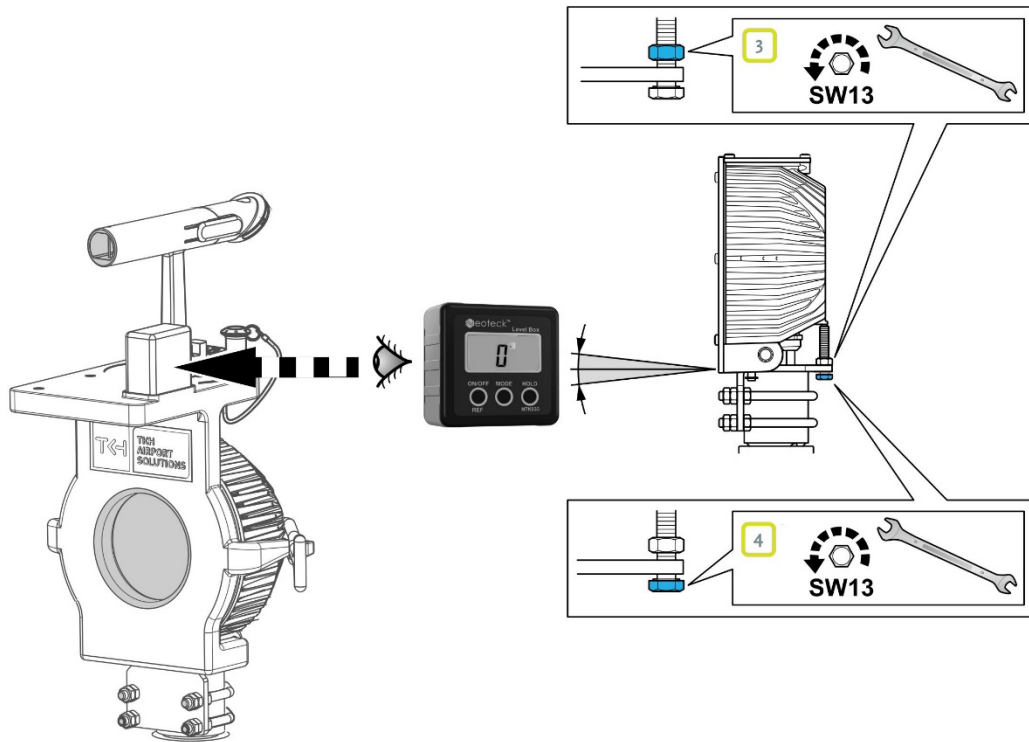
5.8 Levelling the Fixture

1. Before you start adjustment, place the inclinometer (1) on the ground beside the light and press the button to initialize the angle to 0° in the horizontal axis. Place the inclinometer in the adjusting tool.

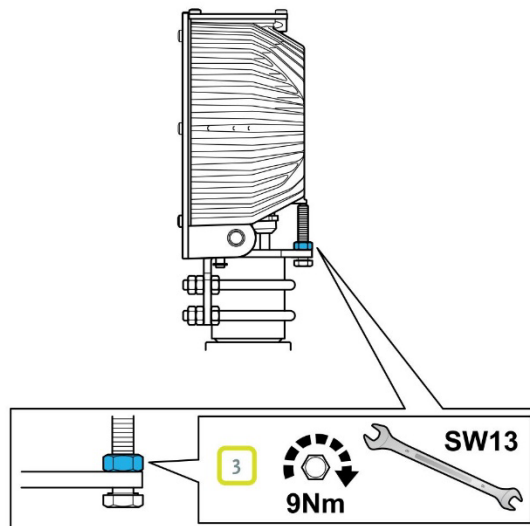


2. Place the adjusting tool over the light, pull the flexible arm around the back of the housing (2) and clip it in place. To ensure that the tool is mounted correctly:
 - a. Check that the feet at the base of the tool fit over the flat sides of the heat sink foot.
 - b. Look through the hole in the front of the tool, to check that the tool is mounted straight, and is not obstructed by the screws on the front of the fixture.
3. To adjust the vertical inclination of the light, loosen the nuts (3).

4. Rotate the screw (4) to adjust the angle of the light to 0°.

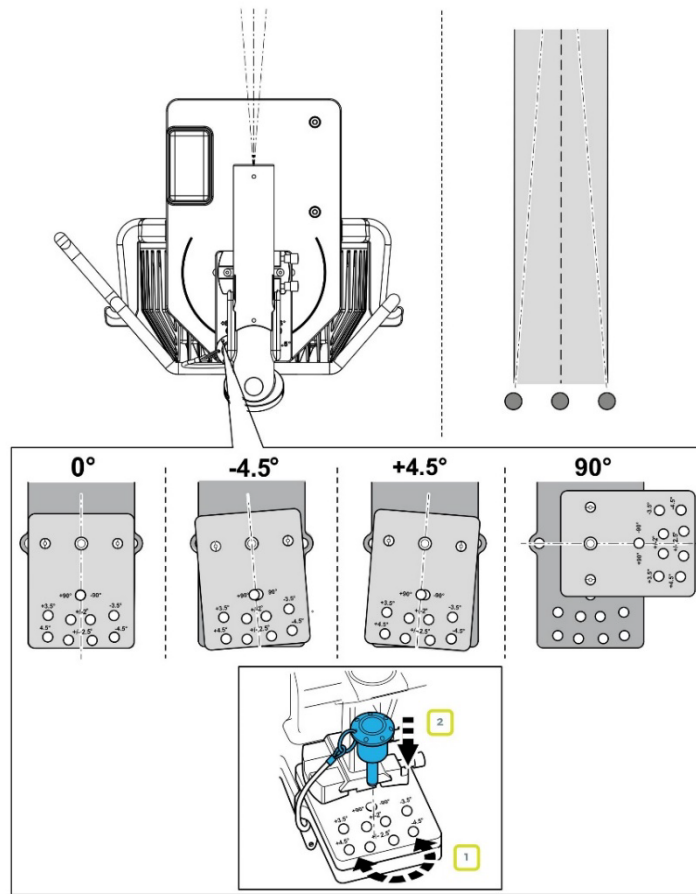


5. Tighten the nut (3) to fix the light in position with a torque of 9 Nm.

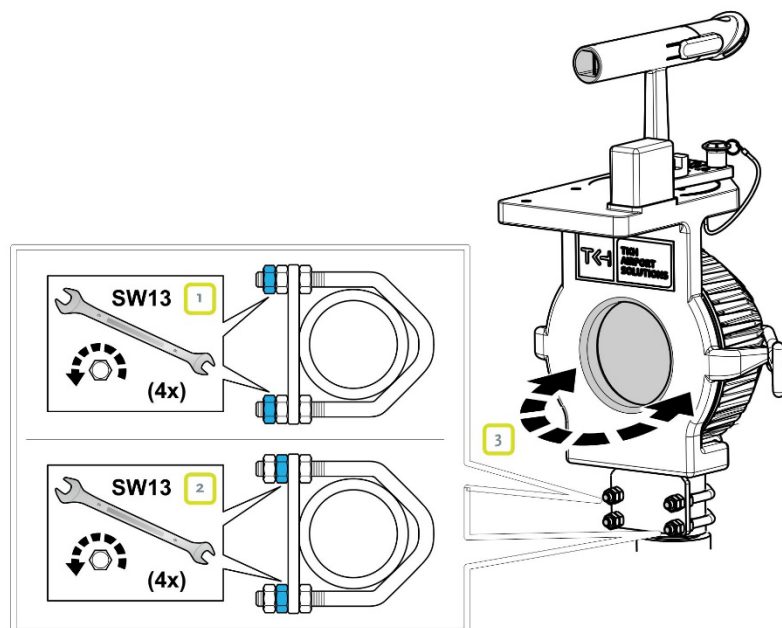


5.9 Adjusting the Toe-in

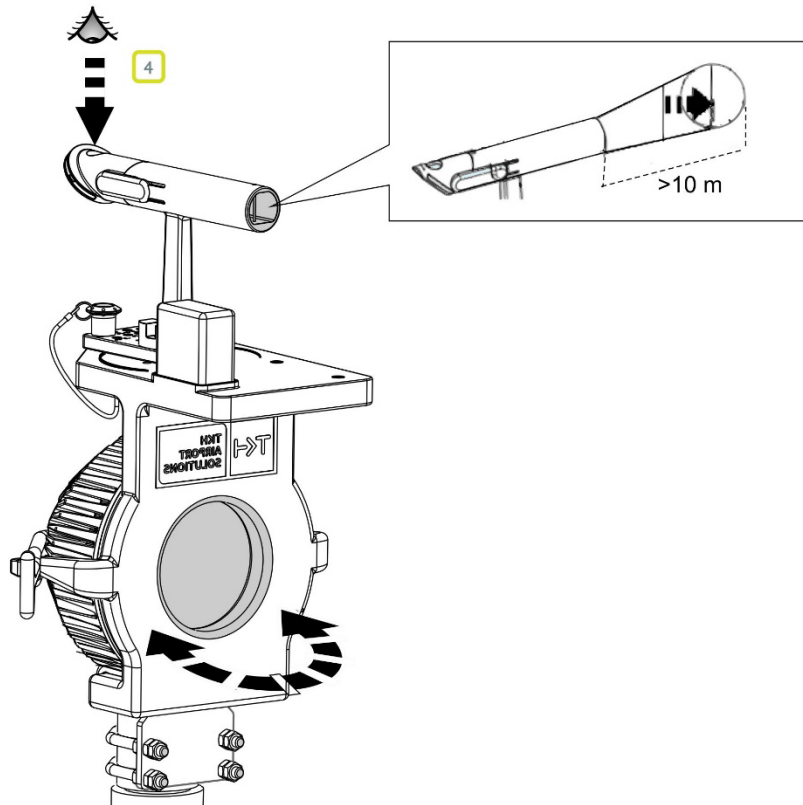
1. Rotate the ground plate (1) to the required toe-in horizontal angle, **for example -4.5°**:



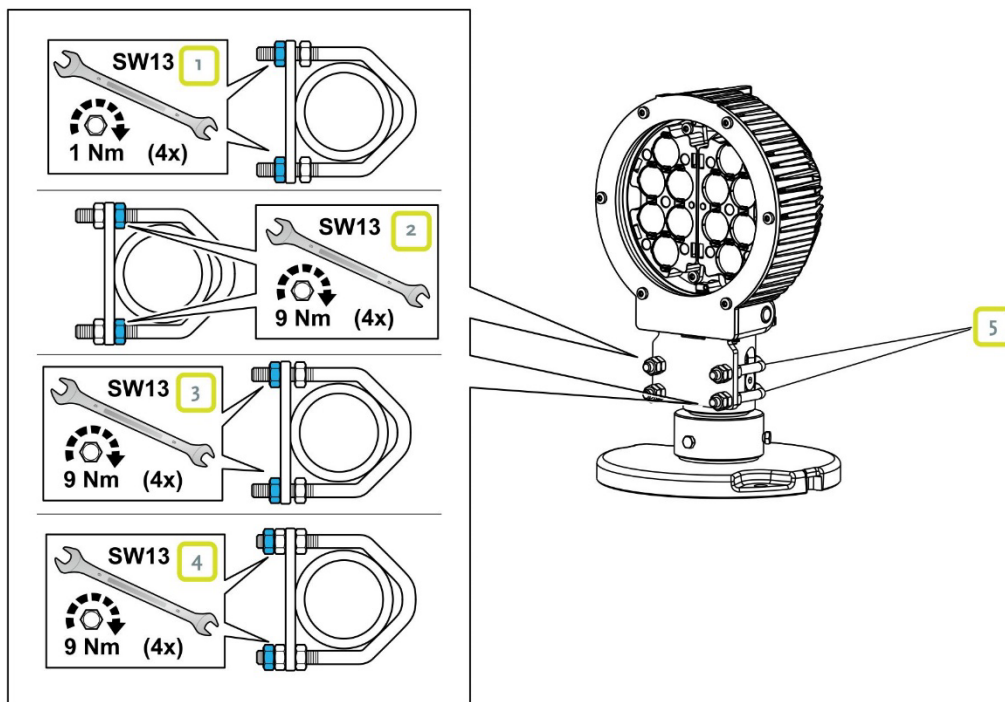
2. Insert the pin (2) into the hole to fix the required angle. The light is now aligned to the correct toe-in.
3. Loosen the nuts in the order shown to allow the position of the light to be adjusted.



- Look through the top viewfinder (4), focus on the 2 wires, and turn the light until the front and rear wires line up with the target object. The distance to the target object must be at least 10 meters.

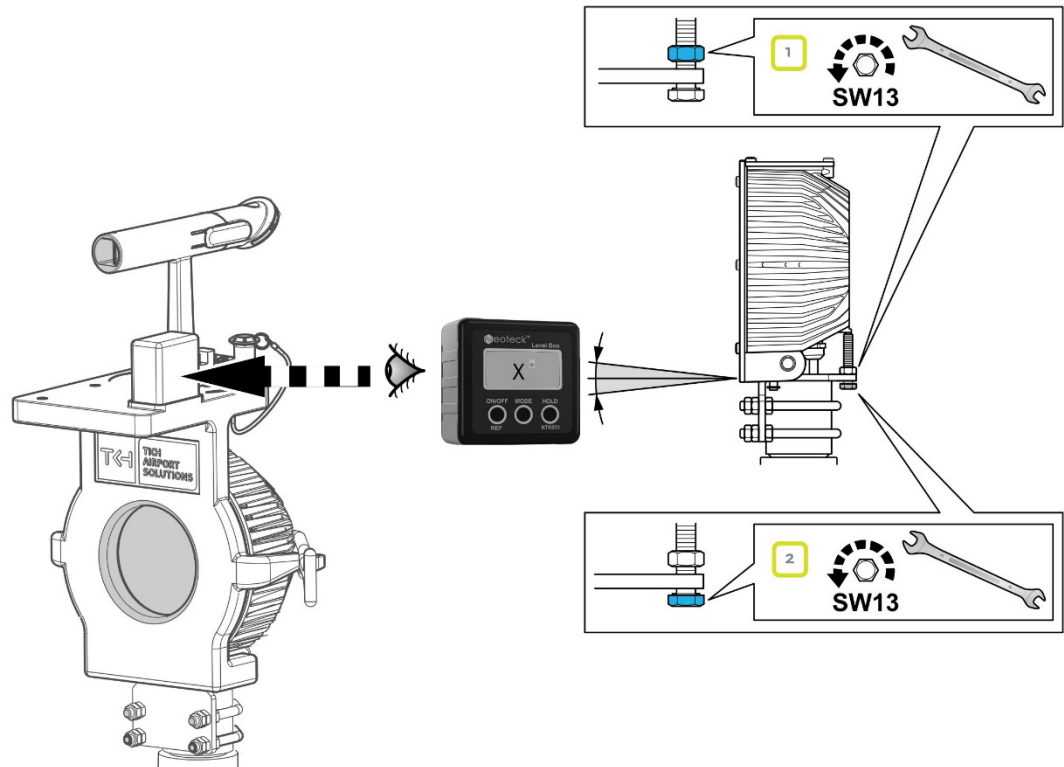


- Tighten the nuts in the order shown below to fix the position of the light. Tighten the fixation bracket (5) into the two grooves on the breakable coupling.

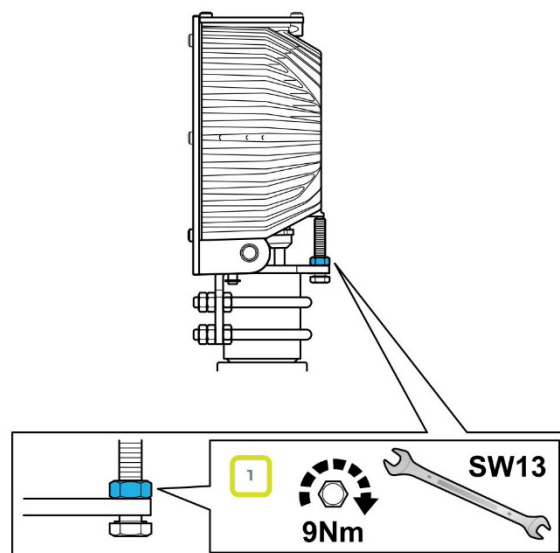


5.10 Adjusting the Angle of Inclination

1. To adjust the vertical inclination of the light, loosen the nuts (1).
2. Rotate the screw (2) to adjust the angle of the light to the required vertical angle (X°).



3. Tighten the nut (1) with a torque wrench (9 Nm) to fix the light in position.



4. Remove the adjusting tool.

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

Before you begin read these warnings carefully.



The CEDD AGL system components (e.g. CEDD cable, CEDD AGL LED Fixtures, and CEDD HPS Terminator) should not be touched or worked on if the CEDD AGL system is operational (meaning constant current AGL series circuit energized). The constant current AGL series circuit must be de-energized before any (maintenance/service) work on the CEDD AGL system and its components can start. Before any work can start the CEDD HPS Basestation must be switched off, and must be protected against accidental re-energizing.

After swiching the CEDD Basestation OFF, wait a minimum of 15 minutes for the system to de-energize.



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 - type 797.

- Preventive Maintenance CEDD Elevated Base
- Preventive Maintenance CEDD Elevated Fixture - type 797.
- Corrective Maintenance CEDD Elevated Base
- Corrective Maintenance CEDD Elevated Fixture - type 797.

7.1 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.

7.2 Preventive Maintenance - CEDD Elevated Fixture - type 797

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 - type 797 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 (glass, LED module, heat sink unit, or breakable coupling). If any parts need to be replaced, see Corrective Maintenance – CEDD Elevated Fixture - type 797 on page 34)
- Check the correct alignment of the light (see Aligning the Lights).
- Check the light output.

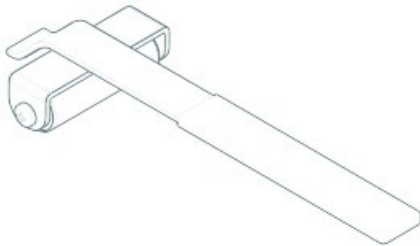
7.3 Corrective Maintenance - CEDD Elevated Base

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

To de-install the fixture and base, follow the instructions in De-installing a CEDD Elevated Fixture – type 797 on page 37 and De-installing a CEDD Elevated Base on page 35.

7.3.1 Tools and Materials Needed

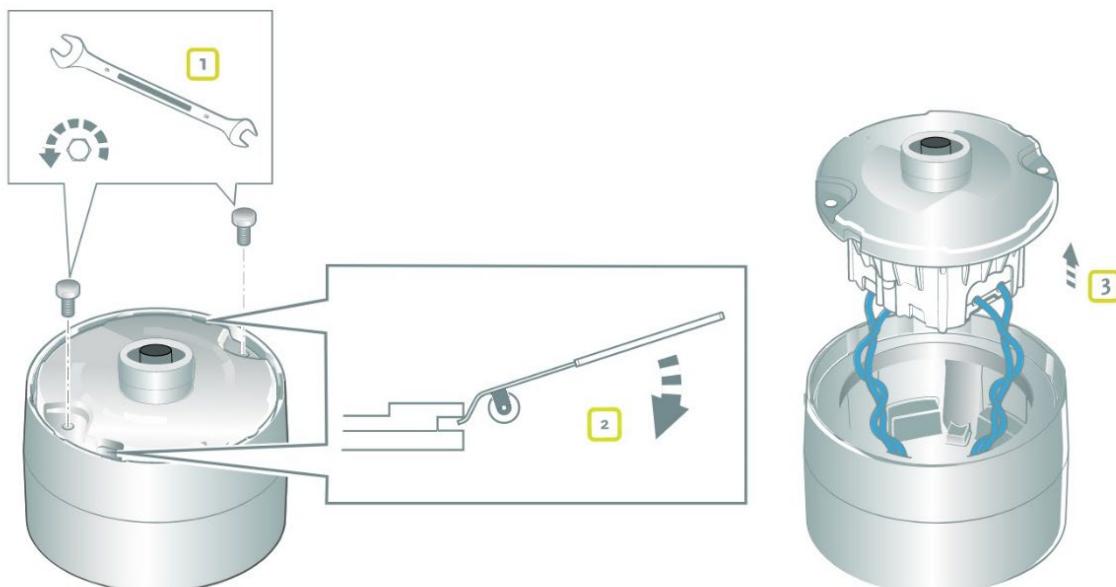
- Hex socket wrench (17 mm)
- Lifting tool for removing the fixture from the shallow base



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

7.4 De-installing a CEDD Elevated Base

1. Remove the bolts using a Hex socket wrench (1).

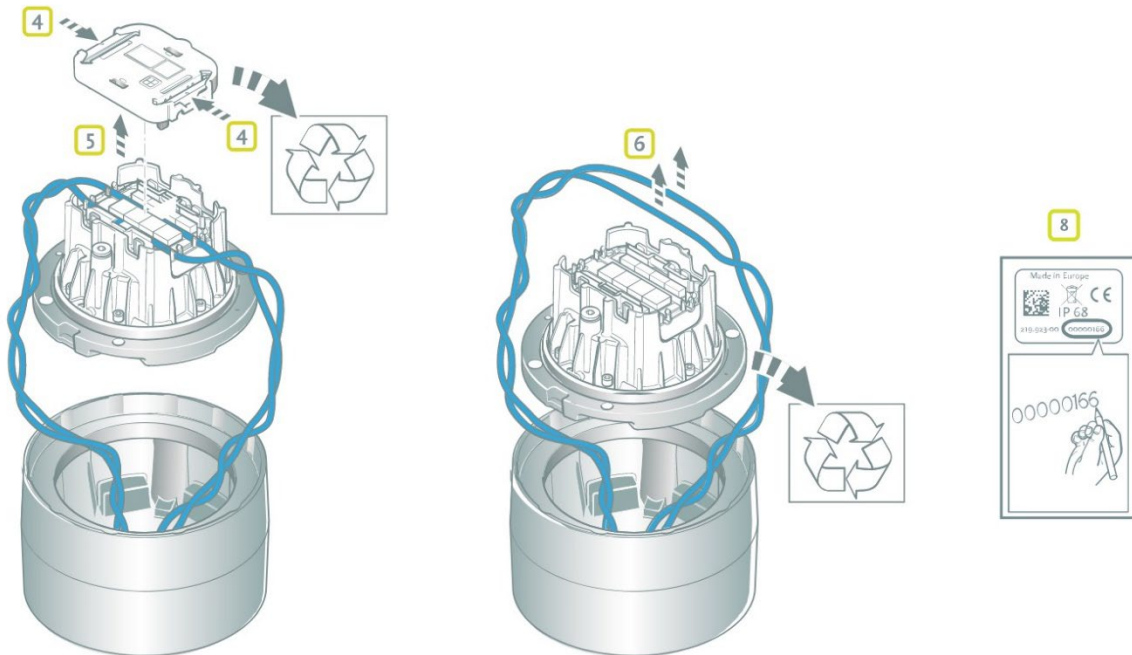


2. Pry the CEDD Elevated Base out of the shallow base using the lifting tool (2).
3. Lift the CEDD Elevated Base (3) and carefully turn it upside down on a clean, flat working surface. Use a piece of foam packaging material with a hole in the center to support the collar.

NOTICE

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

4. Release the CEDD inductive clamp (5) by pressing the two flanges on both sides inwards (4).



5. Lift the CEDD inductive clamp lid (5) with small tilting movements and remove it.
6. Take the cables from the slots (6) and remove the fixture.
7. If the fixture and CEDD Elevated Base will not be replaced immediately, fix a suitable blind plate over the shallow base.
8. Record the NUID of the CEDD Elevated Base (see the QR-code on the sticker (8)) and its aeronautical name.

NOTICE

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

7.5 Corrective Maintenance - CEDD Elevated Fixture - type 797

If the CEDD Elevated Fixture – type 797 is damaged or defective it must be replaced. Remove the fixture from the CEDD Elevated Base (see Changing Devices on page 35) and return it to TKH Airport Solutions. Contact the TKH Airport Solutions service department for more information.

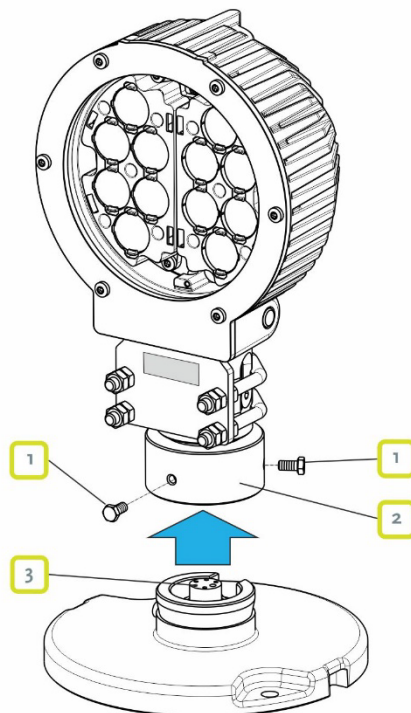
7.5.1 Tools Required

- Hex socket wrench size 10 (M6)
- Manual wrench size 13 (M8)
- Torque wrench 0-20 Nm, size 13 (M8)

7.6 De-installing a CEDD Elevated Fixture - type 797

To remove a CEDD Elevated Fixture - type 797 from the CEDD Elevated Base, follow the steps below and refer to the drawing.

1. Remove the screws (1) from the lower part of the breakable coupling (2) using a socket wrench size 10 (M6).



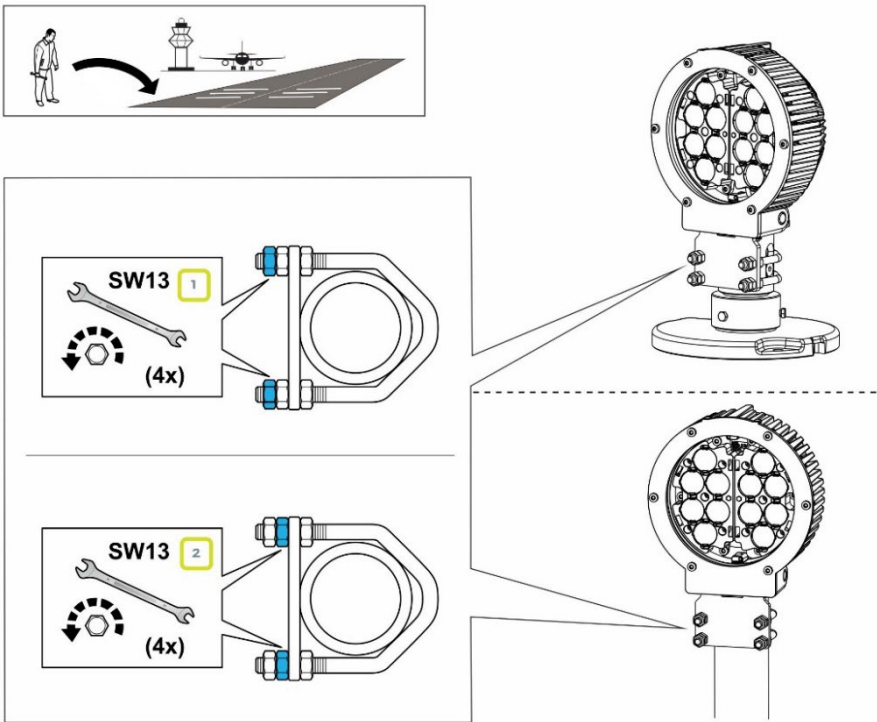
2. Carefully unplug the connector (3) and lift the CEDD fixture 797 including breakable coupling from the CEDD Elevated Base.

NOTICE

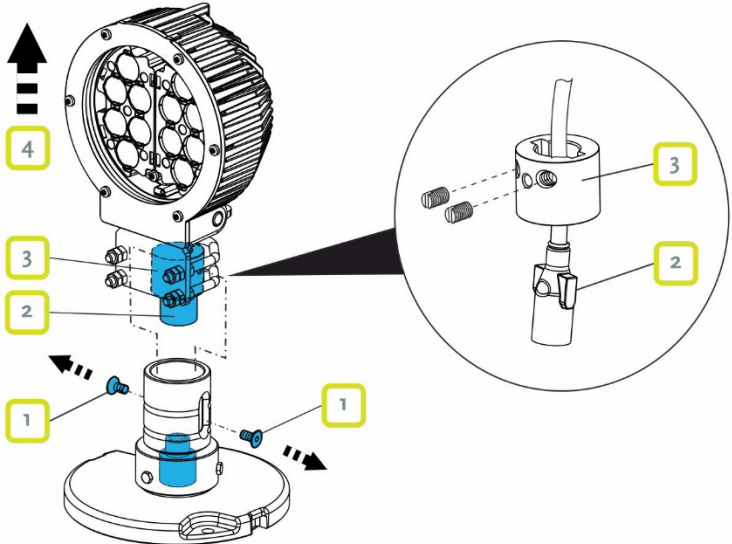
If the fixture is not replaced immediately, remove the elevated base (see De-installing a CEDD Elevated Base on page 40) and fix a blind plate over the shallow base.

7.7 Changing Devices

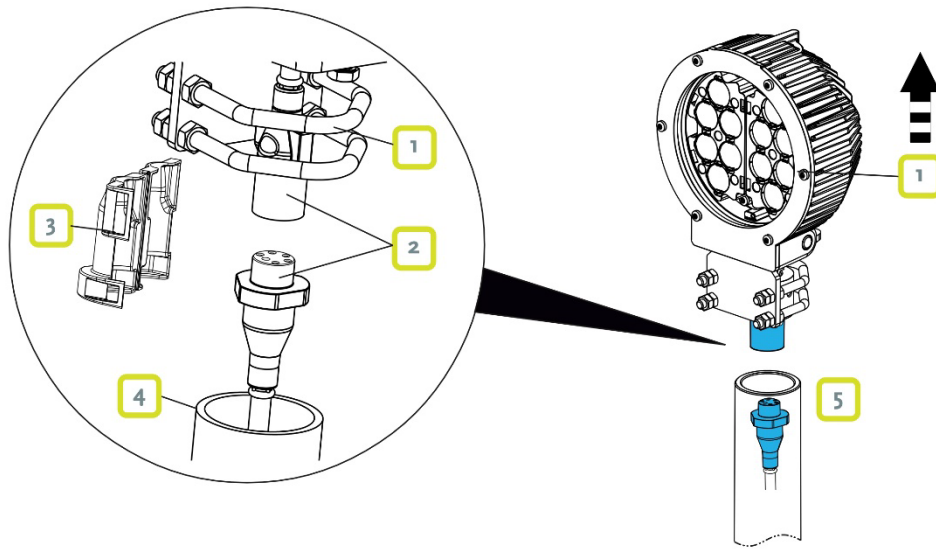
If the CEDD Elevated Fixture 797 is found to be defective, it must be replaced with a new unit. In this scenario, the breakable coupling remains affixed to the CEDD Elevated Base. This process involves two variants of the CEDD Elevated Fixture 797: one connected to the CEDD Elevated Base, and another mounted to an Approach Pole. Always send a defective CEDD Fixture back to TKH Airport Solutions. Contact the TKH Airport Solutions service department for more information.



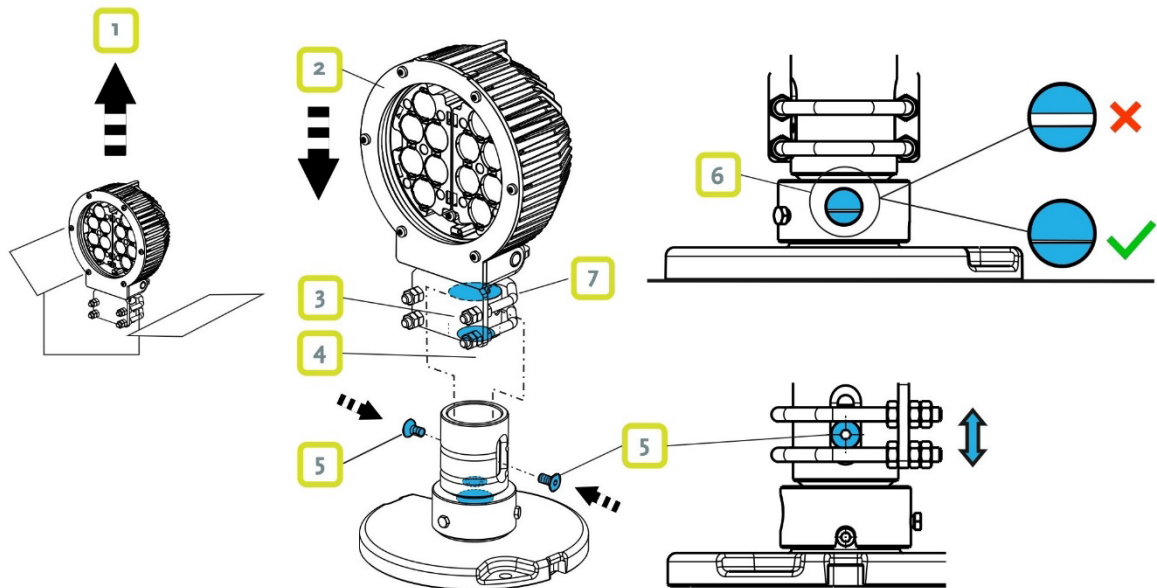
1. Loosen the nuts on the fixation bracket in the order shown to allow the CEDD Elevated Fixture 797 to be removed (see illustration above).
2. When the CEDD Elevated Fixture 797 is mounted on the CEDD Elevated Base, the countersunk screws (1) in the breakable coupling that hold the cable (2) and its position ring (3), need to be removed. Lift the defect CEDD Elevated Fixture 797 (4) from the breakable coupling and disconnect the cable (2).



- When the CEDD Elevated Fixture 797 is mounted on an approach pole, lift the defect CEDD Elevated Fixture 797 (1) from the pole (4). Open the connecting element (3) and disconnect the cable connectors (2). Make sure the cable will not drop into the pole (5) !

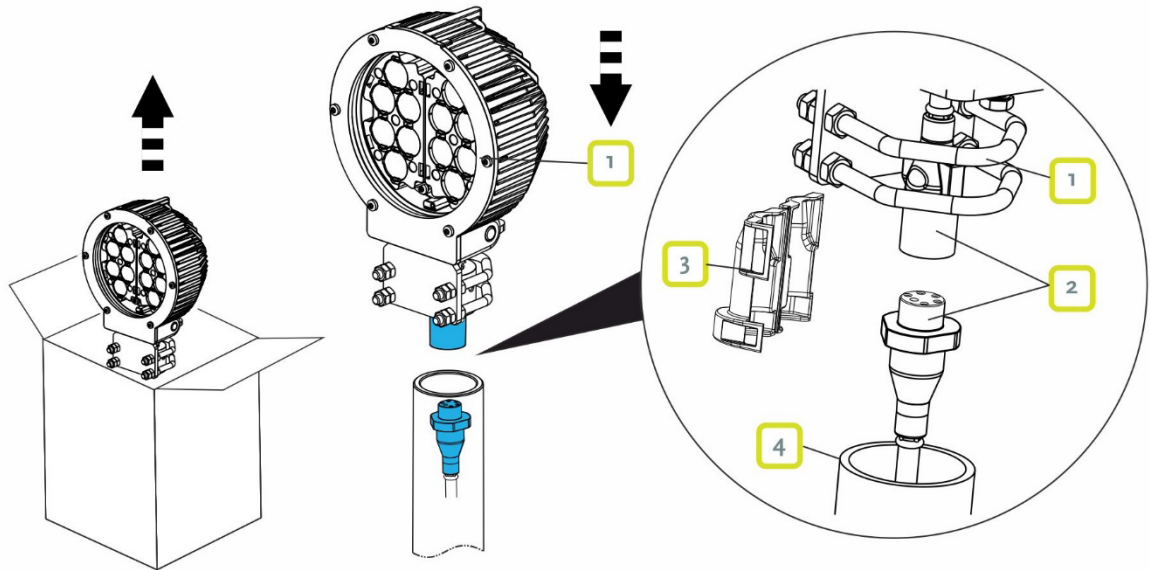


- Send the defect CEDD Elevated Fixture 797 to TKH Airport Solutions. Contact the TKH Airport Solutions service department for more information.
- Unpack a new CEDD Elevated Fixture 797 from the packaging box (1).



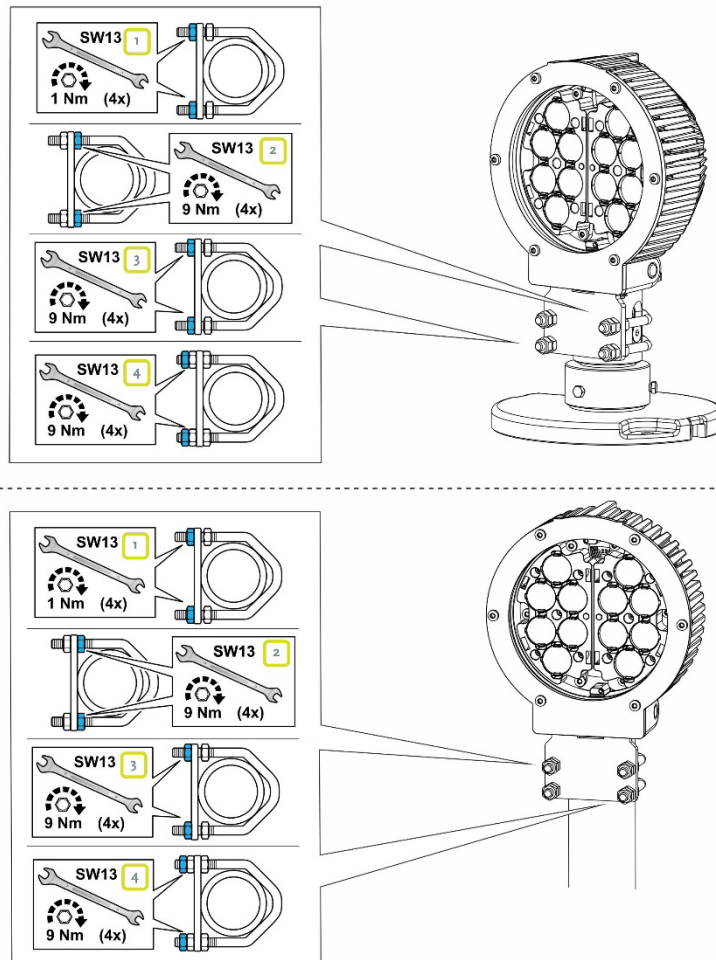
- When the CEDD Elevated Fixture 797 is mounted on the CEDD Elevated Base, lower the Fixture (2) over the breakable coupling. Make sure that the positioning ring (3) of the fixture connector (4) must be aligned with the holes in the breakable coupling. Make sure the fixation brackets (7) fit in the grooves of the breakable coupling.
- Install the two countersunk screws (5). Check through the inspection hole (6) on the rear side of the fixture foot if the fixture connector is correctly connected with the receptacle of the Elevated Base.
- When not correctly positioned, loosen the 2 countersunk screws (5) on the outside of the breakable coupling. Adjust the fixture connector to the correct position and check again through the inspection hole (6). When position is OK, tighten the 2 countersunk screws with a torque wrench (10 Nm).

9. When the CEDD Elevated Fixture 797 (1) is mounted on an approach pole (4), first connect both cable connectors (2). Secure the connectors (2) with the connecting element (3).



10. Lower the fixture (1) over the approach pole.

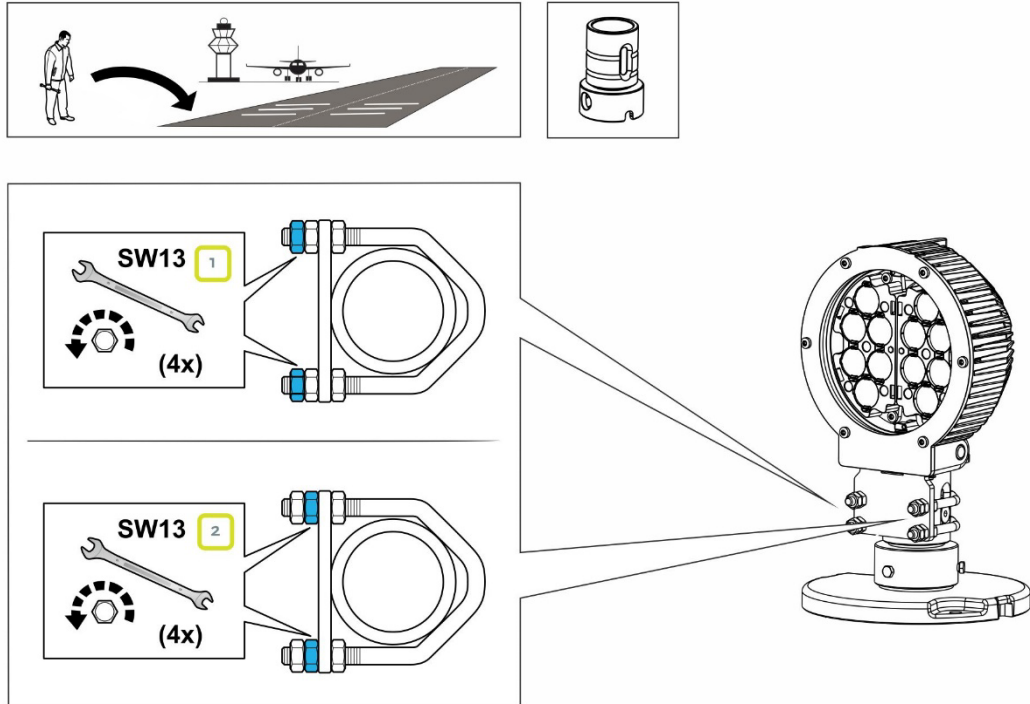
11. On both variants, tighten the nuts of the fixation brackets in the order and with the applicable torque shown below.



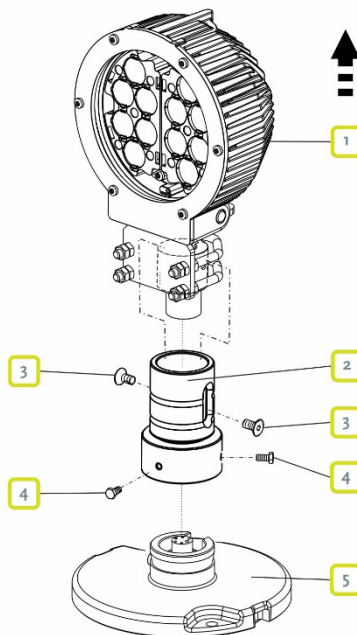
12. Align the CEDD Elevated Fixture 797 (see Aligning the Fixture on page 33)

7.8 Changing the breakable coupling

If the breakable coupling is damaged or broken, it must be replaced with a new coupling. Check first if the CEDD Elevated Fixture 797 is still working or is damaged. When it does not function, replace both the CEDD Elevated Fixture 797 and the breakable coupling (see “Changing devices” on page 43 and “Mounting a CEDD elevated fixture” on pages 26 and 30).

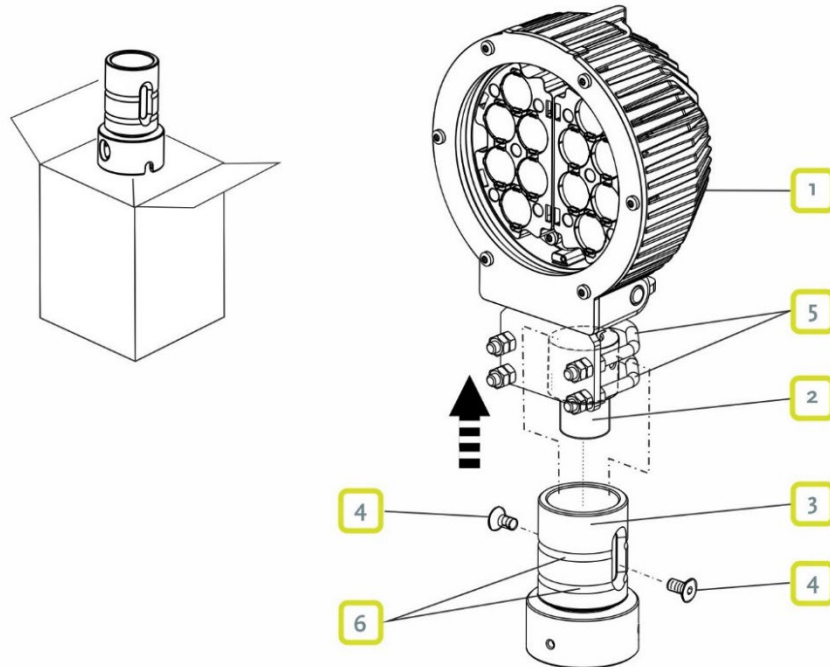


1. Loosen the nuts on the fixation bracket in the order shown to allow the CEDD Elevated Fixture 797 to be removed (see illustration above).

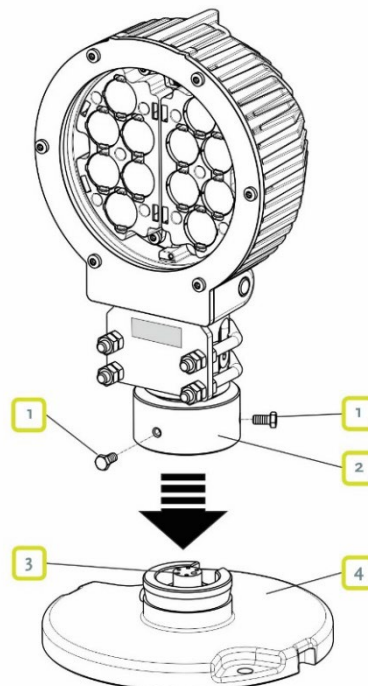


2. Remove the two countersunk screws (3) and lift the CEDD Elevated Fixture 797 (1) from the breakable coupling (2).
3. Remove the two hexagonal bolts (4) from the collar of the breakable coupling (2).

4. Remove the breakable coupling (2) from the CEDD Elevated Base (5).
5. Unpack a new breakable coupling from the packaging box.
6. Install the breakable coupling (3) onto the CEDD 797 Elevated Fixture (1).

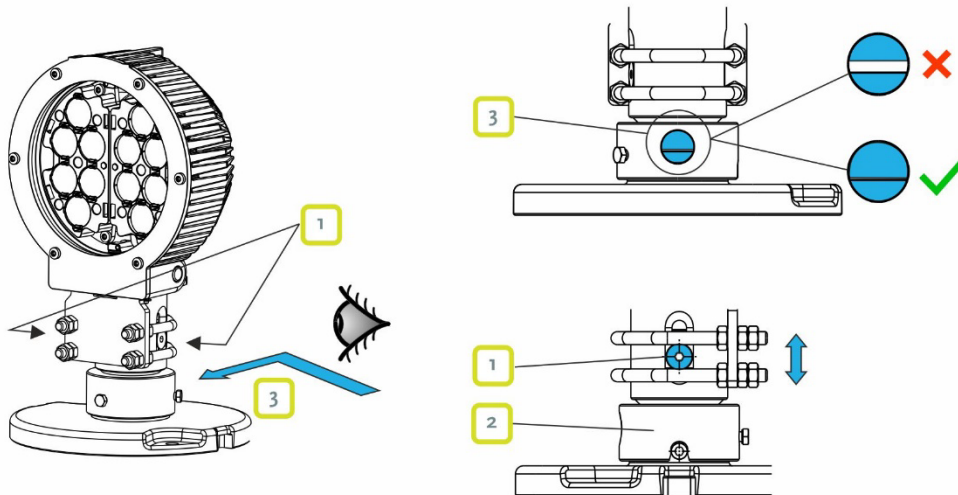


7. Make sure the brackets (5) of the fixation bracket are positioned into the grooves (6) of the breakable coupling (3).
8. Locate the position of the position ring (2) inside the breakable coupling (3) and fix the position ring with the two countersunk screws (4).

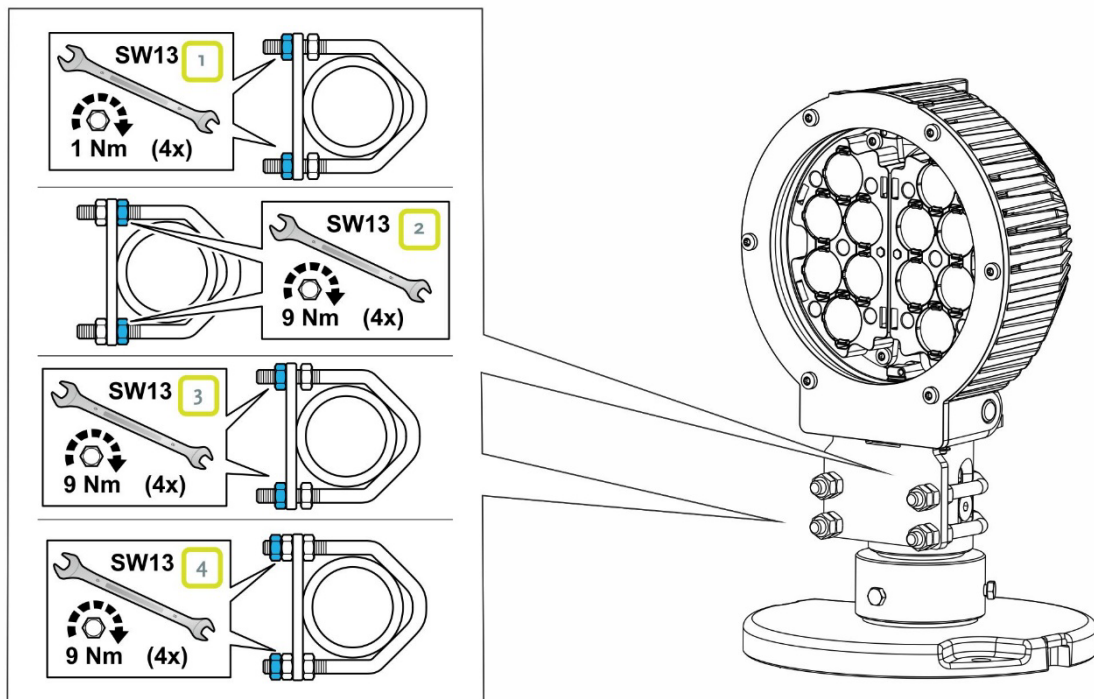


9. Install the two hexagonal bolts (1) in the collar of the breakable coupling (2).
10. Install the CEDD Elevated Fixture 797 (1) onto the CEDD Elevated Base (4) and tighten the two hexagonal bolts (1) with a torque wrench (9 Nm).

11. Check through the inspection hole (3) on the rear side of the fixture foot if the fixture connector is correctly connected with the receptacle of the Elevated Base.
12. When not correctly positioned, loosen the 2 countersunk screws (1) on the outside of the breakable coupling. Adjust the fixture connector to the correct position and check again through the inspection hole (3). When position is OK, tighten the screws with a torque wrench (10 Nm).



13. Tighten the nuts of the fixation brackets in the order and with the applicable torque shown



14. Align the CEDD Elevated Fixture 797 (see page 33)

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Company profile:

TKH Airport Solutions is an innovator in airfield ground lighting, offering a complete range of LED AGL products. We build upon the know-how from a long and successful tradition of pioneering developments in the AGL and connectivity 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.

More information:

TKH Airport Solutions
sales@tkh-airportsolutions.com
www.tkh-airportsolutions.com
+31 (0)53 57 414 56

Visiting address

TKH Airport Solutions
Elektrostraat 17
7483 PG Haaksbergen
The Netherlands