



## Maintenance Manual

### **LUCEA 10-40**

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**Subject to technical changes.**

The illustrations and technical specifications provided in this manual may, on account of future product developments, differ slightly from the actual product supplied.

V 01 18.07.22



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# 1 Introduction

## 1.1 Preface

Your hospital has chosen Getinge's innovative medical technology. We thank you for the confidence you have shown in us.

Getinge is one of the world's leading suppliers of medical equipment for operating rooms, hybrid rooms, induction rooms, intensive care units and patient transport. Getinge always puts the needs of healthcare staff and patients first during the development of its products. Getinge provides solutions that respond to the safety, efficiency and economic constraints faced by hospitals.

Building on its experience in surgical lights, ceiling-mounted equipment management systems and multimedia solutions, Getinge focuses on quality and innovation to ensure that its solutions best meet the needs of patients and healthcare staff. Getinge surgical lights are world-renowned for their design and innovative features.

## 1.2 Other documents relating to this product

- Instructions for use (Ref. ARD01701)
- Installation manual (Ref. ARD01704)
- Repair instructions (Ref. ARD01702)
- Decommissioning instructions (Ref. ARD01705)

## 1.3 Information about this document

### 1.3.1 Symbols used in this manual

#### 1.3.1.1 Cross-references

References to other pages of the manual are identified by the “»” symbol.

#### 1.3.1.2 Actions and results

Actions to be performed by the user are listed with sequence numbers; the “➤” symbol is used to show the result of an action.

**Example:**

**Prerequisites:**

- The sterilisable handle must be compatible with the product.
1. Fit the handle to the mount.
    - A click is heard.
  2. Turn the handle until it locks into place with a second click.

#### 1.3.1.3 Menus and buttons

Menu and button names are shown in **bold**.


**Example:**

1. Press the **Save** button.
  - The changes are saved and the **Favourites** menu is displayed.

## 1.3.2 Definitions



### 1.3.2.1 Hazard levels

The text in safety instructions describes types of risk and how to avoid them. Safety instructions are classified into the following three levels:

Symbol	Hazard level	Meaning
	<b>DANGER!</b>	Indicates a direct and immediate risk that may be fatal or cause very serious injuries potentially leading to death.
	<b>WARNING!</b>	Indicates a potential risk that may cause injuries, health hazards or serious material damage leading to injuries.
	<b>CAUTION!</b>	Indicates a potential risk that may cause material damage.

Tab. 1: Hazard levels of safety instructions

### 1.3.2.2 Indications

Symbol	Indication type	Meaning
	<b>NOTICE</b>	Additional assistance or useful information not relating to risks of injuries or risks of material damage.
	<b>ENVIRONMENT</b>	Information relating to recycling or to appropriate disposal of waste.

Tab. 2: Types of indication in the document

## 2 Safety-related information

### 2.1 Safety instructions

#### 2.1.1 Technician safety



**WARNING!**

**Risk of electric shock**

Anyone not trained in installation, maintenance or decommissioning operations is exposed to the risk of injury or electric shock.

Installation, maintenance and decommissioning of the device or components of the device must be performed by a Getinge technician or a Getinge-trained service technician.

---



**WARNING!**

**Risk of burns**

During maintenance operations, certain accessible parts may be hot immediately after use of the device.

Allow the device to cool down before performing any service.

---



**WARNING!**

**Risk of infection**

If no decontamination is carried out on the device before servicing work, there is a risk of infection for anyone handling the device or any of its components.

Make sure that the device is fully decontaminated before any servicing work is conducted.

---



**WARNING!**

**Risk of infection**

A maintenance or cleaning operation may result in contamination of the surgical site.

Do not perform maintenance or cleaning operations when the patient is present.

---



**WARNING!**

**Risk of injury**

Parts (e.g. tools, screws and colts) are liable to fall during a technical procedure.

Please limit your presence under the device during technical procedures, and use the appropriate safety equipment (e.g. safety hat, safety glasses).

---

## 2.1.2 Product integrity



**WARNING!**

**Risk of electric shock or injury**

**The use of screws or spare parts other than those supplied by the manufacturer may damage the device.**

**Use only screws and spare parts supplied by the manufacturer.**

---



**WARNING!**

**Risk of infection**

**Lightweight parts from the device may fall onto the surgical site.**

**Check that all fastenings, covers, cover plates and bumpers on the device are properly in place.**

---



## 3 Technical specifications

### 3.1 Electrical characteristics

Specifications	LUCEA 10	LUCEA 40
Supply voltage	100-240 VAC / 50-60 Hz	100-240 VAC / 50-60 Hz
Nominal voltage	40 V	45 V
Rated power	14 VA	40 VA

Tab. 3: LUCEA 10-40 electrical specifications

Item	Description	Part number	Length
POWER CORD C7 EUR	Power cord for Europe	5 686 02 901	4 metres
POWER CORD C7 GBR	Power cord for the UK	5 686 02 904	4 metres
POWER CORD C7 US	Power cord for the US	5 686 02 900	4 metres
POWER CORD C7 BRA	Power cord for Brazil	5 686 02 902	4 metres
POWER CORD C7 JPN	Power cord for Japan	5 686 02 903	4 metres
POWER CORD C7 AUS	Power cord for Australia	5 686 02 905	4 metres

Tab. 4: Power cord reference table for Lucea 10

Item	Description	Part number	Length
POWER CORD EUR	Power cord for Europe	5 686 04 960	4 metres
POWER CORD GBR	Power cord for the UK	5 686 04 961	4 metres
POWER CORD US	Power cord for the US	5 686 04 967	4 metres
POWER CORD BRA	Power cord for Brazil	5 686 04 963	4 metres
POWER CORD JPN	Power cord for Japan	5 686 04 966	4 metres
POWER CORD CHE	Power cord for Switzerland	5 686 04 965	4 metres
POWER CORD AUS	Power cord for Australia	5 686 04 964	4 metres
POWER CORD ITA	Power cord for Italy	5 686 04 962	4 metres
POWER CORD ARG	Power cord for Argentina	5 686 04 968	2 metres

Tab. 5: Power cord reference table for Lucea 40

## 3.2 Mechanical specifications

<b>Specifications</b>	<b>LUCEA 10</b>	<b>LUCEA 40</b>
Lighthead weight	0.8 kg	1.85 kg
Lighthead dimensions	223 × 175 mm	337 × 214 mm
Sterilisation and disinfection methods	Not applicable	
Operating mode	Continuous operation	

Tab. 6: LUCEA 10-40 mechanical characteristics

### 3.3 Diagrams

#### 3.3.1 Lucea 10 circuit diagrams

LUCEA 10 simplified circuit diagram: wall-mounted, mobile, desktop and rail-mounted (old version)

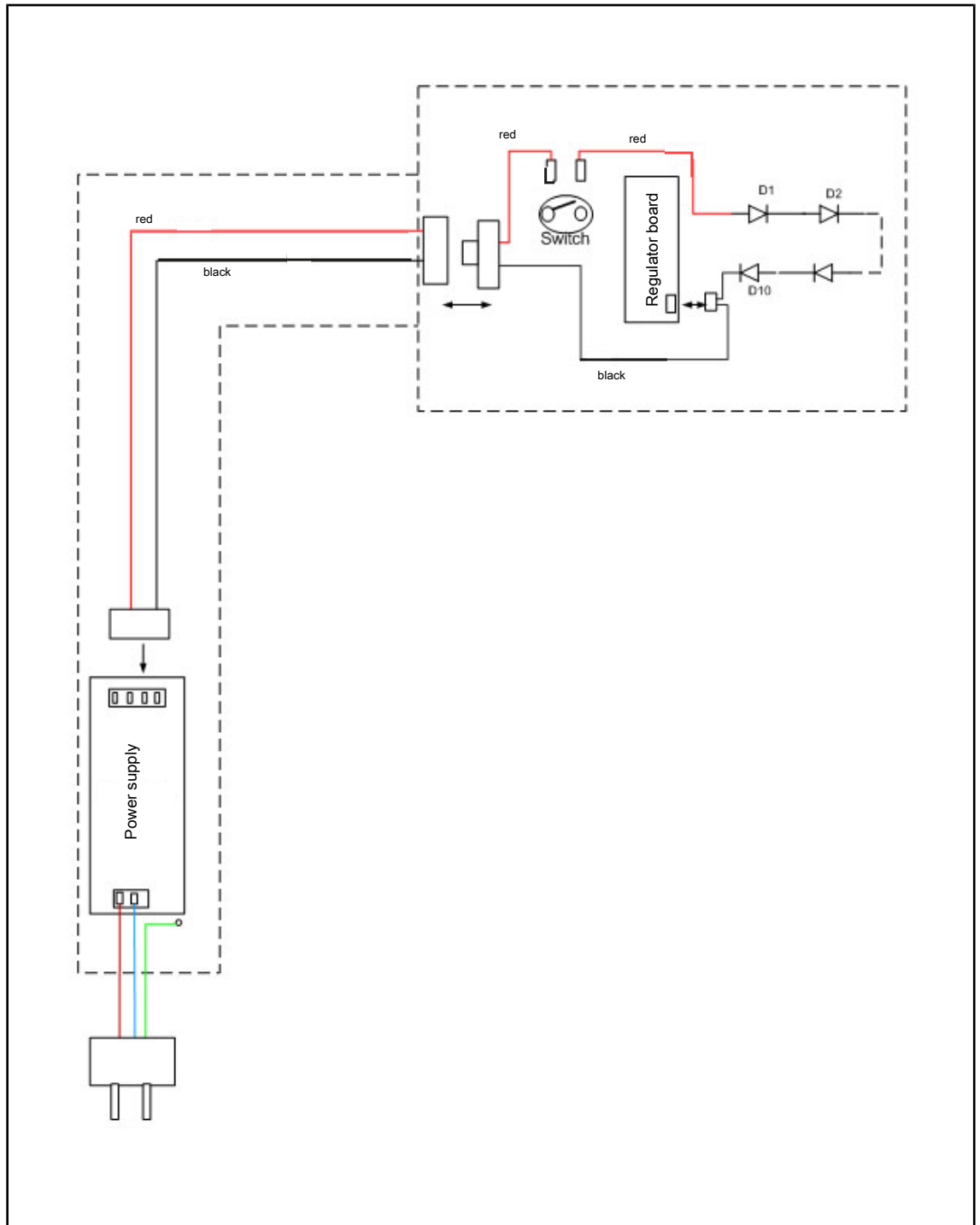
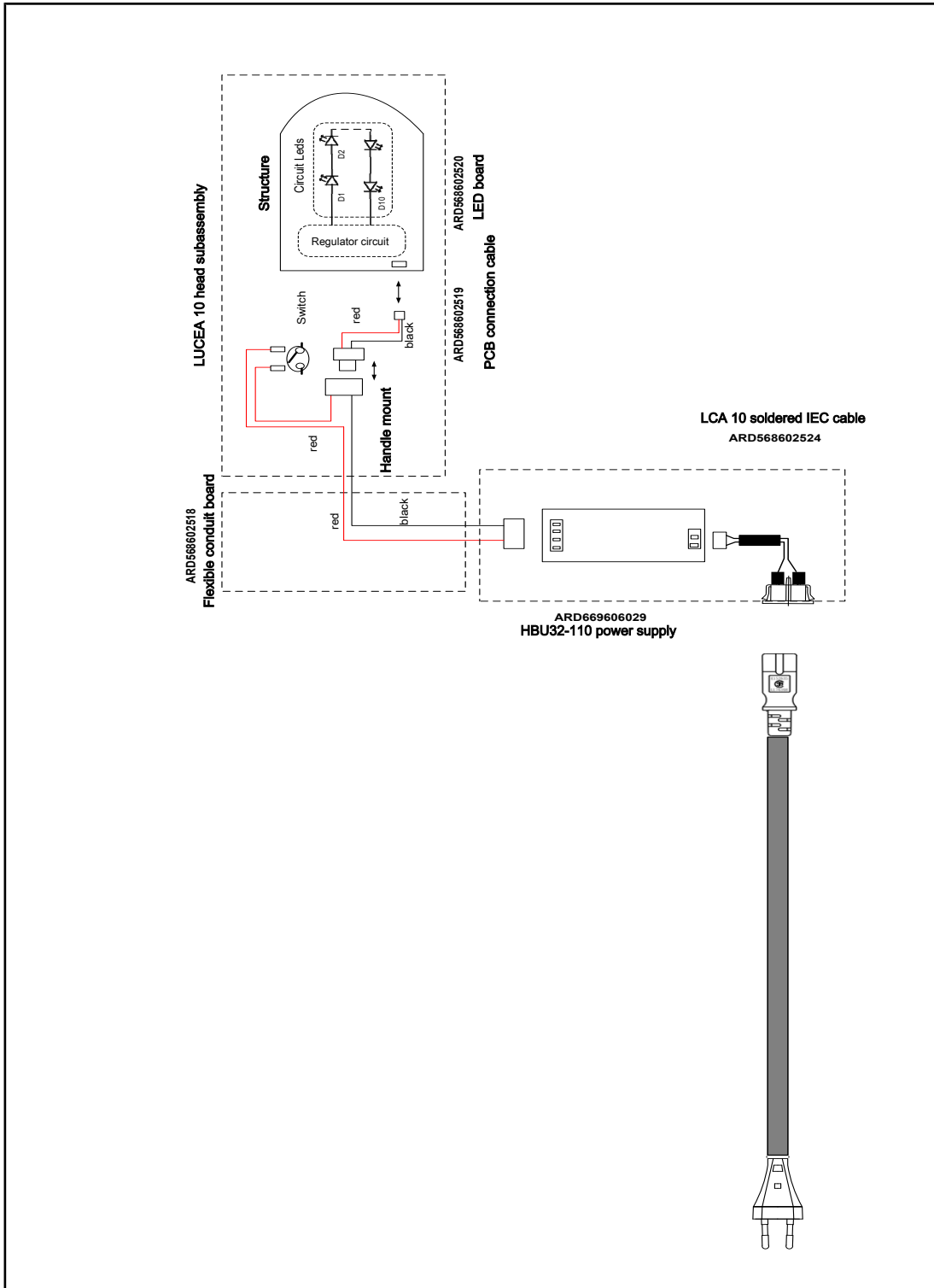


Fig. 1: LUCEA 10 simplified circuit diagram: wall-mounted, mobile, desktop and rail-mounted

**LUCEA 10 circuit diagram: wall-mounted, mobile, desktop and rail-mounted (new version)**



**Fig. 2: LUCEA 10 circuit diagram: wall-mounted, mobile, desktop and rail-mounted**

Ceiling-mounted Lucea 10 circuit diagram

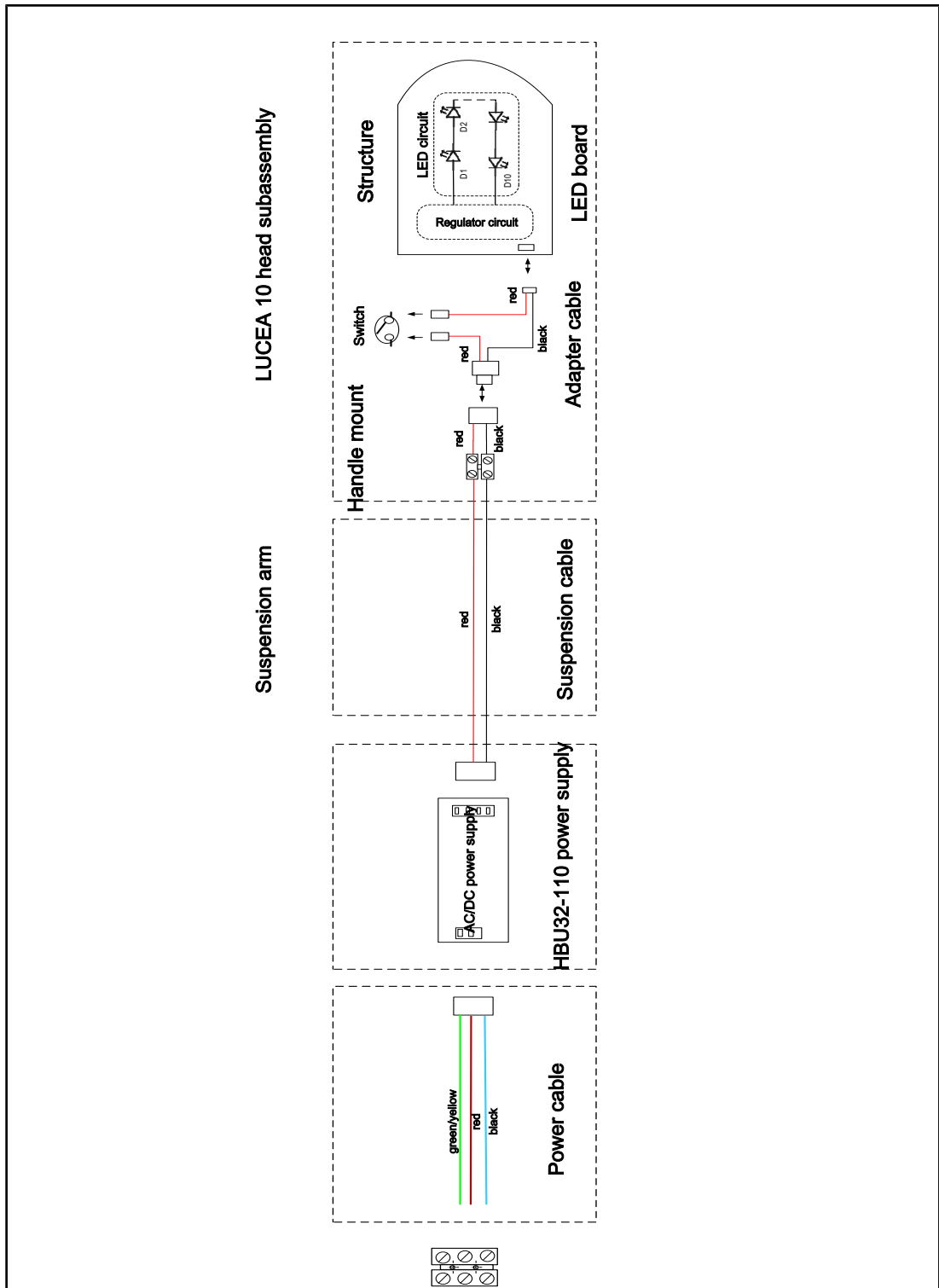


Fig. 3: Ceiling-mounted Lucea 10 circuit diagram

**3.3.2 Lucea 40 circuit diagrams**

**Circuit diagram for ceiling-mounted version**

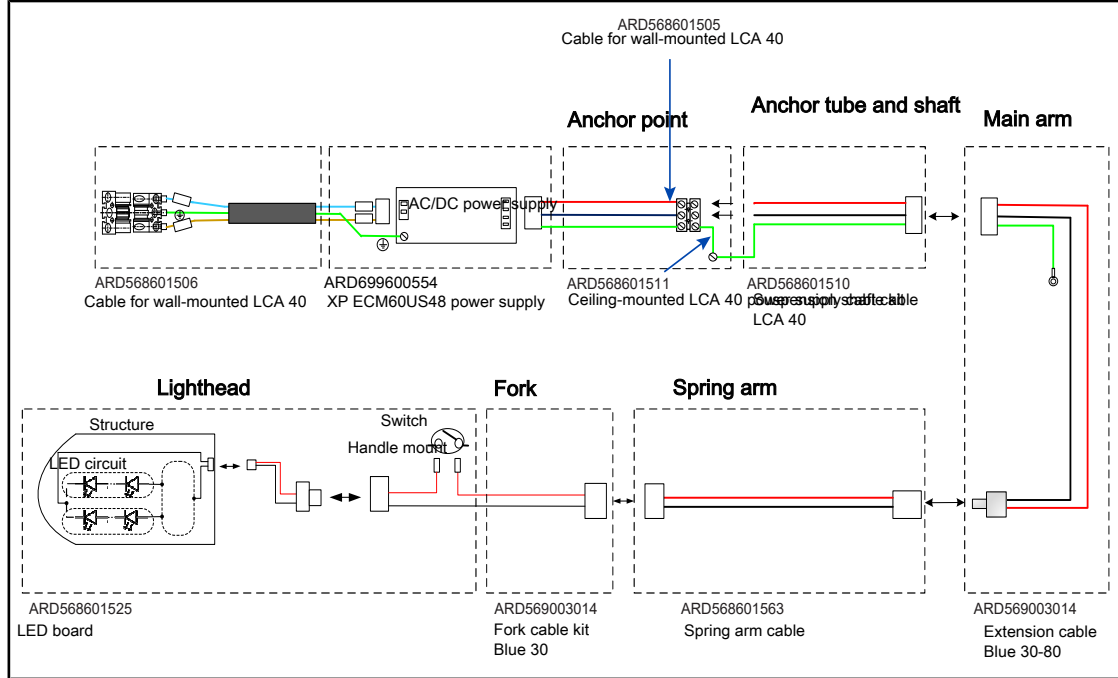


Fig. 4: Circuit diagram for ceiling-mounted version

**Circuit diagram for wall-mounted version**

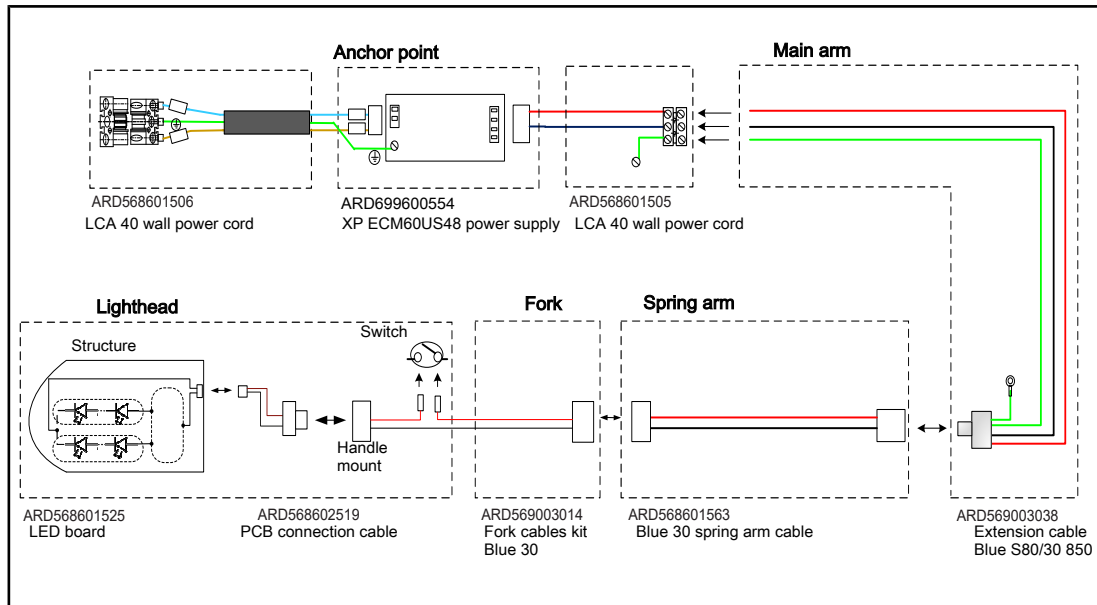


Fig. 5: Circuit diagram for wall-mounted version

Circuit diagram for mobile version

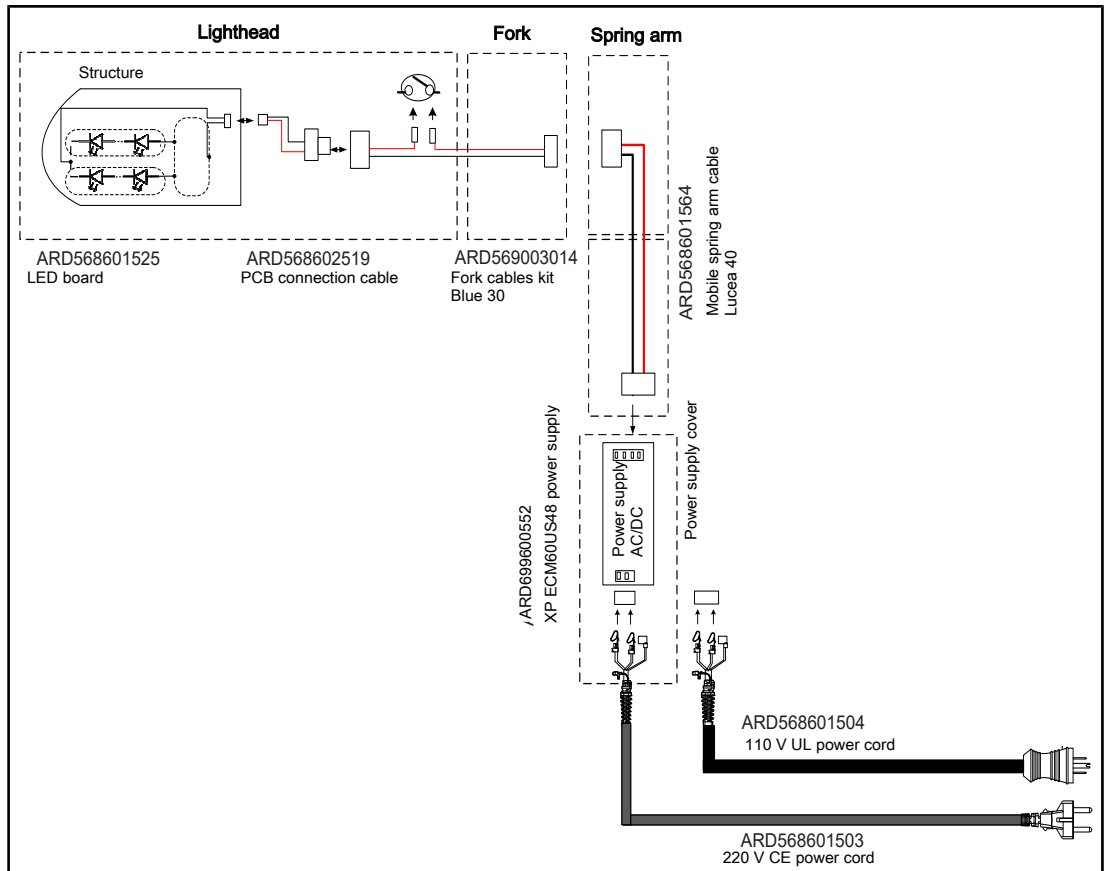


Fig. 6: Circuit diagram for mobile version

Integration of earth wires in the mobile unit

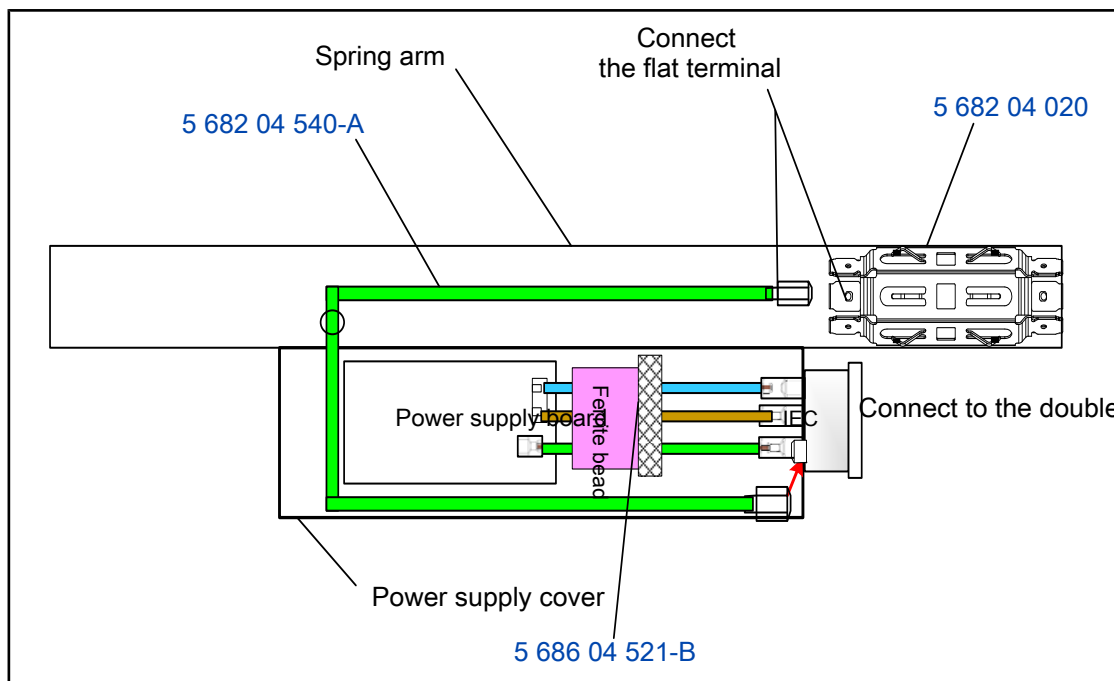


Fig. 7: Integration of earth wires in the mobile unit



## 4 Maintenance and inspection procedures



### CAUTION!

Risk of equipment damage

If adjustments are made incorrectly or not at all, the lighthouse or installed equipment may drift.

Make all adjustments (balance, stop and brakes) during installation and then after all maintenance operations.



### NOTICE

After-sales service kits are available on the spare parts platform

.

The LinkOne platform is accessible on the GetingeOnline portal:  
[getingeonline.com/SIS/external-links](https://getingeonline.com/SIS/external-links)

### 4.1 Tools required for maintenance

Description	Qty	Part number
OPM 039 Photometer	1	5 720 34 999
OPM 059 Multimeter M 54 RMS	1	5 720 59 999
OPM085 Angled, insulated pliers (for regulation board fuse)	1	6 870 00 011
Grease	1	6 590 00 011

### 4.2 Periodic replacements

#### 4.2.1 Periodic replacement cycles

To ensure safety and performance, please follow the recommendations below.

Items	Frequency
Suspension mounting screws on Lucea 40 (tighten the screws with a torque of 16 N.m)	Every six years

### 4.3 Adjustments

#### 4.3.1 On LUCEA 10

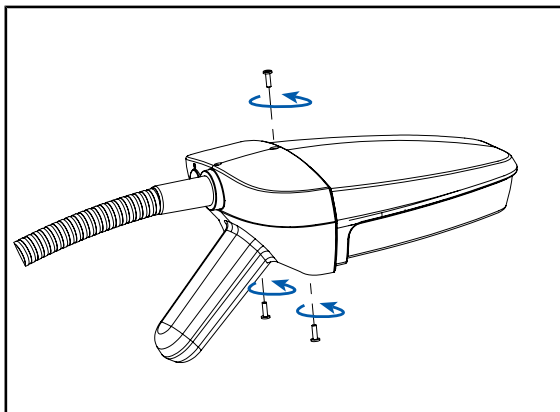


Fig. 8: Unscrewing the Torx screws

- Remove the three Torx screws.

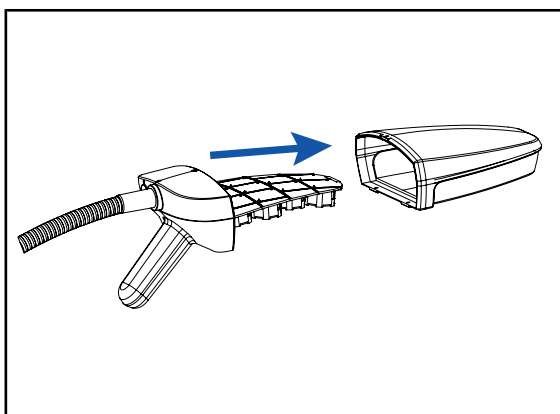


Fig. 9: Removing the transparent housing

- Remove the transparent housing and cover plate assembly.

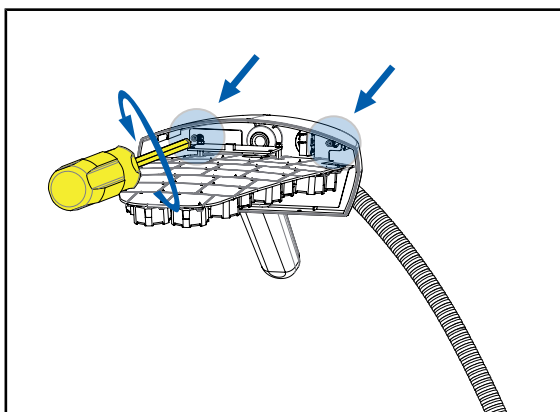


Fig. 10: Unscrewing the Torx screws

- Loosen the two Torx screws by a few turns.

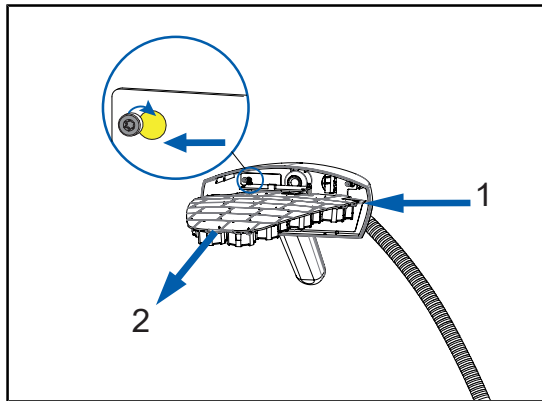


Fig. 11: Removing the collimator subassembly

- Remove the faceted structure:  
1 - Push the structure to one side.  
2 - Pull on the assembly.

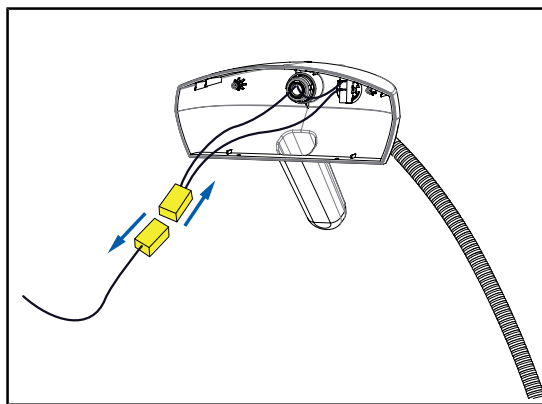


Fig. 12: Unplugging the connector

- Unplug the two-pin connector.

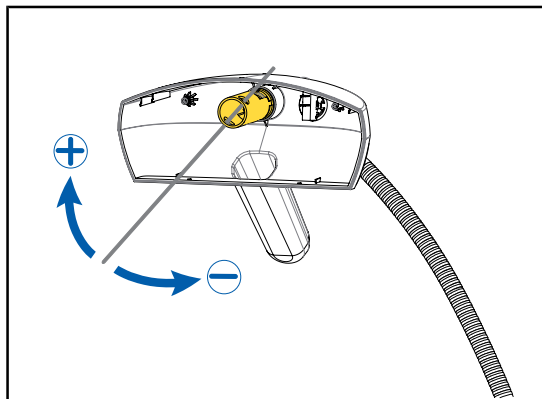


Fig. 13: Adjusting the brake

- Adjust the braking with an appropriate tool (hex socket)
  - upwards for firmer braking
  - downwards for more flexible braking



**NOTICE**

Take particular care when removing the lighthouse to avoid pulling off the connector.



**NOTICE**

To reinstall the faceted structure and the cover subassembly, follow the above instructions in reverse order. The transparent housing mounting screw must be tightened to a torque of 0.9 N.m.



**NOTICE**

Check that the two-pin connector is properly connected.

### 4.3.2 On Lucea 40

#### 4.3.2.1 Adjusting the brake and lighthouse fork

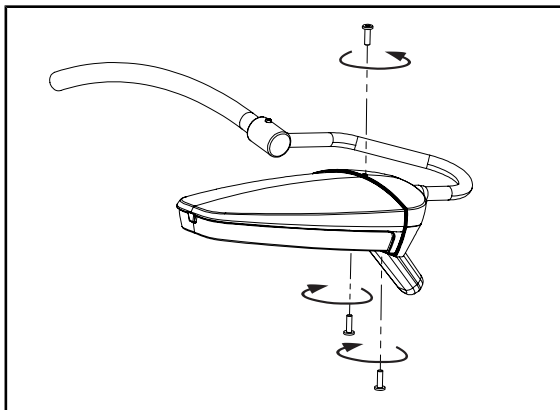


Fig. 14: Unscrew the Torx screws

- Unscrew the three Torx screws holding the housing to the fork subassembly.

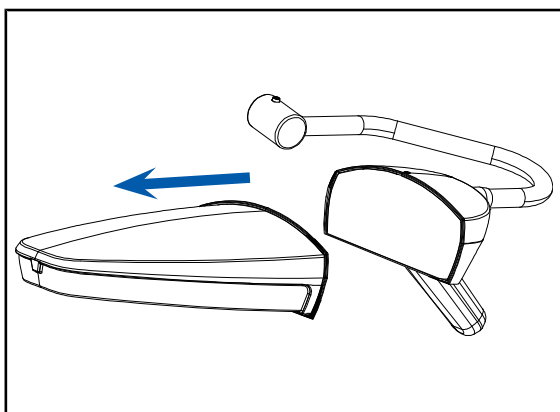


Fig. 15: Remove the cover

- Remove the transparent housing and cover plate assembly.

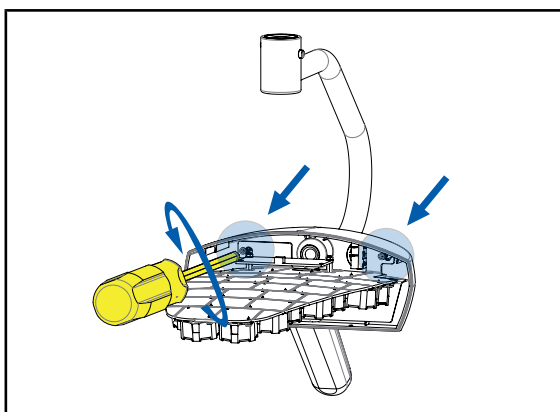


Fig. 16: Unscrew the Torx screws

- Loosen the two Torx screws by a few turns.

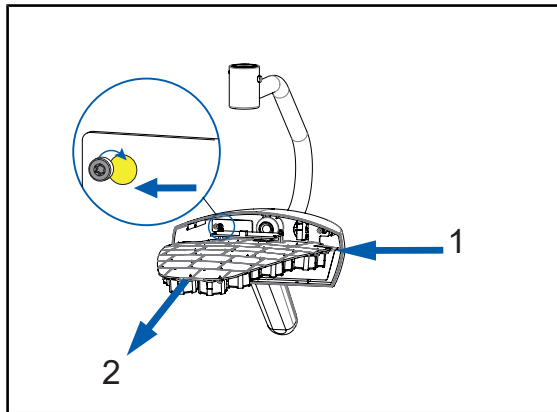


Fig. 17: Remove the faceted structure

- Remove the faceted structure:
  - 1 - Push the structure to one side.
  - 2 - Pull on the assembly.

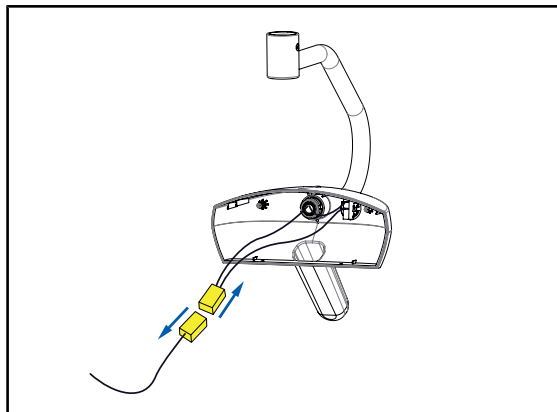


Fig. 18: Unplug the connector

- Unplug the two-pin connector.

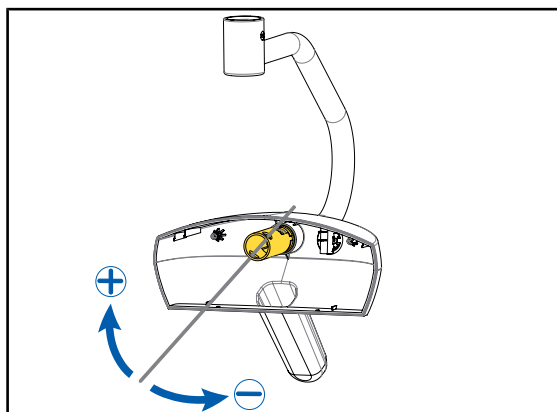


Fig. 19: Adjust the brake

- Adjust the braking with an appropriate tool (hex socket):
  - upwards for firmer braking
  - downwards for more flexible braking.



**NOTICE**

To reinstall the faceted structure and the cover subassembly, follow the above instructions in reverse order. The transparent housing mounting screw must be tightened to a torque of 0.9 N.m.



**NOTICE**

Check that the two-pin connector is properly connected.

### 4.3.2.2 Adjusting the ceiling and wall-mounted spring arm

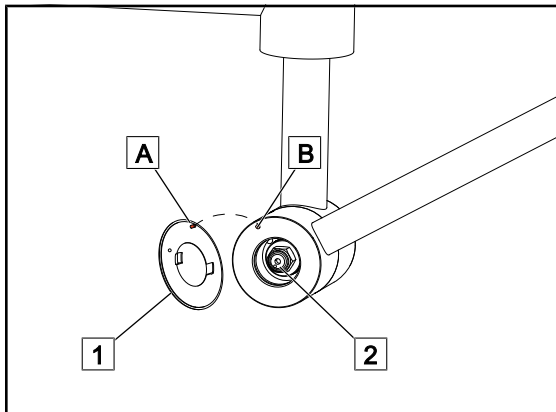


Fig. 20: Adjusting the ceiling and wall-mounted spring arm

- Take the cap off the spring arm **1**.
- Adjust the adjustment nut **2**:
  - If the spring arm rises by itself, loosen the locknut **2**.
  - If the spring arm lowers by itself, tighten the locknut **2**.
- Place the cap back on the spring arm **1**, ensuring that the pin **A** is aligned with the hole **B**.

### 4.3.2.3 Adjusting the mobile spring arm

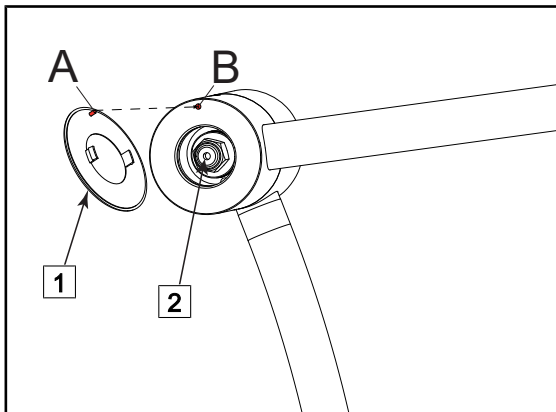


Fig. 21: Adjusting the spring arm

- Take the cap off the spring arm **1**.
- Adjust the adjustment nut **2**:
  - If the spring arm rises by itself, loosen the locknut **2**.
  - If the spring arm lowers by itself, tighten the locknut **2**.
- Place the cap back on the spring arm **1**, ensuring that the pin **A** is aligned with the hole **B**.

## 4.4 Mechanical inspections

### 4.4.1 Visual inspections on LUCEA 10

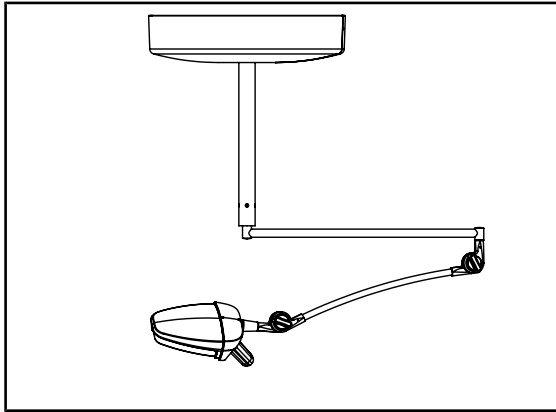


Fig. 22: Integrity of configuration

- Check the entire surgical light (articulated arm, complete suspension with ceiling cover) for signs of damage
- Checking for corrosion
- Check for any chipped or missing paint.
- Checking the adjustment of the lighthouse brake
- Checking the lighthouse cover and handle interface

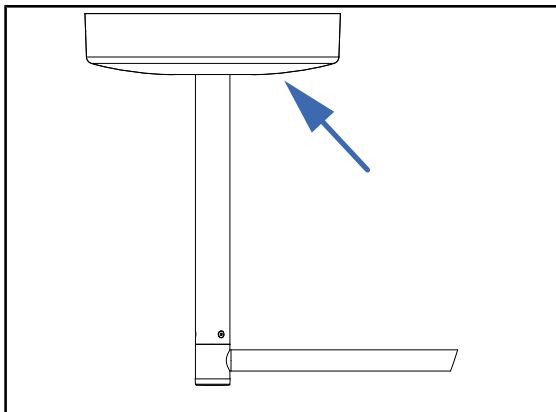


Fig. 23: Fitting of cover

- Check that the cover and split flange are firmly in place.

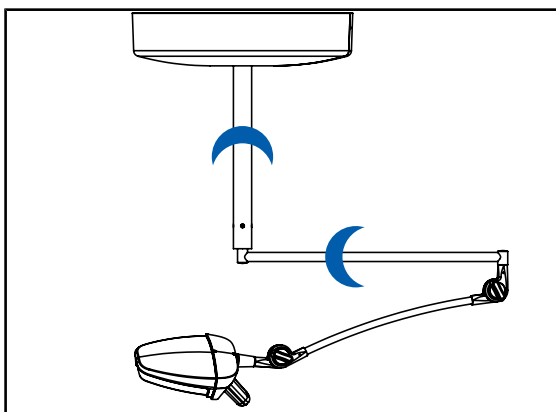


Fig. 24: Configuration rigidity

- Check the rigidity of the configuration by shaking the assembly.

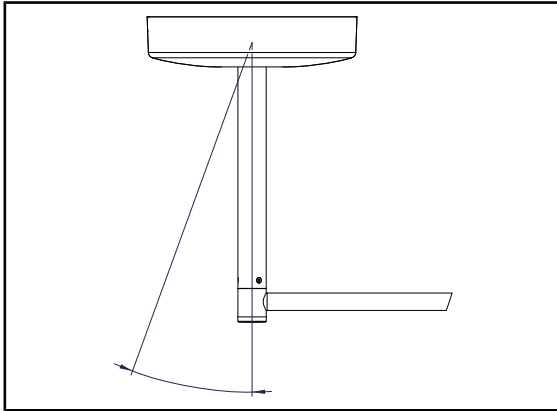


Fig. 25: Verticality

- Check that the suspension tube is vertical (ceiling-mounted version).

### Check the manoeuvrability and stops on Lucea 10 mobile, rail and desk versions

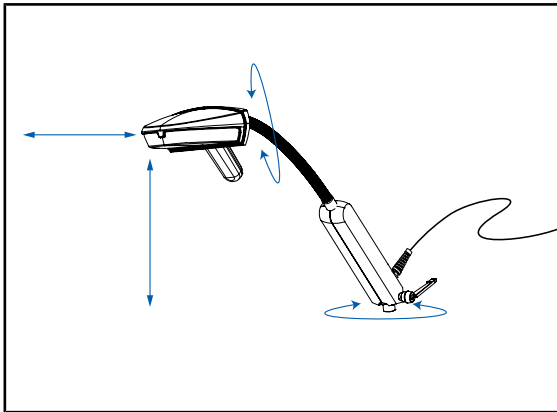


Fig. 26: Testing the manoeuvrability

- Check the stability of the light.
- Use the handle to position the lighthouse in order to illuminate the examination area.

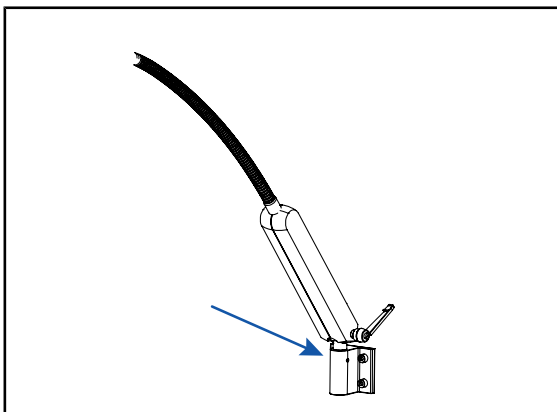


Fig. 27: Checking the pivot support

- Check that the flexible conduit/supply sub-assembly pivot is held in its mount (stop screw fitted).



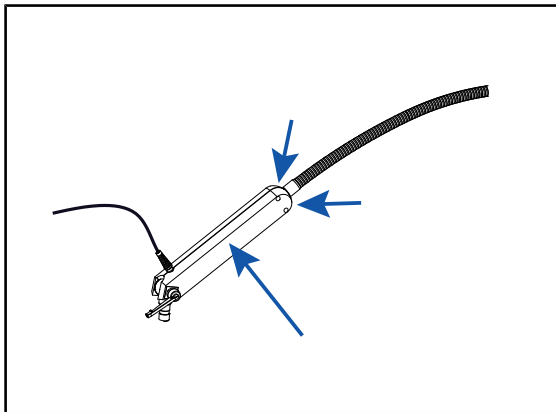


Fig. 28: Cover

- Check that the plastic side covers are not broken or cracked and that they and the caps are firmly in place.

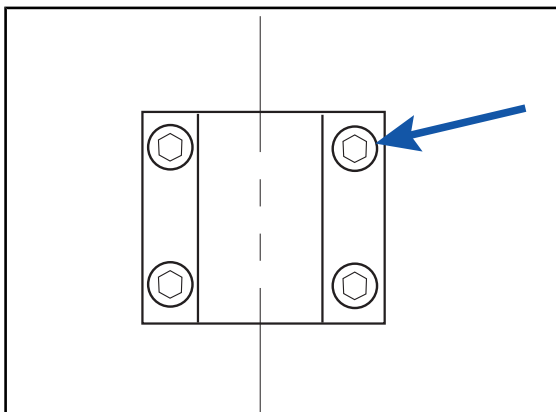


Fig. 29: Fastening

- Check that the wall bracket is firmly attached.

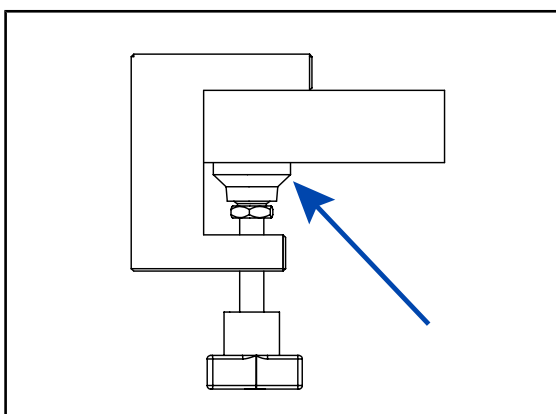


Fig. 30: Rail or desk mount

- Check that the rail or desk mount is correctly positioned and tightly fastened.

## 4.4.2 Visual inspections on LUCEA 40

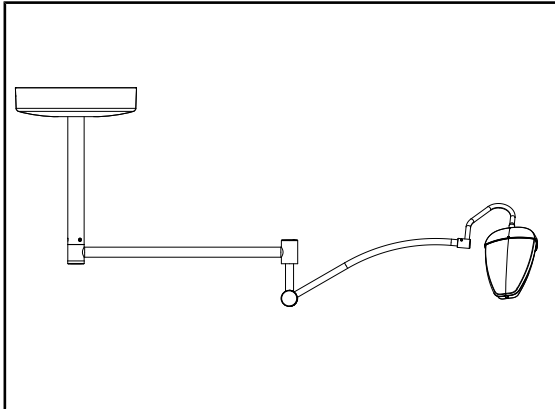


Fig. 31: Integrity of configuration

- Check the entire surgical light (spring arm, complete suspension with ceiling cover) for signs of damage
- Checking for corrosion
- Check for any chipped or missing paint.
- Checking the lighthouse cover and handle interface

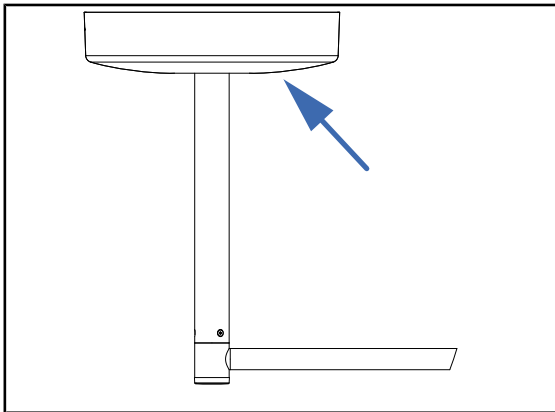


Fig. 32: Fitting of cover

- Check that the cover and split flange or half-covers are firmly in place.

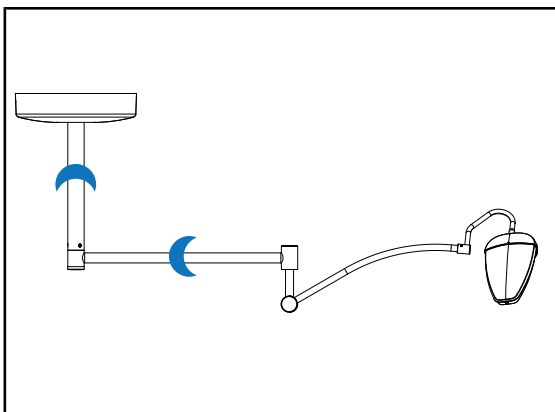
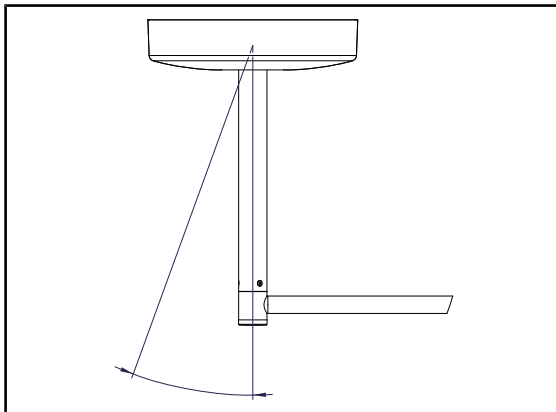


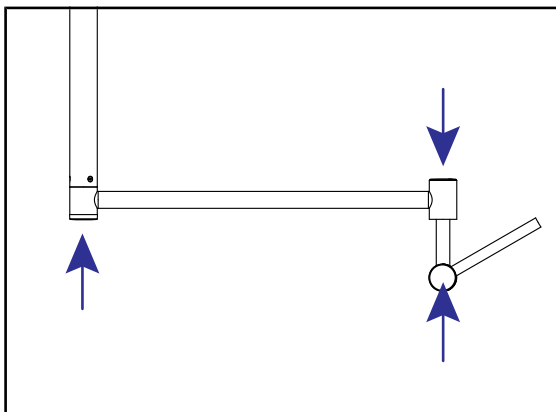
Fig. 33: Rigidity

- Check the rigidity of the configuration by shaking the assembly.



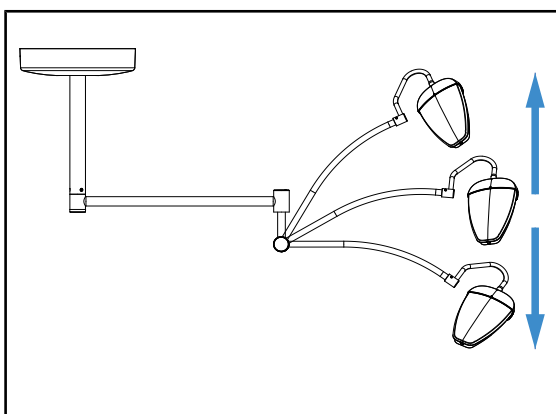
- Check that the suspension tube is vertical (ceiling-mounted version).

Fig. 34: Verticality



- Check for any loose covers and caps.

Fig. 35: Covers and caps



- Check the balance of the spring arm and limit stops.

Fig. 36: Balancing

**Check the manoeuvrability on LUCEA 40**

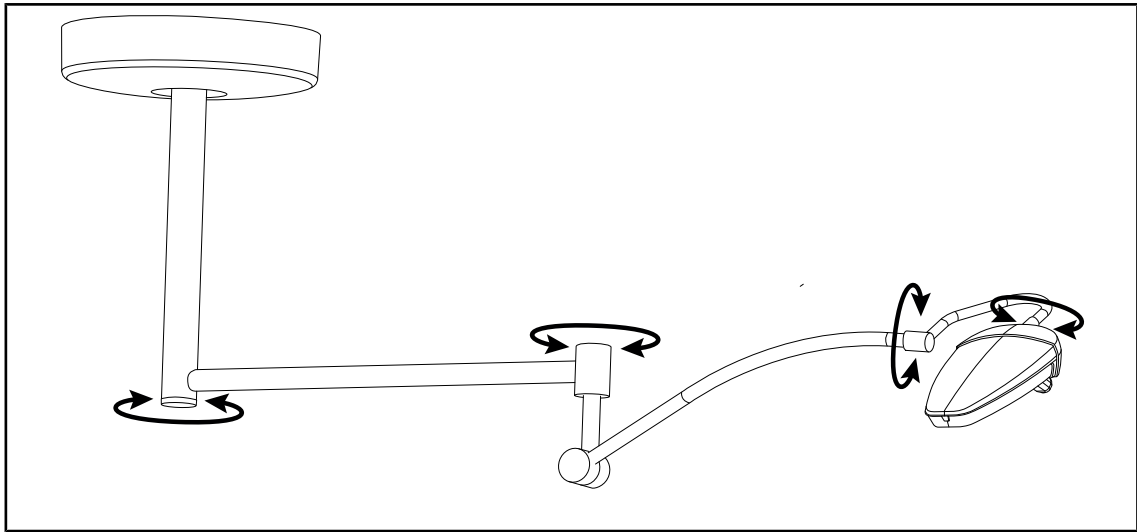
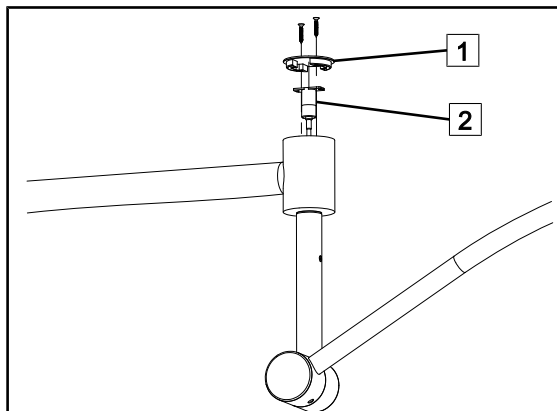


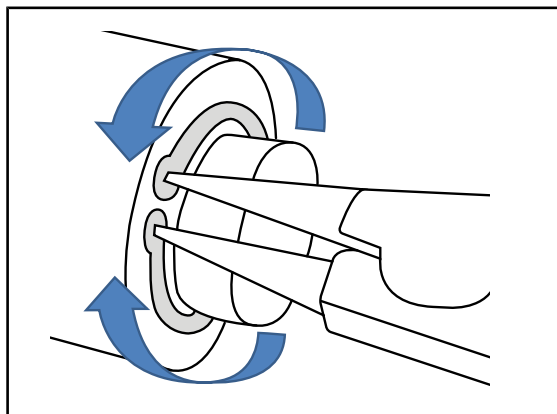
Fig. 37: LUCEA 40 manoeuvrability

#### 4.4.2.1 Checking the position of the circlip



- Loosen the two screws on the suspension arm cover **1**
- Remove the rotating contact **2**

Fig. 38: Accessing the circlip



- Check the correct positioning of the circlip by sliding it to the right and to the left using the circlip pliers.

Fig. 39: Checking the position of the circlip

## 4.5 Electrical inspection

### On Lucea 40

- Ceiling-mounted power supply output voltage (48 VDC +/-10%)
- Wall-mounted power supply output voltage (48 VDC +/-10%)
- Check the clamping of the wires in the terminal blocks
- Check that the power supply is connected to earth.

### On Lucea 10

- Ceiling-mounted power supply output voltage (40 VDC +/-10%)

## 4.5.1 Functional tests

### Turning the light on and off on Lucea 10 and Lucea 40

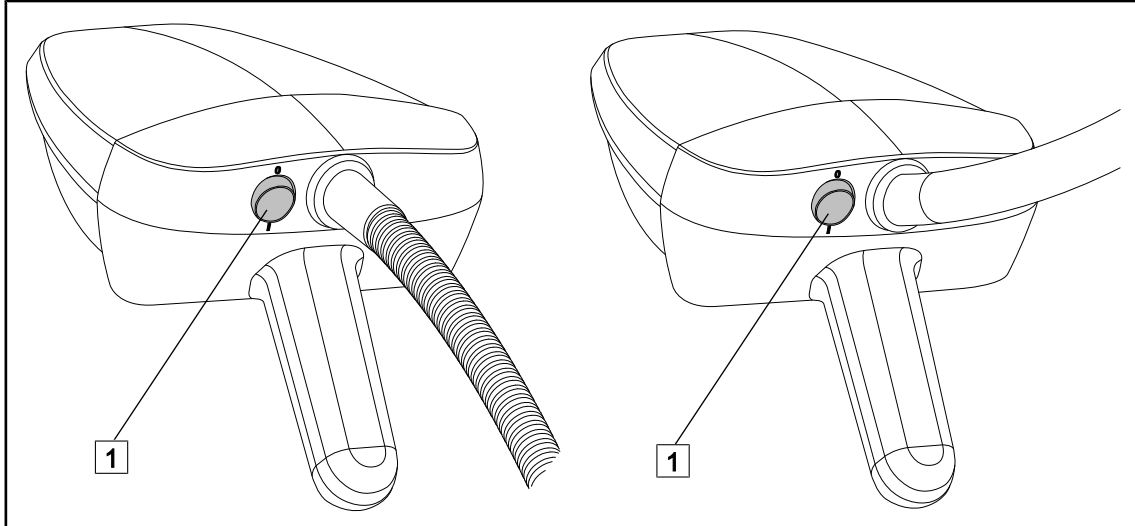


Fig. 40: Turning the light on and off

#### Turning the light on and off

1. Press the switch located at the rear of the lighthouse  1 to turn on the light.
2. Press the switch located at the rear of the lighthouse  1 again to turn off the light.

## 4.5.2 Visual inspections

### LUCEA 10

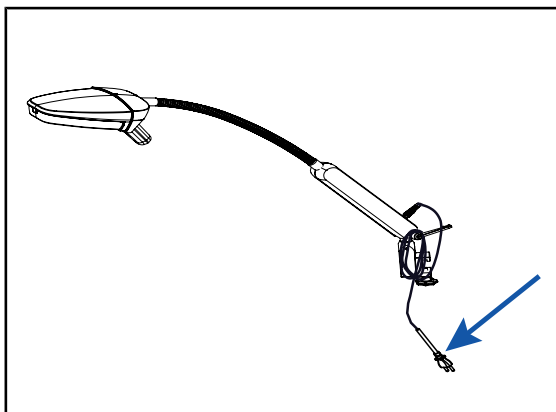


Fig. 41: Rail, desk, wall and mobile versions

- For rail, desk, wall and mobile versions, check that the power cord is not damaged.
- Check that the IEC mains connector on the power supply enclosure cover is correctly connected

## LUCEA 40

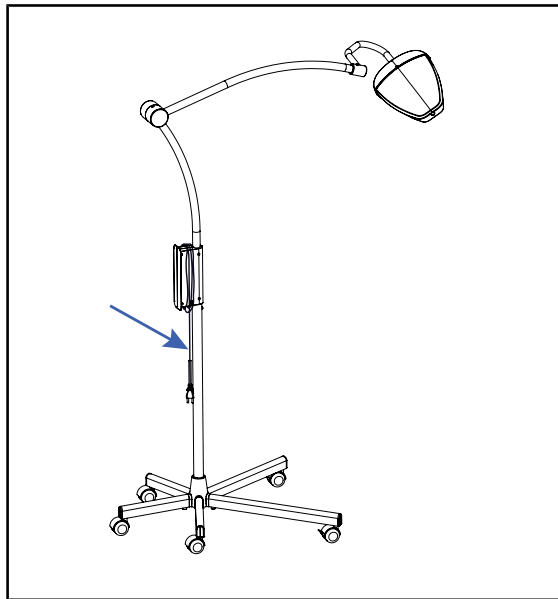


Fig. 42: Power cord for Lucea 40 mobile version

**Power cord (mobile version only)**

1. Check that the power cord is not damaged.
2. Check that the IEC mains connector on the power supply enclosure cover is correctly connected
3. Check the verticality and mobility of the mobile stand

## 4.6 Optical inspections

### 4.6.1 Visual inspections

**NOTICE**

Protective goggles [Minimum UV Class 2 (EN 170) – Optical Class 1 – Orange shade] are recommended during installation and maintenance operations on surgical lights.

#### Adjusting the illumination

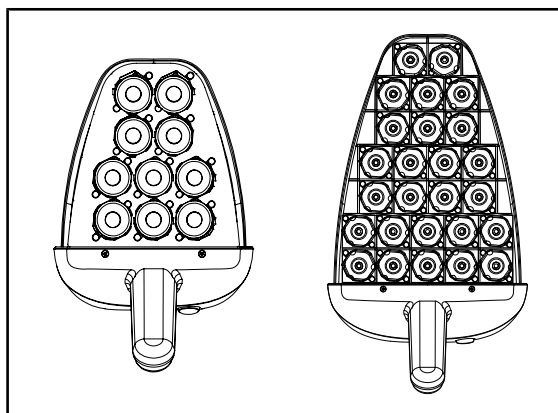


Fig. 43: Operation of LEDs

**Operation of the LEDs**

1. Check whether the LEDs operate correctly, by pressing the On/Off button on the lighthead.
2. If a problem is noted, contact technical support.

## 4.7 Electrical safety tests

### Ceiling-mounted LUCEA 10

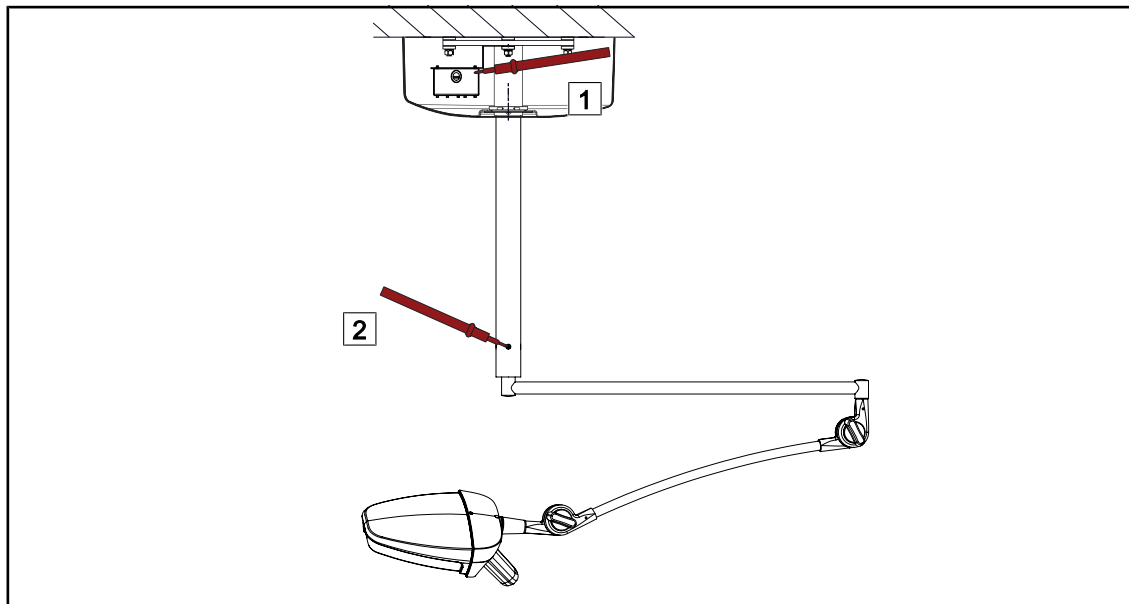


Fig. 44: Safety test, ceiling-mounted version

#### Safety test:

- Safety test to be performed between Point 1 and Point 2.

Earth resistance must be  $\leq 300$  m $\Omega$ .

### Ceiling-mounted LUCEA 40

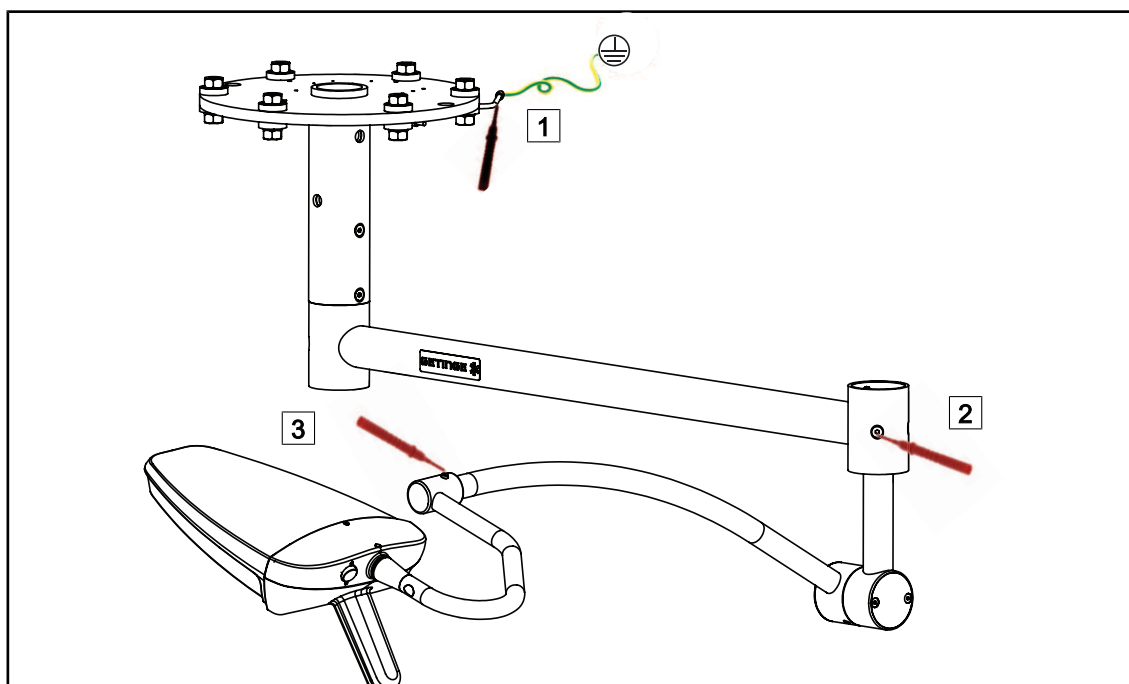


Fig. 45: Safety test, ceiling-mounted version



**Safety test:**

- Safety test to be performed between Point [1] and Point [2].  
Earth resistance must be  $\leq 300 \text{ m}\Omega$ .

**Continuity test (sound test):**

- Test the continuity between Point [2] and Point [3].

**Wall-mounted LUCEA 40**

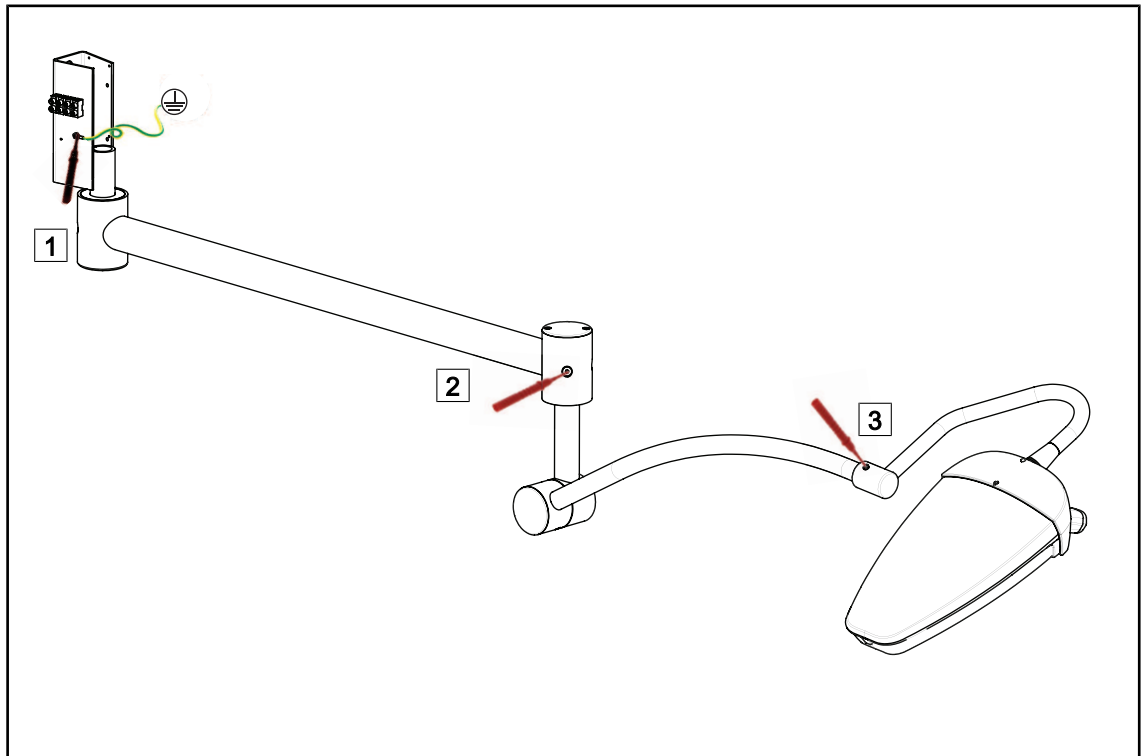


Fig. 46: Safety test, wall-mounted version

**Safety test:**

- Safety test to be performed between Point [1] and Point [2].  
Earth resistance must be  $\leq 300 \text{ m}\Omega$ .

**Continuity test (sound test):**

- Test the continuity between Point [2] and Point [3].

## **5 Recording the inspection**

# SW Service Protocol Preventive maintenance



## Examination light LUCEA 10-40



### 1. Product

Configuration Part No.		Configuration Serial No.		Description	
Lighthouse Part No.		Lighthouse Serial No.		Description	
Date of Inspection		Location (Department, OT No., OR No....)			

### 2. Client

Address	Contact Name	Contact Phone Number	Service Order

### 3. Periodic replacement

To ensure safety and performance please follow the below recommendations.

Items	Frequency	Replaced	Not replaced	N/A
Suspension mounting screws (Tighten the screws to the recommended tightening torque)	every 6 years			

### 4. Parts replaced or needing replacement

P/N	Description	Qty	Replaced	Need replacing

**Refer to the repair manual for detailed instructions.**

## 5. Calibrated tooling

Description	Registration number	Validity date (DD/MMM/YYYY)

## 6. Lubrication

	Compliant	Non-compliant	N/A
Lubrication of the lighthouse fork pin and arm shaft with the grease recommended in MAQUET Ref. ARD659000011			

## 7. Mechanical assessment

	Compliant	Non-compliant	N/A
Check that the ceiling cover and split flange or split rings are firmly in place.			
Check the rigidity of the suspension by shaking the assembly.			
Check that the suspension tube is vertical (using a spirit level).			
Check the hold of the suspension covers			
Check the suspension mounting screws (Do not retighten these screws during maintenance; it can lead to a fracture. If screws appear loosened, replace them)			
Check all other mounting screws (tighten if necessary)			
Check the position and condition of the Ergodisc spring arm circlip (LUCEA 40 only)			
Check that the cover of the Ergodisc arm is firmly in place (LUCEA 40 only)			
Check the vertical limit stop of the spring arm (LUCEA 40 only)			
Check the balancing of the spring arm (LUCEA 40 only)			
Check the integrity and condition of the covers			
Checking the adjustment of the lighthouse brake			
Check the lighthouse rotation limit stop			
Check the condition of the transparent housing and handle interface (no scratches, no cracks)			
Check that the configuration handles easily			

Check for any corrosion			
Check for any chipped or missing paint			
Check the condition of the power cord. (only on mobile, rail-mounted and desktop versions)			
Check the verticality and stability of the mobile stand (only on mobile versions)			

#### 8. Electrical assessment

	Compliant	Non-compliant	N/A
Check the output voltage of the LUCEA 40 power supply (48 VDC +/-10%)			
Check the output voltage of the LUCEA 10 power supply (40 VDC +/-10%)			
Check the clamping of the wires in the terminal blocks			
Check that the power supply is connected to earth.			

#### 9. Optical assessment

Illumination	Acceptable values (klx)	Measured value (klx)	Compliant	Non-compliant	N/A
Ec Max LUCEA 10 (at 50 cm)	35 < Ec < 160				
Ec Max LUCEA 40 (at 1 m)	28 < Ec < 160				

Measure the illumination at the centre.

The minimum acceptable value was calculated based on the nominal value - 30%.

#### 10. Electrical safety tests (IEC 62353)

	Limit (mΩ)	Measured values (mΩ)	Compliant	Non-compliant	N/A
Lighthouse protective earth continuity	≤ 300 mΩ				
Lighthouse continuity test (LUCEA 40 only)					

If available, test records should be attached to this report for possible future use.

#### 11. Function test

	Compliant	Non-compliant	N/A
All LEDs operate correctly			
ON / OFF (Lighthouse keypad)			

12. Cleaning

Clean and degrease the device	
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13. Final assessment

Device fully operational.	
Free from direct risk but deficiencies detected. May be corrected in short term.	
Device shall not be used until all deficiencies are corrected.	
Device no longer safe. Taking out of service is recommended.	

Comments

14. Processed by

Name / Title	Date			Signature
	<i>DD</i>	<i>MM</i>	<i>YYYY</i>	

**Notes**

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