Maintenance Manual

# Lucea 50-100

01740 EN 01 2021-08-02

GETINGE

**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.

V01 02.08.2021

# Contents

# 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

- Installation manual (Ref. ARD01744)
- Instructions for use (Ref. ARD01741)
- Decommissioning procedure (Ref. P_0174801)
- Repair manual (Ref. ARD01742)

## 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 |
|---|---|---|
|  | **DANGER!** | Indicates a direct and immediate risk that may be fatal or cause very serious injuries potentially leading to death. |
| | **WARNING!** | Indicates a potential risk that may cause injuries, health hazards or serious material damage leading to injuries. |
| | **CAUTION!** | 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 |
|---|---|---|
|  | **NOTICE** | Additional assistance or useful information not relating to risks of injuries or risks of material damage. |
|  | **ENVIRONMENT** | Information relating to recycling or to appropriate disposal of waste. |

Tab. 2: Types of indication in the document

## 1.4 Changes to the document compared to the previous version

Not applicable for this version

# 2 Safety-related information

## 2.1 Safety instructions

### 2.1.1 Technician safety

**WARNING!**

**Risk of electric shock**
**The product on which the technician is to work may still be connected to a power source.**

**Before performing any maintenance, turn off the device and lock out the electrical supply.**

**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**
**Some items (e.g., tools, hardware) may drop during installation or maintenance of the device.**

**Please limit your presence under the device during installation, maintenance or decommissioning, 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.**

**WARNING!**

**Risk of burns**
**Improper storage of batteries after removal may trigger a fire.**

**The terminals of used batteries must be insulated.**

### 2.1.3 ESD protection

Not applicable to this product.

# 3 Technical specifications

## 3.1 Optical specifications

| Specifications | LUCEA 50 | LUCEA 100 | Tolerance |
|---|---|---|---|
| Nominal illumination | 60,000 lx | 120,000 lx | ± 10 % |
| Diameter d10 | 22 cm | | ± 3 cm |
| Diameter d50/d10 | 0.55 | | ± 0.05 |
| Illumination depth at 20% | 190 cm | 105 cm | ± 15 % |
| Illumination depth at 60% | 120 cm | 55 cm | ± 15 % |
| Colour temperature | 4,300 K | | ± 450 K |
| Colour rendering index (Ra) | 96 | | ± 4 |
| Special colour rendering index (R9) | 92 | | ± 10 |
| Irradiance (Ee) | < 250 W/m² | < 500 W/m² | – |
| Radiant energy | 3.9 mW/m²/lx | | ± 0.4 |
| UV illumination | ≤ 0.7 W/m² | | – |
| FSP system | Yes | | – |

Tab. 3: Table of LUCEA 50-100 optical data

| Specifications | LUCEA 50 | LUCEA 100 | Tolerance |
|---|---|---|---|
| With one mask | 5 % | 42 % | ±10 |
| With two masks | 58 % | 49 % | ±10 |
| At base of tube | 100 % | 96 % | ±10 |
| With one mask, at base of tube | 5 % | 38 % | ±10 |
| With two masks, at base of tube | 58 % | 46 % | ±10 |

Tab. 4: LUCEA 50-100 residual illumination

**NOTE**

These values are measured with the small light field diameter.

## 3.2 Electrical characteristics

| Specifications | Values |
|---|---|
| Supply voltage | 100-240 V AC/50-60 Hz |
| Power consumption, LUCEA 50 configuration | 60 VA |
| Power consumption, LUCEA 100 configuration | 120 VA |
| Power consumption, DUO L50/100 | 180 VA |
| Power consumption, DUO L50 | 120 VA |
| Power consumption, DUO L100 | 240 VA |
| Power consumption, L50 Mobile configuration, without batteries | 60 VA |
| Power consumption, L100 Mobile configuration, without batteries | 120 VA |
| Power consumption, L50 Mobile configuration, with batteries | 145 VA |
| Power consumption, L100 Mobile configuration, with batteries | 247 VA |
| Supply voltage | 24 Vac, 50/60 Hz, 24 Vdc |
| Power consumption, LUCEA 100 configuration | 85 VA |
| Battery type | Lead gel |
| Minimum battery lifetime, LUCEA 50 mobile | 3 hours |
| Minimum battery lifetime, LUCEA 100 mobile | 8 hours |
| Charge time for Lucea 50 mobile batteries | 3 hours |
| Charge time for Lucea 100 mobile batteries | 15 hours |
| Fuses | 7,5A - 32V |

Tab. 5: LUCEA 50-100 electrical specifications

## 3.3 Mechanical specifications

### 3.3.1 Light

| Specifications | Values |
|---|---|
| Weight, LUCEA 50 mobile without batteries | 11 kg |
| Weight, LUCEA 100 mobile without batteries | 24 kg |
| Weight, LUCEA 50 mobile with batteries | 22 kg |
| Weight, LUCEA 100 mobile with batteries | 63 kg |
| Length of mains supply cable | 2/3 m |
| Vertical reach of spring arm, LCA 50 Mobile and LCA 50 Mobile B | +60° / -50° |
| Vertical reach of spring arm, LCA 100 Mobile and LCA 100 Mobile B | +40° / -60° |

Tab. 6: Mechanical specifications of mobile lights

### 3.3.2 Power supply

Not applicable to this product.

## 3.4 Communication protocol

Not applicable to this product

## 3.5 Diagrams

Not applicable to this product

## 3.5.1 Electrical connections: Installation diagram

### Ceiling-mounted or wall-mounted power supply without backup

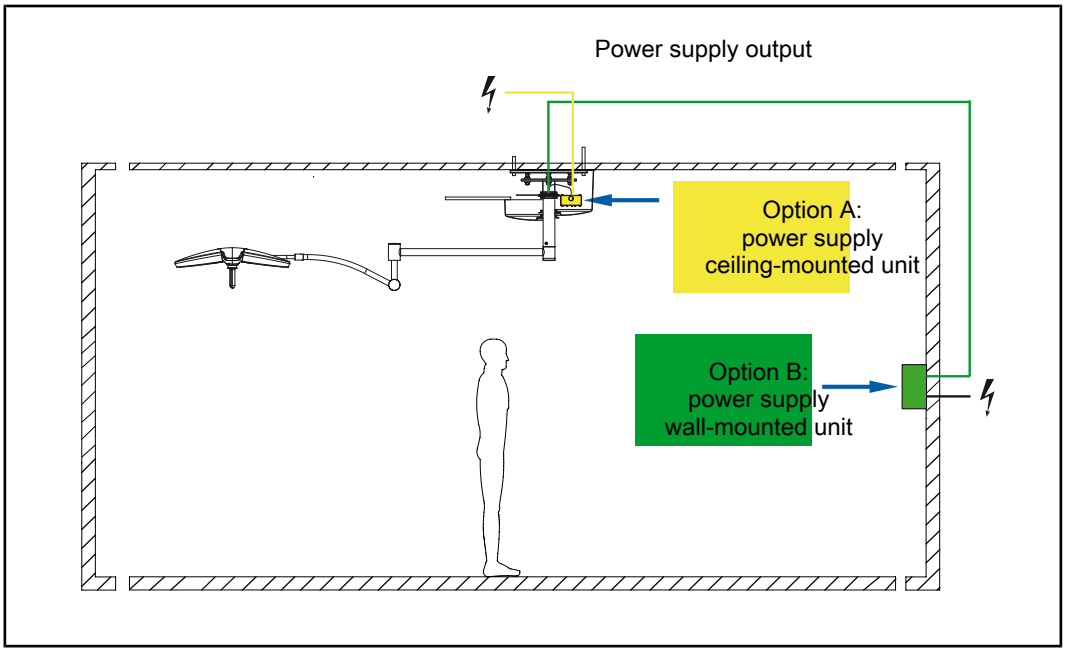



Fig. 1: Power supply without backup

### Ceiling-mounted or wall-mounted power supply with customer backup switchover

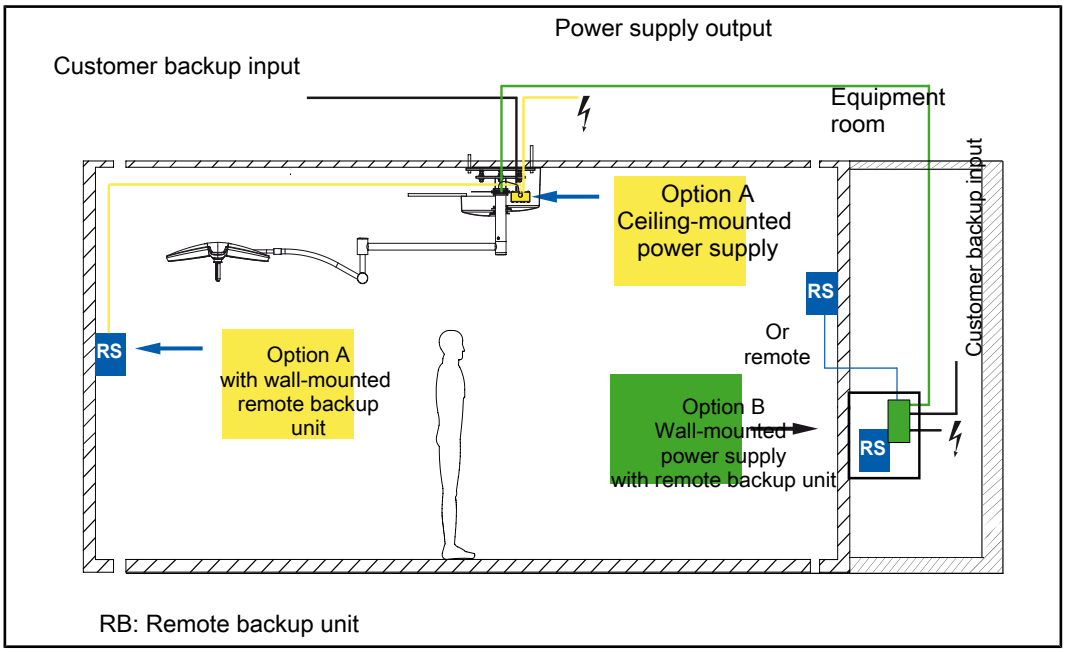



Fig. 2: Power supply with backup

Link between backup switchover and remote backup unit: CAT 5 (maximum length 80 m)

### Power supply with Getinge backup

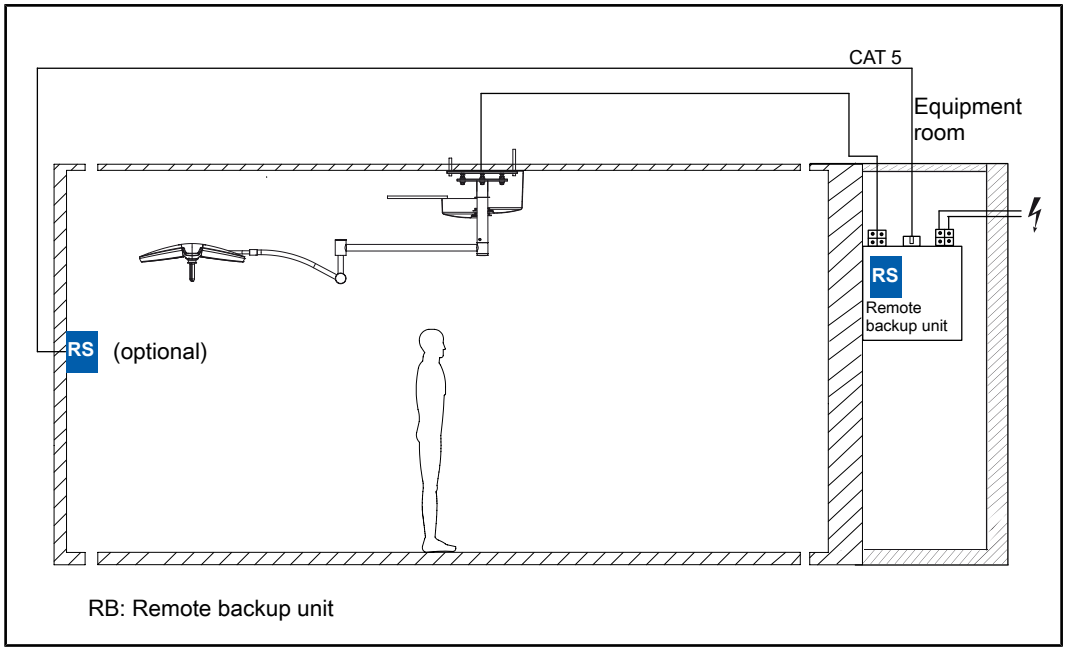



Fig. 3: Power supply with Getinge backup

Link between backup switchover and remote backup unit: CAT 5 (maximum length 80 m)

# 4 Maintenance and inspection procedures

**CAUTION!**

**Risk of equipment damage**
**If adjustments are made incorrectly or not at all, the lighthead or installed equipment may drift.**

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

**WARNING!**

**Risk of injury**
**If the spring arm is not released before the component is removed, it may spring up abruptly and pose a safety hazard.**

**Before installing or uninstalling the component, adjust the top limit stop on the spring arm to the horizontal position. Set the spring arm in the horizontal position to remove the component.**

**NOTICE**

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

**The LinkOne platform is accessible on the GetingeOnline portal: 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 | 6 870 000 11 |

## 4.2 Periodic replacements

### 4.2.1 Periodic replacement cycles

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

| Items | Frequency |
|---|---|
| All brakes | Every year |
| Suspension mounting screws (tighten the screws to the recommended tightening torque) | Every six years |
| Bushing mounting screws (tighten the screws to the recommended tightening torque) | Every six years |

| Items | Frequency |
|---|---|
| Spring arm safety snap ring | Every six years |
| Batteries | Every three years |

### 4.2.2 Replacing the batteries

**WARNING!**

**Risk of electric shock**
**The product on which the technician is to work may still be connected to a power source.**

**Before performing any maintenance, turn off the device and lock out the electrical supply.**

**CAUTION!**

**Risk of equipment damage**
**If the cables are inverted during installation or maintenance, a short-circuit may occur when the power is turned on.**

**Check the polarity of all electrical connections before turning on the power.**

**WARNING!**

**Risk of burns**
**If unsuitable batteries are used, they may explode due to the emission of gases or liquids.**

**Always use batteries supplied by Getinge during installation and when replacing defective batteries.**

**WARNING!**

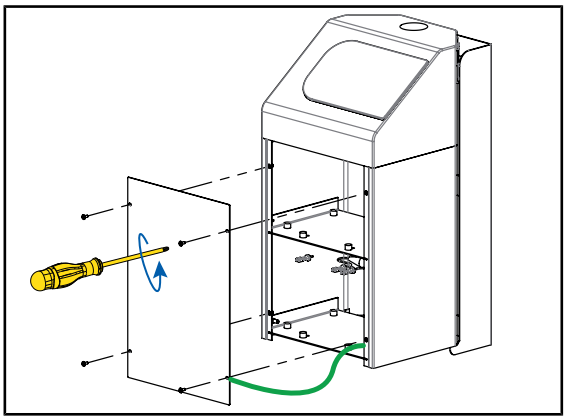
**Risk of electric shock or injury**
**The use of screws or spare parts other than those supplied by the manufacturer may damage the device.**

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

**WARNING!**

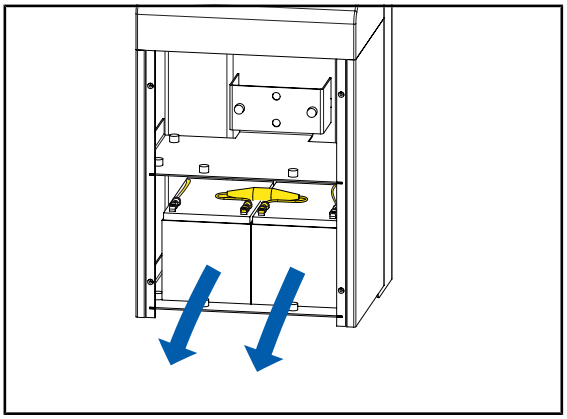
**Risk of burns**
**A metal object falling onto the two poles of the battery simultaneously risks short-circuiting the battery.**

**Handle the batteries with care to avoid causing a short circuit.**



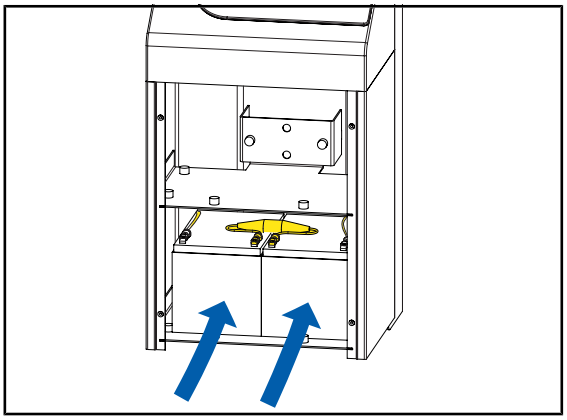
- Remove power from the backup unit.
- Open the front panel by removing the four screws.

Fig. 4: Opening the battery pack



- Disconnect the batteries.
- Remove the batteries from the backup unit.

Fig. 5: Removing the batteries



- Install the batteries inside the unit.
- Connect the cables to the batteries.
- Put the front panel back in place and fasten with the four screws.

Fig. 6: Replacing the batteries

## 4.3 Adjustments

### 4.3.1 Adjusting the brake on the lighthead (Lucea 50 example)

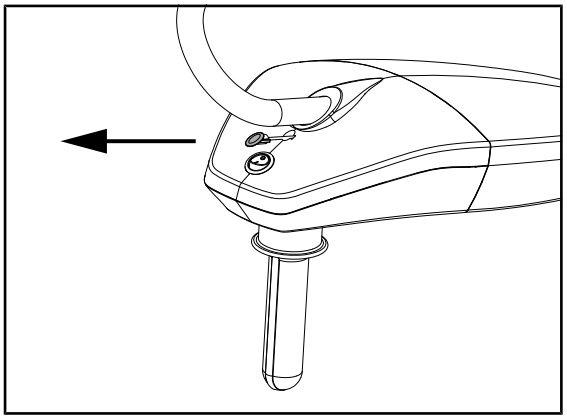


Fig. 7: Removing the cap

- Pull out the silicone cap.

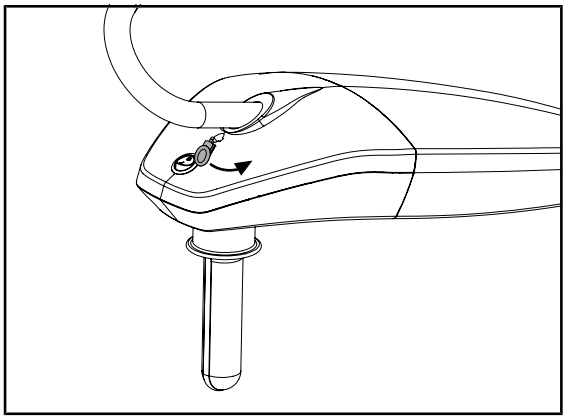


Fig. 8: Placing the cap out of the way

- Place the silicone cap to one side to keep it out of the way.

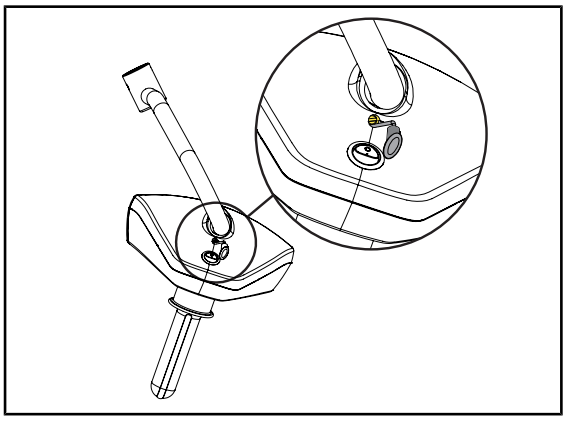


Fig. 9: Locating the brake screw

- Location of the brake screw.

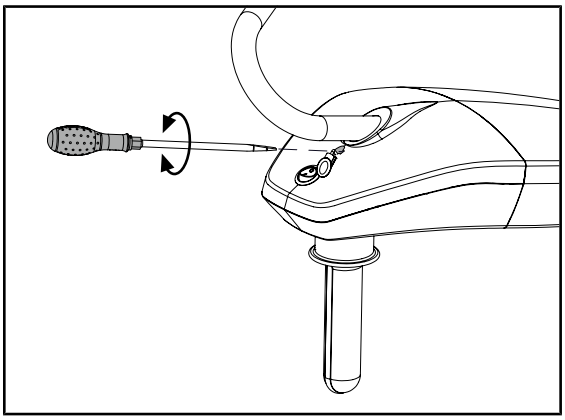


Fig. 10: Insert the brake screw

- Insert the flat-bladed screwdriver.
- Tighten the screw to restrain the fork more firmly or loosen it to allow more movement.

### 4.3.2 Adjusting the brake on the fork (Lucea 100 example)

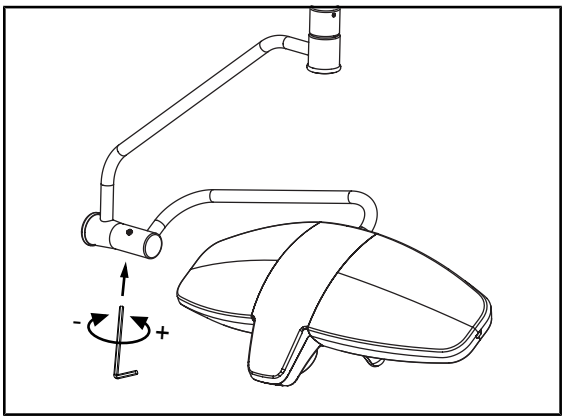



Fig. 11: Adjusting fork brake

- Adjust the brake on the fork using a 2.5-mm Allen key.

### 4.3.3 Adjusting the mobile spring arm

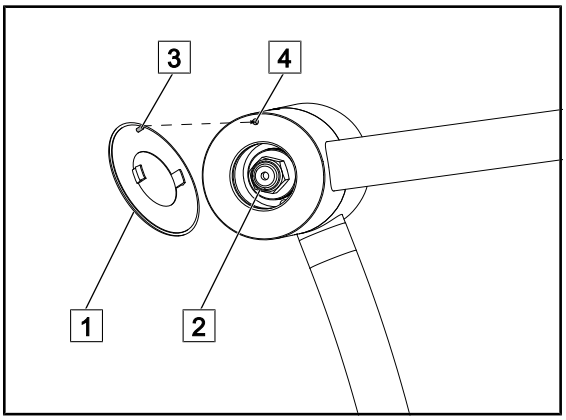



Fig. 12: Adjusting the mobile spring arm

- 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 3 is aligned with the hole 4.

### 4.3.4 Adjusting the spring arm for the ceiling and wall-mounted light, SF version

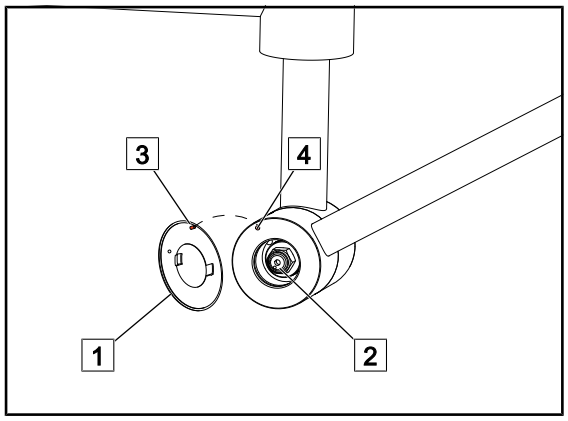



Fig. 13: Adjusting the SF ceiling and wall-mounted spring arm

- 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 3 is aligned with the hole 4.

### 4.3.5 Adjusting the DF ceiling and wall-mounted spring arm

#### Adjusting the balance

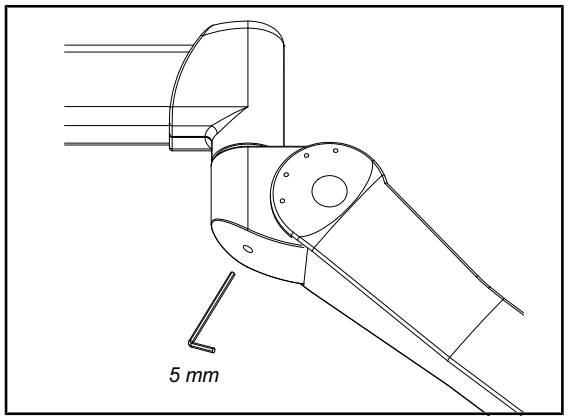



Fig. 14: Balance adjustment

- Tighten to lessen the force of the spring arm (the lighthead descends).
- Loosen to increase the force of the arm (the lighthead rises).

**Adjusting the top stop**

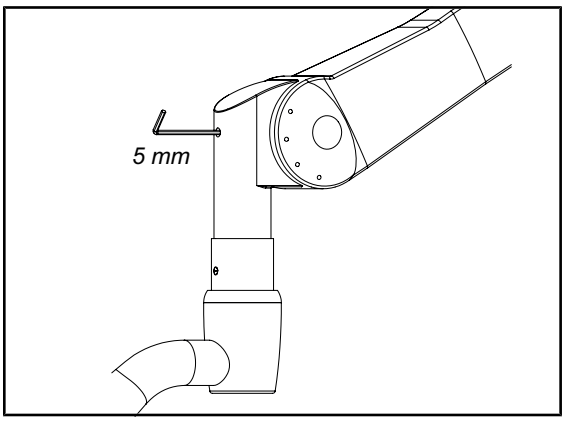



Fig. 15: Top stop adjustment

- Tighten to lower the stop.
- Loosen to raise the stop.

## 4.4 Mechanical inspections

### 4.4.1 Visual inspections

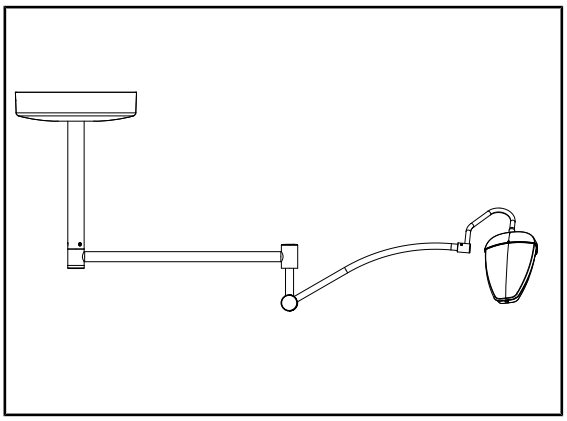


Fig. 16: Integrity of configuration

- Check the entire surgical light (spring arm, complete suspension with ceiling cover) for signs of damage

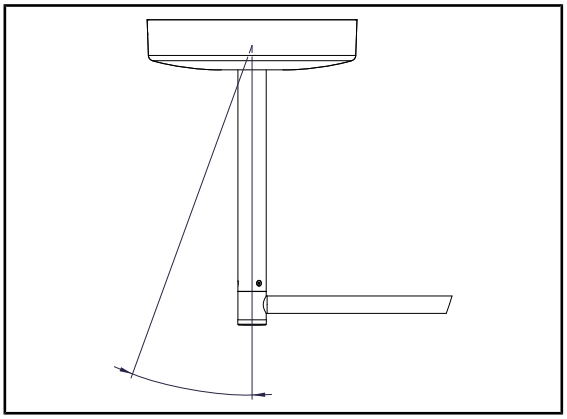


Fig. 17: Checking the verticality

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

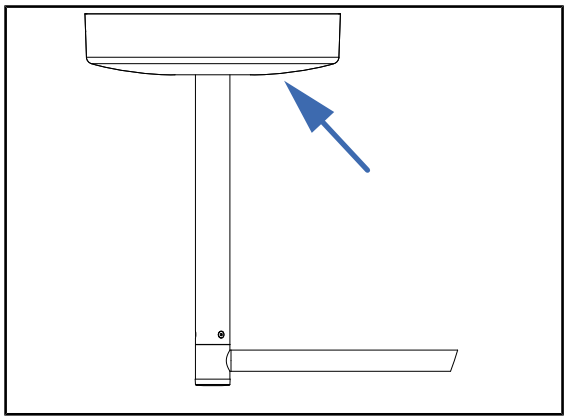


Fig. 18: Fitting of cover

- Check that the cover is firmly in place.

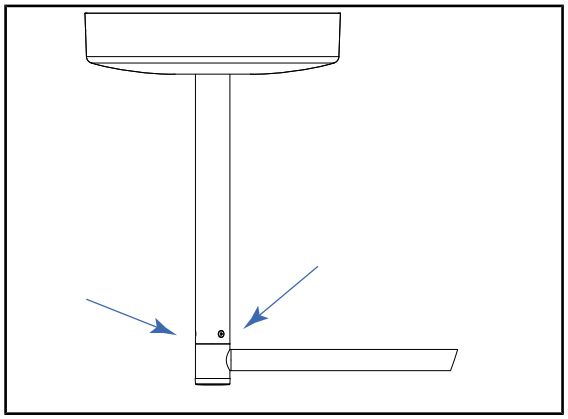


Fig. 19: Replacing the screws

- As a preventive measure, every six years, replace the screws securing the suspension tube to the anchor plate, as well as the screws for the suspension end caps.
- Tighten to specified torque; use pre-glued screws.

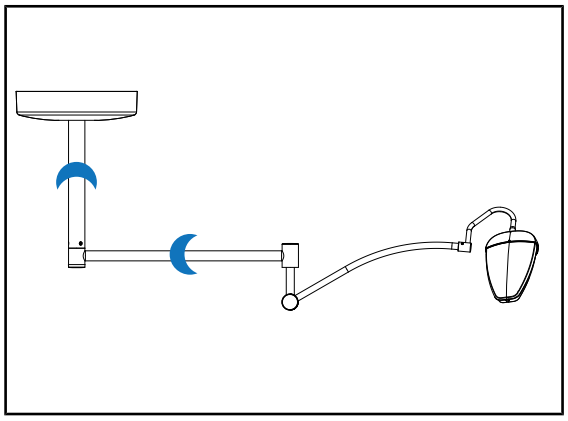


Fig. 20: Checking the rigidity

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

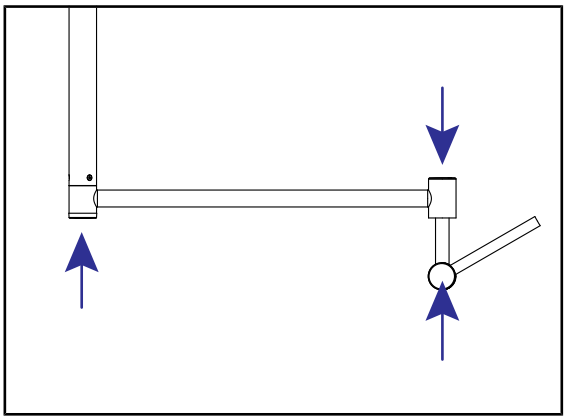


Fig. 21: Checking the caps

- Check for any loose covers and caps.

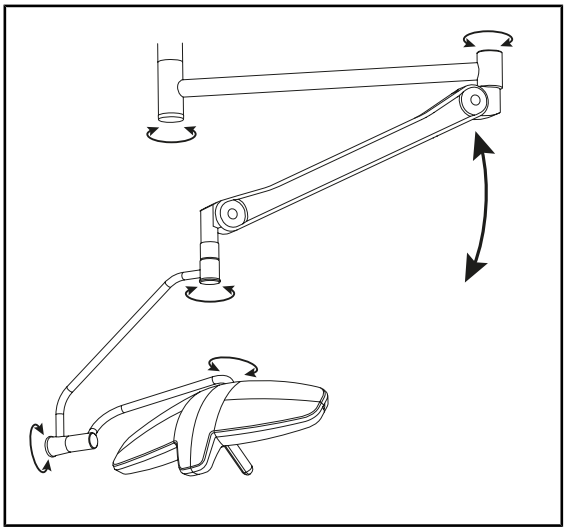


Fig. 22: Stability/drift

**Stability and drift of the system**

1. Operate the device, making several movements in order to swivel the extension arms, the spring arms and the lightheads.
   - ➢ The entire system should move easily and smoothly.
2. Place the system in various positions.
   - ➢ The entire system should remain in the selected position, without any drift.
3. If a problem is noted, contact technical support.

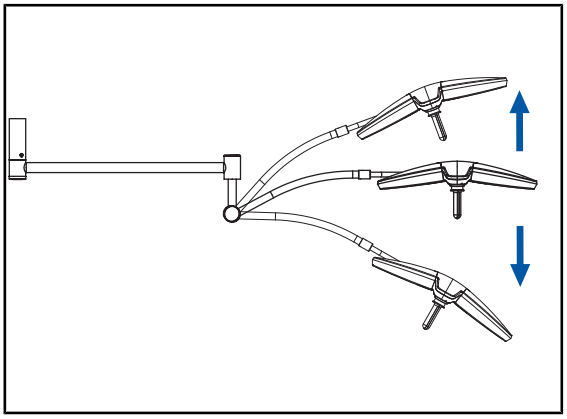


Fig. 23: Checking the balance

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

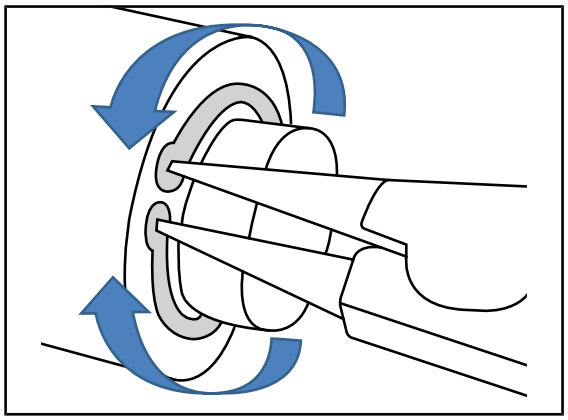


Fig. 24: Checking the circlip

- Check that the circlip is correctly in place.

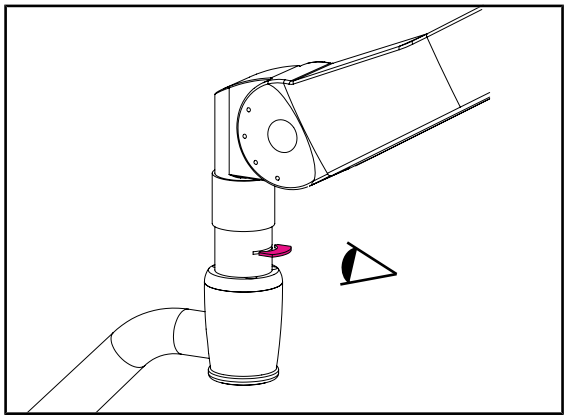


Fig. 25: Checking the snap ring

- Make sure the snap ring is in place.

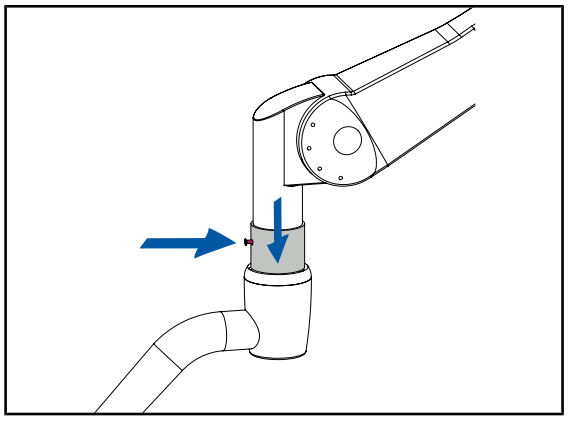


Fig. 26: Sliding ring

- Lower the retaining ring onto the snap ring.
- Refit the mounting screw.

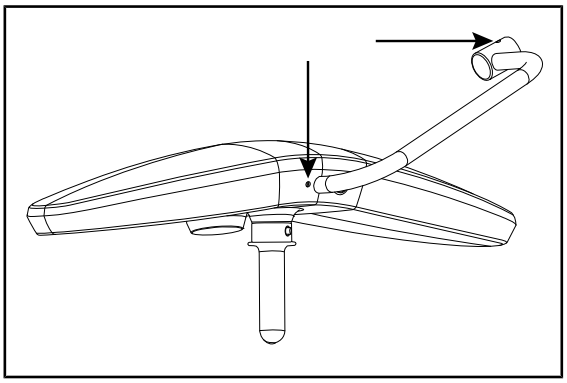


Fig. 27: Integrity of the lightheads

**Integrity of the lightheads, brake screw cap and mounting screws**

1. Check the lightheads for chipped paint, impact marks, any other damage, loose covers, etc.
2. Check that the cap protecting the brake screw is properly seated.
3. Check that all the mounting screws are present.
4. If a problem is noted, contact technical support.

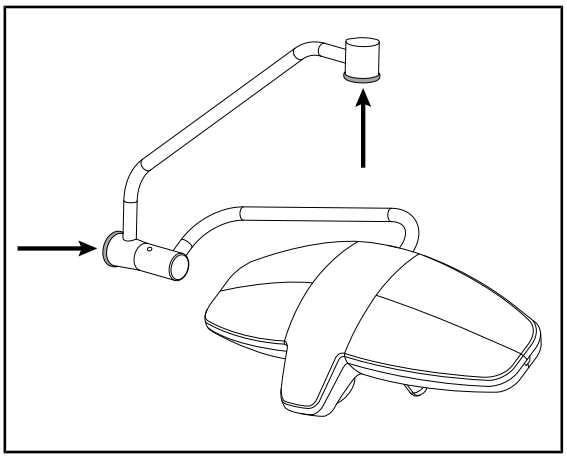


Fig. 28: DF fork plugs

**Fork plugs (DF version only)**

1. Check that the grey plugs are correctly installed.
2. If a problem is noted, contact technical support.

**For the mobile version:**

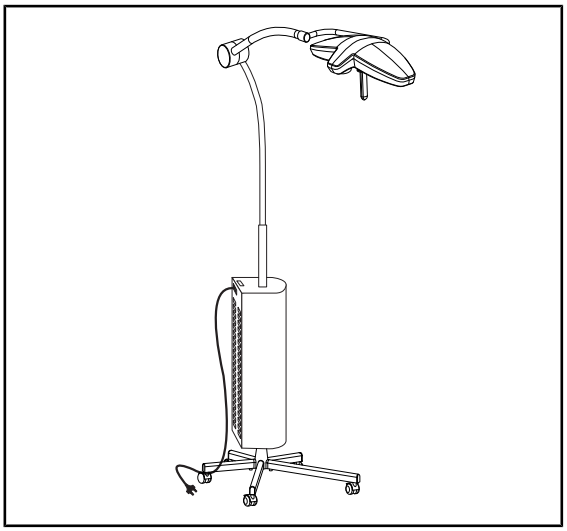


Fig. 29: Device verticality

- Check the verticality and stability of the device.

### 4.4.2 Checks

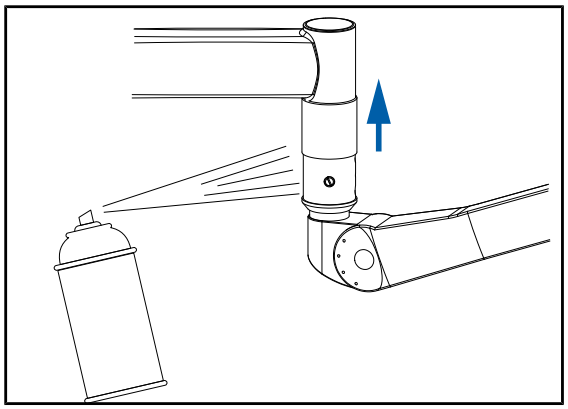


Fig. 30: Lubricating the suspension

**Lubricating the suspension under the slip ring**

1. Remove the mounting screw.
2. Raise the screw cover.
3. Spray lubricating grease at the location of the screw cover.

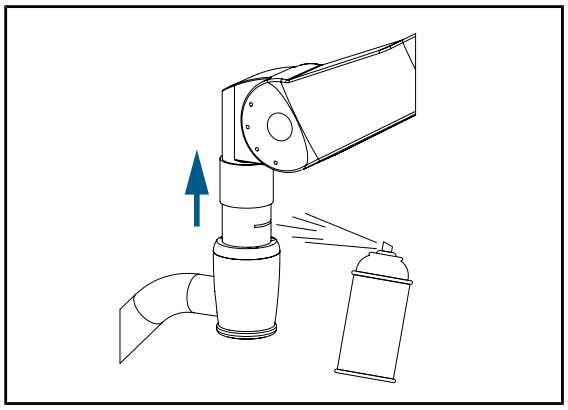


Fig. 31: Lubricating the spring arm

**Lubricating the spring arm under the slip ring**

1. Remove the mounting screw.
2. Raise the screw cover.
3. Spray lubricating grease at the location of the screw cover.

## 4.5 Electrical inspection

- Ceiling-mounted power supply output voltage (24 V)
- Mobile and wall-mounted power supply output voltage (28 V)
- Check the tightening of the wires in the terminal blocks
- Check that the power supply is connected to earth.
- Check the condition of the batteries (swelling, oxidised terminals, etc.)
- Check the battery voltage.

## 4.5.1 Functional tests

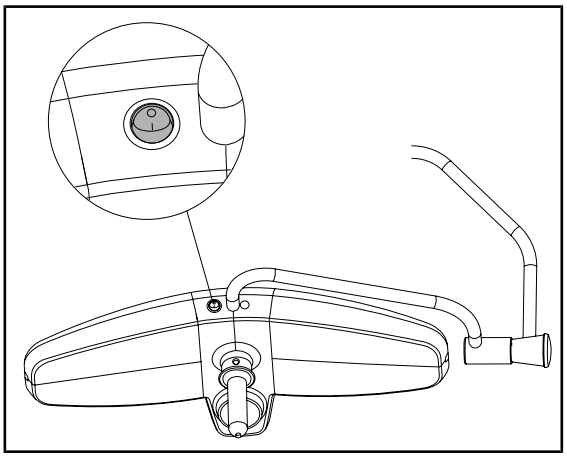


Fig. 32: Turning the lighthead on and off

**Turning the lighthead on and off**

1. Press the On/Off button to turn on the lighthead.
   - ➢ All of the LEDS turn on, at the last illumination level used when the light was turned off.
2. Press the On/Off button again to turn off the lighthead.
   - ➢ All of the LEDs turn off.

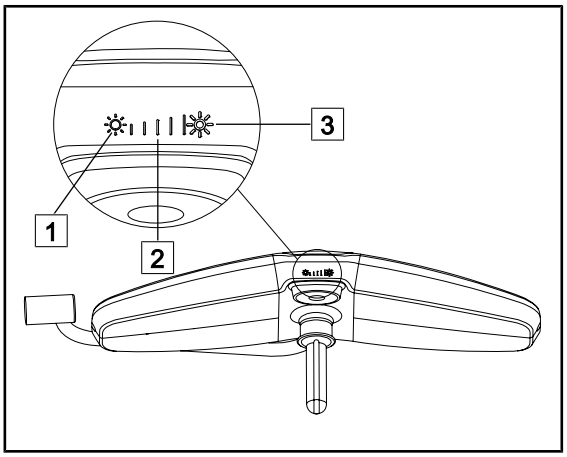



Fig. 33: Adjusting the illumination via the keypad

**Adjusting the light intensity**

1. Press **Increase intensity** [3] to increase the light intensity level of the lighthead.
2. Press **Decrease intensity** [1] to decrease the light intensity level of the lighthead.
   - ➢ The illumination level on the lighthead is shown by the LED [2].

**Adjusting the light field diameter**

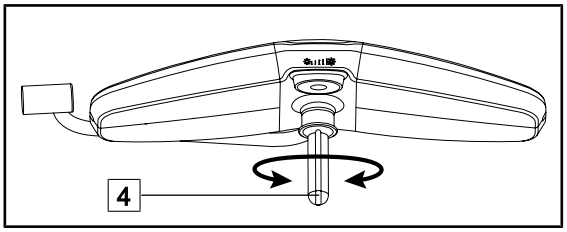



Fig. 34: Adjusting the light field diameter

**Adjusting the light field diameter (on LUCEA 100 only)**

1. Turn the handle [4] clockwise to enlarge the light field or counter-clockwise to reduce the light field.

#### 4.5.1.1 Battery capacity and charge times

**Battery control keypad**

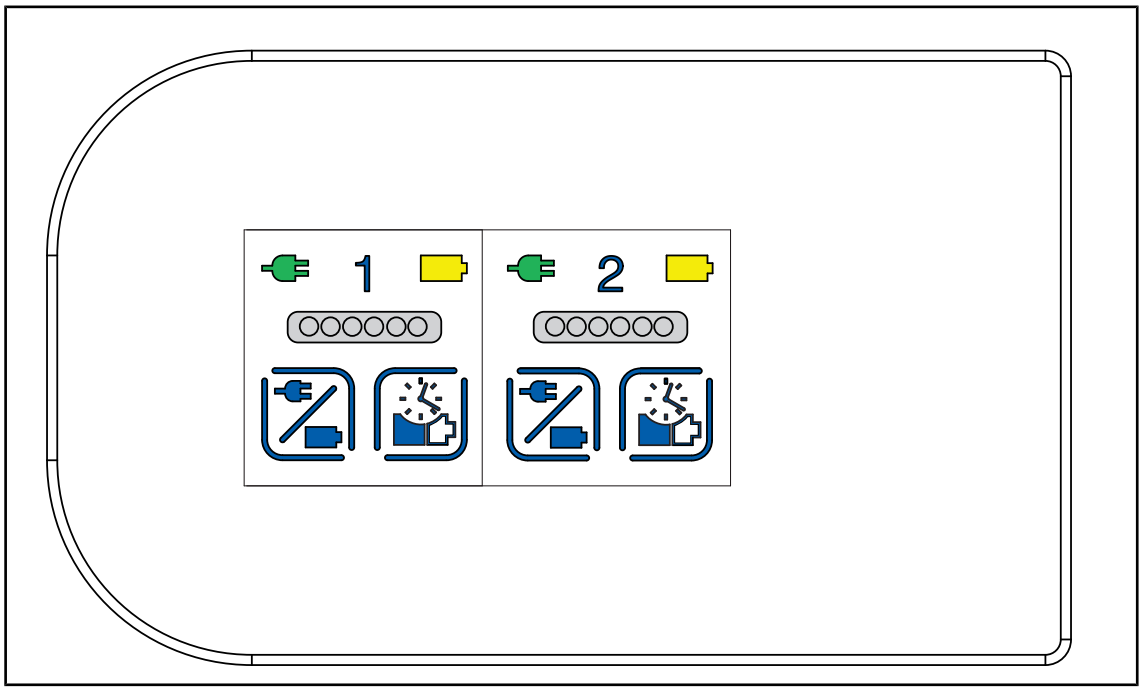
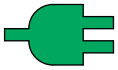



Fig. 35: Example of a double remote control unit

**Meaning of operating LEDs for a customer backup**

| Symbol | Status | Meaning |
|---|---|---|
|  | Mains symbol displayed in green | Operation on mains power |
|  | Mains symbol displayed in yellow/orange | Switchover to external backup |
|  | Mains symbol displayed in red | Power cut-off imminent (level of external backup < 20 V). |

**A bargraph with six different levels shows the level of the external backup**

| | | |
|---|---|---|
|  | One LED lit red | External backup at a very low level |
|  | Two LEDs lit orange | External backup at low level |
|  | Three LEDs lit orange | External backup at relatively low level |
|  | Four LEDs lit green | External backup at relatively good level |

| | | |
|---|---|---|
|  | Five LEDs lit green | External backup at good level |
|  | Six LEDs lit green | External backup at excellent level |

**NOTICE**
**The level LEDs turn on (or off) depending on the voltage of the batteries.**

### Backup switchover test

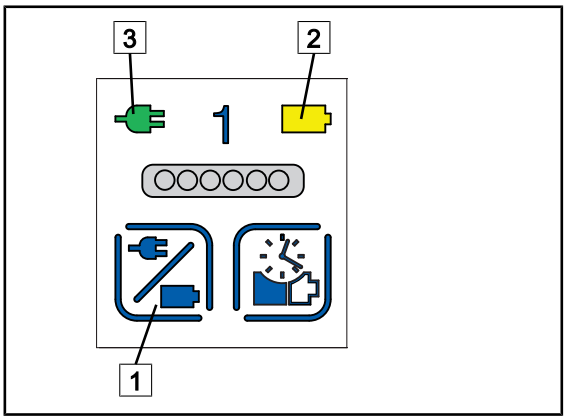



Fig. 36: Test_bascule

- Switch the lighting over to backup by pressing the test button 1.
- Turn on the lighthead. The illumination must be set to the maximum intensity level.
- Press the test button 1. When power switches over, the illumination level on the lighthead drops momentarily.
- The battery symbol is displayed in yellow/ orange 2 and the mains operation symbol 3 turns off.
- Release the test button 1; the lighthead returns to the mains supply. The mains operation symbol 3 turns green.

### Battery life test

The battery life test lasts for three hours in normal conditions (batteries fully charged).

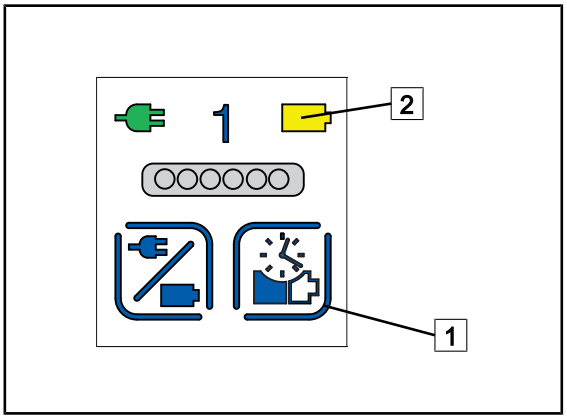
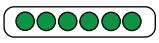



Fig. 37: Test_autonomie

- Disconnect the charger.
- Turning on the lighthead. The illumination must be set to the maximum intensity level.
- Press the battery life test button 1 for 2 seconds.
- Throughout the battery life test, the battery symbol flashes yellow/orange 2 and the bar graph shows in real time the remaining level of the external backup .

- After three hours of testing, if the external backup is still working, the six LEDs on the bar graph flash green .



- If the external backup is no longer working, the six LEDs of the bar graph flash red , indicating that the external backup cannot supply power for three hours.
- Press the battery life test button 1 for 2 seconds.
- Press the battery life test button 1 at any time to stop the test.
- Reconnect the charger once the test is complete.

**Battery status on mobile version**

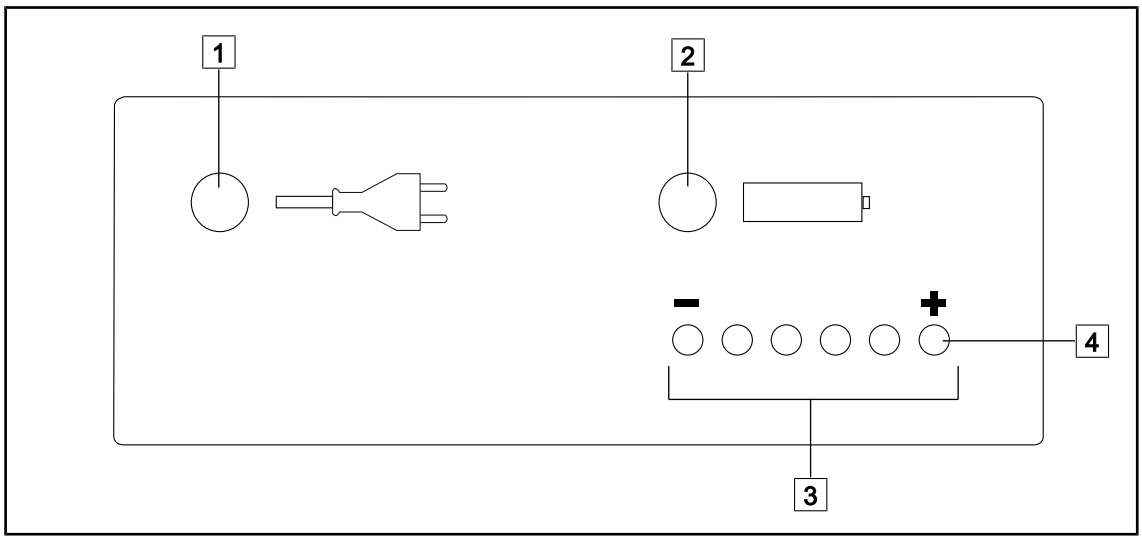



Fig. 38: Battery indicators

| Check | Mains LED 1 | Battery LED 2 | LEDs 3 to 8 3 | Meaning |
|---|---|---|---|---|
| Turn off the light | Green | Off | Scrolling LEDs | Batteries charging |
| | | | LED 8 flashes 4 | Batteries completely charged |
| Turn on the light | Green | Off | Scrolling LEDs | Batteries charging |
| | | | LED 8 flashes 4 | Batteries completely charged |
| Disconnect the mains power outlet (the light remains on) | Off | Yellow | One of LEDs 3 to 8 is lit (battery charge level) | Operation on batteries |

Tab. 7: Battery lifetime test

| Check | Mains LED 1 | Battery LED 2 | LEDs 3 to 8 3 | Meaning |
|---|---|---|---|---|
| After 1 hour (LCA50) or 4 hours (LCA100) | Off | Yellow | One of LEDs 3 to 8 is lit (battery charge level) | Operation on batteries |
| Connect the power outlet | Green | Off | Scrolling LEDs | Batteries charging |

Tab. 7: Battery lifetime test

### 4.5.2 Visual inspections

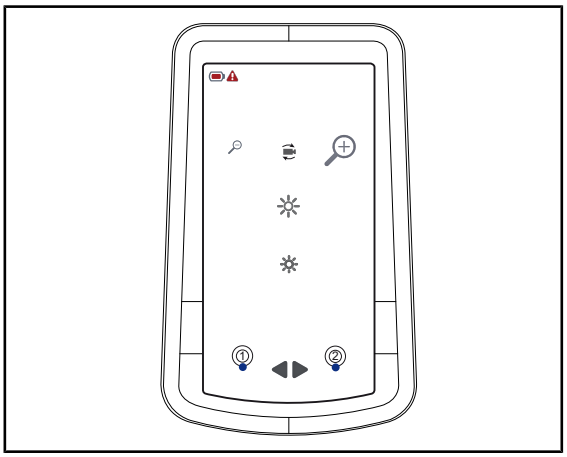


Fig. 39: Remote control

**Remote control (option)**

1. Check that the remote control operates correctly.
2. Check the state of the batteries.
3. Check the lighthead selection function.

The video camera compatible with the LUCEA 100 lightheads is no longer available since January 2019.

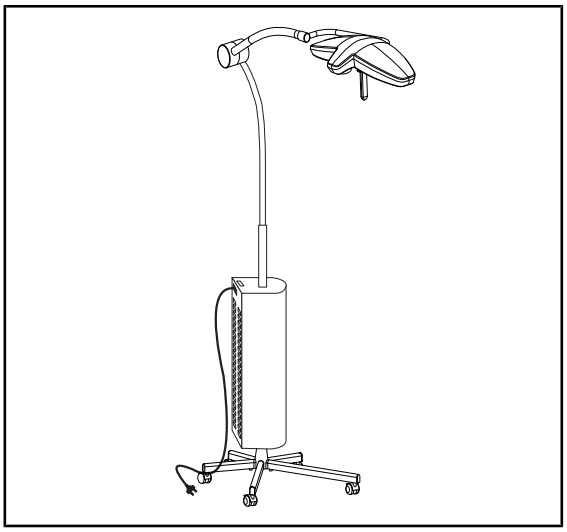


Fig. 40: Power lead for mobile version

**Power lead (mobile version only)**

1. Check that the power lead is not damaged.
2. Check that the IEC mains connector on the power supply enclosure cover is correctly connected

## 4.6 Hydraulic inspections

Not applicable to this product

## 4.7 Optical inspections

### 4.7.1 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**

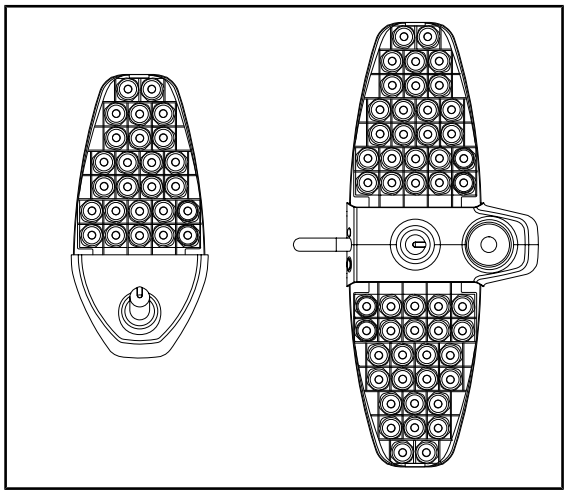


Fig. 41: Operation of LEDs

**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.

## 4.8 Electrical safety tests

**Ceiling-mounted version**

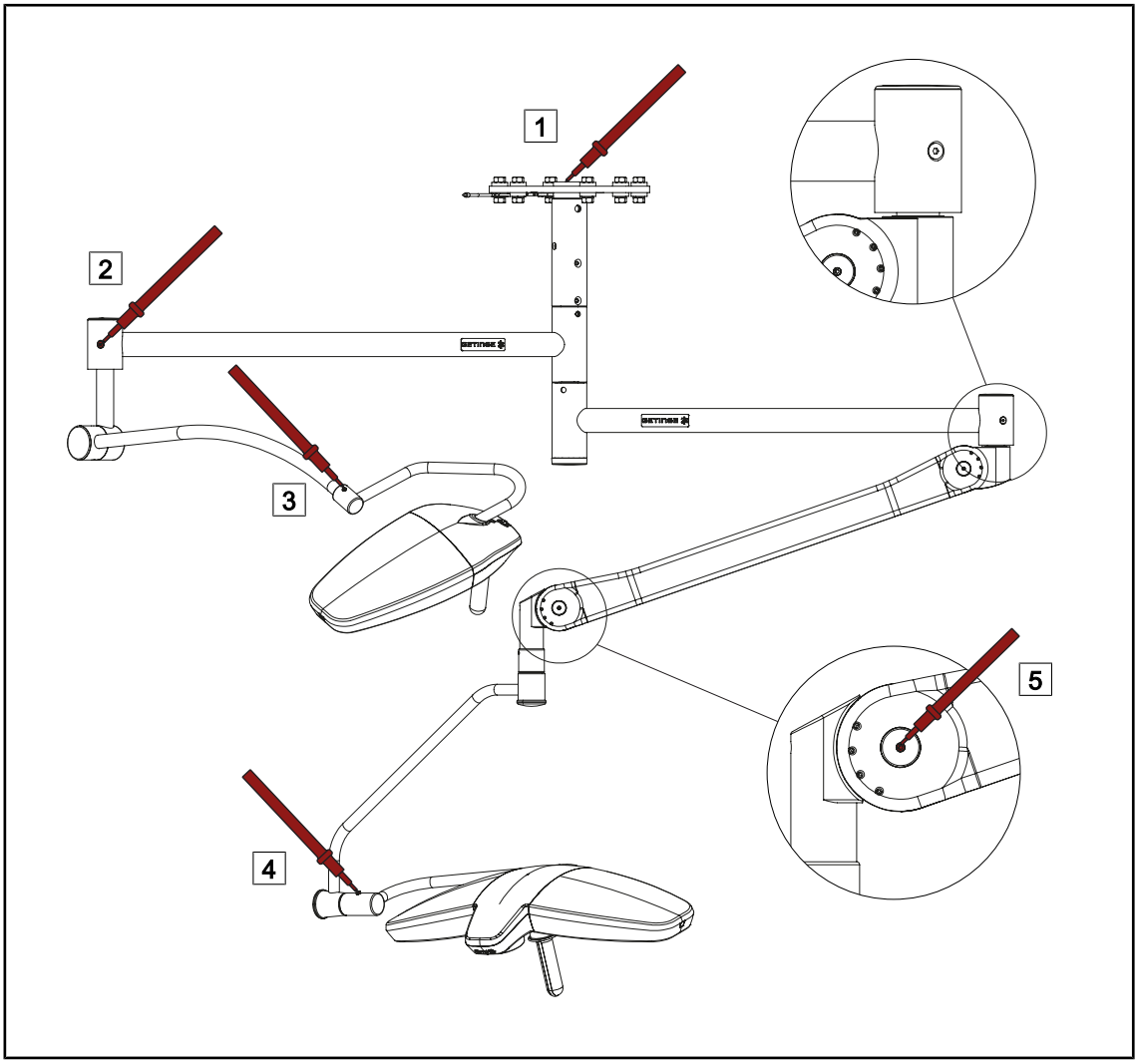



Fig. 42: Safety tests, ceiling-mounted version

**Safety test:**

- For a single fork lighthead, perform a safety test between point 1 and point 2.
- For a single fork lighthead, perform a safety test between point 1 and point 5.

The earth resistance should be less than or equal to 300 mΩ.

**Continuity test:**

- For a single fork lighthead, perform a continuity test between point 2 and point 3.
- For a dual-fork lighthead, perform a continuity test between point 4 and point 5.

### Wall-mounted version

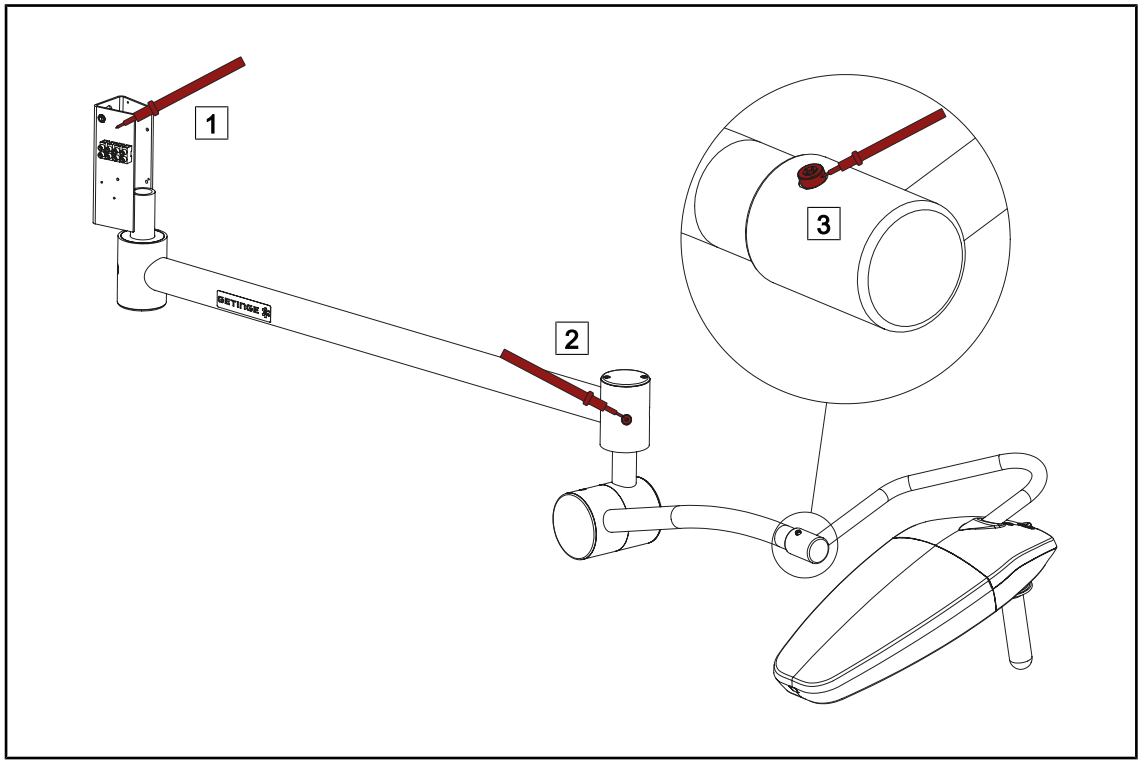



Fig. 43: Safety tests, wall-mounted version

**Safety test:**

- Test the continuity between point 1 and point 3.

The earth resistance should be less than or equal to 300 mΩ.

**Continuity test:**

- Test the continuity between point 2 and point 3.

**Mobile version**

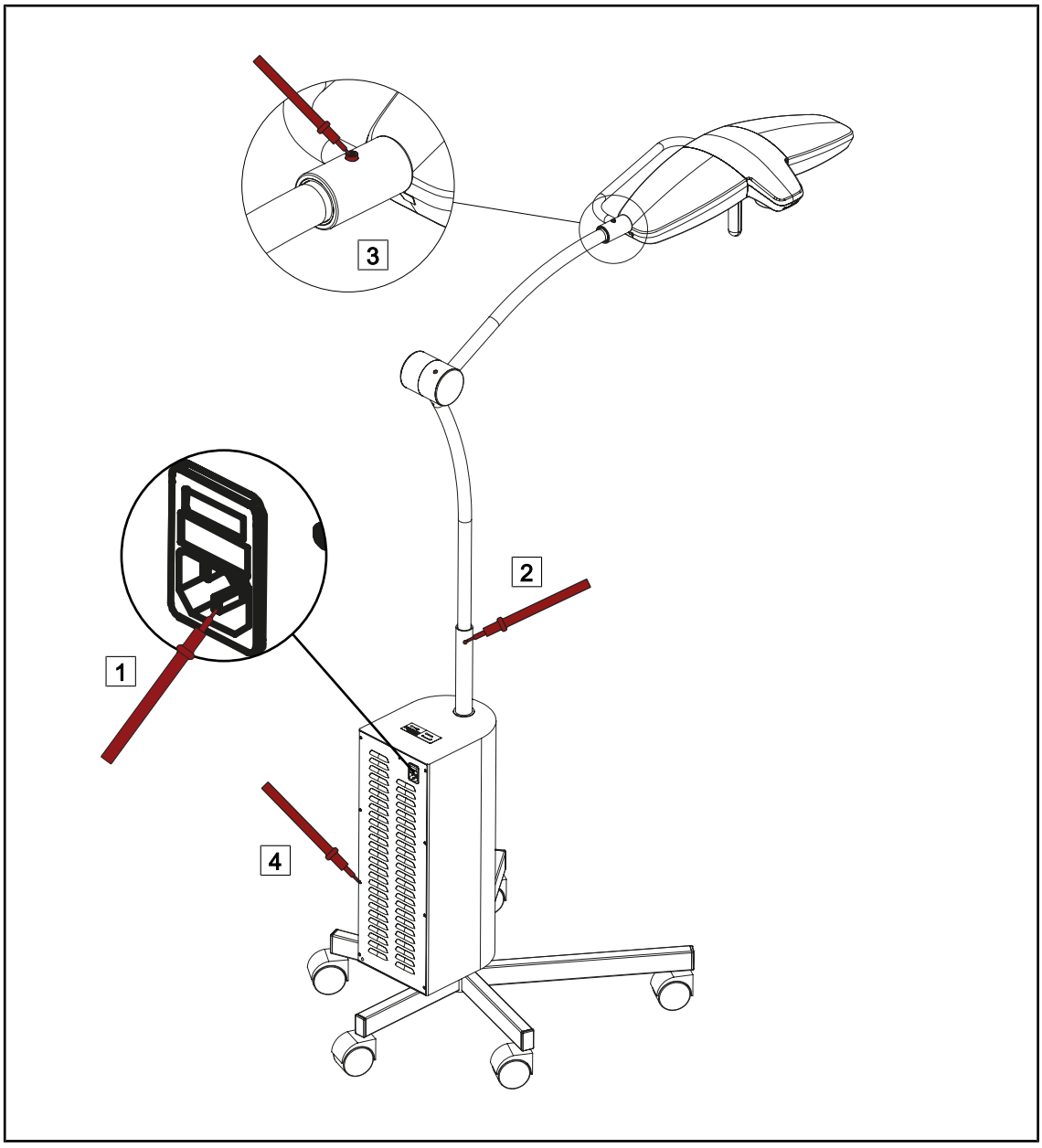



Fig. 44: Safety tests, mobile version

**Safety test:**

- Test the continuity between point 1 and point 3.

The earth resistance should be less than or equal to 300 mΩ.

**Continuity test:**

- Test the continuity between point 1 and point 2.
- Test the continuity between point 1 and point 4.

# 5 Recording the inspection

**See also**

SW Service Protocol PM OR Lights LUCEA 50 100-A [› 36]

## 5.1 SW Service Protocol PM OR Lights LUCEA 50 100-A

# SW Service Protocol Preventive Maintenance

## **Surgical Lights** LUCEA 50-100

### 1. Product

| | | | | | |
|---|---|---|---|---|---|
| Configuration REF | | Configuration SN | | Description | |
| Light Head 1 PN | | Light head 1 SN | | Description | |
| Light Head 2 PN | | Light head 2 SN | | Description | |
| Installation Date | | Location (department, OT No, OR No…) | | | |

### 2. Customer

| Address | Contact Name | Contact Phone Number | Service Order |
|---|---|---|---|
| | | | |

### 3. Periodic replacement

To ensure safety and performance please follow the below recommendations.

| Items | Periodicity | Replaced | Not replaced | N/A |
|---|---|---|---|---|
| All brakes | every year | | | |
| Suspension fixing screws (Tighten the screws to the recommended tightening torque) | every 6 years | | | |
| AC 2000 Spring arm safety segment | every 6 years | | | |
| Wireless remote control batteries | Every year | | | |
| Lead batteries | every 30 deep discharge cycles or every 3 years | | | |

Form: STI-P01-F11-B-en

**Please refer to the technical manual for detailed instructions and the annexes.**

Document name: SW Service Protocol PM OR Lights LUCEA 50 100

www.getinge.com

1

4. Other Parts replaced or need replacing

| PN | Description | Qty | Replaced | Need replacing |
|---|---|---|---|---|
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |
| | | | | |

5. Lubrication

| | Pass | Fail | N/A |
|---|---|---|---|
| Lubrication of the suspension bushings | | | |
| Lubrication of the Light head fork axles | | | |
| Lubrication of the flat screen holder | | | |

6. Mechanical evaluation

| | Pass | Fail | N/A |
|---|---|---|---|
| Check the hold of the Ceiling cover, seal and silicone sleeve | | | |
| Check the rigidity of the suspension by shaking | | | |
| Check the verticality of the suspension tube (spirit level) | | | |
| Check the hold of the suspension covers | | | |
| Check the suspension fixing screws<br>(If screws appear loosened, replace them, do not retighten these screws during maintenance, it can lead to breakage). | | | |
| Check the bushing fixing screws<br>(If screws appear loosened, replace them, do not retighten these screws during maintenance, it can lead to breakage). | | | |
| Check the position and condition of spring arm snap ring | | | |
| Check all other fixing screws<br>(Tighten them if necessary) | | | |
| Check the hold of the spring arm covers and metal strips (Only double fork version) | | | |
| Check the vertical stop of the spring arms (Only double fork version) | | | |

Form: STI-P01-F11-B-en

| | Pass | Fail | N/A |
|---|---|---|---|
| Check the balancing of the spring arms | | | |
| Check the presence and condition of the safety segment | | | |
| Check the presence of the spring arm safety sleeve and the presence of the fixing screw | | | |
| Check the hold of the light head covers | | | |
| Check the light head rotation stop | | | |
| Check the light head brake adjustment | | | |
| Check the condition of the underside<br>(no scratches, no cracks) | | | |
| Check the fixing of the light head handle holder | | | |
| Check the sterilizable handle engages correctly and stays in place | | | |
| Check the easy handling of the configuration | | | |
| No corrosion anywhere | | | |
| No paint chip anywhere | | | |
| Check the condition of the power supply cable and the connection to the power box.<br>(Only mobile version) | | | |
| The pole must be vertical and stable<br>(Only mobile version) | | | |

## 7. Electrical evaluation

| | Pass | Fail | N/A |
|---|---|---|---|
| Power Supply Output Voltage 1 (28 VDC +/-10 %) | | | |
| Power Supply Output Voltage 2 (28 VDC +/-10 %) | | | |
| Check the tightening of the wires on the terminal blocks | | | |
| Check if the Power supply is connected to the ground | | | |
| Check the condition of power supply unit (oxidation, infiltration, cover, …) | | | |
| Check the condition of the batteries<br>(Inflated, oxidized terminal, …) | | | |
| Check batteries' voltage | | | |
| Check the tightening, the stability and the brake efficiency of castors<br>(Only mobile version) | | | |

Form: STI-P01-F11-B-en

8. Optical evaluation

| Illumination | Acceptable values (klx) | Measured value (klx) | Pass | Fail | N/A |
|---|---|---|---|---|---|
| Ec Max LUCEA 50 | 40 < Ec < 160 | | ☐ | ☐ | ☐ |
| Ec Max LUCEA 50 | 40 < Ec < 160 | | ☐ | ☐ | ☐ |
| Ec Max LUCEA 100 | 70 < Ec < 160 | | ☐ | ☐ | ☐ |
| Ec Max LUCEA 100 | 70 < Ec < 160 | | ☐ | ☐ | ☐ |

Measure the illumination at the center, at 1 meter, small light patch (with dimmer at max setting).
The IEC 60601-2-41 standard indicates the limits between 40 000 lux minimum & 160 000 lux maximum.
The minimum acceptable value has been calculated from the nominal illumination values -30%.

9. Electrical Safety Tests (IEC 62353)

| | Limit (mΩ) | Measured values (mΩ) | Pass | Fail | N/A |
|---|---|---|---|---|---|
| Protective earth continuity 1 | ≤ 300 mΩ | | ☐ | ☐ | ☐ |
| Protective earth continuity 2 | ≤ 300 mΩ | | ☐ | ☐ | ☐ |

| | Pass | Fail | N/A |
|---|---|---|---|
| Continuity test 1 | ☐ | ☐ | ☐ |
| Continuity test 2 | ☐ | ☐ | ☐ |

**Test records should be enclosed to this report for any further use, when available.**

10. Function test

| | Pass | Fail | N/A |
|---|---|---|---|
| All LEDs operate correctly | ☐ | ☐ | ☐ |
| ON / OFF<br>(Light head button) | ☐ | ☐ | ☐ |
| Illumination increase / decrease level<br>(Light head capacitive keypad) | ☐ | ☐ | ☐ |
| Wireless remote control operates correctly | ☐ | ☐ | ☐ |
| Camera operates correctly | ☐ | ☐ | ☐ |
| Switch over to battery mode and back to mains | ☐ | ☐ | ☐ |
| Batteries charge indicator brights when light is off | ☐ | ☐ | ☐ |

11. Cleaning

| | |
|---|---|
| Clean and remove the grease from external parts of the device | ☐ |

12. Final evaluation

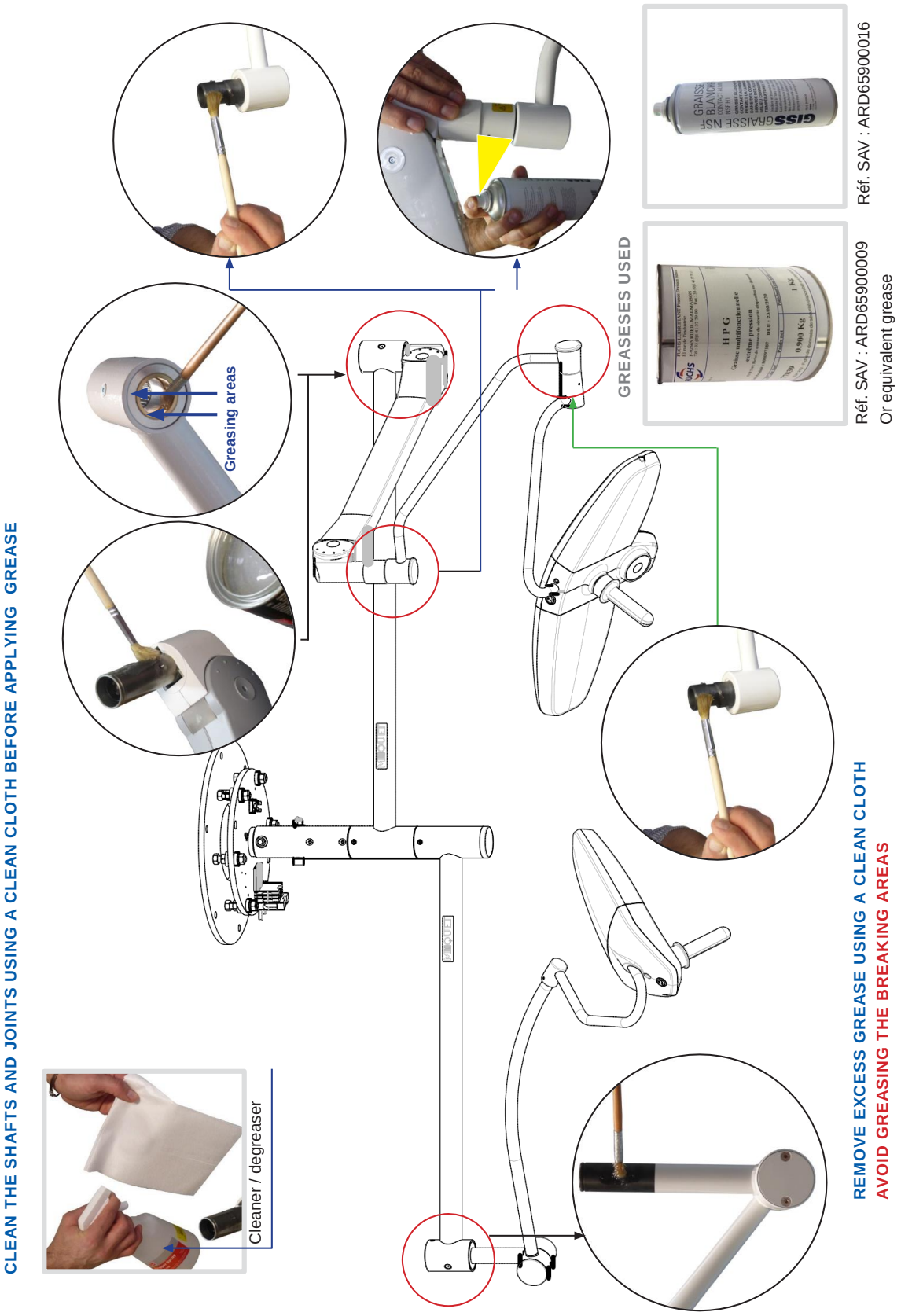
| | |
|---|---|
| Device fully operational. | ☐ |
| Free from direct risk but deficiencies detected. May be corrected in short term. | ☐ |
| Device shall not be used until all deficiencies are corrected. | ☐ |
| Device no longer safe. Taking out of service is recommended. | ☐ |

| Comments |
|---|
| |

Form: STI-P01-F11-B-en

13. Processed by

| Name / Title | Date | | | Signature |
|---|---|---|---|---|
| | | | | |
| | *DD* | *MMM* | *YYYY* | |


CLEAN THE SHAFTS AND JOINTS USING A CLEAN CLOTH BEFORE APPLYING GREASE
Cleaner / degreaser
Greasing areas
GREASESES USED
Réf. SAV : ARD65900009
Or equivalent grease
Réf. SAV : ARD65900016
REMOVE EXCESS GREASE USING A CLEAN CLOTH
AVOID GREASING THE BREAKING AREAS

# SAFETY PARTS TO REPLACED EVERY 6 YEARS

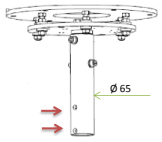
SAFETY SCREWS :

**Maquet recommends a preventive safety screw replacement every 6 years.**

## TUBES

### TUB 60

SUSP. BLUE 30-80
SUSP. LCA40-50-100
SUSP. VOLISTA ACCESS

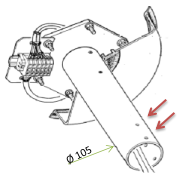



**P/N : ARD368835555**
SET OF 4 PREGLUED SCREWS FHC M6X16 - 10.9

⚠ Tightening torque : 16 Nm

### ECL

SUSP. PRC
SUSP. PRX (Avant Sept. 2002)

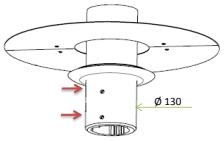



**P/N : ARD367014555**
SET OF 6 PREGLUED SCREWS CHC M6X12 - 10.9

⚠ Tightening torque : 16 Nm

### TUB 130

SUSPENSION SA
SUSP. PRX (Après Sept. 2002)

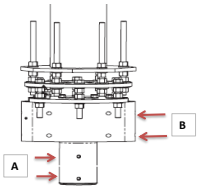



**P/N : ARD367270555**
SET OF 6 PREGLUED SCREWS CHC M6X20 -10.9

⚠ Tightening torque : 16 Nm

### SATELITE

AXE 1 : SUSPENSION SA
AXE 1 : SUSP. PRX (Après Sept. 2002)
AXE 2-3 : ARM SAT



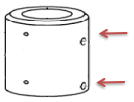

**A = P/N : ARD315027555**
SET OF 6 PREGLUED SCREWS CHC M6X20 -10.9

**B = P/N : ARD315026555**
SET OF 6 PREGLUED SCREWS CHC M6X25 - 10.9

⚠ Tightening torque : 16 Nm

## ADAPTERS

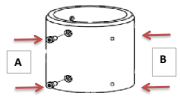
ADPT 120 TO 60
ARD515088900



**P/N : ARD315027555**
SET OF 6 PREGLUED SCREWS CHC TB M6X20 10.9

⚠ Tightening torque : 16 Nm

SET ADAPTER FOR TUBE HLX2
ARD567914999




**A = P/N : ARD315027555**
SET OF 6 PREGLUED SCREWS CHC TB M6X20 10.9

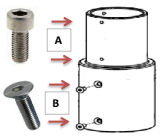
**B = P/N : ARD367014555**
SET OF 6 PREGLUED SCREWS CHC M6X12 10.9

⚠ Tightening torque : 16 Nm

Not sold in US

SET ADAPTER FOR TUBE HANAU CITY
ARD397807555

**P/N : ARD397808555**
SET OF 12 PREGLUED SCREWS CHC & FHc - 10.9

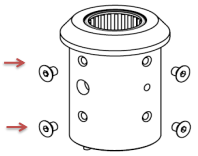



⚠ **A :** Tightening torque : 16 Nm
⚠ **B :** Tightening torque : 16 Nm

Not sold in US

## BUSHINGS

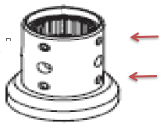
BUSHING OF THE MAIN ARM OF SUSP. SA



**P/N : ARD368325556**
SET OF 4 SCREWS FHC M6X8 INOX A2-70

⚠ Tightening torque : 6 Nm

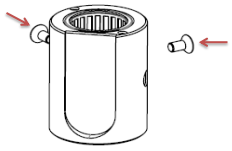
BUSHING OF THE MAIN ARM OF SUSP. SATELITE



**P/N : ARD315028555**
SAT-SET OF 4 SCREWS FOR ONDASPACE - 12.9

⚠ Tightening torque : 16 Nm

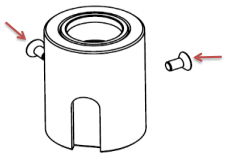
BUSHING OF THE MAIN ARM OF SUSP. ACCESS



**P/N : ARD368840555**
SET OF 4 PREGLUED SCREWS FHC M6X12 - 10.9

⚠ Tightening torque : 16 Nm

BUSHING OF THE MAIN ARM OF SUSP. LCA DF



**P/N : ARD368840555**
SET OF 4 PREGLUED SCREWS FHC M6X12 - 10.9

⚠ Tightening torque : 16 Nm

SAFETY SEGMENT :

**Maquet recommends a preventive safety segment replacement every 6 years.**
**For the reference, please, consult the technical manual of your equipment.**

GETINGE

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