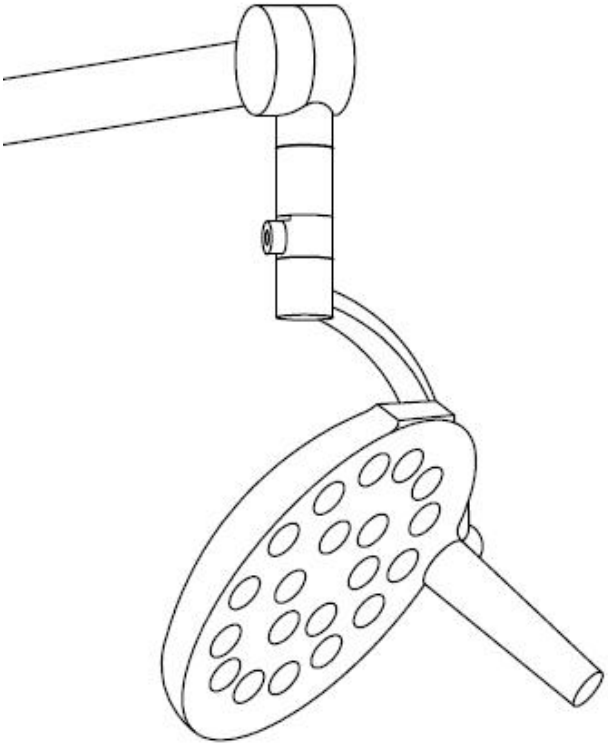
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Installation Manual of Libra LED Dental Light



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Ⅰ、Characteristics

1、General definition

1.1 General definition

This manual describes the performance, installation, debugging, operation, maintenance and troubleshooting of the surgical lights. There is other instruction for the configuration of wall-mount and mobile operating lights
The symbol on the product means: Attention! Check the random fils.



Warning:

This product is only used for surgical lighting in medical units. It is not allowed to be used for other purposes. Without the written authorization of the manufacturer, any modification of the product or components is prohibited.

1.2 Definition

The following is the meaning of the symbols used in this manual:
Note: it indicates that there is something important to be paid attention to.
Warning: any violation of these rules prior to certain operations may damage the product and endanger personal safety.

2、 Product introduction

2.1 Product Characteristics

2.1.1 Equipped with high quality balance arm, the lamp body balance is stable and reliable.

2.1.2 High quality LEDs and nice lenses are used to provide the optical properties such as illumination and color temperature required by most surgical auxiliary lighting;

2.1.3 The radiator made of aluminum material improves greatly the service life of the

LED chips.

2.1.4Sterilizable handle ensures sterile operation of lamp holder during operation.

2.1.5Continous illumination: if the one single or 6 leds in the illumination module are dark due to the troubleshooting, the left LEDs in the other module will still continue to light, no affect the used.

2.2 Technical data

Electrical characteristics		
content \ Mode	LIBRA（ceiling）、LIBRA （wall-mount）、LIBRA（mobile）	LIBRAK（ceiling）、LIBRAK (wall-mount)、LIBRAK(mobile)
Power voltage	100~240VAC	
Power frequency	50Hz	
Input power	35VA	
LED power	（3W/LED）×20 leds	
Performance characteristics		
Name	LIBRA	
Illumination	70000lx（0，-25%）	
Color temperature	Fixed color temperature	
	4000±500K	
The total irradiance	≤250 W/m2	
Ratio of Irradiance Ee to Illumination Ec	≤3.5mW/（m2-lx）	
CRI Ra	≥90	
Spot field (d10)	100mm≤d10≤250mm	

NOTE: The LED in the table has 50000 hours service life;

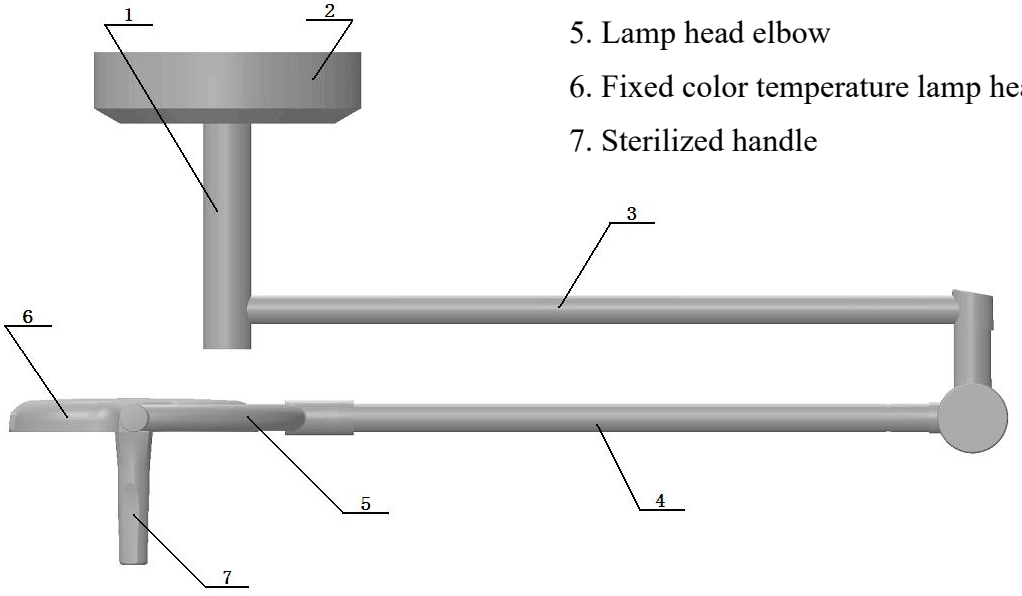
Warning：According to the standard of the GB/T20145-2006《Photobiosafety of lamps and lamp systems》，our company evaluates the blue light hazard of thses leds as category II hazard, namely medium hazard. Do not look directly at the light.



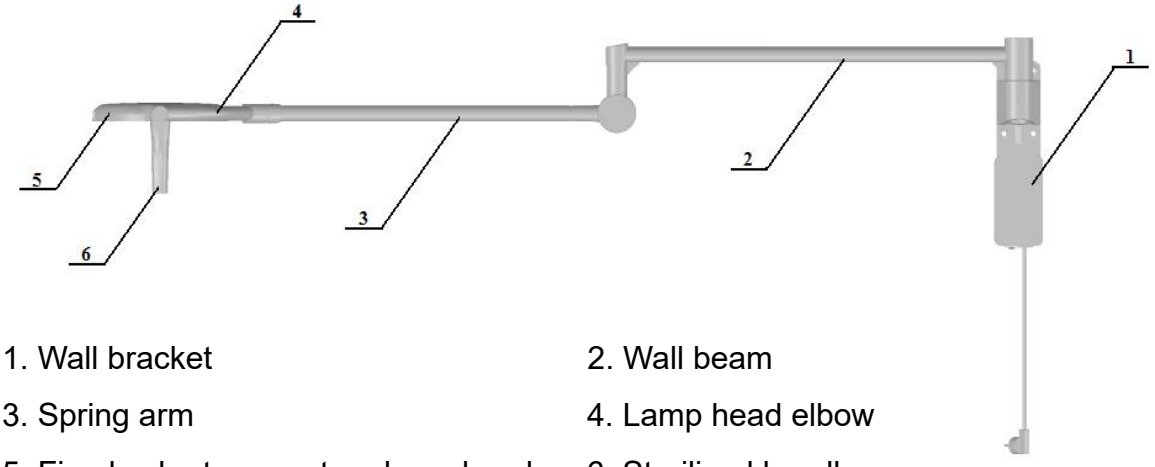
2.3 Product structure introduction

2.3.1 LIBRA（Ceiling）LED surgical light

1. central axis
2. Central axis cover
3. Rotating arm
4. Spring arm
5. Lamp head elbow
6. Fixed color temperature lamp head
7. Sterilized handle

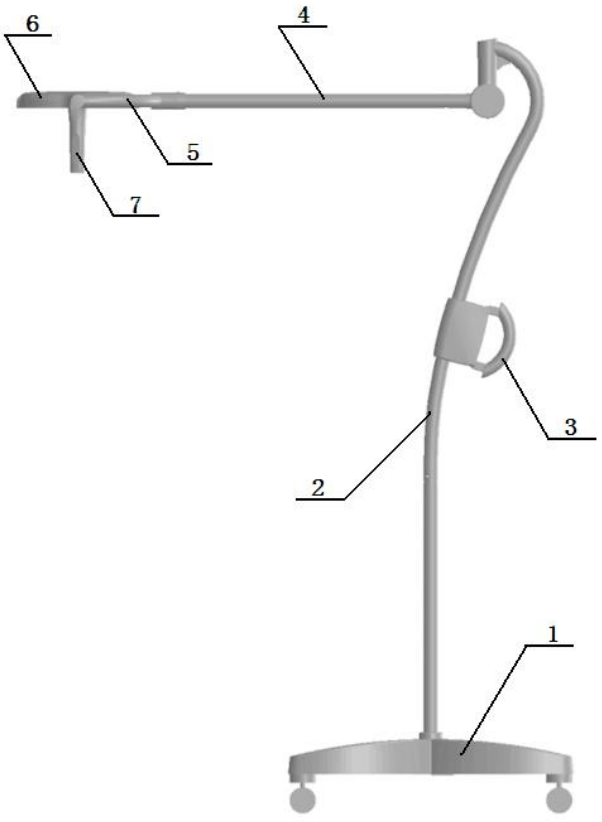


2.3.2 LIBRA（Wall Mount）LED surgical light



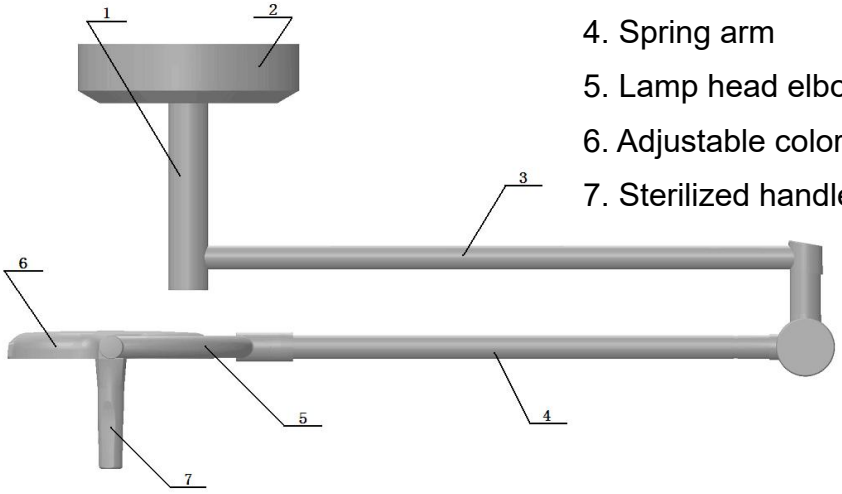
1. Wall bracket
2. Wall beam
3. Spring arm
4. Lamp head elbow
5. Fixed color temperature lamp head
6. Sterilized handle

2.3.3 LIBRA（Mobile） LED surgical light



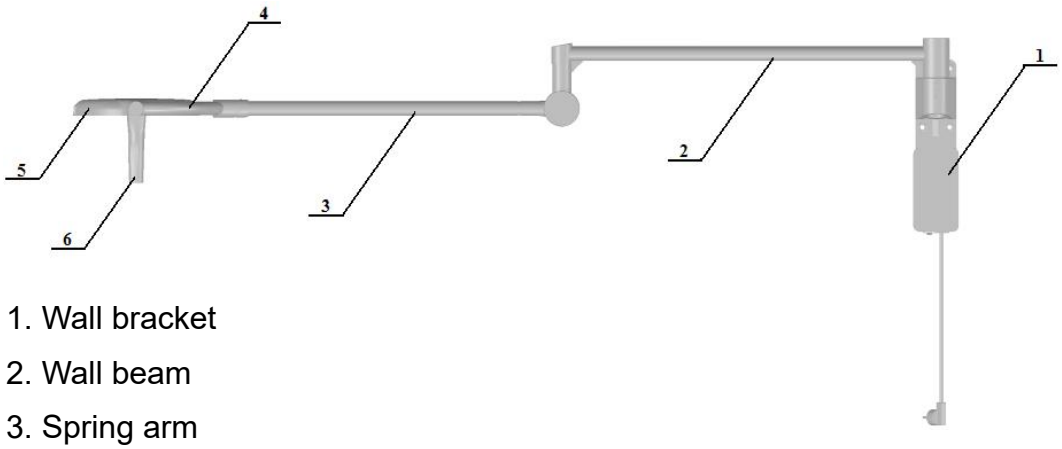
1. Mobile base
2. Standing pole
3. Armrest
4. Spring arm
5. Lamp head elbow
6. Fixed color temperature lamp head
7. Sterilized handle

2.3.4 LIBRA（Ceiling ） LED surgical light



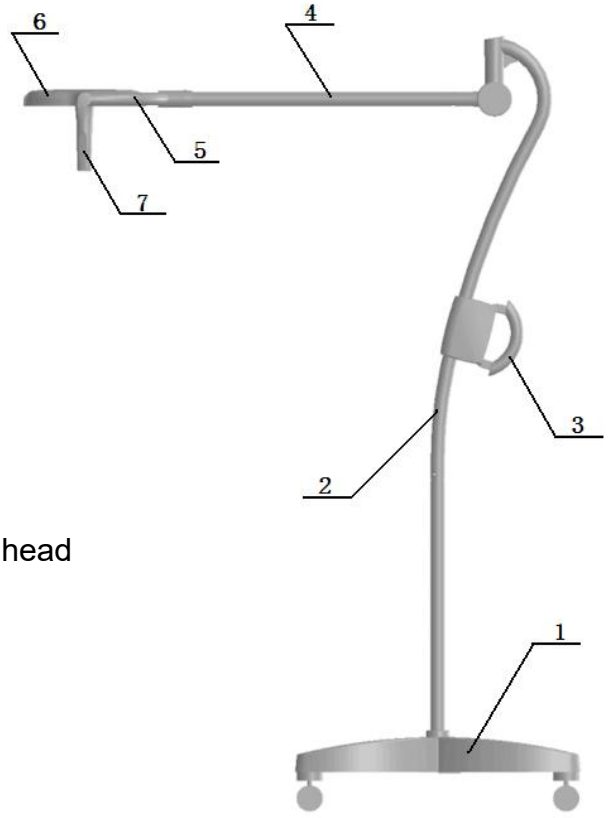
1. central axis
2. Central axis cover
3. Rotating arm
4. Spring arm
5. Lamp head elbow
6. Adjustable color temperature lamp head
7. Sterilized handle

2.3.5 LIBRA（Wall Mount）LED surgical light



1. Wall bracket
2. Wall beam
3. Spring arm
4. Lamp head elbow
5.Adjustable color temperature lamp head
6. Sterilized handle

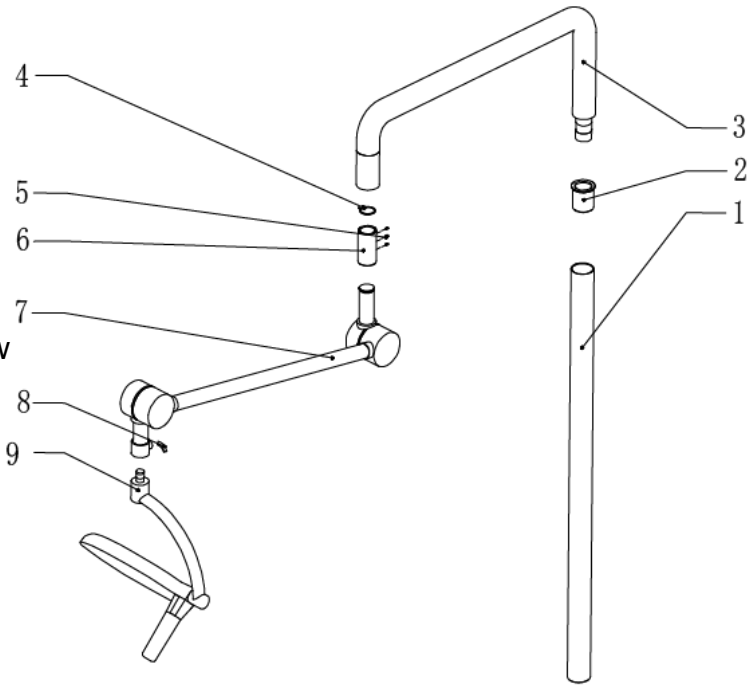
2.3.6 LIBRA（Mobile）LED surgical light



1. Mobile base
2. Standing pole
3. armrest
4. Spring arm
5. Lamp head elbow
6. Adjustable color temperature lamp head
7. Sterilized handle

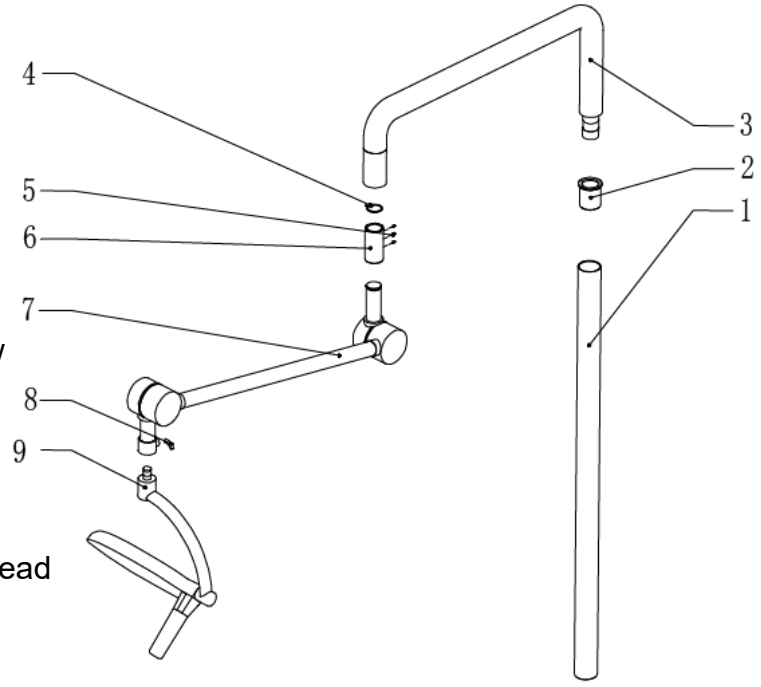
2.3.7 LIBRA（Post Mount）LED surgical light

1. Intermediate post
2. Bushings
3. DL-4 cross arm
4. Φ30 Retainer ring
5. M5*8 hexagonal rubber crown screw
6. DL-4 brass sleeve for cross arm
7. Libra lamp balance arm
8. Libra lamp fixture
9. Fixed color temperature lamp head



2.3.8 LIBRA（Post Mount）LED surgical light

1. Intermediate post
2. Bushings
3. DL-4 cross arm
4. Φ30 Retainer ring
5. M5*8 hexagonal rubber crown screw
6. DL-4 brass sleeve for cross arm
7. Libra lamp balance arm
8. Libra lamp fixture
9. Adjustable color temperature lamp head



3、 Declaration of conformity

3.1 Product type

Class	I
type	No application part
Operation mode	continuous operation
The degree of protection	Common equipment (closed equipment without proof of liquid intake) IPXO
Use place	Equipment not to be used in the environment of a mixture of flammable anesthetic gas with air or with oxygen or nitrous oxide

3.2 Product technical requirements

Implement product technical requirements。

3.3 Mandatory standard

Products fully implement GB9706.1-2007 medical electrical equipment part I: general requirements for safety (equivalent to IEC60601-1)

Products fully implement “YY0627-2008 part 2: special requirements for safety of surgical and diagnostic lights (IEC60601-2-41:2000, MOD)”

3.4 Operation Standard

Products fully implement “YY0505 -- 2012 medical electrical equipment -- part 1-2: safety common requirements parallel standards: electromagnetic compatibility requirements and tests”

3.5 Contraindications

NO

3.6 Declaration of legality

The company's products and related instructions, advertisements, samples have been reviewed and approved by the legal supervision department of the enterprise, and have legal effect.

4、 Product transportation and storage

The equipment is transported and stored in the following environment:

Ambient temperature: between -40℃ and +55℃

Relative air moisture: ≤93％

Air pressure: between 500hPa and 1060hPa

5、Product Operation

The product can be operated under the following environment：

Ambient temperature:：+10℃～＋40℃

Relative air moisture：30％~75%

Air pressure：700hPa～1060hPa

6、 Description of the safety of the environment

6.1 Disposal of packaging materials

1) wooden case -- environmentally friendly and recyclable. To be transported to designated storage points for recyclable materials.

2) Styrene packaging profiles, plastic bags -- harmful to the environment, should be transported to the designated storage point of non-recyclable materials, centralized processing.

6.2 Disposal of products

When the product reaches its service life, it must be discontinued. The dismantled products should be classified according to different materials of product components.

1) Metal parts -- environmentally sound and recyclable. To be transported to designated storage points for recyclable materials.

2) Plastic parts -- harmful to the environment, should be transported to the designated storage point of non-recyclable materials for centralized processing.

3) Glass parts -- environmentally sound and recyclable. To be transported to designated storage points for recyclable materials.

4) Electronic and electrical devices, which are harmful to the environment, should be transported to designated storage points of non-recyclable materials for centralized processing.

6.3 Electromagnetic compatibility

Electromagnetic compatibility requirements have been considered in the design of the product, and the product will not affect the environment in use.

Ⅱ、Instruction Before Installing Operating Light

1、Basic requirements

LED operating light belongs to the surgical auxiliary lighting product, which need to hang on the roof of the operating room or examination room.Therefore the safety and reliability of foundation placement is particularly important.The standard height of operating room is 2.9 meters from the ground to the ceiling.The power supply requirement of surgical lamp is ac 100~240V, 50Hz.

The basic requirements of the company's products are that the equipment can be loaded with 150 kg static load, ensuring that the stiffness and strength of the products can be borne.

Note: The user is responsible for the implementation of the foundation construction and its safety.

Ⅲ、Installation of Operating Light

1、Packing List

Model	ITEM	Quantity
Libra (Ceiling Type)	Rotation Body, Balance arm, LIBRA Lamp head(One color temperature)	1
Libra (Wall-mounted)	Wall-mounted Arm, Balance arm, LIBRA Lamp head(One color temperature)	1
Libra (Mobile Type)	Mobile light base,Mobile light prop, Balance arm,LIBRA Lamp head(One color temperature)	1
Libra (Post mount)	Intermediate post,Cross Arm, Balance arm, LIBRA Lamp head(One color temperature)	1

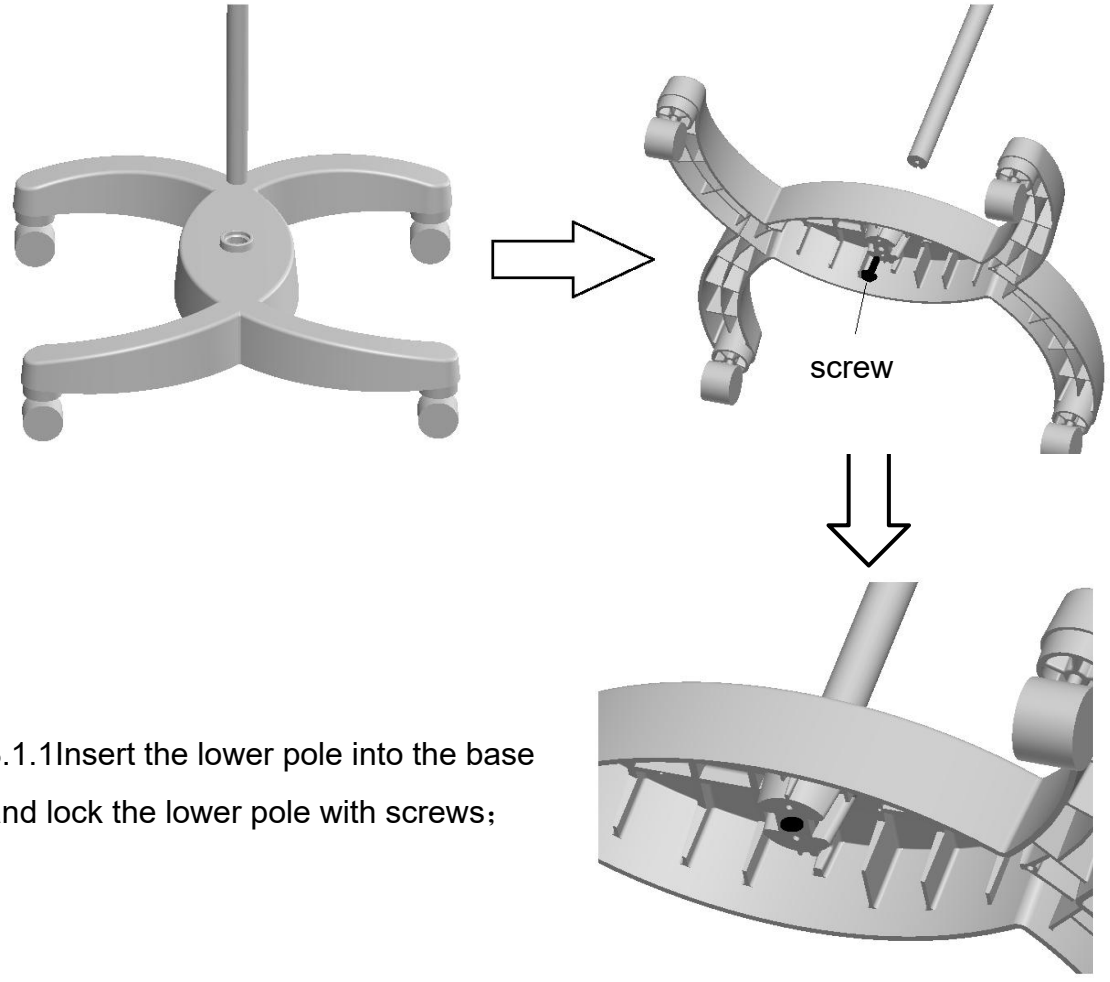
2、Unpacking

Please check the packing case according to the model. If there is any shortage or damage, please contact the shipper immediately.

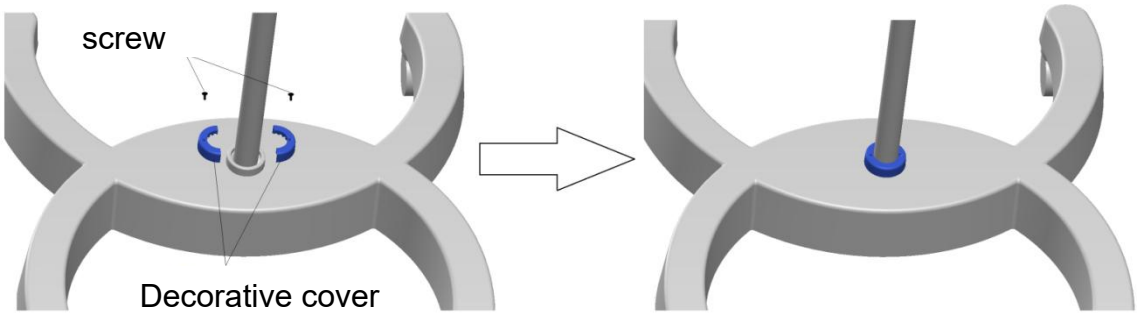
Open the packing case, Remove the polystyrene packaging profile, and take out all parts of the surgical lamp.Please check carefully according to the packing list. If there is any shortage, please contact us immediately.

3 Installation Steps

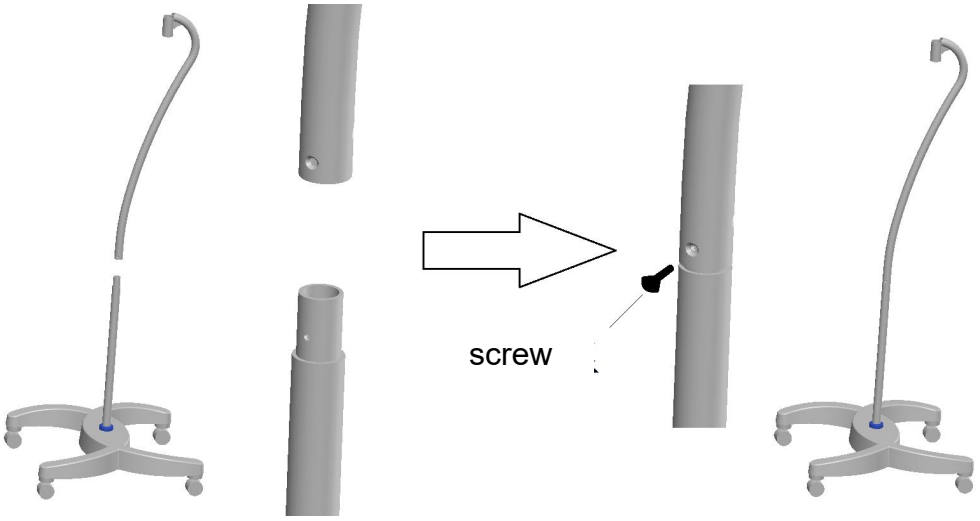
3.1 Libra（Mobile）



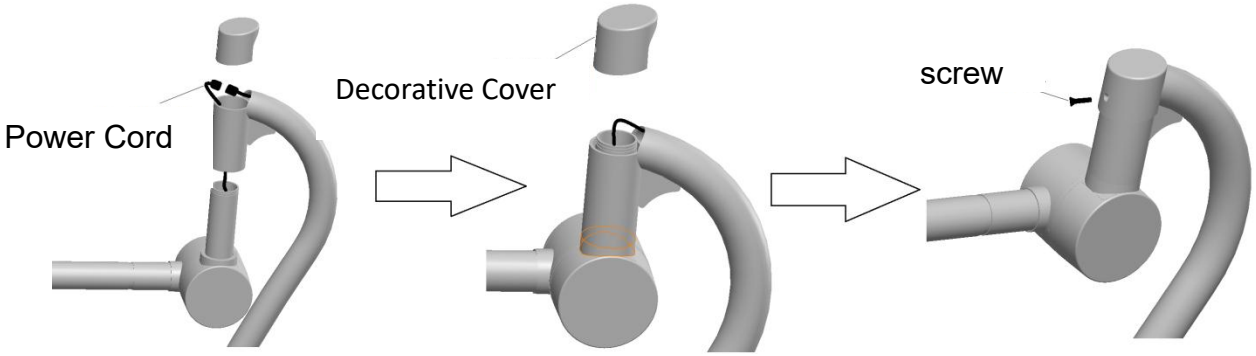
3.1.1Insert the lower pole into the base and lock the lower pole with screws；



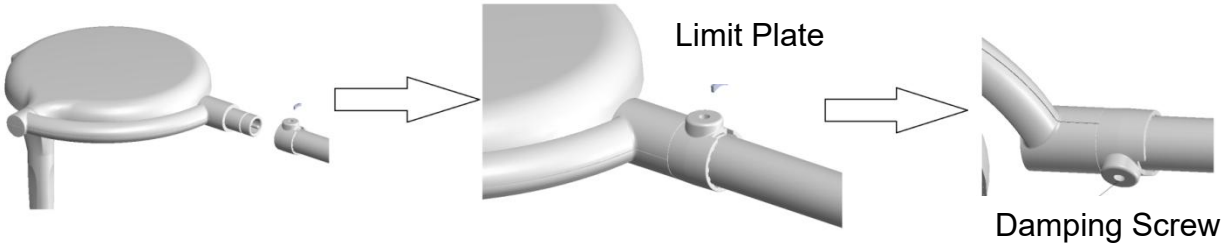
3.1.2 Fix the decorative cover on both sides of the lower pole and lock it with screws;



3.1.3 Insert the upper vertical rod into the lower vertical rod and fix it with screws;



3.1.4 Insert the balance arm into the upper pole sleeve, connect the power cord, and fix the decorative cap with screws

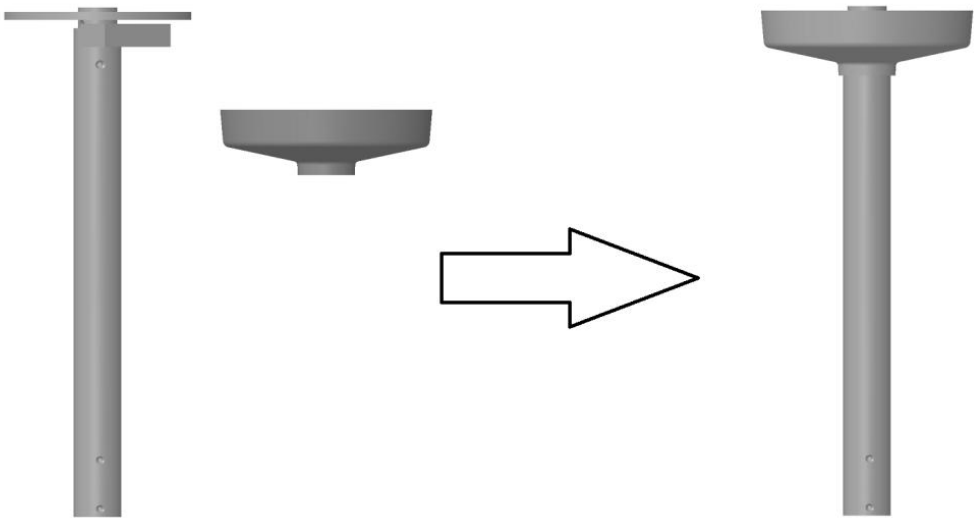


3.1.5 Insert the lamp cap into the straight arm, insert the limit plate, and lock the damping screw.

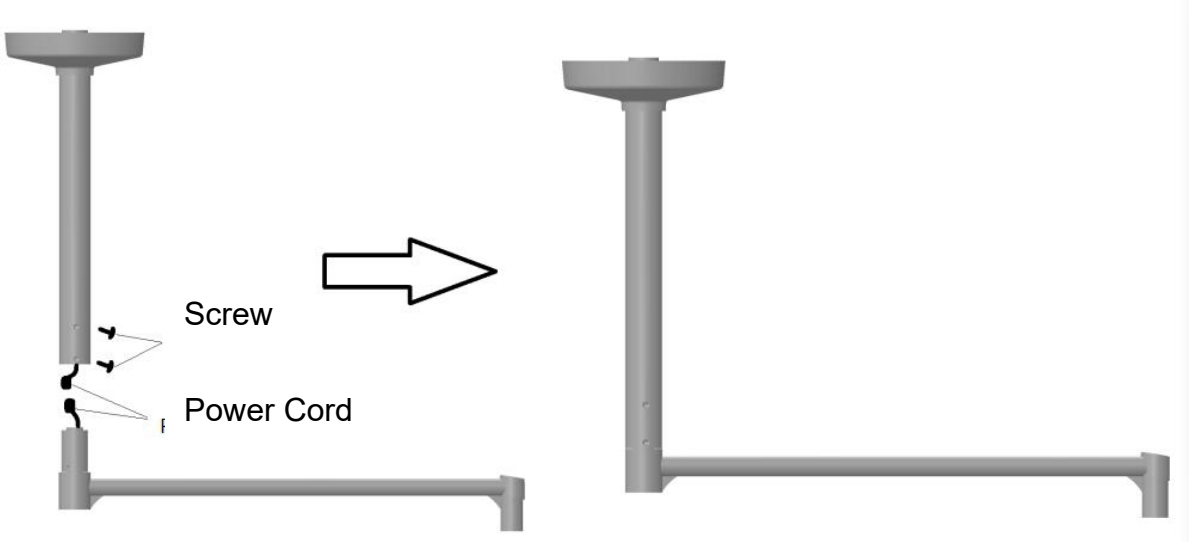
3.2 Libra（Ceiling）



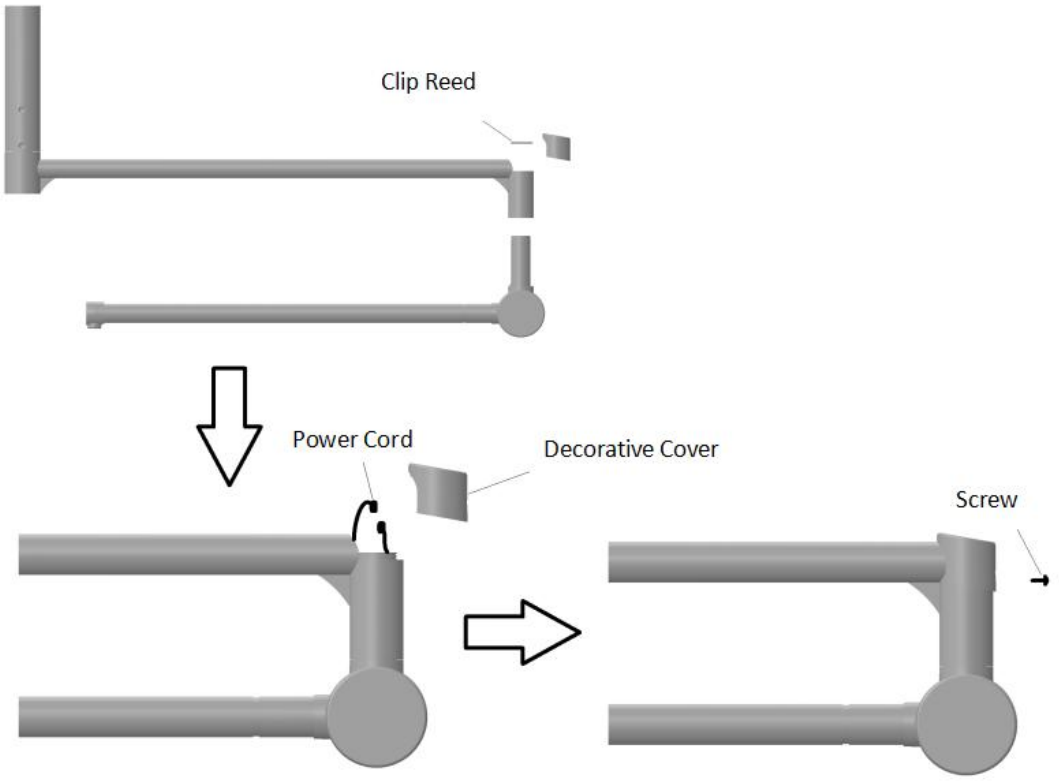
Decorative Cover Rotation body Rotation Arm Balance Arm Lamp head



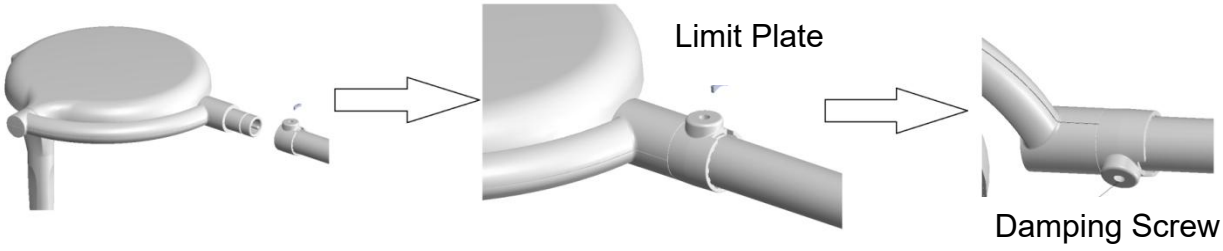
Putting the decorative cover on the rotation body.



Connecting the rotation body to the power cord of the rotary arm and fix it with screws.

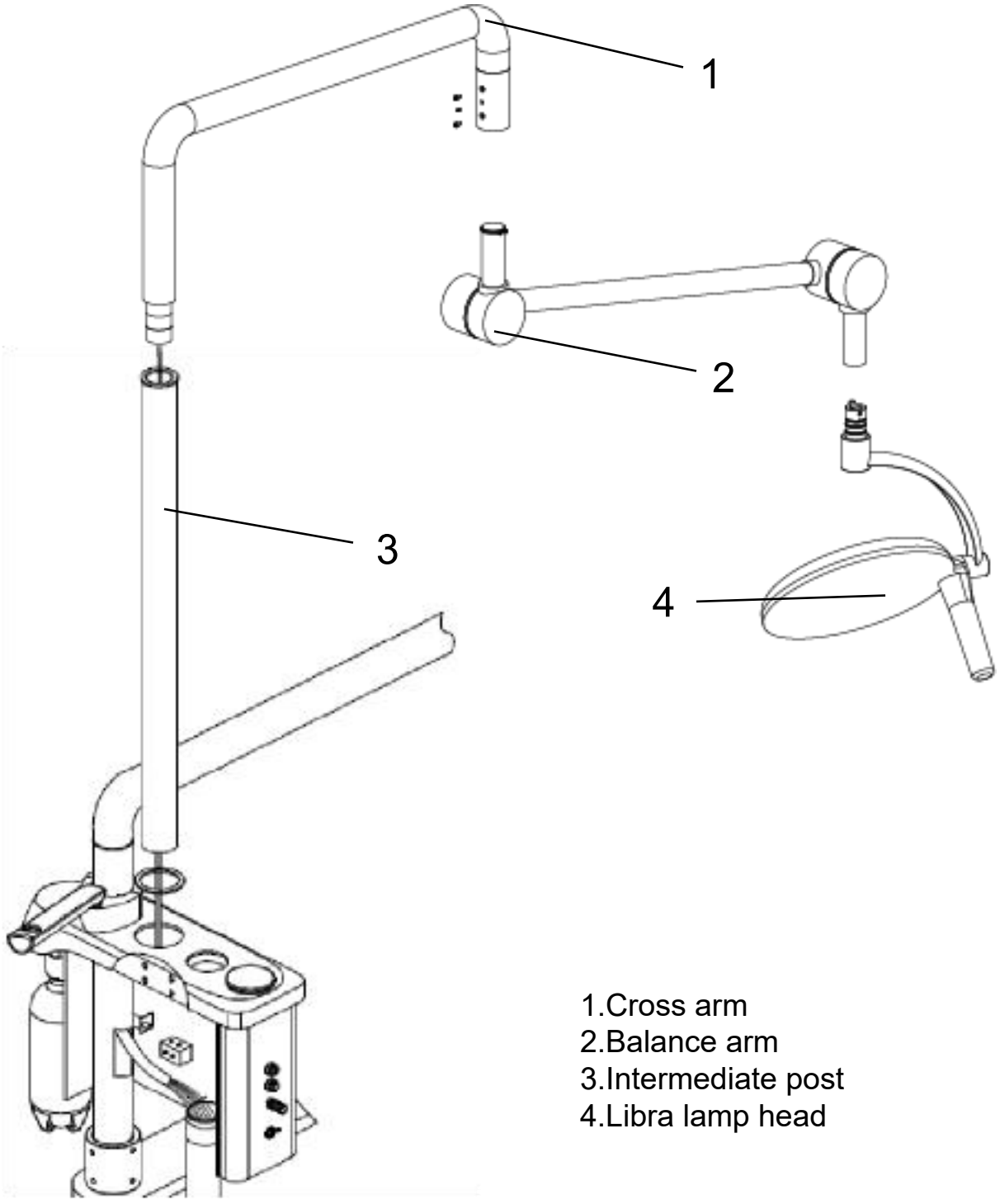


Inserting the balance arm into the rotation arm, Fix the balance arm with card reed,Then Connect the power cord and fix the decorative cap with screws.



Putting the lamp head into the straight arm and insert the limit plate.Then Locking the damping screw.

3.3 Libra（Post mount）

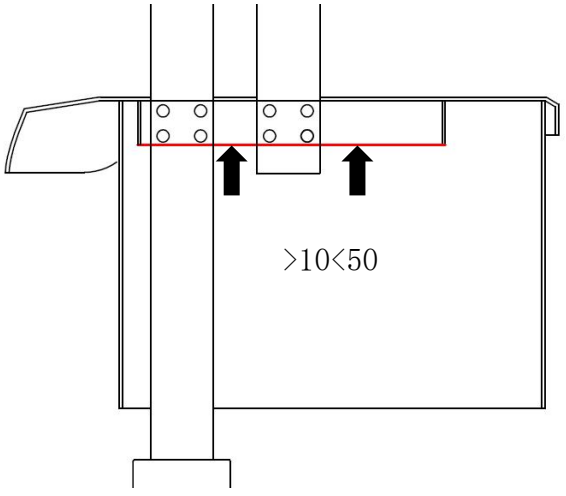


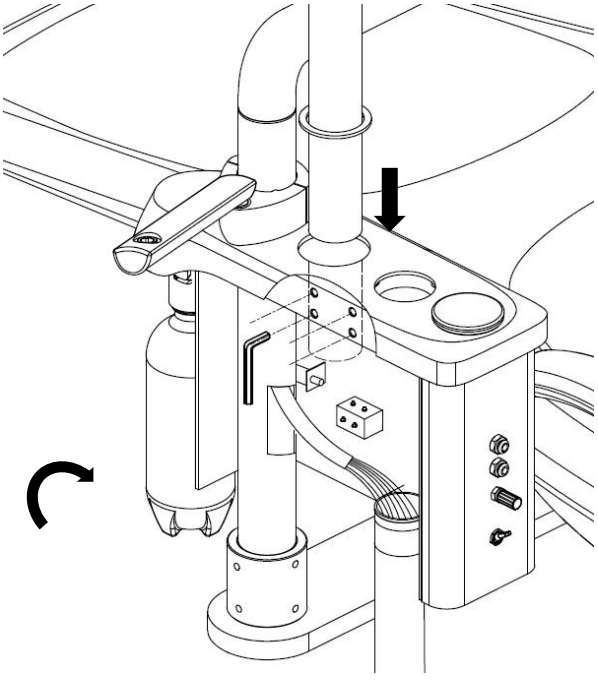
1.Cross arm
2.Balance arm
3.Intermediate post
4.Libra lamp head

Let the intermediate post pass through the plane washer, put the post into the mounting hole and fix the post with M8*10 set screws.(Move the cover of side box upward can tighten the screws easier.)

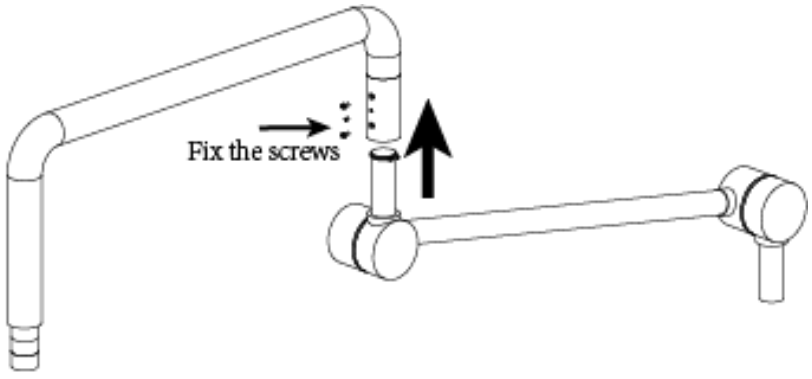
Tool:

4mm Allen wrench

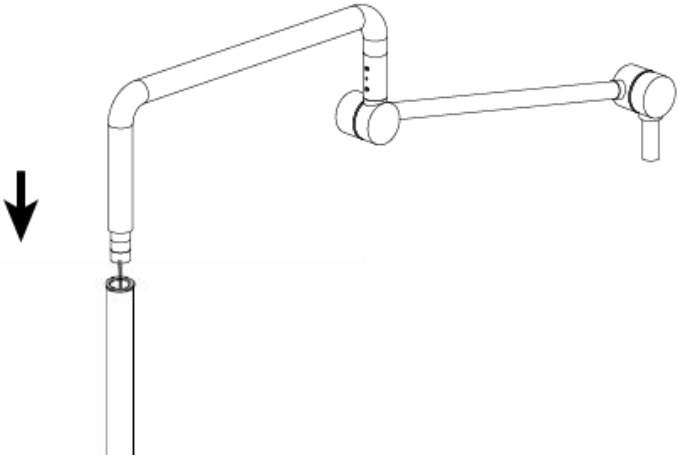




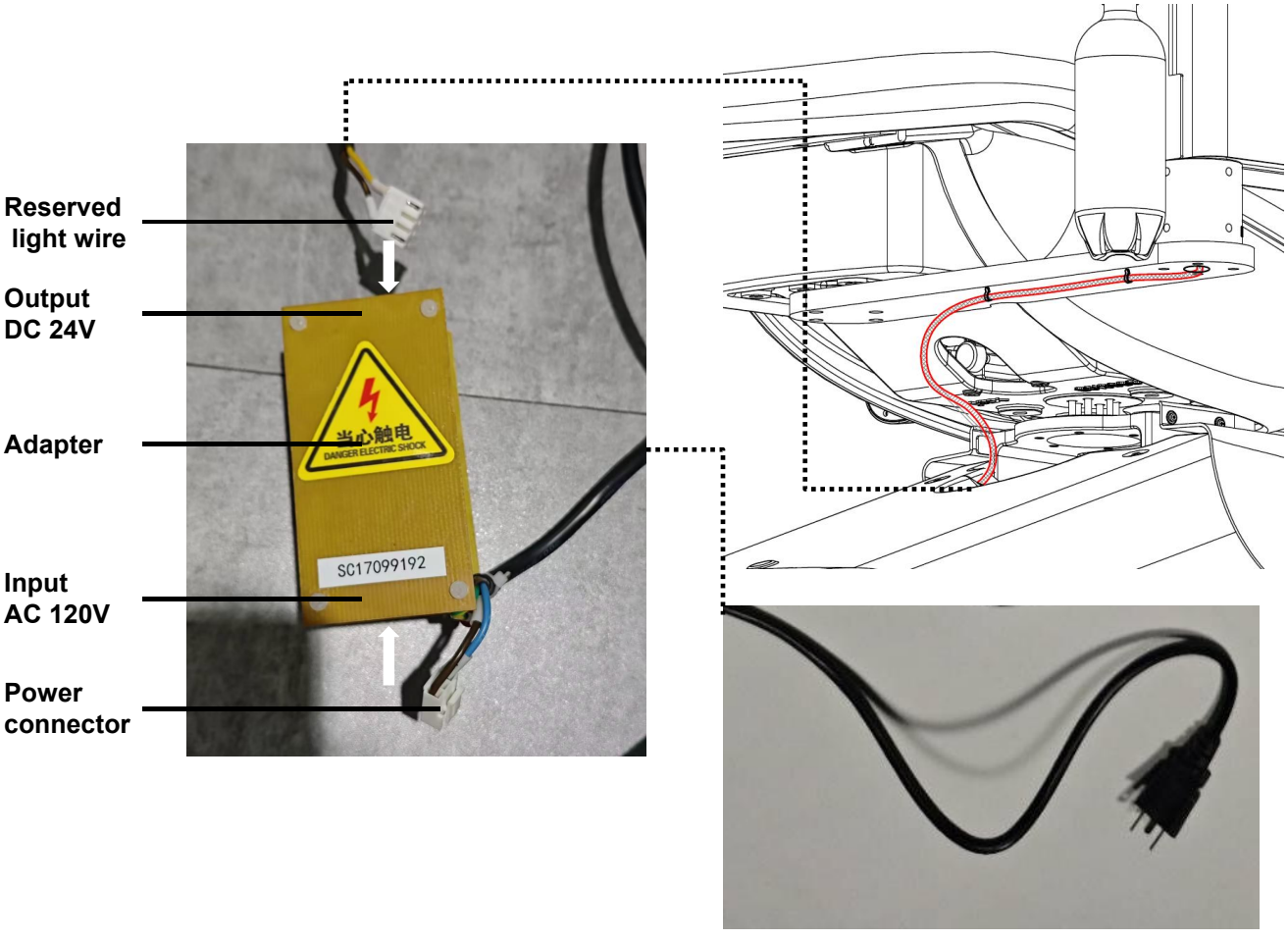
Joint the balance arm and the cross arm，and pass the light wire through the cross arm.



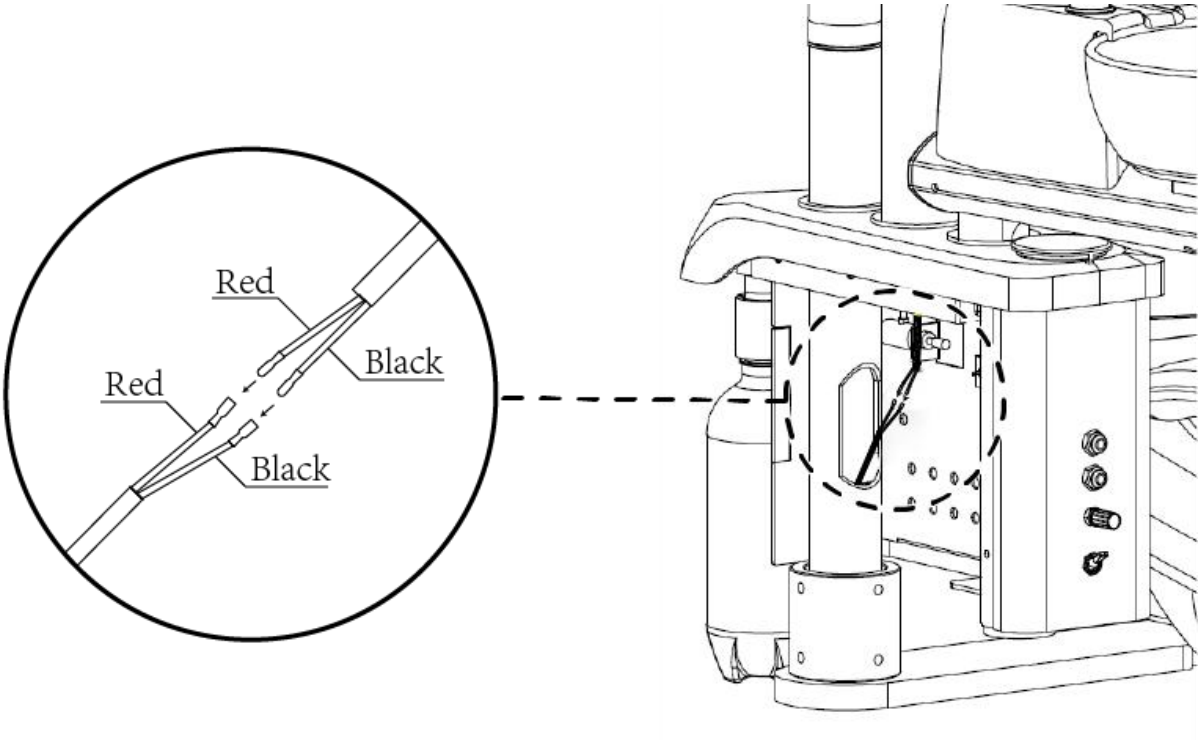
Put the connecting shaft of lamp arm into the intermediate post, let the wire pass through the post and reach to the water unit.



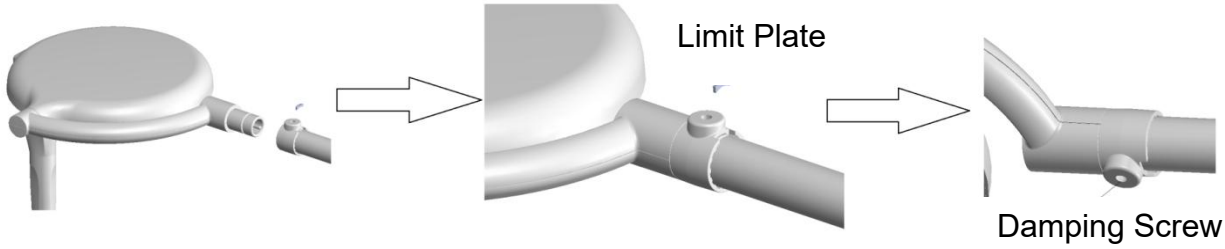
Plug the power interface into the adapter input. Fix the reserved light wire to the chair adapter output, and pass through the hole of the post as shown below.



Pull out the reserved light wire form the hole,and connect to the light wire from the itermediate post by color.



Putting the lamp head into the balance arm and insert the limit plate.Then Locking the damping screw.

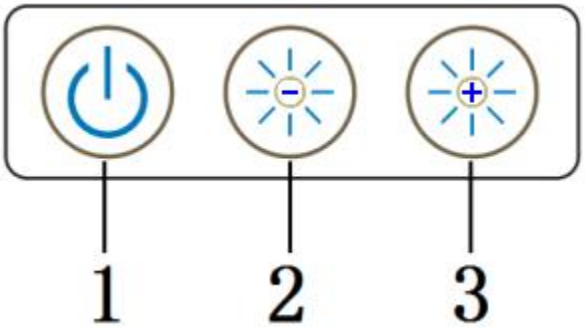


Note: Close the side box cover and fasten the screws after finishing finishing this step.

Ⅳ、Operation

Note: Before the first operation according to the contents of this section, It must be confirmed that the surgical light has been properly installed and adjusted according to the provisions of chapter "Installation of surgical light".

1、Control Button



1 Power Switch ON/OFF

2 Decrease Illumination

3 Increase Illumination

2、Movement of the Lamp position

According to the different operation site, The operating light position is also different.Before the operation,Pulling the sterilizing handle of the surgical lamp to make the rotating body rotate around the central axis, or make the balance arm rotate around the bending tube of the rotating body, or make the balance arm move up and down, or make the lamp body rotate around the balance arm to the desired position.

When the lamp position is moved to the desired position, the rotation of the lamp body around the connection tube should be achieved by pulling the sterilization handle to illuminate the surgical site.

Ⅴ、Maintenance

1. Product cleaning

After used for period of time, The product should be undertook cleanness.Such as the shell, lamp face plate can accumulate dirt, blood, humoral etc,

1.1 Shell cleaning
Scrubing with liquid wax and soft cloth not only clean the shell, but also protect the paint layer.Repeated scrubbing with available alcohol for severe contamination.
Note: Do not scrub with acidic, alkaline solutions or abrasives.

1.2 Clean the light panel
Because lamp face plate is made with macromolecule material,It will effect the illuminant badly if the panel surface has serious dirt or brush wool,Please clean it with neuter cleaner and soft cloth.
Note: Do not clean it with acidic, alkaline solutions or abrasives.

2. Handle sterilization
The sterilization handle is made of heat-resistant material, Which can be sterilized for 60min in the saturated steam by high-pressure steam at 134℃, or sterilized by medical alcohol.
Note: The laws and regulations related to disinfection of medical devices apply to this product.

3. Routine inspection

3.1 Check the connection
For ceiling type operating light.Becase it was hanging fixed product, The safety is important.It have to check the rotating body flange connecting nut and screw status regularly, It should be immediately tightened once any loose parts is found.
Follow the instructions in chapter "Installation of operating light."

3.2 Electrical Inspection
Checking the connection status of the power cord on the power panel in the top cover.If the connection is loose, tighten the connection screw immediately.Replace the connection terminals when oxidation occurs.Use the measuring resistance meter to check whether the protective grounding wire is safe.

Note: The above inspection shall be performed at least once a year.
Warning: Power must be cut off during electrical inspection.

Ⅵ、Troubleshooting

1、The fault fixed by the user

Phenomenon	Probable cause	Troubleshooting
Surgical lights don't work	Power off	Check if the power is connected
The balance is too tight or too loose	The balance arm is too elastic or too small	Adjust the spring of the balance arm
The body of rotation cannot be positioned	Damping loosening	Tighten the damper
The lamp body cannot be positioned	The screw of the lamp body connection tube is loose	Tighten the screws

Please refer to the relevant chapters of "installation of operating light" and chapter "use of operating light" for the above troubleshooting operations.

Warning: Power supply must be cut off during troubleshooting.

We reserve the right to make any alterations which may be due to technical improvements.





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