ZF500 Emergency Shadowless Operating Lamp(Mobile)

Operation, Installation and Maintenance Manual

(Technical Specifications)

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1. Summary

Dear users, welcome to use the ZF500 emergency shadowless operation lamp (Mobile):

In order to enough and effectively bring the function of the ZF500 emergency shadowless operation lamp (Mobile) into play and to master right usage and operational method, in the interest of correct repair and maintenance, please read the Instructions carefully prior to installation and use. After you understand the Instructions totally, you will use this model of lamp with high proficiency.

This set of Instructions includes the Instructions for Product Usage and the Instructions for Product Technique.

The ZF500 emergency shadowless operation lamp (Mobile) a whole reflection-styled shadowless operation lamp, is applicable to illumination of medical institutions in operation. It integrates the advantages of shadowless operation lamps produced today, and furthermore, adopts CAD/CAM technique to design the whole inflection optical system, the wholly-closed and streamline uni-lamp-body frame and the imported balancing system. In the design, the situation where it is used in a operation clean room is considered: the streamline shape and theφ500 diameter of lamp body have less resistance to the flow of purified air so as to greatly reduce the phenomena that air flows in disorder. This model of shadowless operation lamp can be used for illumination in a common small-scale operation as well as for assistant illumination in a large-scale operation.

Normal working conditions of ZF500 emergency shadowless operation lamp (Mobile):

Power and voltage: 110V±10%

Power frequency: 60HZ±1Hz

Environmental temperature: 10℃--30℃;

Environmental relative humidity: 10%--80%

Security type of the equipment: I-typed equipment and the electric shock resisting degree is B type.

Working system: continuous running

The equipment is mobile. It is unallowable to use it in the environment where there is combustible anesthetic gas. Please comply with the Instructions for antisepsis.

2. Working Principle

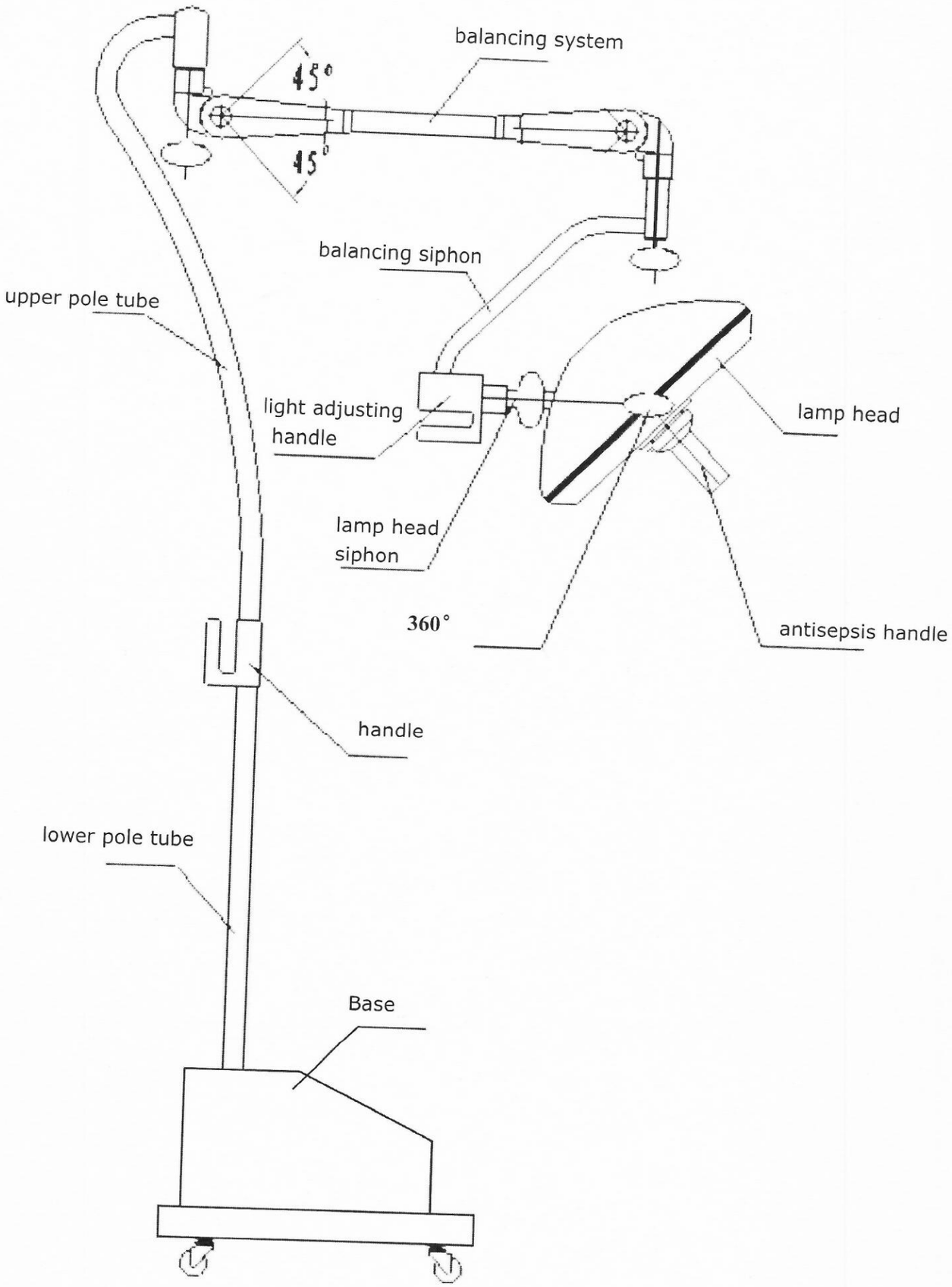
As for the ZF500 emergency shadowless operation lamp (Mobile), light from the light source will be focused at a one-meter place to form a high-illuminance luminescence facula and be used for illumination for an operated position after it is reflected by a special reflection assembled curving face.

A rotatable antisepsis handle on the ZF500 emergency shadowless operation lamp (Mobile) can be used to adjust size of the facula and the focusing distance. Also, a brightness-adjusting handle can be used to adjust photic brightness so as to meet the demands of different doctors on all kinds of

operations.

The rotating and balancing systems of the ZF500 emergency shadowless operation lamp (Mobile) are designed to meet different demands of all kinds of operations so that illumination is at an optimal angle in operations. The working principle of the rotating system is, by taking advantage of the rotation of bearing, to rotate the operation lamp by 360°to be at a required orientation and simultaneously increase the adjustable damping to make handle is light and handy and positioning is stable and reliable when the operation lamp is moved. The working principle of the

Sketch Map of ZF500 emergency shadowless operation lamp (Mobile):


balancing system
45°
45°
balancing siphon
upper pole tube
light adjusting handle
lamp head
lamp head siphon
360°
antisepsis handle
handle
lower pole tube
Base

balancing system is to pre-compress the compressing spring and generate the force needed by the lamp head through the four-linking pole structure so that the lamp head can be moved up and down smoothly and airily.

3 Technical Performance

Electrical Specification	
Description	ZF500
Supply Voltage	110V±10%
Supply Frequency	60HZ±1 Hz
Power Input	70VA
Rated power of bulb	3.2V1W
Main Fuse	F4AL 250V
Emergency time	3 hours
Performance Specification	
Description	ZF500
Rated Illumination	60,000-120,000lx
Color Temperature	3800±200K/4400±200K/5000±200K
The depth of illumination	≥600mm

***NOTICE:**

1. **When reuse the product after stopping using for one month, the battery need to recharge for more than 16 hours (make it open when recharging).**
2. **stop using the products on the moment the pilot lamp turn bright that shows short of voltage.**

Main functions

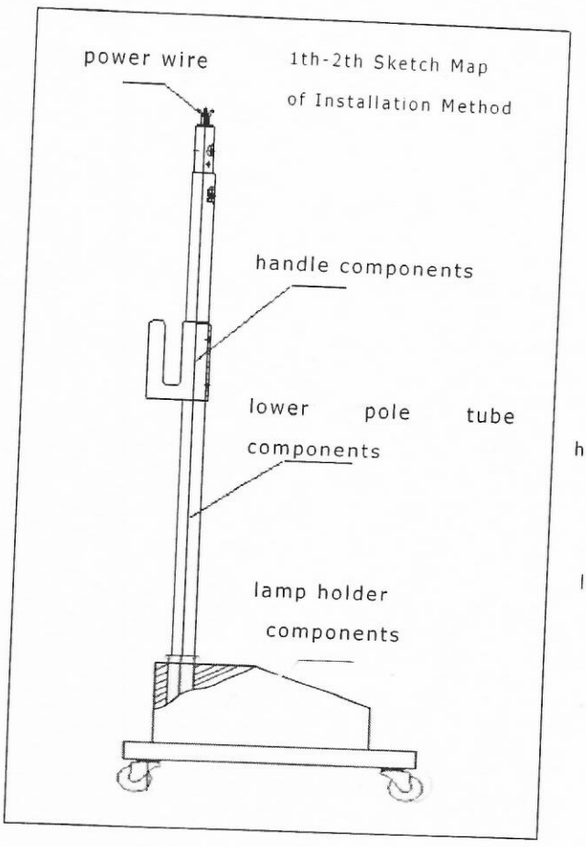
- Microcomputer digital control, with eight-section brightness selection, and having memory function and voltage negative feedback control. When the city voltage is within 110VAC±10%, the shadowless operation lamp can work as usual.

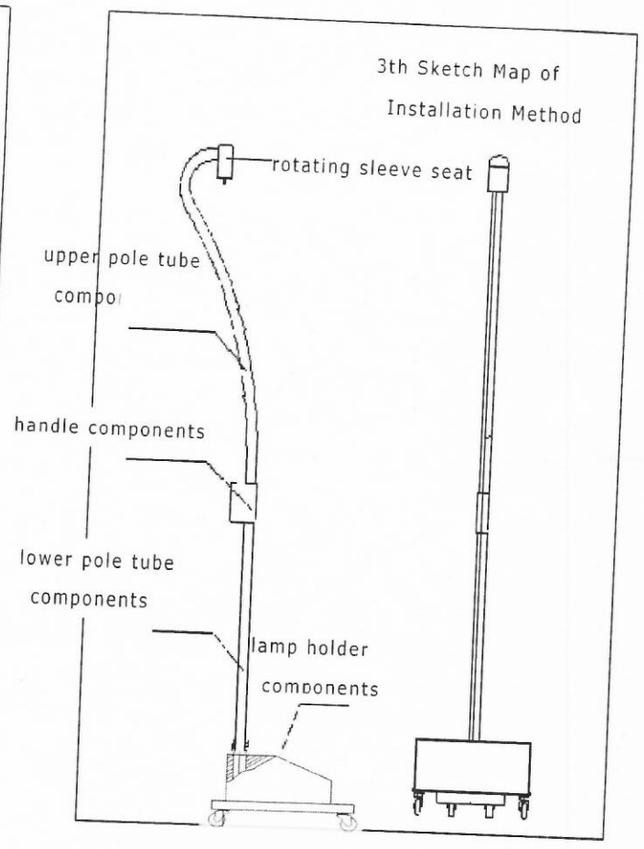
4. Installation

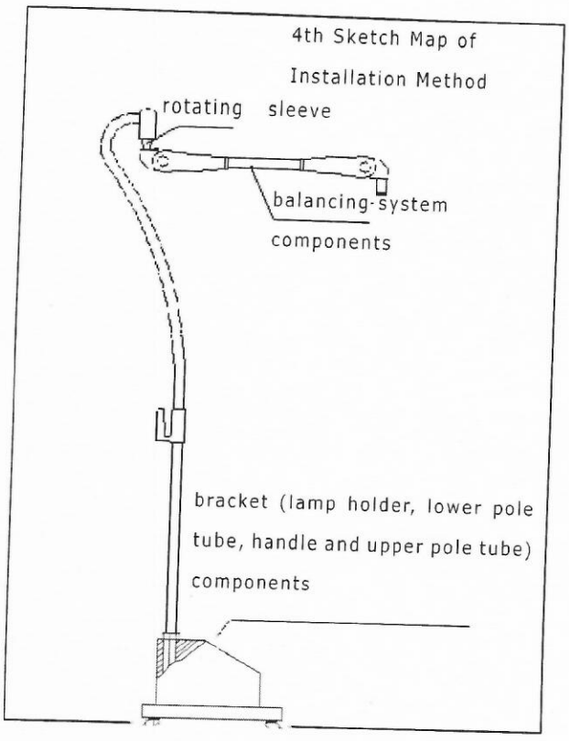
Installation method:

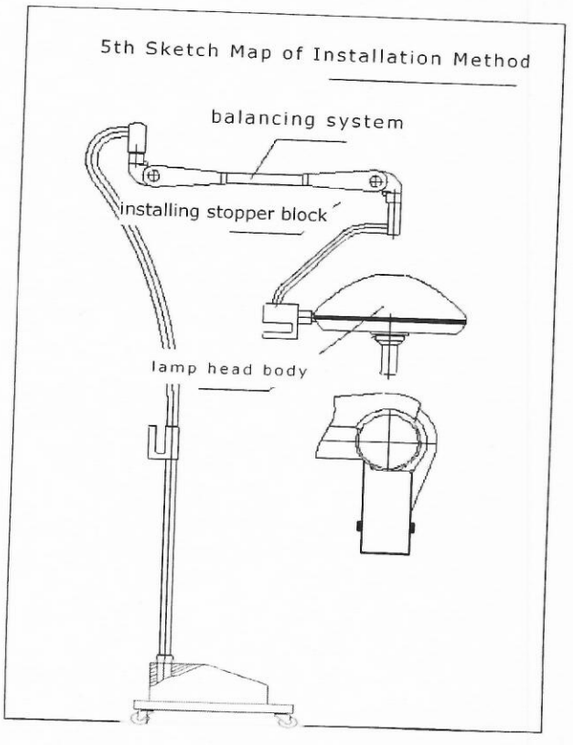
1. At first, disassemble the base tray from the lamp holder components; then, insert the lower pole tube into the hole on the lamp holder components; and finally, fasten the yellow and green wires in the lower pole tube at the earthing end of the lamp holder components by bolts. The red and yellow wires in the lower pole tube are respectively inserted into the anode plug and the cathode plug on the rectifier of the lamp holder components (Please refer to 1th-2th Sketch Map of Installation Method). **Caution: Don't connect the anode and cathode in a wrong way.**
2. Hitch up the handle to the lower pole tube (Please refer to 1th-2th Sketch Map of Installation method).
3. Connect corresponding leads, connecting and inserting components and installation positions of the upper pole tube and the lower pole tube right and screw down by bolts; then, install the handle; and finally, screw down the fastening bolts on the lamp holder to determine the direction and location (please refer to 3th Sketch Map of Installation method).
4. After rotate the balancing system components into the rotating sleeve seat of the upper pole tube, screw down the bolts in corresponding holes (please refer to 4th Sketch Map of Installation method).
5. Disassemble the bolt on sliding sleeve and the spring washer for the balancing system components and move the sliding sleeve upwards (**Caution: Don't take down the sliding sleeve.**) to take down the stopper. Insert the joint of the siphon of the lamp head into the hole on the balancing system; meanwhile, insert the stopper well. Move the sliding sleeve downwards until it covers the stopper; and then tighten the spring washer and the bolt. After the lamp head is installed well, don't forget to take the installing stopper block down from the balancing system components and fix the installing stopper block reversely at its original location (please refer to 5th Sketch Map of Installation method).

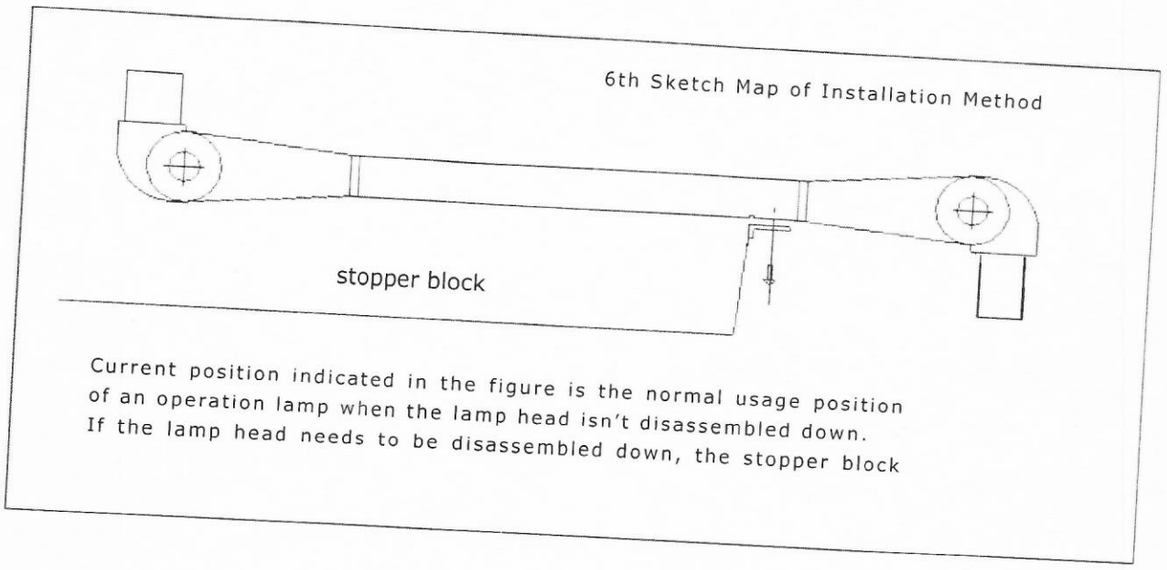
* After the installation is over, it is required to clean and tidy up.


power wire
1th-2th Sketch Map
of Installation Method
handle components
lower pole tube
components
lamp holder
components


3th Sketch Map of
Installation Method
rotating sleeve seat
upper pole tube
compo
handle components
lower pole tube
components
lamp holder
components


4th Sketch Map of
Installation Method
rotating sleeve
balancing system
components
bracket (lamp holder, lower pole
tube, handle and upper pole tube)
components


5th Sketch Map of Installation Method
balancing system
installing stopper block
lamp head body



5. Operation and Usage

1. Plug in before an operation (The light green indicator light indicates that the equipment has been electrified). Pull out the power plug after the operation. The equipment realizes the current-break through the power plug and the LAN power. Switching on and off of the lamp head is controlled by a on-off button. When the lamp is switched on, there is a time delay in lighting. According to the demand of an operation, the brightness increasing button or the brightness reducing button can be pressed to adjust illuminance of the light.

2. The handle on the siphon of the lamp head should be used to move the lamp head up and down and swing the lamp head left and right.

3. The antisepsis handle can be rotated to adjust the size of a facula.

4. The structure of the focusing system is refined. When a bulb is replaced, the ceramic seat should be replaced.

5. The light adjusting handle can be used to adjust the brightness and darkness of light (please refer to the explanation for icons on a light adjusting handle under Section 9 Explanation for Signs).

6. When there is a failure in the primary bulb, the electronic circuit board in the lamp head will automatically switch the circuit of the primary bulb to the circuit of the accessorial bulb and turn on the accessorial bulb; meanwhile, the alarm indicator light of the primary bulb will illuminate to give an alarm. After an operation is over, the bad bulb should be replaced in time (please refer to Point 1 under Section 7 Failure Elimination and Repair & Maintenance).

7. The equipment realizes the current-break through the power plug and LAN powe.

6. Safety

1. Regularly (once a year) examine the connecting status of all joints on a shadowless lamp in order to prevent loosing and falling off of all components on a shadowless lamp.

2. When a shadowless lamp is installed and wired, the lead wire must be connected firmly.

3. After an operation is over, the power plug should be pulled out.

4. Only after a balancer and a lamp head are installed could the bolt on a stopper block be disassembled down and the stopper block is installed well reversely. Till then, the lamp head can be moved up and down. When the lamp head is disassembled down, the stopper block should be installed in its original way in order to avoid a serious casualty induced by an abrupt bounce of the balancer that is caused by not installing the stopper block in its original way. (Please refer to 6th Sketch Map of Installation Method).

7. Failure Elimination and Repair & Maintenance

1. Replacement of a bulb (please refer to 7th Sketch Map of Installation Method)

Caution: When a bulb is replaced, the power plug must be pulled out to cut off power; moreover, the bulb can't be replaced until it cools down!

First step, push a thumb into the lock hook of antisepsis handle and disassemble down the antisepsis handle. Second step, use a screwdriver to disassemble down the light source components. Finally step, replace the bad bulb after it cools down. The bulb is replaced, while the ceramic seat is replaced. **Caution: Don't hold a new bulb by a hand directly in order to avoid leaving a fingerprint on it and further affecting the light source.**

2. Prior to an operation, disassemble the antisepsis handle down and disinfect it with the alcohol solution with a concentration of 75%. The antisepsis handle can also be sterilized under a high temperature of 134℃ and a high pressure.

3. Use glass detergent to clean the lamp panel on the lamp head. **Caution: Don't use organic solvent to clean the handle, the antisepsis handle and the lamp panel.**

4. When an operation is over, LAN power must be cut off in order to prevent that the transformer from being in working state for a long time.

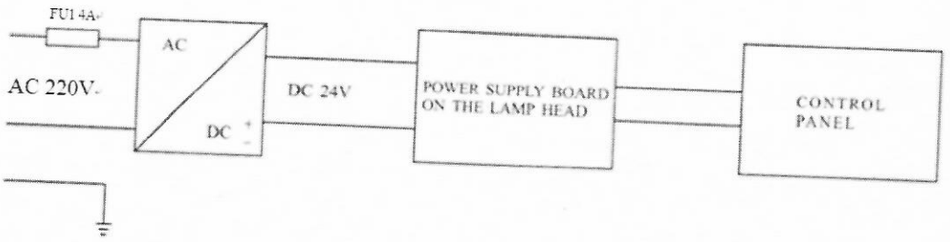
Failure analysis and elimination method:

Failure phenomena	Failure reason	Correction method
An operation lamp is unable to be switched on	The fuse is bad	Turn on the on-off or replace the fuse
Failure indicator light I or II illuminates on the control panel	A failure in the primary or accessorial halogen lamp	Replace the bad halogen lamp
Brightness control doesn't work	A focusing device isn't inserted appropriately	A focusing device is inserted appropriately

*** A failure in the balancing system should be repaired by a professional.**

Packing List	
SY02-LED3E	
1、Base	1
2、Lower pole tube	1
3、Handle	1
4、Upper pole tube	1
5、Spring arm	1
6、Lamp head	1
7、Fuse	2
8、Instruction	1
9、Qualified certificate	1

8. Icon



Circuit Diagram of ZF500 emergency shadowless operation lamp (Mobile)

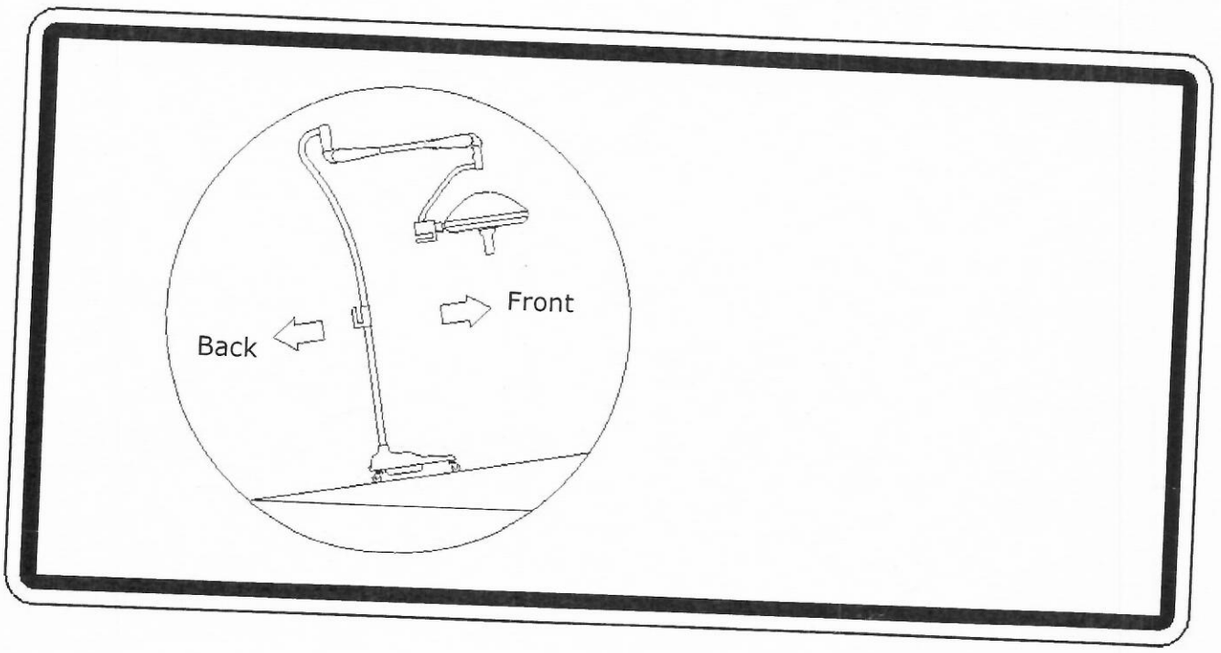
9. Explanation for Signs



The sign on a lamp head indicates that a bulb can't be replaced until the current-break is realized through the power plug and the LAN power and the bulb cools down.



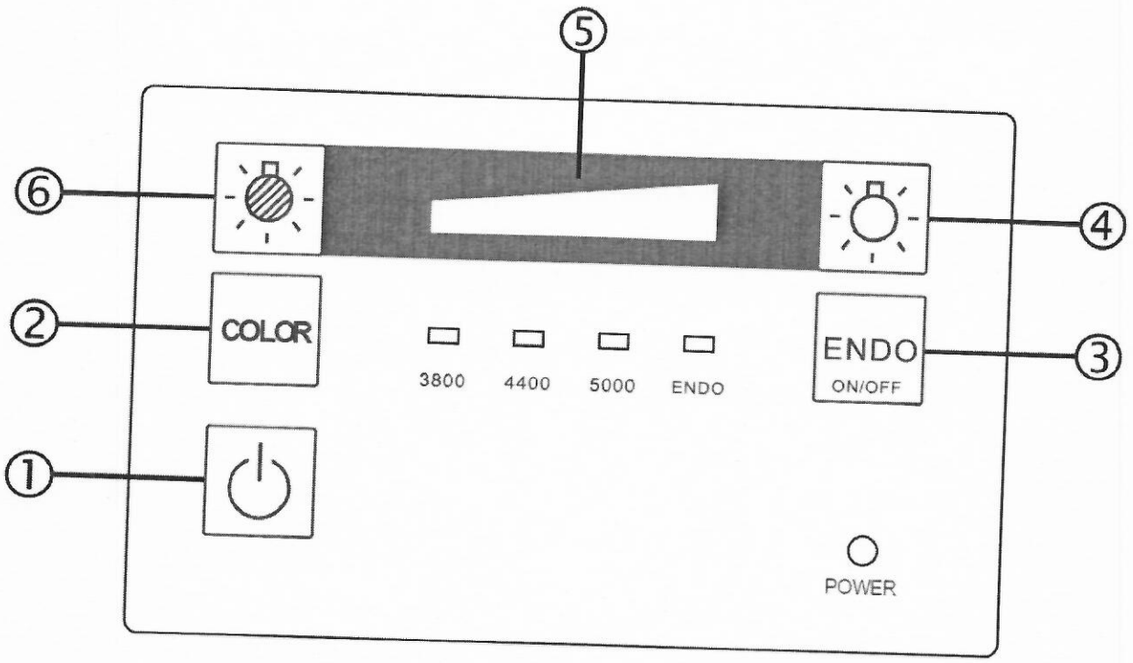
The sign on a factory brand indicates that the equipment is B-type one.



The sign on a lamp holder indicates

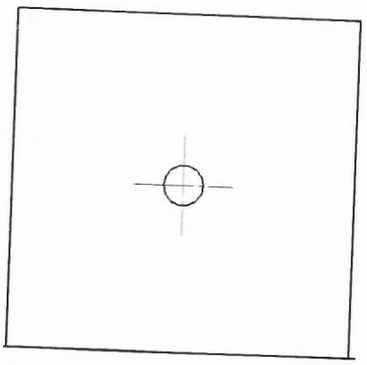
Front: When a lamp is moved upgrade, the lamp head must be in right front.

Back: When a lamp is moved downgrade, the lamp head must be in the directional position indicated in the icon.



Explanation for icons on a light adjusting handle

1. On-off of lamp head
2. Color:adjust color temperature
3. ENDO:on/off
4. Brightness increasing button
5. Brightness display
6. Brightness reducing button



Caution: Anode "+" is connected to the red wire
Cathode "-" is connected to the yellow wire

The sin in a lamp holder indicates that the anode and cathode of wire connection should be cared at the time of installation. The anode "+" is connected to the red wire and the cathode "-" is connected to the yellow wire.

10. Environmental Condition for Transportation and Storage

1. Relative humidity: 10%——100%
2. Environmental temperature: -40℃——+70℃
3. Without corrosive gas and with good aeration
4. Indication for transportation and storage: guard against humidity, put down carefully and don't place upside down.