



LS-3/4 Slit Lamp Installation Training

Made by Sally

Installation Environment

- Environmental conditions: Temperature: $5^{\circ}\text{C}\sim 40^{\circ}\text{C}$; Relative humidity: not more than 95%; Atmospheric pressure: 500 hPa \sim 1060 hPa.
- Power supply conditions: Voltage: a.c.220 V; Frequency: 50 Hz.
- Input power: 400VA
- The environment is dust-free, vibration-free, and free of strong electromagnetic field interference.

Packing box status



Optical body and panel box unpacking diagram

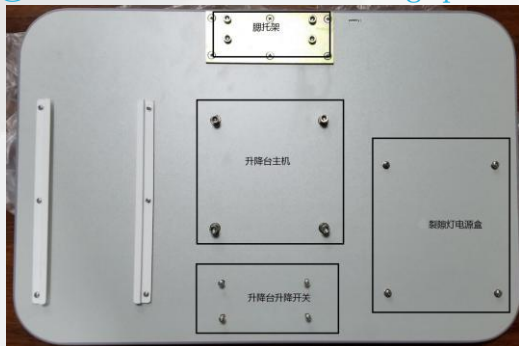
Installation sequence:

Install the lifting switch of the lifting platform → Install the main unit of the lifting platform → Install the rollers of the lifting platform → Install the cheek rest → Install the slit light optical body → Connect the wires

1. Install the lifting platform

1.1 Install the lifting button

① Take out the lifting platform panel and place it on the foam floor



② Unscrew the lifting switch screw, then install the switch and tighten the screw.



1.2 Install the lifting platform host

①Take out the lifting platform host, unscrew the screws, align them with the holes, and tighten the screws



②Install the lifting platform roller, take out the roller and screws, put the wheel upward, align it with the hole, and tighten the screws





1.3 Install the power box

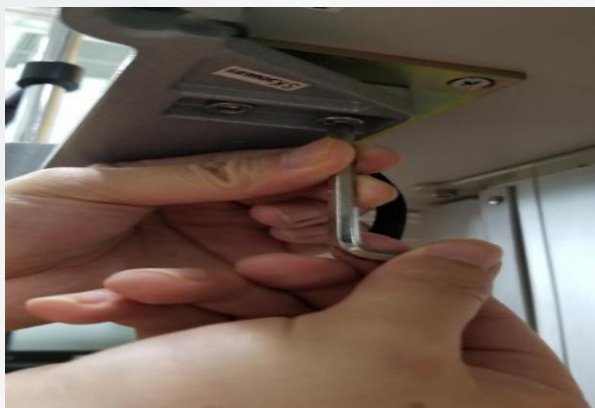
Take out the slit lamp power box, unscrew the screws, align them with the holes, and tighten the screws



1.3 Install the chin rest

Put the installed lifting platform upright on the ground,

take out the chin rest, unscrew the screws, align the holes, and install the chin rest



2. Install the slit lamp body

① Take the device out of the picture, pass one hand under the arrow 2 and lift the device. Use the other hand to lift the device at the arrow 1, place it on the iron plate, and remove the protective bag; Note: When lifting the arrow 2, do not lift it to the arrow 3



② Install the guide rail guard groove. When installing, pay attention to the bottom edge first, corresponding to the hole position, operate with both hands, one hand on each side, and press hard at the same time



3. Connect the cables

①Take out the stepless dimming line, connect one end of the straight line to the K2 port of the power box, and connect the elbow end to the base of the slit lamp.



②Take out the power adapter cable,
connect the end without the pin to the power box, and connect the end with the pin to the lifting platform.



③ Connect the bottom wire of the chin rest to the power box K1,
and the top wire of the chin rest to the slit lamp head.



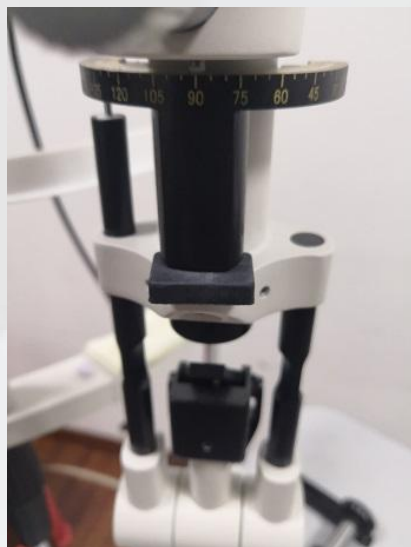
④ Connect the main light source power supply

Install the main light source power plug according to the diagram and direction.

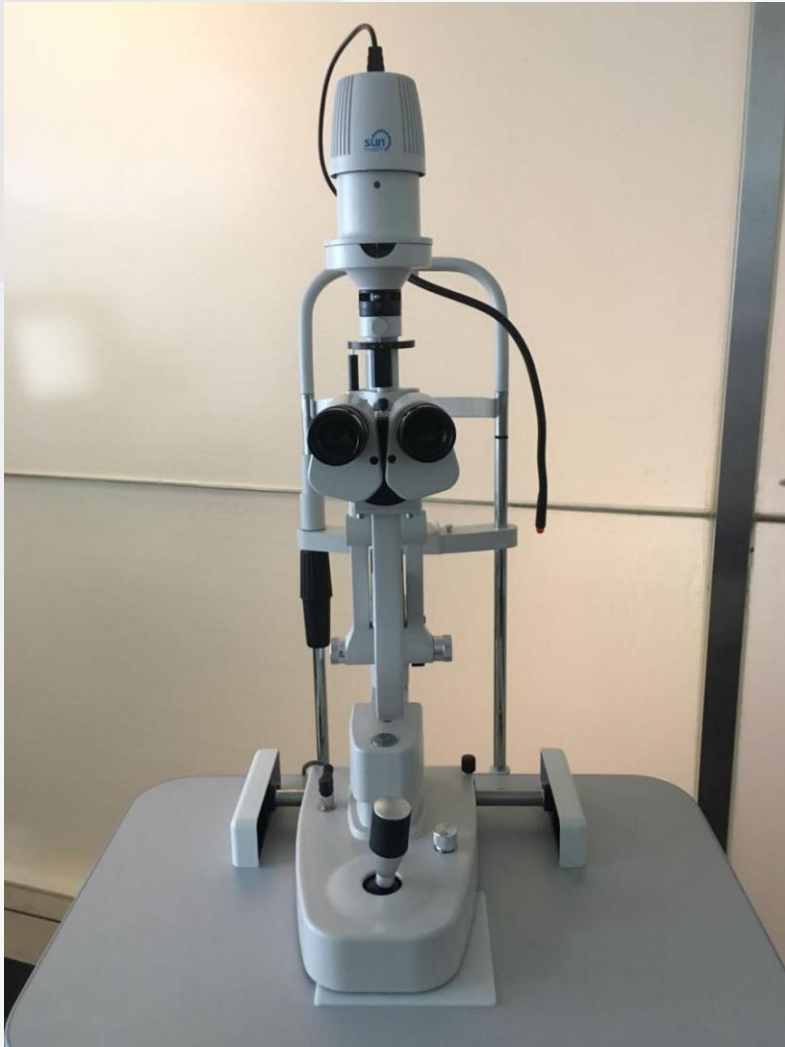


4. Remove the protective pad

Remove the protective pad at the position shown in the figure and put it in the tool box



5. Installation completed



List of materials

1 Check the items according to the packing list, and the actual items are consistent with the packing list;

Optical performance:

1 Plug in the focus stick, select the No. 14 spot, open the slit to the maximum, the magnification is 16 times, and adjust the pupil distance to the minimum and maximum respectively. The spot image observed through the eyepiece will not leave the field of view;

2 Plug in the focus stick, select the No. 5 spot, open the slit to the maximum, and the spot observed at the maximum magnification cannot deviate from the field of view. Switch between magnifications, and the spot seen through the eyepiece is located in the center of the field of view;

3 Plug in the focus stick, select the smallest spot, adjust the slit width to $1/2$ of the spot diameter, rotate the lighting arm 45 degrees left and right, and observe with the eyepiece at a magnification of 16 times. The slit image deflection shall not exceed one times the slit width;

4 Plug in the focus stick, select the No. 14 spot, the lighting arm is at 0 degrees, and the diopter is adjusted at a magnification of 16 times to make the eyepiece image clear. At this time, the images of the remaining magnifications observed through the eyepiece without adjusting the diopter are clear;

Structure and function

- 1 Plug in the focus stick, select the No. 14 spot, when the crack is the thinnest, turn on the light to the brightest, and observe with the eyepiece at a magnification of 16 times. The crack is symmetrical and consistent up and down, without breakpoints;
- 2 Plug in the focus stick, select the No. 14 spot, open the crack to the maximum, and observe with the eyepiece at a magnification of 16 times. Switch to different filter positions to observe the spot. The brightness and color of the spot should be uniform, without dirty spots or stains, and color difference is allowed within 0.1mm of the edge;
- 3 Plug in the focus stick, select the No. 14 spot, and the magnification of 16 times. Check whether the spot image of the eyepiece is in the center of the horizontal direction of the field of view, that is, the distance between the spot and the edge of the field of view is consistent on the left and right;
- 4 Plug in the focus stick, select the No. 14 spot, and observe with the eyepiece at a magnification of 16 times. When adjusting the crack width, the crack image is symmetrical on the left and right and the movement is synchronized;
- 5 Insert the focus stick, open the slit to the maximum, observe with the eyepiece at a magnification of 16 times, switch each spot, the outline is clear and round, without burrs;
- 6 Insert the focus stick, select the smallest spot, open the slit to $1/2$ of the spot diameter, observe with the eyepiece at a magnification of 16 times, at this time the width of the slit should be uniform without divergence at both ends or inconsistent width, adjust the illumination body to observe the horizontal slit at 0° and 180° , the height difference of the slit in the two states shall not exceed one times the slit width;
- 7 Insert the focus stick, select the smallest spot, open the slit to the thinnest that is clearly visible, observe with the eyepiece at a magnification of 16 times, at this time the width of the slit should be less than $1/4$ of the spot diameter, adjust the illumination body to rotate the slit from 0° to 180° , and the slit will not close during this period;
- 8 Switch different aperture disc and color filter disc gears, when the aperture disc and color filter disc are both in gear, there is no stray light around the spot;
- 9 Switch the aperture disc and color filter disc to different gears. When both are in the gear, the brightness and color observed by the left and right eyes are consistent.

Appearance

- 1 The appearance of the equipment should not have defects such as bumps, scratches, local deformation, etc. The sprayed plastic and painted parts should not fall off, peel off, or have bubbles. The equipment logos should be clear and correct;
- 2 The nameplate should be pasted in a standardized and firm manner, with correct content and clear text without missing items;
- 3 The main plane 30CM observation of the slit lamp should not have any paint loss, paint repair marks, or color difference; the secondary surface should not have paint loss; there should be no grinding marks; the base axis should not have oil accumulation and flow;
- 4 30cm visual observation of the same type of outer surface shape, finish, aperture shape, and depth;
- 5 Screws: The same part and the same type of specifications and sizes are consistent, and the screw mouth should not have visual damage;
- 6 Whether the appearance of the slit lamp is clean and free of any rust; the surface of the slit lamp lens: whether the reflector, large objective lens, and eyepiece are clean and free of stains and fingerprints;

Mechanical properties

- 1 Whether the base is flexible up and down, left and right, front and back, with consistent force and no abnormal noise;
- 2 The base handle is flexible to micro-move, can be positioned at any position without slipping;
- 3 The base is firm and reliable after being locked;
- 4 The lighting arm and the optical body bending arm are flexible to rotate. When the lighting arm is in the gear position, the lighting arm will work together when the optical body is rotated; lock the optical body arm and move the base, and the lighting arm will not move;
- 5 The adjustment of the slit, the aperture adjustment, and the color filter are uniform and flexible, and the adjustments do not affect each other. The lighting arm will not rotate during adjustment;
- 6 When the lighting arm is in the gear position, the lighting arm will not rotate with the adjustment of the slit rotation. The three gears of adjusting the slit rotation (0° , 90° , 180°) are obvious, and each gear can be accurately positioned and the slit will not tilt after positioning;
- 7 The strength of the lighting arm in forward and reverse adjustment of the slit is consistent, and it can stop at any position, and the slit will not slide down automatically;
- 8 The four-gear adjustment of the slit inclination is flexible and has a gear sense (5 degrees, 10 degrees, 15 degrees, 20 degrees);
- 9 The optical body has a clear gear sense when changing the magnification, and the strength of the magnification hand wheel is consistent when rotating forward and backward. Each magnification should correspond to the corresponding mark;
- 10 The pupil distance will not automatically slide down when adjusted to any position;
- 11 The eyepiece diopter is adjusted evenly and flexibly without jumping. The adjustment range should be greater than -7 to +7. The eyepiece eyecup is flexible to push and pull, and the eyepiece will not fall off the prism box when the eyecup is pulled out;
- 12 Use white paper to cover the focus stick for detection. When the slit is completely closed, there is no light leakage;
- 13 When the slit is just closed, the scale line of the left hand wheel is aligned with the 0 scale line;
- 14 The slit is rotated at 90° , and the magnification is 16 times. Use the eyepiece to observe the slit image vertically, and the top needle is aligned with the mark 90° ;
- 15 Insert the focus stick, use the eyepiece to observe the slit image at a magnification of 16 times, loosen the center knob, and swing it left and right flexibly; lock the center knob at any position, and the slit image observed by the eyepiece can return to the center position;

Other performance

- 1 The power switch of the power box is on and off, and the indicator light is on when the power is turned on and off when the power is turned off; the power indicator light is normal after 5 consecutive switches;
- 2 The brightness of the main light source can be completely turned off, and gradually changes from weak to strong as the knob is turned;
- 3 Visually inspect the brightness of the fixation light, which is obviously bright but not dazzling;