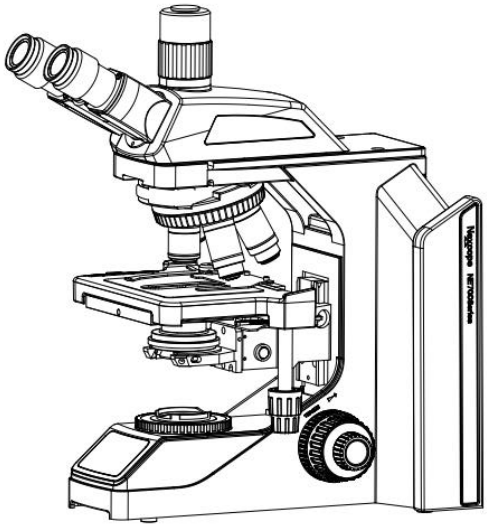
BS-2076 Series Microscope
Instruction manual



This instruction manual is suitable for BS-2076 laboratory biological microscope. In order to ensure safety, give full play to the best performance of the instrument, and make you fully familiar with the use of this microscope, we recommend that you read this manual thoroughly and carefully before operating the microscope.

Contents BS-2076

1. Safety Precautions

(1) Be careful when opening the box to prevent the lens glass from sticking to fingerprints, sweat, etc. that affect the observation, and prevent the lens and other accessories from being dropped and damaged.
(2) Avoid placing the microscope in a place subject to direct sunlight,high temperature or high humidity, excessive dust, and strong vibration. Ensure that the stage is flat,level and strong enough.
(3) When you need to move the microscope, hook the slot on the upper back of the rack with one hand and support the bottom of the rack with the other hand.
(4) If bacterial solution or water splashes on the stage, objective lens or observation tube, you should immediately unplug the power cord and wipe off the solution or water to ensure that the microscope is dry. Otherwise, the instrument may be damaged.
(5) In order to avoid blocking the natural convection air used for cooling, make sure to keep a distance of at least 10 cm between the left, right, top, and back of the microscope and the wall and other objects.
(6) Ground the machine to avoid lightning strikes.
(7) To ensure safety, before replacing the LED bulb, make sure that the main switch is in the "O" (disconnected) state, and cut off the power supply, while waiting for the bulb and lamp room to cool down completely. (Designated bulb: 3W LED bulb).
(8) Input voltage check: The input voltage marked on the back of the microscope is consistent with the power supply voltage, otherwise it will cause serious damage to the microscope.

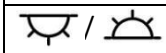
2. Maintenance and Storage

(1) All lenses are adjusted and do not remove themselves.
(2) Material lens Nosepiece and coarse micro-focus tuning mechanism, precise structure, please do not easily disassemble.
(3) The instrument shall be kept clean, dust removed, and special attention to polluting the optical parts.
(4) The stain of the lens such as fingerprints, grease can be gently wiped away with a clean soft cotton cloth, lens paper or gauze dipped in anhydrous (pure) alcohol (ethanol) or xylene.**(Both ether and alcohol are extremely flammable, and be careful not to close these chemicals to an open fire. Try to use these chemicals in well-ventilated rooms.)**
(5) Do not use organic solvents to wipe the microscope nonoptical parts, if to clean, please use a neutral detergent.
(6) When use, if the microscope is wet with liquid, cut off and dry.
(7) Never remove any part of the microscope, which will affect the microscope's function or reduce its performance.
(8) The instrument shall be placed in a cool, dry place with a dust cover without a microscope. After normal work, wait 15 minutes to cover the dust cover.

(9) Microscope use environment requirements:
a) Indoor use;
b) The ambient temperature range: 5 ℃ ~30 ℃;
c) Relative humidity range: 45%~85%.
(10) Microscope storage and transportation environment requirements:
a) Environmental temperature range: -40 ℃ ~ + 55 ℃
b) Relative humidity range: 10%~95%

3.Safety Signs

The following signs are on the microscope. Find out what these symbols mean, and always use the microscope in the safest way.

Logns	Meaning of the
	Power on
	Power off
	Direction of light intensity. When turning to the tip, the intensity decreases from strong to weak
SLEEP	Dormant State
LOCK	Light intensity is locked
	F.S :Field Stop, Expanding F.S. :Narrowing F.S.
	Incident Light/Transmission Light

Warning:

Failure to operate the microscope in the manner specified in this specification may endanger the safety of the user. Also, the microscope may also be damaged. The microscope shall always be operated in accordance with this instruction.

Transmission light sources (Condenser or collector lens) may produce harmful optical radiation, and do not look directly at the transmission lighting light, which may cause eye damage.

◎ This microscope will not cause radiation and electromagnetic interference to the surrounding environment, and meets the EMC certification standards.

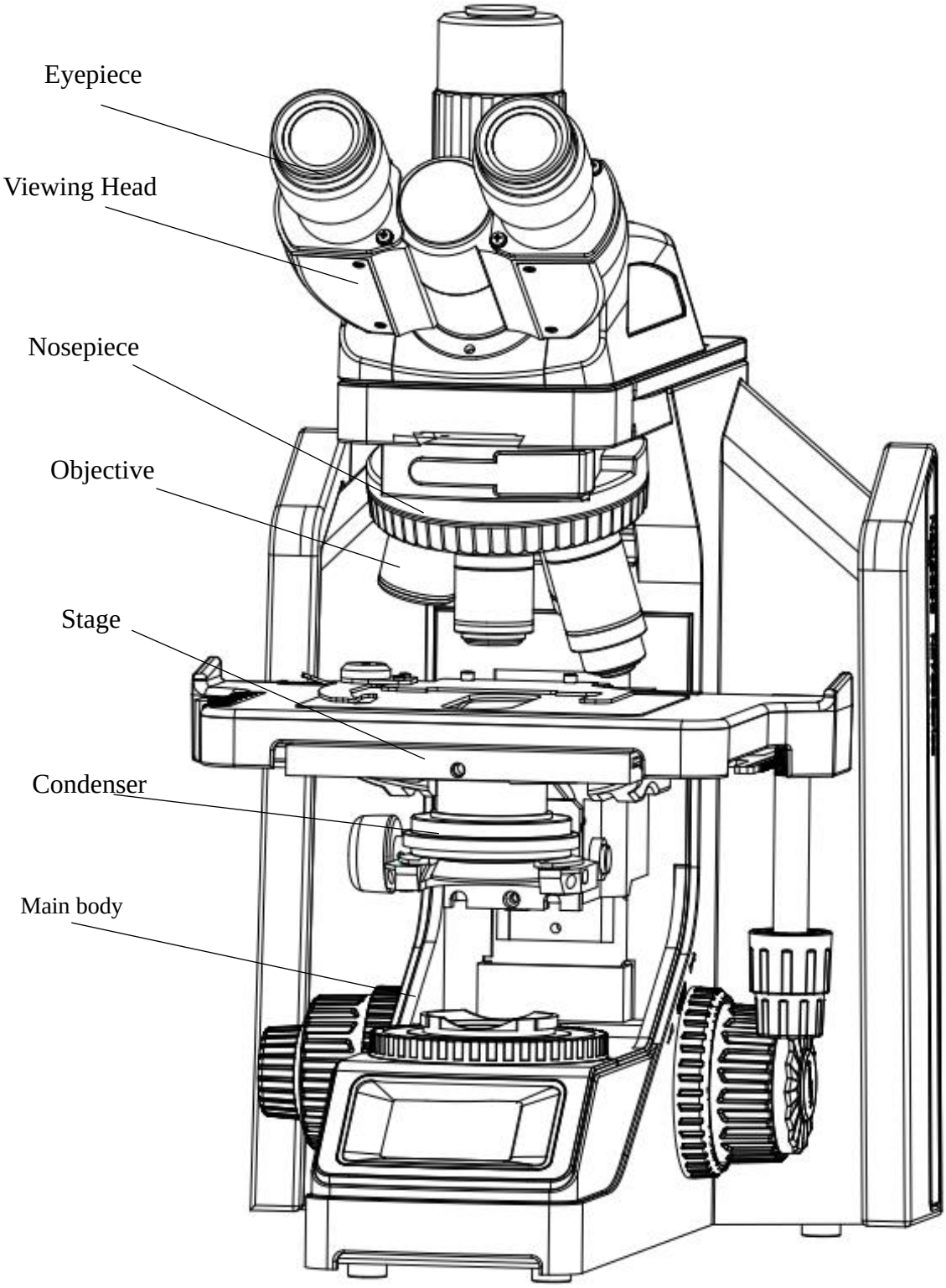
This manual shall highlight the following symbols:

⚠Giving no attention to the warnings in this instruction will cause operator personal injury and / or damage to the instrument (including objects near the instrument)

★ indicates that failure to follow this instruction will cause instrument damage

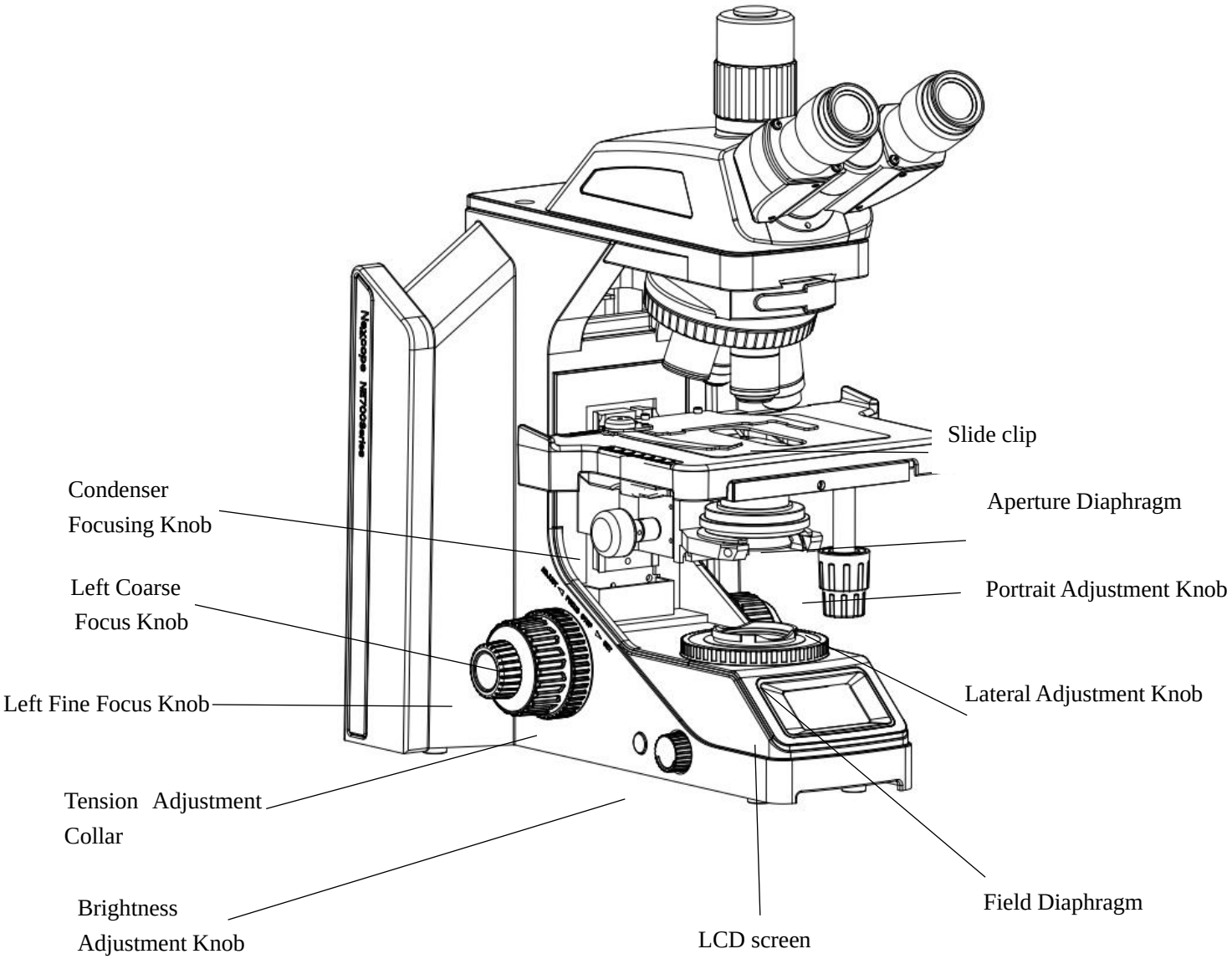
1. Components Name

BS-2076

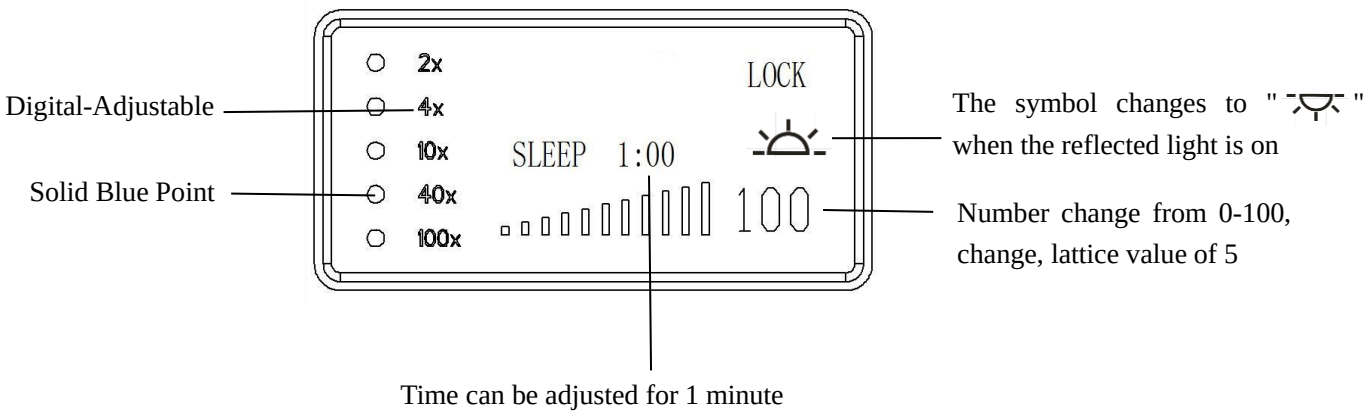


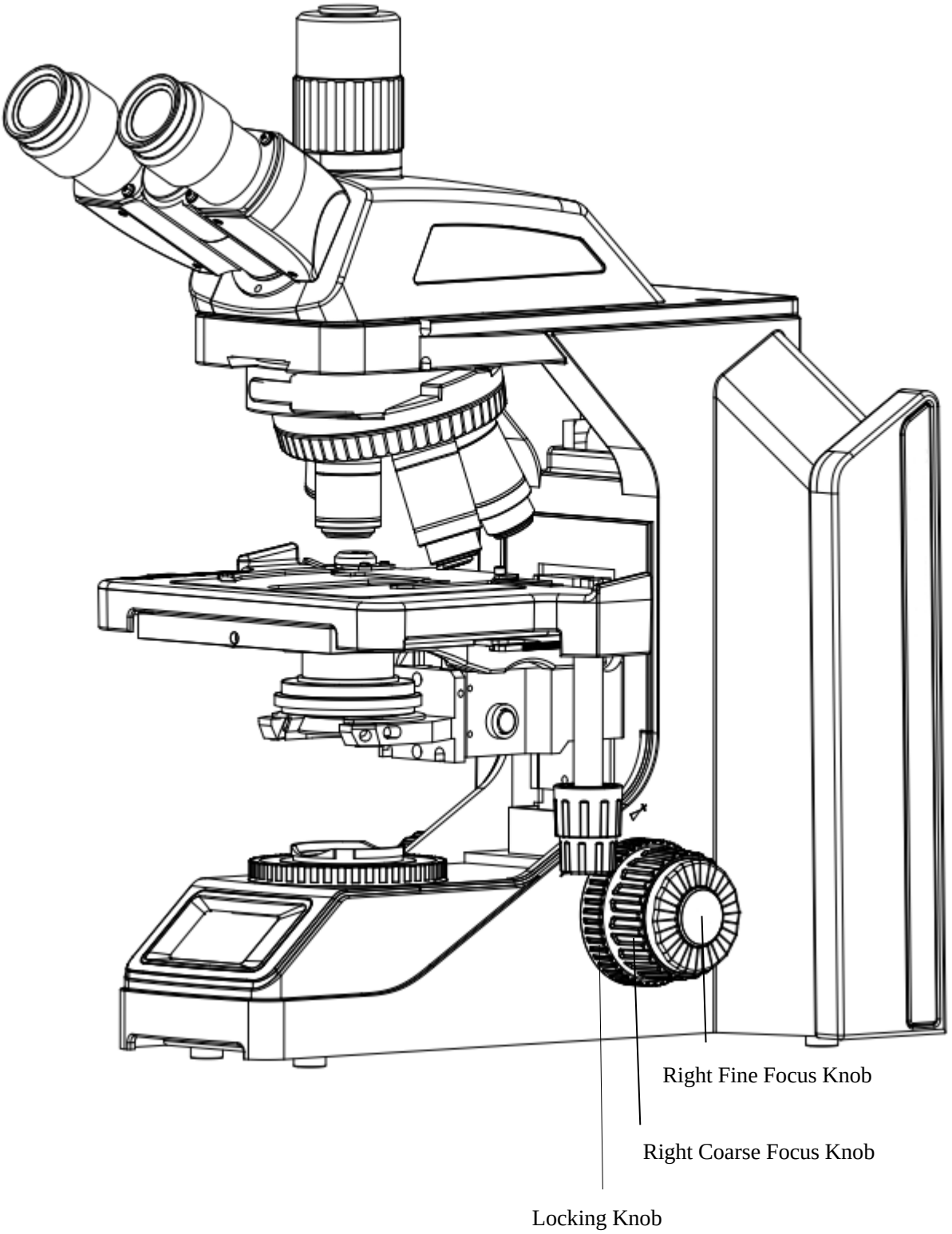
2. Overview of Each Institutions

BS-2076



LCD screen interface




Right Fine Focus Knob
Right Coarse Focus Knob
Locking Knob

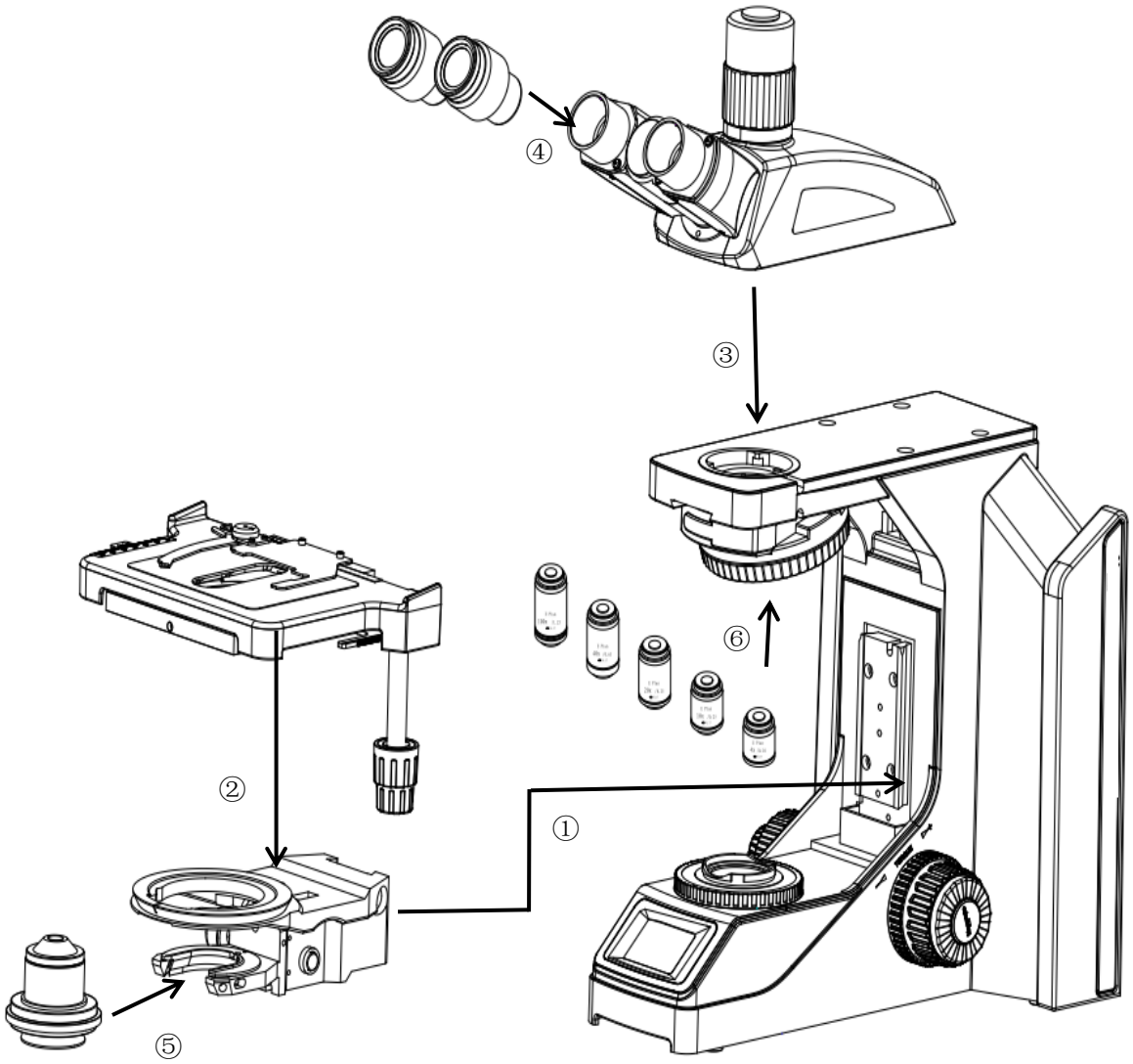
3.Installation BS-2076

3-1Installation Diagram

The following Fig. shows the installation sequence of each component, and the Fig.shows the installation steps.

★ **Before installation, verify that all parts are free of dust and dirt. Do not scratch any parts or the glass surface.**

★ **Keep the general-purpose wrench provided. You will also use the part when you replace it.**



3-2.Installation Step BS-2076

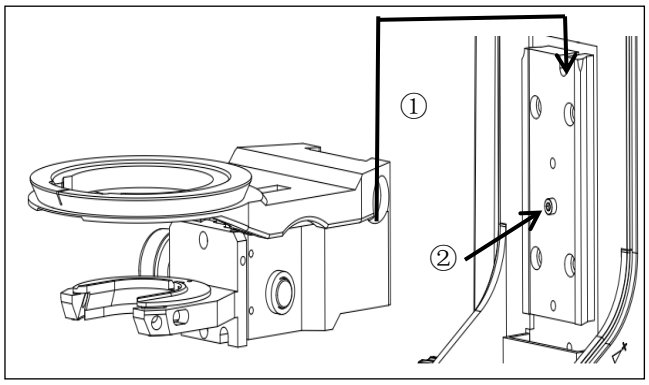


Fig.1

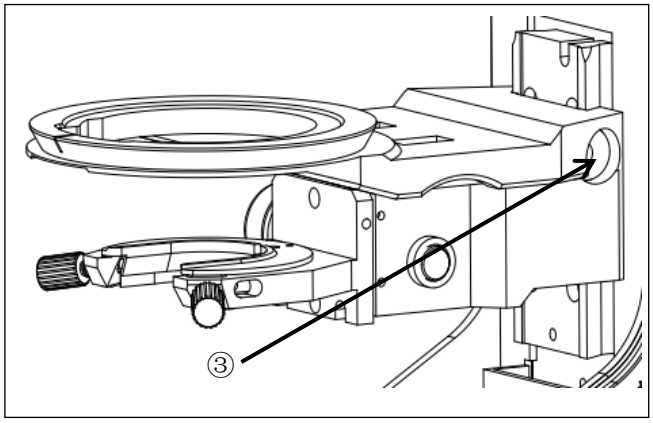


Fig.2

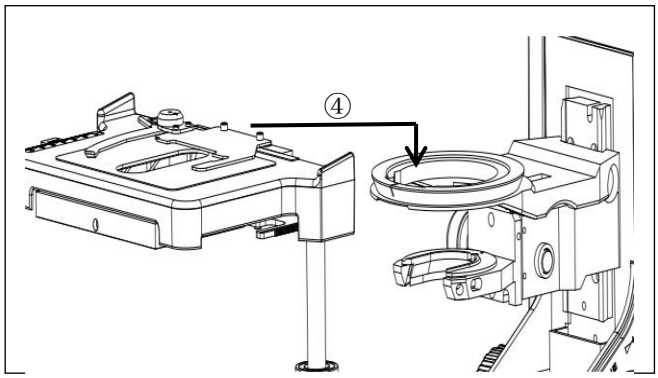
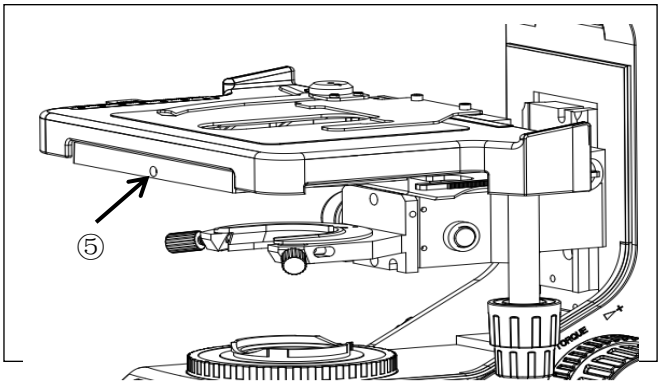


Fig.3



3-2-1 Installing the Mechanical Stage Bracket (Fig.1,2)

★Rotate the thick operation wheel to lower the tail of the frame to expose the end screw as shown, then install the platform bracket according to the path of Fig.1, align the tail groove of the platform bracket in Fig.2 with the tail projection of the rack, place the platform bracket down until the limit screws in Fig.3 are tightened inward with the general wrench of the microscope belt.

3-2-2 Installation the Mechanical Stage (Fig.3,4)

★The mechanical stage shall be installed according to the path of Fig. 3 first roughly align the carrier hole center with the circle center of the bracket, and then cover the carrier platform down to the bracket positioning circle.

★After the stage is placed smoothly, tighten the screw in Fig.4 inward with the internal general purpose wrench of the microscope band, so that the stage can not rotate and shake.

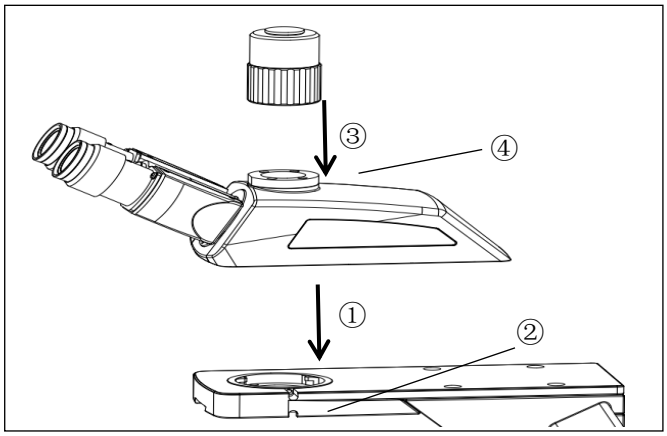


Fig.5

3-2-3 Install the Observation Head and Photography Accessories (Fig.5)

1. installation trinocular observation head

Install the observation head into the microscope circular swallow tail by the path shown in Fig.5, and then the screws are tightened with the internal general wrench to secure the observation head.

2. Installation of Photography Accessories

When loading the photographic attachment, into the triocular attachment interface with the path shown in Fig.5, the screws are tightened with the internal general plate hand to secure the photographic attachment.

★In the process of installing the observation head, pay attention to one hand always holding the observation head to prevent falling and falling.

★When the triple observation head is not used and the photographic accessories are not installed, please cover the triple attachment interface and eyepiece interface with the corresponding dust cover to prevent ash from entering.

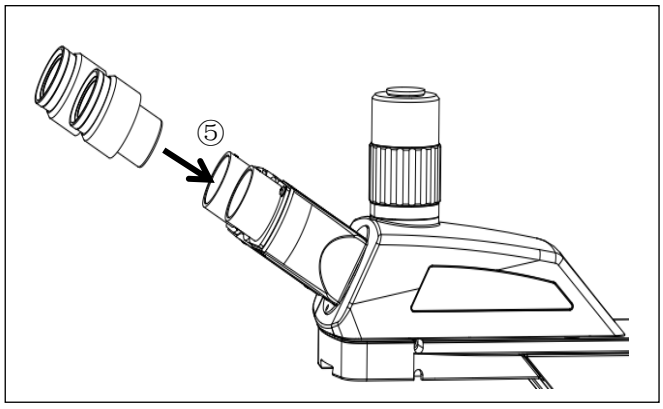


Fig.6

3-2-4 Install the Eyepiece (Fig.6)

1. Inserts the eyepiece into the watch holder by the serial number in Fig.6 to the face.

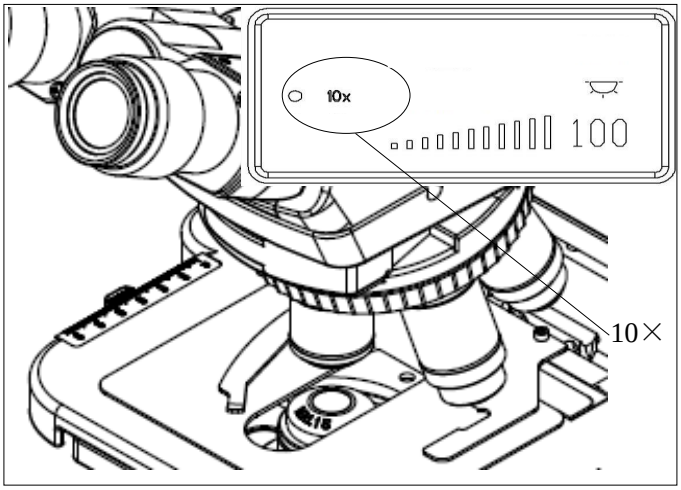


Fig.7

3-2-5 Install Objective Lens (Fig.7)

1.The adjusts the coarse focus handwheel until the mechanical carrier bracket drops to its low limit.

2. After the customer turns on the power supply, the converter turns to a certain position, and the corresponding objective lens doubling rate on the LCD screen will illuminate (as shown in Fig.7), and the corresponding objective lens is installed in that position.

★**Regularly clean the objective lens, and the objective lens is very sensitive to dust.**

★**During operation, search the samples with a 10 × objective mirror and focus, and then replace other proportional objective mirrors as necessary.**

★**During the conversion mirror, turn the objective lens converter until a click is heard to ensure that the desired objective lens enters the center of the light path.**

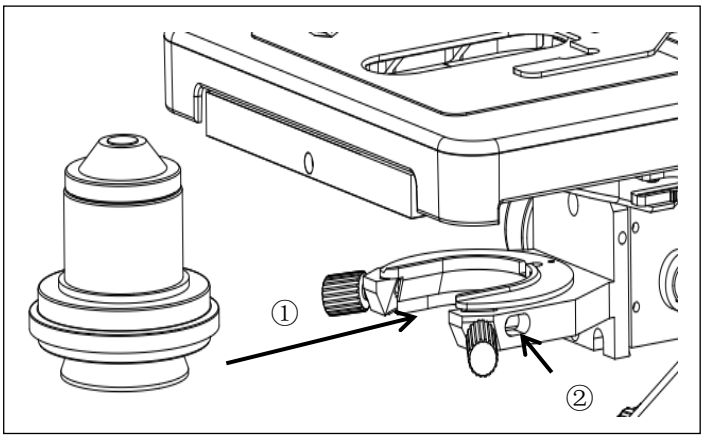


Fig.8

3-2-6 Install the Condenser (Fig.8)

Insert the spotlight into the path shown in Fig.8 and push to the maximum. Then turn the screw at the serial number in to support the spotlight mirror;

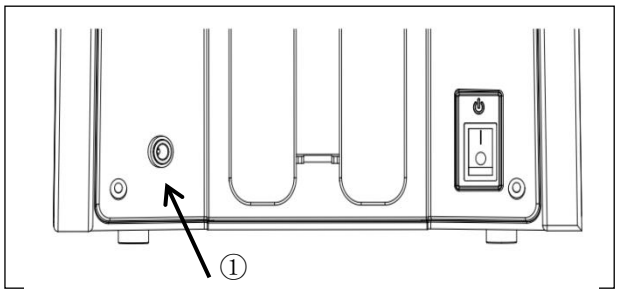


Fig.9

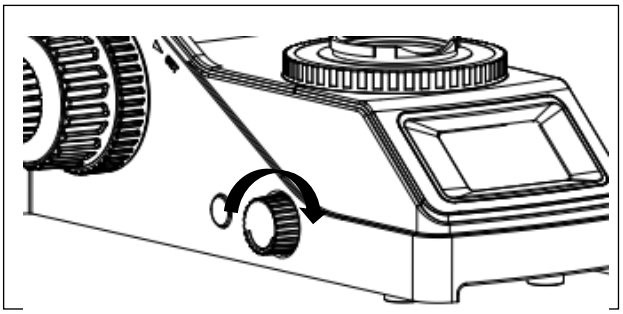


Fig.10

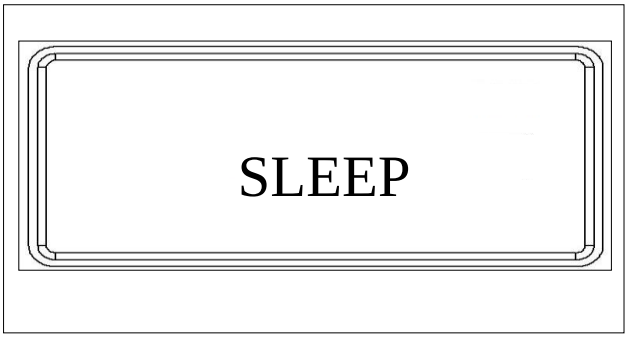


Fig.11

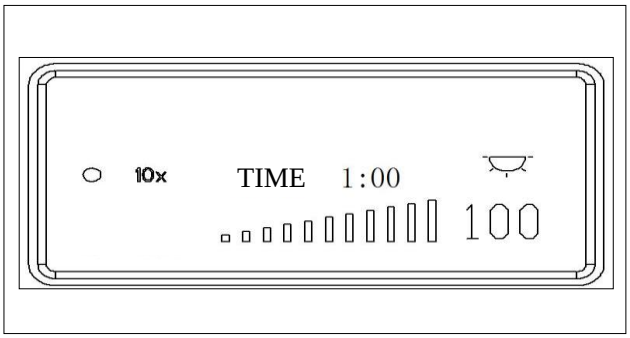


Fig.12

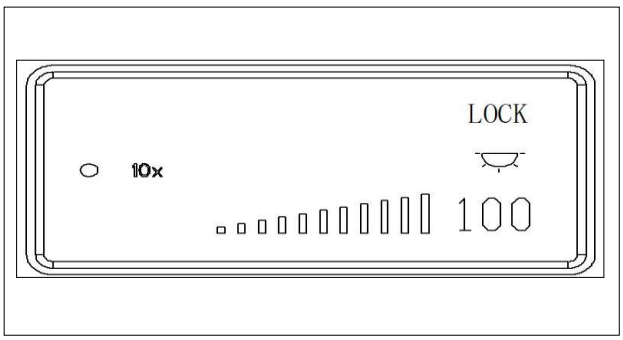


Fig.13

4-1 Turn On the Power (Fig.9)

Connect the adapter to the power supply and then insert the adapter plug in the position in Fig.9. Then dial the main switch on the back of the microscope body to the-◎-state.

4-2 Adjust the Light Intensity (Fig.10)

When the knob rotates in the direction shown in Fig.10, the light source increases, while the light source weakens.

Other operations of the dimming knob for the BS-2076 model (Fig.11, 12 and 13)

1. Click the knob: enter standby, the screen shows "SLEEP", as shown in Fig.11. Unclick again, the screen "SLEEP" disappears, display normal working status;
2. Press knob 3s: to select a set fixed time after sleep (Fig.12), the score grid value of time begins to beat, click the knob to change the hour grid value begins to beat. The increase or decrease time can be realized by turning the knob, and the score grid value is 1 minute; the maximum value can be set for 8 hours. After the required time, the time number beats three times after the stop beating is successful. Time starts to reduce the changes by points;
3. Double-click knob: Lightlock or unlock (Fig.13). When locking, the dimmer handwheel fails, and the LCD displays "LOCK", unlock does not display; double-click the button again to unlock, and "LOCK" disappears on the screen;

★ "LOCK" means that the user sets a specific brightness when using a multiple object lens to avoid being changed by another user with locking functions. (When this case turns to another multiple, the brightness automatically changes to the corresponding multiple, but the dimmer handwheel is disabled).

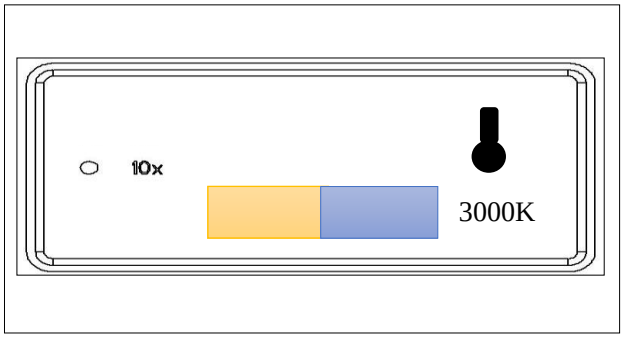


Fig.14

4. **Press + down: perform color temperature adjustment (Fig.14).**

After entering the color temperature adjustment interface, release and rotate the color temperature adjustment. The color temperature adjustment range 3000K~7000K, Press + to exit the color temperature adjustment mode.

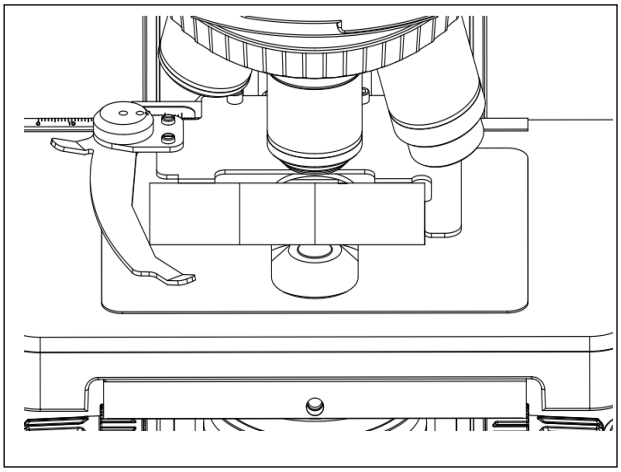


Fig.15

4-3 Mount Specimen (Fig.15)

Push the slide up slowly into the movable claw and gently clip the slide.

Rotate the horizontal and longitudinal wheels on the mechanical ruler to move the sample to the desired position.

★ **Be careful when replacing the objective. After observing the specimen with a short working distance objective lens, it may touch the specimen when it needs to be replaced.**

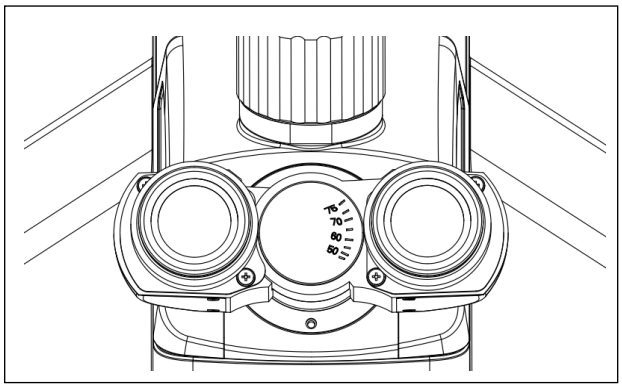


Fig.16

4-4 Adjust Interpupillary Distance (Fig.16)

Pupil Distance Range 47mm ~78mm. When observing both eyes, hold binocular tube to rotate around the axis, to adjust the pupil distance, until the left and right vision field is one, and the observation is comfortable.

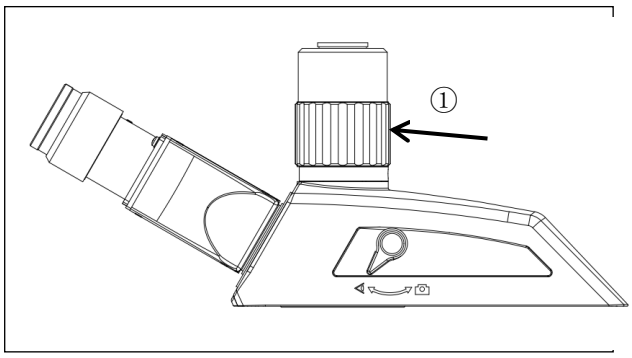


Fig.17

4-5 Light Path Switching (Fig.17)

For the binocular / triple switching observation head, turn the knob to switch the optical path, observe the camera when the knob points to the position, and observe binocular observation when the knob points to the position.

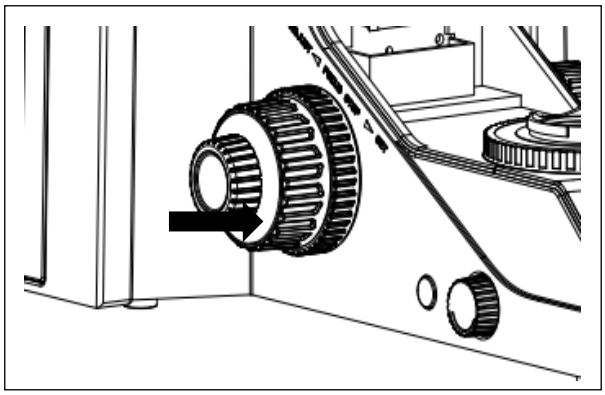


Fig.18

4-6 Focusing (Fig. 18,19,20 and 21)

1 when not using camera devices

Turn the optical path switch knob (shown in Fig.18) to the binocular observation position for binocular observation.Focus with 10 × object lens, to prevent the specimen and object lens, the mechanical carrier platform should first rise, make the specimen and objective lens close, and then slowly reverse the coarse hand wheel, to reduce the specimen, search the 10 × eyelens, and finally use the fine tuning focus hand wheel fine focus to clear. At this time to other yield mirrors, can achieve focal without broken specimens.

2 when required for using camera devices

Rotate the optical path adjustment knob to switch the optical path to the triocular observation position and observe using the camera device. Observe the display and focus the field by adjusting the adjustment device in Fig.19

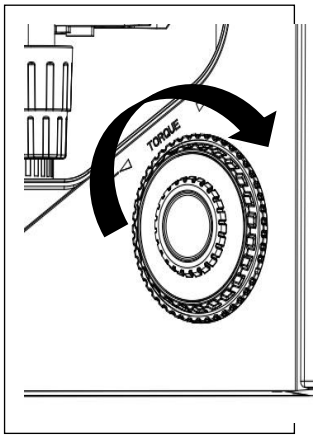


Fig.19

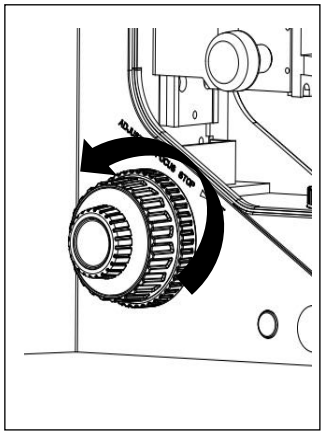


Fig.20

★Both sides of the micro-hand wheel in the convenience to dismantle, the hand wheel with a strong magnetic suction. Just as shown in the arrow, press the end of the hand wheel inside to raise the other, and then gently dial it from the raised end. Assembly can only align in the center of the hand wheel. This feature allows the two tuning wheels to easily swap the left and right to avoid contact with the platform handle.

4-7 Adjusting the tightness of focusing handwheel (Fig. 19)

The focus loose handwheel rotates in the direction shown in the arrow of Fig.19, and the more it rotates, the tighter the focus handwheel is. Conversely, the more loose.

4-8 The Limit Of Focusing (Fig.20)

In actual use, if you want to limit the platform height, that is, the upper position of the focus, according to the situation, just turn the lock hand wheel to the end of the Fig.20 arrow direction in the corresponding upper position.

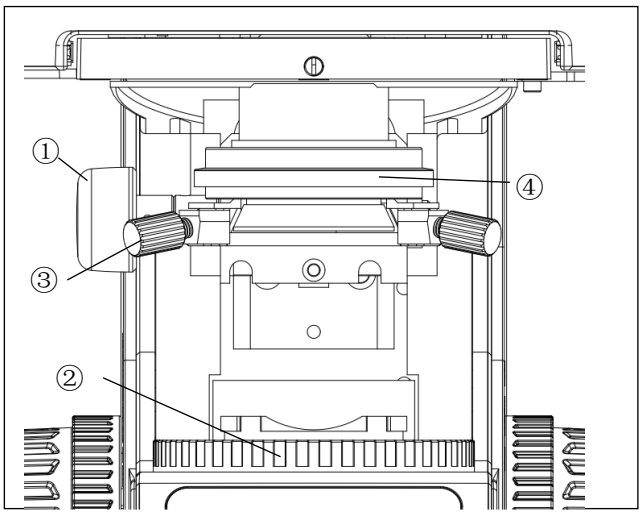
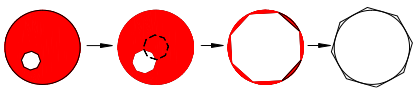


Fig.21



4-9 Condenser adjustment (Fig.21)

- The spotlight mirror center should be co-axial with the objective axis, the product has been adjusted when the factory, the user does not have to adjust itself.
- The highest position of the spotlight mirror has been adjusted when the factory, the user does not have to adjust itself.
- Turning the spotlight lens focus hand wheel enables the spotlight lens to move up and down. When using the high objective lens, the spotlight lens rises, and the spotlight lens can decrease when the low object lens is used.

Condenser centering

1. Turn the spotlight focus handwheel to raise the spotlight to the highest position.
2. Focus on the sample with a 10 × objective lens.
3. Rotate the field aperture ring and narrow the field aperture image to be visible in the field of view.
4. Turn the spotlight focus wheel to focus the field aperture image.
5. Turn the field of view appendix to the field of view center turning the two spotlight pair center screw with a universal adjusting wrench.
6. Gradually open the field aperture, and align correctly if the field aperture image is in the center and connected to the field of view.
7. In practice, the field of view appendix is slightly increased, so that its image just cuts away from the field of view.
8. Regulation of the aperture appendix

   The aperture is designed for the adjustment of the numerical aperture, not brightness. Typically, a good image of the sufficient contrast can be obtained when the aperture opens to 70~80% of the objective lens exit pupil. To observe the aperture appendix, desirable under the lens, down from the lens out of the pupil.
9. Adjustment of the field-of-view appendix size

   During operation, turn the field of view appendix rotation circle, narrow the field of view appendix, observe the field of view, if the appendix is blurred, can turn the spotlight focus hand wheel, lift the spotlight bracket clearly, and then turn the field of view appendix to adjust to the full lens field of view to reduce miscellaneous and improve the quality of the image.

5.Technical Specification BS-2076

I. Main technical specifications and views

Optical system	NIS60 Infinite Distance Optical System (F200)	BS-2076
Viewing head	Hinged trinocular, 30 ° tilt, pupil distance 47-78mm (5:5)	●
	Hinged trinocular (0: 100 / 100: 0)	○
Eyepiece	Large Field Adjustable eyepiece 10 ×	●
Nosepiece	Coded five-hole Nosepiece	●
Objective	Infinite Far Flat Field Lens 4 ×, 10 ×, 20 × (Optional), 40 ×, 100 ×	●
Focusing	Coaxial coarse fine tuning focusing mechanism, fine tuning grid value of 0.001mm	●
Stage	Synchronous Belt Platform, Size 235 × 150mm, Mobile Range 78 × 54mm	●
Illumination	3W color temperature adjustable LED lamp source	●
Condenser	Condenser NA0.9	●
Photo accessories	1X, 0.5X C interface, adjustable focus	○

Note: ● Standard Outfit, ○Optional

Ⅱ. objective parameters

Magnification	Numerical Aperture (N.A)	Working Distance (mm)	Cover-glass thickness
4X	0.10	30	-
10X	0.25	10.2	-
20X	0.40	6.4	0.17
40X	0.65	1.5	0.17
100X (oil)	1.25	0.2	0.17

Ⅲ. Electrical Appliance Parameters

1) Input voltage: VAC100-240V 50/60 Hz

2) Output voltage: 5V

2) Lighting: 3W LED

6. Trouble Shooting BS-2076

6.1 Optical part

Problem	Reason	The Solution
Edge darkness or uneven field of vision	Nosepiece is not in the right position (the objective lens is not in the center of the light path)	Go to the right position (turn the objective lens to the light path)
	Condenser is not central	Make it center
	Dirty on lens (Condenser, objective, eyepiece, collecting lens)	Clean
Field of in in of dirt	Dirty on lens (Condenser, objective, eyepiece, collecting lens)	Clean
	Dirty on the glass slide surface	Clean
	Condenser position is too low	Adjust the height of the condenser
Poor quality (low split rate, poor contrast)	No glass coverslip on the specimen	Add glass coverslip
	Glass coverslip is too thick or too thin	Use a cover glass with a standard thickness (0.17mm)
	Above the specimen and below the reverse	Flip it Back
	Oil immersed on dry lens (especially 40X easy)	Clean
	Dirty on lens (Condenser, objective, eyepiece, collector lens)	Clean
	Oil immersion lens without oil immersion	Use of oil immersion
	Bubbles in oil	Multiple swing object lens to eliminate air bubbles
	Unspecified oil immersion was used	Using standard oil immersion
	The aperture is too large	Adjust it to smaller
	Dirty on the incident lens of the binocular cylinder	Clean
	The aperture is too small	Proper opening
	Condenser position is too low	Correction position

One side of the image	Polscope not in center of view or tilt	Reinstall the Condenser and adjust carefully with the Condenser center screw
	Nosepiece is not at the location	Turn it in place
	Specimens are in a floating shape	Reliable reinforcement
Image movement during focus	Specimens float on the carrier table surface	Be firmly placed
	Nosepiece is not at the location	Turn it in place
Insufficient lighting brightness	Inaccurately adjusted brightness	Adjust the dimming knob
	Condenser position is too low	Correct its position
	Condenser is not central	In it

6.2 Mechanical part

Problem	Reason	The Solution
1. Image does not focus with high object lens	Slide is on reversed position Cover glass coverslip is too thick	Flip the glass coverslip Cover glass with standard thickness (0.17 mm)
2. Contact the glass when the objective lens changes from low to high times	Slide is on reversed position Cover glass coverslip is too thick	Flip the glass coverslip Cover glass with standard thickness (0.17 mm)
3. The slide could not be hold by the clamp	Slide clamp is not reliably fastened	Fasten it
4. Binocular image does not coincide	Pupil distance is not adjusted correctly	Readjustment
5. Excessive eye fatigue	No visual degree adjustment was performed	Correct vision of properly
	Improper lighting brightness	Adjust the positive light bulb voltage
6. Coarse focus handwheel is hard to turn	The adjustment ring is locked too tight	Relax it
7. Defocus during the observation process	The adjustment ring is locked too loose	Fasten it

6.3 Electrical part

Problem	Reason	The Solution
1. Light is not on when the switch is switched on	No power supply	Check the electrical wire connection
	LED lamp connection plug not inserted in circuit board	Insert correctly
	The LED lamp is broken	Replacement
2. The lamp suddenly burned	Non-specified lamp was used Too high in voltage	Replace it with the specified lamp. If the condition has not changed, please contact the service department
3. Insufficient lighting brightness	Non-specified lamp was used Low voltage	Replace with the specified lamp Increase Voltage
4. Light flashing or unstable brightness	The lights are about to break down	Replacement
	LED lamp connection plug is not correctly inserted into circuit board	Check and firmly

After-sales service commitment:

The company provides free warranty and replacement of parts of the equipment due to the product quality problems within 36 months, after leaving the factory.

The company provides lifelong maintenance of the products and long-term preferential spare parts outside the warranty period.

Manufacturing and after-sales service Contact information:

Beijing BestScope Technology Co., Ltd.

Add: 4#811, No.26 Financial Street, Shi Jing Shan District, Beijing, China

Zip Code: 100043

Tel: +86 10 88747221

E-mail: info@bestscope.net

Http: www.bestscope.net