

# **STEREO MICROSCOPE**

## **Models**

**STM850, STM864, STM880**



## **User Manual**

This manual is written for stereomicroscope STM850, STM864, STM880. To ensure the safety, obtain optimum performance and to familiarize yourself fully with the use of this microscope, it is recommended strongly that you study this manual thoroughly before using the microscope.

# ***CONTENTS***

<b>USER NOTICE .....</b>	<b>2</b>
<b>1. Components .....</b>	<b>4</b>
<b>2. Assembly .....</b>	<b>5</b>
<b>2.1 Assembly diagram .....</b>	<b>5</b>
<b>2.2 Detailed Assembly Procedure .....</b>	<b>6</b>
<b>3. Adjustment and Operation .....</b>	<b>9</b>
<b>3.1 Adjusting binocular head.....</b>	<b>9</b>
<b>3.2 Focus adjustment.....</b>	<b>10</b>
<b>4. Specification .....</b>	<b>11</b>
<b>5. Troubleshooting.....</b>	<b>11</b>
<b>6. Outfit .....</b>	<b>12</b>

# USER NOTICE

## 1. Safety Precaution

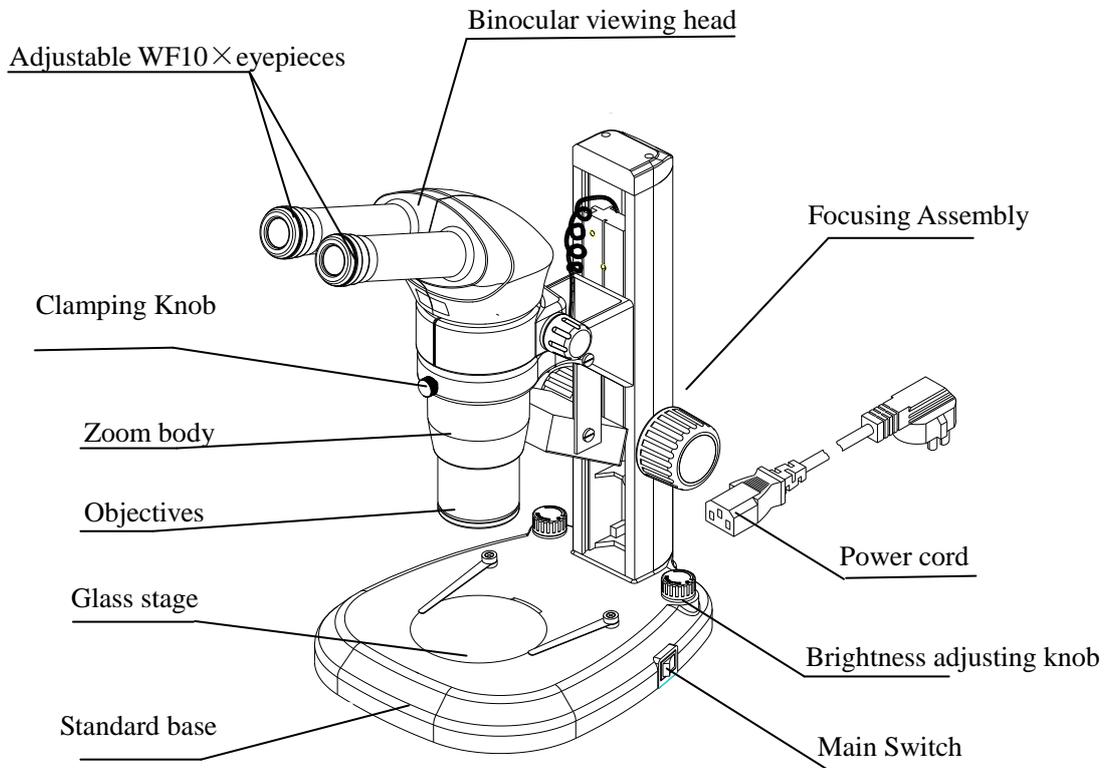
1. Carefully open the box, avoid the accessories, like lens, dropping to ground and being damaged.
2. Check the input voltage, be sure the input voltage which signed on the microscope is consistent with the power supply voltage, or it will bring a serious damage to the instrument.
3. Do keep the instrument out of direct sunlight, high temperature or humidity, dusty and easy shaking environment. Make sure the stage is smooth, horizontal and firm enough.
4. To prevent the microscope body from turning over, its pivot angle must be limited to  $30^{\circ}$  .
5. .A microscope is a precision instrument. Handle it with care and avoid subjecting it to sudden or severe impact.
6. Make sure the instrument is earthed, to avoid lighting strike.
7. Do not disassemble any part of the microscope, especially the electrical parts on the bottom side as this may result in electric shock.
8. Use the factory supplied power cord, please.

## 2. Maintenance and Storage

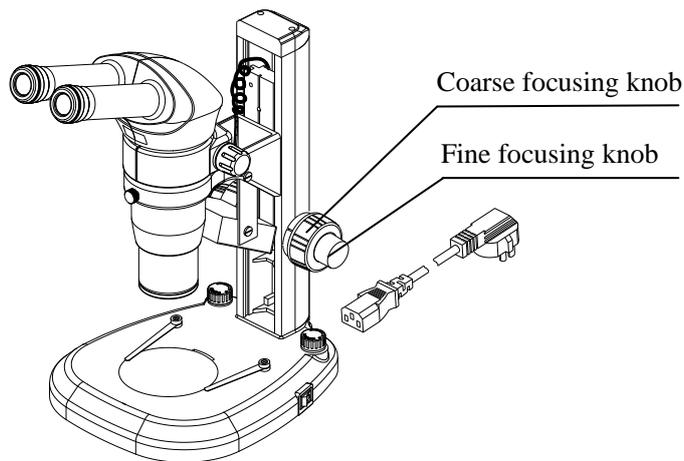
1. All the lenses have been well checked and adjusted. It is forbidden to disassemble them yourself.
2. The binocular viewing head and focusing unit have a compact and precise frame; please don't disassemble them as possibly as you can.
3. Keep the instrument clean, wipe dust regularly, and be attention to avoid contaminating the optical elements especially.
4. The contaminations on the prism, as fingerprint and oil, could be gently wiped with a piece of soft cloth or tissue paper, gauze which has been immersed in pure alcohol or ether. **(Note that the alcohol and ether are highly flammable, do keep them away from the fire or potential sources of electrical sparks, and use them in a drafty room as possible as you can.)**
5. Do not attempt to use organic solvents to clean the microscope components other than the glass components. To clean them, use a lint-free, soft cloth slightly moistened with a diluted neutral detergent.
6. If the microscope is splashed by liquid during using, cut off the power at once, and wipe up the moisture.

7. Do not disassemble any parts of the microscope, which will affect the function or decline the performance of the microscope.
8. Place the instrument in a cool, dry position. When not using the microscope, keep it covered with a dust cover.

# 1. Components



**Stereo Microscope STM-850、STM-864**



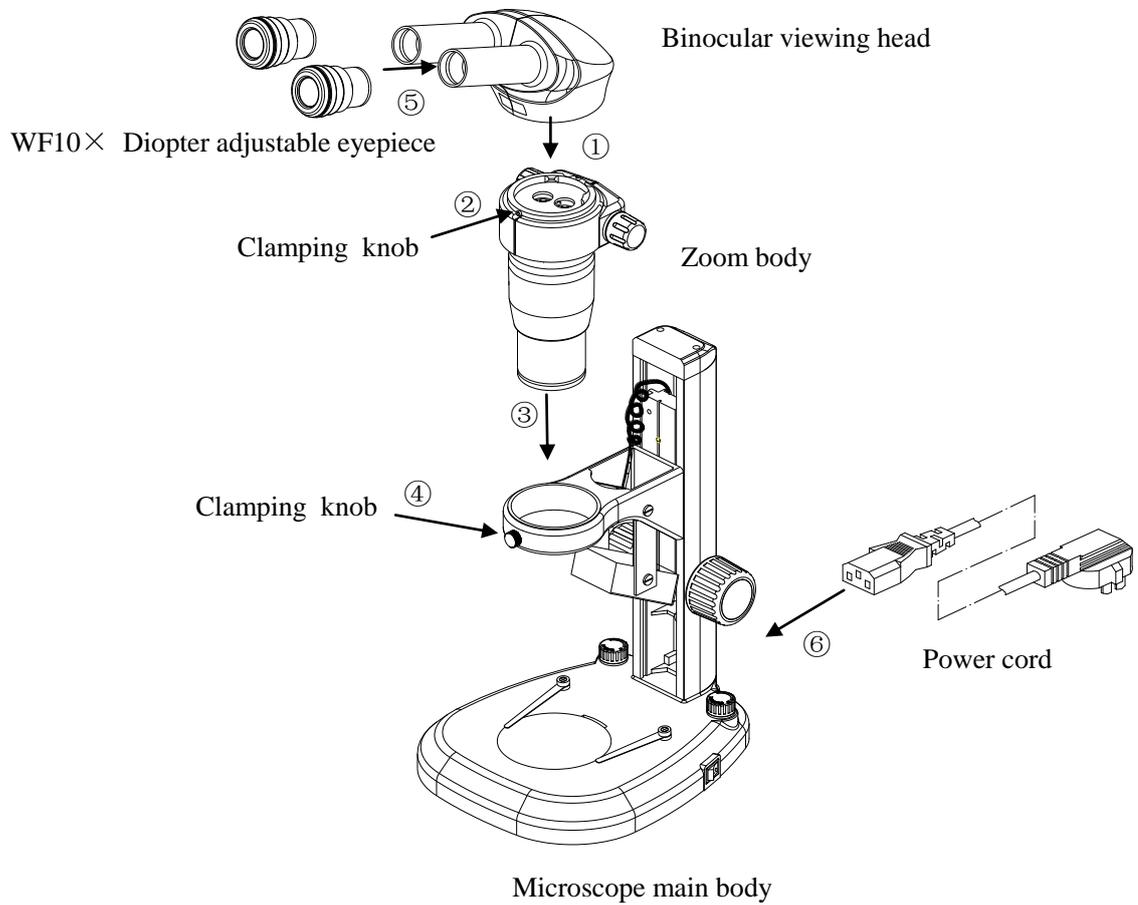
**Stereo Microscope STM-880**

# 2. Assembly

## 2.1 Assembly diagram

The diagram below shows how to assemble the various modules. The numbers indicate the order of assembly.

★When assembling the microscope, make sure that all parts are free of dust and dirt, and avoid scratching any parts or touching glass surfaces.



## 2.2 Detailed Assembly Procedure

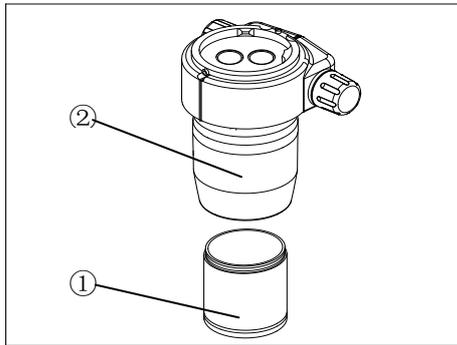


Fig.1

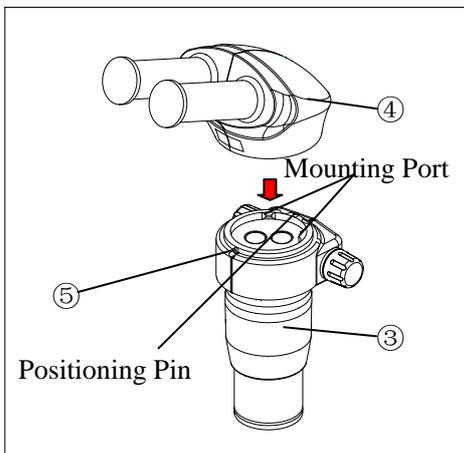


Fig.2

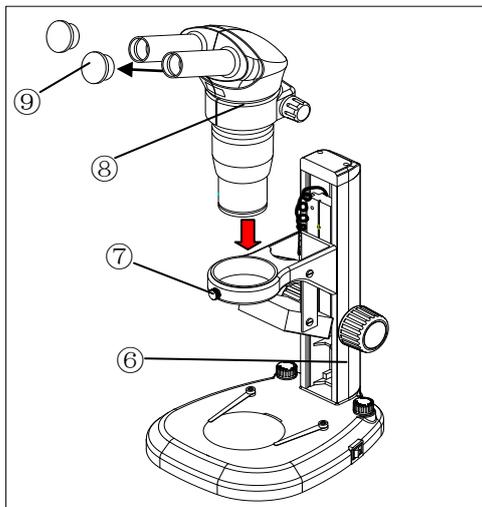


Fig.3

### 2.2.1 Mounting binocular viewing head (Fig.1、 Fig.2)

1. Rotate the objective① into the objective mount thread on the lower end of the zoom body. ② , as ③ in fig.2.
2. Aligning the positioning pin of the zoom body③ to the positioning groove on the binocular viewing head ④, insert the dovetail mount at the bottom of the viewing head into the mounting port on the zoom body ③, and tighten the viewing head clamping screw⑤ with provided hexagonal driver.

#### Note:

##### Working Environment Requirement:

1. Ambient temperature: 5° C to 40° C . (41° F to 104° F), Maximum R.H: 85% .
2. High Temperature will result in a mildewing, dew and even ruinous instrument.
3. Avoid placing the instrument in a dusty environment. When ending your microscope operation, please cover it with the dust cover.
4. Lay the microscope in a plan and stable position, please.

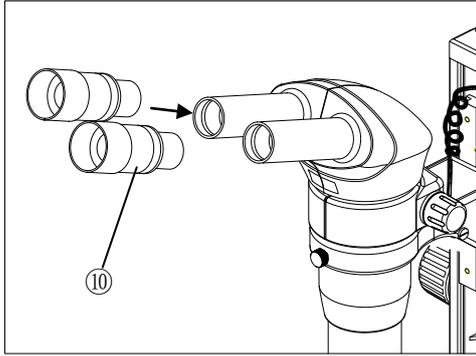


Fig.4

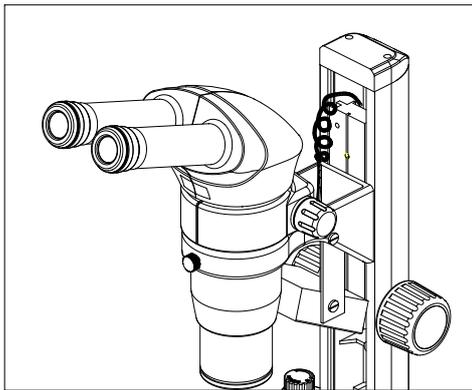


Fig.5

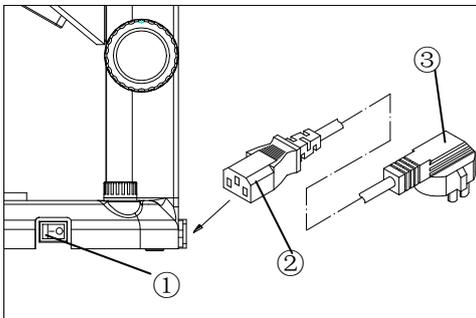


Fig.6

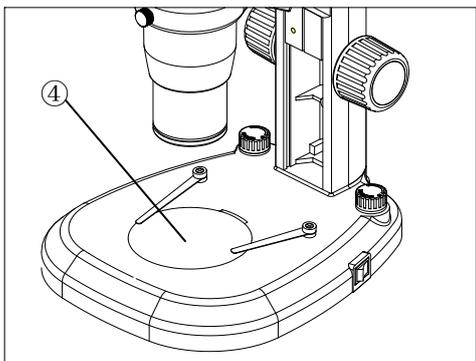


Fig.7

### 2.2.2 Mounting binocular head (Fig.3)

Loose the clamping bolt⑦ on the pillar⑥ and insert the binocular head and zoom body assembly⑧ into the bracket of the pillar, then screw down the bolt⑦.

### 2.2.3 Mounting eyepieces (Fig.3、 Fig.4、 Fig.5)

1. Remove the eyepiece dust caps⑨ and gently insert two adjustable eyepieces ⑩ into the eyepiece sleeves until they stops, as in Fig.4.

2. Using the Eye Shades

When Wearing Eyeglasses:

Use with eye shades in their normal folded-down position. This will prevent eyeglasses from being scratched by the eyepiece as in Fig 5.

When Not Wearing Eyeglasses:

Extend the folded eyeshades. This makes observation easier by preventing the inverse incidence of light from between the eyepiece and your eyes.

### 2.2.4 Connecting the power cord (Fig.6)

1. Turn the main switch① on “O” (off) state before connecting the power cord.
2. Insert the power plug② into the power jack of the microscope; make sure the connection is well.
3. Plug the power cord③ into the power supply receptacle safely. Make sure the connection is well.

### 2.2.5 Mounting glass stage plate (Fig.7)

If necessary, the original plastic stage plate can be replaced by a glass one.

- Both top and bottom illuminators are LEDS.
- Permitted power supply voltage:  
100V~240V。

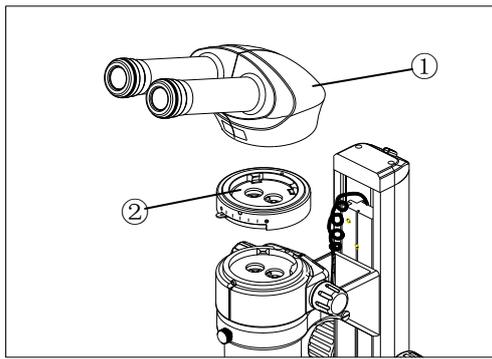


Fig.8

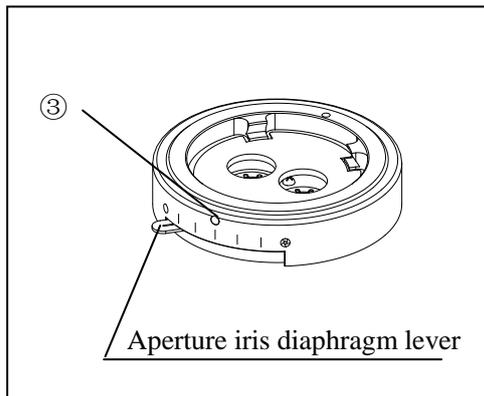


Fig.9

### 2.2.6 Mounting aperture iris diaphragm attachment (Fig.8、 Fig.9)

○ Aperture iris diaphragm attachment is optional.

1. Use the provided hexagonal driver to loose the clamping bolt and remove the binocular viewing head ①.
2. Mounting the aperture iris diaphragm attachment② to the top end of the zoom body.
3. Mounting the binocular head into the aperture iris diaphragm attachment and tighten the clamping bolt③.

#### Adjusting aperture iris diaphragm

- The aperture iris diaphragm adjustment can increase the image contrast and focus depth.
- The size of aperture iris diaphragm can be adjusted. Switch the lever to left to open the aperture iris diaphragm; to the right, to close the aperture iris diaphragm. Check the effect during observation.
- ★ Do not close the aperture iris diaphragm too much, or it will decrease the resolution and lead to lack of illumination.
- ★ Closing the aperture iris diaphragm to the minimum state will result in faintness in field of view. In this case, adjust the aperture iris diaphragm to the half open state.
- ★ Closing the aperture iris diaphragm to the minimum state and increase the magnification of the zoom body will result in lack of illumination around circumference of field of view.

# 3. Adjustment and Operation

## 3.1 Adjusting binocular viewing head

### 3.1.1 Adjusting interpupillary distance (Fig.10)

Different users have different interpupillary distances. So when users change, do the interpupillary distance adjustment.

While looking through the eyepieces, hold the left and right of the binocular assembly ① and adjust the eyepieces by opening or closing them for binocular vision until the left and right fields of view coincide completely.

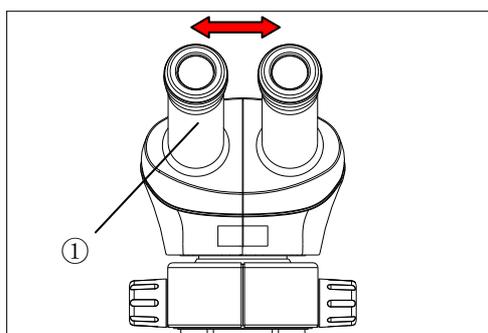


Fig.10

### 3.1.2 Adjusting diopter ring (Fig.11、 Fig.12)

1. Set the diopter rings of both eyepieces to “0” position. (Do this when users change, because different users have different diopters.)

2. Place an easy-to-observe specimen on the stage plate.

3. Rotate the zoom body knob ③ to the highest magnification  $5\times$  (or  $6.4\times$ , or  $10\times$ ), and turn the focusing knob ④ to focus the specimen.

4. Rotate the zoom body knob ③ to the lowest magnification  $0.8\times$ , looking only into the left eyepiece, adjust the diopter ring on left eyepiece to focus the specimen. Then do the same thing for the right one.

5. Repeat item 3 and 4 until the specimen image can always focus without any adverse effect of the changes of magnification on the definition of the image.

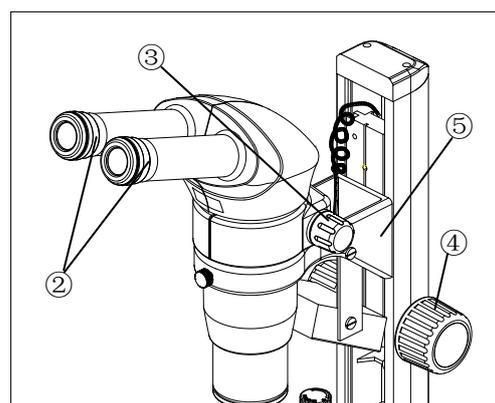


Fig.11

**Fig.11 shows the focusing part of Stereo Microscope STM-850、 STM-864;**

**Fig.12 shows the focusing part of Stereo Microscope STM-880. There are coarse focusing knob ⑥ and fine focusing knob ⑦ in this kind of microscope.**

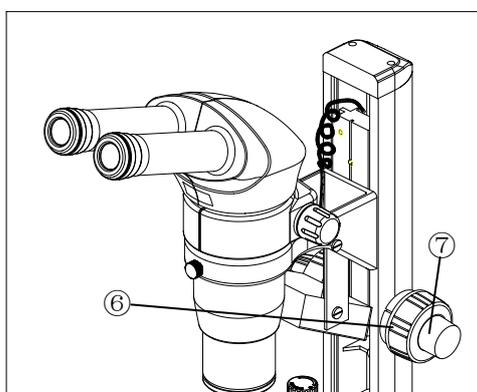


Fig.12

● The working distance of the objectives listed in standard outfit is all 78mm for these three kinds of stereo microscopes.

When  $2\times$  objective is chosen, it is necessary to mount the binocular head bracket ⑤ onto the lower position. Remove the clamping bolt with provided hexagonal driver and move the bracket down to the lower position and set it with original bolt (Fig.11).

## 3. 2 Focus adjustment

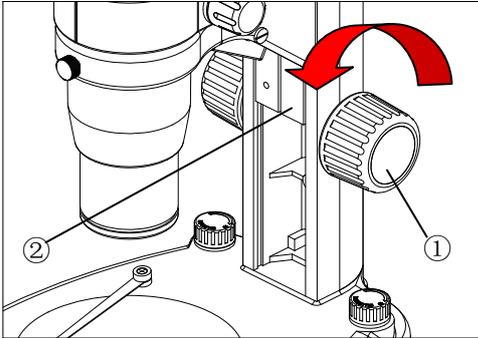


Fig.13

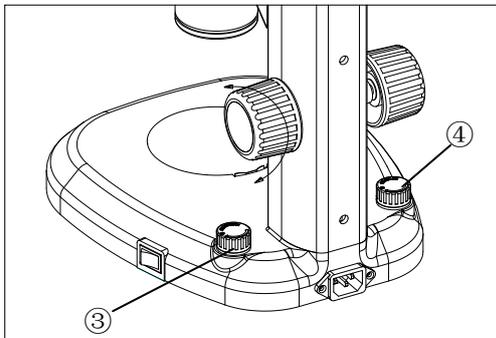


Fig.14

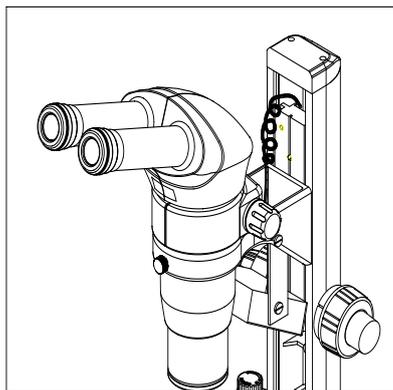
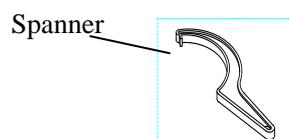


Fig.15



### 3.2.1 Adjusting the rotation tension of the focus adjustment knob (fig.13、 fig.14)

For these Microscopes (Model Number : **STM-850 STM-864**),the tension has been adjusted well before delivery.

1. Rotate the focus adjustment knob① to move the slider② to a lower place for fear that the zoom body drops down suddenly if the tension is decreased too much.
2. Hold the focus adjustment knobs① with both hands, stop the left knob and rotate the right knob to increase or decrease the focus knob tension.
3. Brightness adjustment: the right brightness adjustment knob③ is used to adjust the bottom illumination, and the left brightness adjustment knob④ is used to adjust the top illumination

### 3.2.2 Adjusting tension collar (Fig.15)

NSZ-810:

1. If the microscope body falls down by its own weight or the focus obtained by fine focusing is lost immediately, the rotation tension adjustment may be too light. In this case, rotate the tension collar with provided spanner to increase the rotation tension..
2. The brightness adjustment method is the same as that of Model STM-864.

**SAFETY PRECAUTION:**

1. After the equipment has been used in an observation of a specimen that is accompanied with a potential of infection, clean the parts coming in contact with the specimen to prevent infection.
2. Moving this microscope is accompanied with the risk of dropping the specimen and causing infections. Be sure to remove the specimen before moving this product.
3. Move the microscope with both hands; one hand catches the arm, and the other hold the base.

## 4. Specification

Model NO.	STM-850	STM-864	STM-880
Parameters			
Zoom Ratio	1: 6	1: 8	1: 10
Objective Magnification	0.8×~5×	0.8×~6.4×	0.8×~8×
Eyepiece	Φ22 10×WF Diopter adjustable		
Binocular Viewing Head	Inclined at 20° , interpupillary distance range: 50~75mm		
Working Distance	78mm		
Vertical Movement Range	105mm		
Illumination System	Adjustable illumination for both LEDs (top and bottom)		
Input Rating	100~240V , 0.15A, 50/60HZ		

## 5. Troubleshooting

Under certain conditions, performance of this unit may be adversely affected by factors other than defects. If a problem occurs, please review the following list and take remedial action as needed. If you cannot solve the problem after checking the entire list, please contact your local franchiser for assistance.

PROBLEM	CAUSE	SOLUTION	PAGE
1 . Incomplete binocular vision.	Interpupillary distance is not correctly adjusted.	Adjust it correctly	7
	Diopter adjustment is incomplete.	Complete diopter adjustment	
2. Dirt is visible in field of	Dirt on specimen	Clean specimen	2

view	Dirt on eyepiece	Clean eyepiece	
3. The visibility of the image is poor.	Dust on objective front lens.	Clean lens surface	
6. Specimen image blurs when zoom magnification is changed.	Diopter ring is not correctly adjusted.	Adjust it correctly.	7
	Not in complete focus on specimen.	Focus specimen correctly at a high magnification.	
5. Coarse focus adjustment knobs rotate with too much resistance.	Tension adjustment ring is too tight.	Loosen it properly.	8
6. Zoom microscope body drops or specimen goes out of focus during observation.	Tension adjustment ring is too loose.	Tighten it properly.	8

## 6. Outfit

Components	Specification	Quantity	Standard Outfit
Main body	Main body	1	●
Observation system	Binocular head and zoom body	1	●
Illuminator	Transmitted illuminator (LED)	1	●
	Reflected illuminator (LED)	1	●
	Annular illuminator		○
Eyepiece	10× Eyepiece	2	●
	20× Eyepiece		○
Objectives	0.5× objective		○
	1× objective	1	●
	2× objective		○
Aperture iris diaphragm			○
Stage plate	Black-and- white stage	1	●
	Glass plate	1	●
Power cord	Power cord	1	●

○: Optional