Inversed Biological Microscope

BS-2090

User Manual

This manual is written for Inversed Biological Microscope BS-2090. For safety and for exerting the best performance, making you familiar with the instrument entirely, it is strongly recommended that you read this manual carefully before using the microscope. For the further reference, please place this manual in a position where nearby the worktable and fetched easily.

Use Notices BS-2090

Ⅰ、Safety Note

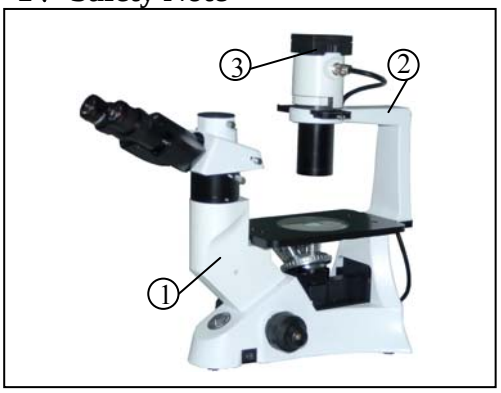

Figure 1

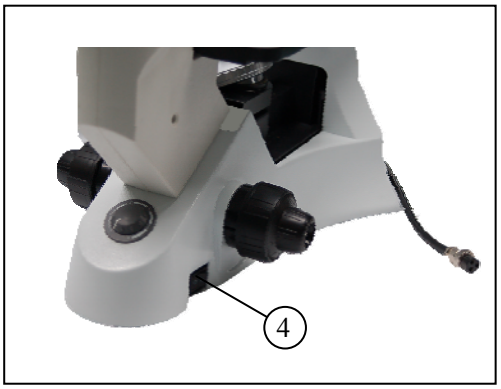

Figure 2

1、Do not keep the instrument in a direct sunlight, high temperature or humidity, dusty and easy shaking environment. Make sure the stage is plane, horizontal and stable enough.

2、When moving the microscope, please hold up the instrument with one hand on the lower side of the eyepiece tube①, and the other hand on the illumination bracket②.（figure1）

3、If the bacterium solution or the water splash to the stage, objective or viewing tube, pull out the power cord at once, and wipe up the microscope. Otherwise, the instrument will be damaged.

4、When working, the lamp house on the top of the arm③(figure1) will become very hot, be sure there have enough room around the lamp house (especially the top) for cool.

5、Before replacing the lamp bulb or fuse, turn the main switch on the “O”(off) position, then cut off the power. If the lamp is on, or soon after it has been turned off, it is hot and will cause serious burns, please do the replacement after it cool down completely.

★ **Specified: the halogen lamp 6V30W**

6、Earth this instrument to prevent the lightning strike.

7、Use the supplied power cord, please.

Ⅱ、Maintenance

1、Use the gauze to wipe the glass parts gently .If removing the fingerprints and oil stains , slightly dampen gauze with the xylene or the admixture liquid which comparison is 3:7 of the ethanol and the aether to wipe.

★ **Note: the ethanol and the aether are all very combustible, do not put these chemicals near fire or the possible electricity spark source such as the electronics equipments open ,close operation . Use these chemicals in a well ventilated room as far as possible.**

2、Don’t use organic solvent to wipe the non-optical elements, If you need to clean, use the neutral detergent, please.

3、When using, if the microscope is splashed by liquid, cut off the power at once, and wipe up the moisture.

4、Do not disassemble any parts of the microscope. That will affect the function or decline the performance of the microscope.

5、If haven’t mounted the objective , please cover the dust cap to prevent the dust and the splashed

liquid of the tissue culture entering the inside.

6、 When not using, remember to cover up the microscope with the dust casing. And make sure the lamp cools down enough before you do so.

Ⅲ Safety Symbol

Symbol	Meaning
	The surface is very hot, not touch by your hands
	Before using ,please read the instruction carefully, improper operation will result in bodily injure or instruction malfunction.
	The main switch on
	The main switch off

1. Components BS-2090

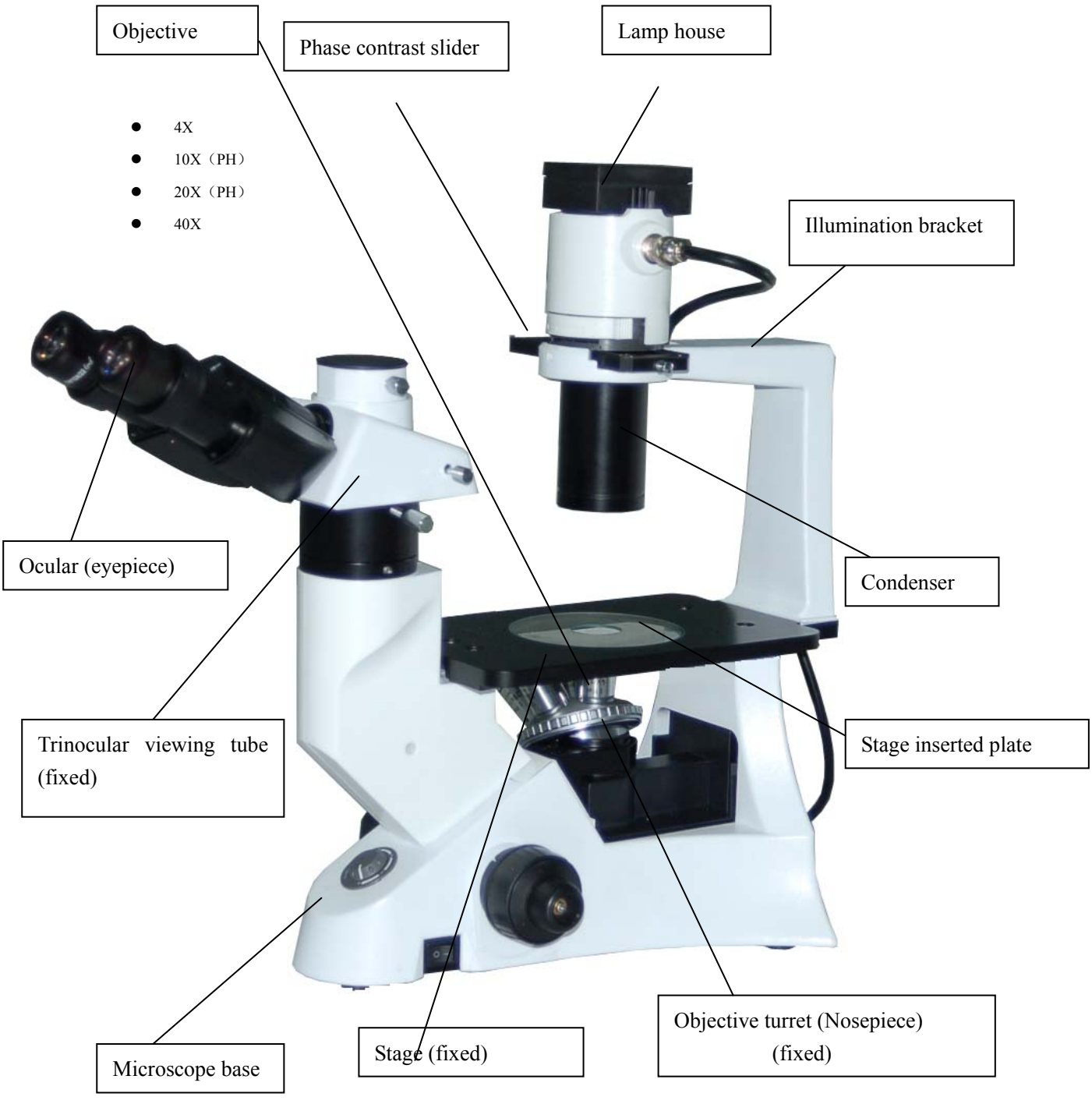

Figure 1

2. Installation BS-2090

2.1 Installing diagram

The following figure shows the installation sequence of the components. The number in the figure shows the installation steps.

★ **Before installing, be sure every components is clean, do not score any parts or glass surface.**

★ **Keep well with the supplied hexagon wrench. When changing the components, you will need it again.**

Figure 2

2.2 Installing steps

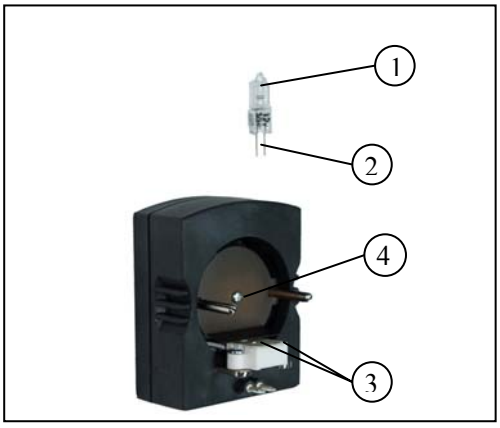

Figure 3

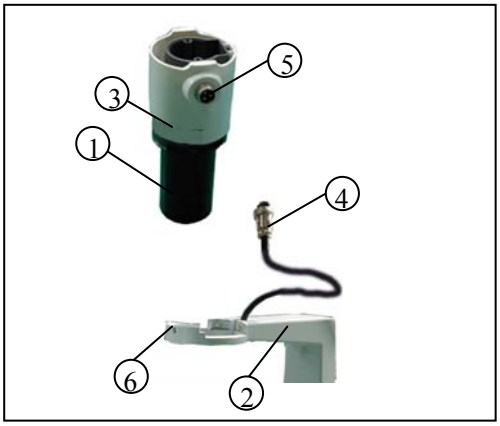

Figure 4

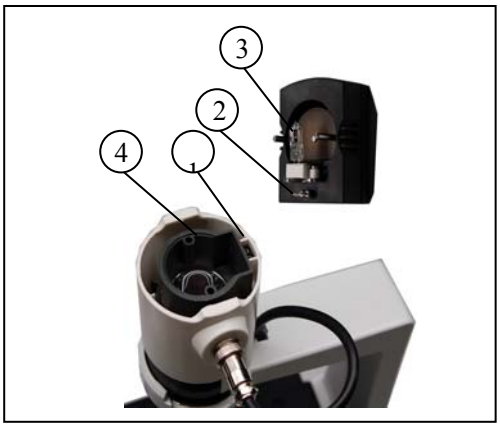

Figure 5

2-2-1 Installing and replacing the lamp （figure3）

✧ Please use the specified halogen Lamp 6V30W.

1. Hold to the bulb ①after you wrap it with gauze or other protection materials, then depress the plugs② into the jack③ on the lamp house, ensure the filament and the bolt④ are in a same level.
2. Replacing the lamp when using or soon after

When using, or soon after it is turned off, the lamp, the lamp house and nearby parts will be very hot and will cause serious burns. Please turn the main switch on “O” (off), pull up power plug, and make sure the bulb, the lamp house and periphery are all cool. Then, you can do your replacing.

★ Please insert the lamp gently, or it will be damaged by excessive extrusion.

★ Do not touch the Halogen bulb with your hands. It will shorten the service life or cause it to burst. If you leave fingerprints on the surface carelessly, clean it with a dry soft cloth.。

2-2-2 Installing the condenser illumination unit（figure 4）

1. Insert the condenser illumination unit① into the bracket② gently, according the figure showed in the left.
2. Turn the condenser illumination unit at clockwise about 90°, let the "AS" mark of filter holder ③ facing forwards, and keep the screw of condenser illumination unit and the hole of the holder in line, then screw down the bolt in the hole with the supplied hexagon spanner.
3. Insert aviatic BNC connector plugs④ into aviatic BNC connector jack⑤.

2-2-3 Installing the lamp house (figure 5)

Keep the BNC connector plugs① and the lamp house pin② in line, and keep the bolt③ and the condenser jack④ in line, too. Then push the lamp house into the illumination unit gently until they are against.

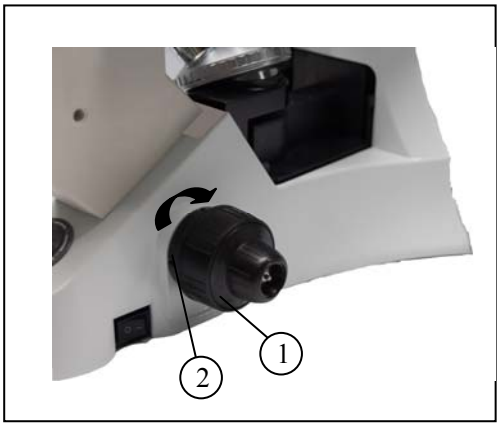

Figure 6

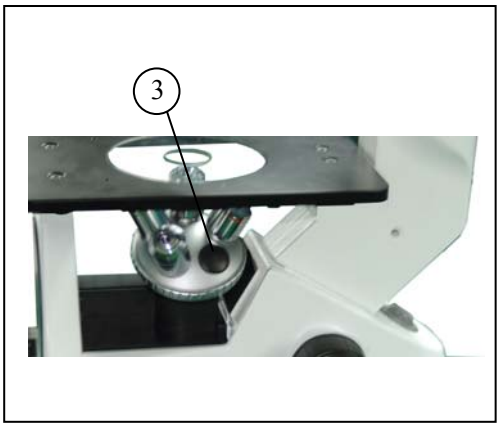

Figure 7

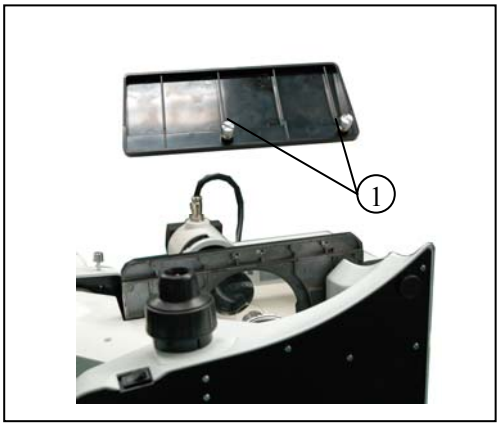

Figure 8

2-2-4 Installing the objective（Fig. 6 and Fig.7）

1. Turning the coarse fusing knob① like the figure shows till the nosepiece get to its lowest position.

   ★ For ensuring the safety of the instruction on transportation, the nosepiece is located in the lowest position and the tension adjustment collar ② is adjusted in a appropriate tight tension while leaving the factory.

2. Screw the lowest magnification objective on to the turret from the nearside, then turn the turret clockwise, mount other objectives according the magnification sequence of low to high.

◎ Mount objective like this way will make the change of magnification to be very easy in using.

◎ It also can install the objective through the stage opening.

★ Clean the objective regularly, the objective used in the inversed microscope is very sensitivity about dust.

★ Do cover all the unused holes with turret dust caps ③, to prevent the dust and contamination entering inside.

★ When operating, use the low magnification objective (4X or 10X) to search and focus the specimen at first, then replace the higher magnifications if necessary.

★ When replace the objective, slowly turning the nosepiece until you hear “clicked”, that means the objective enter into the right position—center of the light path.

2-2-5 Installing the stage lengthen splint and the mechanical ruler（fig. 8）

◎ Stage lengthen splint can be installed in either side of the stage to enlarge the work surface. But you can't install the mechanical ruler together.

◎ Generally , the mechanical ruler will be installed in the right side for comfortable adjustment.

1. Installing the stage lengthen splint

   First, Screw the fixed bolt① on to the splint , then mount it on to the stage from right or left below, screwing down it until it stay hard.

2. Installing the mechanical ruler

   Please install the ruler like the way of the stage splint.

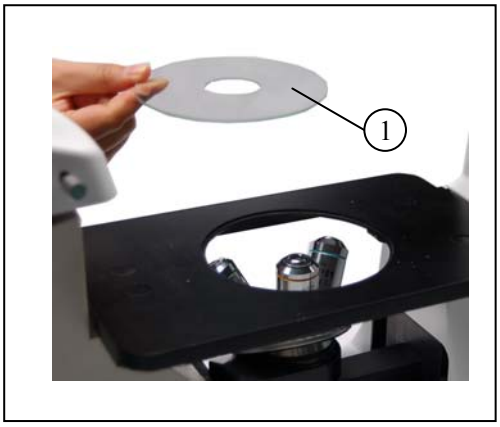

Figure 9

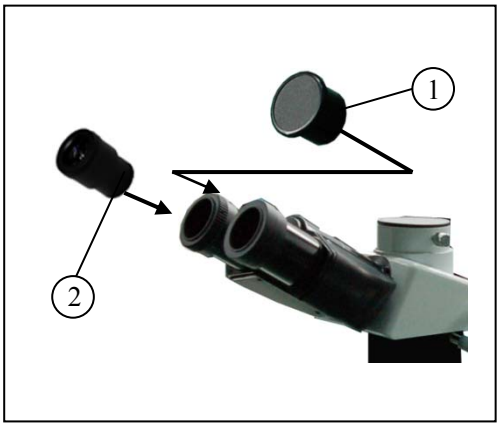

Figure 10

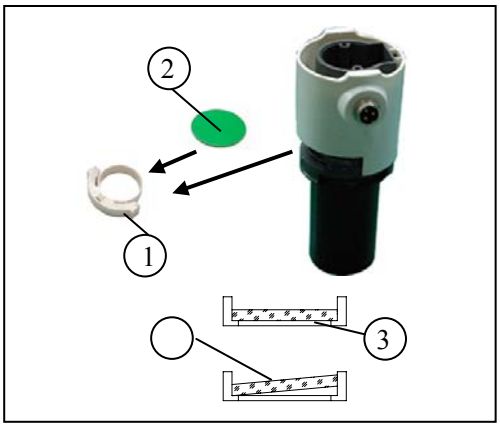

Figure 11

2-2-6 Installing the stage inserted plate（fig.9）

1. When using the glass stage ①, there is no special require, you just need to place it in a plane.

2. Install the stage inserted plate on to the stage opening.

◎ Turn the disk, let the V nick to face user, so the recognition of the objective will become easier.

2-2-7 Installing the eyepiece（fig.10）

1. Remove the cap of the eyepiece tube①.

2. Insert the eyepiece into tube until they are against.

2-2-8 Installing the color filters (fig. 11)

★ **Be sure the color filter cools down completely before you change them. Take down the filter holder①, then install the color filters ②you need.**

◎ Mount the color filter downwards like ③ shown, keep it horizontal through the end, not allow inclined.

★ If the color filter is inclined or not get to the end④, it will drop possibly.

◎The color filter could be piled on the holder, so you can install more than one filter according the needs if you can ensure the whole thickness is less than 11mm.

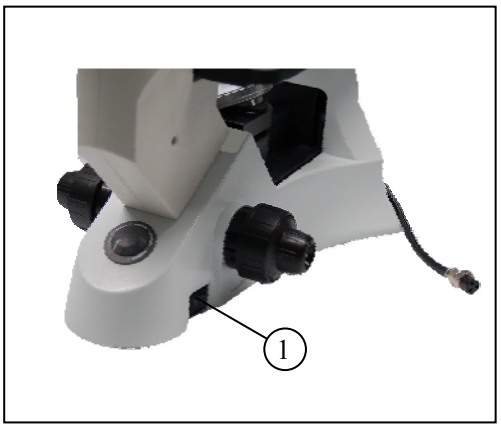

figure12

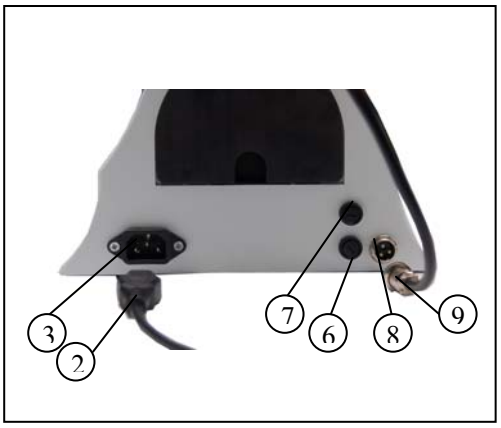

Figure 13

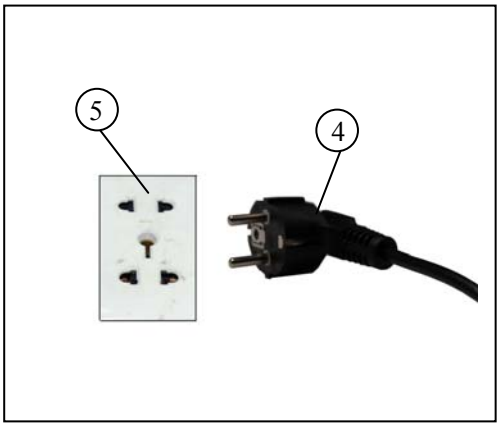

figure14

2-2-9 Connecting the power cord（fig.12、13 and 14）

★ **Do not bring the power cord to bear a powerful stress. When being bent or wrapping, the cable and wires will be broken easily.**

1. Turn the main switch① on "O"(off) state before connecting the power cord.
2. Insert the plugs② into the power jack ③of the microscope safely.
3. Plug the power cord ④into the power supply receptacle. Make sure the connection is well.
4. Insert aviatic BNC connector plugs⑨ into aviatic BNC connector jack⑧.

★ **Do use the supplied power cord all the time. If lost or damaged, select the same standard cord, please.**

★ **Connect the power cord correctly, to ensure the instrument is earthing.**

2-2-10 Replacing the fuse（fig.12and 13）

Do remember to turn the main switch① on the state of "O"(off) before replacing the fuse, and unplug the power cord. Rotate the fuse ⑥ kits out of the holder⑦ by the "--"type screwdriver, replace a new fuse, then rotate back to the holder again.

★ Fuse rating: 250V，500mA.

3. Adjustment BS-2090

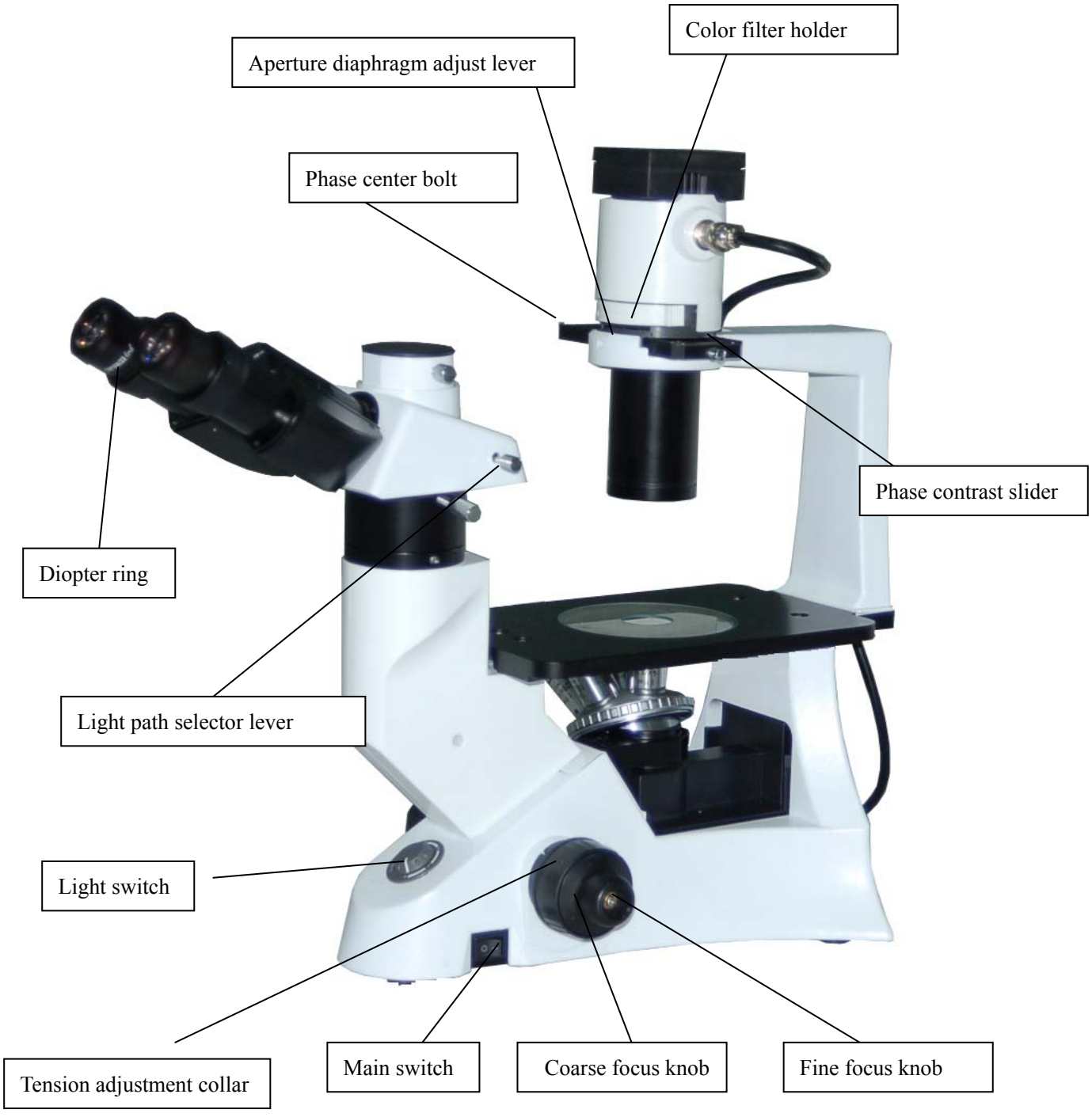

Figure 15

4. Operating the adjustment BS-2090

4-1 Microscope base

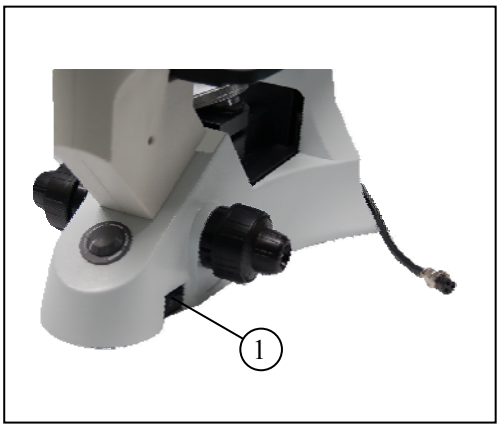

Figure 16

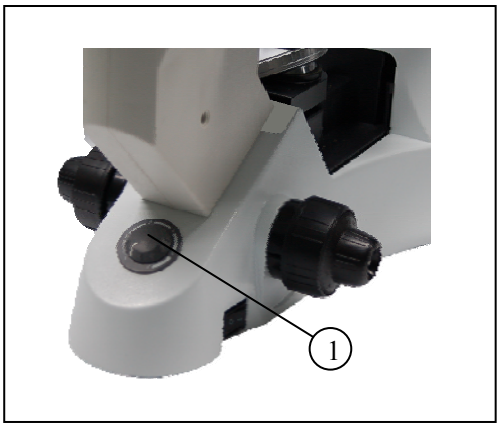

Figure 17

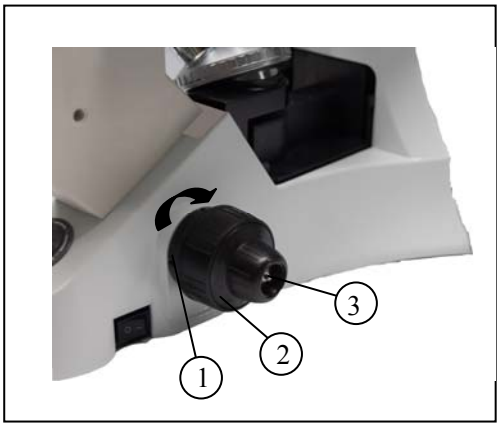

Figure 18

4-1-1 Turning on the lamp （fig.16）

Connect the power, turn on the main switch ①(shown on the fig.16)which on the bottom side of the base to "—"(on).

4-1-2 Adjusting the brightness （fig.17）

Turning the brightness adjustment knob clockwise, the voltage raise, and the brightness strengthen; whereas turning at the contra direction, the voltage decline, and the brightness weaken.

◎ Using the lamp in a low voltage condition, will prolong the service life.

4-1-3 Adjusting the Tension Adjustment Collar（fig.18）

★ The tight tension of the coarse focus knob ②had already adjusted before leaving factory.

◎ How to adjust the tight tension

Turning the tension adjustment collar ①. while revolving at the direction which shown by the arrowhead on the figure, the tight tension of the coarse focus knob② is increasing； and if at the contra direction ,the tight tension will decline.

If the nosepiece dropped automatically, or the specimen defocused soon even you focus with the fine focus knob③. It means the coarse focus knob is too loose, you should screw it down at the direction shown by the arrowhead in the figure18.

4-2 Stage

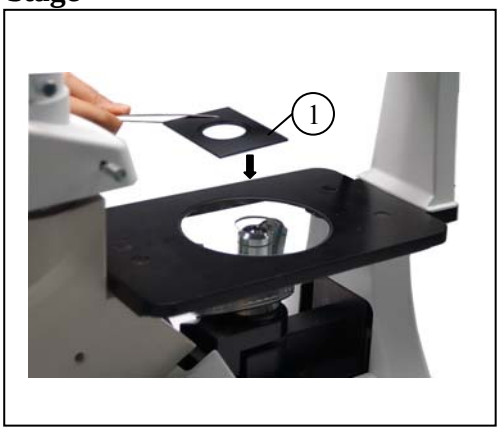

Figure 19

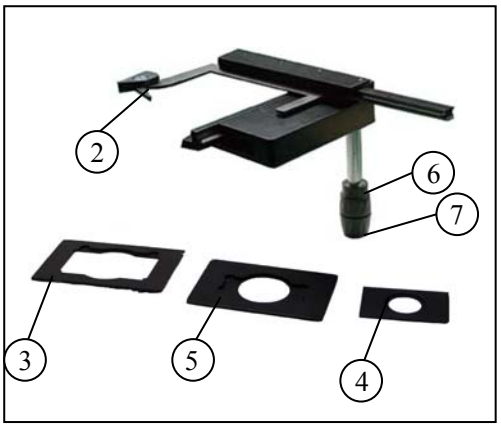

Figure 20

4-2-1 Setting the specimen（fig.19and fig.20）

Set the specimen in the center of the stage, please.

★ to obtain the best observe effect, please select the containers, such as culture dish and culture bottle, with the bottom thickness is 1.2mm, and the same thickness is also required by the object slide when it is laid the specimen.

◎using the Φ35mm culture dish

You can lay aΦ35mm culture dish on the stage directly by using the standard center board① of the stage.

◎ using the mechanical ruler

1. When using the 96bit or 24bit micro-titration board, please fasten it tightly by the stage clips②.
2. When fastening other model boards, please use the following supplied brackets with mechanical ruler:

- Terasaki bracket③ for Terrasaki board
- Culture dish bracket④ for Φ35mm culture dish
- Object slide bracket⑤ for object slide and Φ54mm culture dish

3. Turning the transverse knob ⑥and lengthways knob ⑦, move the specimen to the required position. (Movement Range: 120（width）×78（Length）mm）

4-2-2 Moving the specimen

Turn the knob of the mechanical ruler or use your hands directly to move the specimen to the position you wanted, please.

★ be careful when you replace the objective, please, especially after a short work distance observation. Not let the objective to touch the stage inserted plate or the culture dish bracket.

4-3 the viewing tube

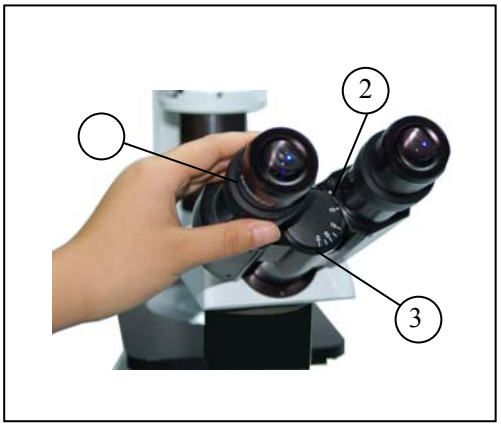

Figure 21

Figure 22

4-3-1 Adjusting the diopter (fig.21)

1. Look into the right ocular by your right eye, then revolving the coarse focus knob to focus on the specimen.
2. Then use your left eye to look into the left ocular. If the image is not sharp, just use the diopter adjustment ring① to adjust please.

★ **There are ±5 diopter in the adjustment ring. The number which the reticle on the eyepiece holder pointed is your eye's diopter graduation.**

4-3-2 Adjusting the interpupillar distance （fig.22）

When observing with two eyes, hold on the left and right prism holder, turn around the axis, adjusting the interpupillar distance until the left and right fields of view coincide completely.

★ **The reticle on the interpupillar distance indicator③, pointed by the spot "." ②on the eyepiece holder, shows the scale of the interpupillar distance.**（fig.21）

The range of the interpupillar distance：48～75mm。

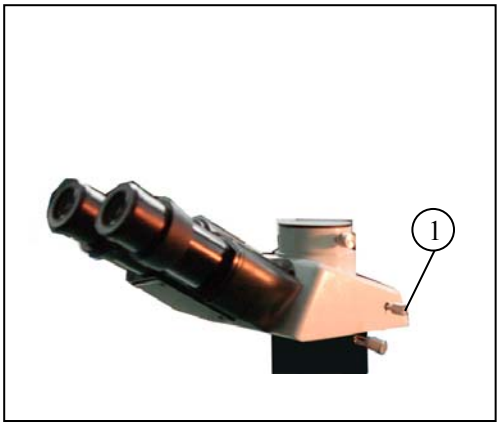

Figure 23

4-3-3 Switching the light path（fig.23）

◎ Pulling out the light path selector lever① by your thumb, select the light path you needed.

◎ when in the binocular observation, pushing in the lever until you heard a “clicked” .while in video or photography, pulling out the lever until it reached the “clicked” position.

Light path selector lever	Brightness proportion	application
Pushing in the lever until it reached the limit position	100% used for binocular observation	Binocular observation
Pulling out the lever until it reached the limit position	20% used for binocular observation, and 80% used for video or photography	Binocular observation, television, and micrography or video can be operated simultaneous

4-4 Illumination Unit

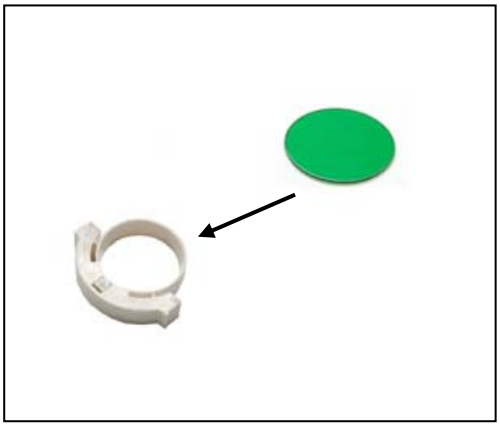

Figure 24

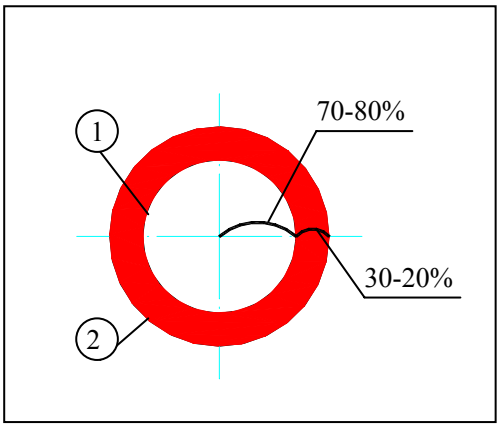

Figure 25

4-4-1 Using color filters（fig.24）

◎ Selecting the appropriate color filters according your need, it became more effective to observe or photography the specimen. Especially, we suggest using the LBD color filter, which can compensate more neutral colors.

◎ You could pile up a group of color filters to the filter holder, if you ensure they are level and the whole thickness is less than 11mm.

Color filter	meaning
IF550	Single contrast color filter (green)（used for the phase contrast microscopy）
LBD	Color temperature transit color filter（blue）（used for bright field observation and microphotography）

4-4-2 using the aperture diaphragm（fig.25）

- When in the bright field observation, the aperture diaphragm control the numerical aperture of the illumination system. Only when the numerical aperture of the objective and the illumination system being matching, you can obtain the higher image resolution and contrast, and the increased depth of field, too.
- To recognize the aperture diaphragm, you could remove the eyepiece if necessary. (you also could insert in the center telescope)then looked into the viewing tube, you might see a field of view like the figure shown. The proportion could be changed by dialing the aperture adjustment lever according your need. (①is the image of the aperture diaphragm , ② is the edge of the objective)
- Generally, when observing the chromatic specimen, you need to set the size of the condenser aperture diaphragm at 70%～80% of the numerical aperture which marked in the objective. but if observing the bacterium specimen which not colored, you could turn the aperture diaphragm lever at the direction of "◎" (clockwise).

5. Phase contrast viewing BS-2090

5-1 The name of the components

Figure 26

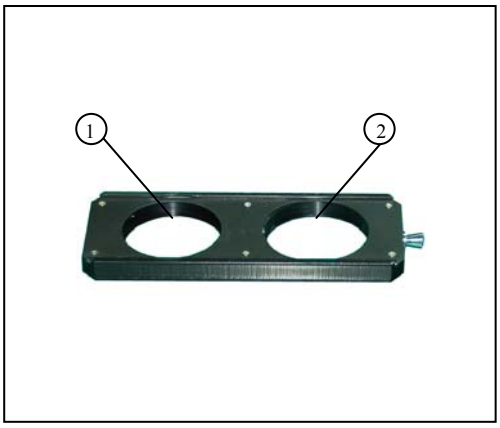

Figure 27

5-1-1 Phase contrast objective（fig. 26）

◎ the optional magnification of the phase contrast is :10X、20X。

◎ If you want to know how to mount the phase contrast objective, please see **2-2-4**. You ought to mount it on the turret.

5-1-2 Phase contrast slider（fig.27）

◎ phase centering adjustable slider

◎ The light ring was centered beforehand, so it needn't to adjust in the use process. If the ring is not in the center, you could adjust by the centering bolt.

◎ The 10X/20X light ring ①is worked with the 10X,20X phase contrast objective, while the opening② is used for bright field .

5-2 The installation and use

Figure 28

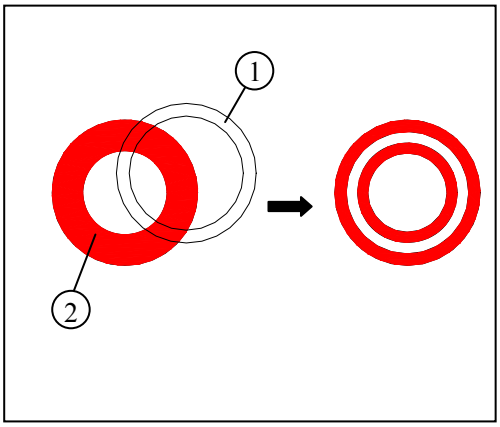

Figure 29

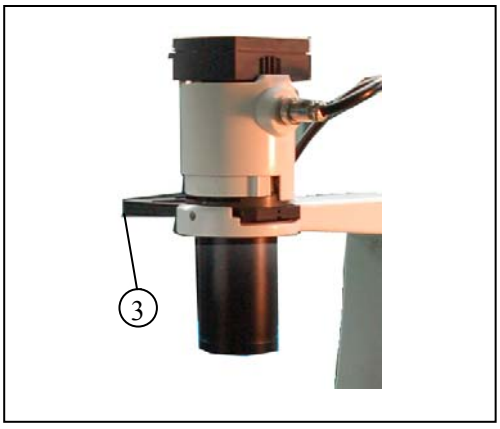

Figure 30

5-2-1 Installing the phase contrast slider（fig.28）

1. Keep the slider① face (the surface which had character) up towards, then inserted it into the illumination system from the right to the left like the figure showed.
2. Every light ring or opening has its own located position, so you need to move them until you heard the “clicked” to ensure the ring or the opening reache the center of the light path.
3. When in the phase contrast observation, do keep the aperture diaphragm adjustment lever ② on the position of “O” (wide opening).

5-2-2 The centering ring（fig.29 and fig.30）

★ **Usually you needn’t the operation of centering. If necessary, please accord to the following steps:**

1. Place the specimen on the stage and focus it.
2. Take out the eyepiece, replace it with the CT (the centering telescope),and inserted it into the viewing tube without diopter adjustment.
3. Make sure the matched phase contrast objective and light ring (in the phase contrast slider) have been in the center of the light path.

4. Using the CT to look the light ring's image① and the phase contrast ring's image②, if the light ring's image is not sharp, please shifting the CT's ocular until you can see a clear image of the light ring②.
5. Adjusting the bolts of the two centering holes③ in the phase contrast slider by the screwdriver ③until the light ring center and the phase contrast center are coincided.
6. The 10X and the 20X phase contrast objective use the same light ring on the phase contrast slider. So you need to check the coincidence of the light ring center and the phase contrast center when changing the objective. If having departure, you ought to center again.

★ If the light ring is centering incorrectly, you will fail to obtain the best viewing effect of the microscopy.

★ After removing or replacing a thick specimen, the light ring and the phase contrast ring are likely to deviate each other, which will result in a decline of the image contrast. So if happened, please repeat the steps as above.

★ If the container or the cover flip which used to place the specimen is not flat, it maybe need to repeat the centering steps for obtaining a more contrast effect. Please center the light ring by the phase contrast objective, according to the sequence of low to high magnification.

6. Microscope photography and video BS-2090

6-1 Microscope video

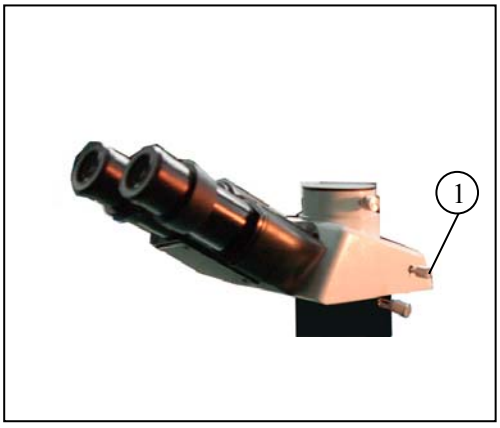

Figure 31

6-1-1 selecting the light path（fig.31）

★ just used in the trinocular observation

1. Pulling out the light path selector lever, until you heard the “clicked”.

★ In the dark specimen observation, you can make the focus by both eyes at first, then change the light path.

6-1-2 Installing the video set（fig.32）

1. Loosen the locking bolt① on the trinocular viewing tube, and take out the dust cap②.
2. Remove the dust cover on the both ends of the video accessories③, and revolve the screw head end into the CCD/CMOS port.
3. Install the accessories into the tri-through port, and screw down the bolt①.

6-1-3 Focus（fig.32）

Doing a binocular observation at 20% brightness, look the image on the video or the computer which connected with the microscope video system when the image is sharp. If it is not in focus, please turning the revolving video connected tube④ until the image is sharp enough.

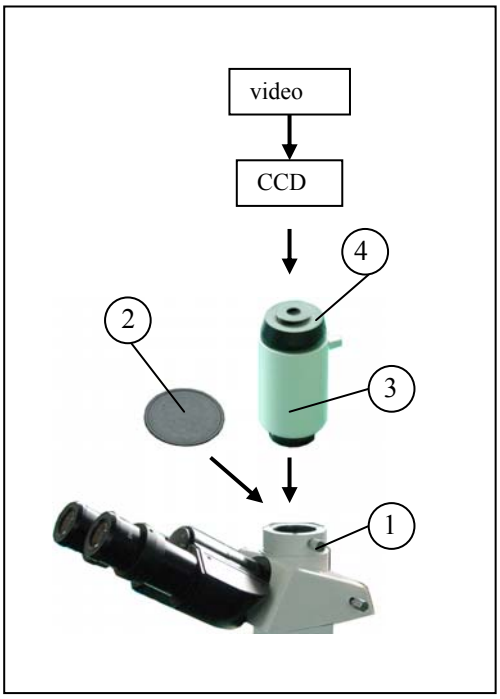

Figure 32

6-2 Microscope photography

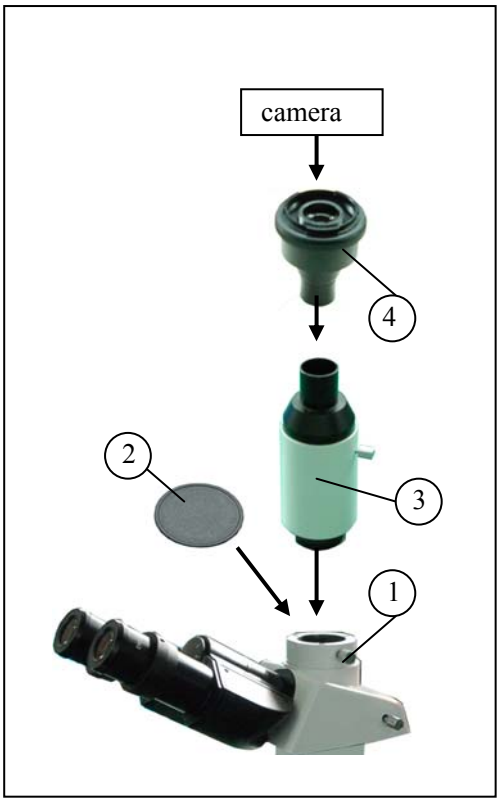

Figure 33

6-2-1 selecting the light path

★ just used in the trinocular observation

The operation diagram is shown in **6-1-1**, and the details reference is in **4-3-4**。

6-2-2 Installing the photography set （fig.33）

1. Loosen the locking bolt① on the trinocular viewing tube, and take out the dust cap②.
2. Install the photography accessories③ into the tri-through port, and screw down the locking bolts①.
3. Inserted the camera gate which on the digital photography connected head④ into the correspond position of the camera set port, and screw it down clockwise.
5. Plug the digital photo connected head into the photo tube, then screw down the locking bolts①.

- Before connecting the camera and adapter, remove the camera lens firstly, then connect the lens port with the adapter. Pay attention to the gate type, please.
- To avoid the disturbing from the ocular in the observation, please place the viewer finder on the two sides of the microscope when installing the camera set.
- The camera magnification = objective magnification ×camera lens magnification

★ When shooting the micrograph, the lens close will bring an impact in some camera. In order to weaken the impact, and obtain a clear image, you could select a longer time of exposure or decrease the brightness to have some compensation.

★ This explanation is used for NiKon Single-lens reflex digital camera

6-2-3 Focus

Do the binocular observation at 20% brightness, and focus primary. When in microscope photography, do use the camera viewfinder to focus the specimen. Please refer the user manual of the camera set to obtain the details.

6-2-4 Adjusting the color temperature

◎ When shooting the chromophotograph, please use the sunlight film.

1. Mount the LBD temperature changed color filter on to the color filter bracket.
2. Turn the brightness adjustment knob to the maximal position, so you obtain a sunlight illumination.

7. Technical specifications BS-2090

7-1 Main specifications

Optical system	Infinite Optical System
Viewing Tube	Compensation Free Trinocular Tube Inclined at 30; Division ratio: 20% of Binocular Viewing and 80% of Video Viewing & Micrography
Eyepiece	Wide Field Eyepiece 10X, Linear Visual Field: 22 mm
Nosepiece	Backward Quintuple Nosepiece
Objective	Infinite Long Working Distance Plan Achromatic: 4X、40X Infinite Long Working Distance Plan Phase Contrast: 10X、20X
Focusing System	Coaxial Coarse and Fine Focusing System Sensitivity and Graduation of Fine Focus: 0.002mm Movement Range(from the surface focus of stage plate): up 8mm, down 3mm
Stage	Area: 160（width）×250（Length）mm
Mechanical ruler	Movement Range: 120（width）×78（Length）mm
Illumination	Halogen Lamp 6V30W, Preset Center, Intensity continued Adjustable
Condenser	Long working Distance Condenser, Numerical Aperture 0.3, Working Distance 72mm
Operation environment	● Use indoor ● Altitude: Maximum 2000 m ● Temperature: 5℃~40℃（41° F~109° F） ● Maximum Relative Humidity: 80% at 31℃（88° F）, then Fall Linear. ● 70% at 34℃（93° F）, 60% at 37℃（104° F）,50% at 40℃（104° F）. ● Pollution Degree:2 (refer to IEC60664)

7-2Objective Specifications

TYPE	MAGNIFICATION	NUMERICAL APERTURE（N.A）	WORKING DISTANCE（mm）	CONJUGATE DISTANCE（mm）	FOCUS DISTANCE（mm）	COVER SLIP THICKNESS
Infinite Long Working Distance Plan Achromatic Objective	4X	0.1	25.2	∞	45	—
	40X	0.6	3.2	∞	45	1.2mm
Infinite Long	10X	0.25	11	∞	45	0. 17

Working Distance Plan Phase Contrast Objective	20X	0.4	6	∞	45	0. 17

8. Trouble Shooting BS-2090

Under certain condition, some no-fault factors will bring a reversible influence to the instrument's performance. If the problem is happened, please take proper measures according to the follow table. If you can't solve the trouble by the supplied methods, please contact with the sales department of our company.

PROBLEM	REASON	SOLUTION	PAGE
I、Optical Part:			
1. The illumination is opening, but the field of view is dark.	The plug of the lamp holder is not connected into the illumination set	Connect them well	3
	The bulb burnt out	Change a new lamp	3
	The brightness is too low	Adjust to a proper position	8
	The color filter is piled too much	Minimize the number of the filters	11
	No use the appointed lamp bulb	use the specified halogen Lamp 6V30W	3
2. The edge of the field of view has shadow or the brightness is asymmetry	The nosepiece is not in the located position	Turn the nosepiece into the position where you can hear "clicked"	4
	the color filter is stopped midway	Insert deeply	5
	The phase contrast slider is not located in the proper position	Turn the slider into the "clicked" position	13
3. Find dust and stain in the field of view	There are stains on the specimen	Change a clean specimen	
	There are stains and dust on the eyepiece	Clean the eyepiece	
4. appear double image	the size of the aperture diaphragm is too small	Open up the aperture diaphragm	11
5. Resolution problems: ● Image is not sharp; ● The contrast is	The nosepiece is not in the center of the light path	ensure the nosepiece is turned into the "clicked" position	4
	the aperture diaphragm in the view of field is opened too large or too small	adjust the aperture diaphragm correctly	11

not high; ● The detail is not clear; ● Don't obtain the phase contrast effect	The lens (condenser, objective, ocular or culture dish) become dirty	Clean all	
	In the phase contrast observation, the bottom thickness of the culture dish is more than 1.2mm.	Use a the culture dish whose bottom thickness is less than 1.2mm	9
	Use a bright field objective	Change to the phase contrast objective	12
	The condenser ring is not coincident with the objective phase ring	Adjust the condenser ring to match the objective phase ring	12
	The light ring and the phase contrast kits is not centered	Adjust the bolts to center them	12
	The objective used is not fit to the phase contrast observation	Please use the compatible objective	12
	When looking at the edge of the culture dish, the phase contrast ring and the light ring is deviated each other	Moving the culture dish until you obtain the phase contrast effect. You also could demount the slider, and dail the field diaphragm with the direction of ""	13
6.one side of the image is unfocused	The nosepiece is not in the center of the light path	Insure the nosepiece is in the "clicked" position	4
	The specimen don't place properly	Place the specimen on the stage correctly.	9
	The optical performance of the culture dish bottom is poor (such as erose figure and soon)	Please use a regular culture dish	

PROBLEM	REASON	SOLUTION	PAGE
II、Mechanical Part:			
1.The coarse focus knob is hard to run	The tension adjustment collar is too tight	Loose properly	8
2.The image can't stay on the focal plane in the process of the observation	The tension adjustment collar is too loose	Tighten properly	8
III.Electric Part:			
1 The lamp can't light	No power supply	Check the power cord, and connect them exactly	6
	the installation of the bulb is wrong	Install the bulb correctly	3
	The bulb burn out	Change a new bulb	3
The bulb burns out in a high frequency	Not use the specified lamp	Use the required lamp	3
1、 The height of the brightness is not enough	Not use a appointed lamp	use a appointed lamp	3
	The brightness adjustment knob is used wrong	Adjust the brightness adjustment knob in a correct way	8
2、 The light glimpse	The bulb is going to spoil	Change the bulb	3
	The power cord have a poor contact	Check the power cord, and connect them exactly	6
Ⅳ. Viewing tube			
The two eyes' field of view is different	The interpupillar distance is not correct	Adjust the interpupillar distance	10
	The diopter is not right	Adjust the diopter	10
	Not adapte to the microscope observation	When look into the objective, do not stare at the specimen but at the whole field of view, or move the eyes away to see other things, then back into the objective	
Ⅴ. Microscope video			
1.the image is unfocused	Focus incorrectly	Adjusting the focus system, make the double reticle and the specimen distinctly to see	10
There is faintness around the image	It is a inherent character of the achromatic objective	The problem is unavoidable if you used an achromatic	

		objective	
3.The indoor window or the fluorescence lamp develop	The extra light entered into the eyepiece and viewfinder is reflected	Cover up the eyepiece and the viewfinder of the microscope illumination system	