

# User Manual

## Binocular Stereo Microscope

Model G222



[MicroscopeNet.com](http://MicroscopeNet.com)

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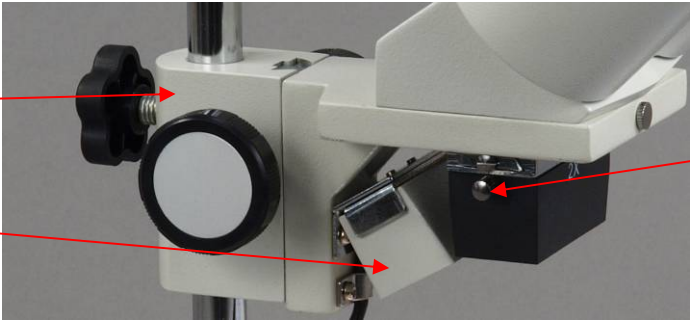
## i. Caution

1. Find the “UP” sign and place the Styrofoam container on your table or bench so that the arrow is pointing upward. Open the shipping carton carefully to prevent any accessory items (i.e. objectives or eyepieces) from dropping and being damaged.
2. Do not discard the molded Styrofoam container; the container should be retained should the microscope ever requires reshipment.
3. Keep the instrument out of direct sunlight, high temperature or humidity, and dusty environments. Ensure that the microscope is located on a smooth, level and firm surface.
4. If any specimen solutions or other liquids splash onto the stage, objective or any other component, turn off the power and disconnect the power cord immediately and wipe up the spillage. Otherwise, the instrument may be damaged.
5. All electrical connectors (power cord) should be inserted into an electrical surge suppressor to prevent damage due to voltage fluctuations.
6. For safety when replacing tungsten bulb, be sure the main switch is off, unplug the power cord.

## ii. Care And Maintenance

1. Do not attempt to disassemble any component including eyepieces, objectives or focusing assembly.
2. Keep the instrument clean; remove dirt and debris regularly. Accumulated dirt on metal surfaces should be cleaned with a damp cloth. More persistent dirt should be removed using a mild soap solution. **Do not use organic solvents for cleansing.**
3. The outer surface of the optics should be inspected and cleaned periodically using an air stream from an air bulb. If dirt remains on the optical surface, use a soft cloth or cotton swab dampened with a lens cleaning solution (available at camera stores). All optical lenses should be swabbed using a circular motion. A small amount of absorbent cotton wound on the end of a tapered stick makes a useful tool for cleaning recessed optical surfaces. Avoid using an excessive amount of solvents as this may cause problems with optical coatings or cemented optics or the flowing solvent may pick up grease making cleaning more difficult.
4. Store the instrument in a cool, dry environment. Cover the microscope with the dust cover when not in use.

# 1 Components Illustration



- 1. Eyepiece
- 2. Diopter Adjusting Ring
- 3. Eyepiece Tube
- 4. Objective Housing (objectives inside)
- 5. Stage Clip
- 6. Stage Plate
- 7. Microscope Base
- 8. Binocular Head
- 9. Focusing Assembly Lock Knob
- 10. Focus Knob
- 11. Upper Light Lock Thumb Screw
- 12. Stand Post
- 13. Power Switch
- 14. Stage Plate Lock
- 15. Rubber Eyeguard
- 16. Focusing Assembly
- 17. Upper Light
- 18. Body Lock Thumb Screw

## 2 Operation

### 2.1 Changing the stage plate

- 1) Loosen the stage plate lock at the right side of stage plate shown in Fig.1, using the Allen key provided.
- 2) Take off the glass plate and put the white/black plate in (or vice versa).
- 3) Tighten the stage plate lock.

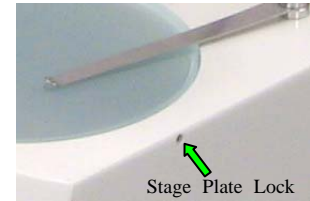


Fig.1

### 2.2 Choosing the light

- 1) Plug the power cord in a power outlet.
- 2) Push or pull the switch bar to the direction shown in Fig.2 to turn on the upper light or lower light.
- 3) Put the switch bar at the middle position to turn off the light.

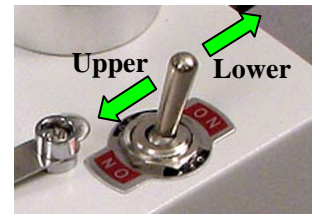


Fig.2

### 2.3 Tension adjustment of focusing knobs

- 1) Put the wrench supplied at the position shown in Fig. 3.
- 2) You can tighten the tension in either direction shown in Fig.4. i.e. turning in one direction will tighten the tension; turning back will loosen the tension. If you continue turning, you will tighten the tension again.
- 3) Set the knob tension at the level that ensure no unintentional movement and easy to operate.



Fig.3

### 2.4 Placing the specimen

- 1) Put the specimen in the center of the stage plate, and hold the specimen with the stage clips if necessary.
- 2) Turn on the upper or lower light.

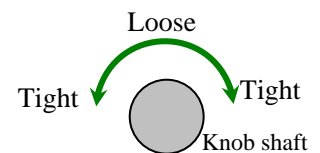


Fig.4

### 2.5 Focusing

- 1) Loosen the focusing assembly lock knob to adjust the height of viewing head so that the distance between the objectives and specimen is about 60 mm. Then tighten up the focusing assembly lock knob.
- 2) Turn the focus knob until the specimen is in focus.

### 2.6 Adjusting interpupillary distance

While observing with both eyes, hold the left and right eyepiece tubes, swing inwards or outwards shown in Fig. 5. The interpupillary distance is correct when the left and right fields of view converge completely into one image.



Fig.5

### 2.7 Adjusting eyepiece diopter

- 1) Using your right eye only, observe your specimen through the eyepiece and bring it into focus by adjusting the focus knob.
- 2) Then observe the specimen with your left eye only through the left eyepiece. If the specimen is not in focus, rotate the diopter ring shown in Fig. 6 until a sharp image is obtained.



Fig.6

### 2.8 Replacing the upper tungsten bulb

- 1) Turn off the power and unplug the power cord from the microscope.
- 2) Loosen the upper light lock thumb screw shown in Fig. 7 with holding the light cover, take the cover down, find the dead tungsten bulb.
- 3) Take it out, put a new one in.
- 4) Put the cover back and hold the cover, tighten the upper light lock thumb.



Fig.7

### 2.9 Replacing the lower tungsten bulb

- 1) Turn off the power and unplug the power cord from the microscope.
- 2) Loosen the stage plate lock at the right side of stage plate shown in Fig. 8 using the Allen key provided.
- 3) Take off the stage plate and find the dead tungsten bulb.
- 4) Take it out, put a new one in.
- 5) Put the stage plate back and tighten the stage plate lock.

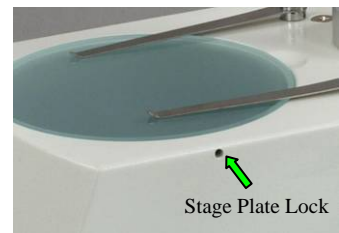


Fig.8

### 2.10 Installing the Rubber Eyeguard

Put the rubber eyeguards on the both top of the eyepieces shown in Fig. 9.



Fig.9

### 3 Specifications

<b>General</b>	
Model	G222
Total Magnifications	30X
Viewing Head	Binocular, inclined 45°
Eyepieces	Wide field WF15X
Objectives	Dovetail inserted style objective: 2X
Field of View	7.5mm
Diopter Adjustment	On left eyepiece tube, ± 5dp
Interpupillary Distance	Adjustable, 2-3/16" ~ 2-15/16" ( 55mm – 75mm)
Working distance	3-1/8" (80mm)
Illumination	Dual lights: Incident light (upper): 12V/10W tungsten Transmitted light (Lower): 12V/10W tungsten
Stage Plate	Frosted glass plate, 3-3/4" (95mm) in diameter White/black plastic plate, 3-3/4" (95mm) in diameter
Focusing	Adjusting knobs on both sides, tension adjustable Focusing stroke: 1-5/8" (42mm) Moving range along the stand post: 2-3/4" (70mm)
Power Supply	110V/60Hz (US and Canada)
Dimension	7 -1/2" x 4-3/4" x 12-1/2" (19cm x 12cm x 32cm)
Net Weight	5 lb 11 oz (2.6 kg)

<b>Eyepieces</b>		
Designation	Magnification	Field of View
Wide Field	15X	7.5mm

<b>Magnifications</b>	
Eyepiece	15X
Objective	2X
Magnification	30X



## 4 Troubleshooting

<b>Symptom</b>	<b>Cause</b>	<b>Remedy</b>
Totally dark in the view field	The cover of objectives is still on	Take off the cover of objectives
Darkness at the periphery or uneven brightness in the field of view	Rotating objectives are not in click stop position	Turn the objectives to click-stop position
Stains or dust on the field of view	Stains or dust on the eyepieces or objectives	Clean the lens with a camera cleaning kit
	Stains or dust on the specimen	Clean the specimen
Can not focus	The focus block/objectives is too far away or too close to the specimen and out of the range of focus stroke	Adjust the height of the viewing head so that the distance between the objectives and specimen is about 60 mm.
Image moves while focusing	Specimen rises from stage surface	Secure the specimen
	Rotating objectives are not in the click-stop position	Turn the objectives to the click-stop position
Slippage of focus when using the focusing knob	The focusing knob tension is too loose	Tighten appropriately