User Manual

Monocular Compound Microscope w/ Phototube

Model M6V3

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 upward. Open the shipping carton carefully to prevent any accessory, 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, disconnect the power cord immediately and wipe up the spillage. Otherwise, the instrument may be damaged.

5. **Important**: the lamp, lamp housing and adjacent parts will become very hot. Do not touch these parts until they have completely cooled. Never attempt to handle a hot halogen bulb.

6. All electrical connectors (power cord) should be inserted into an electrical surge suppressor to prevent damage due to voltage fluctuations.

7. For safety when replacing the lamp or fuse, be sure the main switch is off, unplug the power cord, and only replace the tungsten bulb after the bulb and the lamp house has completely cooled.

8. Confirm that the input voltage indicated on your microscope corresponds to your line voltage. The use of a different input voltage other than that as indicated will cause severe damage to the microscope.

ii. Care and Maintenance

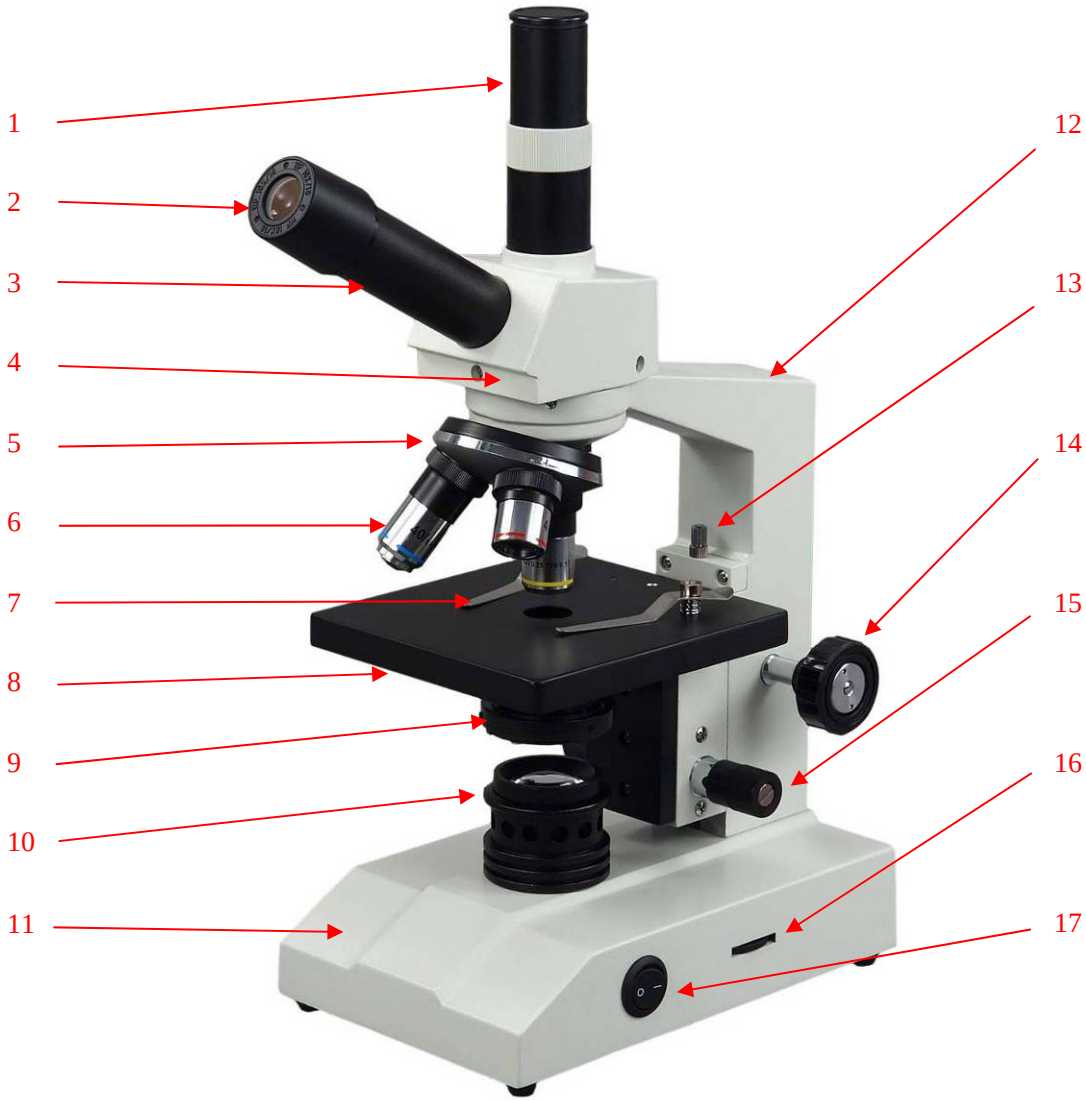
1. Do not attempt to disassemble any component including eyepieces, objectives or focusing assembly.

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. Oil immersion objectives should be cleaned immediately after use by removing the oil with lens tissue or a clean, soft cloth.

4. Store the instrument in a cool, dry environment. Cover the microscope with the dust cover when not in use.

1 Components Illustration



1. Photo Tube
2. Eyepiece
3. Eyepiece Tube
4. Viewing Head
5. Nosepiece
6. Objective
7. Slide Clips
8. Stage
9. Condenser
10. Light Collector
11. Base
12. Body
13. Focus Stop
14. Coarse Focus Knob
15. Fine Focus Knob
16. Intensity Dial
17. Power Switch

2 Installation

2.1 Installation of the eyepieces

1) Remove the protective caps from the eyepiece tubes.
2) Insert the eyepiece into the eyepiece tubes and secure it by the small screw.

2.2 Installation of the objectives

1) Adjust the coarse focus knob until the stage is at its lowest position.
2) Install the 4x objective into the nosepiece. Then in a clock-wise direction, rotate the nosepiece and install each succeeding higher magnification objective.

Note: When changing the objective magnification, rotate the objective nosepiece until you hear a “click” sound. This ensures the objective is centered in the optical light path.

2.3 Installation of glass filter

1) Swing out the filter holder under the condenser.
2) Insert the filter into the holder, swing the holder in.

2.4 Changing the bulb

1) Turn the power off and disconnect the power cord.
2) Allow some time to cool down the lamp.
3) Turn over the microscope on its side.
4) Open the cover on the bottom of the base by loosening the four screws on the corners.
5) Take out the dead bulb and insert the new bulb.
6) Screw the cover on.

Caution: Before you turn over the microscope, be sure to take the eyepiece off.

2.5 Replacing the fuse

1) Turn off the power and disconnect the power cord.
2) Turn the fuse holder counter-clockwise and take it off, insert new fuse, then turn it on clockwise firmly.

Note: The fuse is located beside the power plug connector on the back of the base.

3 Operation

3.1 Adjusting illumination

1) Connect the power cord and turn on the power switch.
2) Rotate the variable intensity dial to increase or decrease the brightness.

3.2 Placing specimen

1) Place the slide on the stage.
2) Use the slide clips to gently secure the slide.

Caution: Be sure not to allow an objective to touch a specimen slide when changing objectives.

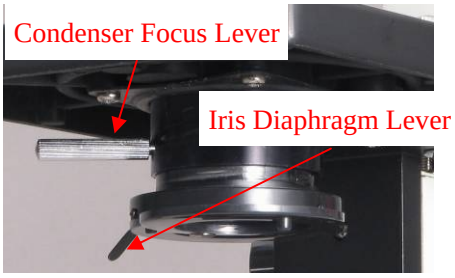
3.3 Focusing

1) With the 10x objective in position, raise the stage using the coarse focus knob until the specimen is close to the objective
2) Turn the coarse focus knob until the specimen is in focus.
3) Then use the fine focus knob to obtain a sharp image. You may now switch to another magnification objective.

Tips: To prevent your specimen slide from making contact with an objective, adjust the focus stop screw so that the stage can be raised to its highest position without contacting the 100x objective, then tighten the nut on the stop screw..

3.4 Condenser focusing

Slide the condenser focus lever located below the stage. Slide it to right to raise and slide it left to lower it. The condenser is raised when using high magnification objectives and lowered when using low magnification objectives.



Note:

- The centering of the condenser and the light axes of the objective are factory adjusted. Do not attempt re-adjustment.
- The highest position of the condenser has been factory adjusted. Do not attempt re-adjustment.

3.5 Adjusting iris diaphragm

Slide the Iris diaphragm lever left or right to adjust the aperture size.

Note: The iris diaphragm is designed to adjust the aperture size, not to adjust brightness.

3.6 Adjusting tension knob

The tightness of the tension adjustment collar has been pre-set at the factory. If the stage drops by itself, rotate the tension adjustment collar until the tension is in maintained.

4 Specifications

General	
Model	M6V3
Total Magnification	40X, 80X, 100X, 200X, 400X, 800X
Viewing Head	45º inclined, 360º swiveling, monocular with phototube
Eyepieces	1 wide field eyepieces WF10X/18 1 wide field eyepieces WF20X
Objective Tube Length	160mm
Nosepiece	Revolving triple nosepiece
Objectives	Achromatic 4X, 10X, 40X (spring)
Condenser	Abbe, NA=1.25, w/ iris diaphragm and filter holder, spiral adjustment
Focus Mechanism	Separate coarse and fine focus knobs on both sides, with focus stop
Stage	Plain stage with slide clips
Illumination	Transmitted: 110V/15W, Tungsten, Variable intensity
Power Supply	AC 110V, 60HZ
Net Weight	7 lbs 4.5 oz (3.3 kg)

5 Troubleshooting Guide

Optical Problems		
Problem	**Cause**	**Solution**
Darkness at the periphery or uneven brightness in the field of view	Revolving nosepiece not in click stop position	Revolve the nosepiece to click-stop position by swinging the objective correctly into the optical path
	The light source of the bulb is not at the center	Adjust the position of the bulb
Dirt or dust on the view	Dirt or dust on the lens eyepiece, condenser, objective, collector lens or specimen	Clean the lens with a camera cleaning kit
Poor image quality	No slide cover attached to the slide	Attach a 0.17mm slide cover
	Slide cover is too thick or thin	Use a slide cover of the appropriate thickness (0.17mm)
	Slide may be upside down	Turn slide over so the cover-glass faces up
	Condenser aperture is closed or open too much	Open or close properly
	Condenser is positioned too low	Position the condenser upward

Electrical Problems		
Problem	**Cause**	**Solution**
Lamp does not light when switched on	No electrical power	Check power cord connection
	Lamp bulb burnt out	Replace bulb
	Fuse blown out	Replace fuse

Image Problems		
Problem	**Cause**	**Solution**
Image moves while focusing	Specimen rises from stage surface	Secure the specimen in the slide holder
	Revolving nosepiece is not in the click-stop position	Revolve the nosepiece to the click-stop position
Image tinged yellow	Blue filter not used	Use daylight blue filter
	Lamp intensity is too low	Adjust the light intensity by rotating the intensity control dial
Image is too bright	Lamp intensity is too high	Adjust the light intensity by rotating the intensity control dial
Insufficient brightness	Lamp intensity is too low	Adjust the light intensity by rotating the intensity control dial
	Aperture diaphragm closed too far	Open to the proper setting
	Condenser position too low	Position the condenser upward

Mechanical Problems		
Problem	**Cause**	**Solution**
Image will not focus with high power objectives	Slide upside down	Turn the slide over so the cover glass faces up
	Cover glass is too thick	Use a 0.17mm cover glass
High power objective contacts slide when changed from low power objective	Slide upside down	Turn the slide over so the cover glass faces up
	Cover glass is too thick	Use a 0.17mm cover glass
Slippage of focus when using the coarse focusing knob. Fine focus is ineffective	Tension adjustment is set too low	Increase the tension on the focusing knobs
	Tension adjustment is set too high	Loosen the tension on the focusing knobs