User Manual

Digital Monocular Compound Microscope

Model MD810S

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, disconnect the AC adapter immediately and wipe up the spillage. Otherwise, the instrument may be damaged.

5. All electrical connectors (AC adapter) should be inserted into an electrical surge suppressor to prevent damage due to voltage fluctuations.

6. 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.

7. Don’t try to remove the collector lens before the electrical wires of LED light disconnected (you can find the wires by opening the bottom cover of microscope base)

ii. Care and Maintenance

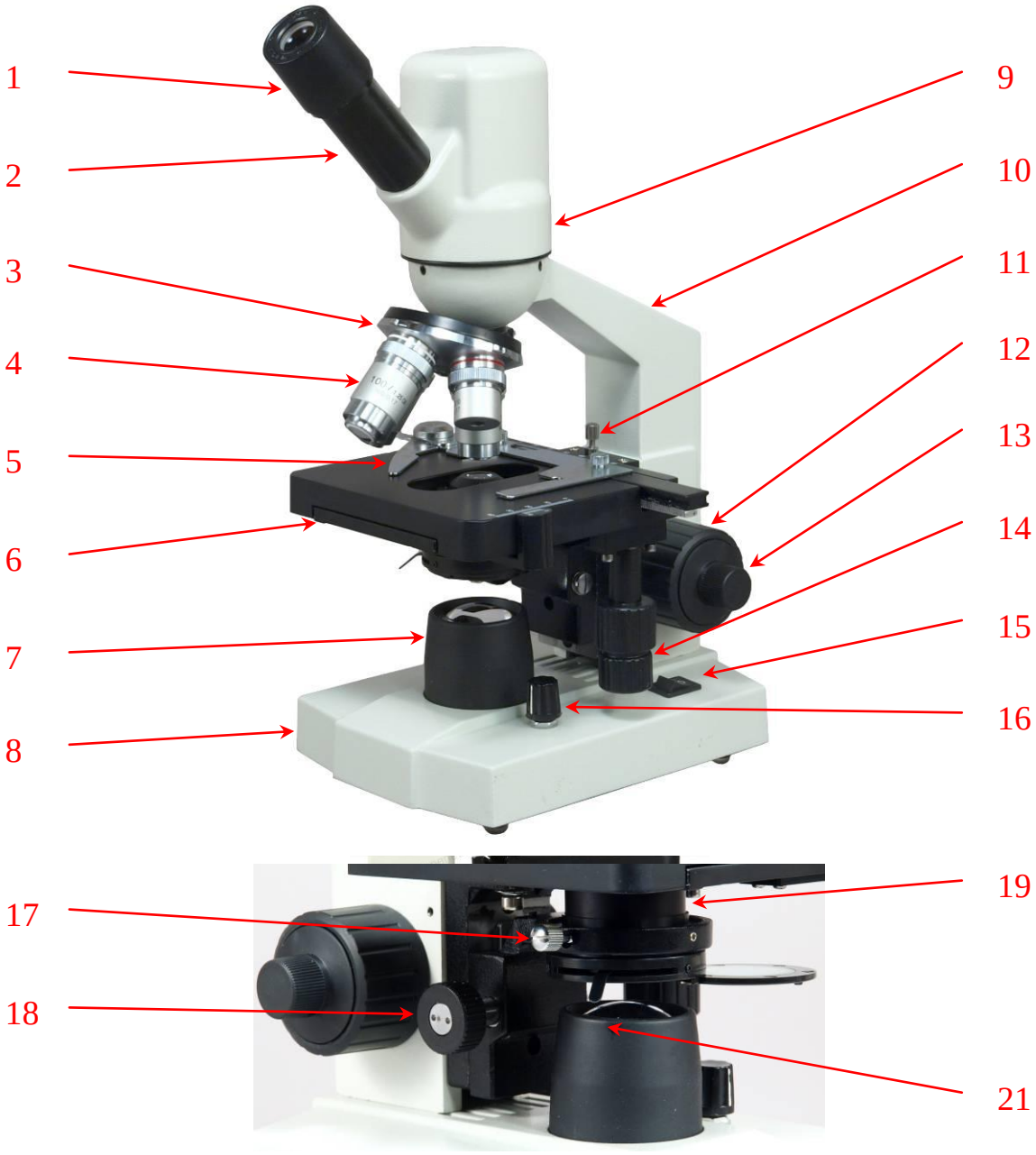
1. Do not attempt to disassemble any component including eyepieces, objectives or focusing assembly.

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. Eyepiece
2. Eyepiece Tube
3. Nosepiece
4. Objective
5. Slide Holder
6. Mechanical Stage
7. Collector Lens
8. Microscope Base
9. Viewing Head w/ Built-in Camera
10. Microscope Body
11. Focusing Rack Stop
12. Coarse Focus Knob
13. Fine Focus Knob
14. Stage Translational Control Knobs
15. Power Switch
16. Intensity Knob
17. Condenser Holder Screw
18. Condenser Focus Knob
19. Abbe Condenser
20. Illumination Diffusion Filter
21. Iris Diaphragm Adjust Lever

2 Operation

2.1 Adjusting Illumination

1) Connect the AC adapter and turn on the main switch (15).
2) Turn the intensity knob (16) to increase or decrease the brightness.

Caution: A diffusion filter (20) is attached beneath the condenser to get uniform light and protect your eyes from strong LED light when low power objective applied. The diffusion filter can be swing out to make the view field brighter when observing with a 100X objective.

2.2 Placing Specimen

1) Place the slide on the mechanical stage (6).
2) Use the slide holder (5) to gently secure the slide.
3) Turn the X and Y translational knobs (14) to position the specimen for viewing.

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

2.3 Focusing

1) With the 10X objective in position, raise the mechanical stage (6) using the coarse focus knob (12) until the specimen is close to the objective
2) Turn the coarse focus knob (12) until the specimen is in focus. Then use the fine focus knob (13) to obtain a sharp image. You may now switch to another magnification objective.

Note: A rack stop (11) is equipped to prevent the objective from touching the slide.

2.4 Adjusting Condenser

1) Turn the condenser focus knob (18) to raise or lower the condenser (19).
2) Raise the condenser (19) when using high power objectives and lower it when using low power 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.

2.5 Adjusting Iris Diaphragm

Move the Iris Diaphragm Lever (21) left or right to adjust the aperture size.

2.6 Camera Operation

Refer to the manual in the CD.

3 Specifications

Model	MD810S
Total Magnification	40X, 80X, 100X, 200X, 400X, 800X, 1000X, 2000X
Viewing Head	Monocular, inclined 45º, swiveling 360º
Eyepieces	WF10X/18 WF20X
Nosepiece	Revolving quadruple
Objectives	Achromatic DIN 4X, 10X, 40X(spring), 100X(spring, oil)
Condenser	Abbe, NA=1.25, w/ iris diaphragm and diffusion filter Rack and pinion adjustment
Focus Mechanism	Coaxial coarse and fine focusing knobs on both sides with rack stop
Stage	Mechanical stage Dimension: 125 mm x 115 mm Translational range: 70 mm x 22 mm
Illumination	Transmitted, LED, with intensity knob
Camera	Built-in, CMOS, 1.3M Pixel (1280x1024), USB2.0 Compatible with: Windows 2000, Windows XP, Vista32/64 and Windows 7 Image processing software included
Power Supply	AC/DC Adapter, 100V-240V (UL approved)
Dimension	7-1/8” x 5-1/8” x 13-1/8” (18.2 cm x 13 cm x 33.3 cm)
Net weight	6 lb 5.7 oz (2.89 kg)

4 Troubleshooting Guide

OPTICAL PROBLEMS

Problem	Cause	Solution
Darkness at the periphery	Revolving nosepiece not in click stop position	Revolve the nosepiece to click-stop position by swinging the objective correctly into the optical path
Uneven brightness in the field of view	The diffusion filter is not in the light path	Check the diffusion filter and make sure it's in the light path
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
	Dirt or dust on the specimen	Clean the specimen
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
	Immersion oil is on a dry objective (especially the 40x)	Check the objectives, clean if necessary
	No immersion oil used with 100x objective	Use immersion oil
	Air bubbles in immersion oil	Remove bubbles
	Condenser aperture is closed or open too much	Open or close properly
	Condenser is positioned too low or too high	Move condenser upper or lower

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

ELECTRICAL PROBLEMS

Problem	Cause	Solution
Lamp does not light when switched on	No electrical power	Check AC adapter connection

IMAGE PROBLEMS

Problem	Cause	Solution
Image is too bright	Lamp intensity is too high	Adjust the light intensity by rotating the intensity control knob
	Diffusion filter is not applied	Check and make sure the diffusion filter is in the light path
	Aperture diaphragm opened too far	Close to the proper setting
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 is not in the right position	Position the condenser properly
	Diffusion filter used when using 100X objective	Swing out the diffusion filter when using 100X objective