



M250 MICROSCOPE

OPERATION MANUAL

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## **The M-250 Series Microscope**

We thank you for choosing the **UNICO**<sup>®</sup> Microscope. This precisely built, durable microscope should give you years of service to even the busiest lab practice. Our technical and customer support departments stand ready to assist you with any questions or comments you may have.

If ever you require an additional accessory or spare part, please contact your local distributor, or you can contact **UNICO**<sup>®</sup> for the name of the nearest distributor.

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## About your UNICO® M-250 Series Microscope

The UNICO® M-250 series microscopes were designed with the user in mind. Whether it for use in a high school or college, a medical lab, or anyone else needs the best and most versatile microscope available, the M-250 series has a model to meet your needs.

**Objectives:** Each M-250 microscope comes equipped with achromatic DIN flatfield objectives. The color-coded, polished objectives are parfocal and parcentertric. The 100X (oil) and the 40X (high dry) are spring loaded to prevent damage.

**Oculars:** Wide field 10X 18mm eyepieces are included with each M-250 microscope (only one eyepiece for monocular model).

**Filter:** A blue filter is included to sharpen contrast. We recommend that you use it whenever doing routine Hematology or urine analysis.

**Head:** There are three different observation heads available: binocular, monocular and teaching head. The binocular head of M-250 microscope is a seidentoph style that can only be found on clinical and research level microscope.

Your M-250 microscope features: A large mechanical stage with low mounted coaxial controls. Coaxial coarse and fine focus adjustment controls and a moveable Abbe condenser (N.A. 1.25) with filter holder and iris diaphragm are also standard. A built-in slip clutch system is equipped to protect the focusing mechanism and a safety limit setting screw is installed to prevent damage to specimen slides and optics). The swing-out "lamp door" on the bottom of your microscope makes changing the lamp easy and quick with minimum tool requirement.

### Electronics

Your UNICO® M-250 microscope uses quality electrical components. The circuit board in the base of the unit contains all the electrical functions. There are no user repairable parts on the circuit board.

**Input:** AC 115V/60Hz or AC 220V/50Hz. Your M-250 microscope has been preset to the voltage requirements of the USA, Canada, Mexico and the Caribbean. Should you require a different voltage setting, please specify in your order.

**Output:** 6V/20W to a quartz halogen lamp (Replacement part no. B6-7006)

**Fuse:** A fuse protects the circuit board from electrical overload. The fuse case is located on the bottom of the electric base. When replacing the fuse, always install a new one of the same size and amperage (250V 1 A).

## Unpacking your UNICO® M-250 Microscope

Each UNICO® microscope has been packed with utmost care. Please take a moment to examine the outer and inner cartons for any visual damage. We recommend that you keep all of the packing material until you have fully assembled, examined and tested your new microscope. If you note any damage, please contact the shipping company or your distributor.

Unpack your M-250 microscope using the following checklist for the parts and accessories. (Your specific order may vary)

1. Microscope stand with condenser
- 1 Seidentoph style binocular or monocular or teaching head
- 2 10x eyepiece
- 4 Achromatic objectives 4x, 10x, 40xr and 100xr (oil) (or what you have ordered)
- 1 Blue filter
- 2 Replacement fuses
- 1 Dust cover
- 1 Operation manual

If all of the parts are not received, please contact us immediately.

## Assembling Your Microscope

1. Remove the stand of the microscope and place on a sturdy, dust free surface. Set the base so that the UNICO® label faces you.
2. Locate the nosepiece (where the objectives will go), and remove the plastic dust plugs. Save these in the Styrofoam carton.
3. Install the objectives. Each objective is packed in an individual plastic container. Remove each objective from its container, save the containers in the Styrofoam carton. Install the objectives in the following order 4x, 10x, 40x, and 100x.  
NOTE: objectives may be pre-installed.
4. Remove the microscope head from the Styrofoam carton. Remove the plastic dust plugs from the eyepiece tubes as well as the protective plastic cover from the head (save the protective plastic parts). Set the base of the head into the upper arm of the stand and secure with the retention screw.  
**Note: Don't over tighten.**
5. Unwrap the protective tissue/bag from the eyepieces and install one in each eye tube.
6. Slide holder: The slide holder has already been installed on the mechanical stage. If you ever need to remove the slide holder, locate the hold down screws. Loosen the two hold down screws and remove the slide holder by sliding forward. When you replace the slide holder, do not over tighten the hold down screws. (economic model with plain stage may only have stage clips)

## Using Your UNICO® M-250 Microscope

**Note:** If your microscope has been exposed to extremes of temperature, please allow time for all the parts to come to room temperature before turning on the power. Excess cold can fog the lenses and may cause the lamp to fail.

1. Once you have assembled all the parts, plug the power cord into the appropriate AC outlet. (115v or 220v depending on how you ordered your microscope). Unless specified, all UNICO® microscopes are pre-set for 115V.
2. Turn the light on using the rocker switch on the right side of the base. Next, adjust the light intensity using the wheel located on the right side of the base. **Note:** Rapid repeated changes in light intensity would dramatically shorten the life of the quartz halogen lamp.
3. In order to speed your familiarity with controls, choose a specimen slide you are familiar with, such as an old hematology slide or a commercially prepared slide. Place the slide into the slide holder by pushing back on the thumb guard and placing the slide toward the back of the holder. Allow the metal slide holder to gently hold the slide in place. **Note:** Do not allow the slide holder to “snap-back” against the slide, this could cause the slide to chip or shatter.
4. Move the slide to the center of the stage, by turning the stage and slide control knobs, just below the stage. These knobs allow you to move the slide in the X-Y axis (forward / backward and left / right)
5. Open the aperture diaphragm on the Abbe condenser (controlled by the small black lever on the condenser). Insert the blue filter in the swing out filter holder located on the underside of the condenser (ONLY when necessary).
6. Once you are comfortably seated, look into the oculars and move the eyepiece tubes together or apart until you see only one complete circle of light. You have now adjusted your interpupillary distance.
7. Using the 10x objective and the coarse and fine adjustment knobs bring the field of view into focus. Now you may move the 40x objective into place. You will feel a “clicking” action when the objective is seated properly. Again, focus for the best image. You will now be in the middle of the focus range. You may have to adjust the aperture diaphragm (on the condenser) for the best contrast.
8. Diopter adjustment: Since you are using a binocular microscope, you have to adjust for the normal difference in vision between your two eyes. This is a simple but critical adjustment! Your M-250 microscope has a diopter adjustment ring located on the left eye tube of the seidentoph head. Follow the following procedures:
  - Close your left eye and with your right eye open, look into the right ocular.
  - Adjust the fine focus to give you the best image.
  - On the left ocular tube you will see that there is an adjustment ring.
  - Close your right eye and look with your left eye into the left ocular.
  - Using the adjustment (diopter) ring on the left ocular tube, adjust the focus until you see a clear focused field.

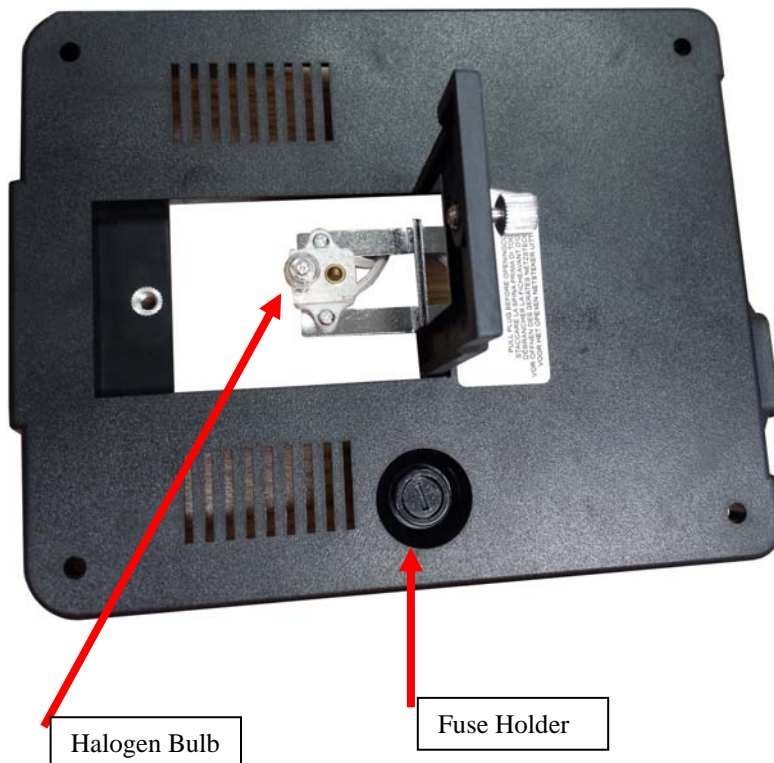
You are now ready to use your UNICO® M-250 microscope.

## Maintenance

1. Always cover your microscope with the dust cover when not in use
2. When cleaning the lenses, use lens paper or a Q-tip dipped in lens cleaning solution.
3. Excess immersion oil should be cleaned of at once. An alcohol pad is best for removing oil from the stage and on the other metal parts, but is not recommended for use on the lenses.
4. Dust in the nosepiece or ocular tubes should be blown out using only filtered air. Canned air dusters work well for this job.
5. Whenever you remove an objective, we recommend that you place it back into the original plastic shipping vial until ready to be placed back on the microscope. This will keep the objective safe from dust and other foreign matter.
6. To keep your microscope in top condition for years, we recommend that you have the microscope professionally serviced once a year

### **Replacing Fuse and Bulb:**

1. Unplug the microscope from the electrical outlet.
2. Remove both eyepieces and place the aside.
3. Carefully put the microscope on its back or side.
4. To replace the bulb release the thumb screw to open lamp compartment. Carefully remove the bulb – **CAUTION!!! IT MAY STILL BE HOT!!!**. Insert new bulb and lock the compartment. **CAUTION!!! AVOID TOUCHING THE GLASS WITH BARE HANDS!!!** Use powder free gloves or tissue.
5. To replace the fuse – open fuse holder using flat head screw driver. Replace the fuse and close the holder.



## M-250 Series Microscope

