



VetOne H604 Microscope Operation Manual

Thank you for choosing the VetOne H604 microscope. This precisely built, durable microscope will give years of service to even the busiest practice. Please read this manual carefully before you operate the microscope.

For service, accessories and replacement parts, please contact Unico directly at 1-800-588-9776 or info@unicosci.com.

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Introduction

The VetOne H604 microscope was designed with the user in mind. It is an advanced and versatile compound microscope that is able to perform all the intricate and varied functions of microscopes costing thousands of dollars more.

Features

- Large mechanical stage (135 mm x 150 mm) with low mounted coaxial controls
- Coarse and fine focus adjustment controls
- Adjustable Abbe condenser (N.A. 1.25) with filter holder and iris diaphragm.
- Tension control (to prevent stage drift) and safety lock (to prevent damage to specimen slides and optics)
- Newly designed lamp door on the bottom that makes changing the bulb easy and quick without tools

Objectives

Each H604 microscope comes equipped with quality flat field objectives. The color-coded, polished objectives are parfocal and parcentric. The 100X (oil) and the 40X (high dry) are spring loaded to prevent damage. Depending on the model configuration of your order, you may have achromatic or plan brightfield or phase contrast objectives.

Oculars

Two high-eyepoint wide field 10 X 18mm eyepieces are included with each microscope. The high-eyepoint oculars are ideal for users who wear glasses.

Filters

A blue filter is included to sharpen contrast and is recommended for use for all routine hematology or urine analysis. A green filter for parasitology and a yellow filter for bacteria viewing are also included.

Head

Seidentopf style observation head. Each can be set for individual requirements and comfort.

Electronics

The microscope uses UL- and CSA-approved electrical components. There are no user-serviceable parts in the illumination base.

Power Input

The microscope is preset to the voltage requirements of the USA, Canada, Mexico and the Caribbean, AC 115V/60Hz. The voltage fluctuation should not exceed +/- 5% of the rated voltage.

Output

The lamp is a 6V/20W G4 pin type quartz halogen bulb.

Fuse

A 25V 1A slow blow fuse protects the illuminator from electrical overload. The fuse case is located next to the lamp access door in the microscope base.

Unpacking the Microscope

Each microscope has been packed with utmost care. Please take a moment to examine the outer and inner cartons for any visual damage. The warranty excludes any damage caused by shipping.

We recommend that you keep all the packing material until you have fully assembled, examined and tested your new microscope. If you note any damage, contact the shipping company or MWI.

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

Item	Quantity
Microscope stand with condenser	1
Seidentopf binocular head	1
10X widefield High-Eyepoint eyepieces	2
Plan objectives: 4X, 10X, 40X, 100X (oil)	4
Blue filter	1
Green filter	1
Yellow filter	1
Replacement fuses (250V 1A slow blow)	2
Dust cover	1
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Assembling the Microscope

Place the microscope base on a sturdy, clean surface with the VetOne label facing you.

Remove the four plastic dust plugs from the nosepiece.

Install the objectives in the following order: 4X, 10X, 40X, 100X. Make certain that they are screwed in all the way but **do not over-tighten**. Save the individual objective containers for storing the plastic dust plugs that you removed from the nosepiece.

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.

Unwrap the protective tissue from the oculars (eyepieces) and install one in each eye tube.

Remove the plastic dust plugs from the eyepiece tubes as well as the protective plastic cover from the microscope head (save the protective plastic parts). With the eyepiece tubes facing toward you, place the base of the head onto the socket in the base (you may need to first loosen the retention screw on the right side of the socket). Once the head is securely seated, gently tighten the retention screw just far enough to hold the head in place but not prevent it from rotating. **Do not over-tighten**.

Unwrap the eyepieces and slide one into each eye tube.

The slide holder has already been installed on the mechanical stage. To remove the slide holder, loosen the two holding screws and pull the slide holder forward. When you replace the slide holder, do not over-tighten the holding screws.

Filters are wrapped in protective tissue. Unwrap each one and wipe off any fingerprints or dust with a clean cloth or lens paper. The condenser is located under the stage, and the filter holder inside the condenser is accessed by sliding it to one side (do not push down on the filter holder). Lay the filter into the top of the holder. It should sit flat and secure. To remove the filter, push upward on the bottom of the filter.

Using the Microscope

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

1. Once you have assembled all the parts, plug the power cord into the appropriate AC outlet .
2. Turn on the light and adjust the light intensity using the illumination control wheel located on the right side of the base.

Note: Rapid repeated changes in light intensity will dramatically shorten the life of the bulb.

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, as 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 located just below the stage on the right side. 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 underneath the condenser.
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.

Focusing Procedures

Move the 4X objective into the working position (directly over the iris diaphragm). As you bring the objective into place, you will hear the nosepiece click when the objective is seated properly.

Use the coarse and fine adjustment knobs (located on either side of the microscope base below and behind the stage) to locate the image and bring the 4X objective into focus. Rotate the outer rings of the knobs for coarse adjustment, and the inner rings for fine adjustment.

Rotate the nosepiece one-quarter turn to move the 10X objective into place. Use the coarse and fine adjustment knobs to again bring the image into focus.

Rotate the nosepiece one-quarter turn to move the 40X objective into place. Use the fine focusing knob to adjust for the best image. You will now be in the middle of the focus range. You may have to adjust the aperture diaphragm (located on the condenser) for the best contrast.

Diopter Adjustment

Because this is a binocular microscope, you have to adjust for the normal difference in vision between your two eyes. This simple but critical adjustment is made using the diopter adjustment ring located on the left eye tube of the Seidentoph head.

1. Close your left eye and with your right eye open, look into the right ocular.
2. Adjust the fine focus to give you the best image.
3. Close your right eye and look with your left eye into the left ocular.
4. Rotate the adjustment (diopter) ring on the left ocular tube until you see a clear focused field.

Focus Tension Control

Focus tension has been pre-adjusted at the factory. If needed, the focus tension can be adjusted at any time without tools. To adjust the tension of your focusing controls, simply turn the tension control ring. This knurled ring is located on the right side between the microscope stand and the focusing knob.

Note: Removing too much tension may cause the stage to drift down.

Mechanical Stage Safety Stop

The safety stop is provided to help prevent damage to the objectives and slides. The safety stop sets the upper limit movement of the mechanical stage. It is located on the left side between the stand and the focusing knob.

To set the safety stop, first get your slide in sharp focus with the 40X objective. Then turn the safety stop ring/lever up until it will not move further.

CAUTION: DO NOT force this lever because doing so might jam the stop or break the lever.

Once you set the stop, the stage will go up no farther than where it is set, but it can be lowered to its fullest extent.

To unlock the safety stop, simply turn the safety stop ring/lever down.

You are now ready to use your microscope.

Safety Information

This microscope has been designed and tested in accordance with EN 61010 Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use. It has been supplied in a safe condition.

For the correct and safe use of this microscope it is essential to follow generally accepted safe procedures in addition to the safety precautions called for in this manual.

The inside of the illumination base is a hazardous area and its cover should not be removed. ANY servicing must be done by an authorized person.

Electrical

This microscope is designed for and provided with a plug for 110V power outlets.

The main plug shall be inserted in a socket provided with a protective earth contact. The protective action must not be negated by the use of an extension cord without a protective conductor.

WARNING: Any interruption of the protective conductor inside or outside the microscope or disconnection of the protective earth terminal is likely to make the microscope dangerous. Intentional interruption is prohibited. Whenever it is likely that the protection has been impaired, the microscope shall be made inoperative and be secured against any unintended operation.

The protection is likely to be impaired if, for example, the apparatus

- Shows visible damage
- Fails to perform the intended measurements
- Has been subjected to prolonged storage under unfavorable conditions
- Has been subjected to severe transport

Operating Environment

The optimum environment for the microscope is as follows:

Temperature 5–35° C
Humidity <85%

Bulb Replacement

CAUTION: Unplug the microscope before changing the bulb.

WARNING: Use only with the same type and rated bulb.

1. Allow the microscope to cool down if it has been recently in use. Use only a 6V/20W halogen bulb.

CAUTION: When handling a new bulb, never touch the glass portion with your bare fingers. Skin oil or sweat on the bulb may cause it to explode or shatter as it heats up.

2. Turn the microscope on its side. You will see a silver knurled knob next to the plug marked "Fuse." Turn the knob and swing the door out to reveal the bulb.
3. Pull out the old bulb and discard.
4. Hold the new bulb with a lint-free tissue or piece of cloth. Insert the two metal pins on the base of the bulb into the bulb holder. This is a friction fit and you may have to very gently rock the bulb back and forth as you insert it into the holder.

CAUTION: Never attempt to spread the pins, as this will result in immediate damage to the new bulb.

5. Swing the lamp compartment door closed and tighten the knurled knob.
6. Return the microscope to the upright position and plug the power cord into an appropriate AC outlet.

Fuse Replacement

CAUTION: Always unplug the microscope before changing the fuse.

WARNING: In order to avoid hazard, replace only with the same type and rated fuse.

1. Turn the microscope on its side. The fuse holder is located on the bottom of the base next the knob on the lamp compartment door.
2. Remove the fuse holder cap by pushing and turning the cap in the direction as marked. Pull out the old fuse and discard.
3. Put a new fuse of the same type and rating into the fuse holder and put the fuse holder cap back. Push and turn the cap to lock the cap in. The replacement fuse order number is B7-9005 (250V 1A slow blow fuse)
4. Return the microscope to the upright position and plug the power cord into an appropriate AC outlet.

Maintenance

- Always cover your microscope with the dust cover when it is not in use.
- When cleaning the lenses, use lens paper or a cotton-tipped applicator dipped in lens-cleaning solution.
- Excess immersion oil should be cleaned off at once. An alcohol pad is best for removing oil from the stage and other metal parts, but is not recommended for use on the lenses. Never use a wet towel to clean the illumination base.
- Dust in the nosepiece or ocular tubes should be blown out using only filtered air. Canned air dusters work well for this job.
- Whenever you remove an objective, place it back into the original plastic shipping vial until it is ready to be placed back on the microscope. This will keep the objective clear of dust and other foreign matter.
- To keep your microscope in top condition for years, have the microscope professionally serviced annually.

Warranty

This instrument is warranted against defects in materials and workmanship for a period of one (1) year from the date of shipment to the customer.

This warranty is limited to the repair and replacement of parts that prove to be defective during the warranty period.

This warranty is not valid for parts damaged, lost, or that fail because of accident, fire, theft, acts of nature, negligence, or the use of chemicals that have a deleterious effect.

This warranty is conditioned upon the manufacturer retaining the option of replacing parts up to and including the entire instrument.

This warranty will not extend to any repairs or modifications made to the instrument by some party other than the manufacturer or a party authorized by MWI Veterinary Supply and the VetOne brand.

This warranty shall be in effect only upon the notice of the defect to the manufacturer or its authorized distributor, or dealer, within five (5) days after the occurrence of said defect.

No other warranty of any kind is made, expressed or implied. The warranty described above shall be the sole and exclusive remedy available to the purchaser. Correction of defects, in the manner and for the period of time described above, shall constitute complete fulfillment of all liabilities and responsibilities of the manufacturer to the purchaser with respect to the product, and shall constitute full satisfaction of all claims, whether based on contract, negligence, strict liability or otherwise.

In no event shall the manufacturer, MWI Veterinary Supply, or the VetOne brand be liable, or in any way responsible for any damages or defects in the product that were caused by repairs or attempted repairs performed by anyone other than the manufacturer's dealer or station, nor shall the manufacturer, MWI Veterinary Supply, or VetOne brand be liable or in any way responsible for any incidental or consequential economic or property damages. Some states do not allow the exclusion of incidental or consequential damage, so the above exclusion may not apply to you.

Parts Diagram

