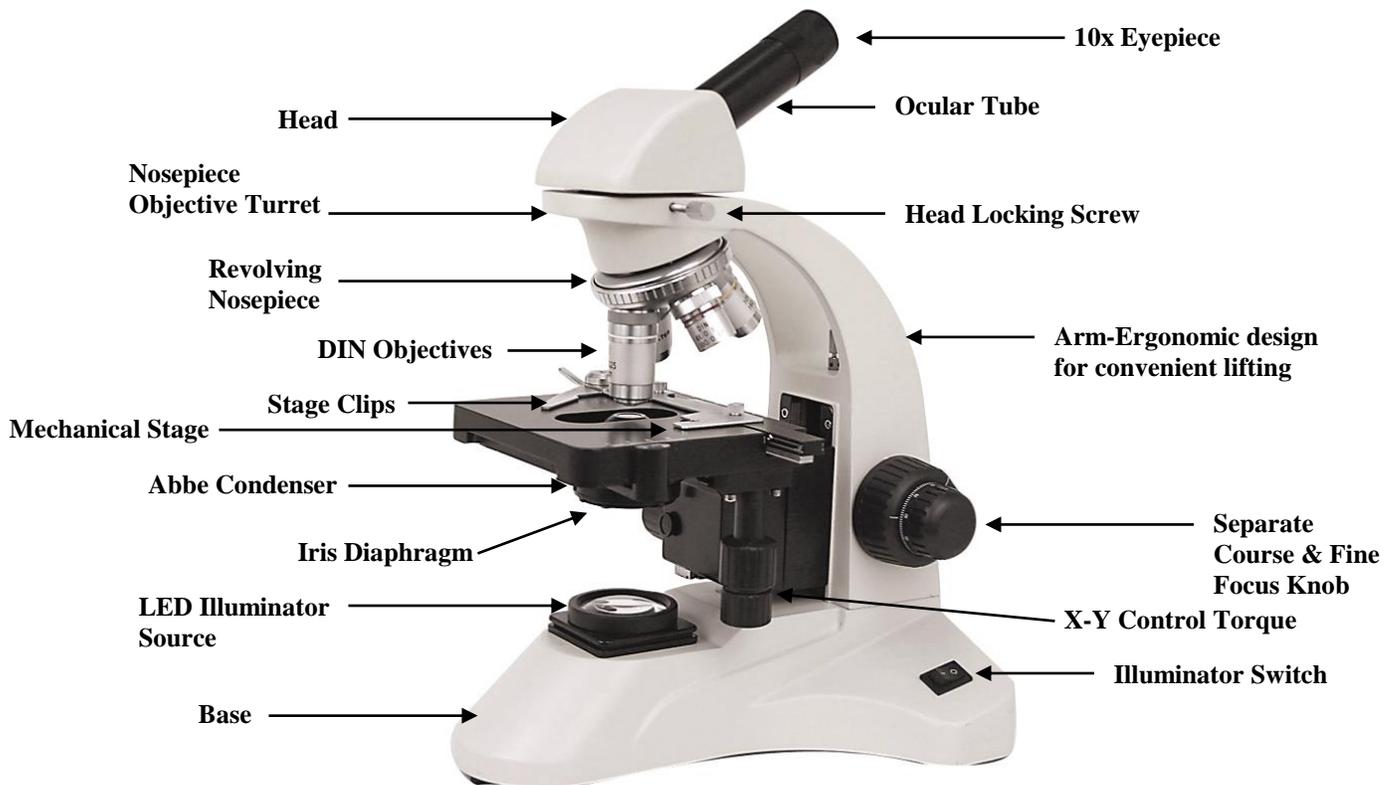


INSTRUCTION MANUAL

for Olivia Series

Model:
OL-D-100



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“PLEASE READ INSTRUCTIONS BEFORE USING MICROSCOPE”

OLIVIA SERIES MICROSCOPES

(C) UNPACKING & PREPARATION

The Olivia Series microscopes are supplied with an expanded two-part Styrofoam/polystyrene case. This case should be used for storage, transport, and shipping. Microscopes that are not properly packed are usually damaged during transport and shipping. If your microscope arrives damaged during transport, contact the transport dept. to file a claim. KEEP STYROFOAM BOX FOR FUTURE USE FOR SHIPPING AND/OR REPAIR.

Unpack the microscope and its parts carefully. Do not throw away any boxes or packing materials until the contents of the shipping container have been checked against the packing list of your order. In a clean, dry, dust free environment, place the microscope and parts on a sturdy desk or table for initial use and/or assembly. DO NOT TOUCH ANY LENS SURFACES WHILE HANDLING THE MICROSCOPE. THIS MAY ADVERSLEY AFFECT IMAGE QUALITY.

(D) FEATURES AND DEFINITIONS

EYEPIECE: Locked in, 10X wide field eyepiece with built in calibrated pointer. Optional 16X wide field eyepiece is available.

DIOPTER ADJUSTMENT: The diopter is used to focus the eyepiece in conjunction with the fixed eyepiece to give equal sharpness to both viewers.

HEAD: 360° rotatable. Choices of Monocular (for one viewer), Double 45° Dual View (for two viewers), 90° Dual Video (one viewer and camera mount), or Binocular (for viewing with both eyes).

OBJECTIVES: Lower functional component of the optical system. Available with DIN standard 4x, 10x, 40x and 100xR oil. With the 10x Eyepiece the superior-quality objectives provide magnification of 40x, 100x, 400x and 1000x.

FOCUSING KNOBS: The microscope is equipped with separate coarse and fine focusing knobs or your choice of coaxial focusing referring to the separate and course knob mounted on the same axial. The course knob is the larger knob on the outside and the fine knob is smaller and located on the inside.

CONDENSER: The microscope is equipped with either a 0.65 N.A. Condenser or 1.25 N.A. Abbe Condenser. The condenser fills the back lens element of the objective to improve the resolution of an image.

DIAPHRAGM: The microscope is equipped with either a Disc or Iris Diaphragm. The disc diaphragm is located beneath the stage and rotates exposing holes with various apertures to help achieve better resolution. Use large apertures for lower magnifications and smaller apertures for higher magnifications.

ILLUMINATOR: LED light source, which illuminates the specimen. LED is a cooler, white light source with a low voltage providing hours of use for your microscope.

STAGE: Includes a X-Y built-in mechanical stage with 0.1mm increments for precise measurement. To ensure long life for the mechanical gears, always turn the focusing knobs slowly and uniformly. Use the Control Torque knobs to move the specimen slide in the x-y direction.

SAFETY RACK STOP: Controls the maximum upward movement of the stage. When properly adjusted prevents high-powered objectives from breaking a specimen slide.

RECHARGEABLE MODELS: Choose from Rechargeable or Non-Rechargeable models. RC= Rechargeable Nickel Metal Hydride (NiMH) batteries included for up to 10,000 hours of bulb life.

SPECIFICATIONS (With 10X Eyepiece):

Objective	Total Magnification	Field of View	N.A.
4X	40X	4.5mm	0.10
10X	100X	1.8mm	0.25
40X	400X	0.45mm	0.65
100X Oil	1000X	0.18mm	1.25

(E) OPERATING PROCEDURE

I. How to use your Microscope (For models equipped with a standard disc diaphragm)

1. Select a position to work where little direct light falls on the instrument. Avoiding placing the microscope near or facing a large window as direct light may fall directly on the microscope and adversely affect the contrast and resolution.
2. Turn the disc diaphragm so that the number 2 or 3 opening is aligned with the in-stage condenser.
3. Place a low powered objective into position and adjust the plain side of the mirror until the field is evenly illuminated. No adjustments are necessary if the microscope is equipped with an illuminator; simply plug it into any grounded receptacle.
4. Place the micro-slide specimen to be observed under the spring stage clips. If using a mechanical stage, pull back the lever on the left side of the stage, insert the slide, then bring the crescent shaped holder into contact with the slide. Be certain that the cover slip of the slide is facing towards the objective; otherwise you will not be able to focus your specimen at high magnifications.
5. Position the specimen so that it is centered over the in-stage condenser.
6. Focus the objective on your specimen by turning the LARGE COARSE ADJUSTMENT KNOBS until the image of your specimen is bright and clear. Microscopes will always lower the objective to a point that they know is beneath the focal plane and focus upwards. Now you can bring the specimen into sharp focus by turning the SMALLER FINE FOCUS KNOBS.
7. With the specimen now in sharp focus rotate the nosepiece to the other objectives and focus using only the fine focus knobs. Since the optics on the Microscopes is Par-focal and Par-centered only a slight turn of the fine focus knobs will be necessary.

NOTE: It is important to note that because of our built-in stop the 4X and 10X objectives can never come into contact with your microscope slides. The 40XR and 100XR may occasionally touch the micro-slide but because these objectives have retractable mounts your slide will not be damaged.

8. Adjust the disc diaphragm until proper specimen contrast is reduced.
9. You are now ready for microscope observation.

II. How to use the microscopes equipped with a 1.25 Abbe-condenser with or without the 100XR oil immersion objective.

Same as steps I.1 through I.6 above

7. **FOCUSING THE CONDENSER.** The sub-stage Abbe condenser is mounted beneath the stage in a spiral-focusing mount. To focus the condenser, loosen the large lock screw facing you as you look at the front of the condenser. Twist the base of the condenser to the left to lower and to the right to raise. Adjust the condenser until the illumination of the field is uniform.
8. Adjust the condenser iris diaphragm to match the N.A. of the objective. This is done by first closing the iris and opening it slowly until the entire field is evenly and brightly lit and in good focus. If the objective is changed to a higher power, the iris must be adjusted to the new objective.
9. **USE OF THE 100XR, OIL IMMERSION OBJECTIVE.** Oil immersion objectives are used for the highest magnification. The microscope tube is racked up and the 100XR objective swung into place. Place a drop of good quality immersion oil on the slide and focus down with the coarse adjustment until the lens makes contact with the oil. Continue (more slowly) to focus down with coarse adjustment until the color or a blurred outline of the specimen just appears. Now complete the focusing with the fine adjustments.

In using the 100X objective, the most favorable resolution is obtained with the Abbe condenser nearly touching the slide specimen. Ideally, a drop of immersion oil is placed between the condenser and the slide, as well as between the slide and the 100X objective. Although this practice is not always followed in routine study, it is the only way to take full advantage of the inherent resolution of the 1.25 N.A. Abbe condenser.

(G) MAINTENANCE & CARE OF YOUR MICROSCOPE

Cleaning of the optical surfaces - Never take objectives or eyepieces apart. They should be cleaned on the instrument since they are not easily removed. To clean lens surfaces, first remove dust using a soft brush or blow off with a small syringe. Use a cotton-tip applicator and a small amount of xylene. Clean only the front lens element of the objective and the top lens of the eyepiece. Wipe again with a clean cotton-tip and, finally, blow or brush off the lens surfaces. The mirror or illuminator lens surfaces may be cleaned in the same manner, but better results may be obtained by wiping with a soft lint free cloth.

Cleaning and Lubricating of Mechanical parts - This type of maintenance should be done by an authorized technician and will help insure many years of trouble free use of your microscope.

Adjustment for body drift - Tension control adjustment collar is located between arm and coarse focus adjustment knob. With a small jewelers type screwdriver, loosen locking setscrew located in one of four holes on the collar. Rotate collar clockwise until stage drift is eliminated. Re-tighten locking set screw to prevent accidental movement of collar.

(H) ELECTRICAL MAINTANENCE (BULB REPLACEMENT)

The LED Rechargeable models ensure your microscope is fully charged for your first time use. It is necessary to plug your microscope adapter to a suitable power outlet and allow charging for approx. 8-10 hours to be fully charged. Gives up to 50 hours of continuous use per charge. Battery life – 500 recharge cycles.

To replace the bulb, swing open the bottom door on the bottom of the base for easy access to change the light bulb. **LED-** (Light Emitting Diode) bulbs generate cool illumination, contain a low voltage, and emit a white light for easy viewing. (Replacement Bulb: Part No. LBB13)

SYMBOLS – This microscope may have various symbols attached. Please be aware of their meanings.



- "ATTENTION, CONSULT ACCOMPANYING DOCUMENTS"



- "HIGH TEMPERATURE PARTS SYMBOL"



- "PROTECTIVE EARTH SYMBOL"



- "DOUBLE INSULATED SYMBOL"

(I) TROUBLE SHOOTING

Stage drops out of focus

If you notice that when you focus on a specimen the stage drops out of focus the tension on the stage must be adjusted. To fix look on the coarse focus arm on the left side of the microscope there are 4 little holes. Take the wrench that is supplied and attach it to any to of the holes. Then give a quarter turn clock-wise. Tighten only enough to keep stage from drifting down and out of focus.

Coarse focus is very hard to turn

If the coarse focus is very hard to turn, take the wrench that is supplied and attach it to the tension adjustment holes behind the focus knob and turn until the tension for focusing is how you like it.

Objectives

If you are using any type of liquid on the slides and then view through the microscope, make sure that you clean the objectives immediately after you are done. You can clean with paper towel and xylene. If you do not clean after contact with liquid the objective lens will become very dirty and hinder the viewing quality of the objective.

The Eyepiece

If view is hindered check for fingerprints on the eyepiece or eyepiece lens could be scratched. Do not scratch eyepiece with your fingernail, as this will remove the optic coating. Only clean outer lens do not attempt to take eyepiece apart. Clean by using a can of compressed air for dust or breath on lens and wipe with lens paper.

Rack Stop Screw

In the microscope illustration, you see a stage rack stop screw. This screw sets how far up the stage will move. Students have a tendency to screw this all the way down. This limits the upper movement of the stage and objects will not come into focus. Simply turn the screw back up, the more the screw comes up the higher the stage will come up. Do not turn the screw to far up because the stage may hit the 40x and 100x objectives.

Slide and Cover Slip

If the slide does not come into focus check to see that the slide is not upside down. Make sure the cover slide is facing up. Also make sure the slide is not dirty, spots will show up if it is. Also make sure that the cover slip over the specimen is not too thick, use a 0.17mm thick cover slip over your specimen.

(I) WARRANTY

Walter Products Inc. warrants their Walter brand microscopes to be free from manufacturer defects in materials or workmanship for the life of the microscope under normal use and service. The warranty does not cover damage resulting from abuse or misuse, repairs or alterations performed by other than our authorized repair technicians, or damage occurring in transit. If your microscope is damaged during shipment, please contact the courier immediately to file a claim. We will repair your microscope should any problems arise at our discretion with the exception of bulbs, batteries, or fuses. Warranty does not cover lenses that have become inoperable as a result of misuse or lack of normal maintenance. This offer is limited only to microscopes sold and used in the United States or Canada. Should you have any other questions regarding our warranty, please contact our customer service department. Please have on hand your original purchase order number if you are calling to arrange for a return authorization.

Please Note: When arranging for a return authorization whether it is a repair, return or for credit, please contact the vendor directly from whom you initially purchased your microscope from.