



3030 INVERTED MICROSCOPE SERIES INSTRUCTIONS

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Distributed By:

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1.0 INTRODUCTION

Congratulations on the purchase of your new ACCU-SCOPE® microscope. ACCU-SCOPE microscopes are engineered and manufactured to the highest quality standards. Your ACCU-SCOPE microscope will last a lifetime if used and maintained properly. Each ACCU-SCOPE microscope is carefully assembled, tested and inspected by our quality inspectors at our New York facility. Strict quality control procedures ensure each microscope is of the highest quality prior to shipment.

2.0 UNPACKING

Your microscope arrived packed in a molded Styrofoam container. **Do not discard the container;** the Styrofoam container should be retained for reshipment of your microscope if needed. Avoid placing the microscope in dusty surroundings or in high temperature, humid areas, as mold and mildew will form. Carefully remove the microscope from the Styrofoam container by its arm and base. Place the microscope on a flat vibration-free surface. Now check the components against the following standard equipment list:

1. Stand, which includes the supporting arm, focusing mechanism, mechanical stage, nosepiece, condenser with iris diaphragm, field diaphragm, annular diaphragm sliding plate, and illumination system.
2. Trinocular viewing head.
3. Eyepieces as ordered.
4. Objectives as ordered.
5. Stage plate inserts, blue, green and white filters.
6. Immersion oil and dust cover.

3.0 ASSEMBLY

3.1 OBJECTIVES

Lower the stage to its full limit. Remove the objectives from their plastic vials, taking precaution not to drop them or allow your fingers to touch the lenses. Install the objectives in a clockwise direction from the lowest to the highest power (i.e., 10X, 25X, and 40xR). Always rotate the nosepiece by using the knurled nosepiece ring.

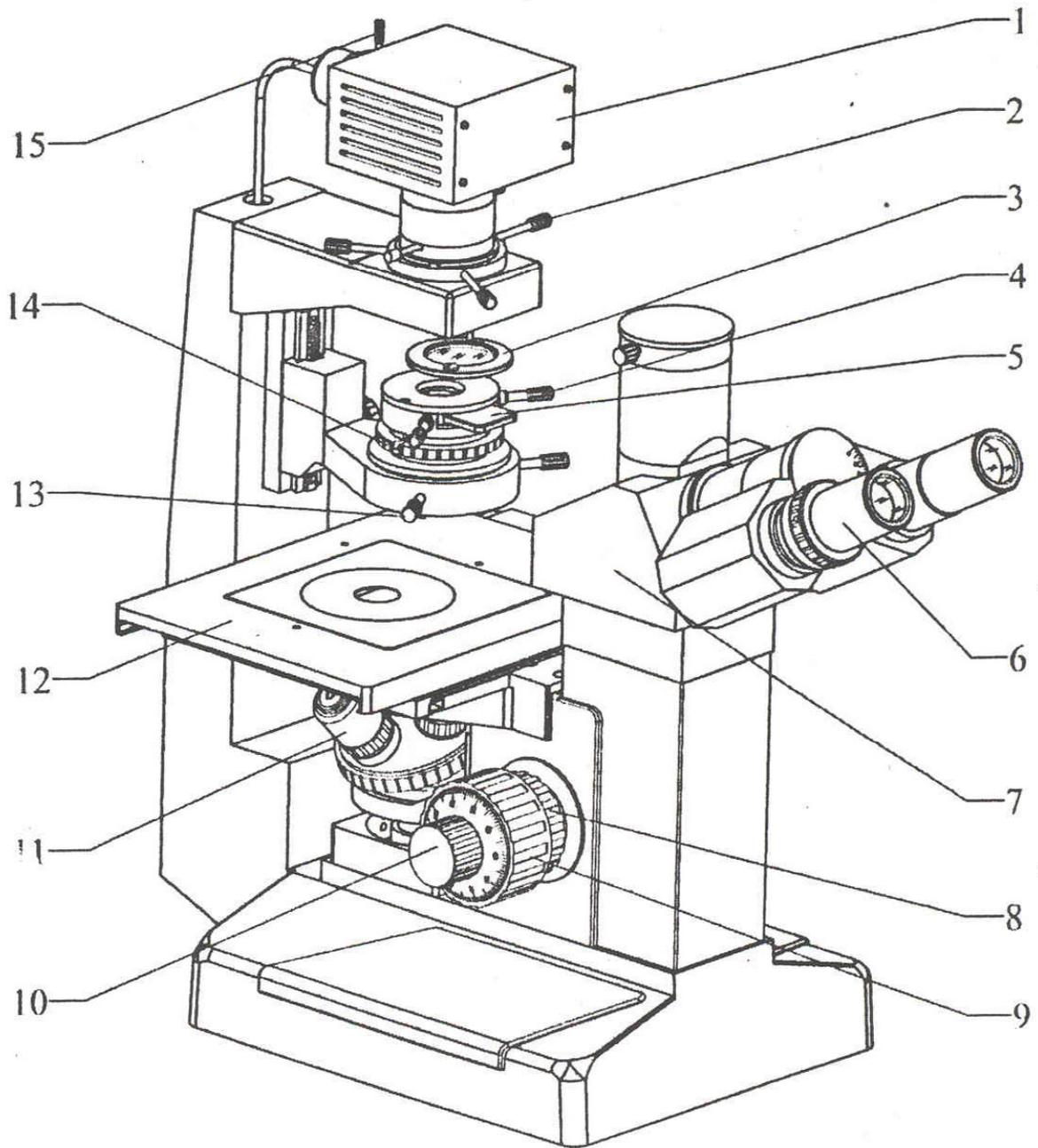
3.2 VIEWING HEAD

Remove the protective plastic disk from the head and neck. Loosen the viewing head clamp screw slightly and set the head onto the microscope arm. Tighten the clamp screw to lock the head in the desired position.

3.3 EYEPIECES

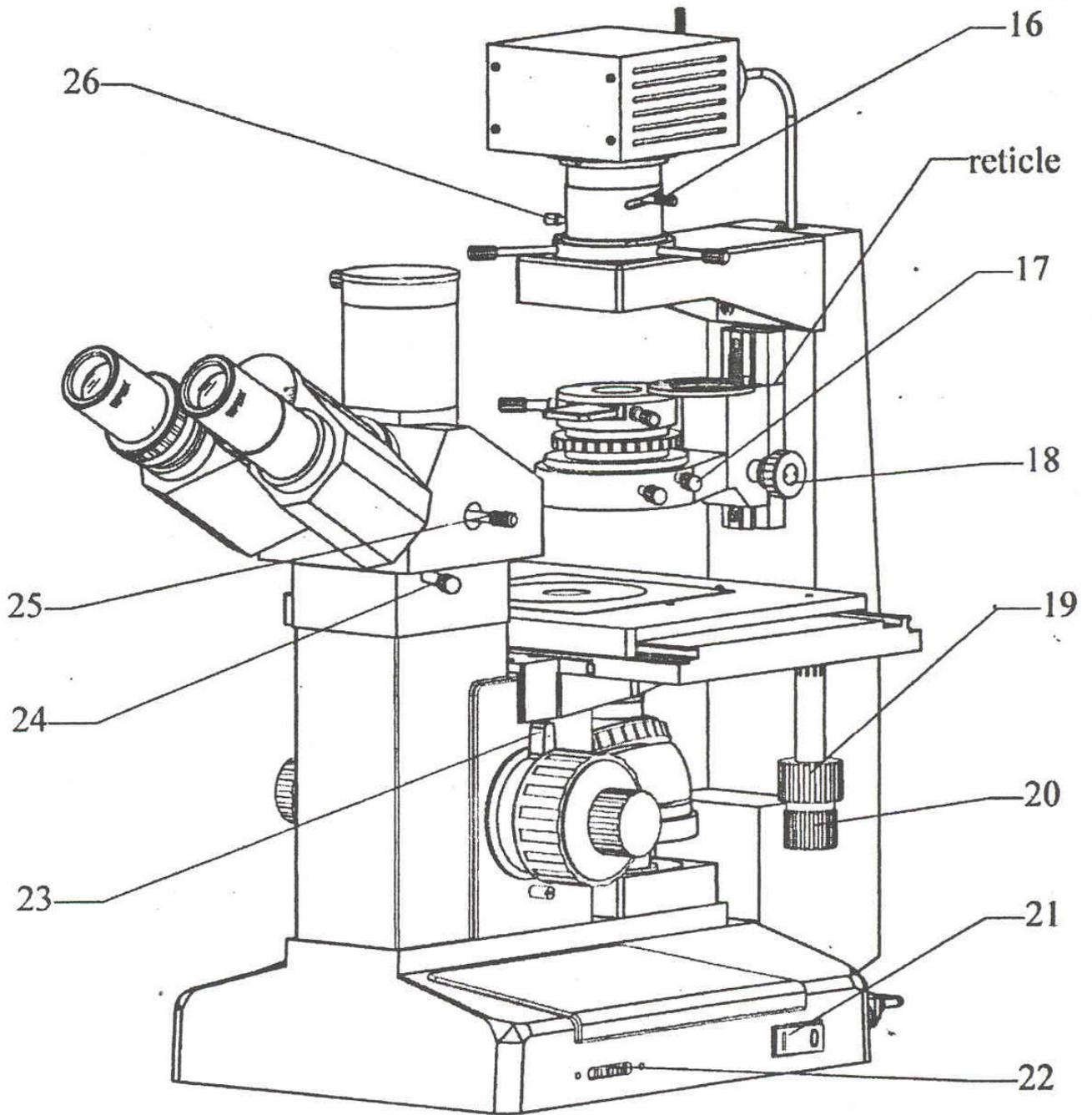
Remove the eyetube plugs and insert the eyepieces into the eyepiece tubes.

FIGURE 1 - COMPONENTS



- | | |
|---------------------------------------|-----------------------------------|
| 1. Lamp box | 9. Coarse focus knob |
| 2. Lamp box holding screw | 10. Fine focus knob |
| 3. Filter base | 11. Objective |
| 4. Annular diaphragm adjustment screw | 12. Mechanical stage |
| 5. Annuli slide holder | 13. Condenser centering screw |
| 6. Eyepiece | 14. Aperture diaphragm collar |
| 7. Trinocular viewing body | 15. Lamp holder adjustment handle |
| 8. Tension adjustment ring | |

FIGURE 2 - COMPONENTS



- 16. Filament focusing handle
- 17. Condenser holding screw
- 18. Condenser focusing knob
- 19. X-axis (lengthwise) knob
- 20. Y-axis (cross) knob
- 21. Power switch

- 22. Variable light intensity dial
- 23. Focus stop (limit) control
- 24. Viewing head lock screw
- 25. Observation or photo slider knob
- 26. Field diaphragm centering screw

3.4 CONDENSER

The condenser was installed and centered by our technicians prior to delivery. The aperture diaphragm collar should be adjusted to match the numerical aperture of the condenser with the numerical aperture of the objective being used. Matching the numerical aperture of the condenser and the objective will provide the optimal contrast and illumination for viewing specimen.

3.5 FILTER

Place the filter directly on the collector housing of the field diaphragm.

3.6 VOLTAGE CHECK

Confirm that the input voltage indication at the rear or bottom of the microscope corresponds to your line voltage (110v or 220v). The use of a different input voltage indication will cause severe damage to your microscope.

4.0 OPERATION

Plug the 3-prong power cord from the microscope into a grounded 120V A.C. electrical outlet. The cord from the lamp housing coming down the arm of the microscope should be plugged into the receptacle on the rear of the microscope base. Turn the illuminator dial to "ON." For longer bulb life always turn the illuminator dial "ON" and "OFF" with the bulb at the lowest illumination setting possible.

4.1 TRINOCULAR VIEWING HEAD

To set the interpupillary distance, using both hands, move the eyepiece tubes together or apart until the full field of view is visible by both eyes simultaneously. An improper adjustment will cause operator fatigue. When the proper setting is reached determine the reading on the interpupillary scale. Set each eyepiece tube to the same number as your interpupillary distance. When viewing a specimen slide a complete circle should be seen in the viewing field. Beginners may take awhile to see a complete circular image field.

4.2 ILLUMINATION

Depending upon specimen density and objective magnification the light level may need adjustment. Adjust the light intensity for comfortable viewing. The illumination level may vary when changing from one objective to another. To eliminate irregular light when using low power objectives (4X, 10X) raise or lower the condenser using the condenser adjustment knob to reticle position. The iris diaphragm should be slightly opened or closed to obtain optimal contrast of the specimen being observed. Adjust the iris diaphragm to the smallest size allowable for a clear, sharp image of the specimen. The setting for the iris diaphragm will vary depending on the objective being used. Focus onto the annular diaphragm by loosening the lamp holder screw (#2, Figure 3), the lamp holder adjustment handle (#1, Figure 4) and the filament focusing handle (#16, on Figure 2) to focus the bulb filament over the annulus diaphragm for the annuli. When focused tighten the lamp holder holding screw and secure the lamp into the lamp housing. Please note the bulb should be re-centered using the above procedure whenever switching annuli.

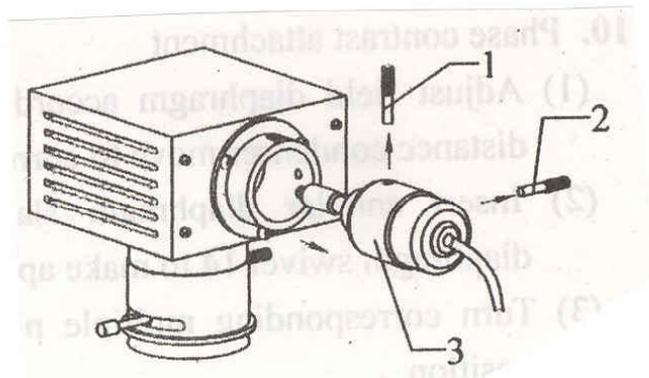


Figure 3

4.3 FOCUSING

To ensure that you obtain sharp images with both eyes (since eyes vary, especially for those wearing glasses) any eyesight variation can be corrected in the following manner. Using your right eye only use the 10X objective and focus on your specimen by adjusting the coarse adjustment knob. When the image is in view bring the image to its sharpest focus by turning the fine adjustment knob. To obtain the same sharp image using your left eye, do not touch the coarse or fine adjustments. Rotate the left eyetube collar (#1, Figure 4) below the eyepiece until the sharpest image appears. Repeat several times to check. *Note – Do not counter rotate the focusing knobs. This will cause serious problems to the microscopes focusing system.*

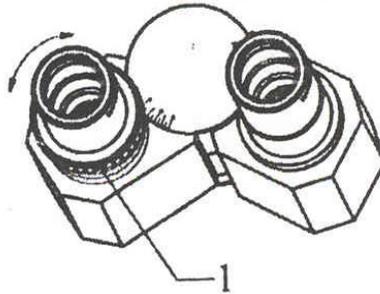


Figure 4

4.4 ADJUSTABLE TENSION CONTROL & PRESET FOCUS STOP

Located on the right side of the stand between the coarse adjustment knob (#2, Figure 5) and the microscope arm there is an adjustable tension control knob (#3, Figure 5) that is preset at our facility and ready to use. This allows the user to adjust the coarse control tension to their individual preference. If the tension is set too loose the stage will appear to drift downwards, set the tension at a comfortable level. The preset focus stop (#1, Figure 5) is preset by our factory technicians to prevent accidental damage to the specimen or objective. To set or reset the focus stop rotate the stop collar counter clockwise until it is free. Next using the particular objective you wish to use, focus on the specimen. When the specimen is in focus rotate the stop collar clockwise until it comes to a stop. **DO NOT** overtighten this collar.

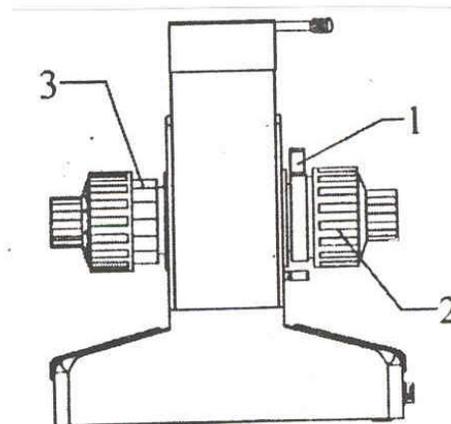


Figure 5

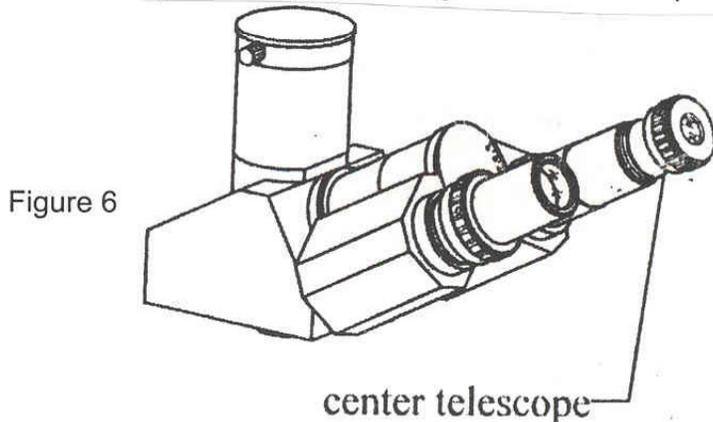
4.5 STAGE

Your microscope came equipped with two different stage plates. Please select and insert the correct stage plate for the specimen you wish to view. Stage plates can be simply and easily interchanged.

4.6 PHASE CONTRAST

To observe a specimen using Phase Contrast follow these steps:

1. Insert the annuli diaphragm slide plate into the condenser corresponding with the objective magnification you wish to use. Push the slide plate to the limit screw position with the annulus diaphragm in the optical path and rotate the aperture diaphragm ring to open the diaphragm to the largest opening.
2. Remove one of the eyepieces and insert the centering (phase) telescope into the eyepiece tube (Figure 6). Before you install the centering telescope note that the upper collar of the phase telescope can be focused in or out so that you can bring into focus the phase rings, viewing the back focal plane of the objective.



3. To center the annuli rotate both thumb screws on the protruding arms of the phase condenser.
4. While viewing the rings through the phase telescope, rotate the two centering screws (#13, Figure 1) so that the narrower white ring is superimposed equidistant within the black ring and reset the thumb screws (Figure 7).

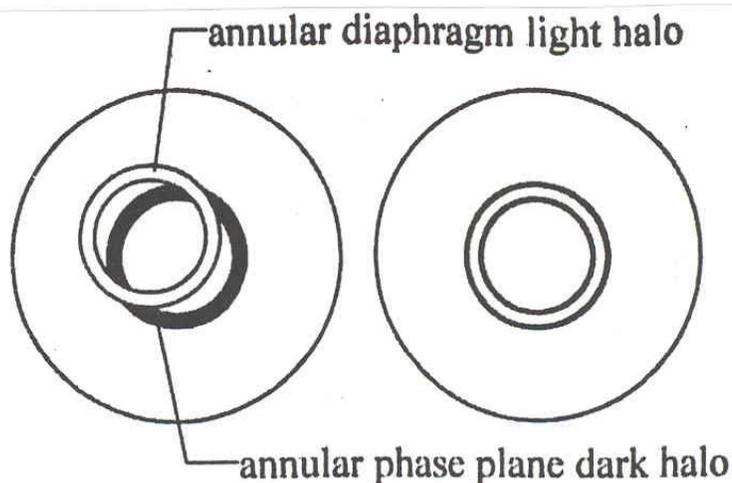


Figure 7

5. Remove the centering (phase) telescope and reinsert the eyepiece.
6. Bring the specimen back into the field of view and refocus the image until it is sharp. The image will be very detailed and exhibit extremely fine structural information.
7. Be aware that you must recenter the phase rings every time you change the magnification (i.e when you rotate objectives). When changing objectives be sure that the magnification of the objective corresponds to the wheel number of the phase condenser. To return to normal bright-field viewing, just rotate the iris diaphragm into place at the zero stop.

5.0 MAINTENANCE

Please remember to **never** leave the microscope with any of the objectives or eyepieces removed and always protect the microscope with the dust cover when not in use.

5.1 CLEANING THE MICROSCOPE

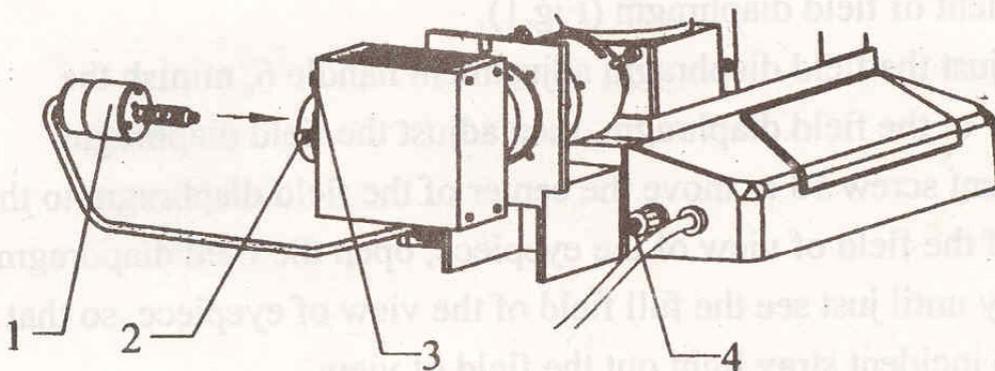
Accumulated dirt on the metal surface should be cleaned with a damp cloth. More persistent dirt should be removed using a mild soap solution. The outer surface of the optics should be inspected and cleaned periodically using an air stream from an air bulb. If dirt remains on the optical surface use a soft cloth or cotton swab dampened with a lens cleaning solution (available from any camera store). 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 cemented optics or the flowing solvent may pick up grease from the mounts making cleaning more difficult. Immersion objectives should be cleaned immediately after use by removing the oil with lens tissues or a clean, soft cloth.

5.2 LAMP REPLACEMENT

The illuminator lamp is the only item on your ACCU-SCOPE microscope, which requires periodic replacement. Switch off the power supply and UNPLUG the microscope. To replace your lamp follow these quick and easy steps:

1. Loosen the lamp holder holding screw (#2) and lamp adjustment handle (#3)
2. Remove the lamp socket (#1) from the lamp box.
3. Remove the old lamp, and replace it with a new lamp being careful not to touch the new lamp with your fingers.
4. Reinstall the lamp socket into the lamp box and reinsert the lamp holder holding screw and adjustment handle.
5. Some adjustment maybe required with the lamp adjustment handle to recenter your bulb.

Replacement Bulb – Catalog No. 3256, 6v20w halogen bulb – Osram # 64250.



5.3 SERVICE

ACCU-SCOPE microscopes are precision instruments which require periodic servicing to keep them performing properly and to compensate for normal wear. A regular schedule of

yearly preventative maintenance by qualified personnel is highly recommended. Your authorized ACCU-SCOPE distributor can arrange for this service.

Should unexpected problems be experienced with your instrument, proceed as follows:

1. Contact the ACCU-SCOPE distributor from whom you purchased the microscope. Some problems can be resolved simply over the telephone.
2. If it is determined that the microscope should be returned to your ACCU-SCOPE distributor or to ACCU-SCOPE for warranty repair, pack the instrument in its original Styrofoam shipping carton. If you no longer have this carton, pack the microscope in a crush-resistant carton with a minimum of three inches of a shock absorbing material surrounding it to prevent in-transit damage. The microscope should be wrapped in a plastic bag to prevent Styrofoam dust from damaging the microscope. The microscope or part should be shipped post prepaid

LIMITED MICROSCOPE WARRANTY

This microscope is warranted to be free from defects in material and workmanship for a period of five (5) years from the date of invoice to the original (end user) purchaser. This warranty does not cover damage caused in transit, damage caused by misuse, neglect, abuse or damage resulting from either improper servicing or modification by other than ACCU-SCOPE approved service personnel. This warranty does not cover any routine maintenance work or any other work that is reasonably expected to be performed by the purchaser. No responsibility is assumed for unsatisfactory operating performance due to environmental conditions such as humidity, dust, corrosive chemicals, deposition of oil or other foreign matter, spillage or other conditions beyond the control of ACCU-SCOPE INC. This warranty expressly excludes any liability by ACCU-SCOPE INC. for consequential loss or damage on any grounds, such as (but not limited to) the non-availability to the end user of the products under warranty or the need to repair work processes. All items returned for warranty repair must be sent freight prepaid and insured to ACCU-SCOPE INC., 73 Mall Drive, Commack, NY 11725 – USA. All warranty repairs will be returned freight prepaid to any destination within the Continental United States of America. Charges for repairs shipped back outside this region are the responsibility of the individual/company returning the merchandise for repair.

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