

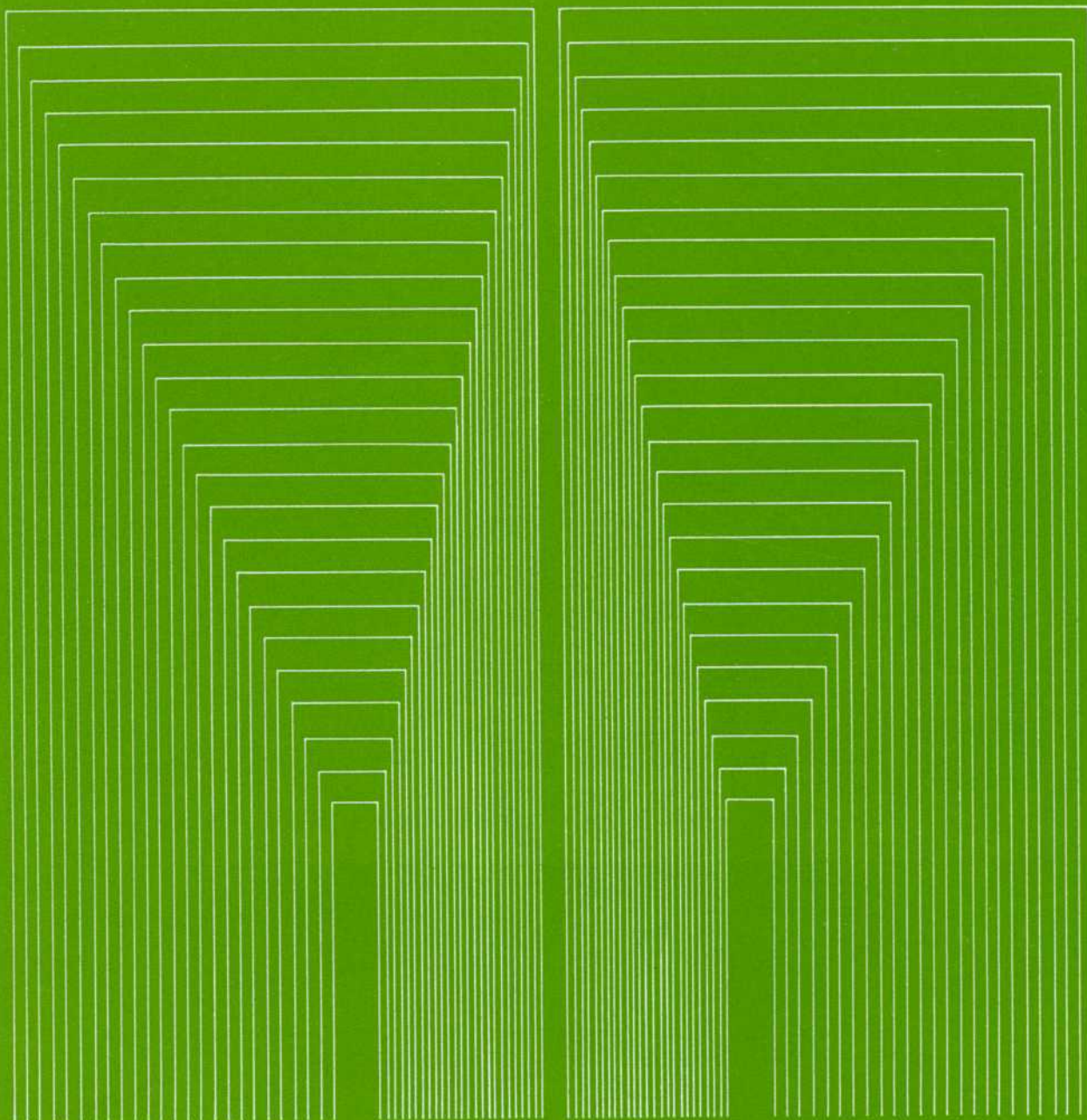
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Scope #8

OLYMPUS SYSTEM MICROSCOPE

INSTRUCTION MANUAL

Model **BHT**



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This instruction manual has been written for the use of the Olympus System Microscope Model BHT. It is recommended that you read the manual carefully in order to familiarize yourself fully with the use of the microscope, so that you can obtain optimum performance from it.

IMPORTANT

Observe the following points carefully:

■ Operation

1. Always handle the microscope with the care it deserves, and **avoid abrupt motions**.
2. Avoid the use and maintenance of the microscope in **direct sunlight, high temperature and humidity, dust and vibration**.
3. Only use the tension adjustment ring for altering the tension of the coarse adjustment knobs. (Do not twist the two coarse adjustment knobs in opposite directions simultaneously, as this will cause damage.)
4. Make sure that the voltage selector switch on the base plate is set to conform with the local mains voltage.
5. Make it a point of grounding the microscope to prevent electric accidents.

■ Maintenance

1. Lenses must always be kept clean. Carefully wipe off oil or fingerprints deposited on the lens surfaces with gauze moistened with a **small** amount of xylene, alcohol or ether.
2. Do not use organic solutions to wipe the surfaces of various components. Plastic parts, especially, should be cleaned with neutral detergent.
3. Never disassemble the microscope for repair. Only authorized Olympus service personnel should make repairs.
4. The microscope should be covered with the vinyl dust cover provided and stored in a place free from humidity and fungi. For extended storage it is recommended to keep objectives and eyepieces in desiccators, containing desiccants such as silica gel.

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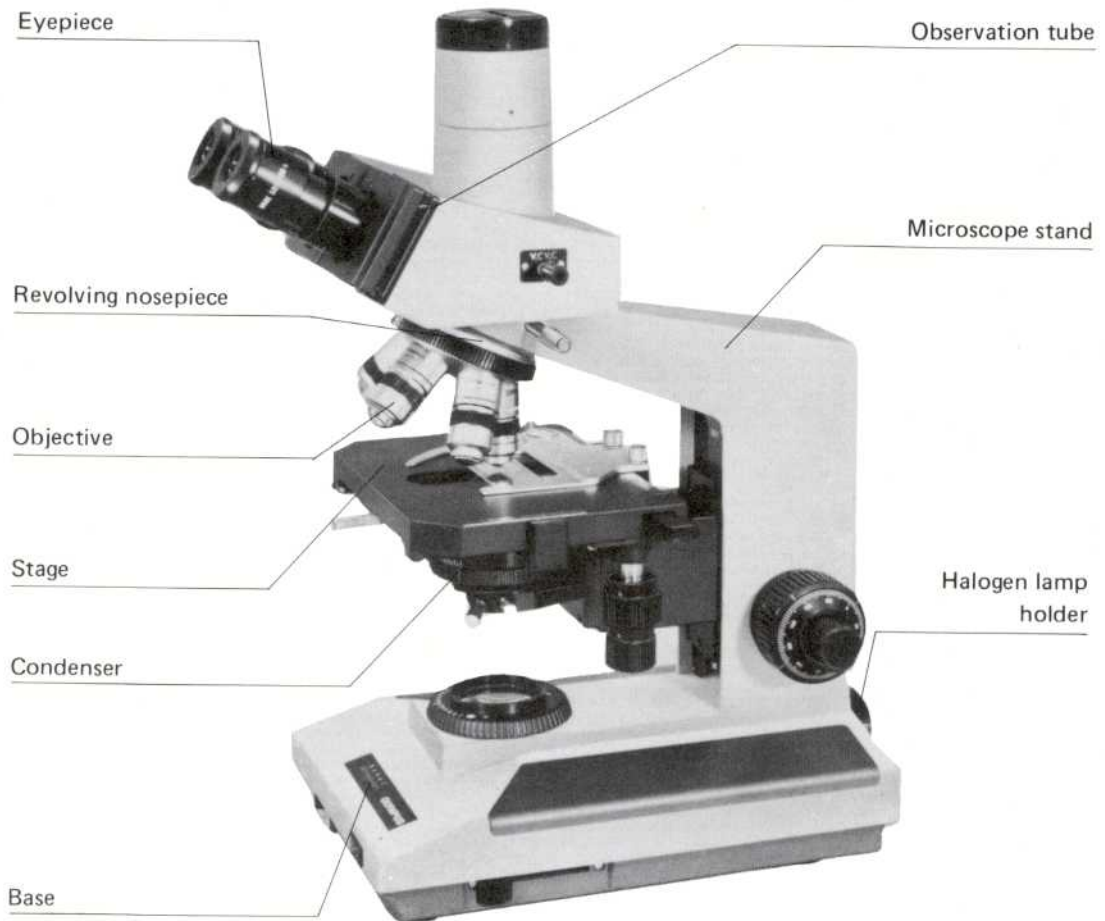
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I. STANDARD EQUIPMENT

Component			Model		
			BHT-111	BHT-112	BHT-312
Microscope stand		BHT-F	1	1	1
Line cord		UYCP	1	1	1
Observation tubes	Binocular tube	BH2-BI30	1	1	0
	Trinocular tube	BH2-TR30	0	0	1
Quintuple revolving nosepiece		BH2-5RE	1	1	1
Square mechanical stage with right-hand low drive coaxial controls		BH2-SVR	1	1	1
Condensers	Abbe condenser	BH2-CD	1	1	0
	Swing-out condenser	BH2-SC	0	0	1
Halogen lamp holder		LS-20H	1	1	1
Halogen bulbs		6V20WHAL	2	2	2
Objectives	D Ach. 4X, D Ach. 10X, D Ach. 40X, D Ach. 100X (oil)		1 each	0	0
	D Plan 4X, D Plan 10X, D Plan 40X, D Plan 100X (oil)		0	1 each	1 each
Eyepieces		WHK10X	2	2	2
Photo eyepiece		NFK3.3X	0	0	1
Filter		KB-4	1	1	1
Immersion oil, bottled			1	1	1
Vinyl dust cover			1	1	1
Allen wrench			1	1	1

II. NOMENCLATURE

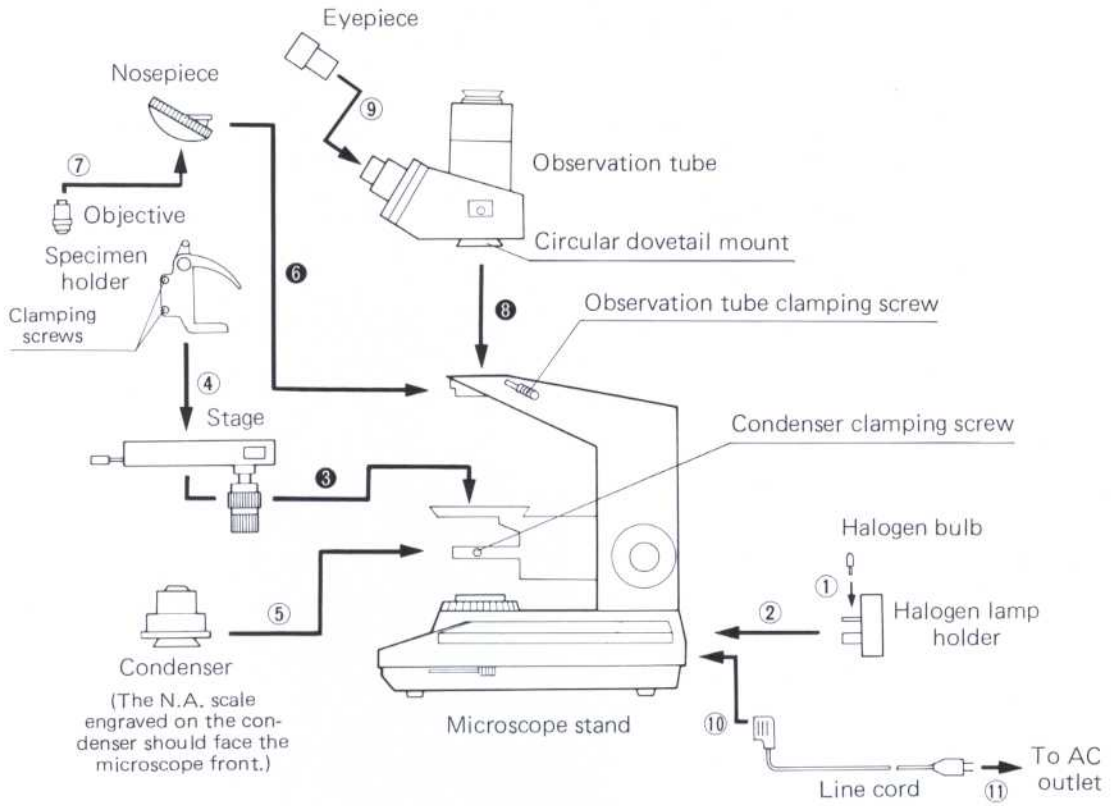
The Model BHT consists of various components and interchangeable accessories as shown in the photo below. A wide variety of combinations, standard or optional, is available according to your requirements.



III. ASSEMBLY

This picture illustrates the sequential procedure of assembly. The numbers indicate the order of assembly of various components. Remove dust caps before mounting components. Take care to keep all glass surfaces clean, and avoid scratching the glass surface.

NOTE: For numbers ③ ⑥ and ⑧ please refer to explanations in detail on the next page.



■ Explanations in detail

③ Mounting the stage

- 1) Loosen the stage clamping screw ① by rotating counterclockwise. (Fig. 1)
- 2) Insert the stage into the mounting dovetail of the microscope stand slowly and lock with clamping screw.



Fig. 1

⑥ Mounting the revolving nosepiece

- 1) Loosen the nosepiece clamping screw ①. (Fig. 2)
- 2) Aligning the nosepiece dovetail slide to the mounting block ②, push in the nosepiece slowly all the way.

NOTE: Do not tilt or rock the nosepiece while inserting into the mounting block.

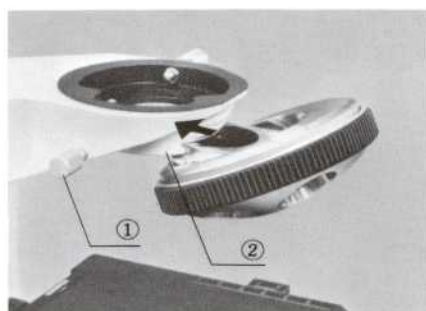


Fig. 2

⑧ Mounting the observation tube

- 1) Loosen the clamping knob ① fully. Pull spring-loaded clamping knob ①. This will cause the locating pin ② to withdraw. (Fig. 3) If the pin does not, loosen the screw further until the pin withdraws.
- 2) With clamping knob ① pulled out, insert the circular dovetail of the observation tube into the ring dovetail.
- 3) Tighten the clamping knob.

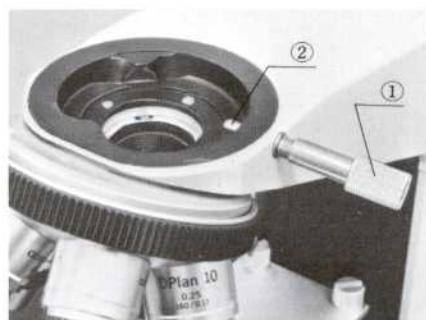


Fig. 3

IV. IDENTIFICATION AND FUNCTION OF VARIOUS COMPONENTS

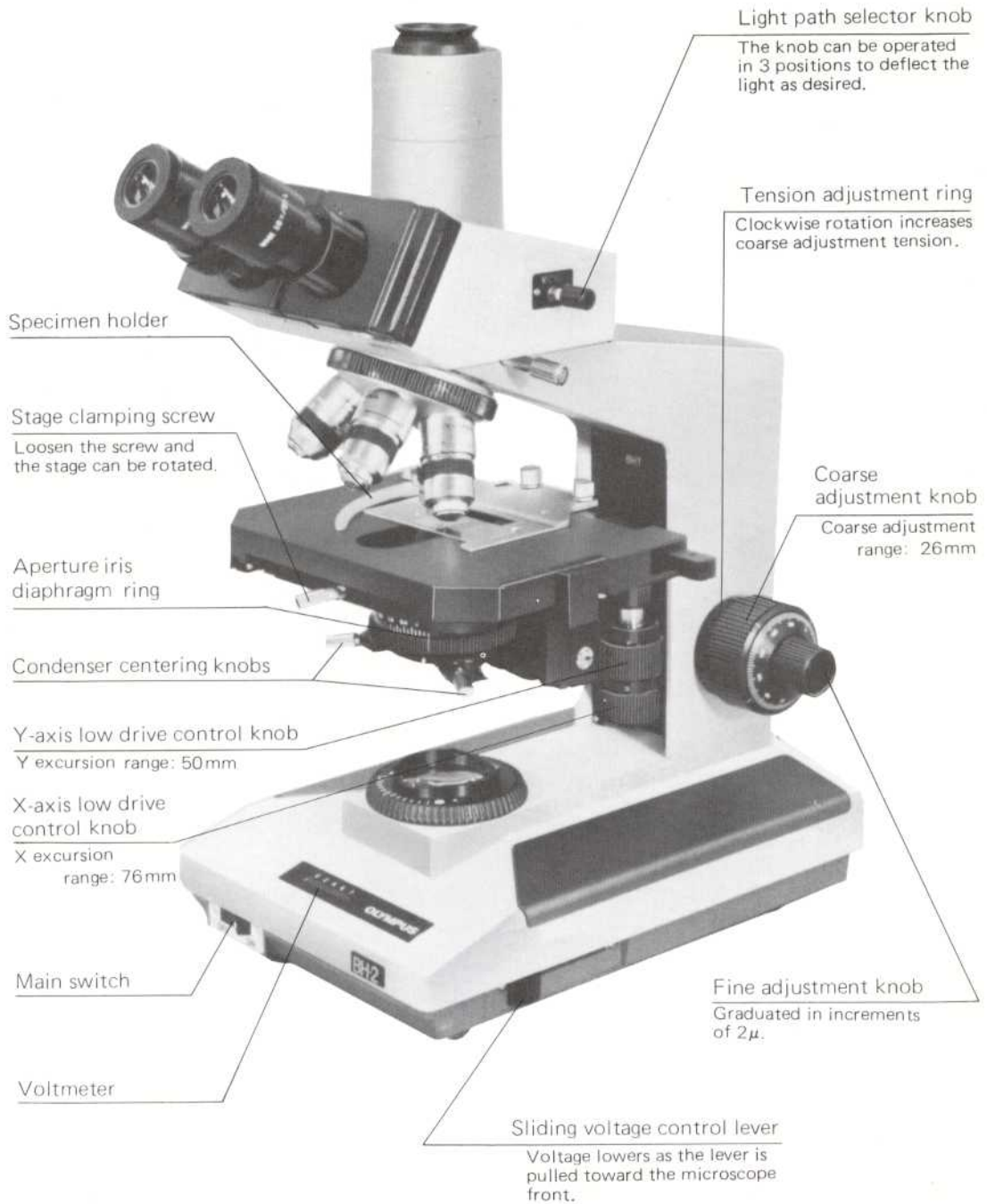


Photo tube

Diopter adjustment ring

Condenser height adjustment knob

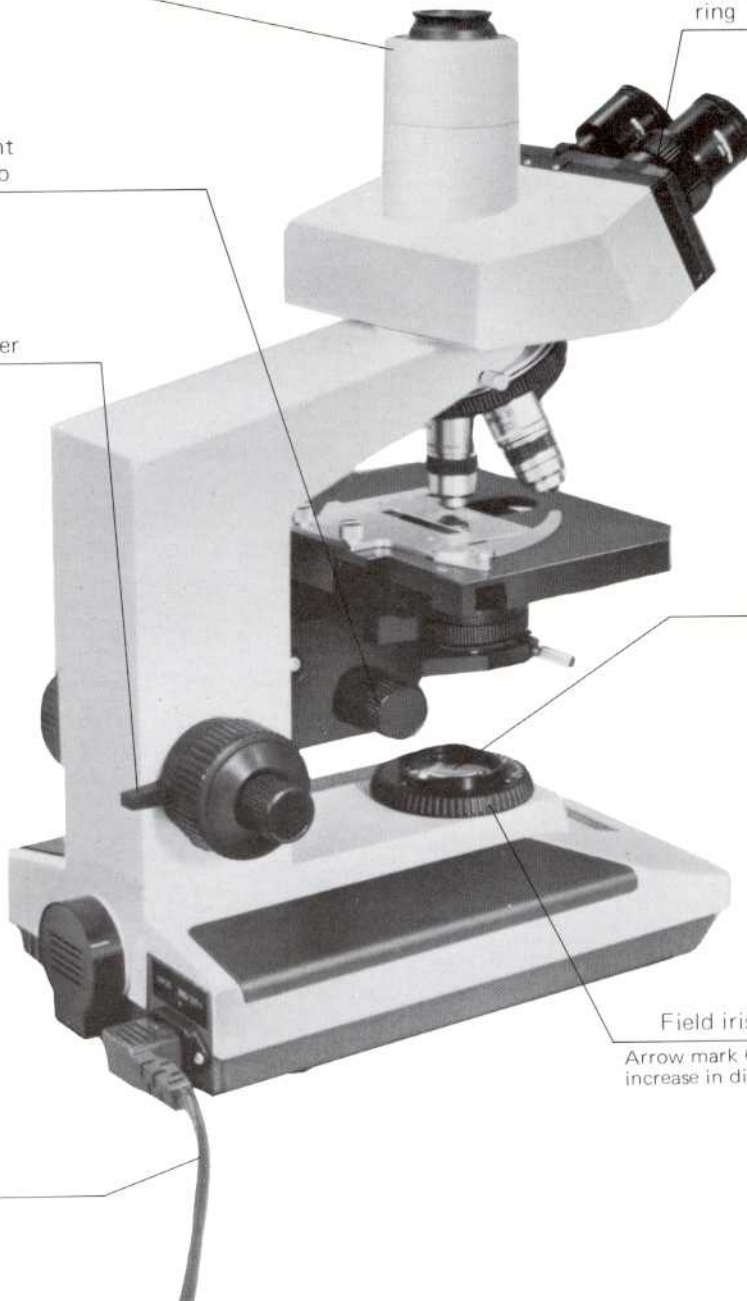
Pre-focusing lever

Filter mount

Field iris diaphragm ring

Arrow mark $\odot \rightarrow \circ$ indicates increase in diaphragm diameter.

Line cord



Summary of Putting the Microscope into Operation

Model BHT

- A. Match the voltage selector switch to local mains voltage (page 9).
- B. Switch on the light source (page 9).
- C. Place a specimen slide on the mechanical stage (page 9).
- D. Coarse focus with the 10X objective (page 10, 13).
- E. Make interpupillary distance and diopter adjustments (page 11).
- F. Adjust the condenser position (page 12).
- G. Swing in the desired objective.
- H. Adjust light intensity.
- I. Fine focus.
- J. Adjust aperture iris diaphragm and field iris diaphragm (page 12).

Adjustment of Illumination System for Various Objective Powers

Objective magnification	Condenser			
	Achromatic-aplanatic condenser BH2-AAC	Abbe condenser BH2-CD	Swing-out condenser BH2-SC	Low power condenser BH2-UL-C
1X				Compatible
2X				
4X				
10X	Compatible	Compatible	Swing out top lens	
20X				
40X			Swing in top lens	
60X				
100X				

*N.A. is somewhat low, but still compatible with a 100X objective.

(Cut off this page at dotted line and put it on the wall near the microscope for use as a reminder of microscopic procedure.)

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V. OPERATION

A. Switching on the Light Source

- 1) Ascertain that the voltage selector switch ① is set to conform with the local mains voltage. (Fig. 4)
If the switch is not correctly set, adjust it by means of the Allen wrench provided or a screwdriver.
- 2) Place the sliding voltage control lever on the right side of the microscope base to a position closest to you (low voltage position). Switch on the light source. (Fig. 4)

Voltage Adjustment and Light Intensity

As you push the control lever ① in the direction of the arrow in order to obtain increasing intensity (Fig. 5), the LED readout ② will display the lamp voltage.

B. Placement of a Specimen Slide

- 1) Rotate the coarse adjustment knobs ① in the direction of the arrow to rack down the stage so that a specimen slide can be placed on the stage. (Fig. 6)

NOTE: The rotation of the coarse and fine adjustment knobs in the direction of the arrow will rack down the stage.

- 2) Opening the spring-loaded finger of the specimen holder with one hand, place a specimen slide inside the holder. (Fig. 7)
When the slide comes in contact with the back of the specimen holder, slowly return the spring-loaded finger.

WARNING: If the spring-loaded finger is returned quickly, it may cause damage to the specimen slide.

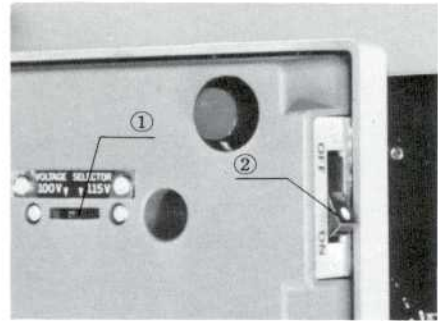


Fig. 4



Fig. 5



Fig. 6



Fig. 7

Cover Glass

- An Olympus objective engraved "160/0.17" requires a cover glass of 0.17mm thickness. If the numerical aperture of the objective is 0.7 or higher (except immersion objectives) and no correction collar is provided, the resolving power deteriorates to a great extent if cover glass thickness deviates from the above listed value.

NOTE: In some countries a 0.17mm cover glass corresponds to a designation of #1½.

- A cover glass (0.4 mm thick) for blood counting, etc. can be used with Olympus objectives except D Plan 40X, S Plan Apo 40X and S Plan 100X.

Specimen Slide

- Specimen slides 0.8 mm to 1.5 mm thick are recommended for Olympus objectives.
- Specimen slides 0.8 mm to 1.2 mm thick are recommended for the darkfield condenser and the differential interference contrast condenser.

3) Bring the portion of the specimen for observation into the light path by means of the low drive control knobs. (Fig. 8)

- ★ Tighten the stage clamping screw ① in the microscope front.



Fig. 8

Stage

- The specimen holder can accommodate two standard specimen slides simultaneously.
- The specimen holder is removable to obtain a large unobstructed stage surface to hold specimens up to 55 mm x 85 mm.
- To rotate the stage loosen the stage clamping screw ① and holding this screw, rotate the stage into the desired direction. (Fig. 9)



Fig. 9

- ◎ Stage clips for use with immersion objectives. (Fig. 10)

A pair of stage clips are optionally available to hold the specimen on the stage, eliminating a specimen drag caused by immersion oil between slide and stage surface. The clips can be inserted into the holes ① provided on the specimen holder.

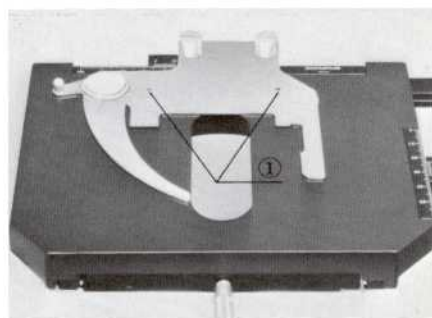


Fig. 10