

# SeilerScope

## OPERATING INSTRUCTIONS



PRECISION MICROSCOPES

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The SeilerScope Biological Microscope is equipped with achromatic objectives and wide field eyepieces with binocular head, so the observer can get the clear image in the wide field.

# I. SPECIFICATIONS

## 1. Eyepieces

Type	Magnification	Focus (mm)	Field (mm)	Remark
Plan eyepiece	10x	25	18	

## 2. Objectives:

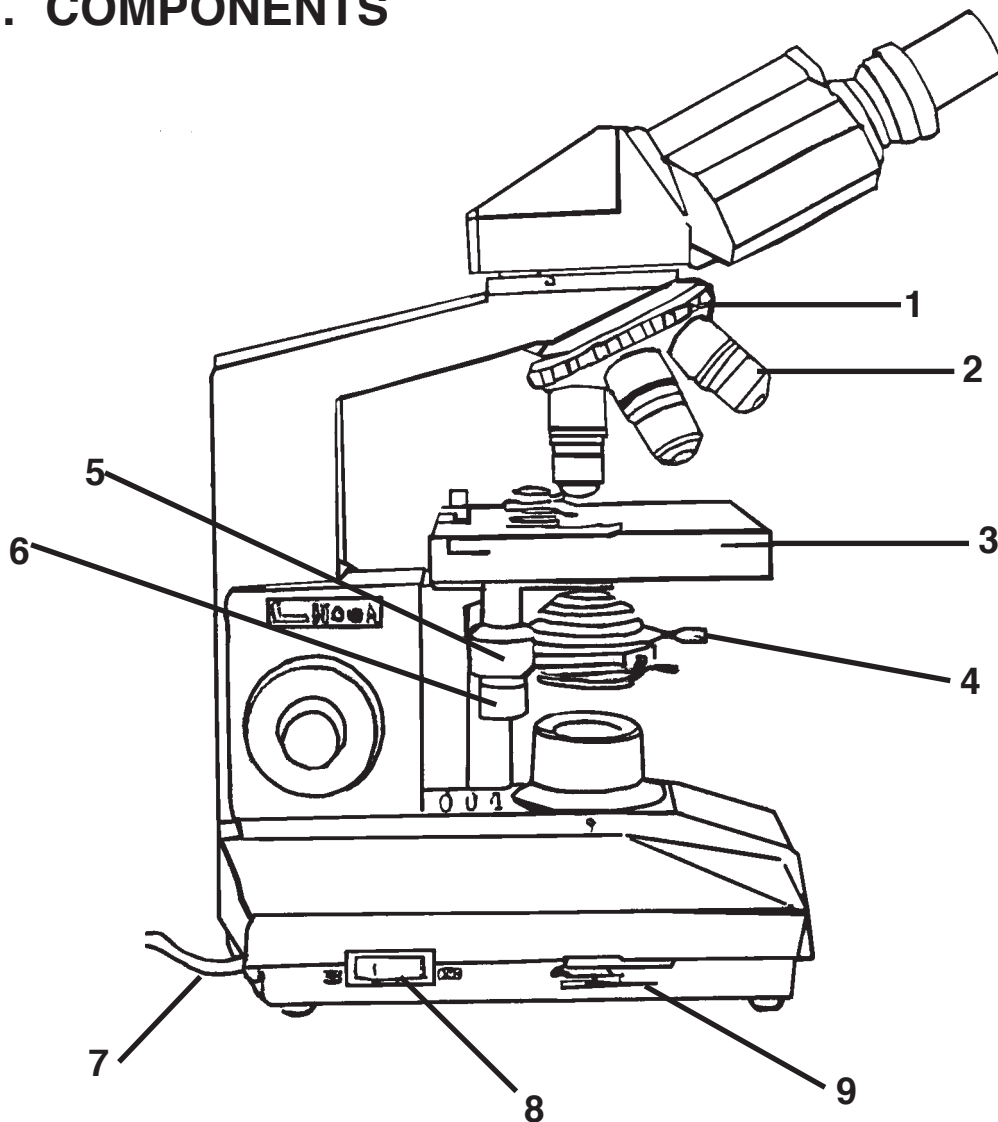
Type	Magnification	N.A.	W. D. (mm)
Achromatic	4x	0.1	37.4
Achromatic	10x	0.25	6.6
Achromatic	40x	0.65	0.57
Achromatic	100x	1.25 oil	0.19

## 3. Total Magnification:

Total Magnification Objective Eyepiece	Objective				
		4x	10x	40x	100x
10x	40x	100x	400x	1000x	

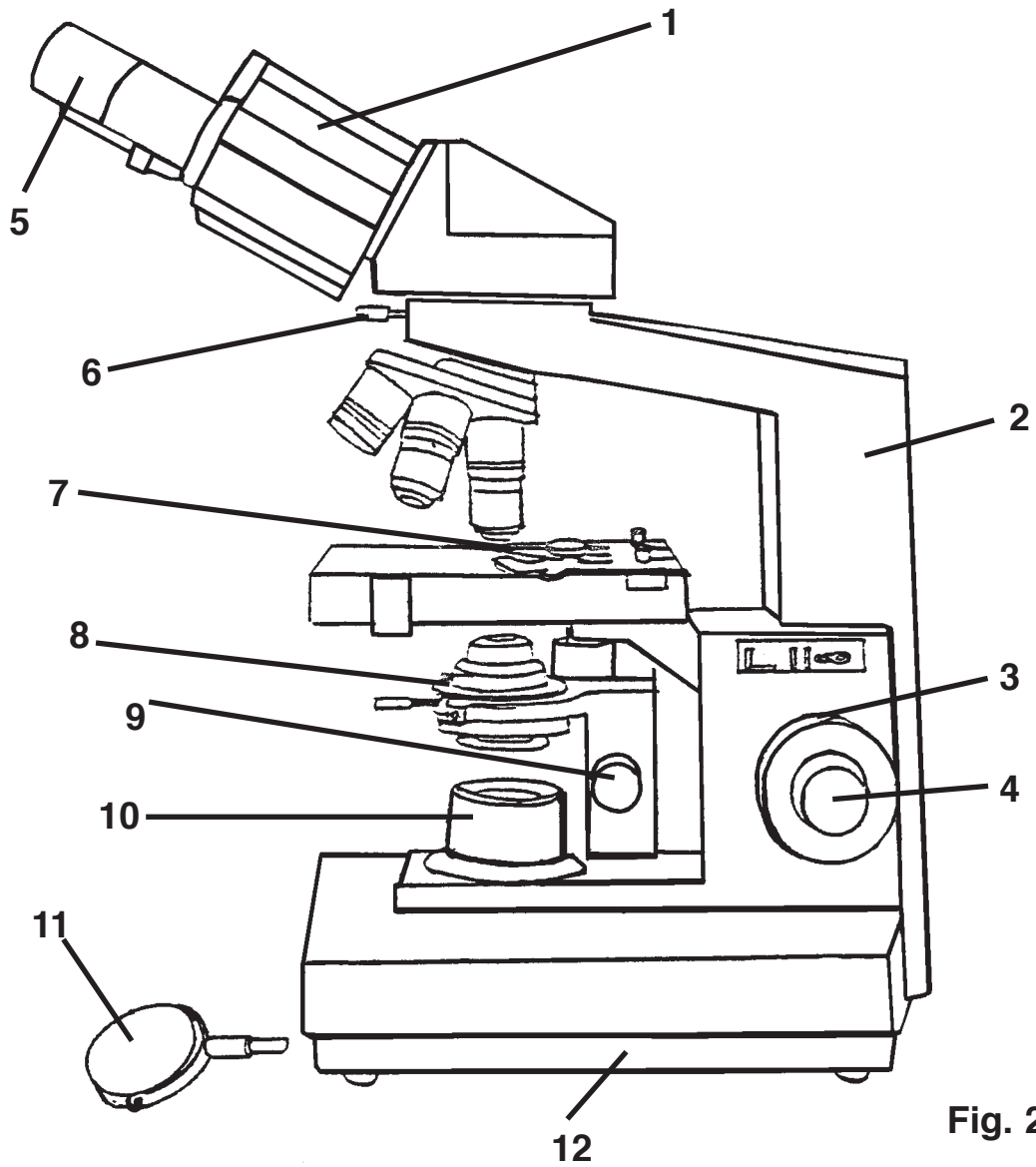
4. Condenser numerical aperture: 1.25
5. Stage cross travel range: longitudinal 34mm, traverse 75mm
6. Fine focusing knob: minimum division 0.002 mm.
7. Interpupillary distances adjustment range: from 55 mm to 75 mm.
8. Light sources: using a 6V20W Halogen lamp brightness adjustable.
9. Power supply: Can be operated on AC 220V 50HZ or AC 110V 60HZ

## II. COMPONENTS



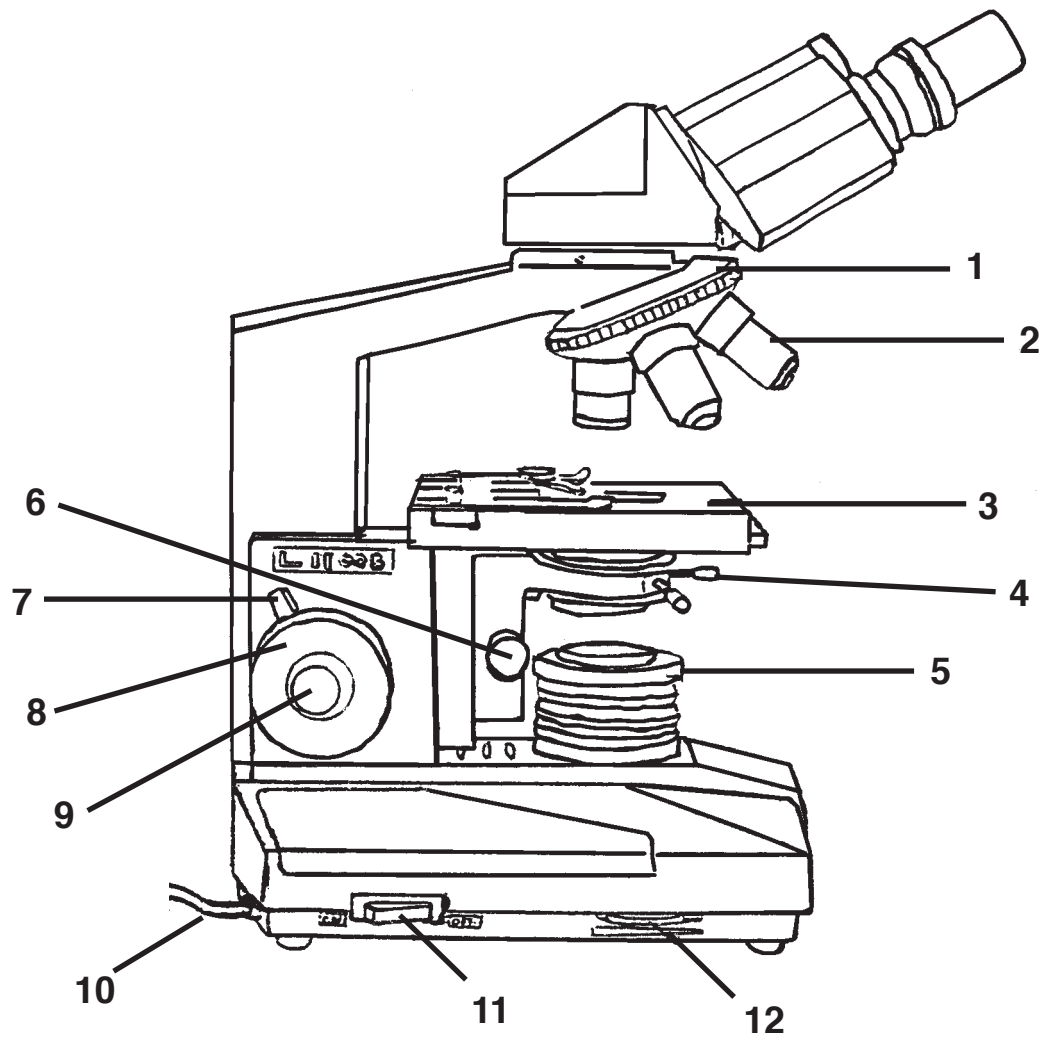
**Fig. 1**

1. REVOLVING NOSEPIECE    2. OBJECTIVES    3. MECHANICAL STAGE  
4. CONDENSER CLIPPING SCREW    5. SHIFTING LONGITUDINAL CONTROLLER  
6. TRAVERSE SHIFTING CONTROLLER    7. POWER SUPPLY CABLE  
8. LIGHT SOURCE ON/OFF    9. BRIGHTNESS ADJUSTMENT CONTROL LEVER



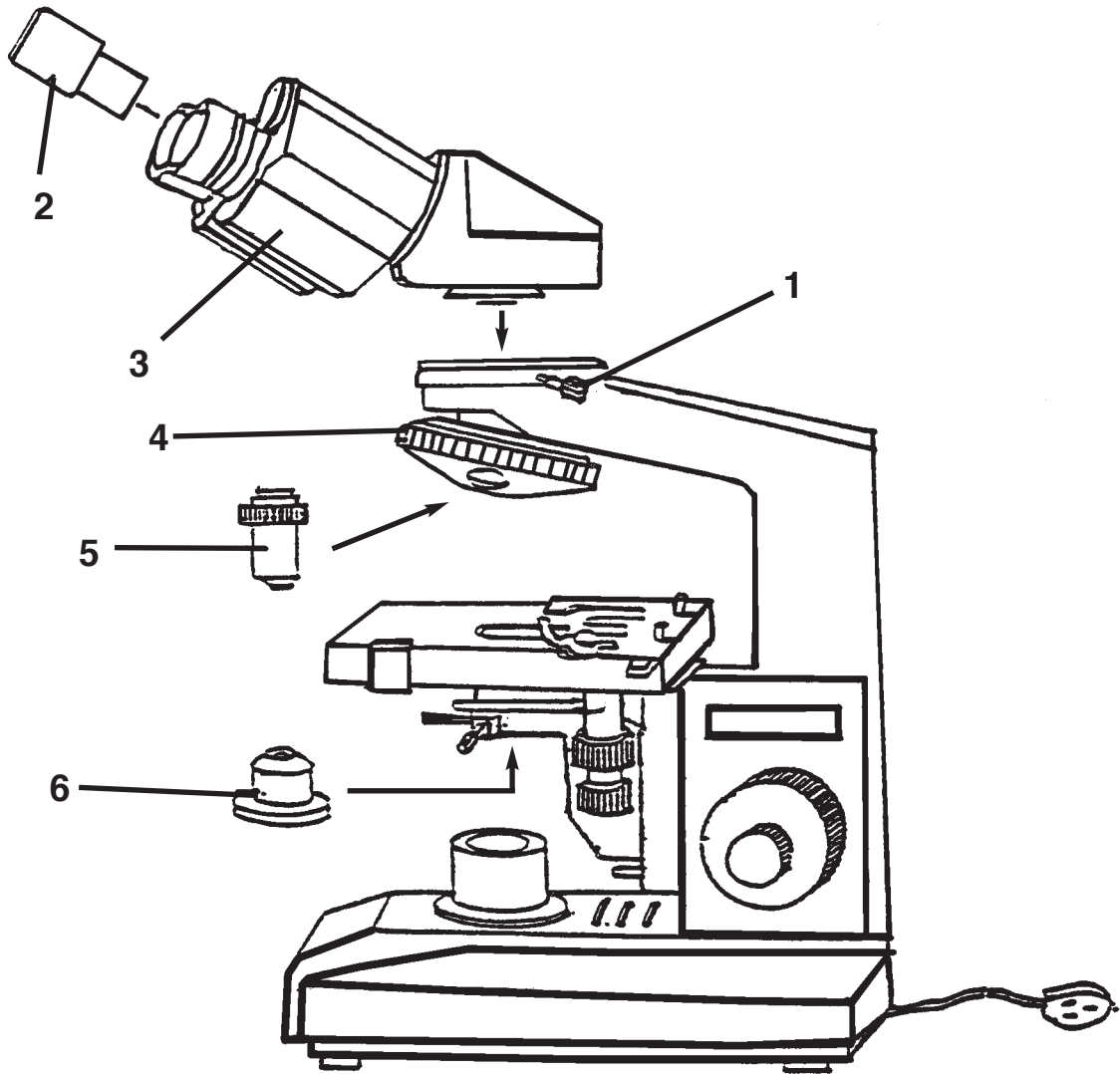
**Fig. 2**

1. BINOCULAR 2. BODY 3. COARSE FOCUSING KNOB 4. FINE FOCUSING KNOB 5. EYEPIECE 6. BINOCULAR CLIPPING SCREW 7. SPECIMEN CUP 8. CONDENSER 9. CONDENSER UP/DOWN KNOB 10. COLLECTOR 11. REFLECTOR 12. BASE



**Fig. 3**

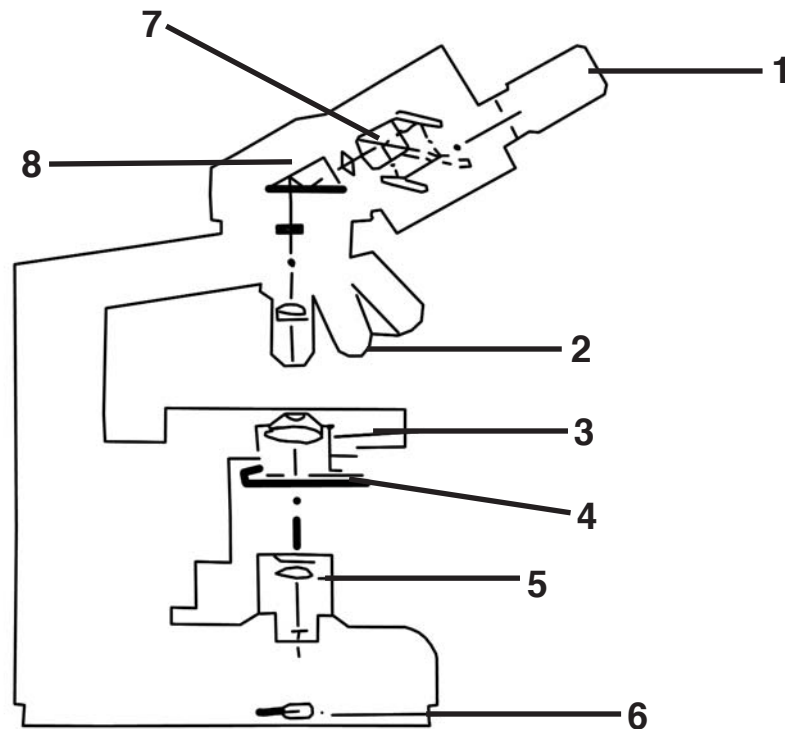
1. REVOLVING NOSEPIECE 2. OBJECTIVES 3. MECHANICAL STAGE  
 4. CONDENSER CLIPPING SCREW 5. FIELD DIAPHRAGM (SELECT)  
 6. CONDENSER UP/DOWN KNOB 7. FOCUSING LIMIT KNOB  
 8. COARSE FOCUSING KNOB 9. FINE FOCUSING 10. POWER SUPPLY CABLE  
 11. LIGHT SOURCES ON/OFF 12. BRIGHTNESS ADJUSTMENT CONTROL LEVER



**Fig. 4**

- |                             |                        |
|-----------------------------|------------------------|
| 1. BINOCULAR CLIPPING SCREW | 2. EYEPIECE            |
| 3. BINOCULAR (OR MONOCULAR) | 4. REVOLVING NOSEPIECE |
| 5. OBJECTIVE                | 6. CONDENSER           |

## IV. OPTICAL SYSTEM



**Fig. 5**

1. EYEPIECE 2. OBJECTIVE 3. CONDENSER 4. APERTURE DIAPHRAGM  
5. COLLECTOR LENS 6. HALOGEN LAMP 7. PRISM-MIRROR SYSTEM

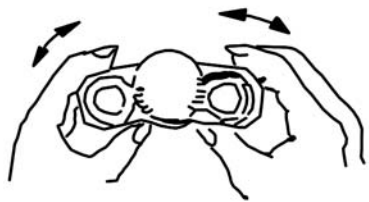
## V. OBSERVING OPERATION

### 1. General operation

- (1) Turn on the power by pressing the ON/OFF switch.
- (2) Set the 10x objective into operation position by turning the nosepiece. Then focus the specimen which is on the stage.
- (3) Adjust the interdistances of binocular to fit the eyes of observer.
- (4) For desirable illumination, up or down the condenser. Vary the illumination controller and adjust aperture of the iris.
- (5) While interchange other objective, turn the nosepiece and refocus slightly with the fine focusing knob. When using the 100x immersion objective, be sure to put a drop of cedar wood oil between the objective and the specimen.

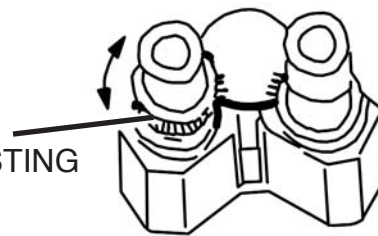
### 2. Setting components

- (1) Adjust the binocular for fitting the pupil distances.  
Focus the specimen and combine the left and right view fields into one by adjusting the interdistances of the binocular. (shown in Fig. 6)
- (2) Fit the binocular's to observer's sight.  
Observe with right eye on 40x objective, bring the specimen into focus by adjusting the coarse/fine focusing knob. The machine now will fit the sight of the observer's eyes. (shown in Fig. 7)



**Fig. 6**

SIGHT ADJUSTING RING



**Fig. 7**

(3) Coarse/fine focusing

A. For SeilerScope

Coaxial coarse and fine adjustment knobs make the focusing smoother. To suit operator preference or a heavy or light knob touch, a tension adjustment ring is provided. This device can also prevent the stage slides up. In order to prevent collisions between objective and specimen due to accidental stage movement. The microscope has a focusing limit control knob. Once the specimen is focused, tighten the knob to prevent the stage from moving beyond a safe limit.

(shown in Fig. 8)

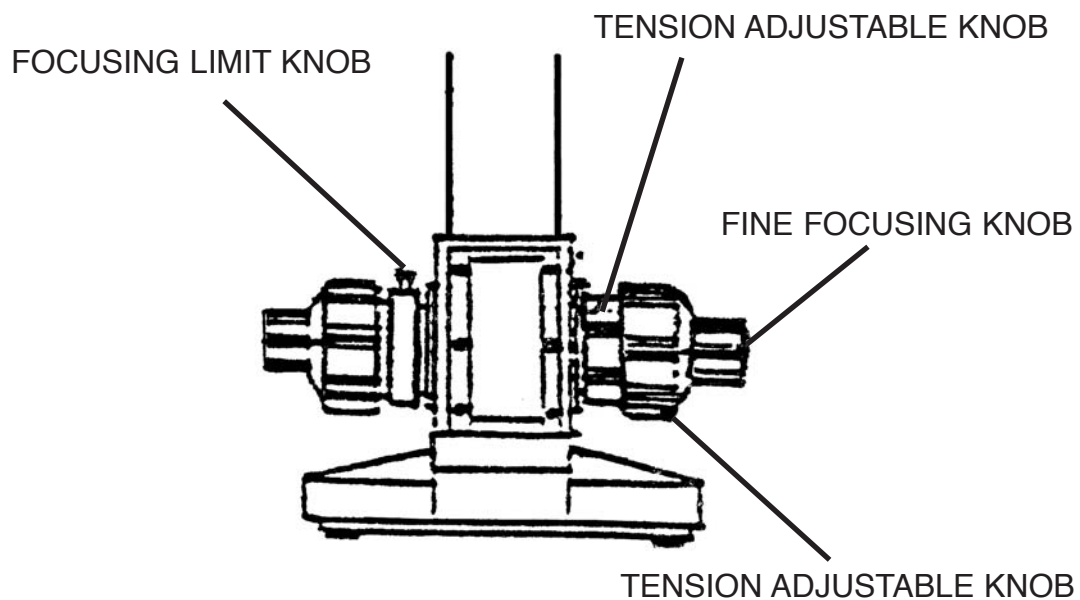
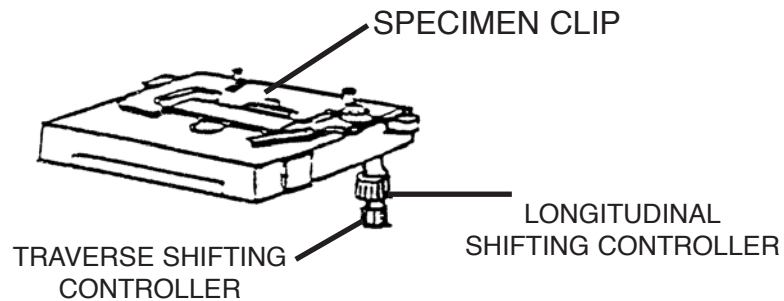


Fig. 8

(4) Stage

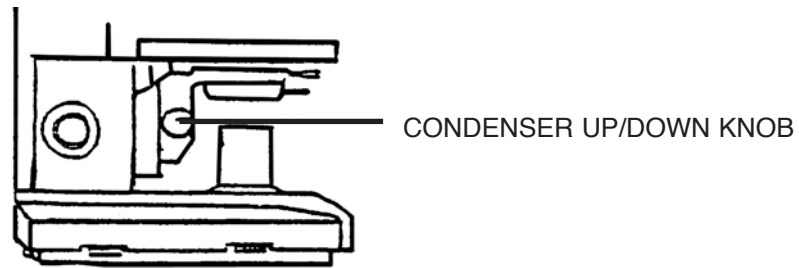
The specimen clip which is on the stage hold the specimen very easily. The longitudinal/traverse shifting controller is coaxial and can be used conveniently. (shown in Fig. 9)



**Fig. 9**

(5) Up/down the condenser

The condenser will move vertically when turning the condenser up/down knob in manner. (shown in Fig. 10)

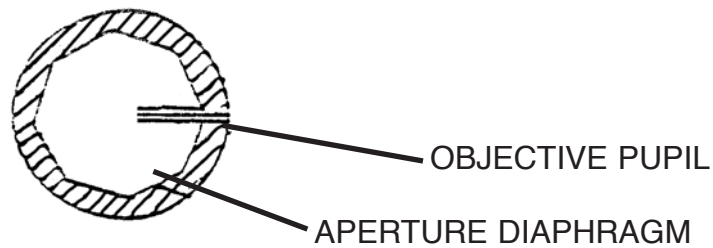


**Fig. 10**

(6) Utilization of the aperture diaphragm on the condenser.

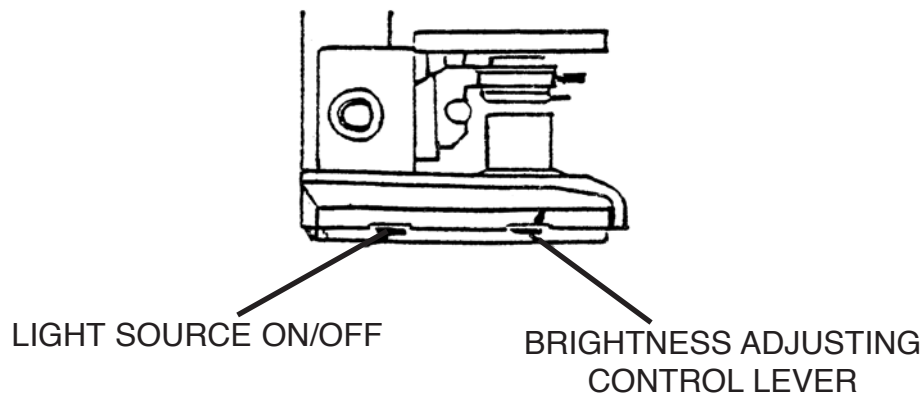
The numerical aperture of illumination system can be varied by the aperture diaphragm and bring about the change in resolution, contrast and focal depth. Mostly an image of fair contrast may reach, when the diameter of the numerical aperture being 70-80% of the exit pupil of the concerning objective. (shown in Fig. 12)

Removing the eyepieces. Adjust the aperture diaphragm properly while looking through eyepiece tube. The eyepiece tube and the image of the aperture of the bright ring in the objective pupil. Keep in mind the handle position of the aperture diaphragm for each objective when the best image quality is reached.



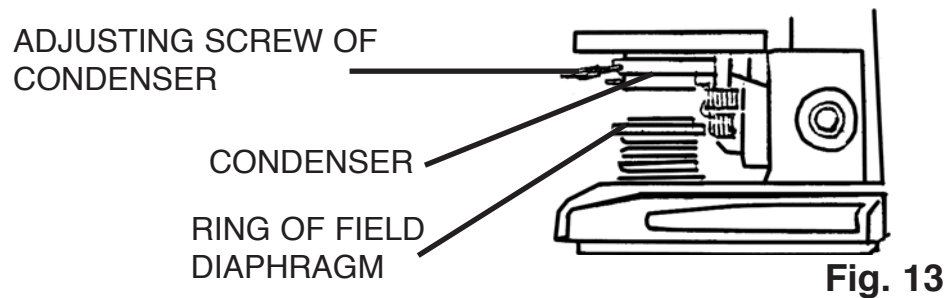
**Fig. 11**

- (7) Power switch and adjusting intensity  
Turn on the power, adjusting the intensity knob making the eyes observe image of specimen comfortably.  
Note: Don't put the intensity knob on the highest position longly. Avoid deducing livelife of lamp. (shown in Fig. 12)



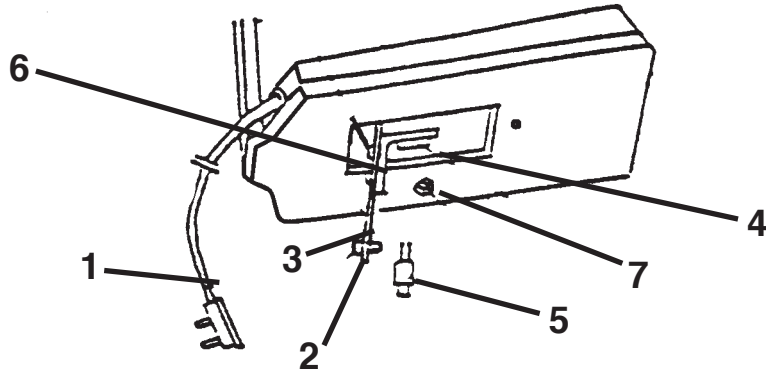
**Fig. 12**

- (8) Adjusting of field diaphragm  
Switch on the power, then turn the 10x objective into the optical axis. Observe with 10x eyepieces. Turning the up/down condenser knob then reach the image of field diaphragm. Then center field diaphragm and optical axis with adjusting screw. Turn the ring of field diaphragm. When the field diaphragm is more than the field of eyepiece. Using 4x objective, then adjust method as so. (shown Fig. 13)



## VI. EXCHANGING THE LAMP AND FUSE

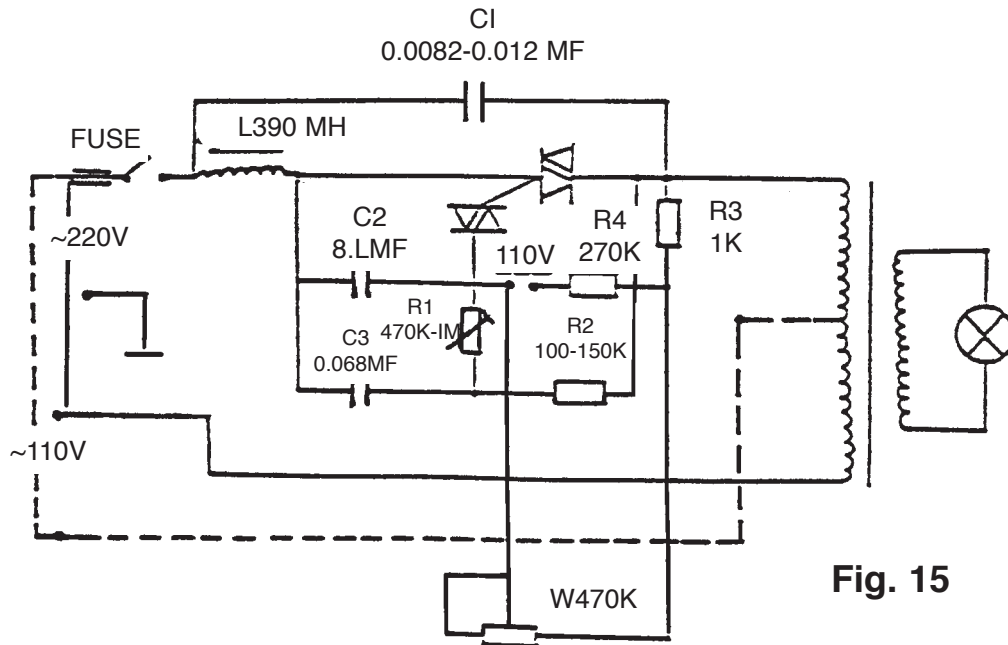
- (1) Pull out the plug of power electrical wire [1] and disconnect the power supply.
- (2) Incline microscope, loosen screw [2] of fixing lamp base board [3] on middle part of bottom, and remove lamp base board from bottom.
- (3) Pull out the old lamp from lamp base [4].
- (4) Insert new lamp [5] into lamp base properly, as shown in Fig. 11 direction, make it touch better.
- (5) Clean the new lamp with absolute alcohol.
- (6) Refix lamp base board on bottom with screw [2].
- (7) Mount the lamp well. Plug in power source. Turn 4x objective lens into path. Adjust condenser upwards and downwards and make light enter view of field. If light spot is offset the center of view, loose screw [6] slightly and move lamp base [4]. Make lamp spot into center, then tighten up the screw [6] to use immediately. (shown in Fig. 14)



**Fig. 14**

- (8) Loosen the screw of fuse 7, put out the bad fuse, mount the new fuse. Tighten the screw of fuse and use.

## VII. CIRCUIT DIAGRAM



**Fig. 15**