XSZ-167 XSZ-167T

Operating Instruction For Biological Microscope

In order to exert performance of this microscope and to ensure the safety, please read the operating instruction carefully before use.

1. SPECIFICATION：

Specification		Model	
		XSZ-167	XSZ-167T
Viewing head	Compensation free binocular head, inclined at 30°（55mm-75mm)	●	
	Compensation free trinocular head, inclined at 30°（55mm-75mm)		●
Eyepiece	WF10×	●	●
Nosepiece	Quadruple nosepiece	●	●
Objective	Achromatic objective：4×、10×、40×(S)、100×(S)Oil	●	●
Stage	Double layers mechanical stage	●	●
Condenser	N.A.1.25Abbe condenser with iris diaphragm & filter	●	●
Focusing	Coaxial coarse & fine focusing adjustment with rack and pinion mechanism Fine focusing scale value 0.002mm	●	●
Light source	Halogen bulb 6V/20W or LED 1W AC 85V-230V Adjustable brightness	●	●
Collector	High brightness Kohler illumination	●	●
Optional accessory	Eyepiece: WF16×, WF20×		
	Achromatic objective：20×, 60×(S)		
	Semi-Plan achromatic objective: 4×, 10×, 20×(S), 40×(S), 60×(S), 100×(S)Oil		
	Plan achromatic objective: 4×, 10×, 20×(S), 40×(S), 60×(S), 100×(S) Oil		
	Dark field condenser		
	Photo and CCD attachment		

Objective

Type	Magnification	Numerical aperture (N.A.)	Working distance (mm)	Thickness of the cover slip (mm)
Achromatic objective	4×	0.1	37.5	0.17
	10×	0.25	6.54	0.17
	40×(S)	0.65	0.63	0.17
	100×(S) Oil	1.25	0.195	0.17

2. OPERATION：

1. Instrument installation

（1）Remove microscope with both hands hold stand and bottom from box and Styrofoam packing, put it on a stable work table carefully .

（2）Remove plastic bags and dustproof cover of each adapter.

(3) Put the binocular head or the trinocular head into the adapter of stand in place , tighten the knurled screw with finger.

（4）Familiarize yourself the mechanical parts of your microscope .Gently operate each part by hand to see how it behaves and what result it produces.

（5）Insert the plug in to the socket in back of microscope .Insert another end of the power wire to the supply socket.

Note：1) The microscope must be earthed.

2) Make sure the power voltage in accordance with the microscope's marking voltage.

2. Using the instrument

(1) Turn on the power switch, adjust the brightness adjusting knob to make the brightness 70% of the full load.

(2) Place the specimen (slide) to be viewed smoothly onto the stage, cover slip to face to the objective. Clamp specimen (slide) carefully with the movable spring clip.

(3) The magnitude of incident beam of light can be changed when adjusting the aperture diaphragm. The highest resolution of the objectives can reach when the fitted aperture diaphragm is adjusted. When the objectives is changed, in order to get the best resolution of the objective, please take off the eyepiece to observe the size of aperture diaphragm in the eyepiece tube. It is better to adjust aperture diaphragm till it is a little smaller than the aperture of the objective.

Note：Aperture diaphragm is not for adjusting the brightness, the brightness is adjusted through brightness adjusting knob.

(4) Swing out the filter holder, according to user's needs put filter in the filter holder and then backtrack.

(5) Turn the nosepiece when changing the objective 4×or 10×, and make sure the objective is shift in the light path until hear a "click ".

(6) When adjusting the focus，in order to prevent objective touch the specimen, turn the coarse focusing knob until the specimen is approximately 1/8″ from the objective.

Slowly turn the coarse focusing knob until a clear image is obtained, then use the fine focusing knob to enhance the observation of the specimen to it's clearest image. If the magnification is increased, here you can obtain clear image under other higher magnification objectives with a little fine adjustment.

(7) When using objective 100× to observe, lift the condenser to the highest position, then drop a little cedar oil on surface of objective 100×and specimen (cover slip).If there's air bulb in oil, it will influence observation. Take out air bulb by swinging nosepiece several times. The 100× oil immersion objective and specimen should be wiped off with a piece of soft clean cloth or lens tissue to remove the cedar oil with xylene immediately after using.

(8) If you find to lift the mechanical stage too tension or loosen in use. Turn the tension adjusting ring. Coarse focusing knob would be tightening if it turns in the direction of the

arrow , on the other hand it would be loosen.

(9) Turn transversal and longitudinal direction adjusting knobs located just below the stage, the specimen may be moved to the center of the eyepiece's viewing field for observation.

(10) Turn coarse & fine focusing knob to focus the specimen till you see clear image of specimen when observing the fixed eyepiece with eye. Then rotate the diopter adjusting ring, if the image is unclear when observing the another eyepiece with another eye, also still you see clear image of specimen (Remember your eye's diopter, so that you could use next time).When using two eyes to observe , hold the base of the prism and rotate them around the axis until there is only one field of view.

(11) Removed dustproof cover in used the trinocular head, the CMOS electronic eyepiece, Photo and CCD attachment put conveniently into the trinocular tube. You may be ready to begin working after shift the light path by moving the light path shifting rod into the working position.

(12) Bulb and fuse replacement: (the power wire must be disconnected)

1) Bulb replacement: Loosen the knurled screw on the underside of microscope and open the panel to expose the bulb. Remove the old bulb after it becomes cool. (The bulb will become very hot when using or after using.) Don't touch the new bulb with finger, if there is a fingerprint and dirt, that will decrease the brightness and shorten the life of the bulb, wipe it with clean and soft cloth. Hold the new bulb with the same specification with clean gloves or gauze and vertically insert the pins to the jack. Close the panel and tighten the knured screw with finger.

2) Fuse replacement: Open the fuse holder with a "－" screwdriver in the direction of the arrow. Remove the old fuse and install a new fuse with the same specification. Replace fuse holder and screw in place.

Ⅴ MAINTENANCE:

1. The microscope must be placed in where is shady, dry, clean and there is no acid, alkaline & steam. Don't let it expose under sun light directly.

2. Working environment: Indoor temperature :0℃～40℃.
Maximum relative humidity: 85%.

3. The microscope has be calibrated and inspected strictly before leaving factory, the users must not knock down the instrument discretionally.

4. If there's dust on the lens, blow it by rubber ball blower, after that clean the lens gently with a soft brush pen, carefully wipe off oil or fingerprints on the lens surface with lens tissue or absorbent cotton moistened with a few organic solvent (mixture of ether and alcohol 7:3).

5. Don't wipe the lens surface regularly, or else the lens will be scraped, reduce the quality of the transmission and imaging. Please keep the instrument clean.

6. Keep the mechanical parts clean and wipe regularly.

7. Shut off the power and pull out the plug when the microscope is not used, adjust the brightness adjusting knob to the minimum, cover the microscope with a dust cover.