
UNITRON®



Z730 SERIES

ZOOM STEREO MICROSCOPE

MANUAL

CONTENTS

SAFETY NOTES 3

CARE AND MAINTENANCE 3

INTRODUCTION 4

UNPACKING AND COMPONENTS 4

COMPONENTS DIAGRAM 4

ASSEMBLY 5

DETAILED ASSEMBLY PROCEDURE 6

ADJUSTMENT AND OPERATION

 ADJUSTING BINOCULAR VIEWING HEAD 8

 FOCUS ADJUSTMENT 9

SPECIFICATIONS 10



TROUBLESHOOTING 11

MAINTENANCE 12

SERVICE 12

WARRANTY 12

SAFETY NOTES

1. Open the shipping carton carefully to prevent any accessory, i.e. objectives or eyepieces, from dropping and being damaged.
2. Keep the instrument out of direct sunlight, high temperature or humidity, and dusty environments.
3. If any specimen solutions or other liquids splash onto the stage, objective or any other component, disconnect the power cord immediately and wipe up the spillage. Otherwise, the instrument may be damaged.
4.  **LAMP REPLACEMENT -- CAUTION:** the glass envelope of the lamp may be extremely hot. DO NOT attempt to change the lamp before it is completely cooled or without wearing adequate skin protection.
5. All electrical connectors (power cord) should be inserted into an electrical surge protector to prevent damage due to voltage fluctuations.
6.  **FUSE REPLACEMENT --** For safety when replacing the fuse (ONLY replace with the same size, type and rating of original fuse), be sure the main switch is in the off position, disconnect the power cord from outlet, and replace the fuse. Reconnect the power cord and turn unit on.
7. Confirm that the input voltage indicated on your microscope corresponds to your line voltage. The use of a different input voltage other than indicated will cause severe damage to the microscope. NOTE: Always plug the stereomicroscope power cord into a suitable grounded electrical outlet. A grounded 3-wire cord is provided.

CARE AND MAINTENANCE

1. Do not attempt to disassemble any component including eyepieces, objectives or focusing assembly.
2. Keep the instrument clean; remove dirt and debris regularly. Accumulated dirt on metal surfaces should be cleaned with a damp cloth. More persistent dirt should be removed using a mild soap solution. Do not use organic solvents for cleansing.
3. 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, lint free cloth or cotton swab dampened with a lens cleaning solution (available at camera stores). All optical lenses should be swabbed using a circular motion. A small amount of absorbent cotton such as a Q-tip or cotton swab, makes a useful tool for cleaning recessed optical surfaces. Avoid using an excessive amount of solvents as this may cause problems with optical coatings or cemented optics or the flowing solvent may pick up grease making cleaning more difficult.
4. Store the instrument in a cool, dry environment. Cover the microscope with the dust cover when not in use.
5. UNITRON® microscopes are precision instruments which require periodic servicing to maintain proper performance and to compensate for normal wear. A regular schedule of preventative maintenance by qualified personnel is highly recommended. Your authorized UNITRON® distributor can arrange for this service.

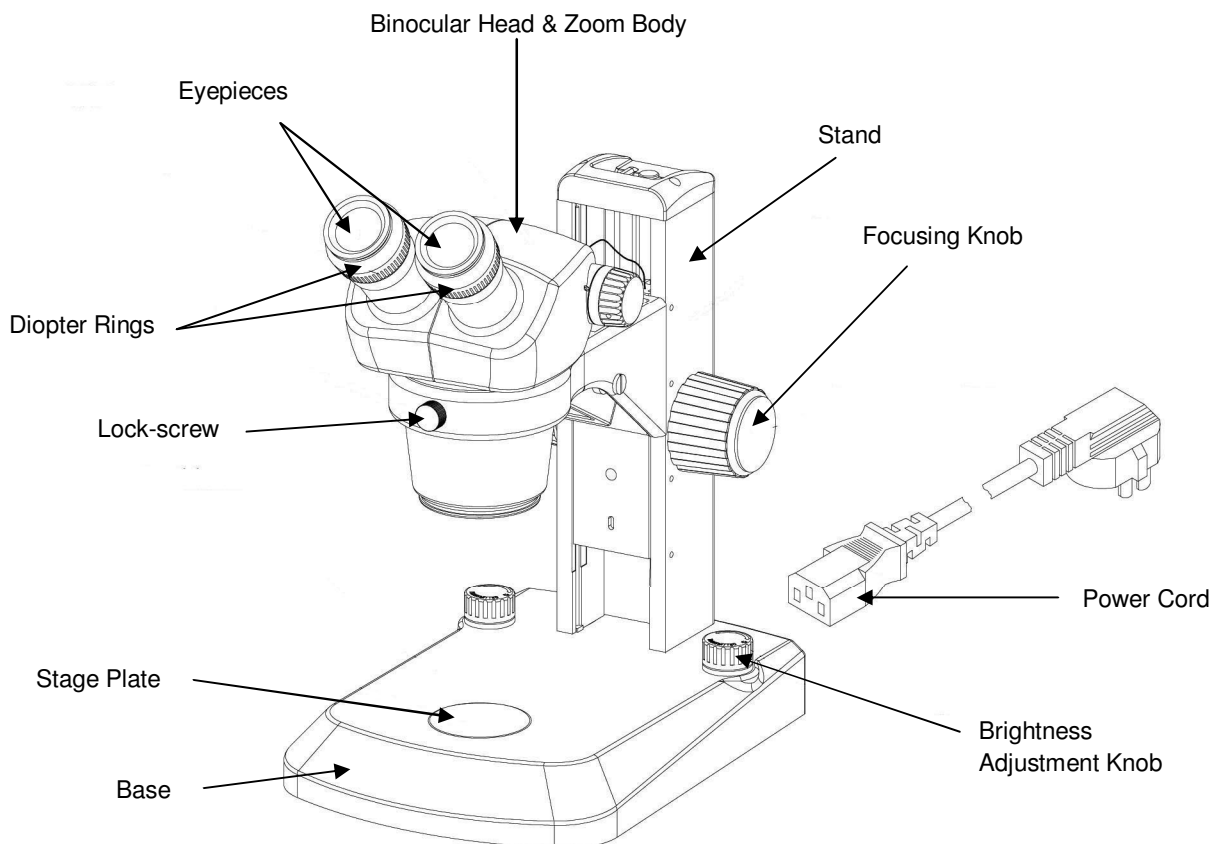
INTRODUCTION

Congratulations on the purchase of your new UNITRON® microscope. UNITRON® microscopes are engineered and manufactured to the highest quality standards. Your microscope will last a lifetime if used and maintained properly. UNITRON® microscopes are carefully assembled, inspected and tested by our staff of trained technicians in our New York facility. Careful quality control procedures ensure each microscope is of the highest quality prior to shipment.

UNPACKING AND COMPONENTS

Your microscope arrived packed in a molded shipping carton. ***Do not discard the carton:*** the shipping carton should be retained for reshipment of your microscope if needed. Avoid placing the microscope in dusty surroundings or in high temperature or humid areas as mold and mildew can form. Carefully remove the microscope from the shipping carton and place the microscope on a flat, vibration-free surface.

COMPONENTS DIAGRAM

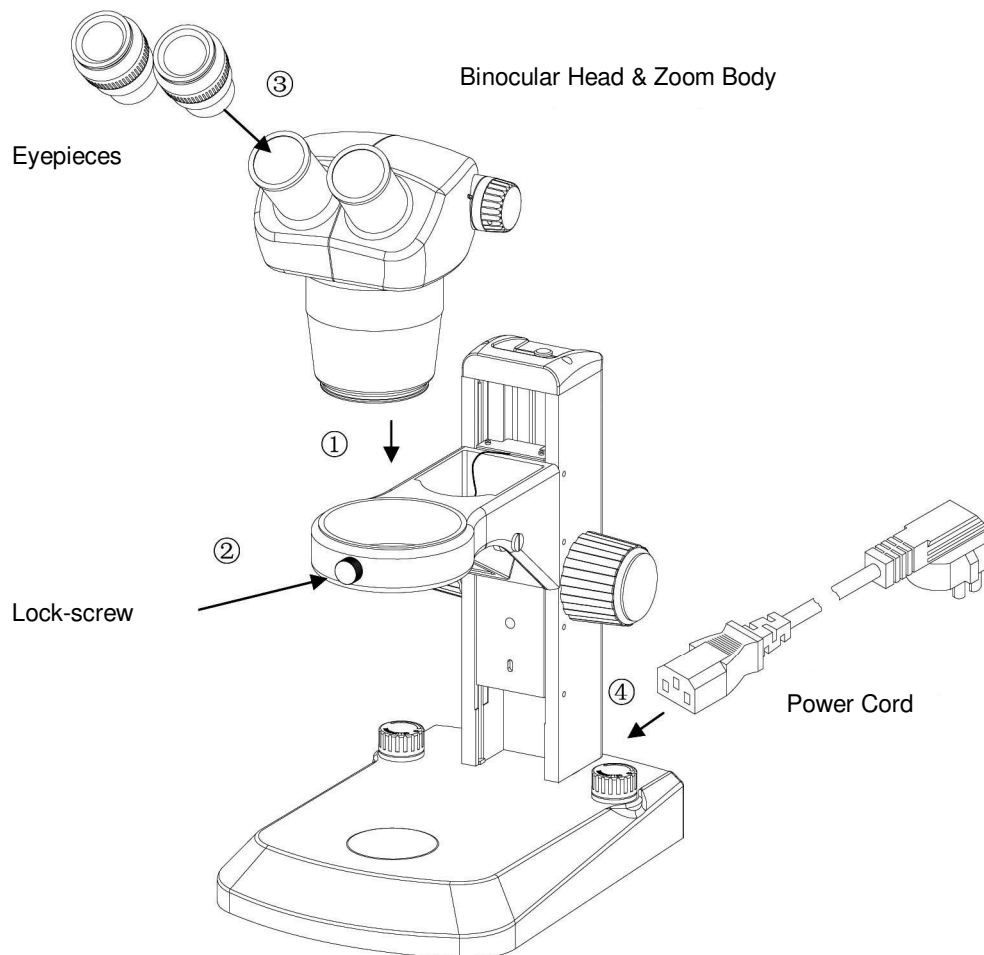


NOTE: Stand ordered may not be as pictured above.

ASSEMBLY

The diagram below shows how to assemble the various modules. The numbers indicate the order of assembly.

When assembling the microscope, make sure that all parts are free of dust and dirt, and avoid scratching any parts or touching glass surfaces.



DETAILED ASSEMBLY PROCEDURE

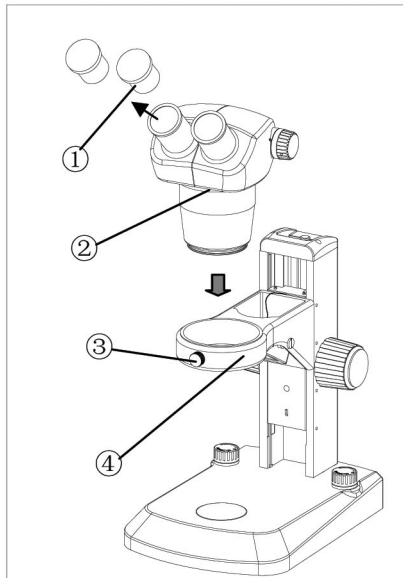


Fig. 1

Mounting the Binocular Head (Fig.1)

Loosen the clamping knob ③ on the focus mount ④ and insert the binocular head and zoom body assembly ② into the bracket of the focus mount, then tighten the lock screw ③.

Mounting the Eyepieces (Fig.1, Fig.2, Fig.3)

Remove the eyepiece dust caps ① (Fig. 1) and gently insert the two adjustable eyepieces ⑤ (Fig. 2) into the eyepiece sleeves until they stop, as shown in Fig.3.

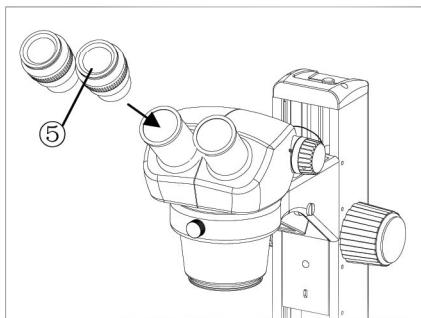


Fig. 2

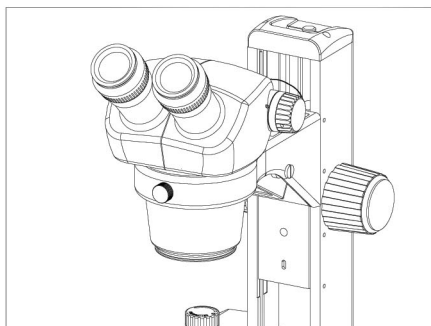


Fig. 3

IMPORTANT ENVIRONMENT REQUIREMENTS

- 1 Ambient temperature: 5°C to 40°C (41°F to 104°F), Maximum R.H : 85%.
- 2 High temperature will result in moisture and mildew and could damage instrument.
- 3 Avoid placing the instrument in a dusty environment. When not in use, cover the microscope with the dust cover.
- 4 Keep the microscope on a flat and stable surface.

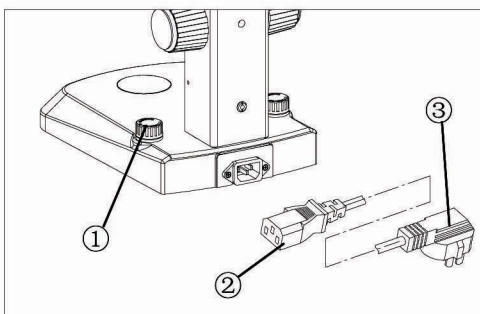


Fig. 4

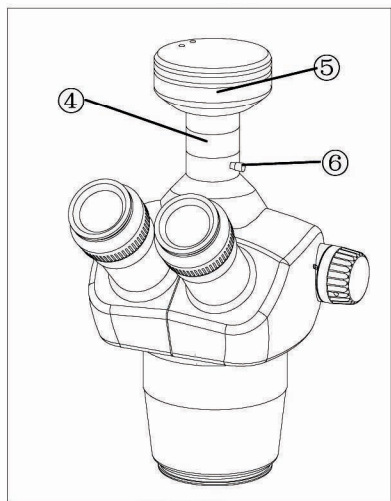


Fig. 5

For Microscopes Purchased With Illuminated Stands

VOLTAGE CHECK

Confirm that the input voltage indicated on the rear label of the microscope corresponds to your line voltage. The use of a different input voltage than indicated will cause severe damage to your microscope.

Connecting the Power Cord (Fig.4)

Rotate the left and right brightness adjusting switches ① clockwise until it stops (the off position) before connecting the power cord ②.

Insert the power plug ② into the power jack of the microscope; make sure the connection is snug.

Plug the power cord ② into the power supply receptacle.

Adjustable illumination for both top and bottom.

Input Rating : 100V~240V.

Optional trinocular head is available for camera or imaging accessories.

Video/Photography Accessories Assembly

Thread the C-mount video adapter ④ onto the camera ⑤ and insert into the trinocular port.

Secure with lock screw. ⑥

ADJUSTMENT AND OPERATION

Adjusting Binocular Viewing Head

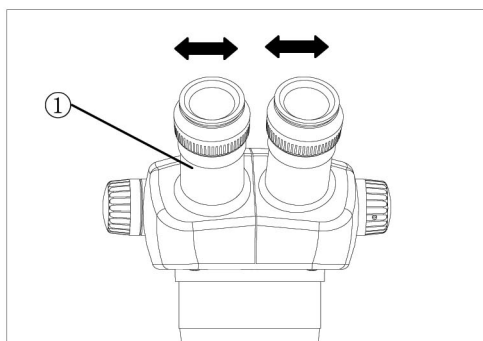


Fig. 6

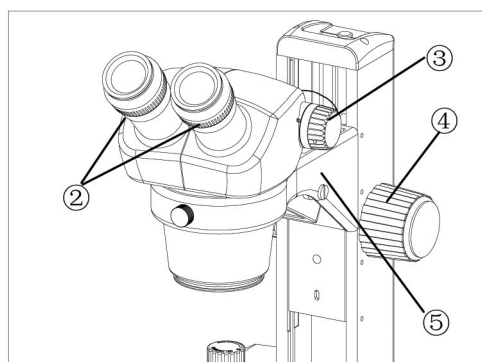


Fig. 7

Adjusting Interpupillary Distance (Fig.6)

Different users have different interpupillary distances (this distance is between the centers of pupils of each eye). When operators of the microscope change, it will be necessary to adjust interpupillary distance.

While looking through the eyepieces, hold the left and right eyepiece tubes of the binocular assembly ① and adjust the eyepiece tubes by opening or closing them until the left and right fields of view coincide completely and you are able to see a complete circle.

Adjusting Diopter Ring (Fig.7)

Set the diopter rings of both eyepieces to “0” (zero) position. (Do this when users change, because different users will have different diopter settings.)

Place an easy-to-observe specimen on the stage plate, i.e., a coin.

Rotate the zoom knob ③ to the highest magnification 3x, then turn the focusing knob ④ to focus the specimen.

Rotate the zoom knob ③ to the lowest magnification 0.7x, looking only into the left eyepiece, adjust the diopter ring on left eyepiece to focus the specimen. Then repeat procedure for the right eyepiece.

NOTE: The working distance of the microscope is 97mm (the distance between the microscope objective to the top of the specimen), the binocular head bracket ⑤ can be mounted onto higher or lower positions according to your needs by removing the clamping bolt with the Allen wrench provided.

Focus Adjustment

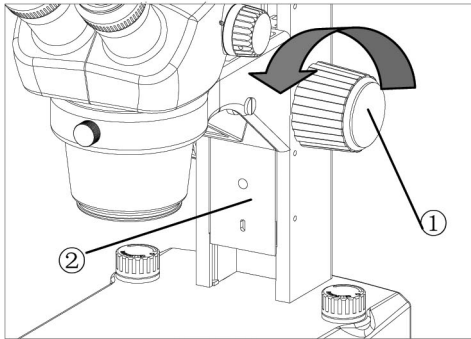


Fig. 8

Adjusting the Rotation Tension of the Focus Adjustment Knob (Fig.8, Fig.9)

To adjust tension, hold both left and right focus adjustment knobs ① with both hands, hold the left knob (to prevent it from turning), and rotate the right knob clockwise to increase (tighten) or counterclockwise to decrease (loosen) the focus knob tension.

After tension adjustment has been completed, always rotate both adjustment knobs in the same direction.

Changing the Magnification

The zooming knobs located on both sides of the zooming body will change the magnification of the specimen image.

Total Magnification = Magnification of zoom body x magnification of eyepiece
(i.e., $0.7 \times 10 = 7x$)

NOTE: *If using the optional auxiliary 0.5x objective, then the above magnification would be multiplied by auxiliary objective magnification. (i.e., auxiliary $0.5 \times 7 = 3.5x$)*

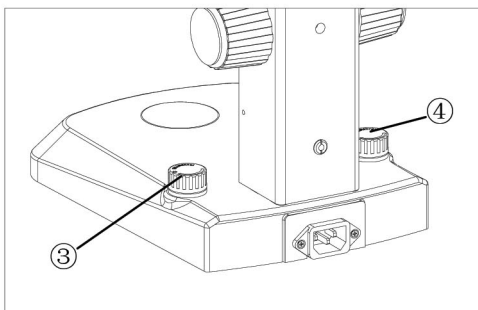


Fig. 9

FOR MICROSCOPES PURCHASED WITH ILLUMINATION

Adjustable illumination for both LEDs (top and bottom).

Brightness adjustment: the right brightness adjustment knob ③ is used to adjust the bottom illumination, and the left brightness adjustment knob ④ is used to adjust the top illumination. Each knob has its own on/off. Rotate counterclockwise to increase the power and brightness. Rotating clockwise would decrease the brightness until the power is off.

SPECIFICATIONS

Zoom ratio: 4.3 to 1

Objective magnification: 0.7x~3.0x

Binocular viewing head: Inclined at 45 or 60 degrees depending on model purchased, interpupillary distance range: 55~75mm

Working distance: 97mm

Illumination system: Adjustable illumination for both LEDs (top and bottom)

Auxiliary Objective	Working Distance (mm)	Eyepiece					
		10X/20		15X/16		20X/12.5	
		Total Magnification	Visual Field (mm)	Total Magnification	Visual Field (mm)	Total Magnification	Visual Field (mm)
	97	7-30X	25.7-6	10.5-45X	20.0-4.7	14-60X	15.7-3.7
0.5X	180	3.5-15X	51.4-12	5.2-22.5X	40.0-9.4	7-30X	31.4-7.4
0.63X	140	4.4-18.9X	43.9-10.6	6.6-28.3X	31.7-7.4	8.8-37.8X	24.9-5.8
2X	30	14-60X	12.8-3	21-90X	10.0-2.3	28-120X	7.9-1.8

TROUBLESHOOTING

Under certain conditions, performance of this unit may be adversely affected by factors other than defects. If a problem occurs, please review the following list and take remedial action as needed. If you cannot solve the problem after checking the entire list, please contact your local dealer for assistance.

PROBLEM	CAUSE	SOLUTION	PAGE
1. Incomplete binocular vision.	Interpupillary distance is not correctly adjusted.	Adjust it correctly	8 – Fig. 6
	Diopter adjustment is incomplete.	Complete diopter adjustment	
2. Dirt is visible in field of view	Dirt on specimen	Clean specimen	3 – Care & Maintenance
	Dirt on eyepiece	Clean eyepiece	
3. The visibility of the image is poor.	Dust on objective front lens.	Clean lens surface	3 – Care & Maintenance
4. Specimen image blurs when zoom magnification is changed.	Diopter ring is not correctly adjusted.	Adjust it correctly.	8 – Fig. 7
	Not in complete focus on specimen.	Focus specimen correctly at a high magnification.	
5. Coarse focus adjustment knobs rotate with too much resistance.	Tension adjustment ring is too tight.	Loosen it properly.	9 – Fig 8
6. Zoom microscope body drops or specimen goes out of focus during observation.	Tension adjustment ring is too loose.	Tighten it properly.	9 – Fig 8

MAINTENANCE

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

SERVICE

UNITRON® microscopes are precision instruments which require periodic servicing to keep them performing properly and to compensate for normal wear. A regular schedule of preventative maintenance by qualified personnel is highly recommended. Your authorized UNITRON® distributor can arrange for this service. Should unexpected problems be experienced with your instrument, proceed as follows:

1. Contact the UNITRON® 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 UNITRON® distributor or to UNITRON® 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. Always ship the microscope in an upright position; **NEVER SHIP A MICROSCOPE ON ITS SIDE**. The microscope or component should be shipped prepaid and insured.

LIMITED MICROSCOPE WARRANTY

This microscope is warranted to be free from defects in material and workmanship for a period of five (5) years for mechanical and optical components and one (1) year for electrical components from the date of invoice to the original (end user) purchaser. This warranty does not cover damage caused in-transit, misuse, neglect, abuse or damage resulting from improper servicing or modification by other than UNITRON® approved service personnel. This warranty does not cover any routine maintenance work or any other work, which is reasonably expected to be performed by the purchaser. Normal wear is excluded from this warranty. 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 Unitron Ltd. This warranty expressly excludes any liability by Unitron Ltd. for consequential loss or damage on any grounds, such as (but not limited to) the non-availability to the End User of the product(s) under warranty or the need to repair work processes. Should any defect in material, workmanship or electronic component occur under this warranty contact your UNITRON® distributor or UNITRON® at (631) 543-2000. This warranty is limited to the continental United States of America. All items returned for warranty repair must be sent freight prepaid and insured to Unitron Ltd., 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. For all foreign warranty repairs, return freight charges are the responsibility of the individual/company who returned the merchandise for repair.