

# User Manual

## Trinocular Zoom Stereo Microscope with Boom Stand

Model V436B



[MicroscopeNet.com](http://MicroscopeNet.com)

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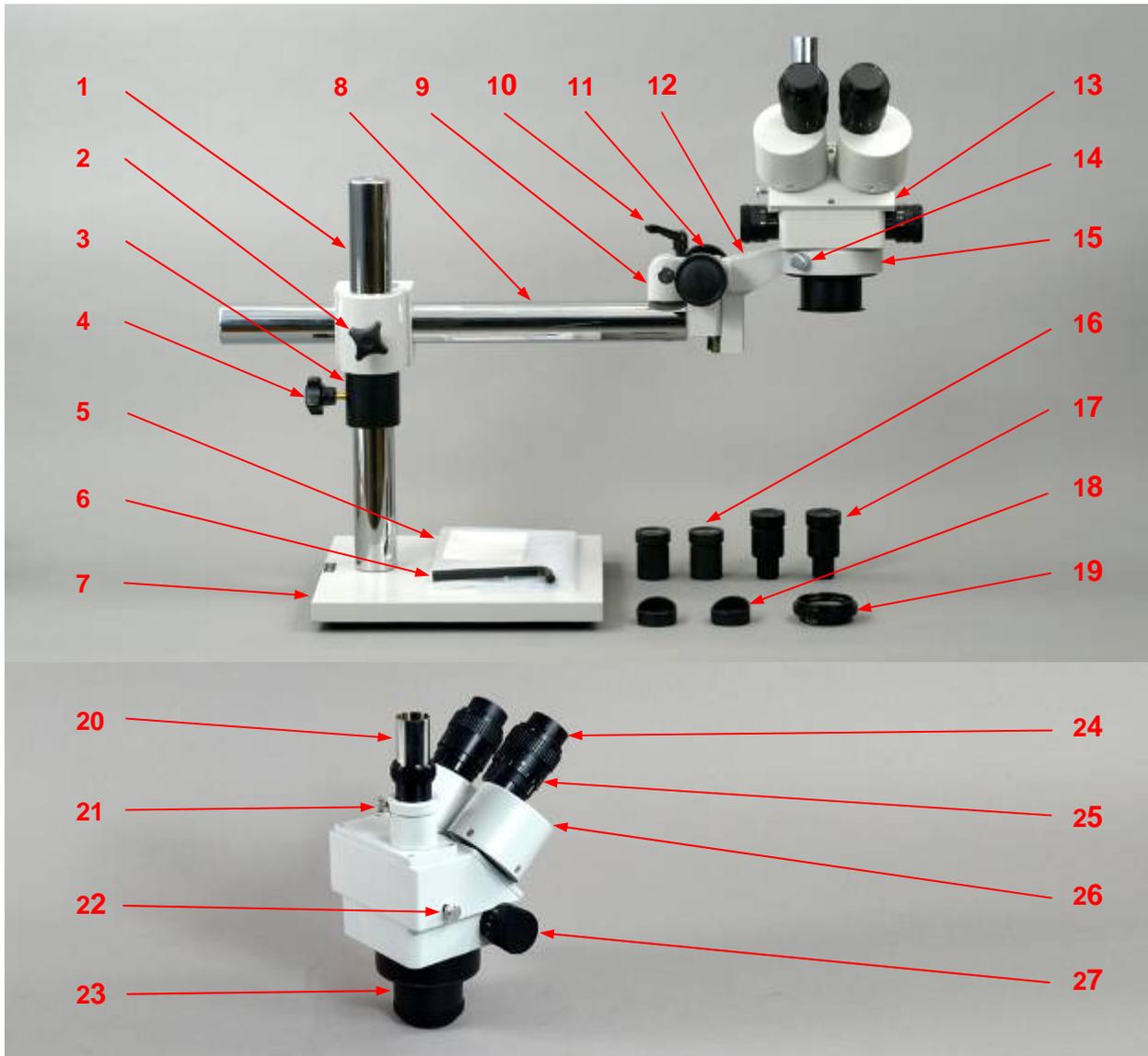
## i. Caution

1. Find the “UP” sign and place the Styrofoam container on the table or bench so that the arrow is pointing upward. Open the shipping carton carefully to prevent any accessories or small items (i.e. eyepieces) from dropping and being damaged.
2. Do not discard the molded Styrofoam container. The container should be retained should the microscope ever requires reshipment.
3. Keep the instrument out of direct sunlight, high temperature or humidity, and dusty environments. Ensure that the microscope is located on a smooth, level and firm surface.
4. The boom stand is heavy. Put it on a sturdy and level surface. Be careful during assembly, operating, or moving it.

## ii. Care and Maintenance

1. Do not attempt to disassemble any component including eyepieces, objectives or focusing mechanism.
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 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 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 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.

# 1 Components Illustration



- |    |                     |    |                     |    |                  |
|----|---------------------|----|---------------------|----|------------------|
| 1  | Stand Vertical Post | 11 | Focusing Knob       | 21 | Photo Tube Lock  |
| 2  | Locking Knob        | 12 | Focusing Mechanism  | 22 | Viewing Switch   |
| 3  | Position Collar     | 13 | Microscope Head     | 23 | Objectives       |
| 4  | Locking Knob        | 14 | Holder Lock         | 24 | Eyepiece         |
| 5  | Dust Cover          | 15 | Holder Ring         | 25 | Diopter Ring     |
| 6  | Allen Key           | 16 | WF10X Eyepiece      | 26 | Eyepiece Tube    |
| 7  | Stand Base          | 17 | WF20X Eyepiece      | 27 | Zoom Adjust Knob |
| 8  | Horizontal Bar      | 18 | Eyepiece Shield     |    |                  |
| 9  | Swing Block         | 19 | 0.5X Auxiliary Lens |    |                  |
| 10 | Swing Lock Handle   | 20 | Photo Tube          |    |                  |

## 2 Installation

### 2.1 Installing the Boom Stand

Please refer to the Boom Stand Assembly Instruction at Page 7.

### 2.2 Installing the Microscope Head

- 1) Loosen the lock screw (14) on the holding ring (15).
- 2) Insert the microscope objectives (23) in to the holder ring (15), make sure it seats on the ring firmly, and tighten the lock screw (14).

### 2.3 Change the Eyepieces

- 1) Loosen the set screws on each eyepiece tube.
- 2) Take off the eyepieces.
- 3) Insert the eyepieces you want to use into the eyepiece tube. Tighten the set screws on each eyepiece tube.

## 3 Operation

### 3.1 Adjusting the position of the microscope body

- 1) Adjust the position collar (3) on the stand post (1) to the desired height then tighten the knob (4). (The height is proper when the distance between the objectives and specimen is around 100mm or 150mm if 0.5X auxiliary lens (19) applied.)
- 2) Adjust the horizontal bar (8) to the desired angle in the horizontal plan, then tighten the knob (2) on the bar block.
- 3) Adjust the cantilever length by sliding the bar (8), then tighten the knob on the bar block (at the rear of the bar block, not showed in the illustration pictures).
- 4) Adjust the swing block (9) to the desired angle in the vertical plan; then tighten the lock handle (10).
- 5) Move the microscope head (13) to the desired direction that is convenient for observation by turning it in the holder ring (15) and then tighten the lock screw (14).

### 3.2 Focusing

- 1) Put the specimen under the objective.
- 2) Turn the focusing knob (11) until the specimen is in focus.
- 3) Turn the zoom adjusting knob (27) to get the desired magnification.
- 4) If auxiliary lens is applied, the working distance changed significantly and the horizontal bar has to be moved up or down accordingly.

### 3.3 Adjusting Interpupillary Distance

While observing with both eyes, hold the left and right eye tubes, swing inwards or outwards. The interpupillary distance is correct when the left and right fields of view coincide completely with one image.

### 3.4 Adjusting Eyepiece Diopter

- 1) Using your right eye only, observe your specimen through the eyepiece and bring it into focus by adjusting the focusing knob.
- 2) Then observe the specimen with your left eye only through the left eyepiece. If the specimen is not in focus, rotate the diopter ring until a sharp image is obtained.
- 3) Since both sides are adjustable, you may also do the above in the opposite way, in other words, left eye first and right eye second.

### 3.5 Photo/video observing, capturing and recording

- 1) Mount microscope camera (electronic eyepiece) onto the photo tube (20) and connect the USB cable from camera to computer.
- 2) Pull the switch bar (22) out.
- 3) Open image observing software to examine.
- 4) If the image is not clear, loosen the lock screw (21) on the photo tube, turn the upper half part to lower down or rise up the camera mounted on the top, till the image is clear, then tighten the lock screw (21).
- 5) You also can capture images or record live videos through the software, depending on the functions provided by the software.
- 6) If a conventional camera used, you may need an adapter to mount your camera to the photo tube.

#### Note:

- The software and camera are sold separately.
- After switch to the photo viewing mode, you still can observe through the right eyepiece tube.

## 4 Specifications

### General

Model	V436B
Total Magnification	3.5X ~ 90X
Viewing Head	Trinocular, inclined 45°, swiveling 360° Adjustable Interpupillary distance 55 ~ 75mm (2-3/16" ~ 2-15/16") Adjustable diopter on both eyepiece tubes ±5dp
Eyepieces	1 pair of SWF10X/20 1 pair of WF20X
Objectives	Zoom 0.7X ~ 4.5X Zoom ratio: 6.5:1
Auxiliary Objective Lens	0.5X
Focus Mechanism	Rack and pinion, focusing knobs on both sides Focusing adjustment range 60mm (2-3/8")
Working Distance	95mm (3-3/4") Or 152mm (6") with 0.5X auxiliary lens
Field of View	Max 28mm (1-1/8") Or max 44mm (1-3/4") with 0.5X auxiliary lens
Photo Tube	Height adjustable
Illumination	No
Power Supply	No
Boom Stand	Adjusting range: 250mm in vertical 330mm in horizontal 360° in rotating Holder Ring Inner Diameter: 84mm
Boom Stand Base	255mm x 255mm x 18mm (10" x 10" x 3/4")
Dimension	66cm x 25.4cm x 40.5cm (26" x 10" x 16")
Net weight	18.2kg (40 lb)
Package weight	20.95 kg (46.3lb)

### Eyepieces

Designation	Magnification	Field of View
Wide Field	10X	20mm
Wide Field	20X	10mm

### Magnifications

Eyepiece	10X		10X		20X		20X	
	Min 0.7X	Max 4.5X						
Auxiliary Lens	-	0.5X	-	0.5X	-	0.5X	-	0.5X
Magnification	7X	3.5X	45X	22.5X	14X	7X	90X	45X

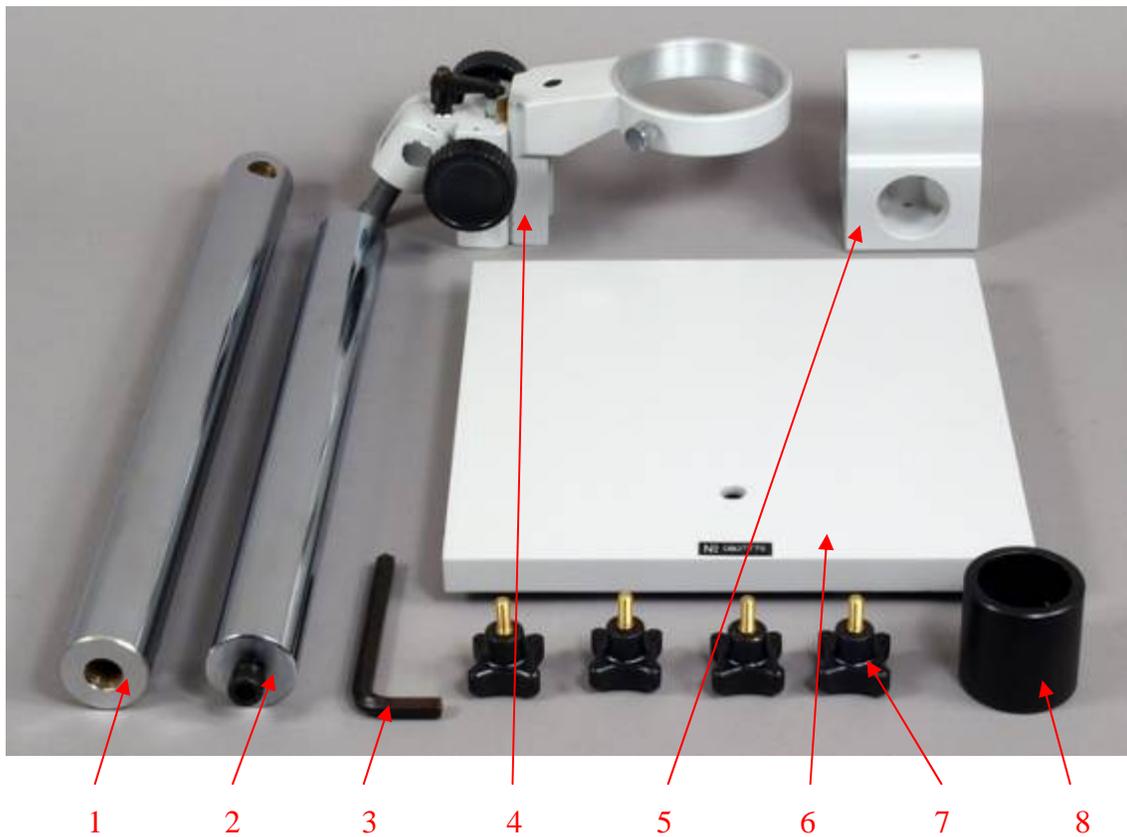
## 5 Troubleshooting Guide

### OPTICAL PROBLEMS

<b>Problem</b>	<b>Cause</b>	<b>Solution</b>
Totally dark in the view field	The cover of objectives is still on	Take off the cover of objectives
Incomplete binocular vision	The interpupillary distance is not correct	Adjust the interpupillary distance
	Diopter is not correct	Adjust the diopter
	The right and left eyepiece are not same	Check and mount the same eyepieces
Dirt or dust on the view	Dirt or dust on the eyepiece lens, objective lens, auxiliary lens	Clean the lens with a camera cleaning kit
	Dirt or dust on specimen	Clean the specimen
Image Blur when zoomed	Diopter adjustment of the eyepieces is not complete	Complete diopter adjustment
	Focus adjustment is not complete	Complete focus adjustment
Can not focus	The objectives is too far away or too close to the specimen and out of the range of focus stroke	Adjust the height of the horizontal bar so that the distance between the objectives and specimen is about 95mm or 150mm when 0.5X auxiliary lens applied.
The focusing knob is stiff	The focusing knob tension is too tight	Loosen the knob tension
Poor focus during observation due to the unintentional lowering of the microscope head	The focusing knob tension is too loose	Tighten the knob tension

## 6 Boom Stand Assembly Instruction

### 6.1 Parts identification



1. Horizontal Bar
2. Vertical Post
3. Allen Key
4. Focusing Block

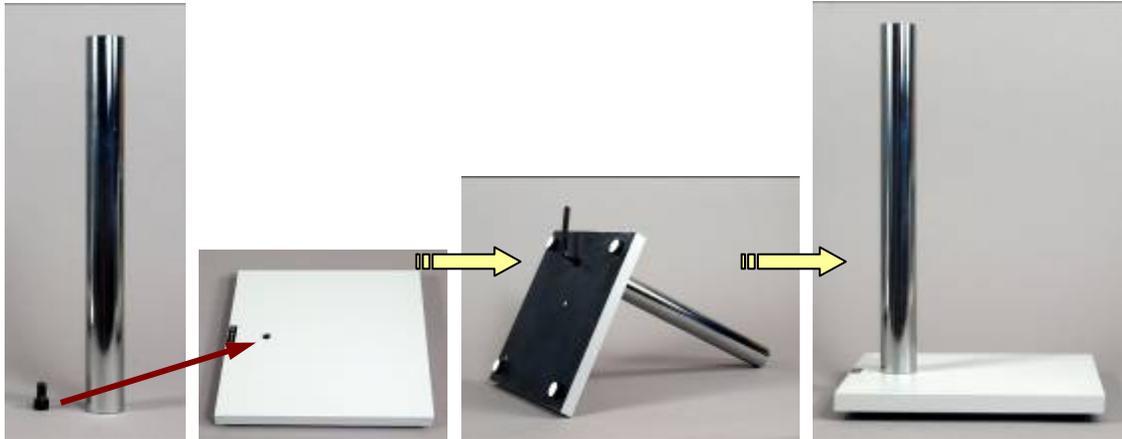
5. Adapter
6. Boom Stand Base
7. Locking Knobs
8. Support Collar

### 6.2 Assembly instructions

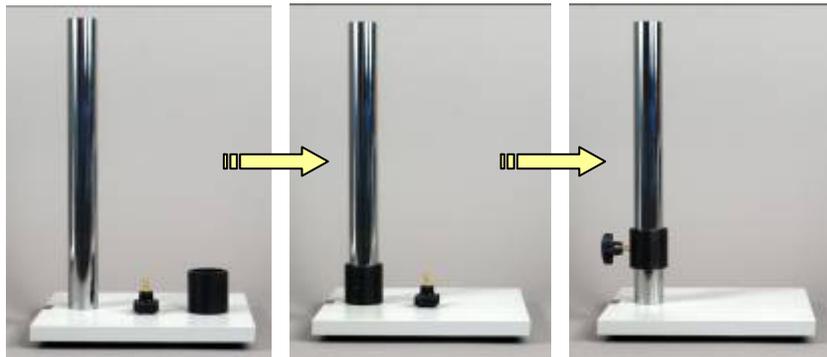
- 1) Put the boom stand base on a firm and sturdy table or level surface.



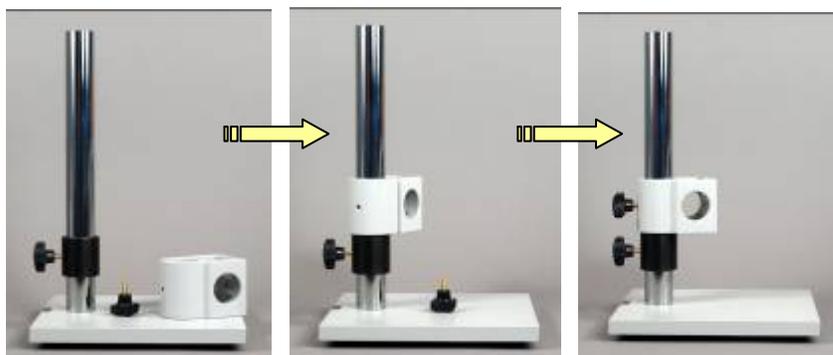
- 2) Mount vertical post onto boom stand base
  - (1) Take off the screw at the bottom end of vertical post.
  - (2) Insert the post screw into the hole on the base from underneath.
  - (3) Tighten the screw with the Allen key as shown in the picture.



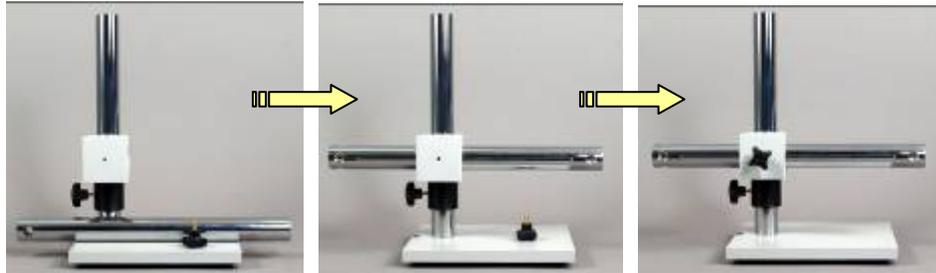
- 3) Mount support collar onto the post
  - (1) Slide the support collar over the vertical post.
  - (2) Install and tighten the locking knob.



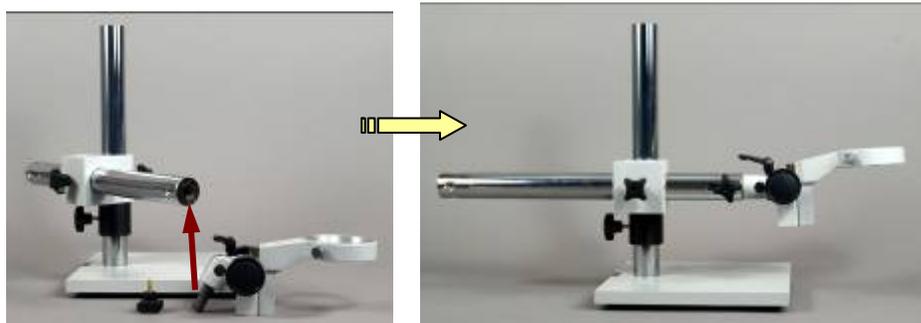
- 4) Mount the adapter block
  - (1) Slide the adapter block over the vertical post, till touches the support collar.
  - (2) Install and tighten the locking knob.



- 5) Mount the horizontal bar
- (1) Insert the horizontal bar into the adapter block. Make sure the long flat on the bar align to the locking knob screw hole.
  - (2) Install and tighten the locking knob
- Note:** The mounting holes on each end of the horizontal bar are different. It depends on how you would like to install the focusing block to put which end on right side and which on left side.



- 6) Mount the focusing block onto the horizontal bar (the end with axial hole)
- (1) Insert the shaft of focusing block into the axial hole on the end of horizontal bar.
  - (2) Install and tighten the locking knob.



- 7) Mount focusing block onto the horizontal bar (the end with lateral hole)
- (1) Insert the shaft of focusing block into the lateral hole on the other end of horizontal bar.
  - (2) Install and tighten the locking knob.

