



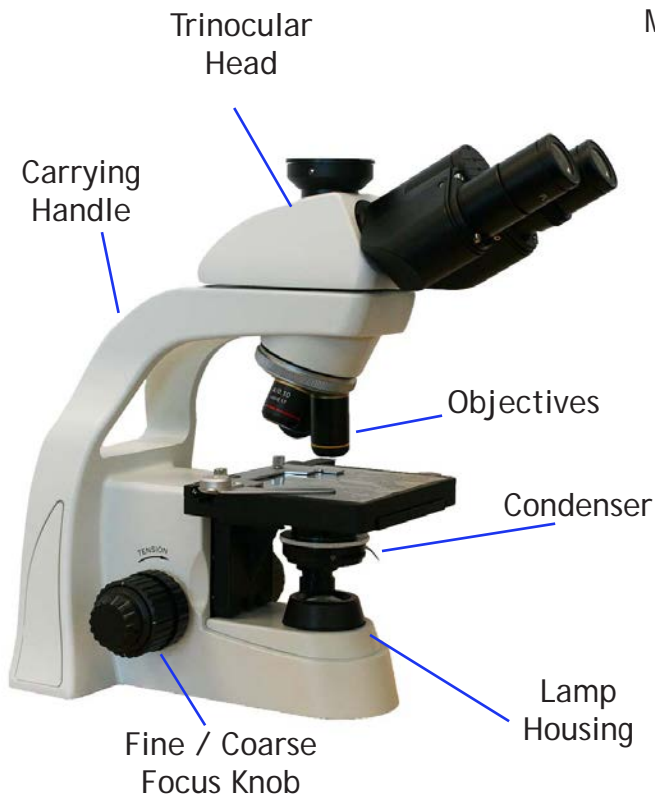
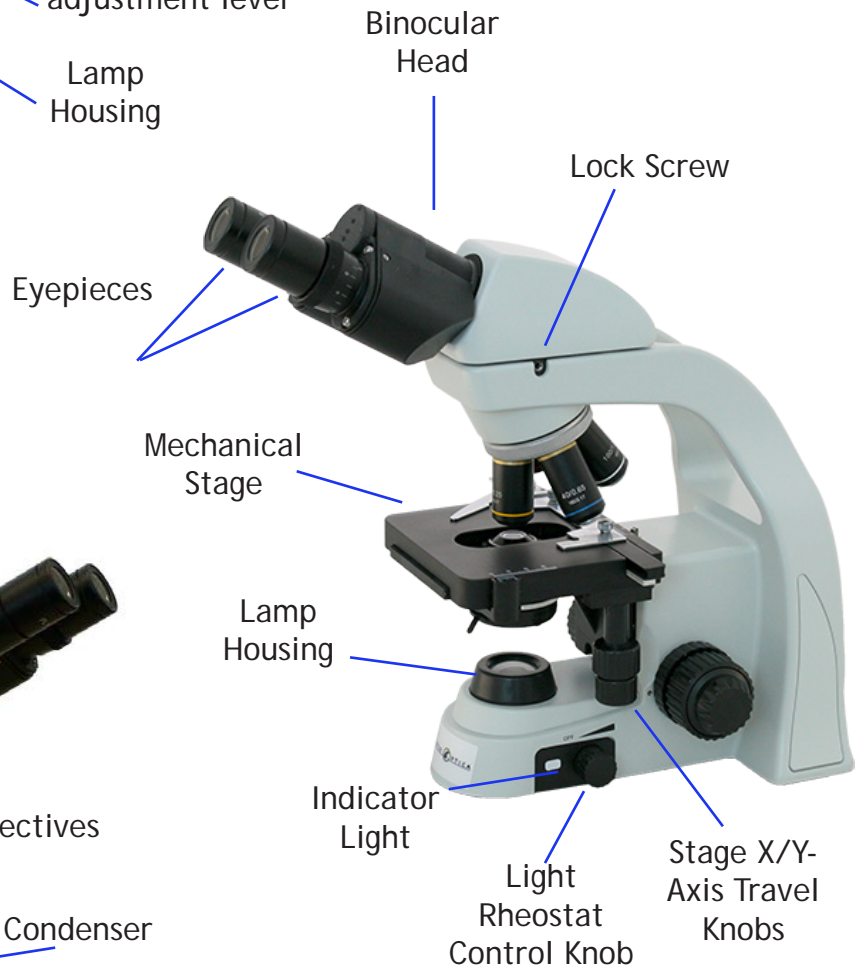
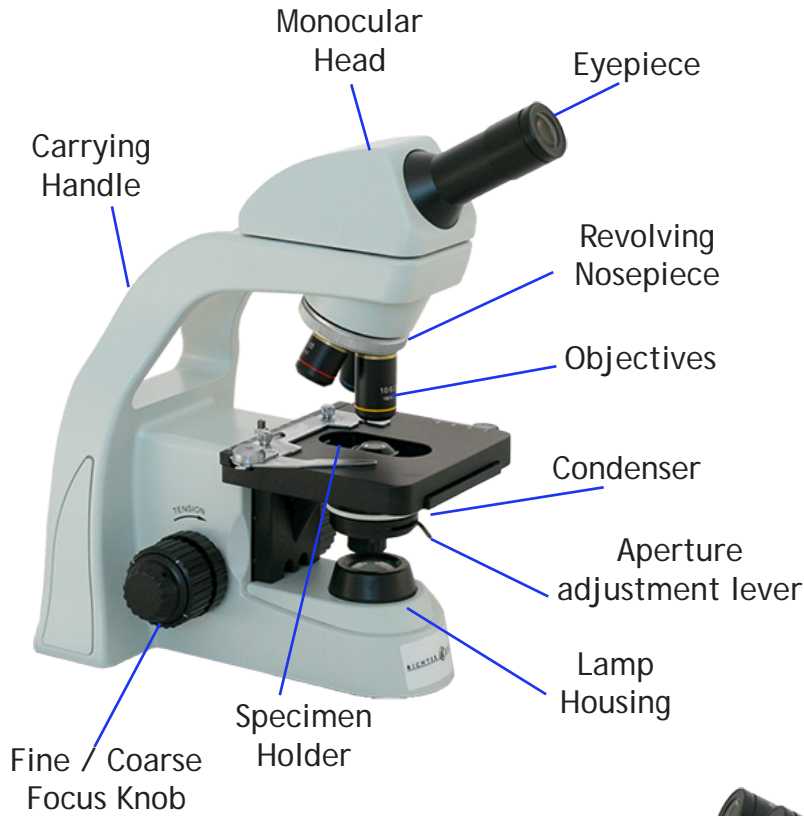
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Richter Optica

[info@richter-optica.com](mailto:info@richter-optica.com)

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Instructions for Models:  
HS-3M, HS-3B and HS-3T  
Student Compound Microscope



Thank you for your purchase of a Richter Optica microscope. The information in this manual is provided to answer most questions that can arise when operating your microscope and to help you avoid unnecessary maintenance expenses in the future.

Please carefully read instructions before operating microscope. Nomenclature used to describe components and controls are identified on opposite page.

## UNPACKING

Do not discard styrofoam container or packing materials until you are sure shipment is complete and undamaged (retain styrofoam shipping container to store your microscope when it is not in use). Remove all tape and packing material used to protect microscope during shipment. Make certain lens surfaces do not come in contact with dirt, fingerprints or oil. Damage of lens surfaces occur when they come in contact with such contaminants, and image quality is reduced.

## BEFORE USE

When moving the microscope, use both hands and only lay on flat, even surfaces. Damage will occur by holding the stage, focusing knobs or head when moving the microscope. Hold carrying handle when moving the microscope.

For safety, make sure the power switch is always turned to the off position “O” before replacing the bulb or fuse and wait until both the bulb and bulb holder have cooled down.

Replacement bulb: 2W LED replacement module. Part #HS3-001

## SETTING UP THE INSTRUMENT

Avoid placing the instrument in locations exposed to direct sunlight, dust, vibration, high humidity and where it is difficult to unplug the power supply cord.

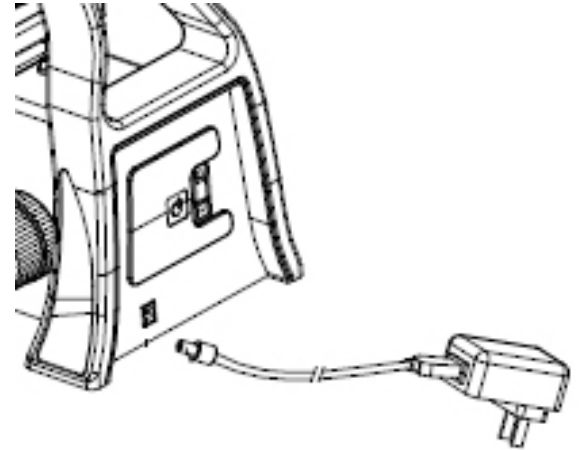
## MAINTENANCE

1. Wipe lenses only with lens paper.
2. Never disassemble the microscope other than to change the bulb (instructions on page 6). Disassembling the microscope will affect performance and void warranty.
3. Cover microscope with dust cover provided after each use.

## ASSEMBLING THE MICROSCOPE

### POWER OPTION:

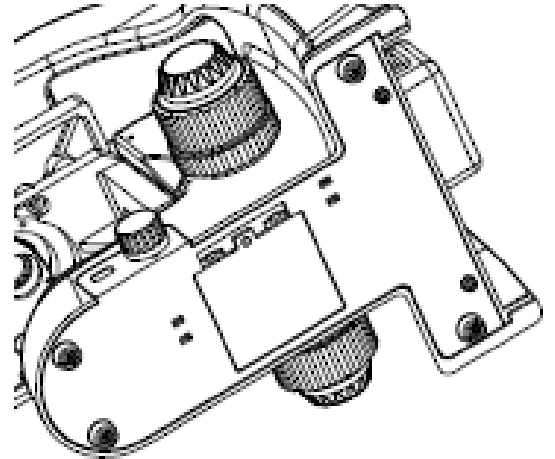
**Corded option:** Ensuring the light adjustment knob is “0” (OFF), insert the power connector end of the power cord into the power socket located on the back of the microscope. Then plug the other end of the power cord into a wall outlet (110~240V).



### POWER OPTION:

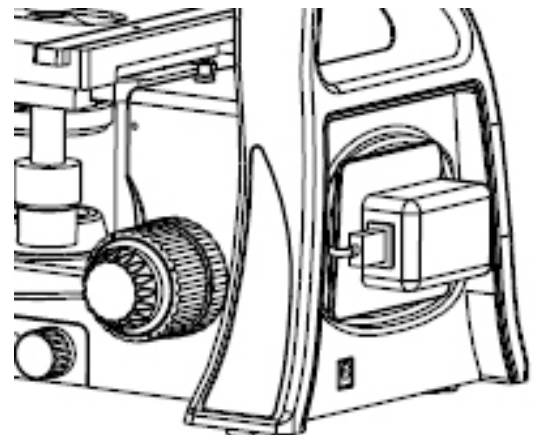
**Cordless option:** Your microscope can be operated with four AA rechargeable batteries.

To replace batteries, ensure the light adjustment knob is “0” (OFF). Locate the battery box on the underside of the microscope. Using a compatible screw driver, remove the screw found on the battery box cover and replace the rechargeable batteries.



### POWER CORD STORAGE:

When the microscope is not in use, wind the power cord as shown here in the photo.



## TROUBLESHOOTING: Optical

PROBLEM	POSSIBLE CAUSE
Dust or dirt in field of view.	Dust or dirt on objective, illuminator or eyepiece.
Double Image	Interpupillary distance is not set correctly.
	Diopter adjustment not set on eyepieces.
	Two different eyepieces are being used.
Sample blurs when magnification changes.	Diopter adjustment is not set properly on eyepieces.
	Specimen is not properly in focus.
Focusing is loose or too tight.	Adjust tension adjustment knob on the side of the microscope next to the focusing knob.

## TROUBLESHOOTING: Electrical

PROBLEM	POSSIBLE CAUSE
Lamp does not turn on and light up.	Power cord not plugged in, or batteries are not charged.
	Light is burned out.
Inadequate brightness.	Rheostat knob needs adjustment.
Lamp blows out immediately.	Incorrect bulb being used.
Lamp flickers.	Connector wires are not secured.
	Lamp near end of life.
	Lamp not securely plugged into socket.

## CARE AND MAINTENANCE

### Do Not Disassemble

1. Disassembly may significantly affect the performance of the instrument, may result in electric shock or injury, and will void the warranty.
2. Never attempt to dismantle any parts other than described in this manual. If you notice any malfunction, contact your Richter Optica representative.

### Cleaning the Microscope

1. Do not use organic solvents such as ether, alcohol or paint thinner on painted surfaces or plastic components. Doing so could result in discoloration of surfaces.
2. When cleaning lenses do not use any solvents other than absolute alcohol, as they may damage lens bonding cement.
3. Do not use petroleum benzene when cleaning components such as lenses.
4. Absolute alcohol and petroleum benzene are highly flammable. Keep away from open flames and when turning power switch on and off.
5. For stubborn dirt, dampen a piece of gauze with diluted neutral detergent and wipe gently.

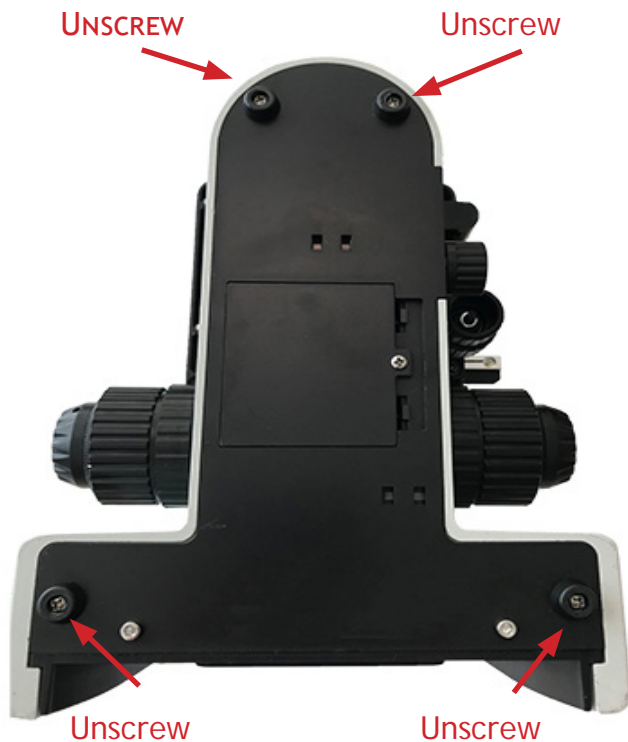
### When Not In Use

1. When not in use, cover the instrument with a dust cover and store in a place low in humidity where mold is not likely to form.
2. Proper handling of the microscope will ensure years of trouble free service.
3. If repair becomes necessary, please contact Richter Optica at [info@richter-optica.com](mailto:info@richter-optica.com).

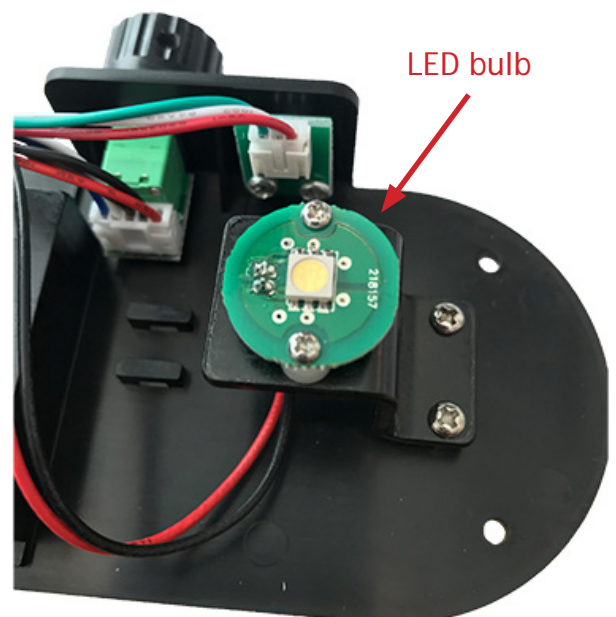
## LED Light Replacement

Before performing any of these steps, the microscope **MUST** be turned off and unplugged.

1. Unplug the microscope and gently lay the microscope down on a sturdy surface ensuring the carrying handle side is down.

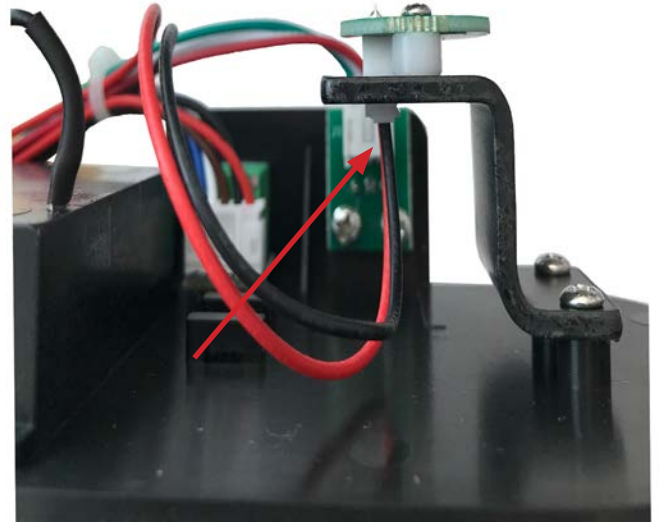


2. Using a screw driver, remove the 4 foot screws located on the underside of the microscope.
3. Gently remove the black plastic cover.
4. Locate the LED bulb.

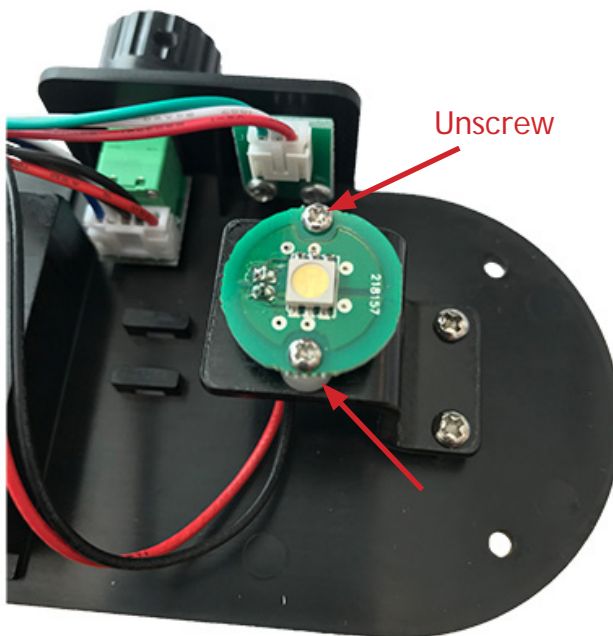


## LED Light Replacement

5. Disconnect the wires from the LED bulb by using your thumb and forefinger to pinch the sides of the plastic wire housing that holds the black and red wires.



Pinch wire housing and pull down gently.



6. Using a screw driver, remove the small screws on either side of the LED bulb.

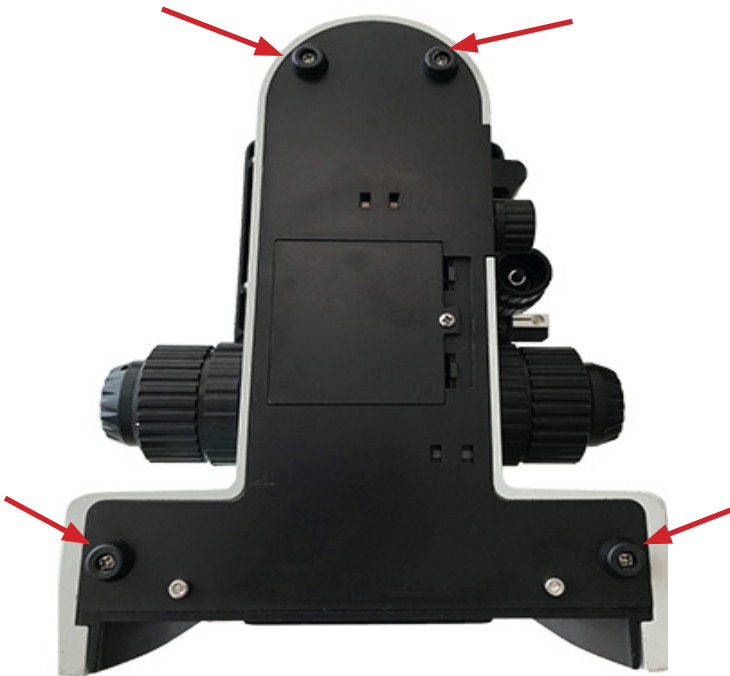
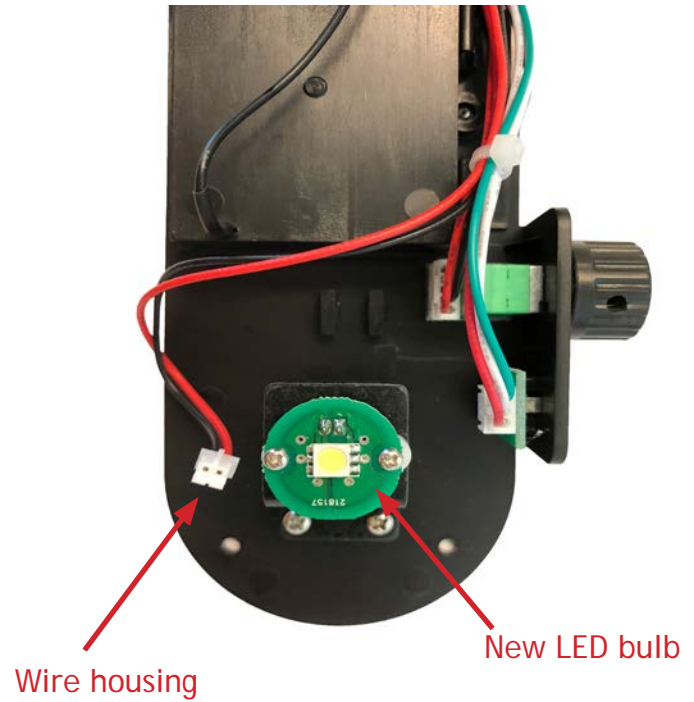
7. Place the new LED bulb (part# HS3-001) on the LED bulb housing and attach using the small screws previously removed in step 6.





## LED Light Replacement

8. Insert the plastic wire housing back into the underside of the LED assembly making sure it is fully inserted and secure.



9. Replace the black plastic cover and secure using the 4 foot screws removed in step 2.
10. Return the microscope to its upright position. Plug the microscope back in, power on, and adjust the rheostat control as needed.

Replacement 2W LED Assembly  
Part #HS3-001

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