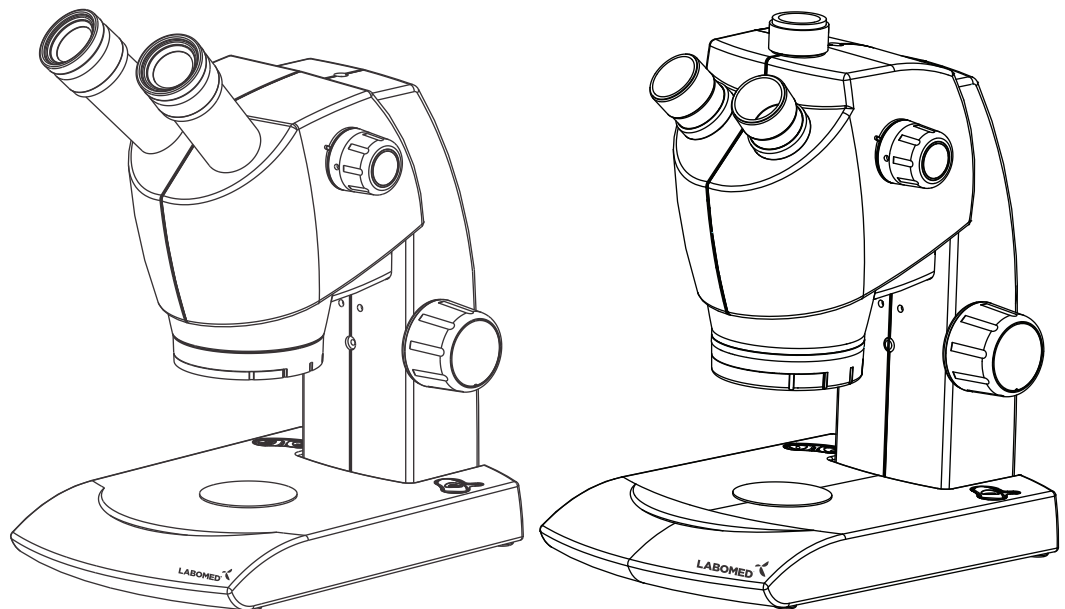


Luxeo Stereo / Zoom Stereo Microscopy

User Manual



To ensure proper use of this instrument as well as to avoid injury while operating Instrument, understanding this manual completely before use is highly recommended.

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TABLE OF CONTENTS

| | |
|--|--------------|
| 1. INTRODUCTION | 1 |
| 2. SAFETY INFORMATION | 2-5 |
| 3. LUXEO 2S | 6 |
| 4. LUXEO 4Z | 7 |
| 5. LUXEO 4Z TRINOCULAR | 8 |
| 6. UNPACKING YOUR MICROSCOPE | 9 |
| 7. STANDARD COMPONENTS- LUXEO 2S/4Z | 10 |
| 8. SYSTEM DIAGRAM OF OPTIONAL ACCESSORIES | 11 |
| 9. INITIAL SETUP | 12-14 |
| 10. SUMMARY OF BRIGHT FIELD OBSERVATION PROCEDURE | 15 |
| 11. TROUBLESHOOTING GUIDE | 16 |

The Luxeo is a stereoscopic zoom microscope reflecting a modern design as well as the latest in optical and mechanical advancements.

Designed for professionals as well as students, this microscope offers many features and functions for a diverse set of applications.

Extra clarity and contrast is provided through a Binocular body inclined at 45°.

The pressure die cast stand consists of Ball bearing 'friction less' sideways focusing to avoid any loss in motion.

The sturdy new stylish design provides comfort as well as stability.

The lateral magnification changer allows comfortable and friction less movement between switching magnification.

The LED configuration is a cluster of 10 LED's, switchable between arc illumination or full circular illumination. The Luxeo is used with direct input power supply of 110V - 240V AC 50Hz/60Hz. This ensures continuous operation even under fluctuating voltages.

Our LED on this instrument has an average life span of up to 50,000 hours.

The Luxeo comes equipped with a removable N.A. 1.25 Abbe condenser for brighter illumination levels and an iris diaphragm for better resolution and contrast control.




1. After the microscope has been used for observation of a specimen containing bacteria, clean all parts coming in contact with the specimen to prevent infection.
 - Be sure to remove the specimen before moving this product.
 - In case the specimen is damaged by erroneous operation, it is important to clean all surfaces that may have come in contact with the specimen.
2. To avoid potential electrical hazards while replacing either LED, turn the microscope main switch to the OFF position and disconnect power cord from wall outlet in advance.
Whenever you replace your microscope LED, allow lamp socket and LED to cool before touching (Fig.1)

Applicable LED cluster replacement for incident illumination
Applicable LED cluster replacement for transmitted illumination

3. Install microscope on a sturdy, level table or bench and avoid any restriction of air vents in the base of the unit.
Do not place microscope on a flexible surface, as this could result in blocking the air vents and cause Overheating.
4. Always use the power cord provided by LABOMED. If the proper power cord is not used, product safety performance cannot be warranted.
5. When installing the microscope, route the power cord away from the microscope frame. Should the power cord come in contact with the microscopes base, the power cord could melt due to overexposure to heat.
6. Always ensure that the grounding terminal of the microscope and that of the wall outlet are properly connected. If the unit is not grounded, LABOMED can not warrant electrical safety.
7. Never allow metallic objects to penetrate the air vents of the microscope frame as this could result in user injury and damage to the microscope.
8. After operation of microscope, be sure to disconnect power cord from connector socket of the microscope or from the wall power outlet.




SAFETY SYMBOLS

The following symbols are found on the microscope. For optimal use, it is recommended that users Understand these symbols and always use the equipment as prescribed.

| Symbol | Explanation |
|---|--|
|  | This surface has a tendency to heat up and should not be touched unless System has completely cooled down. |
|  | Before use, carefully read the instruction manual. Improper use could result in Injury to the user and/or damage to the equipment. |
|  | Warning against risk of electric shock. |
| I | Main switch is ON. |
| ○ | Main switch is OFF |

WARNING LABEL

A warning indication label is attached to every part where special precaution is required while handling and using the microscope. Always read the warnings.

| | | | |
|------------------------|----------------------------|---|---|
| Warning label position | Bottom of microscope frame | [Warning against high temperature in bulb/LED compartment] |  |
| | | [Warning against risk of electric shock] |  |
| | | [Warning against damage in non-compliance with instructions manual] |  |

If the warning label is stained or peeled off, contact your LABOMED distributor.

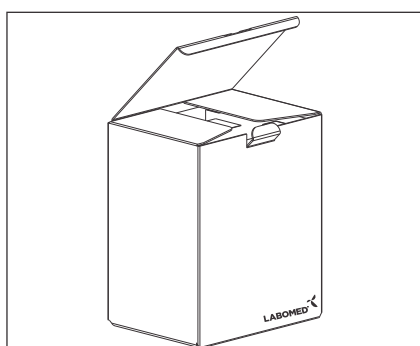
1 GETTING STARTED

Fig. 1

1. A microscope is a precision instrument with delicate glass components. Please handle with care.
2. Do not use the microscope where it is subjected to direct sunlight, high temperature, humidity, dust and vibrations. (For the operating conditions, see chapter "SPECIFICATIONS") on Page 24.
3. The microscope is ventilated by natural convention. Be sure to leave enough space (10cm or more) around body when installing the unit.
4. Arm handle is provided for carrying the microscope.

To prevent damage, do not hold the microscope by the stage or observation tube.

Be sure to remove the specimen from the stage clip while transporting unit to avoid damage of the specimen slide.

2 MAINTENANCE AND STORAGE

1. Clean all glass components by wiping gently with cleaning cloth provided. To remove fingerprints or oil smudges, wipe with cleaning cloth slightly moistened with a mixture of petroleum (85%) and isopropanol (15%).

Since solvents such as petroleum and isopropanol are highly flammable, they must be handled carefully. Be sure to keep these chemicals away from open flames or potential Sources of electrical sparks - For Example, electrical equipment that is being switched "ON" or "OFF". Also remember to always use these chemicals only in a well-ventilated room.

2. Do not attempt to use organic solvents to clean the microscope components other than the glass components. To clean non-glass components, use a lint-free, soft cloth slightly moistened with a diluted neutral detergent.
3. Do not disassemble any part of the microscope as this could result in malfunction or mitigated performance.
4. When not using the microscope, ensure that the frame is fully cooled before storing the unit in a dry locker or covering with a dust cover (provided).
5. To clean the condenser/phase turret, fully loosen the securing thumb screw (1) and remove the condenser then, wipe the front lens of the condenser with optical cleaning solution (mixture suggested above) and lens tissue.

The condenser can be re-attached by replacing the condenser in its seat, tightening securing thumb screw, and raising condenser bracket to desired position.

6. Be sure to observe your local rules/regulation for product disposal.

3 CAUTION

If the microscope is used in a manner not specified by this manual, the safety of the user may not be warranted. In addition, the equipment may also suffer damage. Always use the equipment as outlined in this instruction manual.

4 CARE & MAINTENANCE

Your microscope had been engineered for a long and safe operational life with the least amount of maintenance required. In general, routine maintenance is limited to keeping the microscope working parts lubricated and optics clean. Always cover the microscope with the provided dust cover when not in use.

1. Cleaning the lenses:

To clean the lens surfaces, remove dust using a soft brush or gauze (compressed air dust cans are ideal). For removing finger marks or grease, soft cotton cloth or lens tissue lightly moistened with cleaning solution (85% petroleum ether and 15% isopropyl alcohol) should be used. For cleaning the optics, use xylene. Observe sufficient caution in handling xylene.

Cleaning Procedure:

Place the Objective and/ or eyepieces on a dust free surfaces (e.g. aluminum foil). All other optical components to be cleaned should be as accessible as possible.

- Blow all loose dust particles away with a dust blower.
- Remove all water-soluble dirt with distilled water. If this is unsuccessful repeat using a solution of diluted hand soap liquid. Remove any remaining residue with a dry cotton swab.
- To remove oil, use a solution of diluted hand-soap liquid initially. If this does not produce a satisfactory result, repeat the cleaning using a solvent (Optical Cleaning Solution 85% petroleum ether and 15% isopropanol).
- Grease must always be removed using a solvent.
- Cleaning is achieved by using a spiral motion from the center to the rim. Never wipe using zig-zag movements as this will only spread the dirt. With larger optical surfaces (e.g. tube lenses) the spiral motion starts initially at the rim before to the middle and is only then followed by a center to rim cleaning motion. Normally several spiral wipes are recommended.

We recommend pure, volatile petroleum ether or Optical Cleaning Solution as explained in point 3 above.



Zig-zag motion (X)



Spiral motion (✓)

Wipe using a spiral movement. Do not use a zig-zag motion!

2. Cleaning of painted surfaces:

Avoid the use of any organic solvent (e.g. thinner, xylene, ether, alcohol etc.) for cleaning of painted surfaces of the instrument. Painted surfaces can be cleaned with a very lightly moistened micro fiber cloth. Loose dust and dirt can be removed using a brush of soft hair used exclusively for this purpose.

Caution:

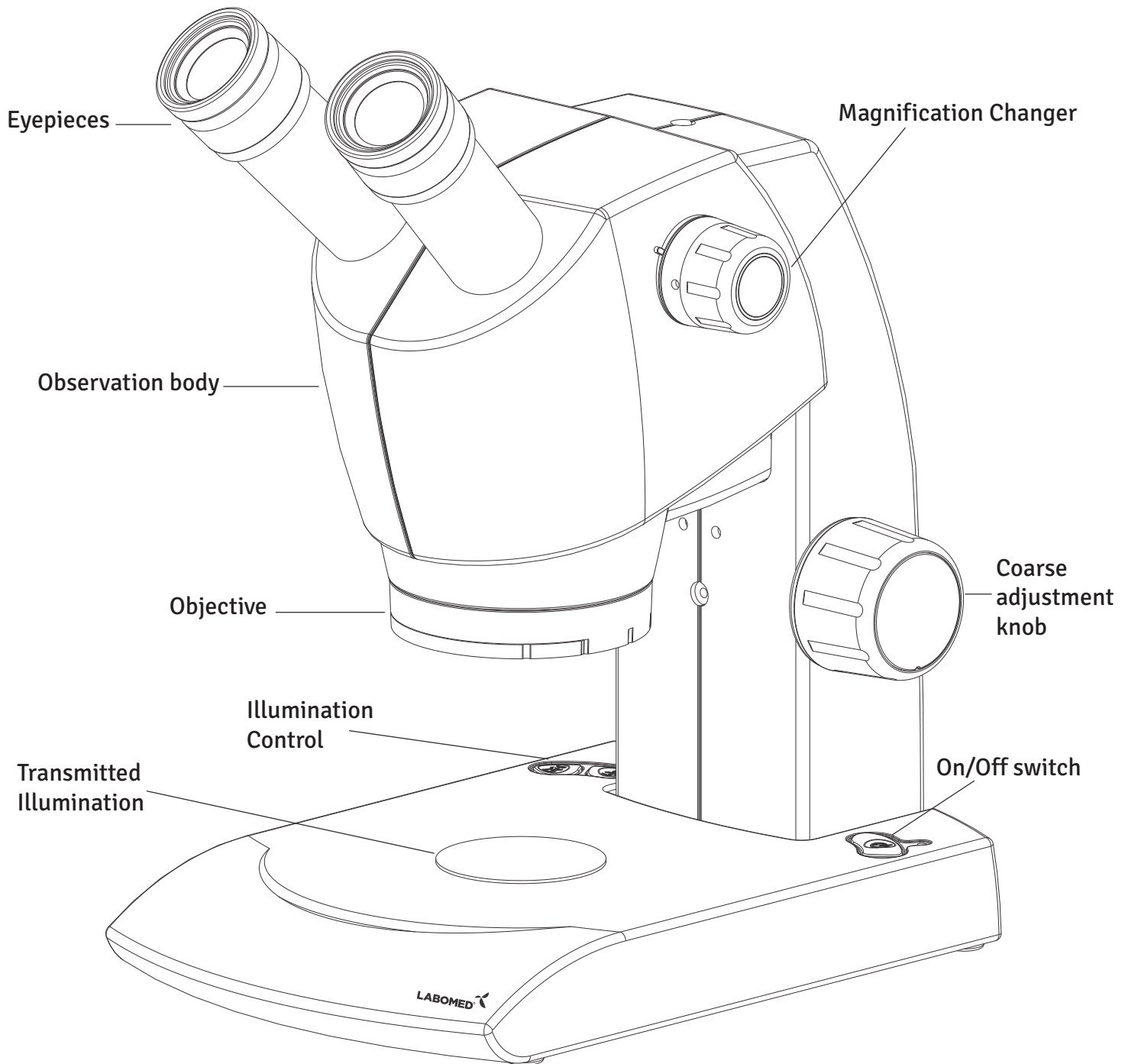
Do not use aggressive organic solvent such as acetone for cleaning painted surfaces and plastic parts of the microscope.

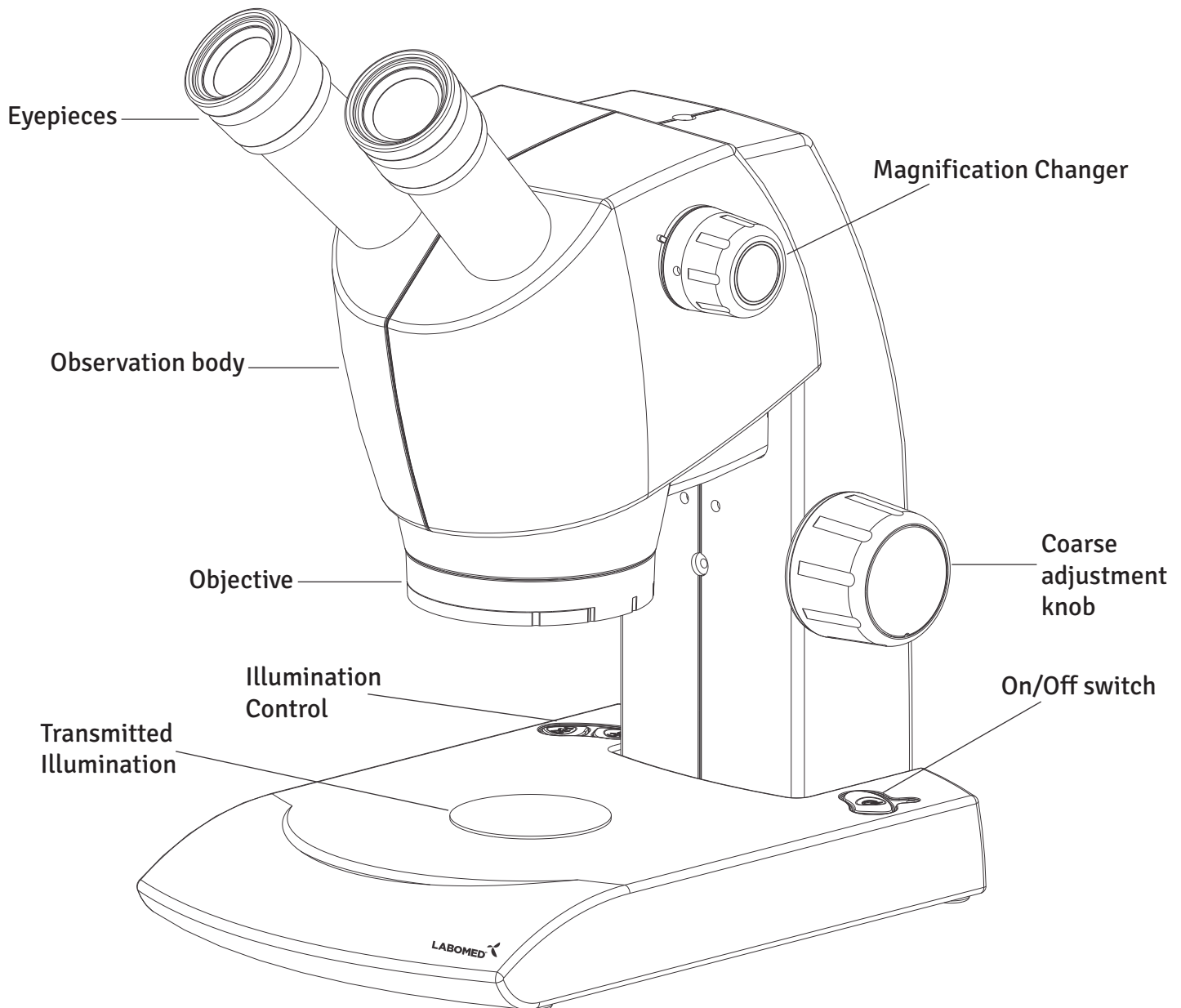
3. Never attempt to dismantle:

Never attempt to dismantle the instrument so as to avoid the possibility of impairing its operational efficiency and accuracy.

4. Periodical checking:

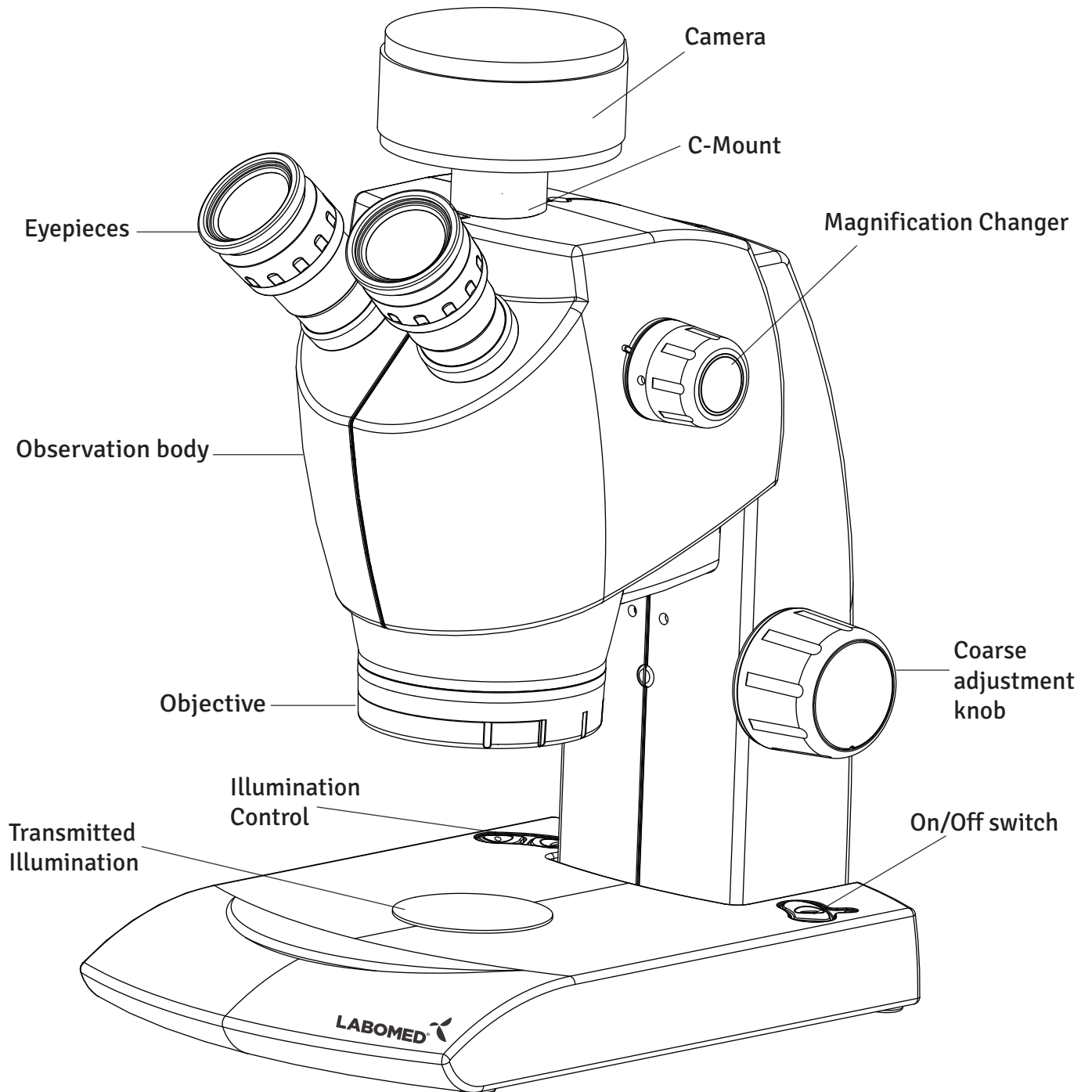
To maintain the performance of the instrument, we recommend customers have their microscopes serviced periodically by a factory authorized dealer/rep. For details, contact your nearest dealer or Labo America's main office in California.

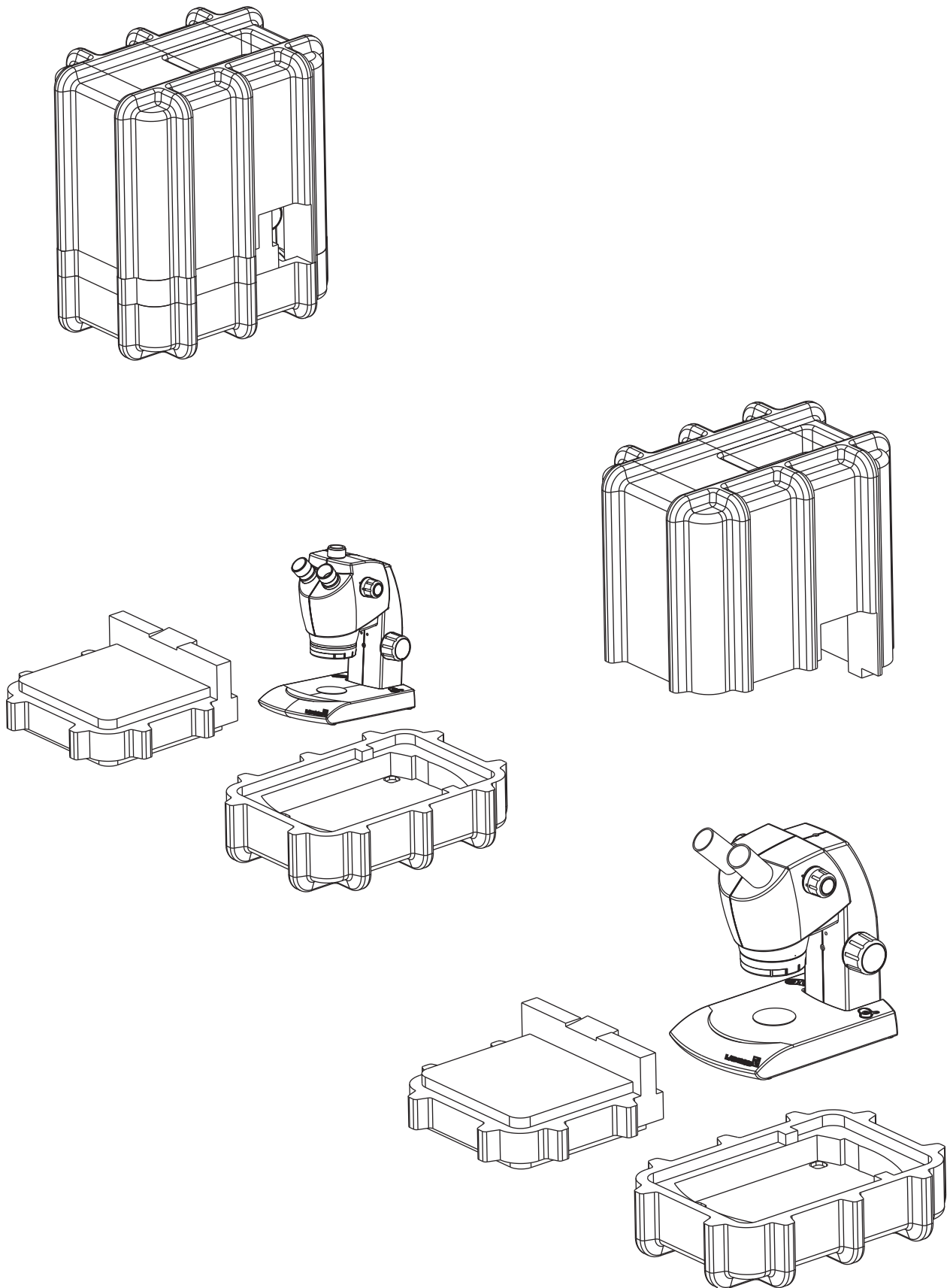




5 LUXEO 4Z TRINOCULAR

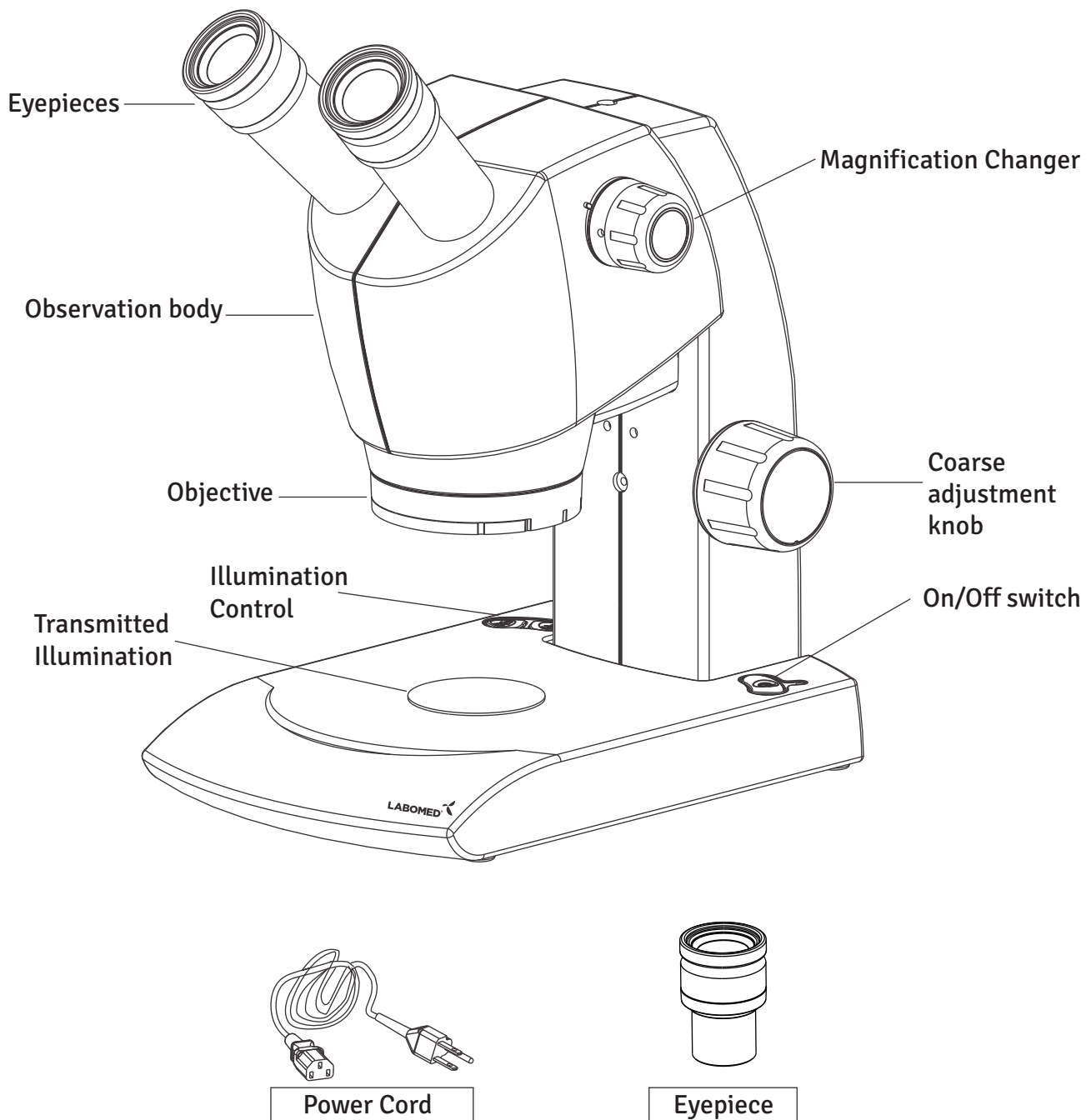
Luxeo



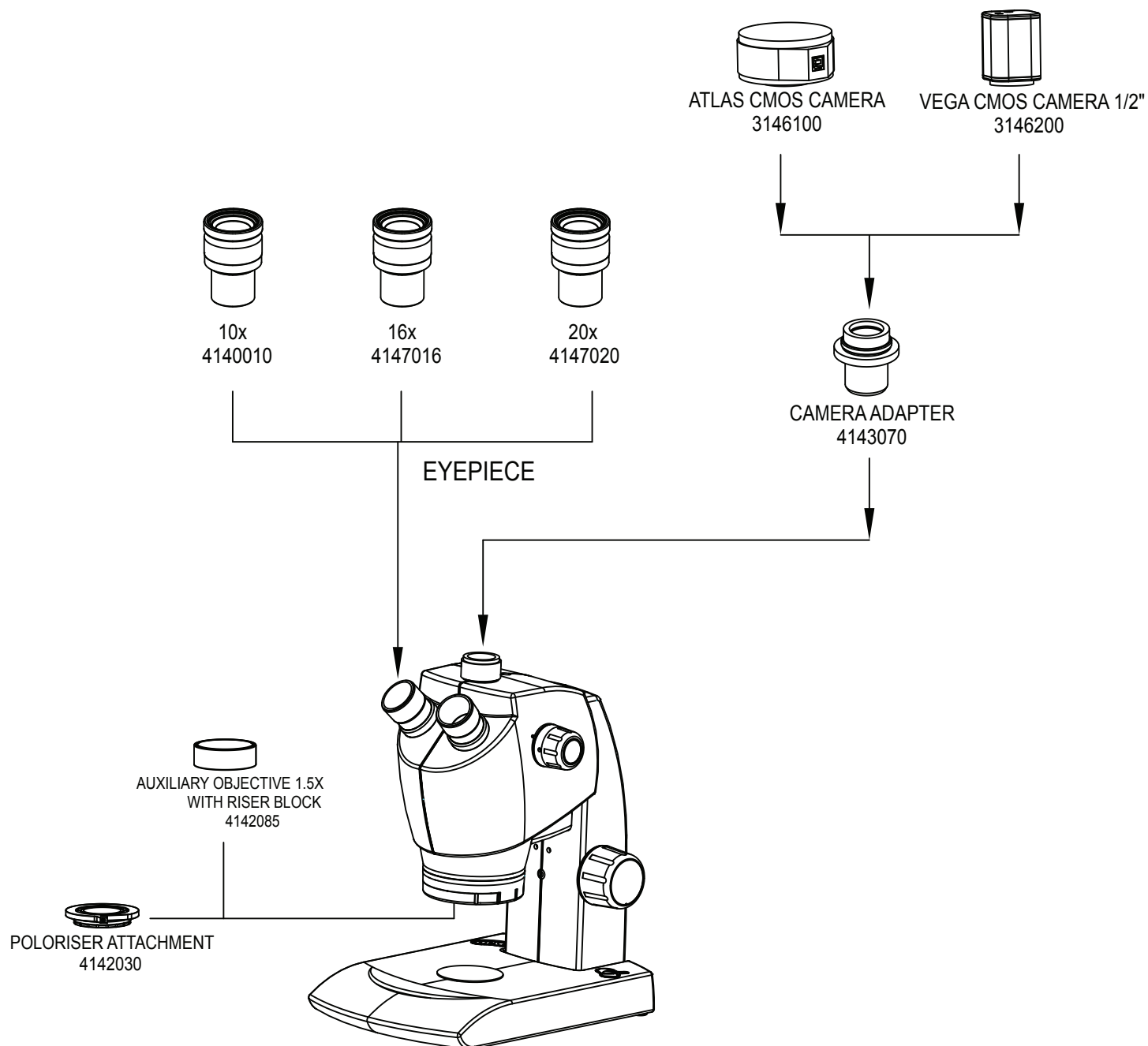


STANDARD COMPONENTS - LUXEO 2S/4Z

- After removing your microscope from its packaging, make sure that all of the following contents are present.



SYSTEM DIAGRAM OF OPTIONAL ACCESSORIES



1 INSTALL EYEPIECES

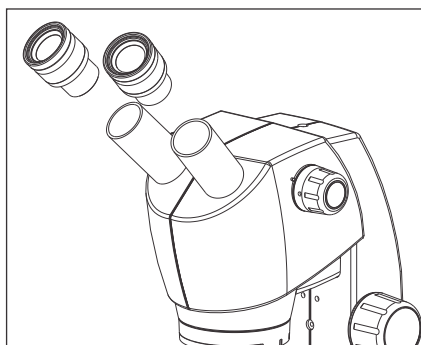


Fig. 2

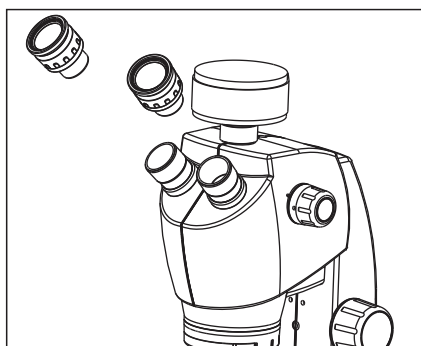


Fig. 3

Recover the eyepieces from packing and install them in the eyepiece ocular one by one. The ocular tubes are equipped with locking system which prevents the eyepieces from falling, rotating freely or easily pulled out.

When Wearing Eyeglasses

Use with the eye guards in the normal, folded-down position. This will prevent the eyeglasses from being scratched.

When Not Wearing Eyeglasses

Extend the folded eye guards outwards (direction of the arrow) to prevent ambient light entering into your line of vision.

2 POWER ON THE MICROSCOPE

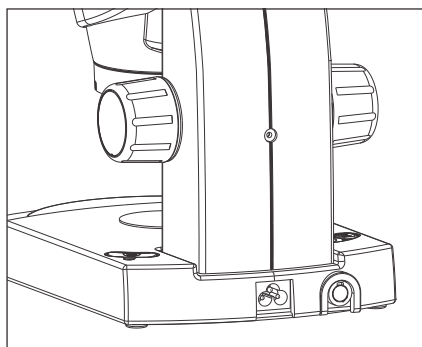


Fig. 4

Plug in the power cord and insert the power adapter to the AC socket.

Gently press the power on switch (A). the green LED (B) will indicate the power on indication.

The illumination can be switched in individually for incident and transmitted illumination from the switched provided on the base, left side of the column.

☞ Gently press this button to power up the transmitted illumination.

☞ Gently press this button to power up the incident illumination. The incident illumination is controlled by this switch to glow all the ten LED's, five front LED's or five rear LED's. Press the button in the following sequence to illuminate the LED's.

- Press once to illuminate all the LED's in the ring.
- Press twice to illuminate the front five LED's.
- Press thrice to illuminate rear five LED's.

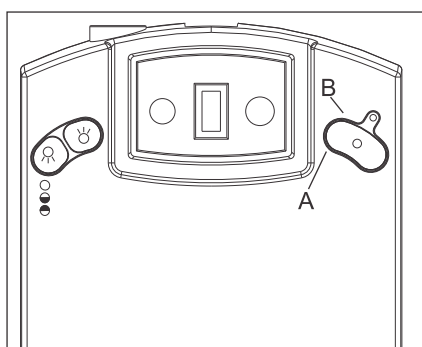


Fig. 5

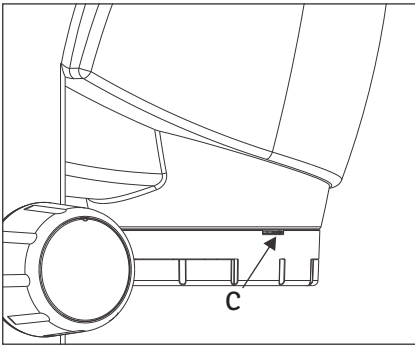


Fig. 6

The incident illumination can be controlled for intensity by intensity regulator knob (C).

3 SETTING THE MAGNIFICATION

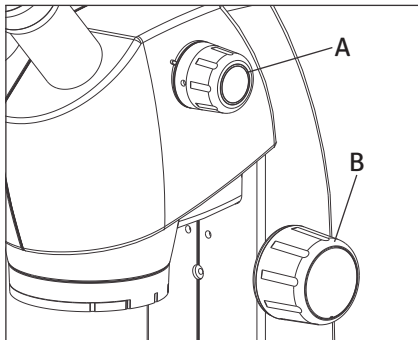


Fig. 7

A. Luxeo 4Z/4Z Trinocular

While looking through the eyepiece, rotate the magnification knob in clockwise or anti clockwise to achieve the desired magnification.

Use the coarse motion knob (B) to focus the specimen.

B. Luxeo 2S

While looking through the eyepiece, rotate the magnification in clockwise or anticlockwise to achieve the desired magnification of 1x/3x/ or 2x/4x.

4 FUSE REPLACEMENT

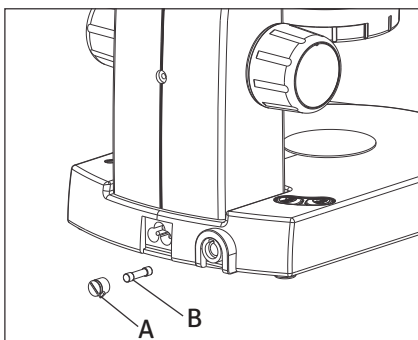


Fig. 8

Use a flat head screw driver to open the fuse holder. Rotate the security cap in clockwise direction. Replace the dead fuse with a live fuse. Secure back the fuse holder security cap.

CAUTION: Switch off the microscope and unplug the power cord before replacing the fuse.

5 INSTALLING THE CAMERA

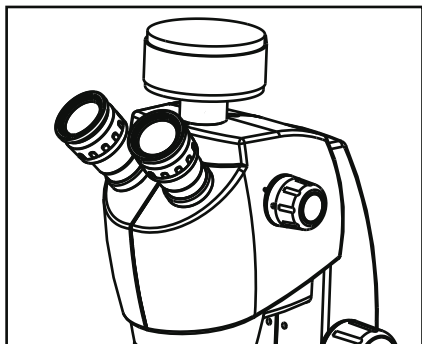


Fig. 9

In Luxeo 4Z Trinocular, C-Mount adapter is Pre-assembled to use Atlas or Vega Camera as specified by Labomed. Camera is easily threaded onto the C-Mount adapter. Rotate the adapter to erect the Image if image is inverted and lock the adapter in position. Parfocality of the camera can also be adjusted with same screw.

Parfocality of camera with Binocular Observation

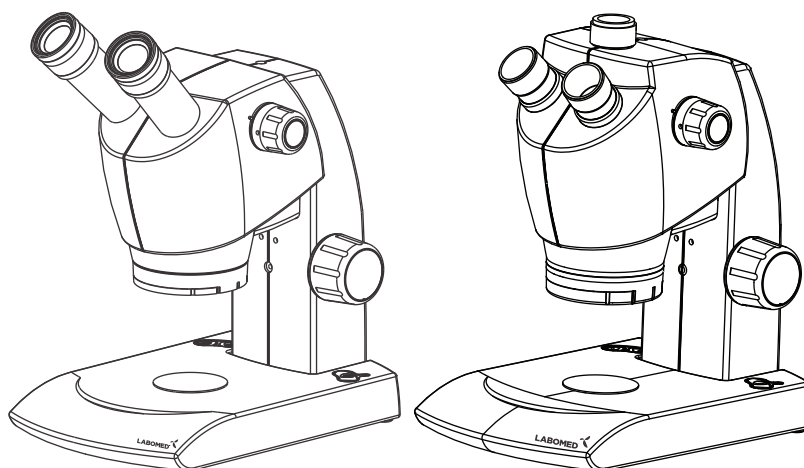
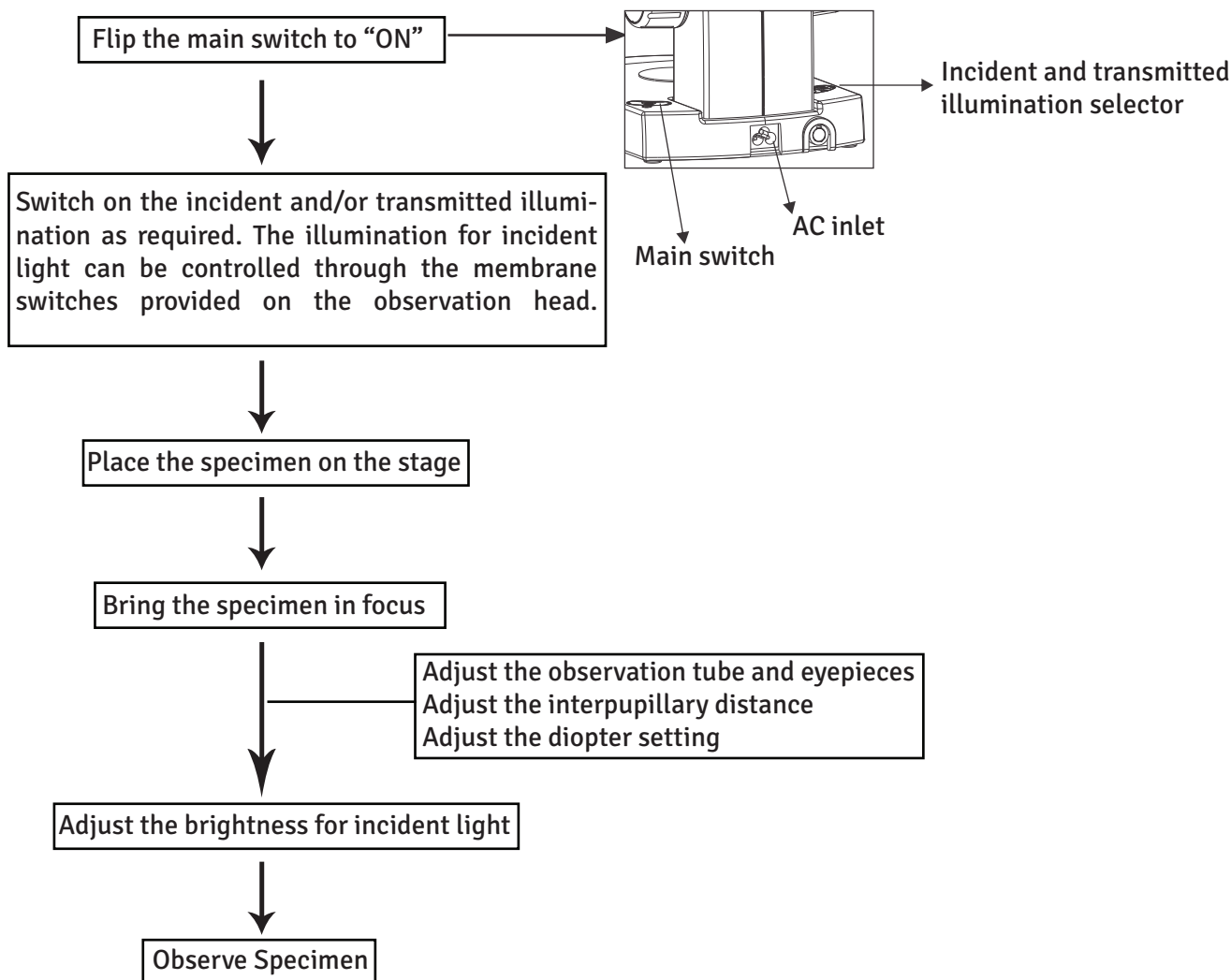
1. Set the magnification knob at highest magnification.
2. Focus the specimen using coarse focus knob.
3. Bring the magnification knob to lowest magnification.
4. Fix the camera in C-Mount adapter and see the image on the screen.
5. Loose the thumb screw/Allen screw of C-Mount and adjust camera up-down to get best focus.
6. Lock the camera in required position.
7. System is Parfocal now.

5 ATLAS CAMERA

Atlas 16MP CMOS USB Camera 1/2.33" 16.0 MP Color CMOS Sensor (active area 5.70 x 4.28mm) with resolution of 4608x3456 pixels (static) and 2304x1728 pixels (dynamic), 25 frames per second, C-mount camera interface, USB 2.0. Includes USB cable and PixelPro software for image capture management; compatible with Microsoft Windows (XP and current), Mac, and Linux OS.

6 VEGA CAMERA

Vega 6MP CMOS Camera (HDMI+USB+SD Card+Mouse Control) 1/2.8" 6MP HD Color CMOS Sensor (Active area 5.70 x 4.28mm) with resolution of 3264 x 1836 pixels (static) and 1920 x 1080 pixels (dynamic), 30 frames per second, integrated SD card slot, HDMI streaming, USB 3.0 connectivity, USB slot for connecting Mouse, C-mount camera interface. Includes USB 2.0, HDMI, and external power cable; Pixel-Pro software for image capture management; compatible with Microsoft Windows (XP and current), Mac, and Linux O.



11 TROUBLESHOOTING GUIDE

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

| OBSERVATION | CAUSE | REMEDY |
|--|---|---|
| Uneven brightness in observation field | The incident illumination is low. The transmitted illumination is blocked by the specimen. | Increase the incident illumination Place an opaque specimen or move the specimen. Use incident light. |
| All LED's are not glowing in incident light. | The LED control is wrongly select. | Press the button to glow all LED's, 11 front LED's or 12 rear LED's. |
| The LED does not glow. | The power cord id not attached. The LED are not switched on. The power button is not switched on. The fuse is blown. | Check the power cord. Attach is Precisely. Switch on the LED's. Switch indicator will glow when the power is on. Check the fuse. If blown, replace with a live fuse. Adhere caution!! |
| The specimen does not focus | The specimen is not focused properly. The specimen is too small. The specimen is too big. | Focus the specimen first on the lowest magnification. Achieve best focus using the coarse adjustment knob. The specimen is too small. Slide with micro dissection are not visible on stereo microscopes. The Specimen is too big to focus. Use smaller specimen. |

Revision History

| Rev. No. | Date of Release | DCR # | Change | App. By |
|----------|-----------------|------------|---|---------|
| 1.3 | 24/1/2020 | ECR/10A/19 | Luxeo 4Z Trinocular version Included | S. Bal |



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