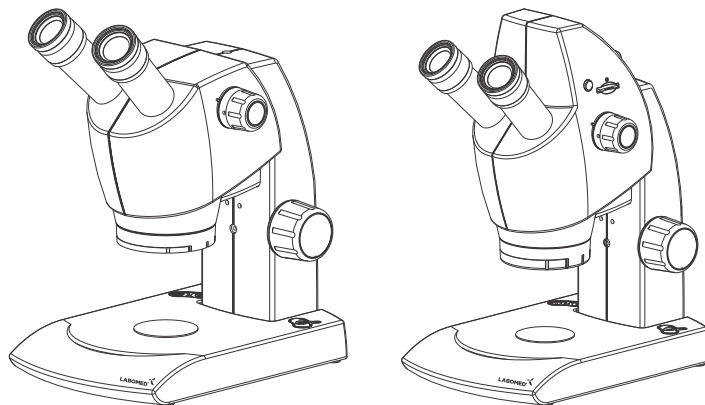


# Luxeo User Manual

Stereo / Zoom Stereo Microscopy



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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# 1 INTRODUCTION

The Luxeo is a stereo 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.

## 2 SAFETY INFORMATION

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 shock hazards and burns when replacing LED, turn the microscope's main switch to OFF position and disconnect power cord from wall outlet in advance. Whenever you replace bulb during use or right after use, allow lamp socket and bulb 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 blockage of air vents on the bottom side of the base.  
Do not place microscope on a flexible surface, as this could result in blocking the air vents and cause overheating/fire.
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 microscope's base, the power cord could short circuit.
6. Always ensure that the grounding terminal of the microscope and that of the wall outlet are properly connected. If the equipment is not grounded, LABOMED can not warrant the electrical safety performance of the equipment.
7. Never allow metallic objects to penetrate the air vents of the microscope frame as this could result in user injury and equipment damage.
8. After operation of microscope, be sure to disconnect power cord from connector on 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
	Indicates that the 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.
	Indicates that the main switch is ON.
	Indicates that the 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 Ready

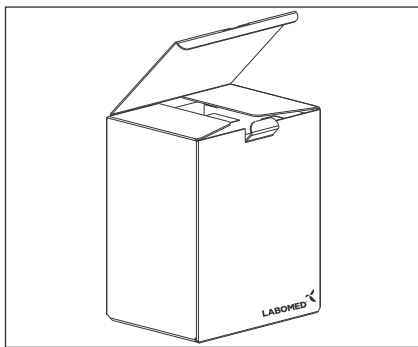


Fig. 1

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 15, "SPECIFICATIONS" on Page 24.)
3. The microscope is ventilated by natural convection. Be sure to leave enough space (10 cm or more) around body while installing it.
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 to 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 and store the unit in a dry locker or cover with a dust cover (provided).
5. To clean the condenser, fully loosen the securing knob (lower) and remove the condenser by lowering condenser bracket, 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 screws, and raising condenser bracket to desired position.

6. Be sure to observe your local rules/regulations 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 has 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 microscopes working parts lubricated and optics clean. Always cover the microscope with the provided dust cover when not in use.

**1. Cleaning the lenses :**

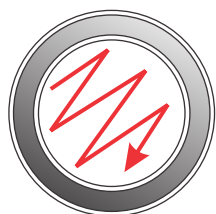
To clean the lens surfaces, remove dust using a soft brush or gauze (compressed air dust cans are ideal). For removing finger marks or grease, soft cotton cloth/ lens tissue or gauze lightly moistened with cleaning solution (85% petroleum ether and 15% isopropanol) should be used. For cleaning the objective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

**Cleaning procedure:**

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

- a. Blow all loose dust particles away with a dust blower.
- b. 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.
- c. 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).
- d. Grease must always be removed using a solvent.
- e. 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 moving 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 other 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 :**

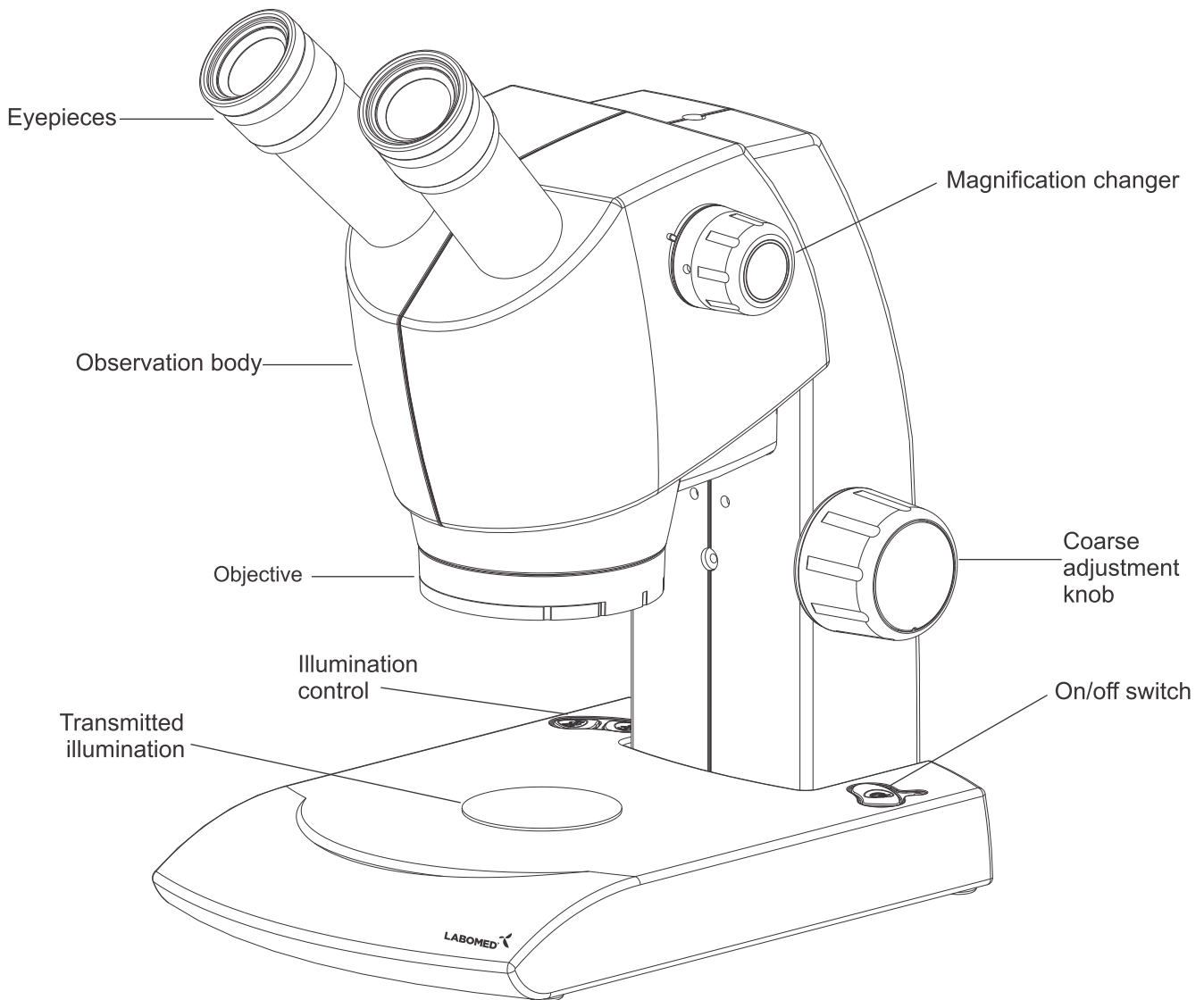
Never attempt to dismantle the instrument so as to avoid the possibility of impairing its operational efficiency and accuracy.

**4. Periodical checking :**

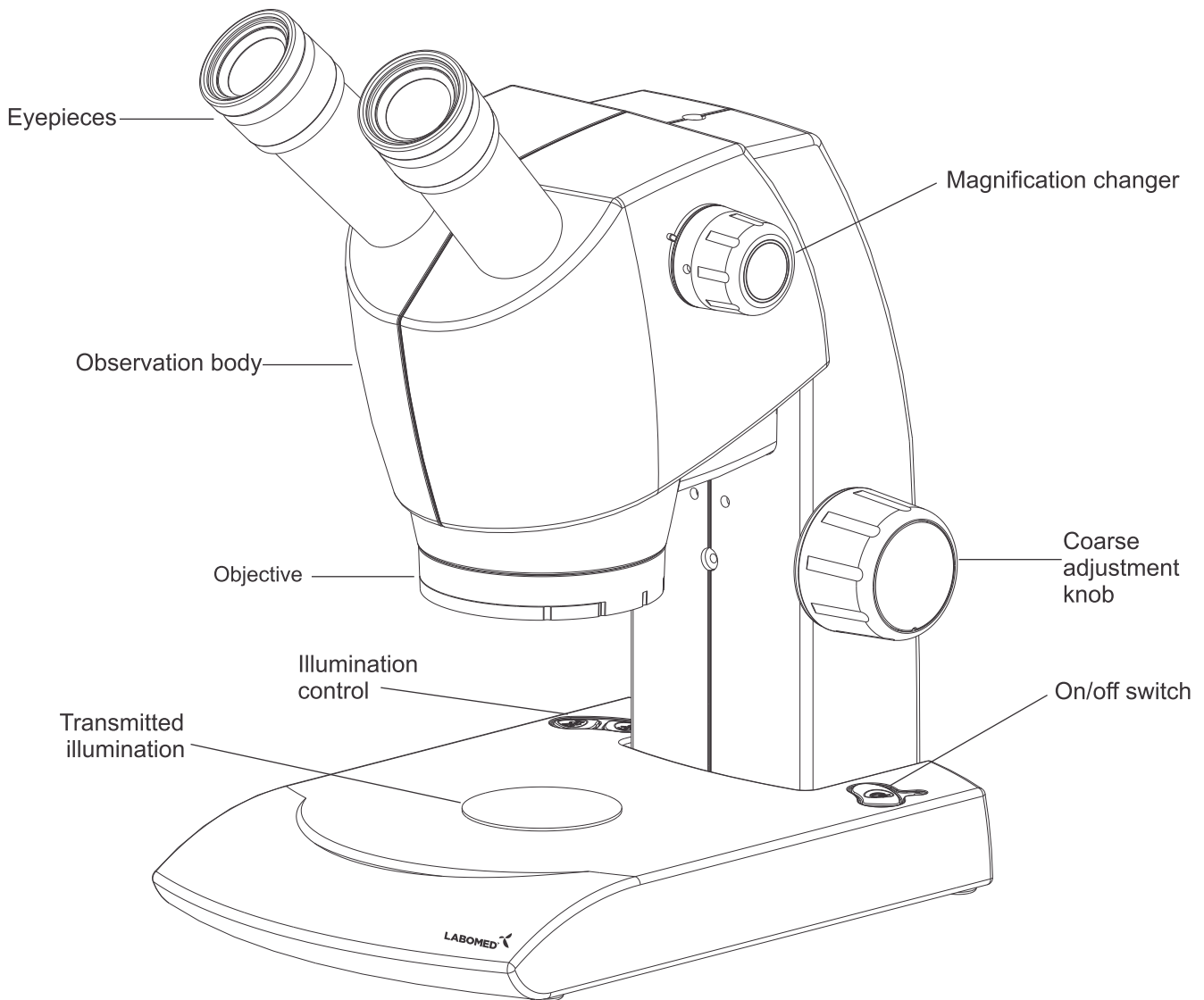
To maintain the performance of the instrument, we recommend customers have their microscopes serviced periodically by a factory authorized dealer/rep. For details, contact your nearest dealer or LaboAmerica's main office in California.



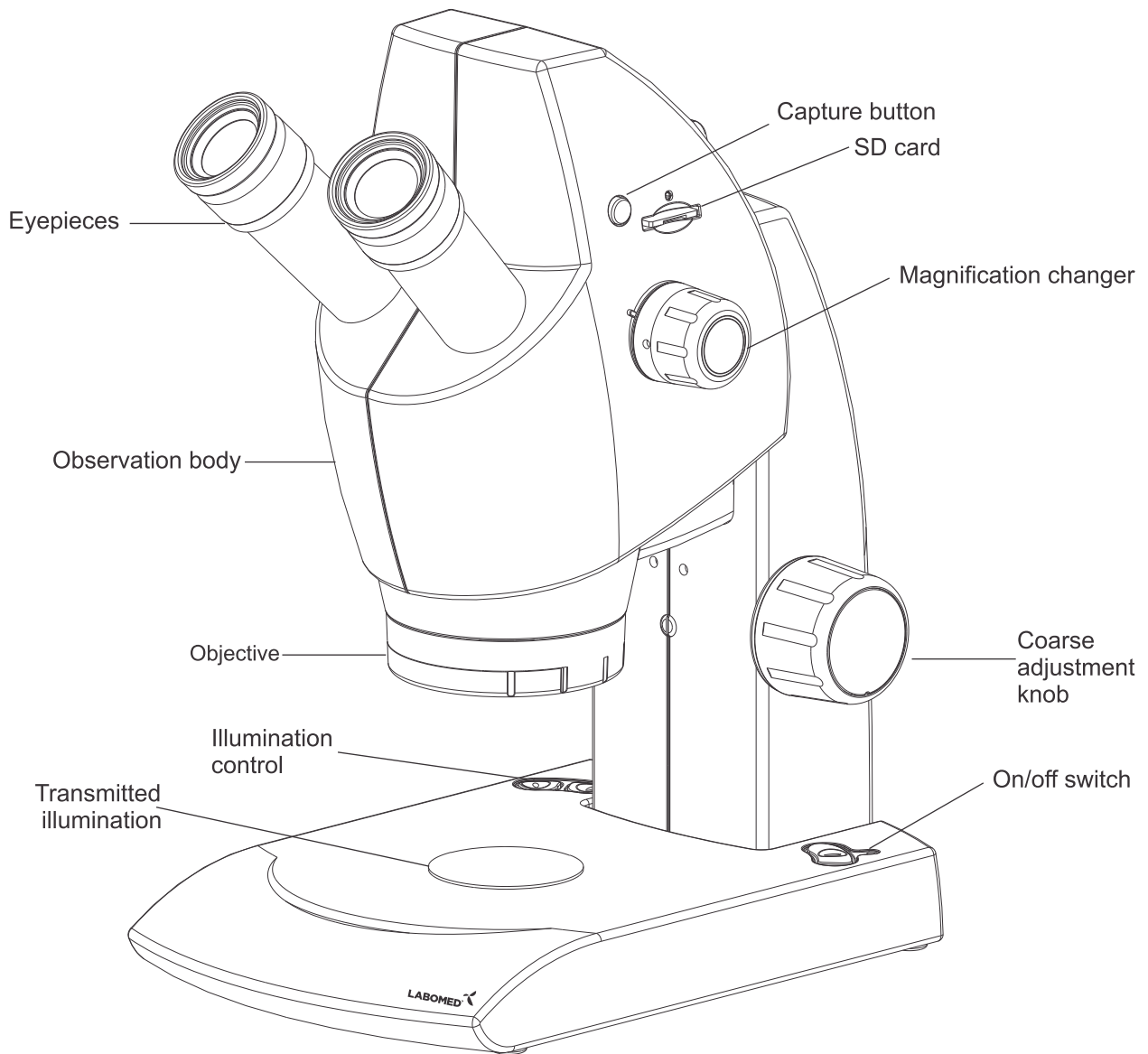
3 Luxeo 2S



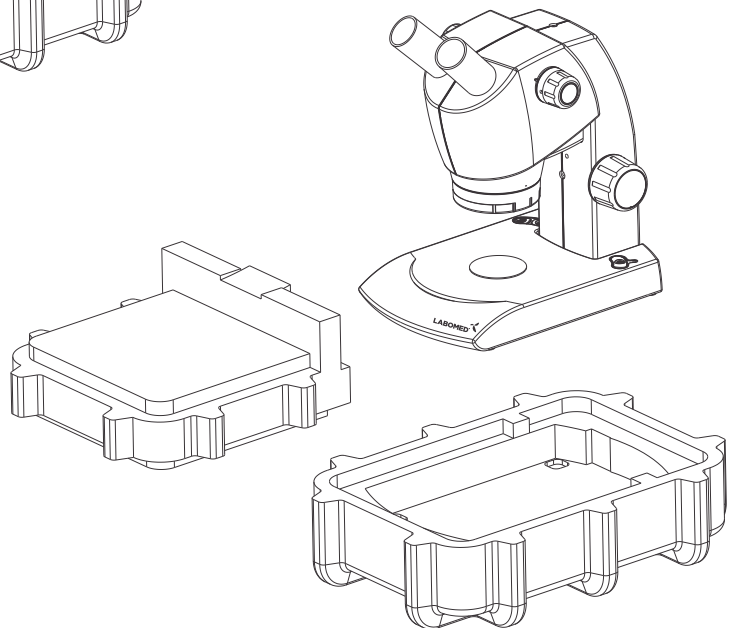
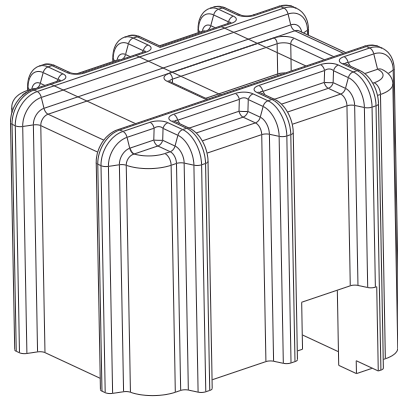
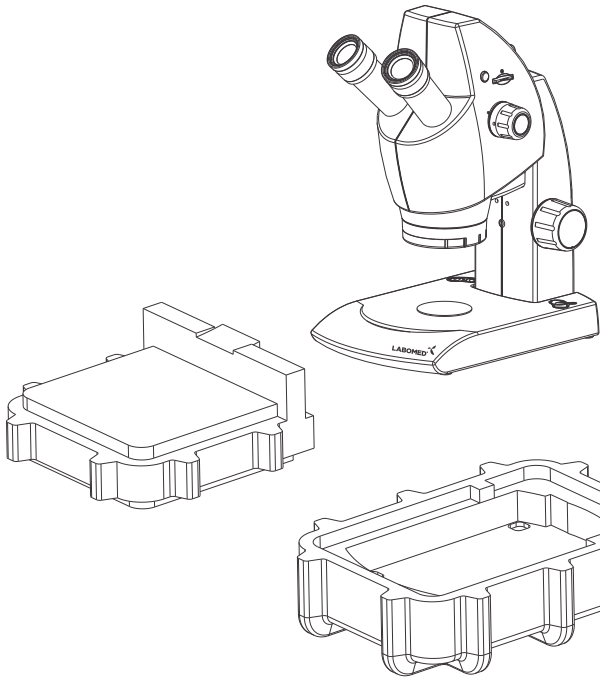
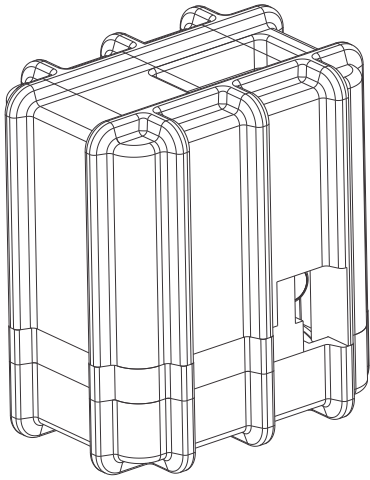
# 4 Luxeo 4Z



5 Luxeo 4D

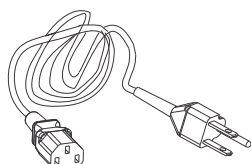
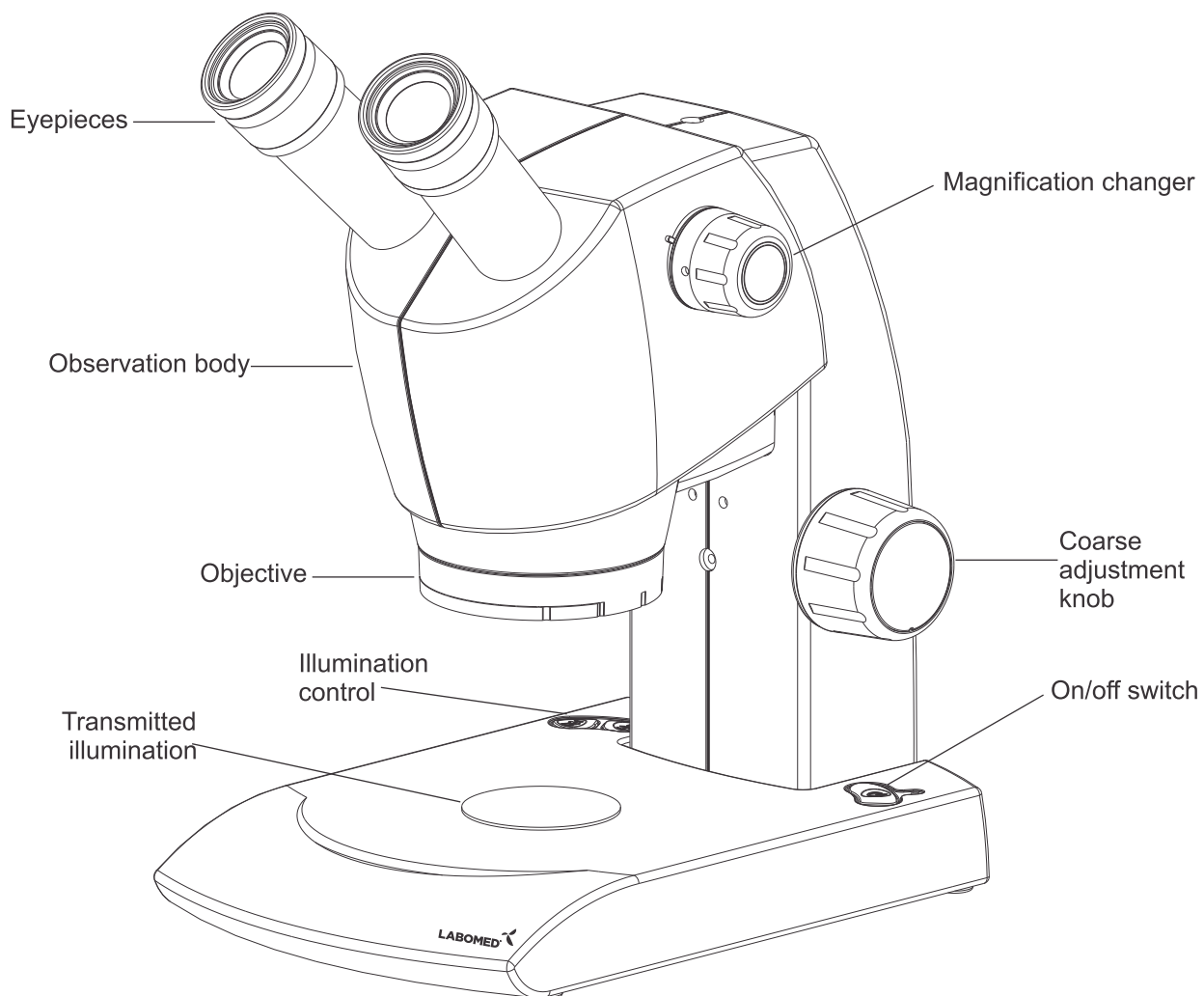


# 6 UNPACKING YOUR MICROSCOPE

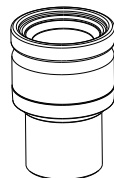


# 7 STANDARD COMPONENTS - Luxeo 2S/4Z

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

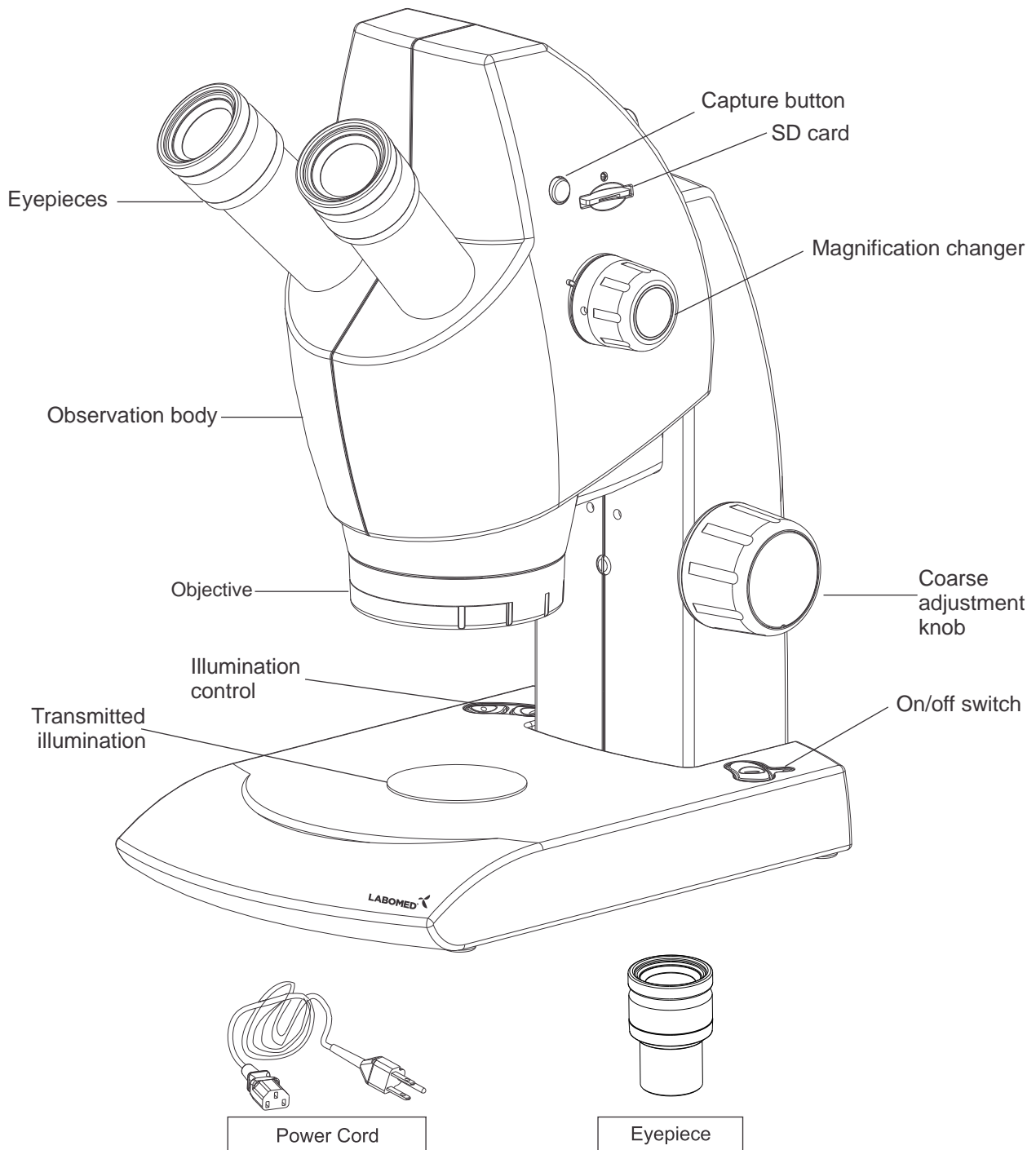


Power Cord



Eyepiece

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



## 9

## INITIAL SET UP

## 1 Install eyepieces

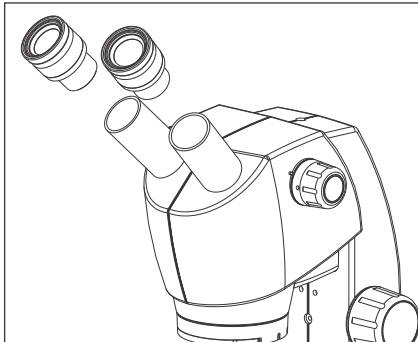


Fig. 2

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.

Using the Eye Shades

When Wearing Eyeglasses

Use with the eye shades in the normal, folded-down position.

This will prevent the eyeglasses from being scratched.

When Not Wearing Eyeglasses

Extend the folded eye shades outwards (direction of the arrow) to prevent extraneous light from entering into your line of vision.

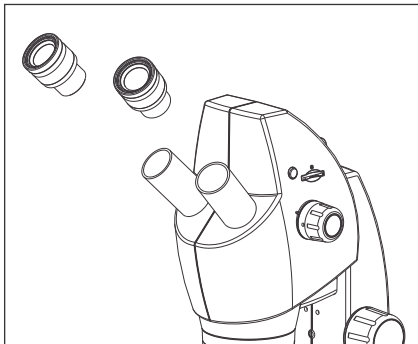


Fig. 3

## 2 Power on the microscope

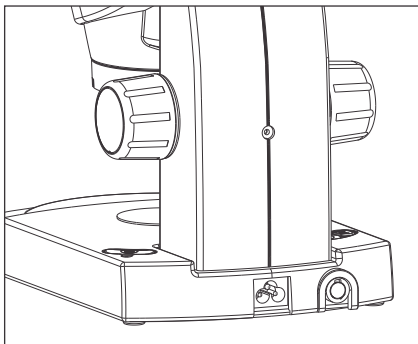


Fig. 4

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 on 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.

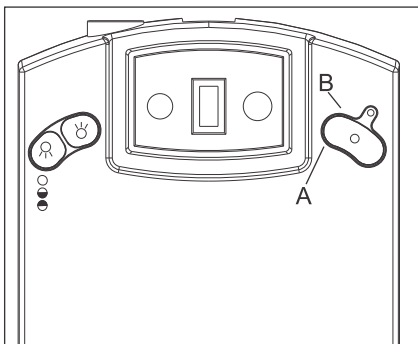


Fig. 5

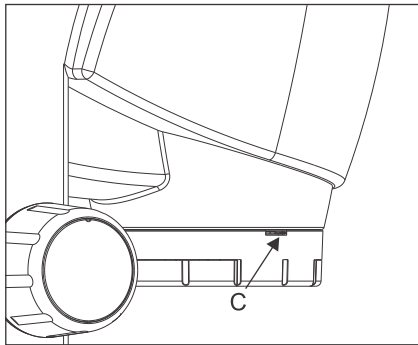


Fig. 6

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

**3** Setting the magnification

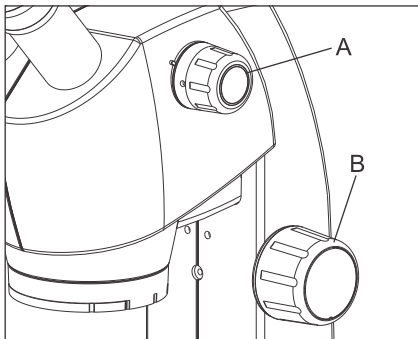


Fig. 7

**A. Luxeo 4Z/4D**

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** Installing the SD Card

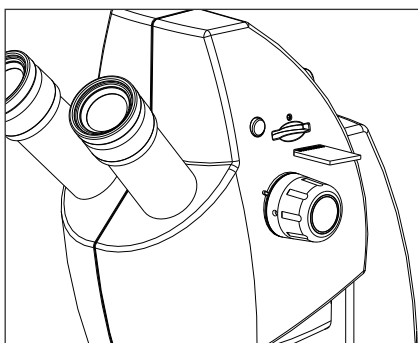


Fig. 8

Insert the SD card to the card slot. Gently push it in. See fig. 8. The green LED will glow as soon as the card is engaged.

The SD card takes approx. 10 seconds to register. Press the capture button to store the still image on the card. To capture the video, press the capture button for 2 seconds. This initiates video capturing. To stop video capturing, press the capture button again. Depending on the duration of the video captured, it takes few minutes to store it on the memory card.

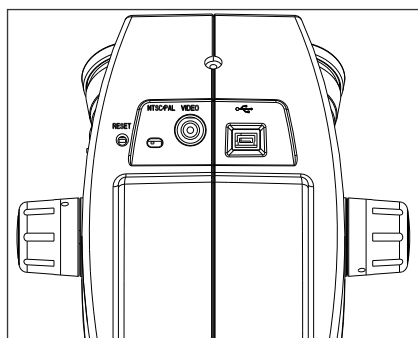


Fig. 9

The video connection panel is provided at the back of the observation head. Connect the video/USB cables as per requirement. Video output can be selected from the NTSC/PAL selector switch. The reset button is to restore camera settings to factory preset.



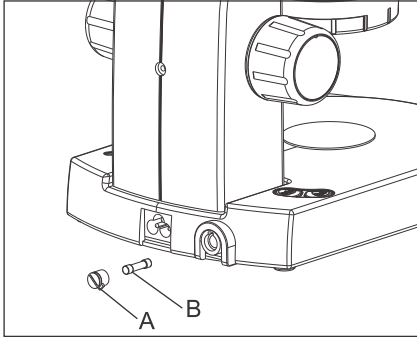
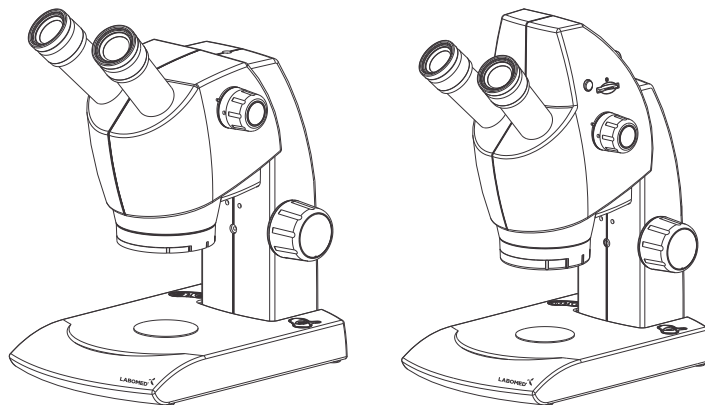
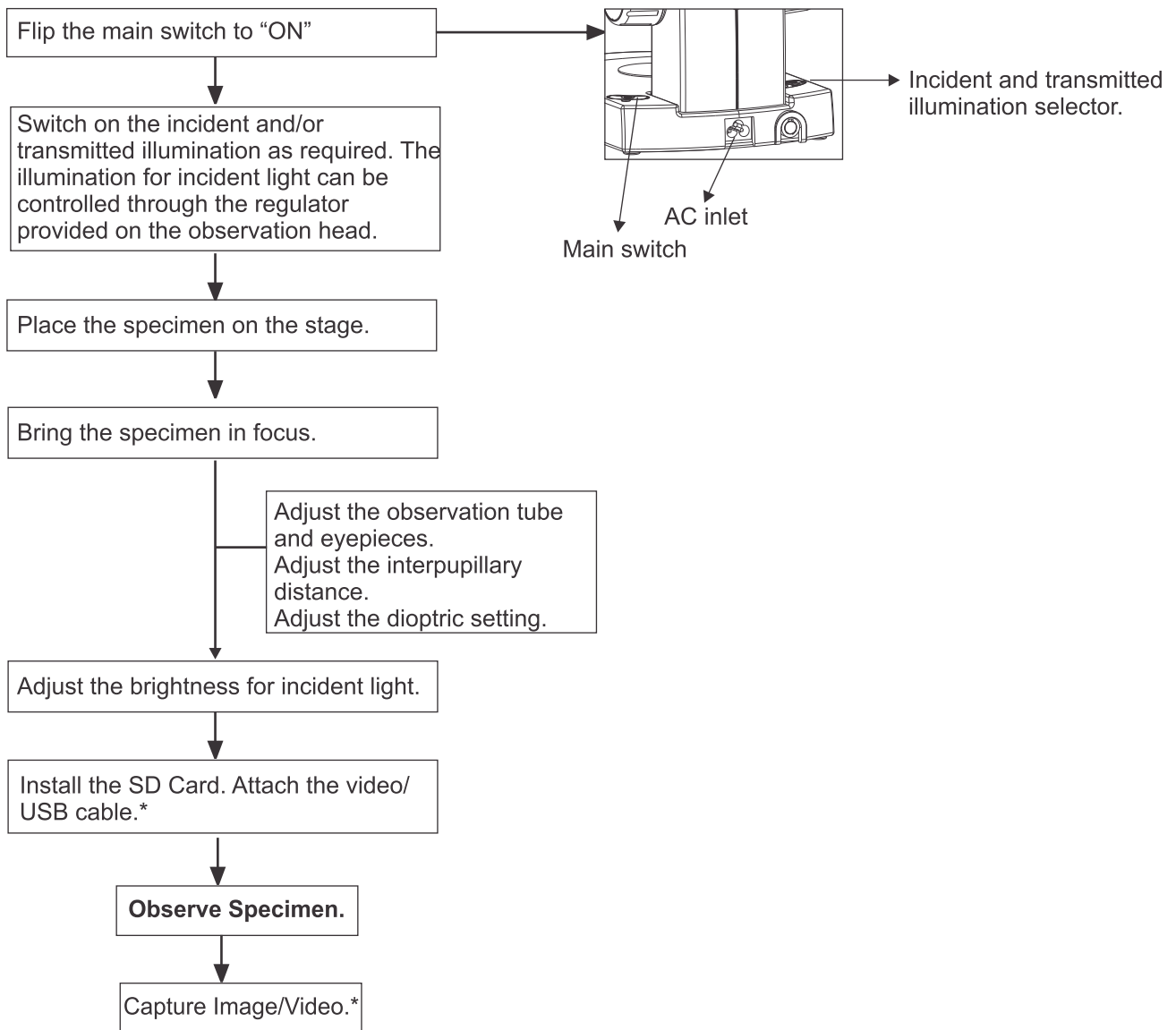
**5** Fuse replacement

Fig. 10

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.


# 10 SUMMARY OF OBSERVATION PROCEDURE



\* Luxeo 4D only.

# 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, 5 front LED's or 5 rear LED's.
The LED does not glow.	The power cord is 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 LEDs. Switch on the power button. The green 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. Slides with micro dissection are not visible on stereo microscopes. The specimen is too big to focus. Use smaller specimen.



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