

INSTRUCTIONS

BX63

INTELLIGENT MICROSCOPE



Optical Microscope and Accessory

To ensure the safety, obtain optimum performance and to familiarize yourself fully with the use of this microscope, we recommend that you study this manual thoroughly before operating the microscope.



In accordance with European Directive on Waste Electrical and Electronic Equipment, this symbol indicates that the product must not be disposed of as unsorted municipal waste, but should be collected separately.

Refer to your local distributor in EU for return and/or collection systems available in your country.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications.

Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

FCC WARNING: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

CALIFORNIA USA ONLY

The touch panel controller of this product uses a Lithium Battery which contains Perchlorate Material -special handling may apply, See www.dtsc.ca.gov/hazardouswaste/perchlorate.

For Korea only

이 기기는 업무용 환경에서 사용할 목적으로 적합성평가를 받은 기기로서 가정용 환경에서 사용하는 경우 전파간섭의 우려가 있습니다.

CONTENTS

Correct assembly and adjustments are critical for the microscope to exhibit its full performance. If you are going to assemble the microscope yourself, please read section 9, "ASSEMBLY" (pages 39 to 44) carefully.

IMPORTANT – Be sure to read this section for safe use of the equipment. – 1-5

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IMPORTANT

This microscope employs a UIS2 (Universal Infinity System) optical design, and should be used only with modules designed for the BX3-series and with UIS2 objectives/eyepieces. For the applicable modules, please consult us or the catalogues.) Less than optimum performance may result if inappropriate accessories are used.

Configuration of Instruction Manuals

Since this microscope is expandable to a variety of systems, separate instruction manuals are prepared so that the user has to read only the manuals according to the user's own system.

Manual name	Main contents
BX63	Transmitted light brightfield observation and touch panel controller
BX3-CBH/U-MCZ	Functions of the Control Box (incorporating power supply) and the Controller
BX3-RFAA	Motorized fluorescence illuminator
BX3-UCD8A	Motorized universal condenser
BX3-SSU	Scanning stage with ultrasonic



SAFETY PRECAUTIONS

(Fig. 1)

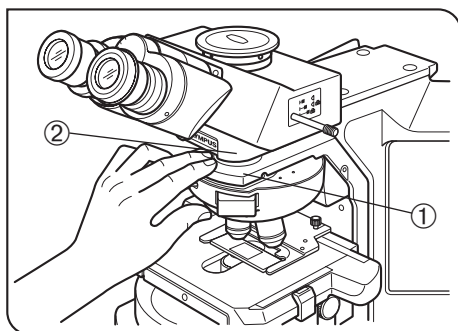


Fig. 1

1. If potentially infectious samples may be observed, use protective gloves or other protective means to prevent the skin from contacting with samples directly.
After observation, be sure to clean the portion contacted with samples.
 - Moving this product is accompanied with the risk of dropping the sample. Be sure to remove the sample before moving this product.
 - In case the sample is damaged by erroneous operation, promptly take the infection prevention measures.
 - Follow the procedures described in Chapter "Getting Ready" (see page 4) prior to using the accessories of this product. Otherwise, the stability of the device will be lost and the dropped sample will cause the possibility of infection.
 - When you maintain the device which may have contacted with potentially-infectious reagents, be sure to wear the protectors such as gloves, or clean the device prior to operation.
 - Before disposing of device contacted with potentially infectious samples, be sure to follow the regulations and rules of your local government.
2. Be careful not to have your finger or hand caught by the space between the revolving nosepiece arm ① and observation tube mount ② (Fig. 1).
3. Install the microscope on a sturdy, level table or bench.
In particular, do not put the mat or so under the microscope for safety purpose.
4. Be careful not to tilt the microscope too much. Otherwise, the mobile parts such as the light path selector knob may move.
5. Never insert metallic objects into the air vents of the microscope frame as this could result in electrical shock, personal injury and equipment damage.
6. Always use the power cord provided by us. If no power cord is provided, please select the proper power cord by referring to the section "PROPER SELECTION OF THE POWER SUPPLY CORD" at the end of this instruction manual. If the proper power cord is not used, product safety performance cannot be warranted.
7. Always ensure that the **grounding terminal** of the microscope and that of the wall outlet are properly connected. If the equipment is not grounded, we can no longer warrant the electrical safety performance of the equipment.

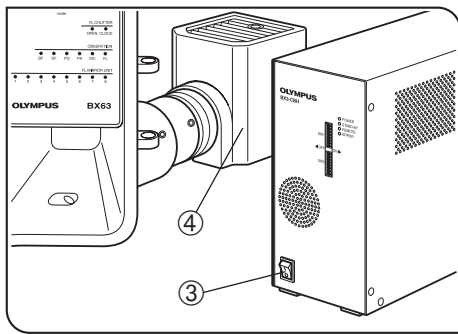


Fig. 2

Operation Using the LED Lamp

Safety note on LED (Light Emitting Diode)

The LED incorporated in the LED lamp housing is basically safe, but do not look at the illumination light directly for an extended period to prevent your eye from being injured.

Operation Using the Halogen Bulb






1. The surfaces of the lamp housing on the rear of the microscope will become extremely hot during operation.
When installing the microscope, make sure to allow ample free space around and in particular above the halogen lamp housing.
After the microscope is installed, make sure that the space under the lamp housing is ensured.
2. When installing the microscope, route the power cord away from the lamp housing. Should the power cord come in contact with the hot lamp housing, the power cord could melt and cause electric shock.
3. The standard service life of the lamp housing is eight (8) years of use or 20,000 hours of total power ON period, whichever is the shorter period.
For details, see Inspection Sheet on page 45.
4. To avoid potential shock hazards and burns when replacing the halogen bulb, set the main switch ③ to "●" (OFF) and allow the lamp housing ④ and bulb to cool before touching them (Fig. 2).

Designated halogen bulb

12V100WHAL-L (PHILIPS 7724)



Safety Symbols

The following symbols are found on the microscope. Study the meaning of the symbols and always use the equipment in the safest possible manner.

Symbol	Explanation
	Indicates that the surface becomes hot, and should not be touched with bare hands.
	Indicates a non-specific general hazard. Follow the description given after this symbol or in instruction manual.
	Indicates that care is required against your finger or hand being caught.
	Indicates that the main switch is ON.
	Indicates that the main switch is OFF.

Caution indications

Caution labels are placed at parts where special precaution is required when handling and using the microscope. Always heed the cautions.

Caution label positions	Lamp housing [Caution against high temperature]	
	Revolving nosepiece arm [Caution against finger or hand being caught]	

If a caution label is dirty or peeled off, contact us for the replacement or other inquiry.

1 Getting Ready

(Fig. 3)

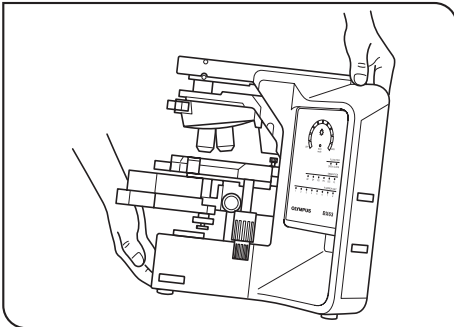


Fig. 3

1. A microscope is a precision instrument. Handle it with care and avoid subjecting it to sudden or severe impact. Also note that the microscope does not have a waterproof construction.
2. Do not use the microscope where it is subjected to direct sunlight, high temperature and humidity, dust or vibrations. (For the operating conditions, refer to section 7, "SPECIFICATIONS")
3. When moving the microscope, carry it by holding the grasping part on the rear of the arm and the front part of the base as shown in Fig. 3 (Weight: Approx. 19 kg).

CAUTION

- Do not hold the rear cover plate because it is fragile.
 - Before carrying, be sure to remove the dummy cover on the front of the base as well as the specimen, eyepieces and filters so that they will not drop during movement.
Also remove the modules from the microscope frame to reduce the risk of heavy burden (Frame weight: Approx. 12 kg)
 - To prevent damage to the microscope, never hold it by the stage, stage fixing pillar or binocular tube, etc.
4. When the accessories of this product such as an intermediate attachment are used, make sure that the system height does not exceed 1 meter (to prevent the system from tipping over).
 5. When the microscope needs to be packaged for forwarding to a remote location, contact us (to obtain advice for guaranteeing the performance).

2 Maintenance and Storage

1. To clean the lenses and other glass components, simply blow dirt away using a commercially available blower and wipe gently using a piece of cleaning paper (or with clean gauze).
If a lens is stained with fingerprints or oil smudges, wipe it gauze slightly moistened with commercially available absolute alcohol.

CAUTION

Since the absolute alcohol is highly flammable, it must be handled carefully.

Be sure to keep it away from open flames or potential sources of electrical sparks — for example, electrical equipment that is being switched on or off, which could cause ignition of a fire.

Also remember to always use absolute alcohol only in a well-ventilated room.

2. Do not use organic solvents to clean the microscope components other than the glass components. To clean them, use a lint-free, soft cloth slightly moistened with a diluted neutral detergent.
3. Do not disassemble any part of the microscope except for the parts that are specified to be disassembled in this manual, as this could result in malfunction or reduced performance.
4. After using the microscope, set the main switch to "○" (OFF), wait for the lamp housing to cool down sufficiently, and keep it covered with a dust cover during storage.
5. Before disposing of this product, be sure to follow the regulations and rules of your local government.

3 Intended use

This product has been designed to be used to observe magnified images of specimens in various routine work and research applications.

This includes the observation of living cells or of specimen taken from tissues to gain physiological or morphological information at hospitals or laboratories. Typical field of applications are genetics, human blood and tissue examination, neurology, pharmacology and cellular biology.

Do not use this instrument for any purpose other than its intended use.



This product complies with the requirements of Regulation (EU) 2017/746 and The Medical Device (Amendment etc.) (EU Exit) Regulation 2020 concerning in vitro diagnostic medical devices. CE marking means the conformity to the former, and UKCA marking means the conformity to the latter.

This product is applied with the requirements of standard IEC/EN61326-2-6 and IEC/EN61326-1 concerning electromagnetic compatibility.

- Emission: Class A

- Immunity: Professional healthcare facility environment

Emissions exceeding the level required by aforementioned standards may occur if this product is electrically connected to other equipment.

This product complies with the emission and immunity requirements described in IEC61326 series.

This product is not intended for use in residential environments and may not provide adequate protection to radio reception in such environments.

This product is designed for use in a professional healthcare facility environment. It is likely to perform incorrectly if used in a home healthcare facility environment. If it is suspected that performance is affected by electromagnetic interference, correct operation may be restored by increasing the distance between this product and the source of the interference.

The electromagnetic environment should be evaluated prior to operation of this product.

Do not use this product in close proximity to the sources of strong electromagnetic radiation to prevent interference with the proper operation.

4 Caution

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

The following symbols are used to set off text in this instruction manual.

CAUTION : Indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury or damage to the equipment or other property. It may also be used to alert against unsafe practices.

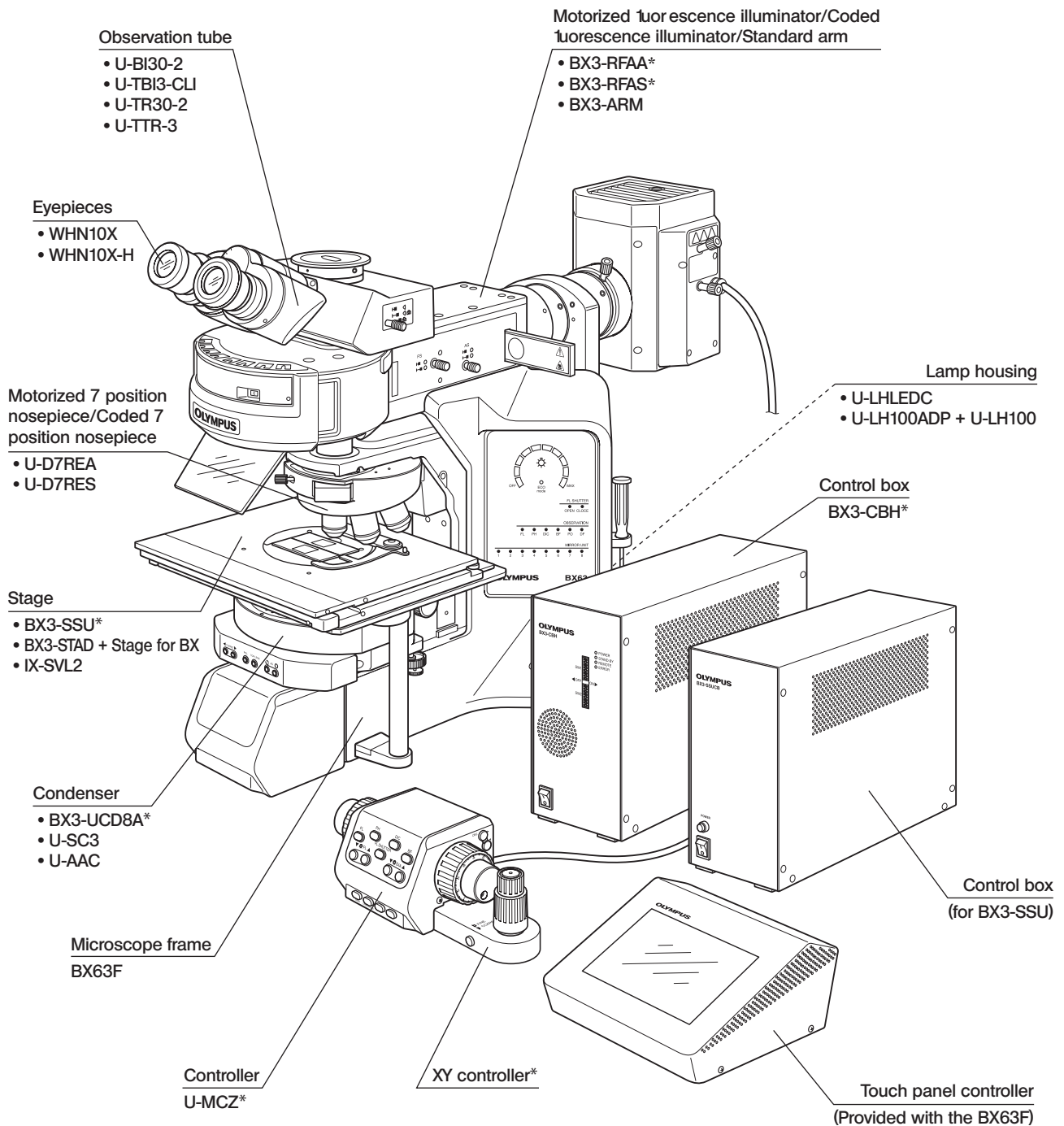
⊙ : Indicates commentary (for ease of operation and maintenance).

1 MODULE NOMENCLATURE

©The modules mentioned below show only the typical product names. As there are some products that are not mentioned but also applicable to this microscope, check the latest catalogues or consult us.

The control of motorized modules is possible from the touch panel controller, the U-MCZ controller or a PC (commercially available).

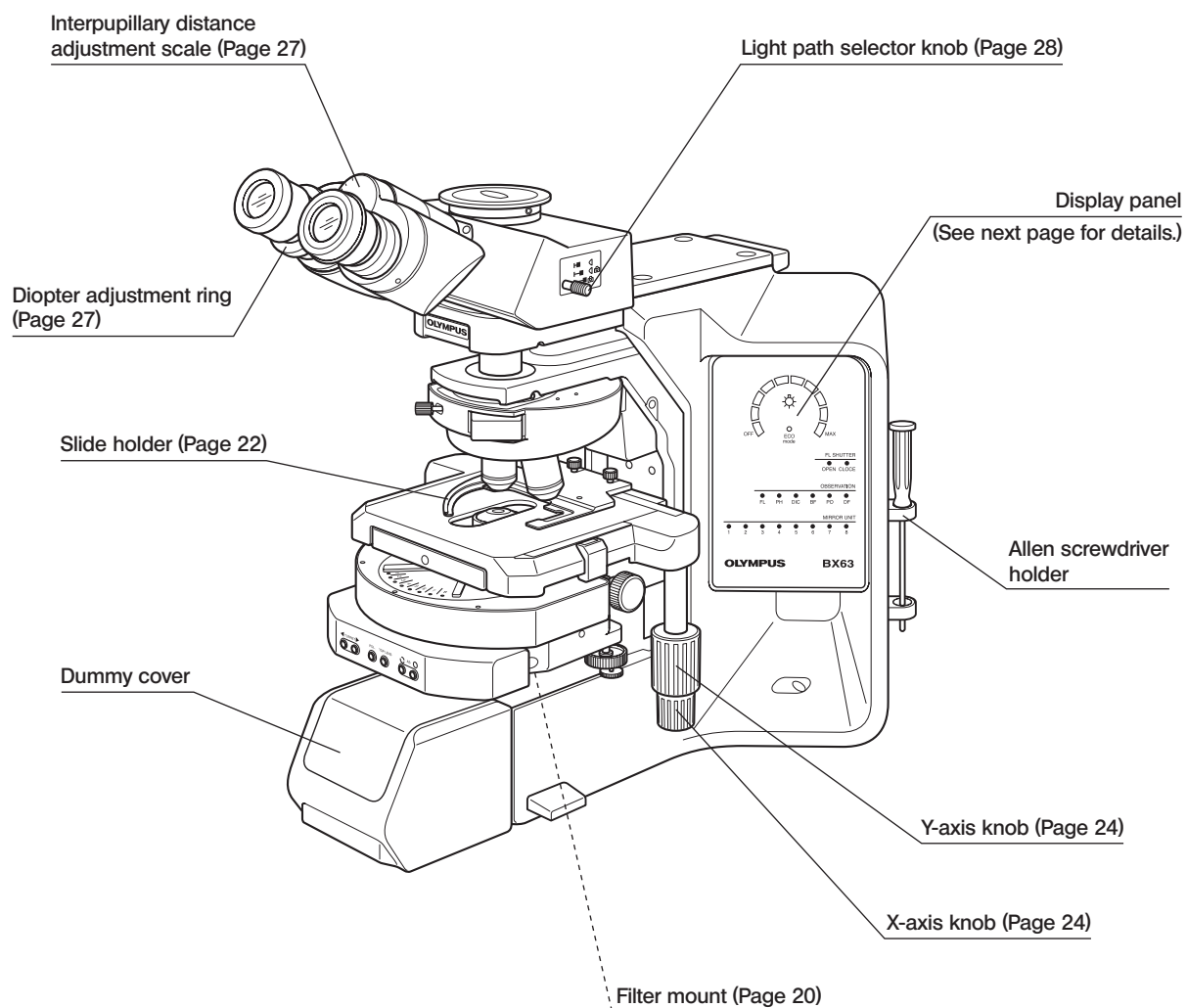
For the modules marked “*”, also read their instruction manuals.



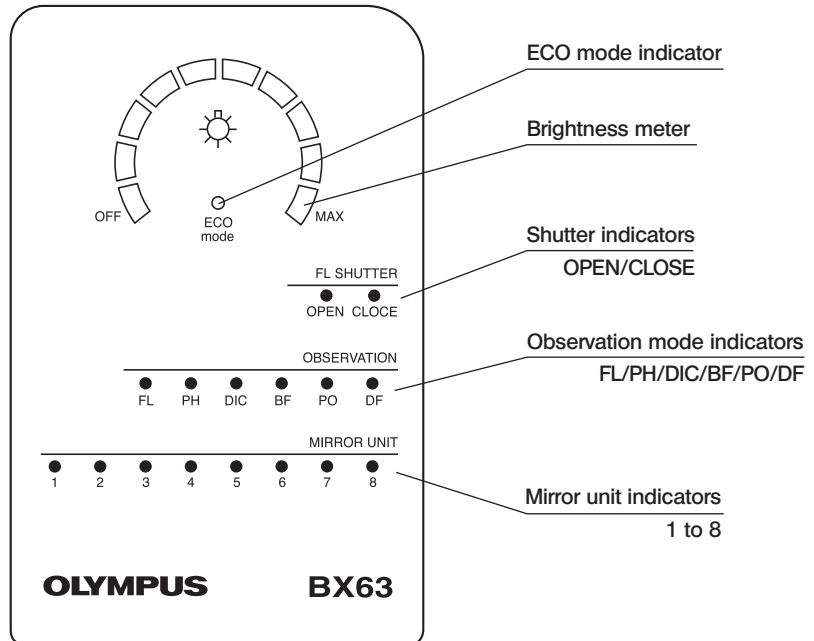
2 CONTROLS

© If you have not yet assembled the microscope, read chapter 9, "ASSEMBLY" (pages 39 to 44).

Transmitted light observation combination

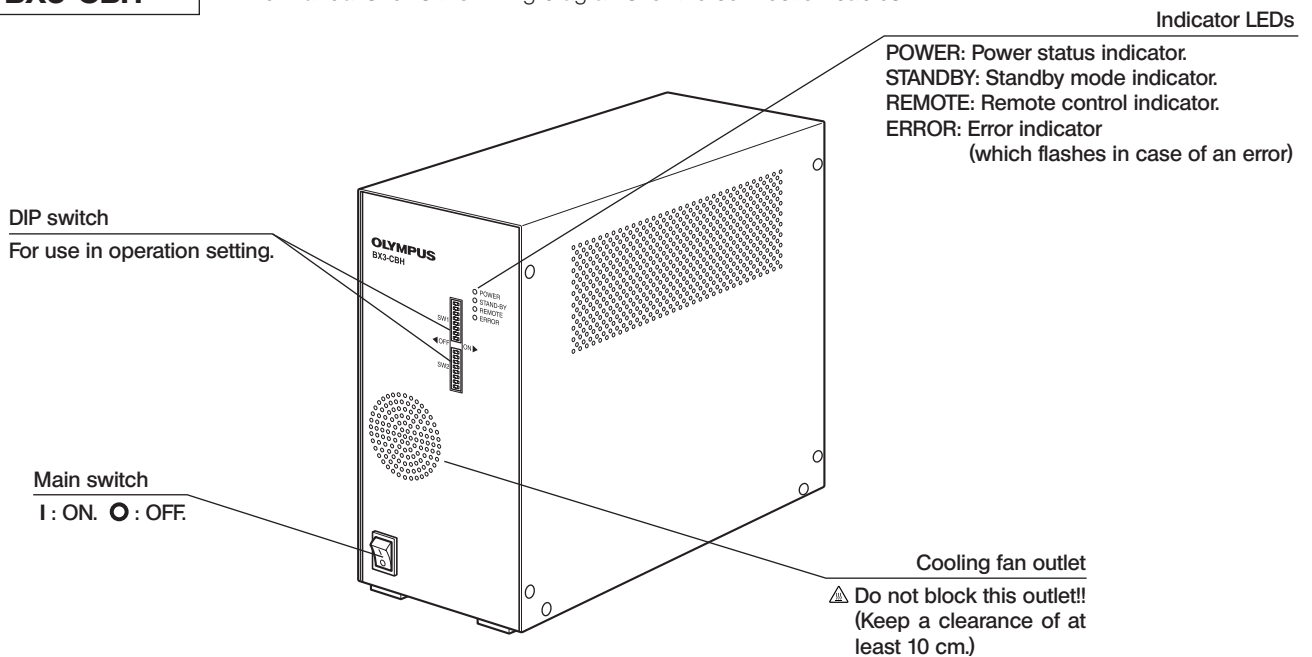


Display panel



Control Box BX3-CBH

* For details, read the separate instruction manual for "BX3-CBH/U-MCZ".
The manual shows the wiring diagrams for the connection cables.



©DIP Switch

If the software BX3-BSW V01.02.01 or the later version is installed in the touch panel controller, following settings are available.

DIP SW1-6

OFF: When you start the system, the XY stage moves to the last position when you exited the system.
ON: When you start the system, the XY stage moves to the origin position.

DIP SW1-7

OFF: When you start the system, the focus position of the objective lens moves to the last position when you exited the system.
ON: When you start the system, the focus position of the objective lens moves to the origin position.

Reflected light observation combination

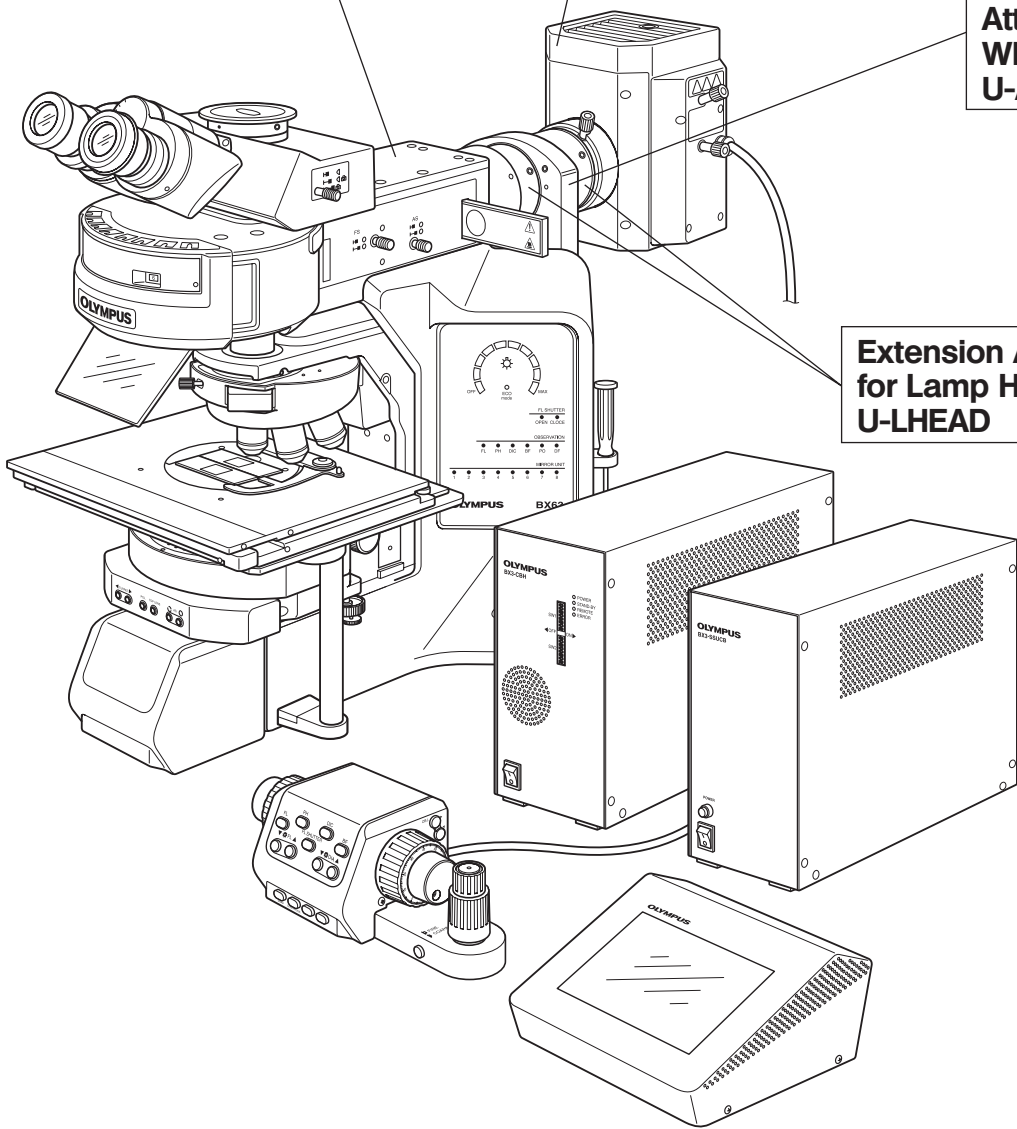
* For details, read the separate instruction manuals for the BX3-RFAA and U-AW.

**Motorized Fluorescence Illuminator*
BX3-RFAA**

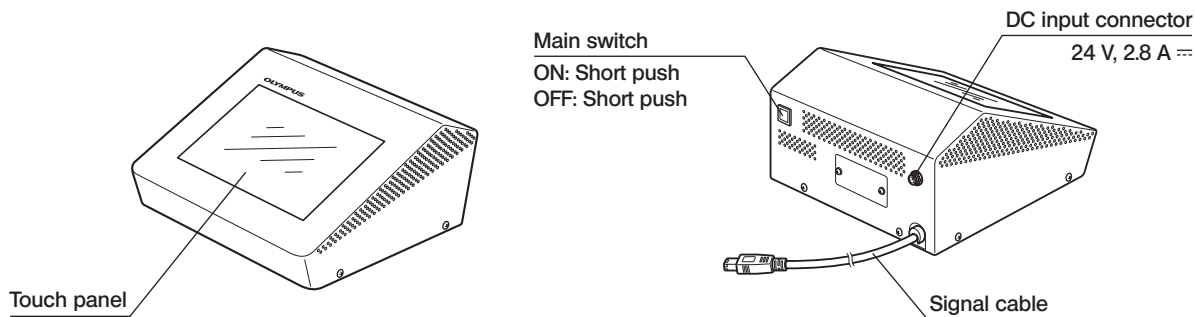
**Lamp Housing for 100W Mercury Burner
U-LH100HG
U-LH100HGAPO
Lamp Housing for 75W Xenon Burner
U-LH75XEAPO**

**Motorized
Attenuator
Wheel*
U-AW**

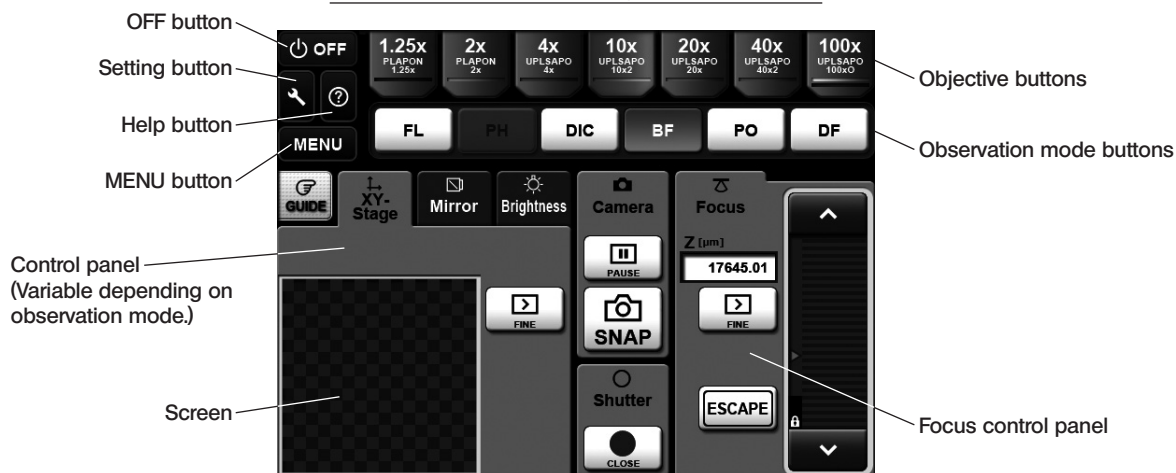
**Extension Adapter
for Lamp Housing*
U-L-HEAD**



Touch panel controller (provided with the BX63F)

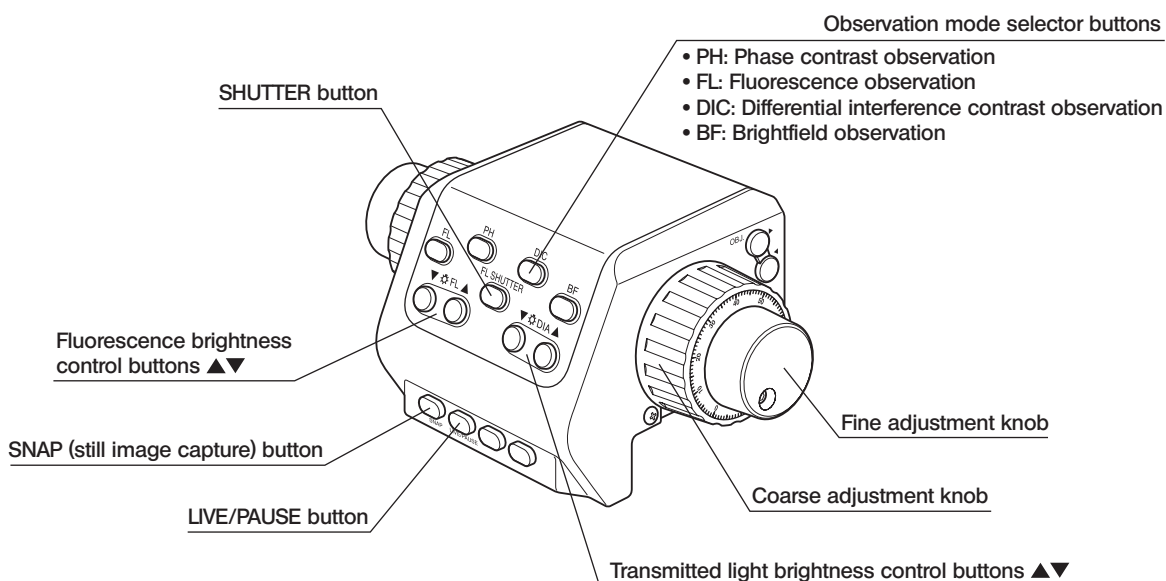


Example of touch panel guidance screen



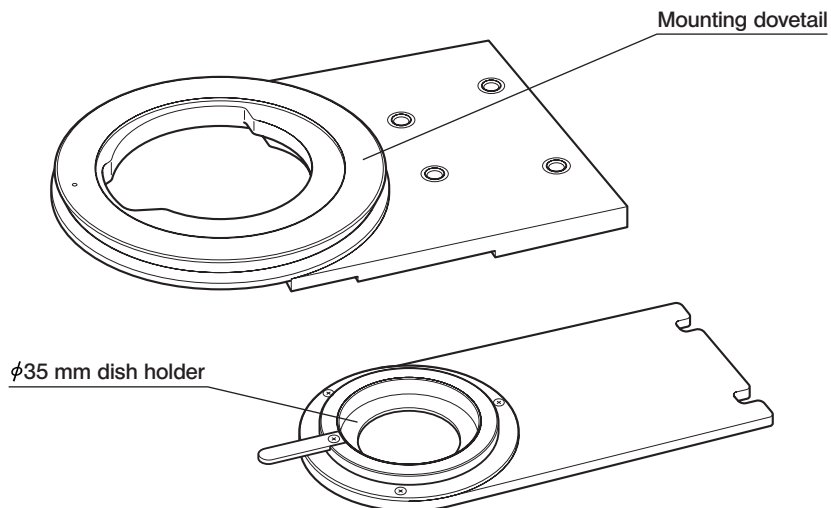
Controller U-MCZ

* For details, read the separate instruction manual for "BX3-CBH/U-MCZ".



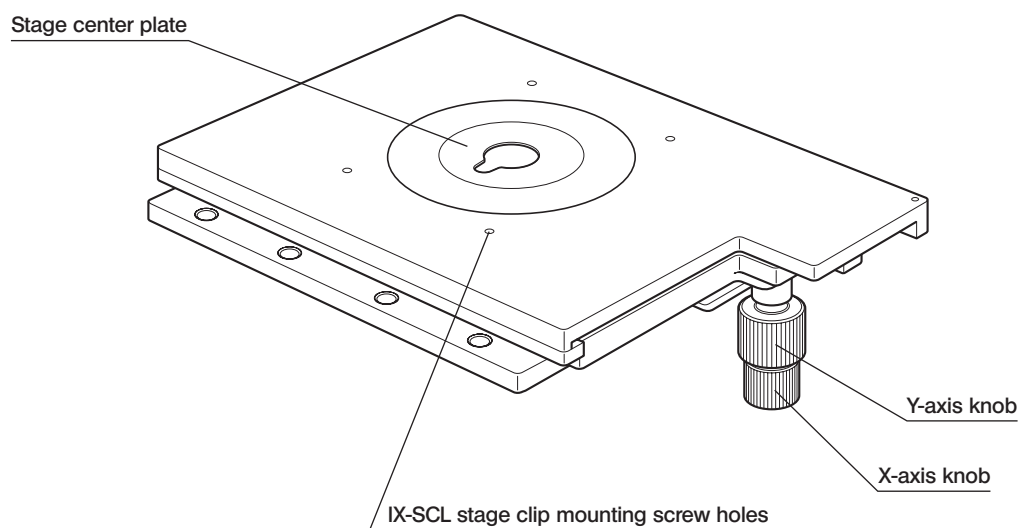
**Stage Adapter
BX3-STAD**

©This adapter is required when using the U-SVLB-4, U-SVRB-4, U-SVLO or U-SVRO stage for the BX series.



**Cross Stage
IX-SVL2**

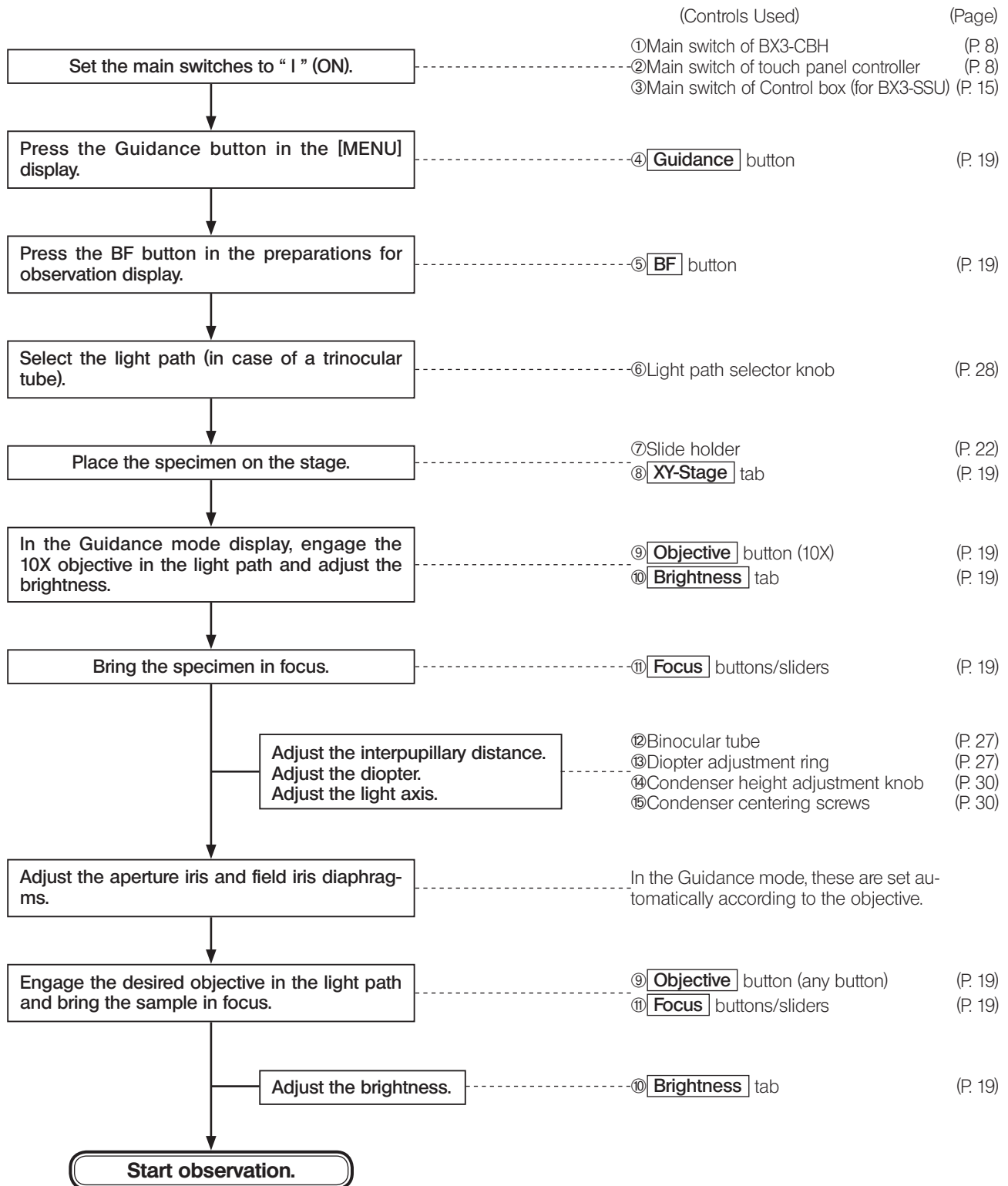
CAUTION When installing this stage on the BX63, position it so that the stage knobs are on the right.
Note that the BX3-UCD8A motorized universal condenser cannot be used when this stage is installed.

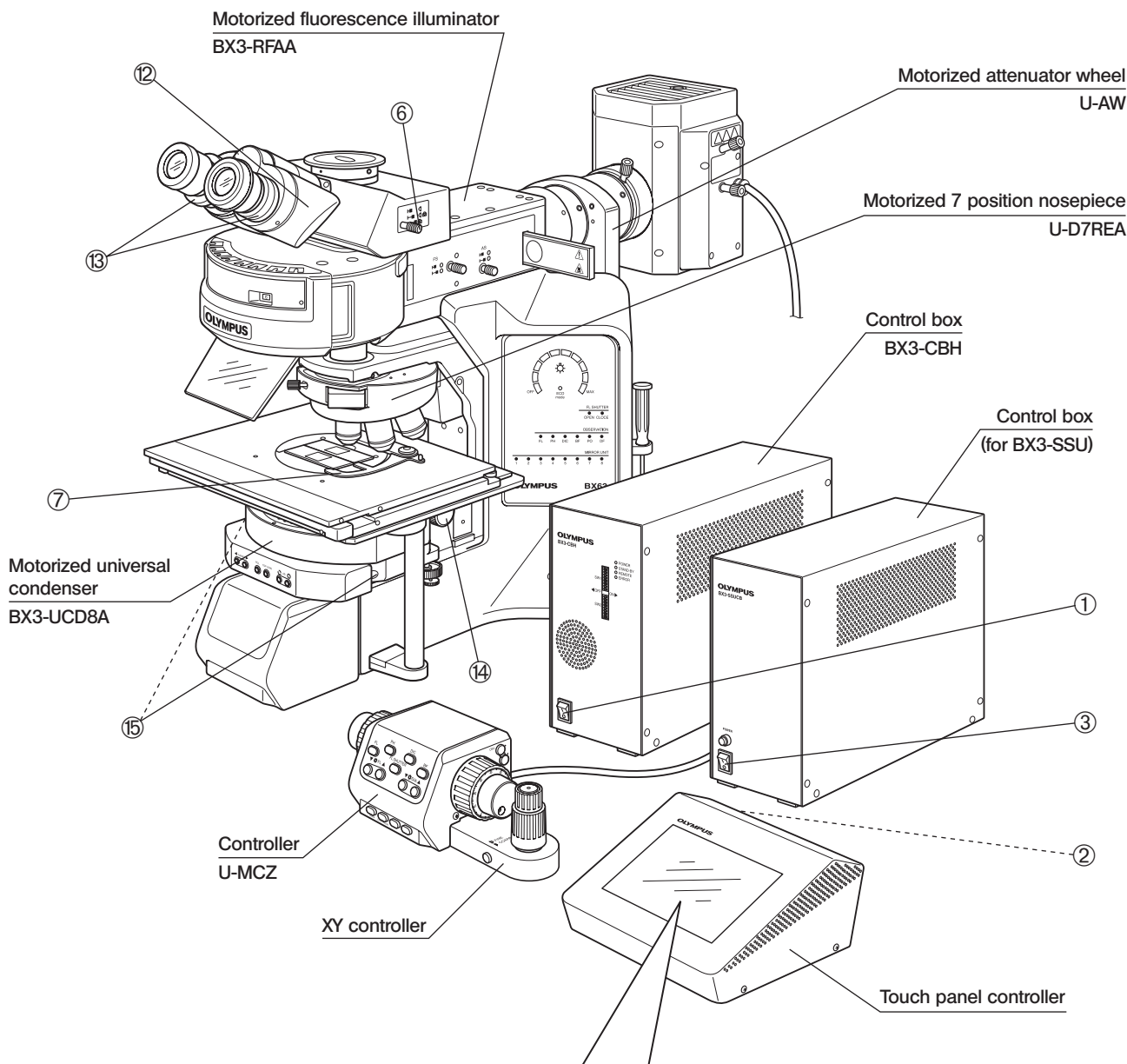


©Use two holes on the front side.
(Do not use the holes on the rear side to avoid interference with the objectives.)

3 FLOW OF BRIGHTFIELD OBSERVATION

- ◎ This chapter describes the **BF** (brightfield observation) procedure of the **Guidance** mode. (Individual operations are explained assuming the use of the touch panel controller provided with the BX63.)
- ◎ The **Guidance** mode button is defeated unless **System Setting** has been completed in the [MENU display] at the system startup.





● MENU display

4

● Preparations for observation

5

Selecting Observation Method, the description of the operation will be displayed.

● Guidance mode display

8, 9, 10, 11

© Copy the observation procedure pages on separate sheets and post it near your microscope.

4 USING THE CONTROLS

4-1 Touch Panel Controller

- CAUTION**
- When activating the touch panel controller, first turn the BX3-CBH control box ON and then turn the touch panel controller ON.
 - The touch panel controller controls the camera recording but cannot view or save the recorded images.




Fig. 4

1 Basic Operations of Touch Panel Controller (Fig. 4)

1. The touch panel controller can be operated by directly touching the displayed button with your fingertip.

- CAUTION**
- The touch panel controller uses a static capacitance type touch panel and may not react if it is touched by a finger wearing a rubber or vinyl glove. So use a touch pen for a static capacitance type touch panel.

2. The selected button turns blue to indicate that it is selected.
3. For the differences in the touch methods (tap, drag and hold), refer to the Help .

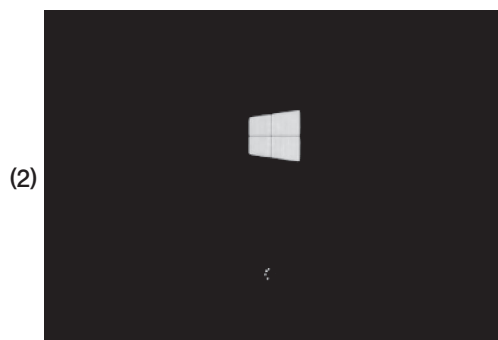
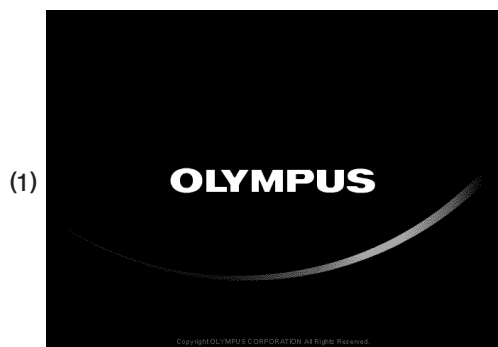


Fig. 5

2 Starting the System

(Fig. 5)

1. Set the main switch of the BX3-CBH control box to "I" (ON).
2. Set the main switch on the rear panel of the touch panel controller to ON.
3. If you are using the supersonic stage, set the main switch of its control box to "I" (ON).
4. The black startup display (1) is displayed, and then the display changes from (2) to (3).

(The display (3) is displayed for approx. 30 seconds.)

When the initialization completes, the [MENU] display (Fig.5) appears.

- Ⓞ The system starts from the standby mode when the display (1) becomes dark blue. If you press the OFF button on the [MENU] display or the guidance screen while the main switches of the BX3-CBH and touch panel controller are ON, the system is set to the standby mode.


5. Touch the Help  button  with your fingertip.

First read the following descriptions to understand how to operate the touch panel controller.

- Basic operations of touch panel controller
- How to read the Help
- Guidance mode and Full Operation mode

The **Function Description** is to be referenced as required after starting the actual operation.

CAUTION

When the touch panel controller is used for the first time, **Guidance** and **Full Operation** cannot be selected unless **System Setting**  has been completed.

- Ⓞ To shut down the system, press the main switch of the touch panel controller. The system shuts down in several seconds after the display (1) is changed to the dark blue display.

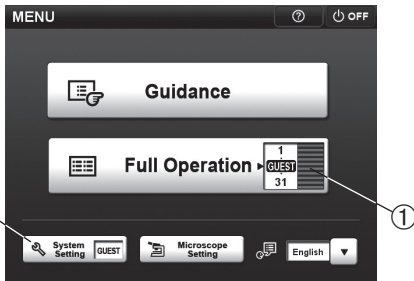


Fig. 6



Fig. 7

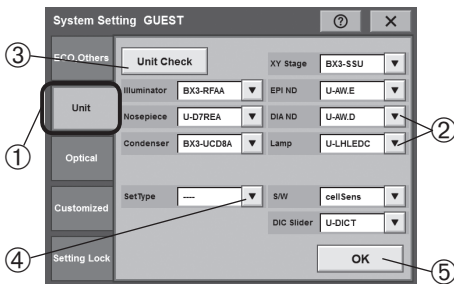


Fig. 8

3 System Setting

(Figs. 6 to 14)

The system setup is required when using the system for the first time or after replacing a unit connected to the microscope.

CAUTION

The microscope cannot be controlled unless the unit setting and optical setting are completed. Be sure to set them.

1. On the [MENU] display, drag the [USER] dial ① up or down to select one of 1 to 31 or "GUEST."

1 to 31: The microscope status at power OFF will be saved under the selected number so that it can be reproduced when the microscope is started up later.

GUEST: The microscope status is not saved and the microscope is started up in the initial status next time it is started.

2. Tap the [System Setting] button ②. The [System Setting] display appears on the touch panel screen (Fig. 7).

Unit Setting

This tab is used to set the units connected to the BX63.

1. Tap the [Unit] tab ① in the [System Setting] display to open the [Unit] display (Fig. 8).

2. Set the units connected to the BX63. When the ▾ button ② for the desired module is tapped, the unit names are displayed. Select the units used in the module and tap them.

Ⓞ When the [Unit Check] button ③ is tapped, the information on the units connected to the BX63 is acquired automatically and set. However, the unit information on the lamp bulb and manual unit is not acquired.

Ⓞ When the ▾ button ④ in [Set Type] is tapped, the set numbers are displayed. Select a set number and tap it to set the units according to the contents of the selected set. For the set contents, see page 46.

3. Tap the [OK] button ⑤ to save the setting. If you want to set another item, tap the tab for the desired setting. If you want to exit the system setting, tap the [X] marking to close the [System Setting] screen.

Optical Setting

This tab is used to set the optical system (objectives, mirror units and condenser).

Objective setting

1. Tap the [Optical] tab ① in the [System Setting] display to open the [Optical] display.
2. Tap the [Objective Lens] tab ② in the [Optical] display (Fig. 9).
3. Register the objective actually mounted on the BX63 for each revolving nose piece position. Tap one of the nosepiece position numbers in use ③ to open the [Objective Lens] screen for the position (Fig. 10).
4. Select the magnification and type of the objective and tap the **[OK]** button ④ to register them.
5. Register the magnifications and types of the objectives in other nosepiece positions by repeating the above for each. No setting is required for the unused nosepiece positions.
6. If you want to set another item, tap the tab for the desired setting. If you want to exit the system setting, tap the [X] marking to close the [System Setting] screen.

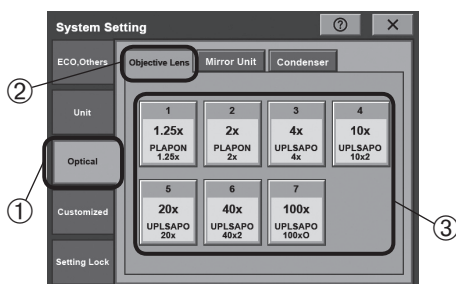


Fig. 9

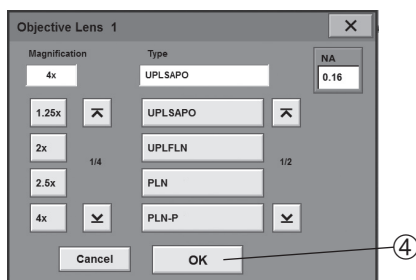


Fig. 10

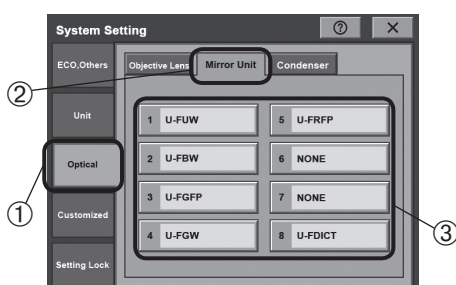


Fig. 11

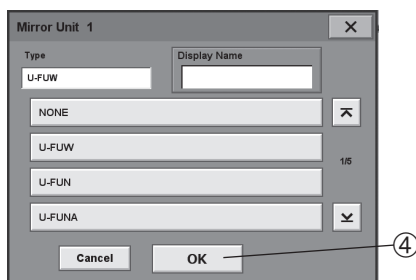


Fig. 12

Mirror unit setting

1. Tap the [Optical] tab ① in the [System Setting] display to open the [Optical] display.
2. Tap the [Mirror Unit] tab ② in the [Optical] display (Fig. 11).
3. Register the mirror unit actually mounted on the BX63 for each mirror unit number. Tap one of the mirror unit numbers in use ③ to open the [Mirror Unit] screen for the number (Fig. 12).
4. Select the type of the mirror unit and tap the **[OK]** button ④ to register the type.
5. Register the types of mirror units in other mirror unit numbers by repeating the above for each. No setting is required for the unused mirror unit numbers.
6. If you want to set another item, tap the tab for the desired setting. If you want to exit the system setting, tap the [X] marking to close the [System Setting] screen.

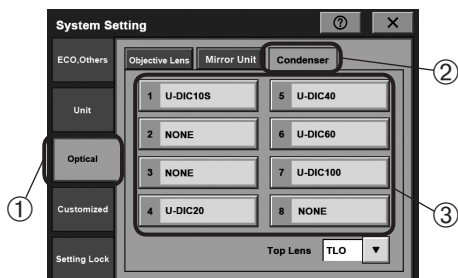


Fig. 13



Fig. 14

Condenser setting

1. Tap the [Optical] tab ① in the [System Setting] display to open the [Optical] display.
2. Tap the [Condenser] tab ② in the [Optical] display (Fig. 13).
3. Register the optical element actually mounted on the condenser for each condenser turret position number. Tap one of the turret position numbers in use ③ to open the [Condenser] screen for the number (Fig. 14).
4. Select the type of the optical element and tap the **OK** button ④ to register the type.
5. Register the types of optical elements in other turret position numbers by repeating the above for each. No setting is required for the unused turret position numbers.
6. If you want to set another item, tap the tab for the desired setting. If you want to exit the system setting, tap the [X] marking to close the [System Setting] screen.

Other settings

In addition to the unit and optical settings, the system setting provides the following settings. Set these items as required.

- ECO, Others: This is used to set the brightness of the touch panel or the time taken to be in ECO mode*¹, etc.
- Customaized: This is used to set the microscope operations such as the focus limits and parfocality correction.
- Setting Lock: This is used to lock the settings made with the unit and optical settings.

For the detailed setting methods, refer to the Help for the touch panel controller.

*¹ ECO mode is the status as follows:

- * The brightness of the touch panel controller is minimized.
- * The display panel of the microscope is turned OFF.
- * The transmitted illumination (LED/Halogen) is turned OFF.

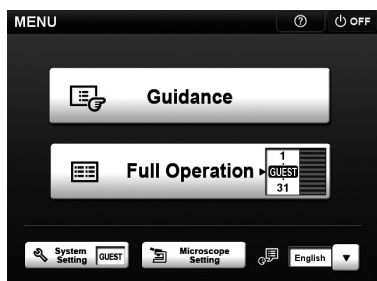


Fig. 15

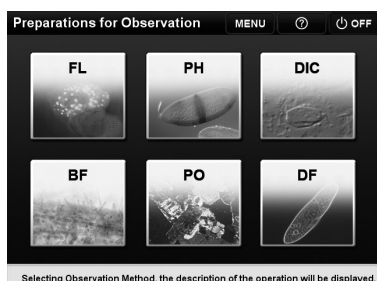


Fig. 16

4 Selecting the Mode (Figs. 15 to 17)

1. Tap the desired mode in the [MENU] display.
 - Guidance: The basic settings of microscope are performed automatically with simple operations.
 - Full Operation: In addition to the functions available with the Guidance mode, details settings of the microscope can be modified.
 2. When the [Preparation for Observation] screen is displayed (Guidance mode only), tap the observation method to be used (Fig. 16). When the [Observation Menu Description] screen is displayed, read it and then tap the [X] button.
 3. The control screen is displayed. The example shown in Fig. 17 is the control screen for the Guidance mode, 10X objective and BF (brightfield) observation.
- Ⓞ Tap the **GUIDE** button ① to view the observation procedure (Guidance mode only).

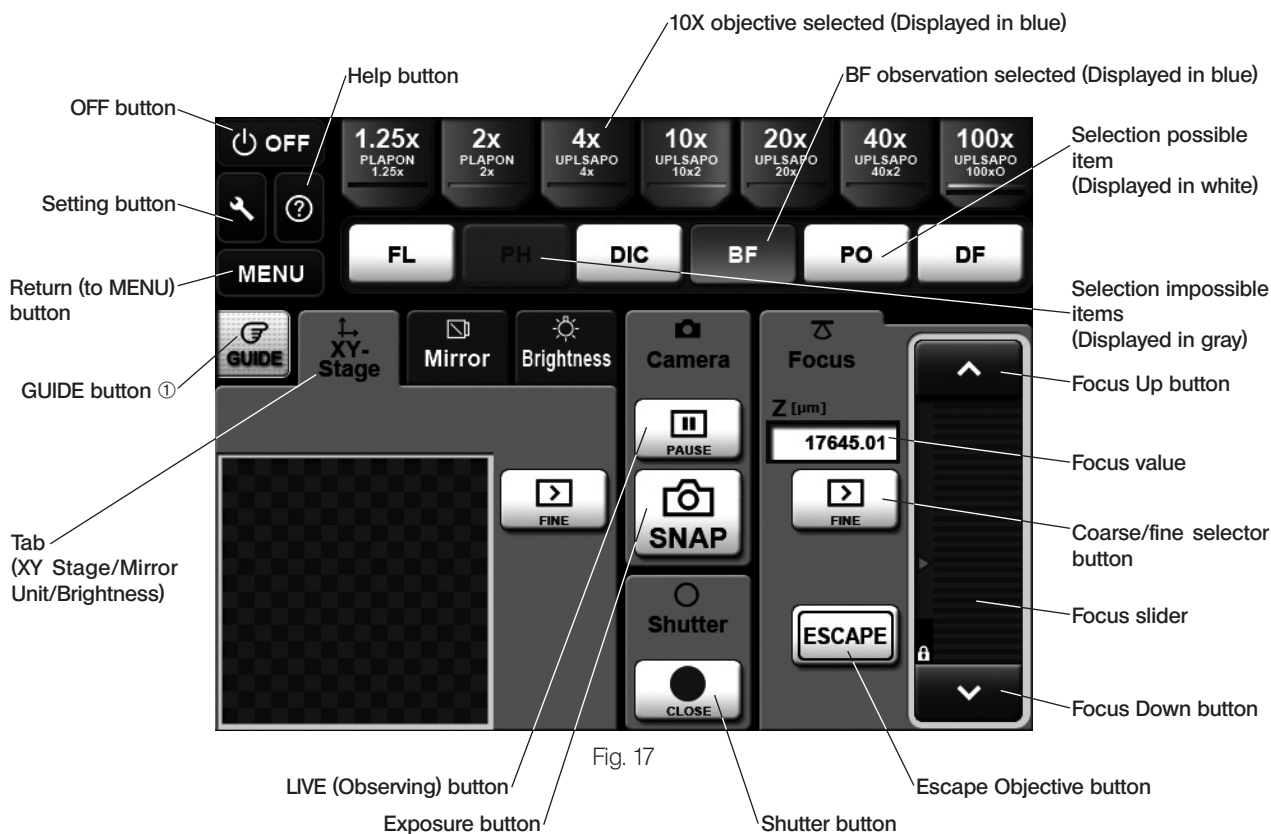


Fig. 17

4-2 Base

1 Using the Filters

(Figs. 18 to 22)

◎ You can place a filter in the light path with either method below.

- Place a filter on the filter mount on the base and engage in the light path.
- Insert a filter in the U-FC filter cassette, attach it on the filter mount and engage it in the light path by sliding the filter lever.

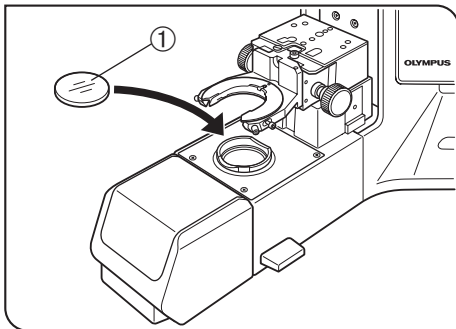


Fig. 18

Mounting a Single Filter (Fig. 18)

A filter ① with a diameter of $\phi 45$ mm can be placed on the filter mount on the base. If you need to place multiple filters, please purchase the U-FC filter cassette.

CAUTION

Even when a filter cassette is used, a filter with thickness of no more than 3 mm can be placed on the filter mount.

◎ When using a halogen bulb, be always sure to use the 45-LBD-IF color temperature conversion filter.

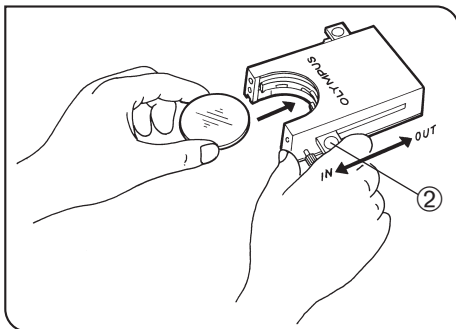


Fig. 19

Using the Filter Cassette (Figs. 19 to 22)

Loading Filters into Filter Cassette

◎ The filter cassette accommodates filters with a diameter of $\phi 45$ mm and thickness of 2.7 mm or less.

◎ The filter cassette has two filter levers on the right side and one on the left side.

1. Move all filter levers to the OUT position except for the one belonging to the slot into which the filter is to be inserted.
2. Slide the lever ② to the IN position. Make sure that it clicks securely into place. (Fig. 19)
3. Holding the lever in the position shown in Fig. 19, put the filter into the cassette by inserting it in the direction indicated by the arrow.
4. Insert the other two filters in the same manner.

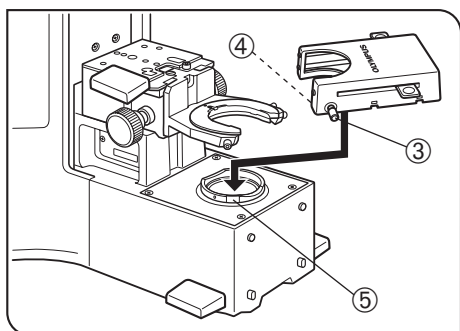


Fig. 20

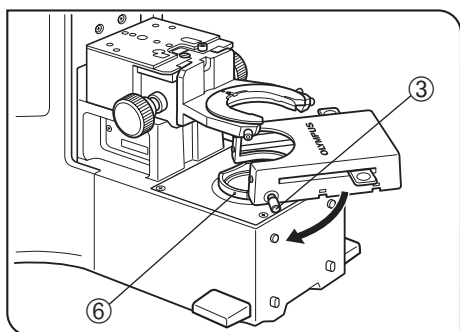


Fig. 21

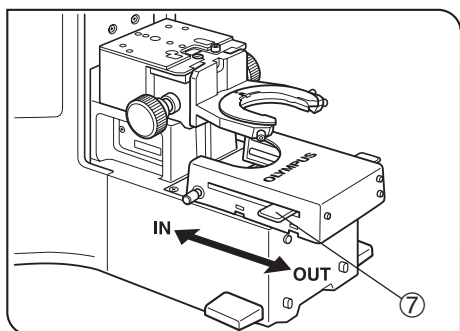


Fig. 22

Mounting the Filter Cassette

Ⓞ Before mounting the filter cassette, remove the dummy cover (or the U-MCZ controller) first.

1. Fully loosen the filter cassette clamping screw ③. (Fig. 20)
2. Align the key ④ on the bottom surface of the filter cassette with the positioning slot ⑤ on the filter mount, then snap the filter cassette into place from above.
3. Rotate the filter cassette to align its sides with the base. (Fig. 21)
4. Align the clamping screw ③ with the positioning hole ⑥ on the filter mount, then tighten the screw to fasten the filter cassette.

CAUTION When the filter cassette is installed, the condenser may hit the filter cassette when lowered. Therefore, exercise caution when lowering the condenser with the filter cassette installed.

Using the Filter Cassette (Fig. 22)

Usable Filters	Applications	
45-ND6, 45-ND25	Neutral density filter	
45G-530, 45IF550-W45	Green	B&W contrast filters
45O-560	Orange	
45-LBD-IF	Color temperature conversion filter (day-light)[For exclusive use with halogen bulb light source]	

Up to three of the above filters can be loaded in the filter cassette. Moving the levers ⑦ on the left and right sides of the cassette to the IN position brings the corresponding filter into the light path.

4-3 Stage (for the BX Series)

◎The stages for the BX series can be used by using the BX3-STAD stage adapter.
If the stage fixing pillar is installed on the microscope frame, remove it.

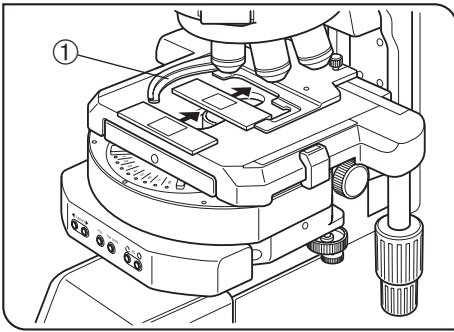


Fig. 23

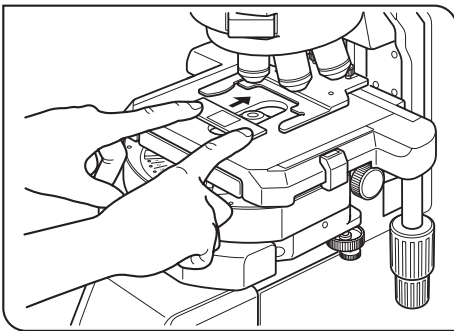


Fig. 24

1 Placing the Slide-Glass Specimen (Figs. 23 & 24)

- CAUTION**
- The dimensions of the slide glass should be 26 x 76 mm with thickness of 0.9 to 1.2 mm, and the cover glass should have thickness of 0.17 mm.
 - When observing very large specimens, remove the slide holder and place the specimen directly on the stage.

Microscopy with Double-Slide Holder (Fig. 23)

1. Press the ESCAPE button to let the objective escape in the raised position.
2. Open the specimen holder clamping lever ① and place the specimen slides on the stage by sliding each slide from the front.
3. After placing the slides as far as they will go, gently release the clamping lever.

Microscopy with Single-Slide Holder (Fig. 24)

The specimen slide can easily be placed by sliding it into the slide holder from the front.

Examining a whole specimen

Use one of the thin slide holders listed below that cause less interference with the objectives*.

- U-HRD-4 • U-HLD-4 • U-HLS-4

- CAUTION** When an objective with a working distance (WD) below 0.5 mm (see page 38) is used, the objective may interfere with the specimen holder during whole-slide microscopy.

Using an Oil Immersion Condenser

It may be effective to use the optional U-SVRO (right-hand knob) or U-SVLO (left-hand knob) slotted stage which prevents close contact between the specimen and stage.

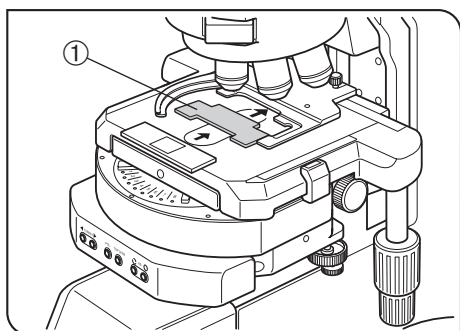


Fig. 25

2 Using the Auxiliary Slide Holder (Fig. 25)

Revolving nosepieces provided with the auxiliary slide holder: U-D7REA, U-D7RES

- Ⓞ When a biological slide glass specimen is placed on the U-HLDT-4/U-HRDT-4 two-slide holder (thick type), the slide holder may interfere with the objective when the following conditions are combined;
 - The objective in use has a short WD (Working Distance);
 - The specimen being observed is the specimen placed on the rear side of the slide holder.

If the slide holder contacts the objective, set the provided auxiliary slide holder ① as shown in the figure and observe only the specimen on the front side of the slide holder.

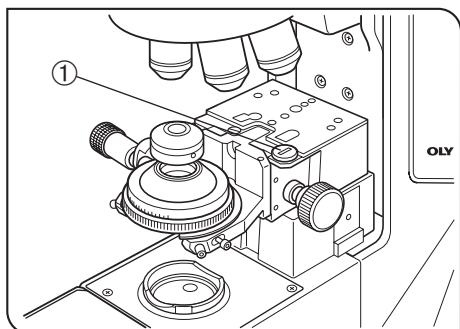


Fig. 26

3 Placing the φ35 mm Dish Specimen (Figs. 26 & 27)

- Ⓞ The dish specimen may sometimes be unable to be focused with the condenser. To prevent this, remove the stopper screw ① on the mounting section of the BX3-STAD stage adapter in advance (Fig. 26). In this case, certain condensers may come in the way of the stage adapter and stage when the condenser is raised to the upper limit.

1. Remove the slide holder for the slide glass specimen and replace it with the dish plate ② provided with the stage adapter.
2. Place a φ35 mm dish specimen on the dish plate.

The specimen can be rotated using the rotation lever ③.

CAUTION

- When you switch the objective lens during the dish specimen observation, separate the dish specimen from the objective lens far enough.
- When you are using the motorized nosepiece (U-D7REA), set Ob. Rotation Escape (the rise distance of the objective lens when switching the objective lens) at the location higher than the dish specimen by Touch Panel Controller.

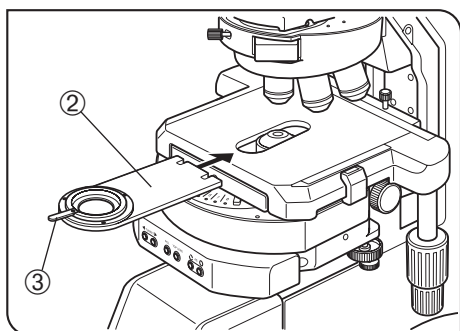


Fig. 27

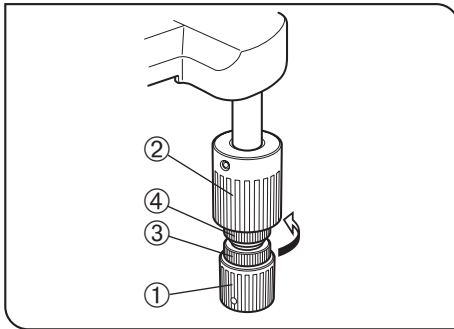


Fig. 28

4 Adjusting the X/Y-Axis Knob Rotation Tension (Fig. 28)

1. Hold the X-axis knob ① and slide up the Y-axis knob ② up to expose the adjustment knobs.
2. Turning the X-axis adjustment knob ③ or Y-axis adjustment knob ④ clockwise (in the direction of the arrow) increases the rotation tension and counterclockwise decreases it.

CAUTION If the tension is adjusted too tight, a creaking sound may be heard during stage travel, and the stage stopping accuracy may be imperiled.

Ⓞ After long hours of use, the stage guide may be deviated and the stage travel range may be decreased. However, this is not malfunction and can be corrected easily as described below.

[Treatment]

X-axis direction: Hold the specimen holder and move the stage guide to the left and right so that it hits the stoppers.

Y-axis direction: Hold the upper stage and move it to the front and rear so that it hits the stoppers.

Stage Feed Knob Rubber Caps

Ⓞ When the X/Y-axis knobs are fitted with the rubber caps, the knobs can be adjusted without slipping and fine adjustment is possible by holding the knobs with a very light force. The knob rubber caps also reduce fatigue after long hours of operation.

The U-SHGT thick type (thickness 5 mm) and U-SHG thin type (thickness 2 mm) knob rubber caps are available.

To attach the knob rubber caps:

First fit the larger rubber knob cap to the Y-axis (upper) knob from below it, then fit the smaller rubber knob cap to the X-axis (lower) knob from below it.

4-4 Stage (for the IX-SVL2)

CAUTION When this stage is mounted, the BX3-UCD8A motorized universal condenser cannot be used.

⊙ If the stage fixing pillar is not installed on the microscope frame, install it (page 40). After installation, do not hold the microscope by the pillar when carrying the microscope (in order to prevent damaging it).

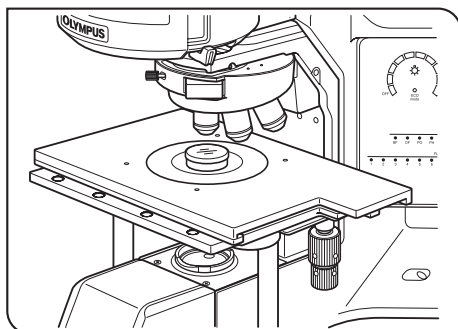


Fig. 29

1 Placing the Specimen (Fig. 29)

1. Place the specimen on the center of the stage.
- ⊙ The optional stage center plate (IX-CP50) makes it possible to observe a wide range of a big petri dish, etc. (Central hole diameter: $\phi 50$ mm)

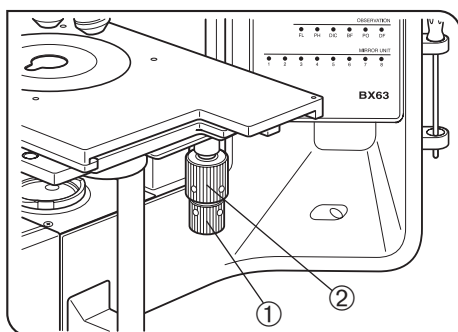


Fig. 30

2 Moving the Specimen (Fig. 30)

1. The specimen can be moved by turning the X-axis knob ① and Y-axis knob ②.
- The movement strokes are 50 mm (X-axis) x 43 mm (Y-axis).

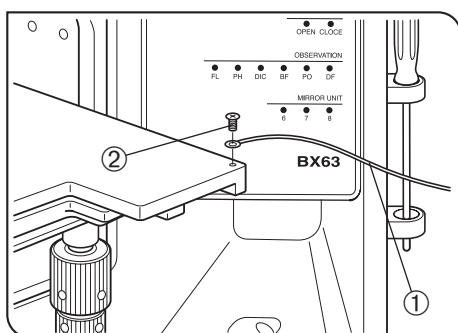


Fig. 31

3 Setting the Grounding (Fig. 31)

- ⊙ In case of electrical physiological experiment, etc., the specimen can be grounded from the stage.
- Prepare a grounding wire ① and M4 screw ② and attach grounding as shown in Fig. 31.

CAUTION The screw hole may sometimes be stuck by paint, etc. In such a case, screw in the M4 screw a few times to expose the metallic thread inside the screw hole and improve the contact before attaching the grounding wire firmly.

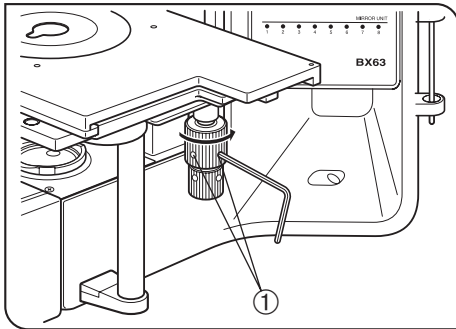


Fig. 32

4 Adjusting the X-Axis/Y-Axis Knob Rotation Tension (Fig. 32)

(Fig. 32)

Ⓞ The rotation tension of the X-axis and Y-axis knobs can be adjusted independently.

1. Loosen the 2 set screws ① of a knob using the provided Allen wrench, hold the stage so that it will not move, then turn the knob to adjust the tension. Turning it in the direction of the arrow increases the tension and turning in the opposite direction decreases the tension.
2. After adjustment, tighten the set screws firmly.

CAUTION If the tension of a knob is too heavy or too light, skipping or returning of image may occur during the stage movement.

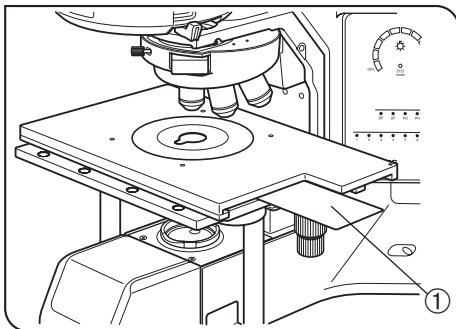


Fig. 33

5 Using the Light Shielding Sheet (Fig. 33)

(Fig. 33)

CAUTION The light shielding sheet provided with the reflected light fluorescence illuminator is too small to be used with the BX63. Always use the light shielding sheet provided with the BX63.

Ⓞ During fluorescence observation using a low-magnification objective, the fluorescence image may be deteriorated due to light reflected from the condenser or the surroundings. In this case, use the light shielding sheet.

1. Lower the condenser to the lower limit position using the condenser height adjustment knob.
2. Insert the light shield sheet ① all the way into the gap between the upper and lower stages on the side of the stage (IX-SVL2).

CAUTION If the condenser is lowered insufficiently, the sheet cannot be inserted into the normal position and the light shielding effect cannot be obtained.

4-5 Observation Tube

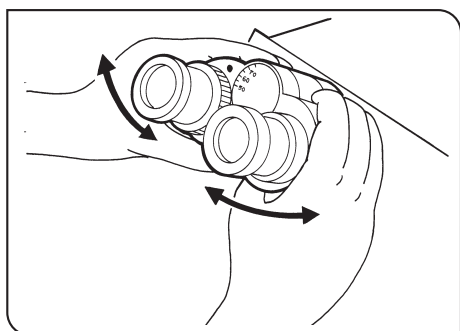


Fig. 34

1 Adjusting the Interpupillary Distance (Fig. 34)

While looking through the eyepieces, adjust for binocular vision until the left and right fields of view coincide completely. The index dot • indicates the interpupillary distance.

Ⓞ Note your interpupillary distance so that it can be quickly duplicated.

2 Adjusting the Diopter (Fig. 35)

Ⓞ The diopter adjustment makes it possible to reduce the specimen focusing error even after the objective is switched. As the diopter varies between individuals, the diopter adjustment is required for each person.

CAUTION The eyepiece with diopter adjustment ring should always be inserted into the observation tube without the diopter adjustment ring.

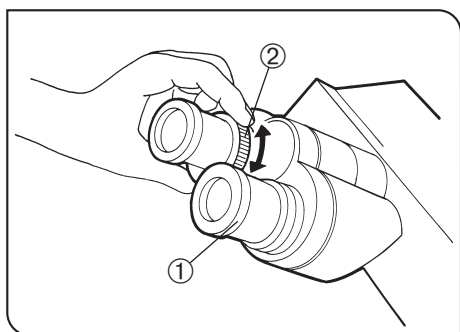


Fig. 35

1. Set the diopter adjustment rings on both sides to scale "0".
 2. Engage a high-power objective (40X or so) in the light path, look into the right eyepiece with your right eye, and bring the sample into focus using the FOCUS button/slider of the touch panel controller.
- Ⓞ Do not use an immersion objective.
3. Engage a low-power objective (10X or so) in the light path, rotate only the right diopter adjustment ring ① to bring the sample into focus. At this time do not touch the FOCUS button/slider.

4. Looking into the left eyepiece with your left eye, rotate only the left diopter adjustment ring ② to bring the sample into focus.

Ⓞ The above procedure adjusts the diopter with reference to the right eye, but it is also possible to adjust with reference to the left eye. In this case, read the above procedure by inverting "right" and "left."

Using an eyepiece including a micrometer disk (Fig. 35)

1. Looking through the eyepiece with micrometer disk, turn the diopter adjustment ring ① so that the micrometer in the field of view is sharply visible.
2. Looking through the eyepiece with micrometer disk, focus on the sample using the FOCUS buttons/slider of the touch panel controller so that both the micrometer and sample are sharply visible.
3. Looking through the other eyepiece, turn only the diopter adjustment ring ② to focus on the sample.

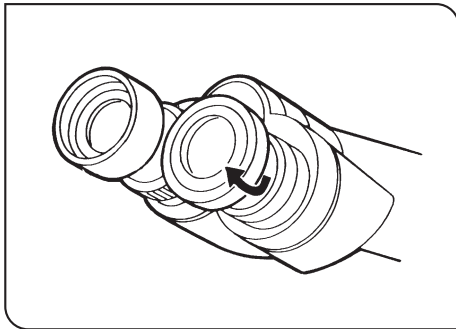


Fig. 36

3 Using the Eye Shades (Fig. 36)

(Fig. 36)

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 in the direction of the arrow to prevent extraneous light from entering between the eyepieces and eyes.

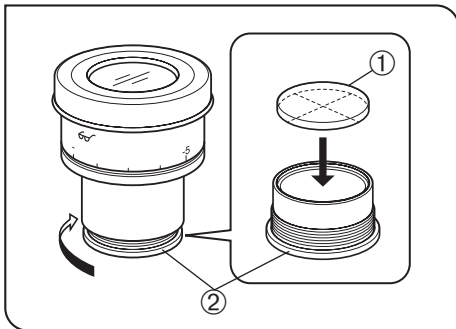


Fig. 37

4 Mounting the Eyepiece Micrometer Disk (Fig. 37)

(Fig. 37)

When the WHN10X-H eyepieces are used, an eyepiece micrometer disk can be mounted.

Use 24 mm dia. x 1.5 mm thick micrometer disks.

Following Fig. 37, turn the built-in micrometer-mounting frame ② to the arrow direction to remove it from the eyepiece and place a micrometer disk ① into the mounting frame so that the surface with the model indication faces downward.

Ⓞ The micrometer-mounting frame may be tight for certain micrometer disks.

In this case, turn the frame by holding the circumference with a light, uniform force or by applying the frame against a rubber sheet. Do not grasp the frame with a strong force, as this may deform the frame and make it harder to remove it.

Re-attach the micrometer mounting frame in the original position.

Ⓞ Be careful not to touch the lens surface with your finger.

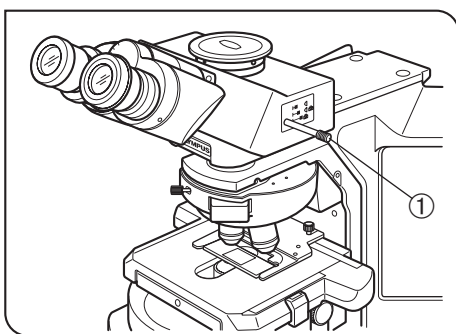


Fig. 38

5 Selecting the Light Path of the Trinocular Tube (Fig. 38)

(Fig. 38)

Slide the light path selector knob ① to select the desired light path.

Trinocular tube	Light path selector knob position		
	Pushed in	Middle position	Pulled out
U-TR30-2	100% for observation light path	20% for observation light path, 80% for camera light path	100% for camera light path
U-TR30NIR*		50% for observation light path, 50% for camera light path	
U-TTR-3**	50% for observation light path, 50% for camera light path	100% for observation light path	

* With the infrared trinocular tube, infrared observation up to 1000 nm is possible. For details, consult us.

** The light path selector knob can be removed using a coin and attached on the other side.

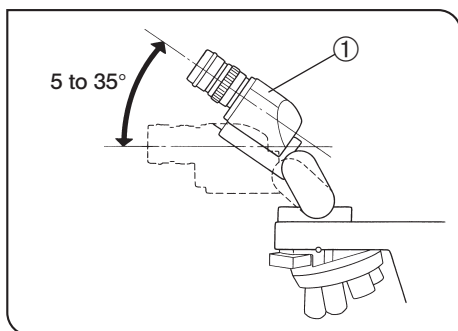


Fig. 39

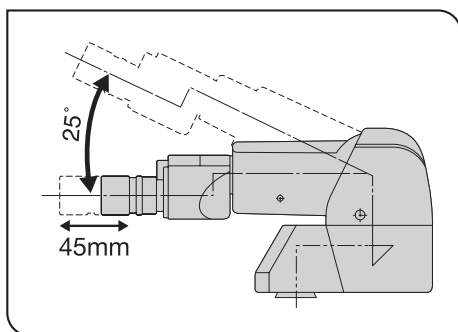


Fig. 40

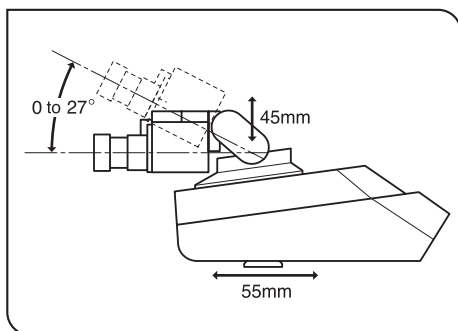


Fig. 41

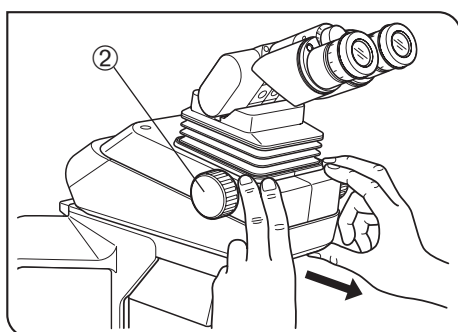


Fig. 42

6 Adjusting the Tilt

(Figs. 39 to 42)

With the U-TBI-3 (Fig. 39)

Ⓒ Adjust the height and tilt of the observation tube to obtain the most comfortable viewing position.

U-TBI-3	5 to 35°
U-TBI-3-CLI	5 to 35°
U-ETBI	0 to 25°
U-TTBI	0 to 25°
U-TTR-3	5 to 35°
U-TTLBI	0 to 27°

Holding the binocular section ① with both hands, raise or lower it to the desired position.

CAUTION Never attempt to force the binocular section past the upper or lower stop position. Applying excessive force could destroy the limiting mechanism.

Ⓒ The U-TBI-3/U-TBI-3-CLI/U-TTLBI can be used in combination with only one intermediate attachment.

Ⓒ If you need photography using the U-TBI-3/U-TBI-3-CLI/U-TTLBI, use the U-TRU trinocular tube.

With the U-ETBI/U-TTBI (Fig. 40)

The U-ETBI and U-TTBI are ergonomic observation tubes with normal field, capable of the adjustments of the positioning angle (0 to 25°) as well as front-rear positioning (by 45 mm) of the eyepieces. The U-ETBI is the erect image model and the U-TTBI is the inverted image model, and both models are of the same size.

CAUTION The intermediate attachments that can be combined with the U-TTBI are limited. For details, please contact us.

With the U-TTLBI (Fig. 41)

The U-TTLBI is a lifting and telescopic binocular tube with the following adjustment capabilities.

- Angle adjustment (0 to 27°)
- Up-down position adjustment (45 mm)
- Front-rear position adjustment (55 mm)

Ⓒ When adjusting front-rear position of the observation tube, hold the base of the observation tube as shown in Fig. 42.

Ⓒ When storing the microscope, increase the angle of the eyepieces so as to prevent the eyepieces from dropping.

Ⓒ To adjust the up-down position of the eyepiece, turn the dial ②.

4-6 Condenser

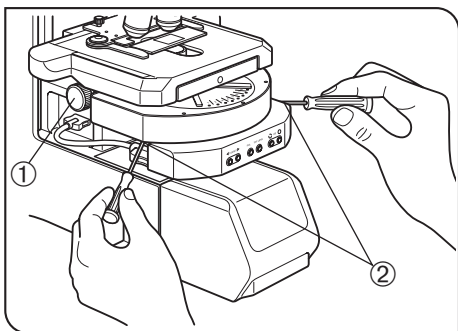


Fig. 43

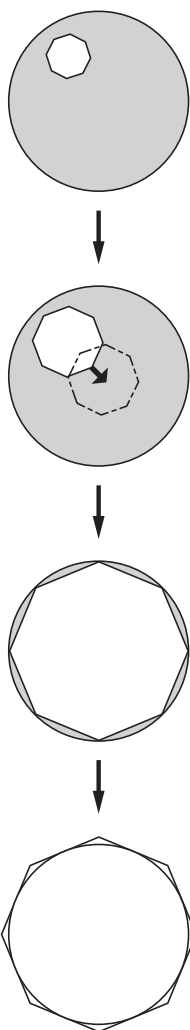


Fig. 44

1 Centering the Condenser

(Figs. 43 & 44)

1. Turn the condenser height adjustment knob ① to raise the condenser to its upper limit.
2. Focus on the specimen using the 10X objective.
Ⓞ When using a swing-out condenser, move the top lens into the light path.
3. Using the touch panel controller, stop down the field iris diaphragm until its image comes inside the field of view.
4. Turn the condenser height adjustment knob to focus on the diaphragm image.
5. Fit the Allen screwdrivers into the two condenser centering screws ② and turn them to move the iris diaphragm image to the center of the field of view.
6. Gradually open the field iris diaphragm. The condenser is properly centered if the iris image is centered and inscribed in the field of view.
7. During actual use, open the field iris diaphragm slightly until its image circumscribes the field of view.

Effects of Field Iris Diaphragm (Fig. 44)

The field iris diaphragm restricts the diameter of the beam of light entering the objective and thus excludes extraneous light, improving image contrast. The diameter of the field iris should be adjusted for objective power to the extent that it just circumscribes the field of view. (See "Compatibility of Objectives and Condensers" on the next page.)

- Ⓞ With certain condensers, the field iris diaphragm image may not be visible when a 100X objective is used.

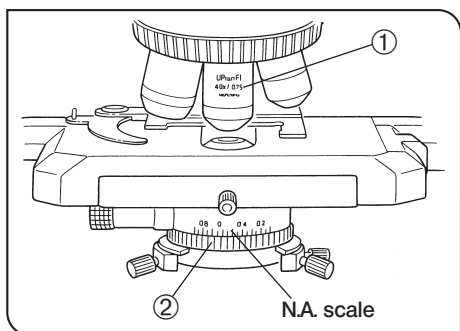


Fig. 45

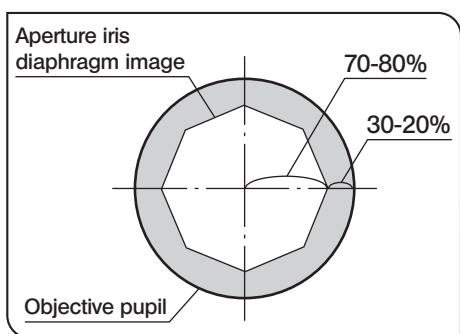


Fig. 46

Aperture Iris Diaphragm (Figs. 45 & 46)

- ⊙ The aperture iris diaphragm determines the numerical aperture of the illumination system. It has an effect of adjusting the balance between image resolution and contrast. Stopping down the aperture iris diaphragm increases the depth of focus.
- To observe an optimum image, set the condenser aperture iris diaphragm to between 70 and 80% of the NA ① (Numerical Aperture) of the objective in use.
- Align the index on the aperture iris diaphragm ring ② with the NA scale value between 70% and 80% of the NA ① of the objective (Fig. 45). At this time, if you remove an eyepiece and look into the observation tube, you will be able to see the objective pupil and aperture iris diaphragm image as shown in Fig. 46.

2 Compatibility of Objectives and Condensers

Objective Magnification	Condenser		
	Achromat/aplanat U-AAC	Swing-out U-SC3	Motorized universal BX3-UCD8A
1.25X	/	Applicable by moving top lens out of the light path.	Applicable when U-CO1.25X is combined.
2X			Applicable by moving top lens out of the light path.
4X			Applicable by moving top lens out of the light path.
10-60X	Applicable	Engage top lens in light path.	Engage top lens in light path.
100X			

* When using the U-SC3 swing-out condenser together with a 1.25X to 4X objective, fully open the condenser aperture iris diaphragm and use the field iris diaphragm in the base as aperture diaphragm. With the 1.25X to 2X objectives, the surroundings of the field of view may become dark.

⊙ To obtain better illumination in camera recording using a 1.25X to 4X objective, use of the U-ULC-2 for ultralow magnification is recommended.

4-7 Immersion Objectives

CAUTION Be sure to use the provided our Immersion oil.

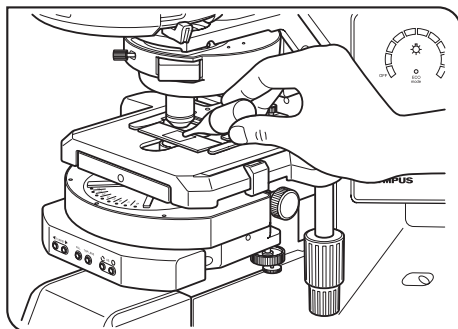


Fig. 47

1 Using Immersion Objectives

(Fig. 47)

1. Focus on the specimen using all objectives, starting from the lowest power objective to higher-power objectives.
2. Press the stage escape button to lower the stage, then place a drop of provided immersion oil onto the specimen at the area to be observed.
3. Turn the revolving nosepiece to engage the immersion objective.
4. Press the stage escape button to raise the stage, then tap the FOCUS button to focus on the specimen.

CAUTION

Since air bubbles in the oil will affect the image quality, make sure that the oil is free of bubbles.

- a. To check for bubbles, remove the eyepiece and fully open the field and aperture iris diaphragms, then look at the exit pupil of the objective inside the observation tube. (The pupil should appear round and bright.)
 - b. To remove bubbles, turn the revolving nosepiece toward the shorter objectives and repeatedly defocus and refocus the immersion objective.
- ⊙ If the condenser engraving shows a numerical aperture (NA) of 1.0 or higher, the number applies only when oil is applied between the slide glass and the top surface of the condenser. When oil is not present, the NA is about 0.9.
- ⊙ When applying the oil between the slide glass and the top surface of the condenser, apply a drop of oil on the top surface of the condenser first and then place the slide glass.
5. After use, remove oil from the objective front lens by wiping with gauze slightly moistened with absolute alcohol.

CAUTION

Caution in use of immersion oil

If immersion oil enters your eyes or contacts with your skin, immediately take the following treatment.

Eyes: Rinse with fresh water (for 15 minutes or more).

Skin: Rise with water and soap.

If the appearance of the eyes or skin is altered or pain persists, immediately see your doctor.

4-8 Objectives with Correction Collar

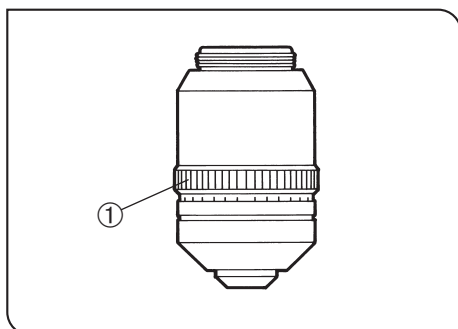


Fig. 48

- ⊙ If the cover glass thickness does not match the thickness scale of an objective with correction collar, the objective cannot manifest its performance. When using a correction collar equipped objective, perform the following adjustment as required.

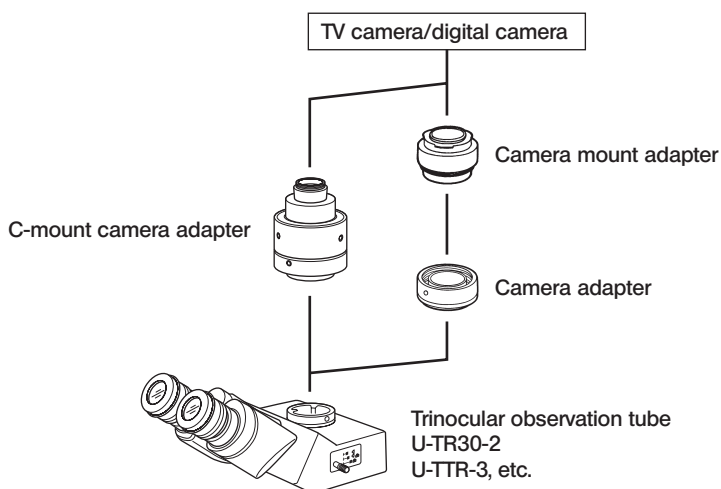
Adjustment Procedure

- If the cover glass thickness is known, set the correction collar ① to that value on the scale. (Fig. 48)
 - If the cover glass thickness is unknown, adjust the correction collar ① and tap the FOCUS button alternately until the positioning with the highest contrast is obtained.
- ⊙ Be careful not to touch the correction collar ① when turning the revolving nosepiece.

5 CAMERA RECORDING

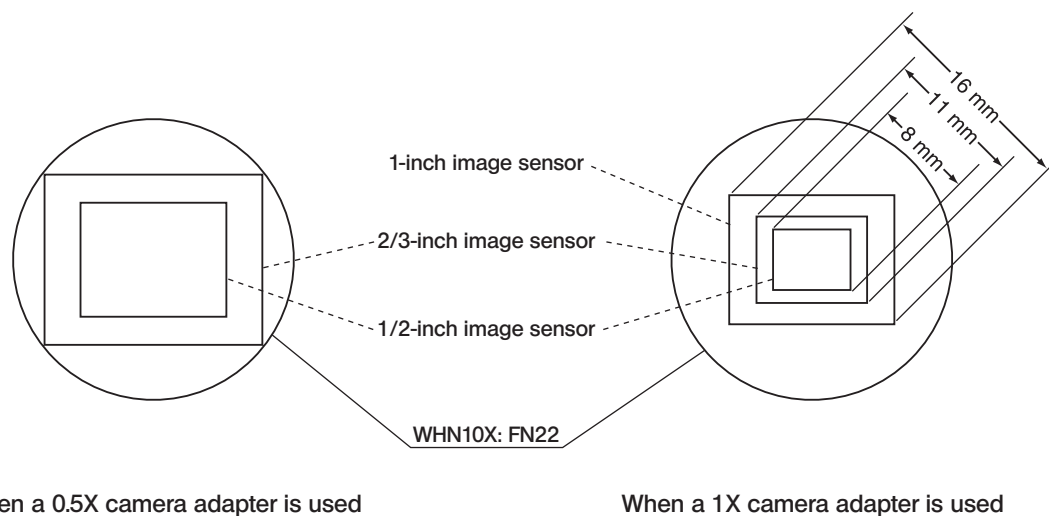
- ⊙ Use a trinocular observation tube such as the U-TR30-2 or U-TTR-3 when shooting the video or digital camera picture of the microscope images.
The trinocular tube accepts a camera adapter (certain camera adapters necessitate a camera mount adapter).
For details, refer to the instruction manuals for these accessories.
- ⊙ Be sure to adjust the parfocality before using a camera adapter. Otherwise, the focusing of the camera image will not match that of the image observed through eyepieces. For the parfocality adjustment method, refer to the instruction manual for the camera adapter in use.

1 System Chart






2 Selecting the Camera Adapter Magnification

The image pickup area is determined by the size of the image sensor used in the TV camera or digital camera and the magnification of the camera adapter.
The following illustrations show the image pickup areas of camera adapters when the WHN10X eyepieces with a FN of 22 are used.



6 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 us for assistance.

Problem	Cause	Remedy	Page
Lamp does not light.	Power cord of BX3-CBH is unplugged	Insert power plug firmly into power outlet.	-
	Main switch of BX3-CBH is not on.	Set main switch to "I" (ON).	-
	Lamp socket is disconnected.	Connect it properly.	39,43
Lamp lights, but field of view remains dark.	Aperture and field iris diaphragms are not opened wide enough.	Adjust them to proper sizes.	30,31
	Condenser is lowered too much.	Adjust the condenser height position.	30
	Light path selector knob is set to the  position.	Move the knob to the  or  position.	28
Field of view is obscured or not evenly illuminated	Light path selector knob is positioned halfway.	Set the knob into a click position according to the observation method.	28
	Revolving nosepiece is not correctly engaged.	Make sure that the revolving nosepiece clicks properly into place.	-
	Condenser is not attached properly.	Re-attach it.	44
	Revolving nosepiece is not attached properly.	Push the side dovetail all the way until it is stopped.	44
	An objective that falls outside of the condenser's illumination range is used.	Use a condenser to match the purpose.	31
	Condenser is not properly centered.	Center the condenser.	30
	Field iris diaphragm is stopped down too far.	Open the field iris diaphragm until it circumscribes the field.	30
Dirt or dust is visible in the field of view.	Dirt/dust on the eyepiece.	Clean thoroughly.	4
	Dirt or the top surface of the condenser.		
	Dirt/dust on the specimen.		
Visibility is poor. <ul style="list-style-type: none"> • Image is not sharp. • Contrast is poor. • Details are indistinct. • Image glares. 	A non-UIS2/UIS objective is used.	Use only UIS2/UIS series objectives with this microscope.	38
	Condenser is lowered too much.	Adjust the condenser height position.	30
	Aperture iris diaphragm is stopped down too far.	Open aperture iris diaphragm.	31
	Objective is not correctly engaged in light path.	Make sure that revolving nosepiece clicks into place correctly.	-
	Correction collar on correction collar equipped objective is not properly adjusted.	While focusing, turn the correction collar to find the best position.	32
	Front lens of objective is dirty.	Clean objective.	4
	Immersion oil is not being used with an oil immersion objective.	Use immersion oil.	32
	Immersion oil contains bubbles.	Remove bubbles.	32

Problem	Cause	Remedy	Page
Visibility is poor. <ul style="list-style-type: none"> • Image is not sharp. • Contrast is poor. • Details are indistinct. • Image glares. 	Recommended immersion oil is not used.	Use the provided immersion oil.	32
	Dirt/dust on specimen.	Clean it.	4
	Dirt/dust on condenser.		
	Inappropriate object side or cover glass thickness.	Replace with glass of recommended thickness.	22
One side of image is blurred.	Revolving nosepiece is not correctly mounted.	Push slide dovetail all the way until it is stopped.	42
	Stage is not correctly mounted.	Re-attach it.	39-42
	Objective is not correctly engaged in light path.	Make sure that revolving nosepiece clicks into place correctly.	-
	Specimen is not correctly mounted on stage.	Place specimen correctly on top of stage and secure it with slide holder.	22,25
Image appears to waver.	Revolving nosepiece is not correctly mounted.	Push slide dovetail all the way until it is stopped.	44
	Objective is not correctly engaged in light path.	Make sure that revolving nosepiece clicks into place correctly.	-
	Condenser is not properly centered.	Center the condenser.	30
Field of view becomes only slightly brighter when the brightness setting is increased.	Condenser is not properly centered.	Center the condenser.	30
	Condenser is lowered too far.	Adjust the condenser height position.	30
Objective lowers too much and destroys specimen.	Stage adapter is not installed properly.	Re-attach stage adapter.	43
Objective makes contact with specimen before focus is obtained.	Specimen is mounted upside down.	Mount specimen correctly.	-
Field of view of one eye does not match that of the other.	Interpupillary distance is incorrect.	Adjust interpupillary distance.	27
	Incorrect diopter adjustment.	Adjust diopter.	27
	Different eyepieces are used on left and right.	Change one eyepiece to match the other so that both sides are the same type.	-
	Your view is not accustomed to microscope observation.	Upon looking into eyepieces, try looking at overall field before concentrating on specimen range. You may also find it helpful to look up and into distance for a moment before looking back into microscope.	-
Image shifts when you touch stage.	Stage is not properly mounted.	Clamp stage.	-
Specimen stops midway on the X-axis traverse.	Specimen is not correctly positioned.	Place specimen correctly.	22
X-axis and/or Y-axis knobs are too tight or too loose.	X-axis and/or Y-axis adjustment knobs are set at a position where tension is too high or too low.	Adjust tension.	24,26
Stroke is decreased.	Stage guide is deviated.	Correct deviation as instructed on page 24.	24

7 SPECIFICATIONS

Item	Specification				
1. Optical system	UIS2 (UIS) optical system (featuring infinity correction)				
2. Illumination	Built-in transmitted Koehler illumination. FN (Field Number): 22 (widefield compatible). LED lamp housing U-LHLEDC (continuous light control) Optional 12 V, 100 W long-life halogen bulb 12V10WHAL-L (PHILIPS 7724) Average bulb life time: Approximately 2000 hr. when used as directed. Power supply: Control box BX3-CBH.				
3. Focusing mechanism	Drive system: Motorized focusing using stepping motor, rack and pinion. Revolving nosepiece up-down movement by cross-roller guide. Moving distance of fine adjustment handle by minimum scale: 1 μm * ¹ Moving distance of coarse adjustment handle by one rotation: 1 mm * ¹ * ² Resolution: 0.01 μm . Highest revolving nosepiece speed: 5 mm/sec. Stroke: 20 mm. * ¹ The moving distance is just a rough indication. The actual moving distance is displayed on touch panel controller. * ² The moving distance varies depending on the speed to rotate the handle.				
4. Revolving nosepiece	U-D7REA, U-D7RES.				
5. Observation tube	Type	U-BI30-2	U-TBI-3/U-TBI3-CLI	U-TR30-2/U-TR30NIR	U-TTR-3
		Widefield binocular	Widefield, tilting binocular	Widefield trinocular	Widefield tilting trinocular
	Field No.	22	22	22	22
	Tube inclination	30°	5-35° (continuously variable)	30°	5-35° (continuously variable)
	Interpupillary distance adjustment	50-76 mm			
	Light path selection	None		3 steps: ① Binocular 100% ② BI 20%, Camera 80% (BI 50%, Camera 50% with the U-TR30NIR/U-TTR-3) ③ Camera 100%	
6. BX stage	Type	U-SVRB-4	U-SVLB-4		IX-SVL2
		Coaxial knobs on bottom right.	Coaxial knobs on bottom left.		Coaxial knobs on bottom right.
		Rectangular, ceramic-coated, wire-driven stage			Rack & pinion, roller guide stage
	Size	156 mm (D) x 191 mm (W)			240 mm (D) x 302 mm (W)
	Movement mechanism	X- and Y-axis knob with adjustable tension.			
		Movement range: 52 mm vertical (Y), 76 mm horizontal (X).			Movement range: 43 mm vertical (Y), 50 mm horizontal (X).
	Single-slide holder	U-HLST-4 (Thick type) U-HLS-4 (Thin type)			Stage clip IX-SCL
	Double-slide holder	U-HLDT-4 (Left-opening, thick type) U-HLD-4 (Left-opening, thin type)	U-HRDT-4 (Right-opening, thick type) U-HRD-4 (Right-opening, thin type)		

Item	Specification			
7. Condenser	Type	U-AAC Achromat-aplanat	U-SC3 Swing-out	BX3-UCD8A Motorized, achromat-aplanat, swing-out
	NA	1.40	0.9-0.1	1.40-0.2
	Aperture iris diaphragm	Graduated scale provided		—
	Applicable objective powers	10X – 100X	1.25X - 100X	2X - 100X
8. Touch panel controller	Rating	Input:24 V / 2.8 A --- (AC Adapter: Input: 100-240 V ~ 50-60 Hz 1.4 A , Output: 24 V --- 2.71 A)		
9. Operating environment	<ul style="list-style-type: none"> • Indoor use. • Altitude: Max. 2000 meters • Ambient temperature: 5° to 40°C (41° to 104°F) • Maximum relative humidity: 80% for temperatures up to 31°C (88°F), decreasing linearly through 70% at 34°C (93°F), 60% at 37°C (99°F), to 50% relative humidity at 40°C (104°F). • Supply voltage fluctuations: ±10% • Pollution degree: 2 (in accordance with IEC60664-1) • Installation/Overvoltage category: II (in accordance with IEC60664-1) 			
10. Storage environment	<ul style="list-style-type: none"> • Temperature: Min. -25°C, Max. 65°C • Humidity: Min. 0%, Max. 90% 			

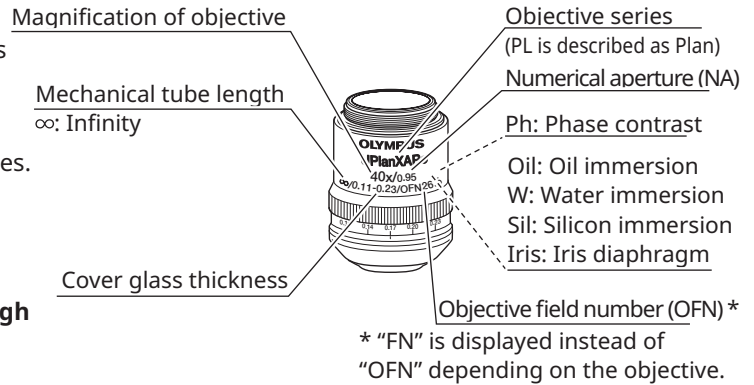
8 OPTICAL CHARACTERISTICS (UIS2 Series)

The following table shows the optical characteristics of combinations of eyepieces and objectives.

The figure on the right shows the performance data engraved on the objectives.

NOTE

There are objectives that can be used in combination with this product even though they are not listed here. Contact us for details.



Series name	Notation	Optical performance				Eyepiece	
		Magnification	Numerical aperture	Working distance (mm)	Cover glass thickness (mm)	WHN10X(FN22)	
						Total magnification	Actual field of view (mm)
PLN (PH) Plan Achromat (OFN 22) *	PlanN (Ph)	2X	0.06	5.8	-	20X	11.0
		4X	0.10	18.5	-	40X	5.5
		10X (Ph)	0.25	10.6	-	100X	2.2
		20X (Ph)	0.40	1.2	0.17	200X	1.1
		40X (Ph)	0.65	0.6	0.17	400X	0.55
		50X Oil Iris	0.5-0.9	0.2	0.17	500X	0.44
		100X Oil (Ph)	1.25	0.15	-	1000X	0.22
PH: Phase contrast							
LPLN Long working distance Plan Achromat (OFN 22) *	LPlanN	40X	0.60	3.4-4.1	0-1	400X	0.55
UPLFLN (PH) Plan Semi Apochromat (OFN 26.5) *	UPlanFLN (Ph)	4X	0.13	17.0	-	40X	5.5
		10X (Ph)	0.30	10.0	-	100X	2.2
		20X (Ph)	0.50	2.1	0.17	200X	1.1
		40X (Ph)	0.75	0.51	0.17	400X	0.55
		60X	0.90	0.2	0.11-0.23	600X	0.37
		60X Oil Iris (Ph)	0.65-1.25	0.12	0.17	600X	0.37
		100X Oil (Ph)	1.30	0.2	0.17	1000X	0.22
		100X Oil Iris	0.6-1.3	0.2	0.17	1000X	0.22
PH: Phase contrast							
UPLXAPO (PH) Plan Apochromat (OFN 26.5) *	UPlanXApo (Ph)	4X	0.16	13.0	-	40X	5.5
		10X	0.40	3.1	0.17	100X	2.2
		20X	0.80	0.6	0.17	200X	1.1
		40X	0.95	0.18	0.11-0.23	400X	0.55
		40X Oil	1.40	0.13	0.17	400X	0.55
		60XW	1.2	0.28	0.13-0.21	600X	0.37
		60X Oil (Ph)	1.42	0.15	0.17	600X	0.37
		100X Oil (Ph)	1.45	0.13	0.17	1000X	0.22
PH: Phase contrast							
UPLSAPO Plan Apochromat (OFN22)*	UPlanSApo	30XSil	1.05	0.8	0.13-0.19	300X	0.73
		40XSil	1.25	0.3	0.13-0.19	400X	0.55
		60XSil2	1.30	0.3	0.15-0.19	600X	0.37
		100XSil	1.35	0.2	0.13-0.19	1000X	0.22
PLAPON Plan Apochromat (OFN 26.5) *	PlanApoN	1.25X	0.04	5.0	-	12.5X	17.6
		2X	0.08	6.2	-	20X	11
		60X OSC2	1.4	0.12	0.17	600X	0.37
UAPON Apochromat (OFN 22) *	UApoN	20X W	0.70	0.35	0.17	200X	1.1
		40X W	1.15	0.25	0.13-0.25	400X	0.55
		40X Oil	1.35	0.1	0.17	400X	0.55

9 ASSEMBLY


9-1 Assembly Diagram

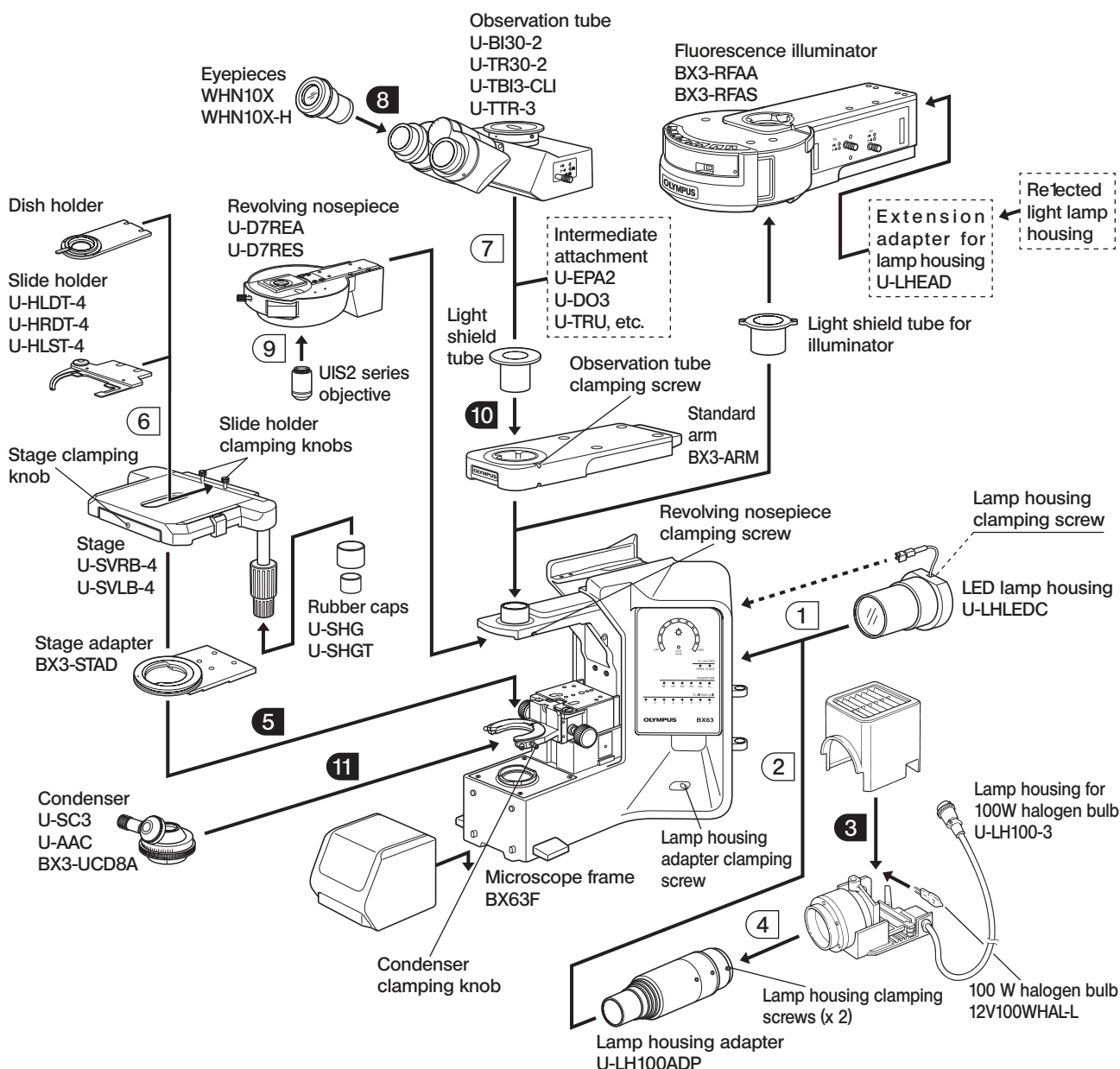
©For the wiring of connection cables, refer to the instruction manual for “BX3-CBH/U-MCZ.”

The diagram below shows the sequence of assembly of the various modules. The numbers indicate the order of assembly. The module model numbers shown in the following diagram are merely the typical examples. For the modules with which the model numbers are not given, please consult us or the catalogues.

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

Assembly steps enclosed in **■** will be detailed on the subsequent pages.

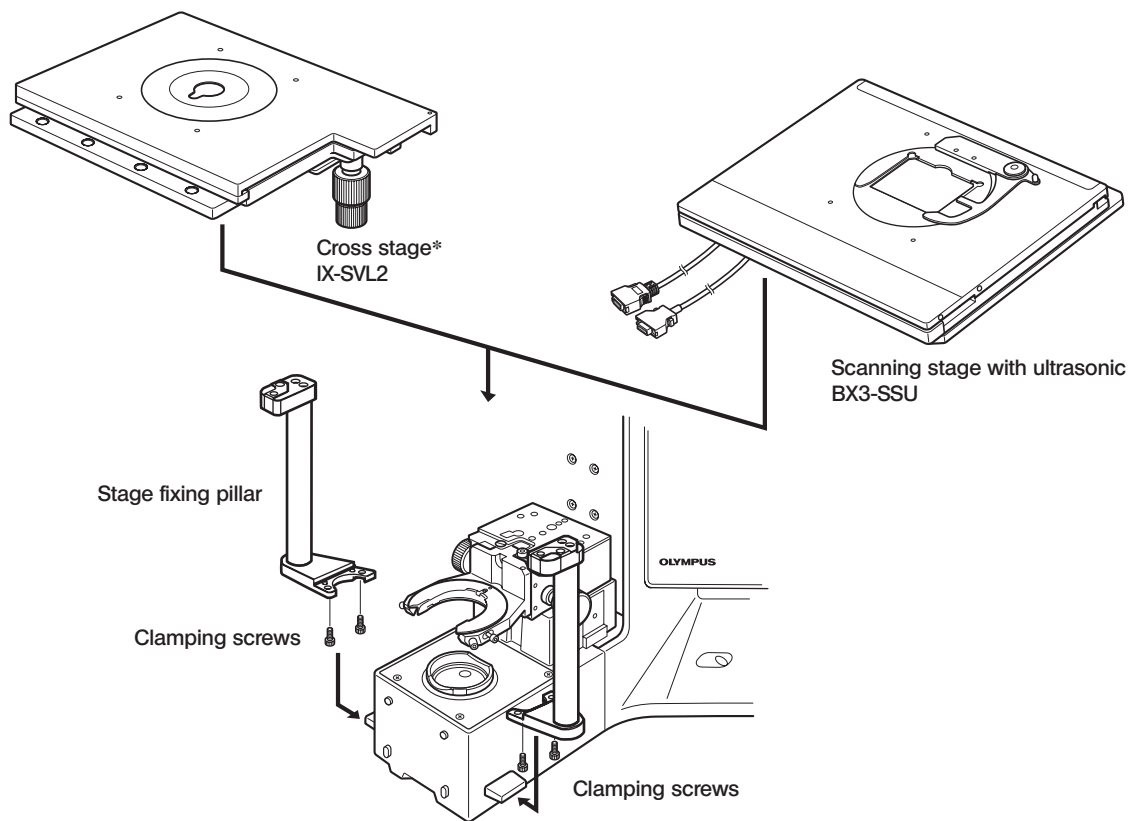
©Most assembly operations are possible by using the Allen screwdriver () provided with the microscope. However, the assembly of the BX3-ARM standard arm, the fluorescence illuminator (including the light shield tube for the illuminator), BX3-SSU scanning stage with ultrasonic and the U-MCZ controller requires the use of the provided Allen wrench (to ensure the performance, we recommend that you ask us to install or uninstall these modules).



How to Install the IX-SVL2/BX3-SSU Stage

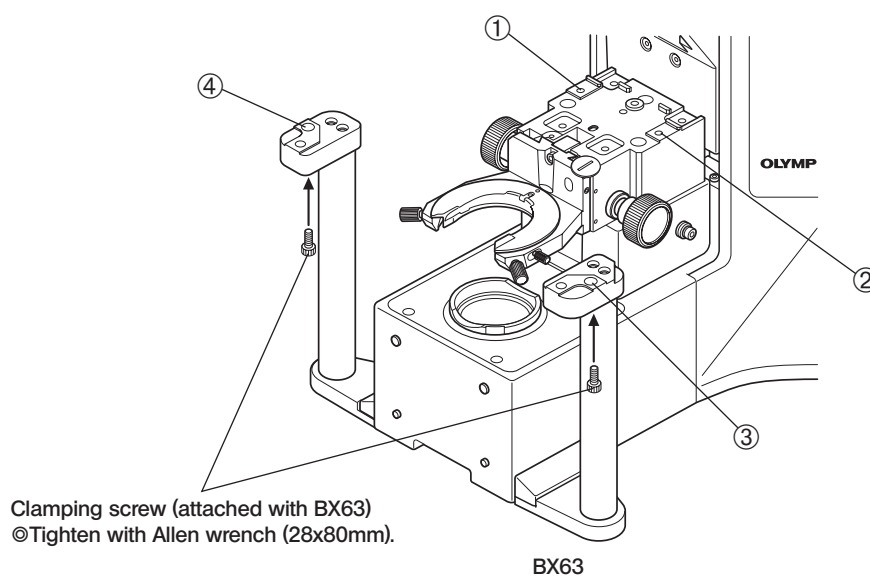
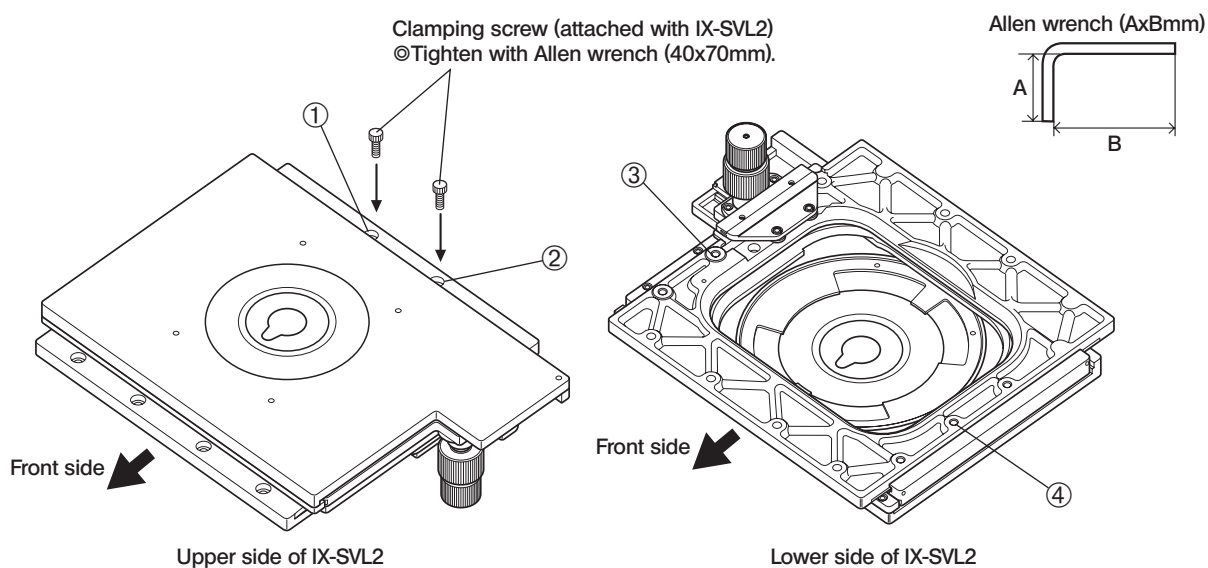
* IX-SVL2 cannot be used concurrently with condenser BX3-UCD8A or U-UCD8-2.

1. Install the stage fixing pillar using the provided clamping screws and Allen wrench. Be sure not to mistake the left and right.
2. After attaching the rear side of the stage on the microscope frame, tighten the clamping screws on the side of the stage fixing pillar.



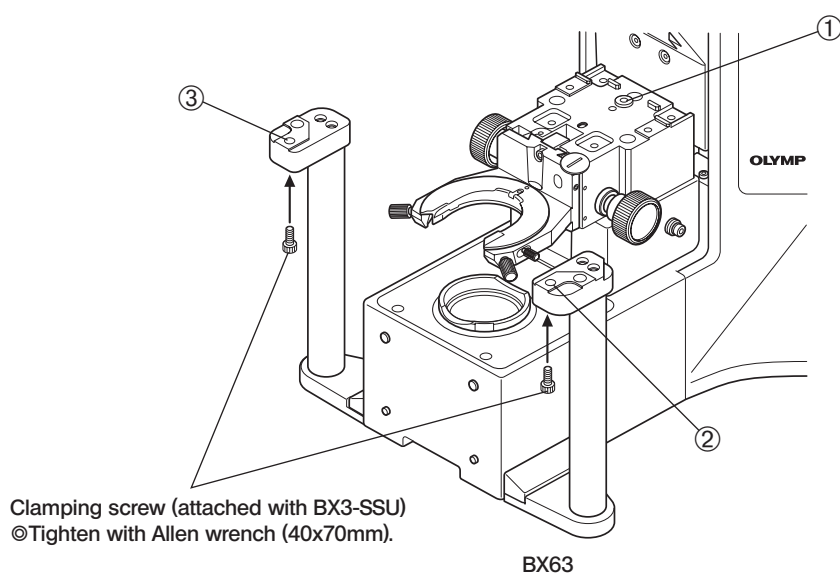
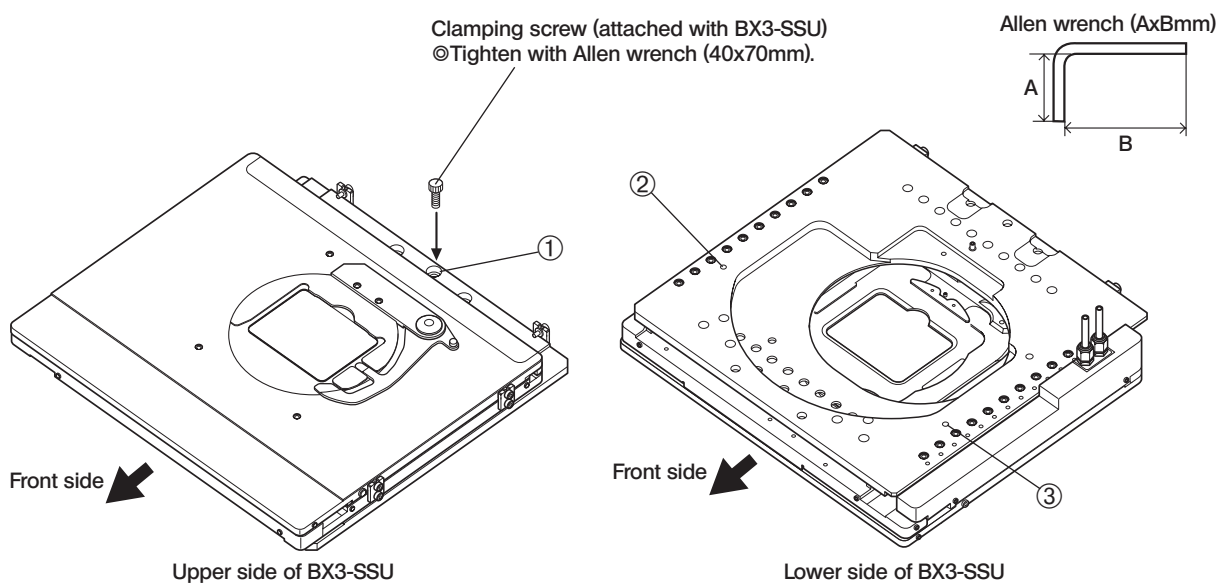
Installing IX-SVL2

1. Place IX-SVL2 over BX63 so that the respective screw numbers (see the figure below) of IX-SVL2 and BX63 are overlapped.
2. Tighten the screw holes ① and ② with the clamping screw (attached with IX-SVL2) from the upper side of IX-SVL2. Use Allen wrench (40x70mm) attached with BX63 for tightening.
3. Tighten the screw holes ③ and ④ with the clamping screw (attached with BX63) from the lower side of the stage fixing pillar of BX63. Use Allen wrench (28x80mm) attached with BX63 for tightening.



Installing BX3-SSU

1. Place BX3-SSU over BX63 so that the respective screw numbers (see the figure below) of BX3-SSU and BX63 are overlapped.
2. Tighten the screw hole ① with the clamping screw (attached with BX3-SSU) from the upper side of BX3-SSU. Use Allen wrench (40x70mm) attached with BX63 for tightening.
3. Tighten the screw holes ② and ③ with the clamping screw (attached with BX63) from the lower side of the stage fixing pillar of BX63. Use Allen wrench (40x70mm) attached with BX63 for tightening.



9-2 Detailed Assembly Procedures

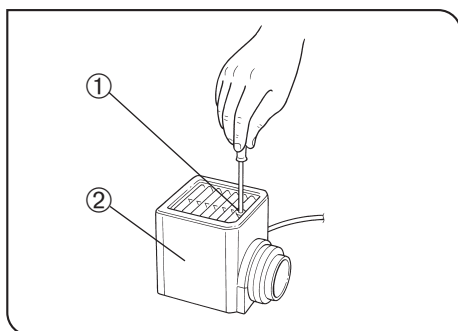


Fig. 49

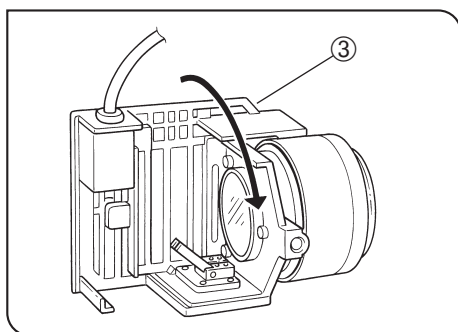


Fig. 50

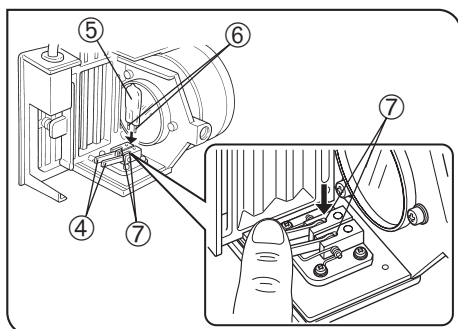


Fig. 51

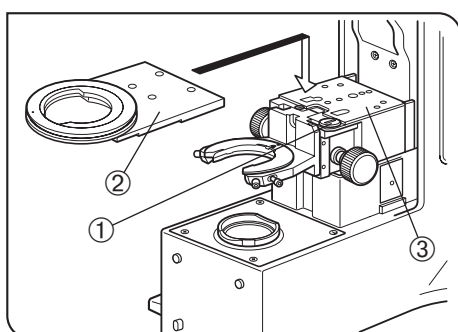


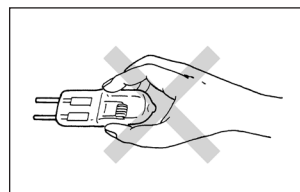
Fig. 52

3 Installing the Halogen Bulb (Figs. 49 to 51)

Ⓞ Use only the designated bulb 12V100WHAL-L (PHILIPS 7724).
If any other bulb is used, performance cannot be guaranteed.

1. Fully loosen the lamp housing clamping screw ① on top of the lamp housing cover with the provided Allen screwdriver.
2. Lift the lamp housing cover ② upward to remove it.
3. Turn the lamp socket ③ by 90° in the direction indicated by the arrow.
4. Holding the bulb ⑤ with gloves or a piece of gauze, depress the bulb clamping lever ④ and insert the bulb pins ⑥ fully into the sections ⑦ as far as they will go.

Gently release the bulb clamping lever to the original position to secure the bulb.



CAUTION To prevent reduced bulb life or cracking, do not touch the bulb with bare hands. If fingerprints are accidentally left on the bulb, wipe the bulb with a soft cloth.

5. Slide the lamp housing cover onto the housing base from the above. Tighten the clamping screw ① while pressing downward on the cover. (Fig. 49)

CAUTION **Caution for Bulb Replacement During Use or Right After Use**
The bulb, lamp housing and areas near these will be extremely hot during and right after use. Set the main switch to “O” (OFF), disconnect the power cord from the wall outlet, then allow the old bulb and lamp housing to cool before replacing the bulb with a new bulb of the designated type.

5 Attaching the Stage Adapter (Fig. 52)

CAUTION When using a dish plate for observing a dish sample, remove the stopper screw ① of the stage adapter mount before the following steps (see page 23 for details).

1. Place the stage adapter ② on the stage adapter mount ③ by aligning the pin on the back sides of the stage adapter with the pin hole on the stage adapter mount.
2. Attach and tighten the four screws provided with the adapter using the Allen wrench provided with the microscope frame.

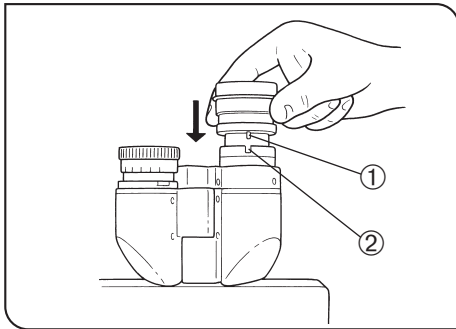


Fig. 53

8 Attaching the Eyepieces

(Fig. 53)

Fit the eyepiece into each sleeve as far as it goes.

- CAUTION**
- The U-BI30-2 binocular tube does not have the positioning grooves and therefore cannot use eyepieces equipped with positioning pins.
 - When using an eyepiece with micrometer disk, insert it in the right eyepiece sleeve. When doing so, make sure that the eyepiece positioning pin ① fits into the notch ② on the eyepiece sleeve.

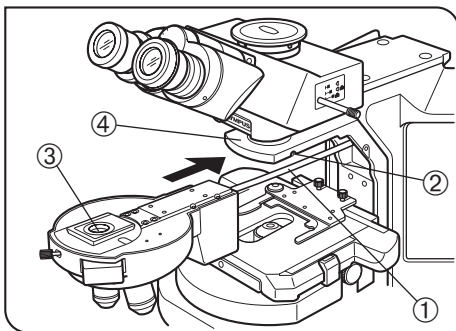


Fig. 54

10 Attaching the Revolving Nosepiece

(Fig. 54)

- CAUTION**
- The interface cables ① cannot be inserted after the revolving nosepiece is attached on the microscope frame. Therefore, before installing the revolving nosepiece, connect one of the motorized cable connectors and distribute the other connector to the rear panel of the microscope frame by passing it through the hole on it.

Ⓞ When detaching the revolving nosepiece connected to the microscope frame, first disconnect the connector from the rear panel of the microscope.

1. Lower the stage.
2. Slightly loosen the revolving nosepiece clamping screw ②.
Do not loosen it too much because the revolving nosepiece cannot be attached otherwise.
3. Hold the revolving nosepiece so that the revolving nosepiece mount dovetail ③ is horizontal and slide the dovetail all the way into the dovetail groove on the revolving nosepiece arm ④.
4. Tighten the revolving nosepiece clamping screw ②.

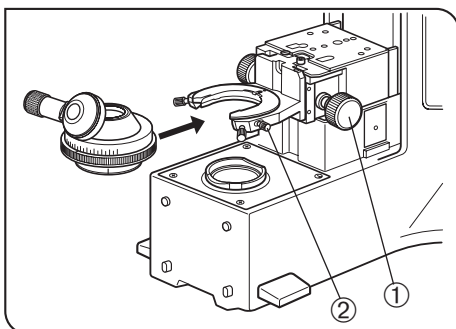


Fig. 55

11 Attaching the Condenser

(Fig. 55)

- CAUTION**
- When using a dish plate for observing a dish sample, remove the stopper screw ① of the stage adapter mount before the following steps (see page 23 for details).

Ⓞ For details on the BX3-UCD8A motorized universal condenser, see the instruction manual provided with it.

1. Turn the condenser height adjustment knob ① to lower the condenser holder to its lowest position.
2. Fully loosen the condenser clamping knob ②.
3. Position the condenser so that the aperture scale is located in front.
Gently slide the condenser along the dovetail all the way until it is stopped.

- CAUTION**
- When attaching a swing-out condenser with a positioning pin at the back such as the U-SC3, etc., attach by pushing it into the groove in the condenser sleeve.
 - When attaching a condenser with swing-out top lens, swing out the top lens out of the way before inserting the condenser.

4. Tighten the condenser clamping knob and gently raise the condenser holder to its highest position.

10 HALOGEN LAMP HOUSING INSPECTION SHEET

- For safe use of the lamp housing, we recommend performing the following inspection periodically (every time you replace the lamp bulb and at least every 6 months).
- The table below identifies the check items to be observed. Put (-) if not applicable or (✓) if applicable.
- If there is any (✓) mark noted, immediately stop use of the product, and contact us for detailed inspections or replace the lamp housing.
- If you detect an abnormality other than that listed below or with other our product, also stop the use of the product and contact us for detailed inspections.
- Note that the service, replacement and detailed inspections are charged after expiration of the warranty period.

If you have any questions, please contact us.

Check items	Check results (Date)			
	/	/	/	/
1. More than 8 years have passed since original purchase or the total power ON time has exceeded 20,000 hours.				
2. Lamp does not light sometimes even though the main switch is set to on.				
3. Illumination flickers when you move the lamp cable or lamp housing.				
4. Lamp cable is unusually hot to the touch.				
5. Scorching or burning odor is produced during use.				
6. Illumination still flickers after replacement with a new lamp bulb.				
7. Deformation, backlash, or looseness, etc. when you assemble the lamp housing. (Impossibility of removing the top section of lamp housing when you attempt to replace the lamp bulb, etc.)				
8. Extreme discoloration of the lamp housing connection terminal or lamp socket. Uneven discoloration of the left and right sections of these parts.				
9. Discoloration, deformation or cracking of the lamp housing.				
10. Melting, crack, deformation or solidification of the lamp cable or a wiring part.				
11. Increased frequency of servicing compared to similar devices put into use at the same time as the lamp housing.				

* When the Check Result columns become insufficient, copy this sheet.

11 SET TYPE LIST

Entering the set type number (1–8) at system settings will set the unit information, DIC slider, the objective lens and the mirror unit according to the set type number.

Each unit can be changed even after set type number is entered.

Unit Setting

Set Type No.	Illuminator	Nosepiece	XY Stage	Condenser	EPI ND	DIA ND	Lamp
1–4	None	U-D7REA	Manual	BX3-UCD8A	None	None	U-LHLEDC
5–8	BX3-RFAA	U-D7REA	Manual	BX3-UCD8A	None	U-AW	U-LH100-3

Mirror Unit Setting

Set Type No.	Mirror Unit No.				
	1	2	3	4–7	8
1–4	None	None	None	None	None
5–8	U-FGW	U-FBW	U-FUW	None	U-FDICT

Objectives and Condenser Setting

1: BF plan semi-apo set

Applicable observations:

BF / PO / FL

		BX3-UCD8A motorized universal condenser										BX3-RFAA illuminator	
		Top lens	Turret No.								Turret No.		
Nosepiece position	Objective	U-TLD	1	2	3	4	5	6	7	8	Not moved	<input type="checkbox"/> PH / <input type="checkbox"/> DF / <input type="checkbox"/> BF	<input type="checkbox"/> DIC / <input type="checkbox"/> PO
1	UPLFLN4X	OUT											
2	UPLFLN10X2	IN											
3	UPLFLN20X	IN											
4	UPLFLN40X	IN								<input type="checkbox"/> BF / <input type="checkbox"/> PO Idle position	<input type="checkbox"/> PH / <input type="checkbox"/> DIC / <input type="checkbox"/> DF	7. Idle position	8.U-FDICT
5	UPLFLN100XO2	IN											
6	PLAPON1.25X	OUT											
7	PLAPON2X	OUT											

2: BF plan apo set

Applicable observations:

BF / PO / FL

		BX3-UCD8A motorized universal condenser										BX3-RFAA illuminator	
		Top lens	Turret No.								Turret No.		
Nosepiece position	Objective	U-TLD	1	2	3	4	5	6	7	8	Not moved	<input type="checkbox"/> PH / <input type="checkbox"/> DF / <input type="checkbox"/> BF	<input type="checkbox"/> DIC / <input type="checkbox"/> PO
1	PLAPON1.25X	OUT											
2	PLAPON2X	OUT											
3	UPLXAPO4X	OUT											
4	UPLXAPO10X	IN								<input type="checkbox"/> BF / <input type="checkbox"/> PO Idle position	<input type="checkbox"/> PH / <input type="checkbox"/> DIC / <input type="checkbox"/> DF	7. Idle position	8.U-FDICT
5	UPLXAPO20X	IN											
6	UPLXAPO40X	IN											
7	UPLXAPO100XO	IN											

3: BF no-cover set

Applicable observations:

[BF] / [PO] / [FL]

		BX3-UCD8A motorized universal condenser										BX3-RFAA illuminator	
		Top lens	Turret No.									Turret No.	
Nosepiece position	Objective	U-TLD	1	2	3	4	5	6	7	8	Not moved	[PH] / [DF] / [BF]	[DIC] / [PO]
1	PLAPON1.25X	OUT								[BF] / [PO] Idle position	[PH] / [DIC] / [DF]	7. Idle position	8.U-FDICT
2	PLAPON2X	OUT											
3	UPLFLN4X	OUT											
4	UPLFLN10X2 (MPLFLN10X)	IN											
5	MPLFLN20X	IN											
6	MPLFLN40X	IN											
7	MPLFLN100X	IN											

4: BF plan set

Applicable observations:

[BF] / [PO] / [FL]

		BX3-UCD8A motorized universal condenser										BX3-RFAA illuminator	
		Top lens	Turret No.									Turret No.	
Nosepiece position	Objective	U-TLD	1	2	3	4	5	6	7	8	Not moved	[PH] / [DF] / [BF]	[DIC] / [PO]
1	PLN2X(PLCN2X)	OUT								[BF] / [PO] Idle position	[PH] / [DIC] / [DF]	7. Idle position	8.U-FDICT
2	PLN4X(PLCN4X)	OUT											
3	PLN10X(PLCN10X)	IN											
4	PLN20X(PLCN20X)	IN											
5	PLN40X(PLCN40X)	IN											
6	PLN100X(PLCN100X)	IN											

5: DIC plan apo set

Applicable observations:

[BF] / [DIC] / [FL]

		BX3-UCD8A motorized universal condenser										BX3-RFAA illuminator	
		Top lens	Turret No.									Turret No.	
Nosepiece position	Objective	U-TLD	1	2	3	4	5	6	7	8	Not moved	[PH] / [DF] / [BF]	[DIC] / [PO]
1	UPLXAPO10X	IN	[DIC] U-DIC10S							[BF] / [PO] Idle position	[PH] / [DF]	7. Idle position	8.U-FDICT
2	UPLXAPO20X	IN				[DIC] U-DIC20							
3	UPLXAPO40X	IN					[DIC] U-DIC40						
4	UPLXAPO60XO	IN						[DIC] U-DIC60					
5	UPLXAPO100XO	IN							[DIC] U-DIC100				

6: DIC plan semi-apo set

Applicable observations:
BF / DIC / FL

		BX3-UCD8A motorized universal condenser										BX3-RFAA illuminator	
		Top lens	Turret No.									Turret No.	
Nosepiece position	Objective	U-TLD	1	2	3	4	5	6	7	8	Not moved	<input type="checkbox"/> PH / <input type="checkbox"/> DF / <input type="checkbox"/> BF	<input type="checkbox"/> DIC / <input type="checkbox"/> PO
1	UPLFLN10X2	IN	<input type="checkbox"/> DIC U-DIC10S							<input type="checkbox"/> BF / <input type="checkbox"/> PO Idle position	<input type="checkbox"/> PH / <input type="checkbox"/> DF	7. Idle position	8.U-FDICT
2	UPLFLN20X	IN				<input type="checkbox"/> DIC U-DIC20							
3	UPLFLN40X	IN					<input type="checkbox"/> DIC U-DIC40						
4	UPLFLN60XOI	IN						<input type="checkbox"/> DIC U-DIC60					
5	UPLFLN100XO2	IN							<input type="checkbox"/> DIC U-DIC100				

7: PH plan semi-apo set

Applicable observations:
BF / PH / DF / FL

		BX3-UCD8A motorized universal condenser										BX3-RFAA illuminator	
		Top lens	Turret No.									Turret No.	
Nosepiece position	Objective	U-TLD	1	2	3	4	5	6	7	8	Not moved	<input type="checkbox"/> PH / <input type="checkbox"/> DF / <input type="checkbox"/> BF	<input type="checkbox"/> DIC / <input type="checkbox"/> PO
1	UPLFLN4X	OUT								<input type="checkbox"/> BF / <input type="checkbox"/> PO Idle position	<input type="checkbox"/> DIC	7. Idle position	8.U-FDICT
2	UPLFLN10X2PH	IN	<input type="checkbox"/> PH U-PH1-S			<input type="checkbox"/> DF U-DFA							
3	UPLFLN20XPH	IN	<input type="checkbox"/> PH U-PH1-S			<input type="checkbox"/> DF U-DFA							
4	UPLFLN40XPH	IN		<input type="checkbox"/> PH U-PH2-S		<input type="checkbox"/> DF U-DFA							
5	UPLFLN100XO2PH	IN			<input type="checkbox"/> PH U-PH3-S								

8: PH plan set

Applicable observations:
BF / PH / DF / FL

		BX3-UCD8A motorized universal condenser										BX3-RFAA illuminator	
		Top lens	Turret No.									Turret No.	
Nosepiece position	Objective	U-TLD	1	2	3	4	5	6	7	8	Not moved	<input type="checkbox"/> PH / <input type="checkbox"/> DF / <input type="checkbox"/> BF	<input type="checkbox"/> DIC / <input type="checkbox"/> PO
1	PLN4X	OUT								<input type="checkbox"/> BF / <input type="checkbox"/> PO Idle position	<input type="checkbox"/> DIC	7. Idle position	8.U-FDICT
2	PLN10XPH	IN	<input type="checkbox"/> PH U-PH1-S			<input type="checkbox"/> DF U-DFA							
3	PLN20XPH	IN	<input type="checkbox"/> PH U-PH1-S			<input type="checkbox"/> DF U-DFA							
4	PLN40XPH	IN		<input type="checkbox"/> PH U-PH2-S		<input type="checkbox"/> DF U-DFA							
5	PLN100XOPH	IN			<input type="checkbox"/> PH U-PH3-S								

■ PROPER SELECTION OF THE POWER SUPPLY CORD

If no power supply cord is provided, please select the proper power supply cord for the equipment by referring to “Specifications” and “Certified Cord” below:

CAUTION: In case you use a non-approved power supply cord for our products, we can no longer warrant the electrical safety of the equipment.

Specifications

Voltage Rating	125V AC (for 100-120V AC area) or, 250V AC (for 220-240V AC area)
Current Rating	6A minimum
Temperature Rating	60°C minimum
Length	3.05 m maximum
Fittings Configuration	Grounding type attachment plug cap. Opposite terminates in molded-on IEC configuration appliance coupling.

Table 1 Certified Cord

A power supply cord should be certified by one of the agencies listed in Table 1, or comprised of cordage marked with an agency marking per Table 1 or marked per Table 2. The fittings are to be marked with at least one of agencies listed in Table 1. In case you are unable to buy locally in your country the power supply cord which is approved by one of the agencies mentioned in Table 1, please use replacements approved by any other equivalent and authorized agencies in your country.




















Country	Agency	Certification Mark	Country	Agency	Certification Mark
Argentina	IRAM		Italy	IMQ	
Australia	SAA		Japan	JET	
Austria	ÖVE		Netherlands	KEMA	
Belgium	CEBEC		Norway	NEMKO	
Canada	CSA		Spain	AEE	
Denmark	DEMKO		Sweden	SEMKO	
Finland	FEI		Switzerland	SEV	
France	UTE		United Kingdom	ASTA BSI	
Germany	VDE		USA	UL	
Ireland	NSAI				

Table 2 HAR Flexible Cord

APPROVAL ORGANIZATIONS AND CORDAGE HARMONIZATION MARKING METHODS

Approval Organization	Printed or Embossed Harmonization Marking (May be located on jacket or insulation of internal wiring)		Alternative Marking Utilizing Black-Red-Yellow Thread (Length of color section in mm)		
			Black	Red	Yellow
Comite Electrotechnique Belge (CEBEC)	CEBEC	<HAR>	10	30	10
Verband Deutscher Elektrotechniker (VDE) e.V. Prüstelle	<VDE>	<HAR>	30	10	10
Union Technique de l'Electricite' (UTE)	USE	<HAR>	30	10	30
Instituto Italiano del Marchio di Qualita' (IMQ)	IEMMEQU	<HAR>	10	30	50
British Approvals Service for Electric Cables (BASEC)	BASEC	<HAR>	10	10	30
N.V. KEMA	KEMA-KEUR	<HAR>	10	30	30
SEMKO AB Svenska Elektriska Materielkontrollanstalter	SEMKO	<HAR>	10	10	50
Osterreichischer Verband für Elektrotechnik (ÖVE)	<ÖVE>	<HAR>	30	10	50
Danmarks Elektriske Materialkontroll (DEMKO)	<DEMKO>	<HAR>	30	10	30
National Standards Authority of Ireland (NSAI)	<NSAI>	<HAR>	30	30	50
Norges Elektriske Materielkontroll (NEMKO)	NEMKO	<HAR>	10	10	70
Asociacion Electrotecnica Y Electronica Espanola (AEE)	<UNED>	<HAR>	30	10	70
Hellenic Organization for Standardization (ELOT)	ELOT	<HAR>	30	30	70
Instituto Portages da Qualidade (IPQ)	np	<HAR>	10	10	90
Schweizerischer Elektro Technischer Verein (SEV)	SEV	<HAR>	10	30	90
Elektriska Inspektoratet	SETI	<HAR>	10	30	90

Underwriters Laboratories Inc. (UL)
Canadian Standards Association (CSA)

SV, SVT, SJ or SJT, 3 X 18AWG
SV, SVT, SJ or SJT, 3 X 18AWG

12 Request to issue the Safety Confirmation

NOTE

To ensure operational safety of this product, the Safety Confirmation shown on the next page must be issued by the user when the user has this product maintained, repaired or serviced by Evident Corporation.

Since Evident is responsible for ensuring the safety of our distributors, maintenance personnel and personnel, we appreciate your cooperation in issuing the Safety Confirmation.

- The user must issue the Safety Confirmation each time this product is to be maintained, repaired or serviced by Evident.
- Copy the Safety Confirmation shown on the next page, fill it out, and submit it to Evident maintenance personnel.
- If the Safety Confirmation is not issued, we may not be able to provide maintenance, repairs or other services.
- If this product is contaminated, the user shall carry out decontamination work to the fullest extent possible prior to the arrival of our maintenance personnel.

Safety Confirmation when requesting repair/inspection

This safety confirmation is for asking you to fill out to ensure the health and safety of service personnel who pick up, repair, and/or inspect the products. Your cooperation would be highly appreciated.

Please note if the safety of service personnel cannot be ensured, your requests will not be accepted.

Please check the applicable checkboxes and circle the applicable items shown in parentheses.

Date of request	
Request details	<input type="checkbox"/> Repair (Off-site / On-site) <input type="checkbox"/> Inspection (Off-site / On-site)
Product name	
Serial Number	
Biosafety level and Confirmation of disinfection/sterilization of product	<input type="checkbox"/> BSL1 <input type="checkbox"/> BSL2 <input type="checkbox"/> BSL3 <input type="checkbox"/> BSL4* <input type="checkbox"/> Not applicable <input type="checkbox"/> With my signature, I hereby confirm that this product has been disinfected/sterilized according to the disinfection/sterilization rules of our facility. <input type="checkbox"/> Disinfection/sterilization of this product has not been carried out. *We do not accept repairs/inspections of products used in the BSL4 environment.
Facility name	
Department	
Signature	
Contact details Telephone, E-mail, etc.	

Manufactured by



Evident Corporation

6666 Inatomi, Tatsuno-machi, Kamiina-gun, Nagano 399-0495, Japan

Distributed by



Evident Europe GmbH

Caffamacherreihe 8-10, 20355 Hamburg, Germany

Evident Scientific, Inc.

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#04-04/05, 25 Ubi Rd 4, UBIX Singapore 408621

Evident Australia PTY LTD

Level 4, 97 Waterloo Road Macquarie Park NSW 2113, Australia

Service Center



<https://evidentscientific.com/support>

Official website



<https://evidentscientific.com>