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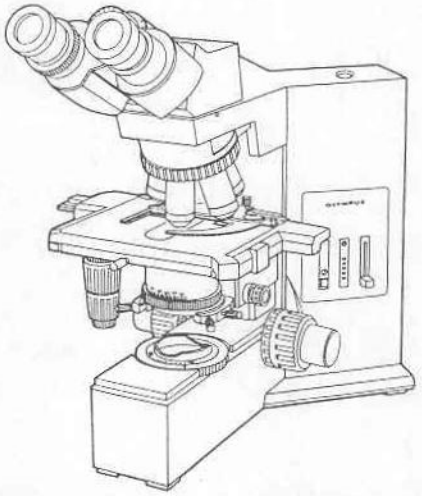


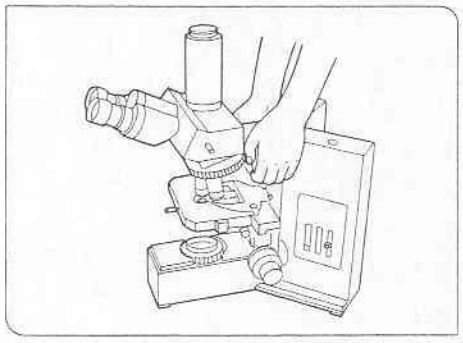
INSTRUCTIONS
BX40
SYSTEM MICROSCOPE

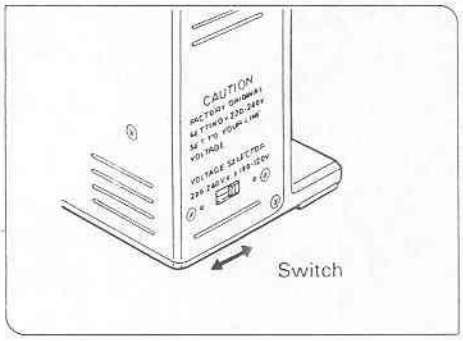
This instruction manual is for use of the Olympus System Microscope Model BX40. We recommend you read this manual carefully in order to familiarize yourself fully with the use of your microscope so that you can obtain optimum performance.

IMPORTANT

This unit employs a UIS optical system, and should be used only with UIS eyepieces, objectives, and condensers. Less than optimum performance may result if inappropriate accessory lenses are used.

1 Getting Ready





1. The microscope is a delicate instrument. Handle it carefully and protect it from physical shock.
2. The BX40 can be used with up to two intermediate tubes (e.g., a U-CA magnification changer and/or U-EPA eyepoint adjusters). However, be sure to read the instructions provided with the respective intermediate tube for restrictions when using two tubes in series on top of each other.
3. Avoid locations that are exposed to direct sunlight, high temperature or humidity, dusty places, and places that are subject to strong vibrations. Make sure that the work surface is flat and level. (Ambient temperature and humidity should be in the range 0–40°C, 30–90%.)
4. When moving the microscope, carry it with both hands by holding it at the arm as shown at left. Handle it carefully.
   ★ Damage to the microscope may result if you hold it by the stage, coarse adjustment knob, or lamp housing. Please be very careful.
5. **Set the voltage selector switch on the left rear of the base to 100–120V or 220–240V position to match the local line voltage using flat-blade screwdriver. (Before shipment from the factory, the voltage selector switch is set to 220–240V position).** (See figure at left.)
6. Ground the unit to avoid potential shock hazard.
7. For safety's sake, always turn off the power switch and disconnect the power cord before changing the halogen bulb or fuse.

2 Care and Frame

1. Clean lenses by wiping lightly with gauze. To remove fingerprints or other oils, dampen the gauze with a very small quantity of a 7 parts ether / 3 parts alcohol solution, or with Xylol.
   ★ Since ether and alcohol are highly flammable, be careful to keep these chemicals away from an open flame and possible sources of electrical sparks, such as power switches.
2. Do not use organic solvents to clean the microscope. To clean plastic parts, use a neutral detergent.
3. Do not disassemble any part of the microscope.
4. When not using the microscope, keep it covered with the provided dust cover.

3 Symbols on the Microscope Frame

Mark	Meaning
	Indicates that the surface becomes hot, and should not be touched with bare hands.
	Before using, carefully read the instruction manual.
	Indicates a potential fire hazard; when replacing fuse, be sure replacement fuse is of the specified rating.

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1 NOMENCLATURE

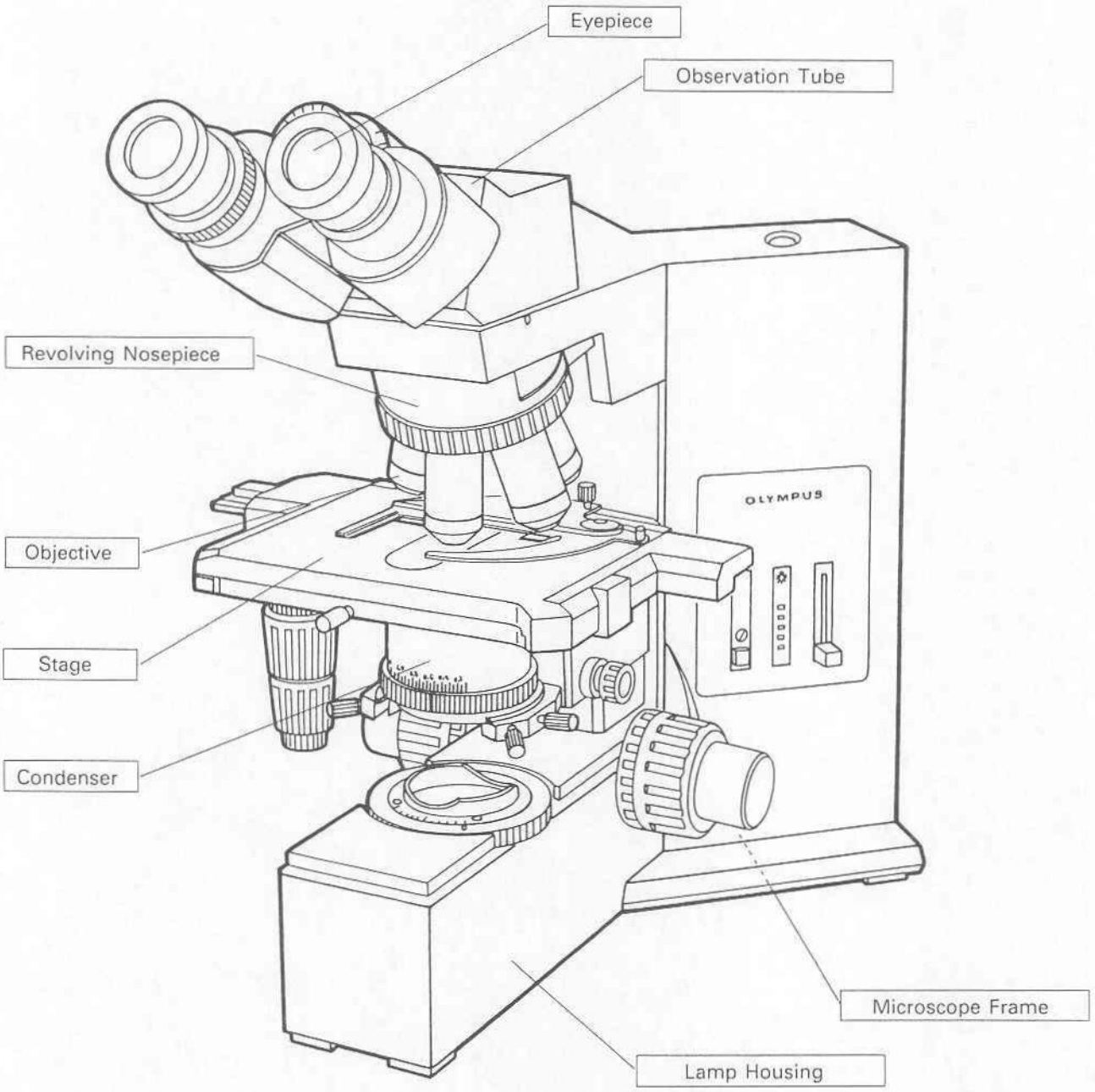


Fig. 1

2 ASSEMBLY

2-1 Assembly Diagram

The diagram below shows how to assemble the various modules. The numbers indicate the order of assembly.

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

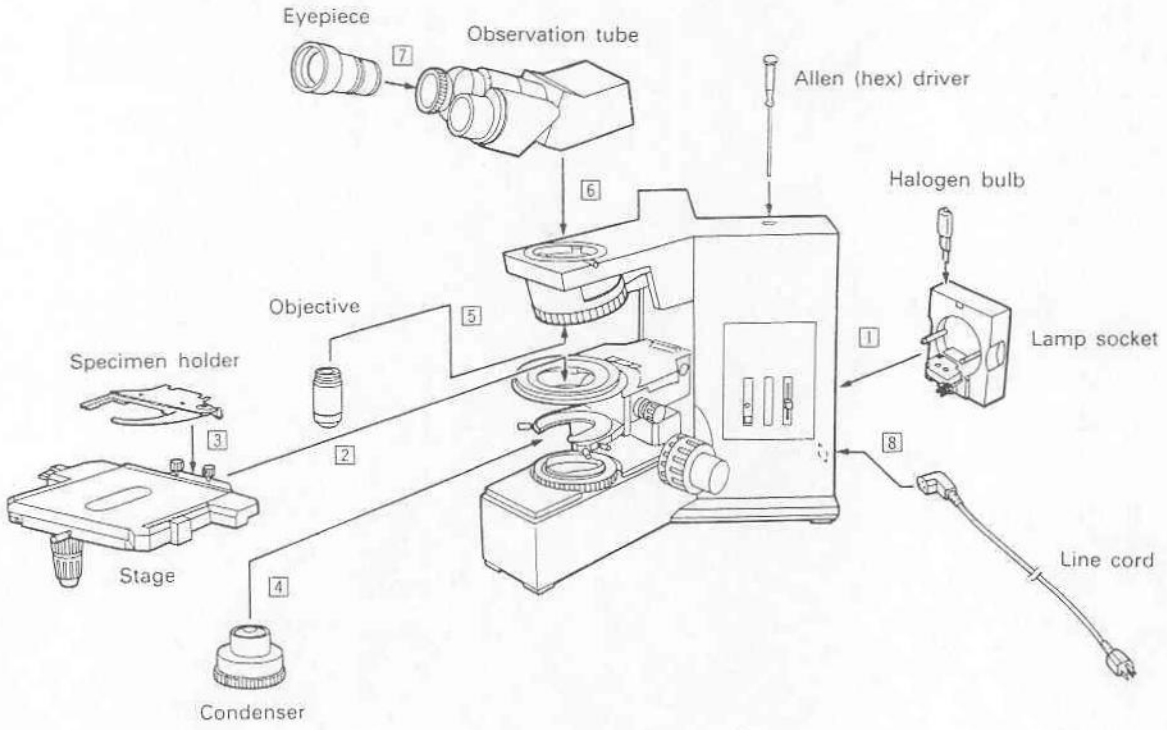


Fig. 2

2-2 Assembly Procedure

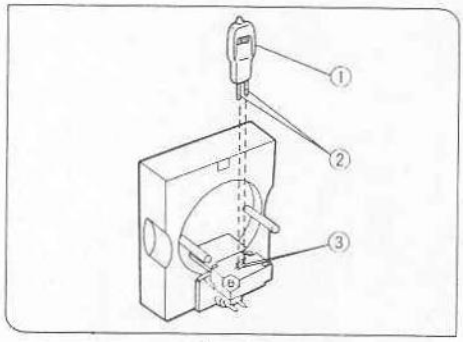


Fig. 3

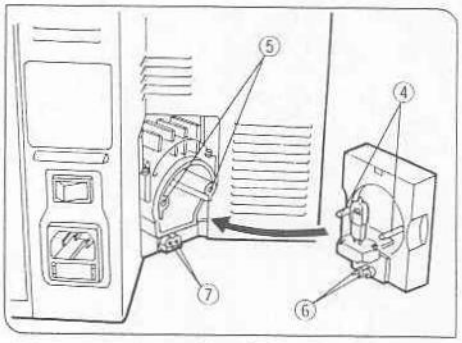


Fig. 4

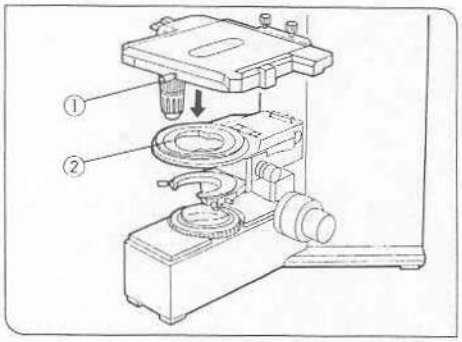


Fig. 5

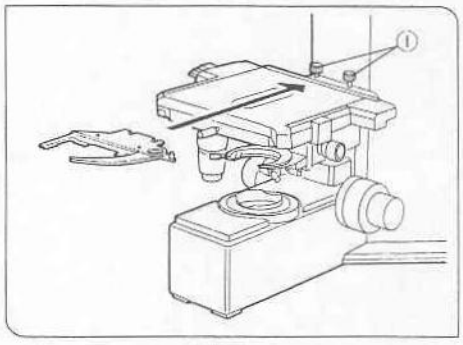
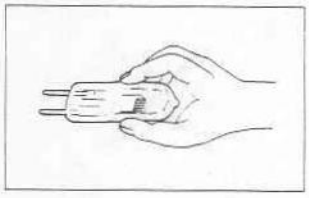


Fig. 6

1 Install the Halogen Bulb (Figs. 3, 4)

The bulb used in this microscope is a 6V, 30WHAL halogen bulb (Phillips 5761).

1. Holding the bulb ① with gloves or a piece of gauze, insert the bulb pins ② into the pin holes ③. (Fig. 3)
   ★ Do not touch the bulb with your fingers. If you accidentally get fingerprints on the bulb, wipe it with a piece of soft cloth.



2. Align the guide pins ④ with the guide pin slots ⑤ and the plug ⑥ with the socket ⑦, gently push the illuminator into place. (Fig. 4)
   ★ Whenever you replace the bulb, first turn off the power switch and wait for bulb and lamp socket to cool.

2 Attach the Stage (Fig. 5)

1. Fully loosen the clamping screw ① on the stage.
2. Carefully lower the stage into the round sleeve on the substage, then tighten the clamping screw.

3 Attach the Specimen Holder (Fig. 6)

1. Loosen the specimen holder clamping screws ① without exposing the threads.
   ★ Be careful to avoid loosening the specimen holder clamping screws too much. If you loosen the screws too much, the threads will prevent complete insertion of the specimen holder.
2. Align the slot in the specimen holder with the clamping screws, then slide the specimen holder backwards as far as it will go.
   ★ Slide the specimen holder all the way back or it will not be positioned properly.
3. Tighten the specimen holder clamping screws.

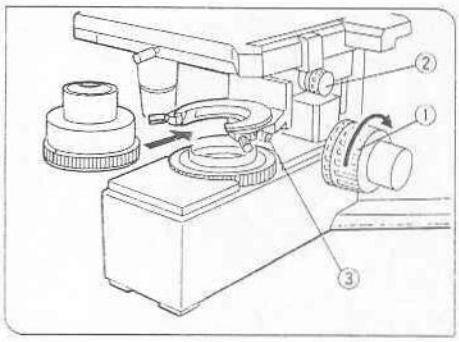


Fig. 7

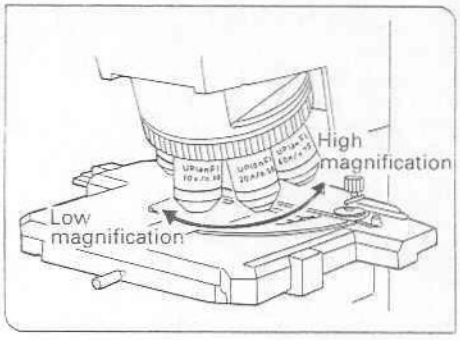


Fig. 8

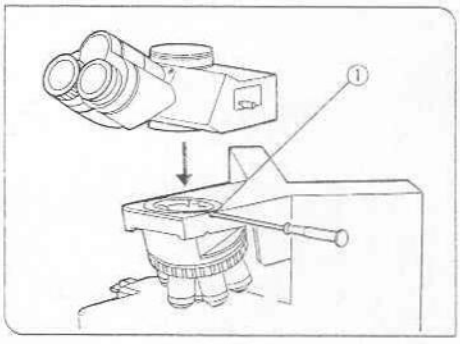


Fig. 9

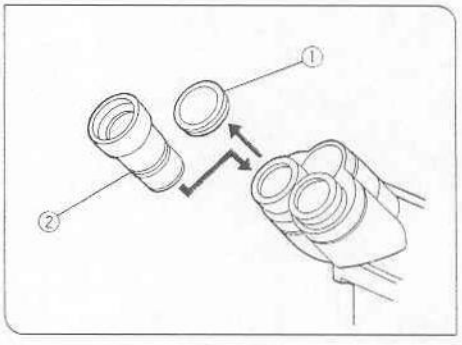


Fig. 10

4 Attach the Condenser (Fig. 7)

1. Turn the coarse adjustment knob ① to raise the stage to its upper limit.
2. Turn the condenser height adjustment knob ② to lower the condenser holder to its lower limit.
3. Fully loosen the condenser clamping screw ③.
4. Holding the condenser with the scale markings in front, carefully position the condenser and insert it into the condenser sleeve as far as it will go.
5. Tighten the condenser clamping screw, then raise the condenser to its upper limit, with the condenser height adjustment knob.
   - ★ When mounting the U-SC swing-out Achromat condenser, align the positioning pin at the back of the condenser with the slot in the condenser sleeve.
   - ★ When using the U-SC swing-out Achromat condenser or the U-UCD universal condenser, swing the front lens out of the way before inserting the condenser.

5 Mount the Objective (Fig. 8)

Mount the objectives on the revolving nosepiece so that the magnification increases from low to higher in a clockwise direction.

6 Mount the Observation Tube (Fig. 9)

1. Use the provided Allen (hex) driver to fully loosen the observation tube clamping screw ①.
2. Insert the circular dovetail mount at the bottom of the observation tube into the opening on the microscope frame, setting the observation tube into place so that the binocular eyepieces are at the front. Clamp the observation tube by tightening screw.
   - ★ If the direction of stage movement does not match the direction of image movement when making observations, loosen the observation tube clamping screw slightly and adjust by turning the tube while observing the image.

7 Mount the Eyepieces (Fig. 10)

1. Remove the eyepiece cap ①.
2. Insert the eyepieces ② into the eyepiece sleeves as far as they will go. (Fig. 8)
   - ★ Eyepiece with helicoid can not be used with U-TBI tilting tube.

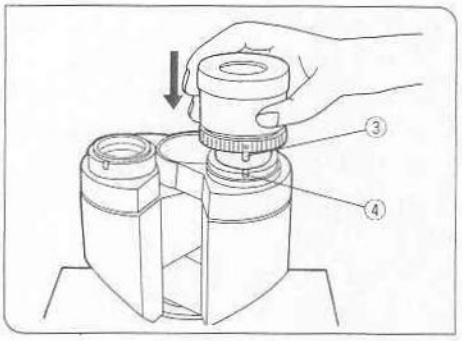


Fig. 11

When using the trinocular observation tube (U-TR30) or super-wide-field trinocular observation tube (U-SWTR)

When using a finder eyepiece or an eyepiece with diopter adjustment, inset it into the right-hand eyepiece sleeve. When doing so, make sure that the eyepiece positioning pin ③ fits into the notch ④ at the bottom of the eyepiece sleeve. (Fig. 11)

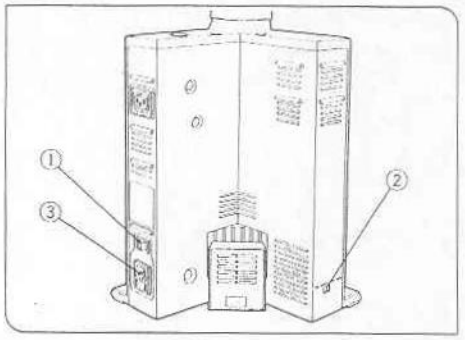


Fig. 12

10 Connect the Power Cord (Fig. 12)

1. Check that the power switch ① is in the OFF position.
2. Before shipment from the factory, the voltage selector switch ② is set to the 200-240V position. In case your local line voltage is 100-120V, move the lever to the 100-120V position using a flat-blade screwdriver.
3. Plug the power cord into the receptance ③.
4. Connect the power cord's ground wire to the earth terminal on the power outlet you will be using with the microscope, then plug the power cord into the wall outlet.

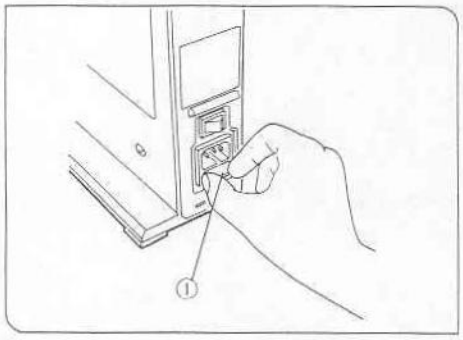


Fig. 13

11 Replace Fuses (Figs. 13, 14)

Before replacing fuses, turn off the power switch and unplug the power cord.

1. Remove the fuse holder ① by squeezing it at the sides and pulling outward. (Fig. 13)

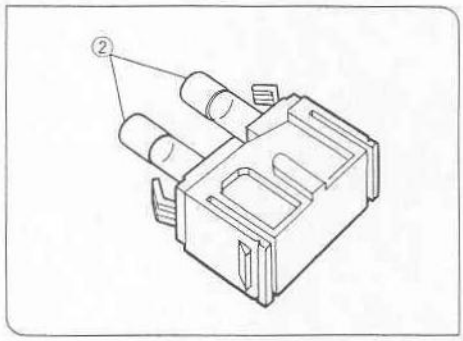


Fig. 14

2. Replace both fuses ② with new ones. (Fig. 14)
   ★ Use only fuses of the specified rating.

Fuse rating: 250V, 2A, 2 fuses
(LITTEL FUSE 218002)

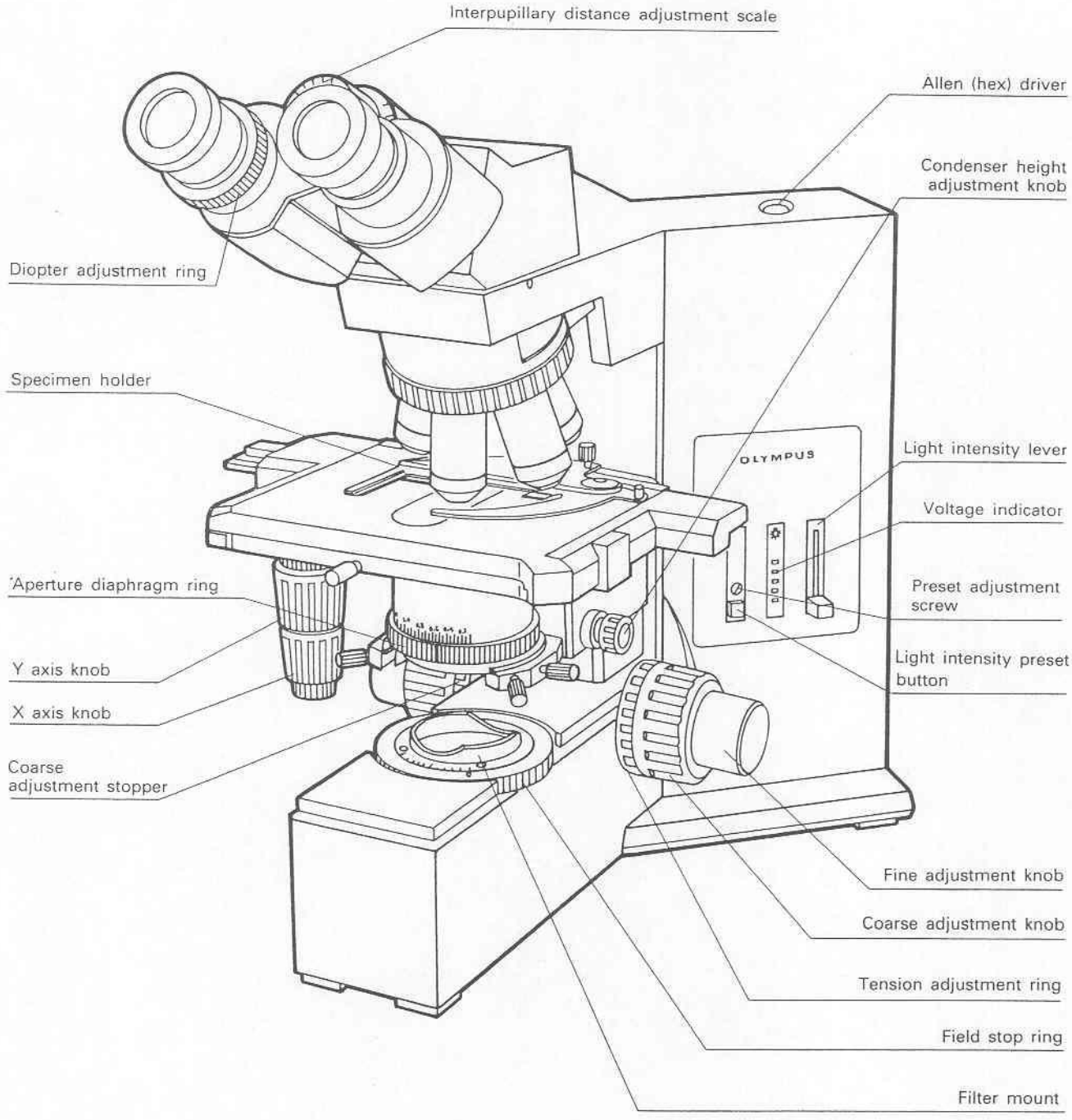

Interpupillary distance adjustment scale
Allen (hex) driver
Condenser height adjustment knob
Diopter adjustment ring
Specimen holder
Light intensity lever
Voltage indicator
Aperture diaphragm ring
Preset adjustment screw
Y axis knob
Light intensity preset button
X axis knob
Coarse adjustment stopper
Fine adjustment knob
Coarse adjustment knob
Tension adjustment ring
Field stop ring
Filter mount
OLYMPUS

Fig. 15

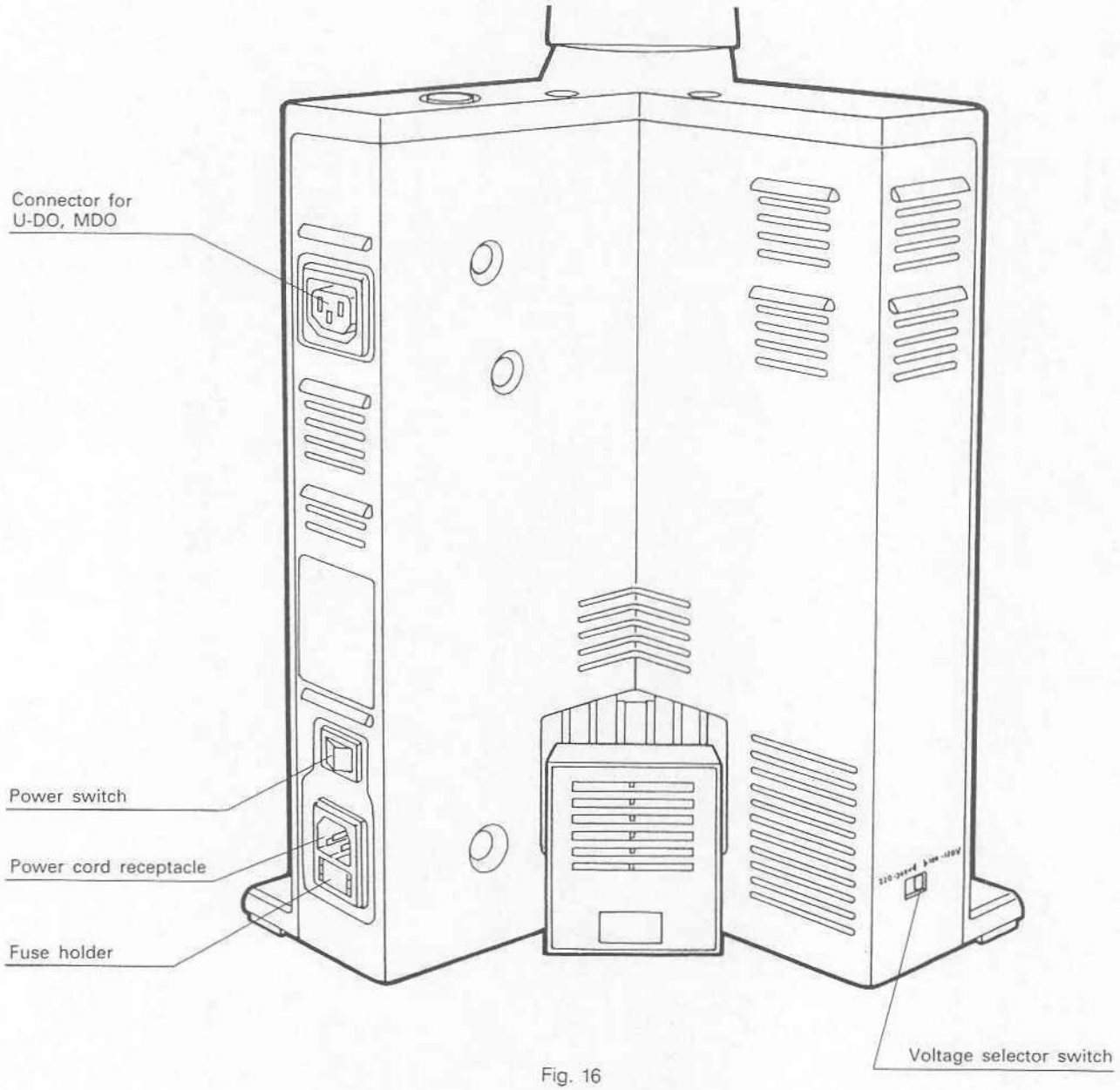

Connector for
U-DO, MDO
Power switch
Power cord receptacle
Fuse holder
Voltage selector switch

Fig. 16

4 SUMMARY OBSERVATION PROCEDURE

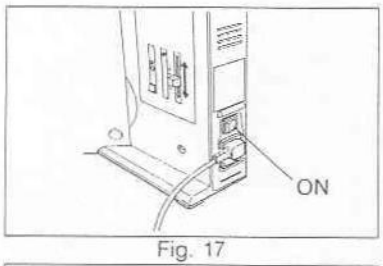


Fig. 17

1. Turn on the main switch and adjust the brightness with the light intensity lever. (When doing this, keep the light intensity preset button on.) (Page 10)

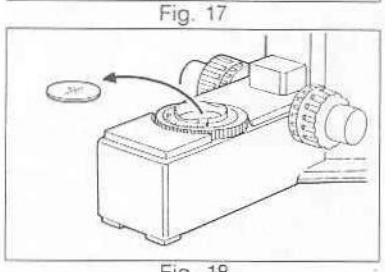


Fig. 18

2. Move all filters out of the light path. (Pages 10)

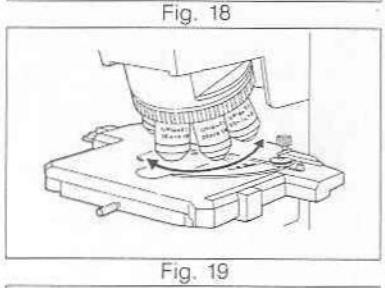


Fig. 19

3. Turn the revolving nosepiece so that the 10X objective is in the light path. Watch out for an audible click in that position.

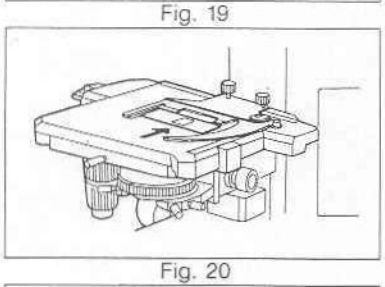


Fig. 20

4. Place a specimen on the stage. (Page 12)

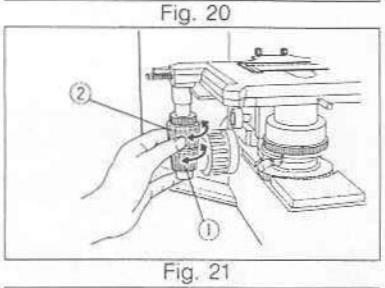


Fig. 21

5. Turn the X axis knob a and Y axis knob b to move the specimen into the light path.

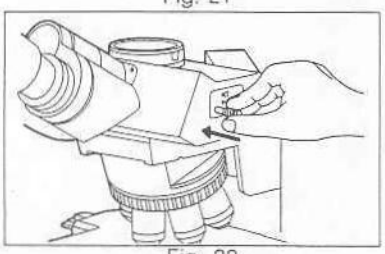


Fig. 22

[Using a trinouclar observation tube]

6. Push the observation tube's light path selector knob to "Both-100%" (the IN position). (Page 15)

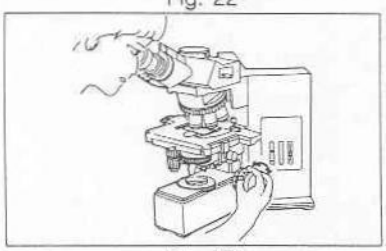


Fig. 23

7. Looking through the right eyepiece with your right eye, turn the coarse adjustment knob to bring the specimen into focus. After obtaining approximate focus, use the fine adjustment knob to make fine adjustments. (Page 18)

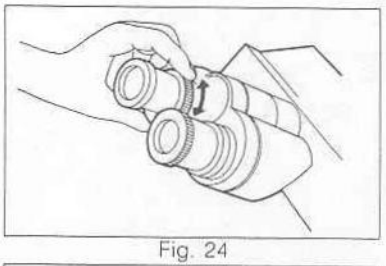


Fig. 24

8. Looking through the left eyepiece with your left eye, turn the diopter adjustment ring to focus the specimen. (Page 14)

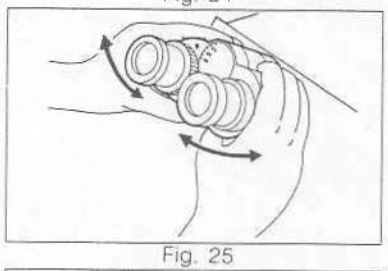


Fig. 25

9. Adjust the interpupillary distance of the eyepieces. (Page 14)

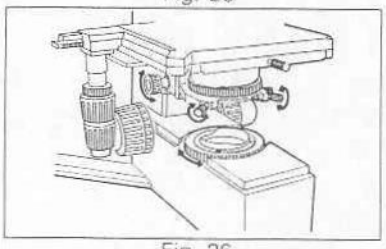


Fig. 26

10. Adjust condenser centering and focus. (Page 16)

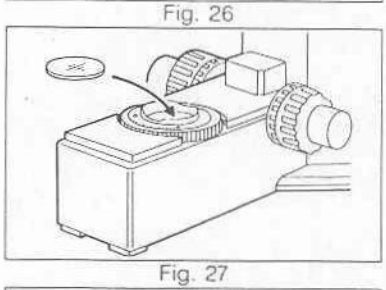


Fig. 27

11. Engage the objective to be used for observation and adjust the light intensity to the desired level, then readjust the focus.
12. Place your choice of filters into the light path. (Pages 10.11)

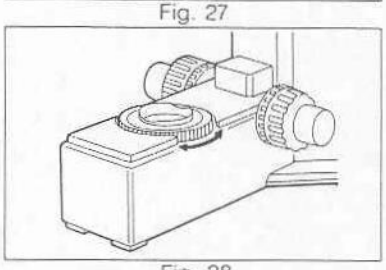


Fig. 28

13. Adjust the field iris diaphragm. (Page 16)

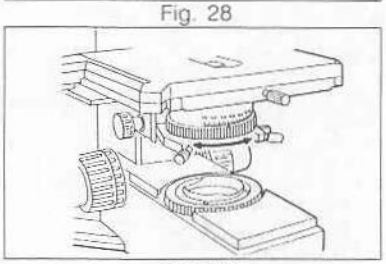


Fig. 29

14. Adjust the aperture iris diaphragm. (Page 17)

5-1 Base

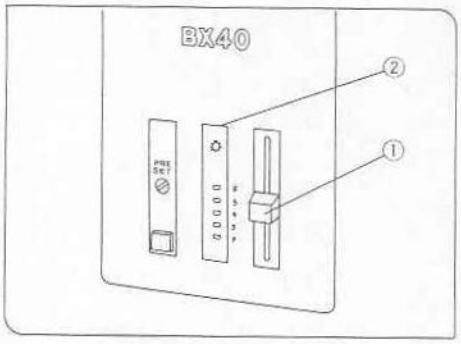


Fig. 30

1 Voltage indicator (Fig. 30)

1. Sliding the light intensity lever a upward increases the voltage, making illumination brighter.
2. The numerals to the right of the LEDs of the voltage indicator ② indicate the voltage.

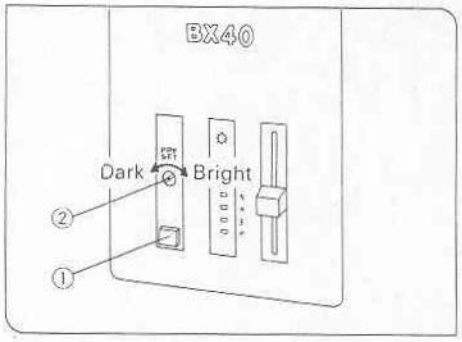


Fig. 31

2 Setting the Light Preset Button (Fig. 31)

The light preset button ① makes it possible to set the light intensity to a preselected level regardless of the position of the light intensity lever.

1. Push the light preset button ① to the ON position.
   (The face of the switch lights when the switch is ON.)
2. Using a small screwdriver, turn the preset adjustment screw to obtain the required light intensity. Turning the screw clockwise increases intensity.
3. Switch the light preset button OFF and brightness returns to the level set by the light intensity lever.

★ **The light intensity lever does not affect brightness while the light preset button is ON.**

Using the Light Preset Button

The light preset button allows you to temporarily adjust brightness to a preset level for applications such as photomicrography, making it unnecessary to manually adjust the brightness each time you take a photograph.

- Before shipment from the factory, the preset level is set to an intensity that is suitable for photomicrography.
- The light preset button is also useful when using two different objectives alternatingly, allowing you to avoid manually adjusting the brightness each time you change magnifications.

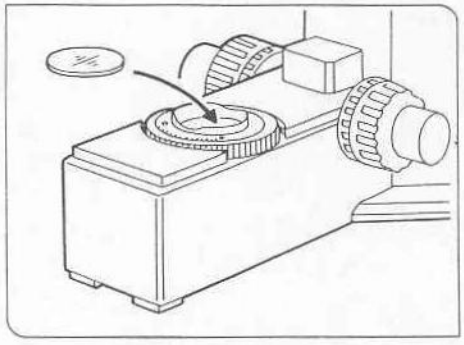


Fig. 32

3 Use of Accessory Filters (Fig. 32)

You can place to two 45 mm diameter filters into the filter holder on the light exit at the base of the microscope. If you need to use more than two filters at once, use a filter cassette.

★ **When using a filter cassette, you can additionally use a single filter with a thickness of less than 3 mm over the light exit glass.**

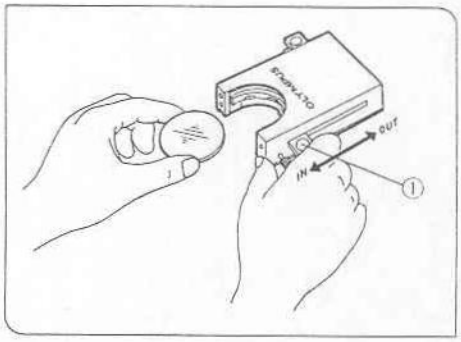


Fig. 33

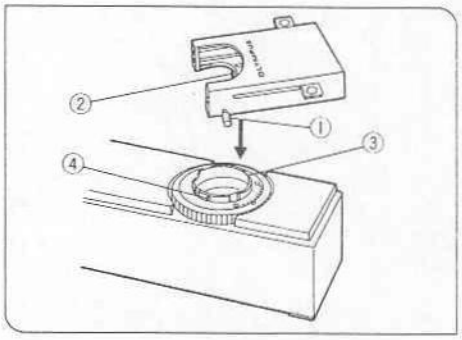


Fig. 34

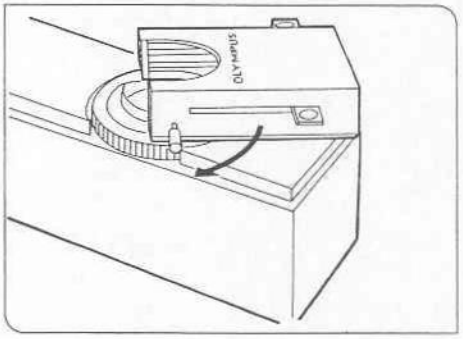


Fig. 35

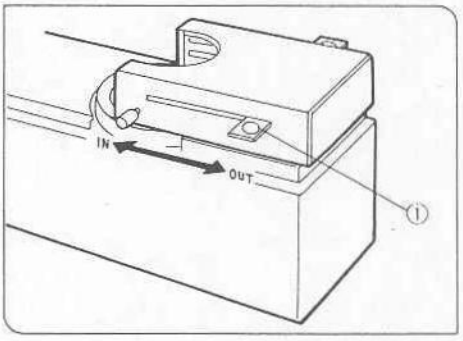


Fig. 36

Using the Filter Cassette (option) (Figs. 33, 34, 35, 36)

If you need to place 3 or more filters over the light exit window, use the filter cassette.

Loading Filters Into the Filter Cassette (Fig. 33)

The filter cassette has two filter levers on the right side and one on the left side.
The filter cassette accommodates filters with a diameter of 45 mm and a thickness of 2.7 mm or less.

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 lever a to the IN position. Make sure that it clicks securely into place.
3. Holding the lever in the position shown, put the filter into the cassette by inserting it in the direction indicated by the arrow.
4. Place the other two filters in the same manner.

Mounting the Filter Cassette (Figs. 34, 35)

1. Loosen the filter cassette clamping screw ①. (Fig. 39)
2. Holding the filter cassette above the light exit glass, align the key ② with the slot ③ and press the filter cassette into place from above.
3. Rotate the filter cassette to align its sides with the base. (Fig. 40)
4. Align the clamping screw ① with the positioning hole ④ on the light exit, then tighten the screw to fasten the filter cassette.
   ★ **When the filter cassette is installed, the stage may hit it when lowered. Therefore, exercise caution when lowering the stage with the filter cassette installed.**

Using the Filter Cassette (Fig. 36)

Usable filters	Applications	
45LBD-IF	Color balancing filter	
45ND-6, 45ND-25	Neutral density filter	
45G-530, 45G-533, 45IF550	Green	B7W contrast filter
45Y-48	Yellow	
45O-560	Orange	
45C-3, 45KB-3	Daylight filter	

Table 1

Up to three of the above filters can be inserted into the filter cassette. Moving the levers ① on the left and right sides of the cassette to the IN position moves the corresponding filter into the light path.

5-2 Stage

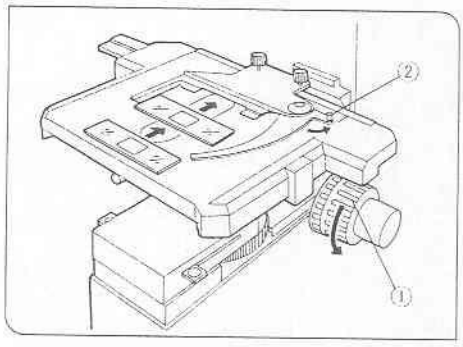


Fig. 37

1 Placing of Specimen Slides

Specimen Holder for 2 Specimen Slides (Fig. 37)

1. Raise the stage by turning the coarse adjustment knob ①.
2. Open the lever ② on the specimen clamp and slide the specimen slides on to the stage from the front.
3. After sliding the slides in as far as they will go, gently close the lock lever.

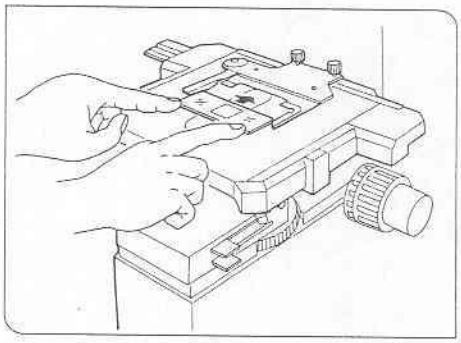


Fig. 38

Specimen Holder for Single Slides (Figs. 38, 39)

The specimen can easily be placed by sliding it into the specimen holder from the front. (Fig. 38)

★ With single slide observations, the maximum slide dimensions are 26 × 76 mm, with a thickness of 0.9 to 1.2 mm and cover glass thickness of 0.17 mm.

★ When observing large specimens slides, remove the specimen holder and move the slide by hand.

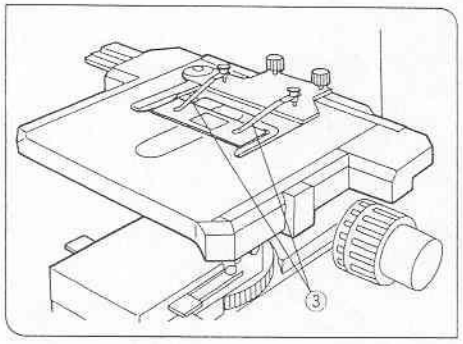


Fig. 39

Using an Oil Immersion Objective

Adsorption of immersion oil can cause the specimen to float. In such cases, it is recommended to use the optional specimen clip (BH2-SCB-3) for oil immersion objectives ③. (Fig. 44)

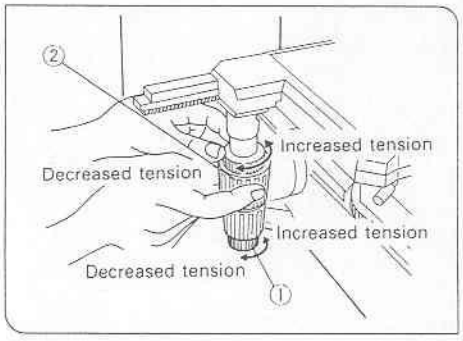


Fig. 40

2 Adjust the Tension of the X and Y Axes Knobs (Fig. 40)

The tension of the X and Y axes knobs can be individually adjusted. Turning the X adjustment knob ① or the Y adjustment knob ② in the direction of the arrow increases tension, and turning it in the opposite direction reduces tension.

When adjusting the tension, hold the X and Y axes knobs to keep them from turning along with the tension adjustment knobs.

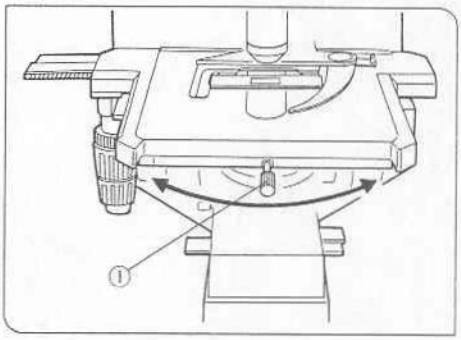


Fig. 41

3 Rotating the Stage (Fig. 41)

1. Slightly loosen the stage clamping screw ①.
2. The stage can be rotated by turning it with the stage clamping screw.
- The rotation angle changes depending on position of the stage knobs.

	Rotation angle	
	Clockwise	Counter-clockwise
Right hand knobs	230°	20°
Left hand knobs	20°	230°

Table 2

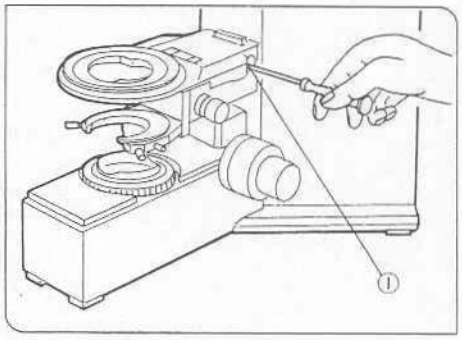


Fig. 42

4 Stage Height Adjustment (Figs. 42, 43)

By lowering the stage height, the microscope will accommodate specimens with height up to 40 mm. This is useful when observing metallurgical specimens and other thick objects.

1. Lower the stage to the lower limit, then remove the stage from the microscope. (See page 43)
2. Loosen the stage bracket clamping screw ① and remove the stage bracket. (Fig. 42)
3. Turn the coarse adjustment knob and raise the focusing block ③ to where the stopper screw ② in the arm becomes visible. (Fig. 43)
4. Using the Allen wrench, loosen and remove the upper stopper screw ②.
5. Reattach stage bracket and stage.
   Store the removed stopper screw ② in a safe place so that you do not lose it.

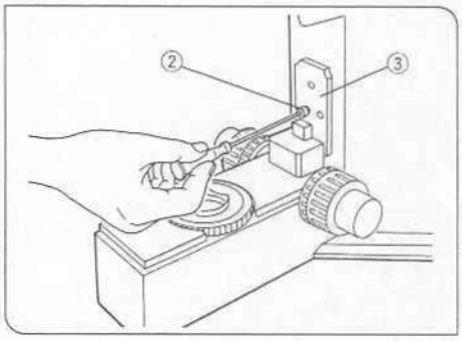


Fig. 43

5-3 Observation Tube

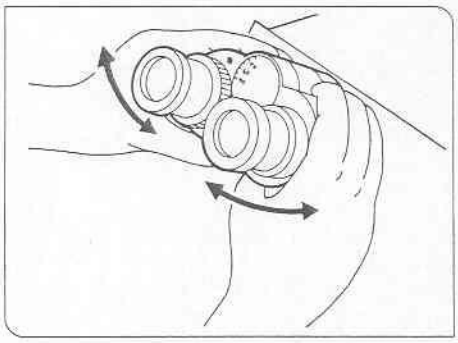


Fig. 44

1 Interpupillary Distance Adjustment (Fig. 44)

While looking through the eyepieces, adjust the binocular movement to where the left and right view fields are the same. The index dot o indicates the interpupillary distance.
Note your interpupillary distance so that it can be quickly duplicated.

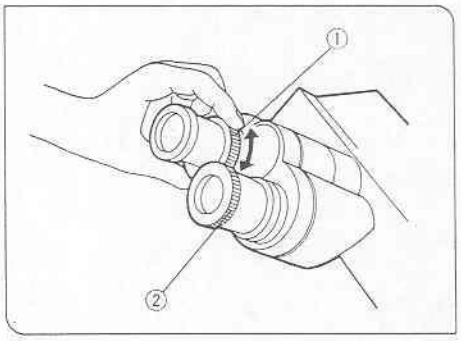


Fig. 45

2 Diopter Adjustment (Figs. 45, 46)

1 Looking through the right eyepiece with your right eye, focus on the specimen using the coarse and fine adjustment knobs.
2. Looking through the left eyepiece with your left eye, turn the diopter adjustment ring ① to where the specimen is in focus. (Fig. 45)

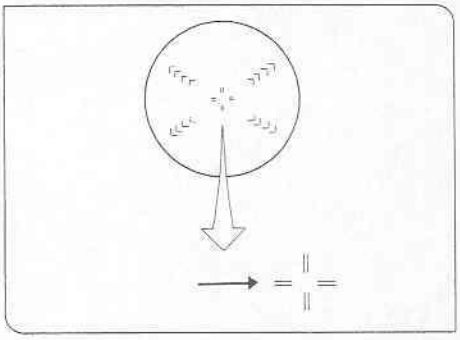


Fig. 46

Using a Finder Eyepiece

1. Looking through the right eyepiece with your right eye, turn the knurled ring on top of the eyepiece until you see two distinct sets of recticles in the field of view. (Figs. 45, 46)
2. Looking through the right eyepiece, turn the coarse adjustment knob to focus on the specimen and recticles.
3. Looking through the left eyepiece with your left eye, turn the diopter adjustment ring ① using a finder eyepiece

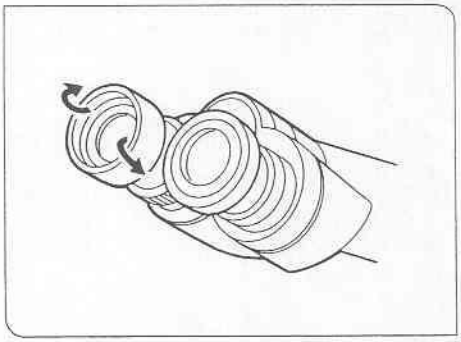


Fig. 47

3 Using the Eye Shades (Fig. 47)

When not Wearing Eyeglasses

Holding the diopter adjustment ring to keep it from turning, turn the eyepiece itself to fit its inclination to the contour of your face.

When Wearing Eyeglasses

Fold the eye shade outward with both hands. (Fig. 47)

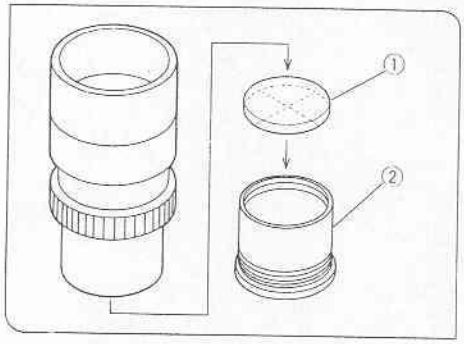


Fig. 48

4 Use of Eyepiece Micrometers (Fig. 48)

Eyepiece micrometers can be inserted on WH10X-H and WH10X eyepieces.

Following Fig. 48, unscrew the micrometer frame ② from the eyepiece, place a micrometer ① into the frame. Screw the micrometer frame into the eyepiece as it was before. (Please use ϕ24 X 1 mm micrometers.)

★ The micrometer is inscribed on one side of the glass and must be placed with the inscribed side facing the frame ②.

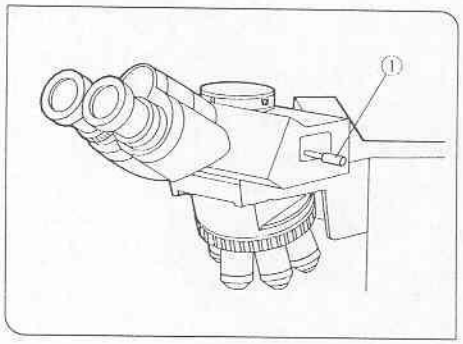


Fig. 49

5 Light Path Selection (U-TR30, U-SWTR) (Fig. 49)

Slide the light path selector knob ① to select the desired light path. The selector knob is ordinarily set at the middle position. With dark specimens, push the knob in. If additional light is needed for television or photomicrography, pull the knob out.

Light path selector knob	Indication	Intensity ratio	Application
Pushed in		100% at binocular eyepieces	Observation of dark specimens
Middle position		20% at binocular eyepieces, 80% for TV/photography	Observation of bright specimens, photography, TV observation
Pulled out		100% for TV/photography	Photography, TV observation

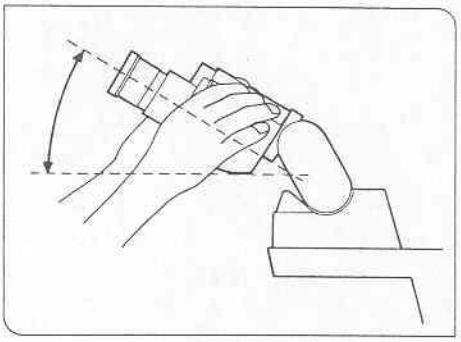


Fig. 50

6 Tilt Adjustment (U-TBI) (Fig. 50)

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

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

★ Do not attempt to force the binocular assembly past the upper or lower stop positions. Applying excessive force could destroy the mechanism.

★ The U-TBI tilting observation tube can not be used in combination with various intermediate tubes because of vignetting in the peripheral field of view.

5-4 Condenser

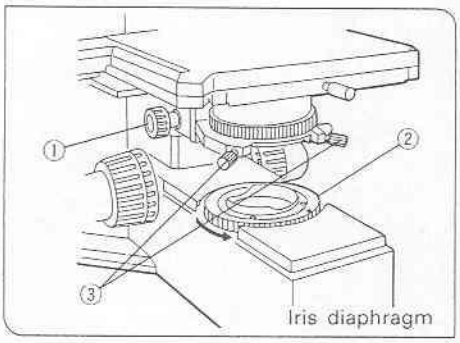


Fig. 51

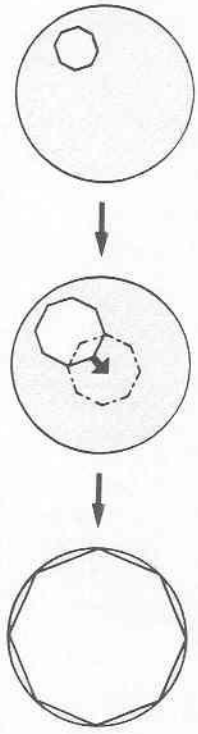


Fig. 52

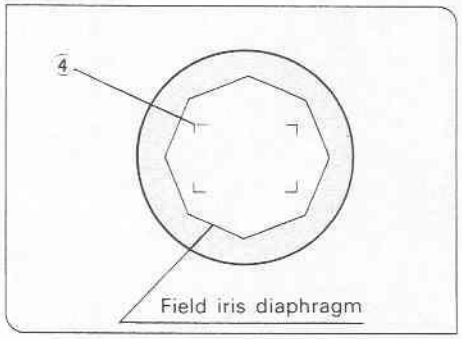


Fig. 53

1 Condenser Centration (Fig. 51, 52, 53, 54, 55)

1. Turn the condenser height adjustment knob ① and raise the condenser to its upper limit. (Fig. 34)
2. Focus on the specimen using the 10X objective.
   ★ When using the U-SC swing-out condenser, move the front lens into the light path.
3. Rotate the field iris diaphragm ring ② in the direction of the arrow to reduce the aperture.
4. Turn the condenser height adjustment knob ① to where the image of the iris diaphragm is visible in sharp focus.
5. Turn the two condenser centering screws ③ to move the image of the field iris diaphragm 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, increase the field stop slightly so that its image is just outside the field of view.

Field Iris Diaphragm (Fig. 53)

The field iris diaphragm restricts the diameter of the beam of light entering the condenser 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 lies just outside the field of view. (See "Compatibility of objectives and condensers" on the next page.) When photographing specimens, stop the field stop down to where it is somewhat larger than the firm format ④ to obtain even better results.

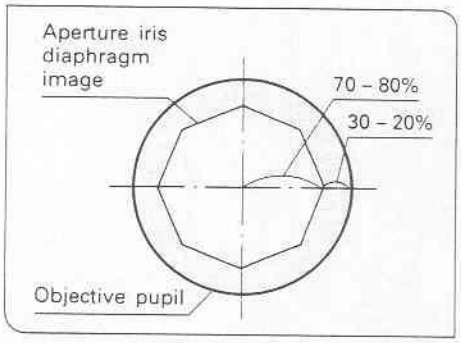


Fig. 54

Aperture Iris Diaphragm (Figs. 54, 55)

- The aperture iris diaphragm determines the numerical aperture of the illumination system. Matching the numerical aperture of the illumination system with that of the objective provides better image resolution and contrast, and also increases the depth of focus.
- Since the contrast of microscopic specimens is ordinarily low, setting the condenser aperture iris diaphragm to 70~80% of the N.A. of the objective in use is usually recommended. When necessary, adjust this ratio by removing the eyepiece and peeking into the eyepiece sleeve to see the image shown in Fig. 54.

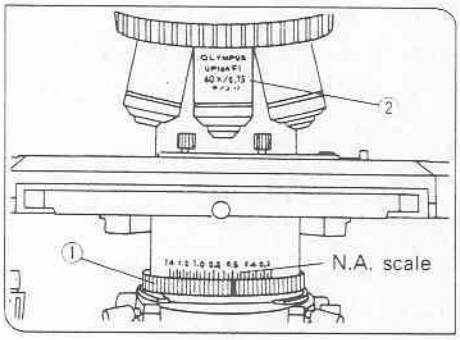


Fig. 55

Using the Numerical Aperture Scale

Set the condenser numerical aperture to about 80% of the NA value ② indicated on the objective. (Fig. 55)

Example: With the Plan 40X (NA 0.65), set the scale to 0.65 x 0.8 = 0.5.

Compatibility of Objectives and Condensers

Objective magnification	Condenser			
	Achromat U-AC	Achromat/ aplanat U-AAC	Swing-out achromat U-SC	Ultra-low magnification U-ULC
1.25X				Usable
2X			Usable by moving front element out of the light path*2	
4X	Usable to FN22			
10~60X	Usable	Usable	Front element in light path	
100X			NA not fully adequate*1	

*1 When using the U-SC swing-out achromat condenser together with the 2X or 4X objective, fully open the condenser aperture and use the field iris diaphragm in the base as aperture diaphram.

*2 Although slightly inadequate NA results in a somewhat darker field of view with a 100X objective, the combination is usable.

- To obtain better illumination, use of the U-ULC is recommended in photomicrography when using the 2X or 4X objective.

Table 4

5-5 Adjustment Knobs

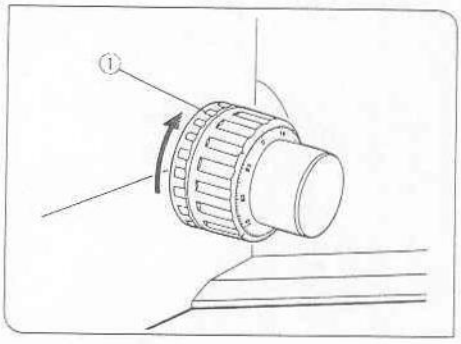


Fig. 56

1 Adjusting the Coarse Adjustment Knob Tension (Fig. 56)

Adjust the coarse adjustment knob tension using the tension adjustment ring.

The coarse adjustment knob tension is preadjusted for easy use. However, if desired you can change the tension using the tension adjustment ring ①. Turning the ring in the direction of the arrow increases tension, and vice versa.

The tension is too low if the stage drops by itself or focus is quickly lost after adjustment with the fine adjustment knob. In this case, turn the ring in the direction of the arrow to increase tension.

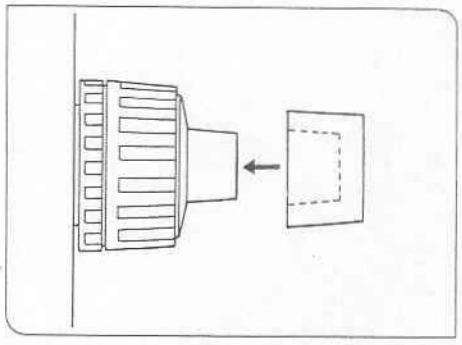


Fig. 57

2 Using the Fine Adjustment Knob Rubber Cap (Fig. 57)

Ordinarily, the fine adjustment knob is used with the rubber cap attached. However, if space between the knob and the stage knobs is insufficient, the cap may be removed. The cap makes it easier to turn the fine adjustment knob, allowing more accurate focus.

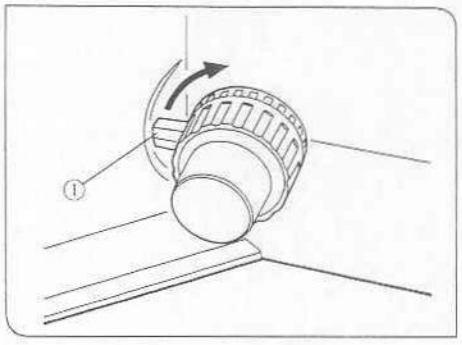


Fig. 58

3 Coarse Adjustment Stopper (Fig. 58)

The coarse adjustment stopper serves to keep the objective from bumping into the specimen and to simplify focusing. After focusing on the specimen with the coarse adjustment knob, turn this lever ① in the direction of the arrow to set an upper limit on the coarse adjustment movement. After changing specimens, refocussing is easily accomplished by turning the coarse adjustment knob to the stopper position, then making fine adjustments with the find adjustment knob.

Stage movement with the fine adjustment knob is not affected by this stopper.

5-6 Immersion Objectives

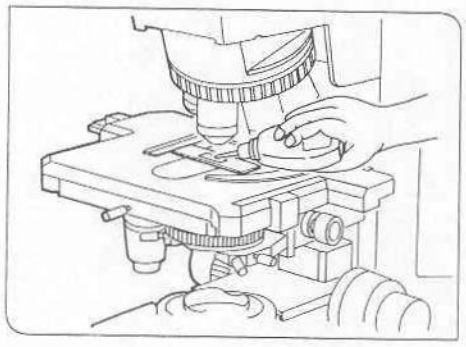


Fig. 59

1 Use of Immersion Objectives (Fig. 59)

1. Focus on the specimen with a low power objective.
2. Place a drop of immersion oil (provided) onto the specimen at the portion to be observed.
3. Turn the revolving nosepiece to move the oil immersion lens into the light path, then focus using the fine adjustment knob.
   If the condenser marking shows a numerical aperture (NA) of 1.0 or more, the number applies only when oil is present between the slide glass and the top element of the condenser. When oil is not present, the NA is about 0.9.
   ★ Since any bubbles in the oil will impair the image, make sure that the oil is free of bubbles.
   a. To check for bubbles, remove the eyepiece and fully open field and aperture iris diaphragm, then look at the exit pupil of the objective inside the observation tube. (It should appear round and bright.)
   b. To remove bubbles, rock the nosepiece slightly to move the oil immersion objective back and forth a few times.
4. After use, remove oil from the objective front lens by wiping it carefully with gauze dampened with a very small quantity of 7 parts ether: 3 parts alcohol solution, or with Xylol.
   ★ Using too much Xylol can dissolve the lens adhesive.

5-7 Photomicrography

• Use a trinocular observation tube (U-TR30) for taking photomicrographs.
Photomicrograph can be performed using either the PM-10, the PM-20, or the PM-30 photomicrographic system. Procedures for using the photomicrographic unit are described in respective instruction manual. Procedures specific to this microscope are given below.

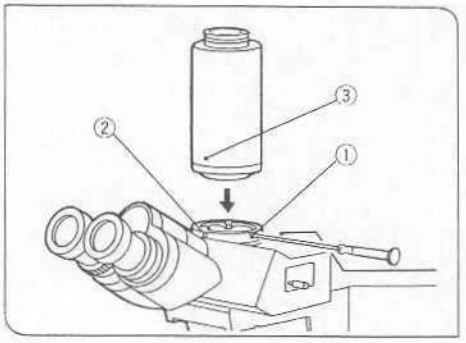


Fig. 60

1 Single Port Tube Attachment (U-SPT) (Fig. 60)

1. Using the Allen wrench, loosen the clamping screw ① on the trinocular lens photo tube.
2. Align the vertical index line ② with the index dot ③ on the single port tube, then insert the single port tube into the photo tube.
3. Securely tighten the clamping screw ①.

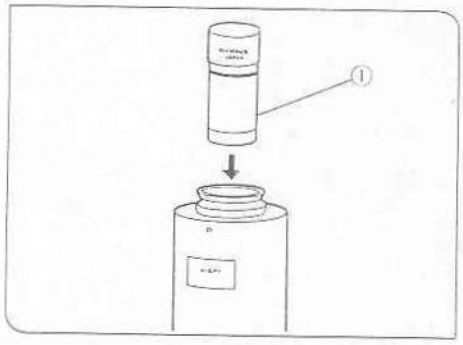


Fig. 61

2 Photo Eye piece (Fig. 61)

Use the PE photo eyepiece for photomicrography. Insert photo eyepiece ① into the dinhlr port tube on the trinocular observation tube.

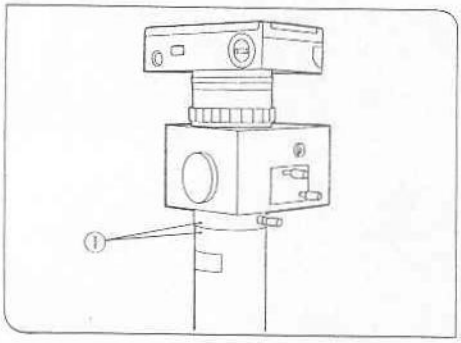


Fig. 62

3 Mounting the Photographic Unit (Fig. 62)

Place the photographic unit directly over the circular dovetail of the trinocular observation tube. Make sure that the index dots ① on the observation tube and the unit are aligned, then clamp the unit.

4 Setting the Observation Tube Light Path

See page 15 of the "Observation Tube" section.

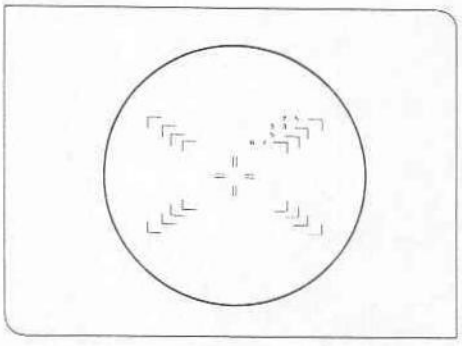


Fig. 63

5 Focus Adjustment (Fig. 63)

1. Focusing is done using the binocular eyepiece part of the trinocular observation tube.
   ★ Whenever you remove the viewer from the photographic unit, be sure to install the cap.
2. Insert a finder eyepiece into the right eyepiece sleeve.
3. The finder eyepiece has a built-in focusing lens with four masks, and the focus is practically the same for the focusing lens and the camera film plane. The masks indicate the areas covered, and the numerals next to the masks correspond to the magnification of the photo eyepiece. Different finder eyepieces are available for different cameras. Select the type that is appropriate for the camera being used.
4. Because of the great depth of focus of 1X to 4X objectives, use of the illuminated focusing telescope (U-FT) is recommended for accurate focusing.

• Focusing is easier using the focusing telescope of the camera unit than using the finder eyepiece.

5-8 Fork and Mirror Assembly

- The fork and mirror assembly is for use when a source of electricity to power the built-in illuminator is not available. A strong light source ie. sunlight, jeep headlight, bright flash light etc., reflected off the mirror is required to provide proper illumination.

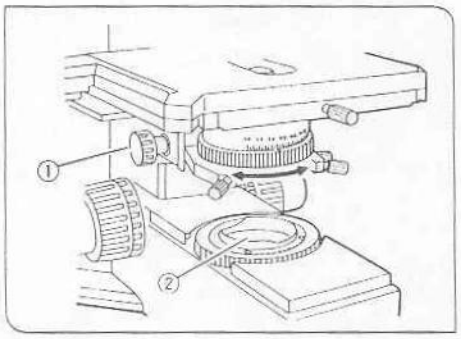


Fig. 64

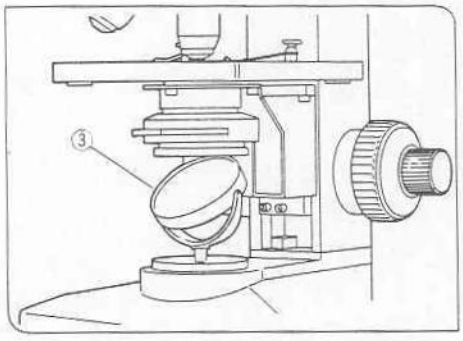


Fig. 65

1 Use of Fork and Mirror Assembly (Figs. 64, 65)

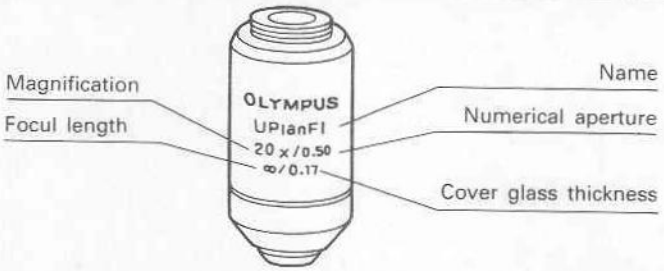
1. Raise the condenser up to its maximum height using condenser knob ① be careful not to run the stage up into the objectives.
2. Carefully insert the base of the fork and mirror assembly into the light well ② of the microscope.
3. Turn assembly ③ so that the mirror is facing front and adjust the angle to 45 degrees.
4. Shine light source onto mirror while looking through the eyepieces. The angle of the mirror may need to be adjusted to get maximum light intensity.

6 SPECIFICATIONS

Item	Specification			
(1) Optical system	UIS (Universal Infinity System) optical system			
(2) Light illumination	Built-in transmitted Koehler illumination 6V 30W Halogen bulb (pre-centered) Light intensity DC 1.5V-5.9V (continuous) Light preset switch (setting range 1.5V-5.9V) Power consumption 100V-120V, 50V-60V, 80VA Fuse 250V 2A slow type (LITTEL 218005)			
(3) Focusing	Stage movement by roller guide (Rack & Pinion) Stroke per rotation: 0.1 mm (fine), 15 mm (coarse) Full stroke range: 25 mm Upper limit stopper Torque adjustment on coarse handle			
(4) Revolving nosepiece	Fixed reversed quintuple nosepiece			
(5) Observation tube	Type	U-BI30	U-TBI	U-TR30	U-SWTR
		Wide field binocular	Wide field tilting binocular	Wide field trinocular	Super wide field trinocular
	Field No.	22			26.5
	Tube inclanation	30°	5°-35°	30°	
	Interpupillary distance	50 mm - 76 mm			
	Light path	None		3 steps: ① Bi 100% ② Bi 20%, Photo 80% ③ Photo 100%	
(6) Stage	Type	U-SVRS (B)	U-SVRD (B)	U-SVLS (B)	U-SVLD (B)
		Common axis with low positioned coaxial knobs on the right side (Rectangular ceramic coated stage)		Common axis with low positioned coaxial knobs on the left side (Rectangular ceramic coated stage)	
	Size	135 mm (D) X 180 mm (W)			
	Movement mechanism	Adjustable vertical (Y) and horizontal (X) knob tension Movement range: 52 mm vertically (Y), 76 mm horizontally (X) (Allows observation of full surface of two standard size slides)			
	Specimen finger	Single slide holder	Two slide holder	Single slide holder	Two slide holder
(7) Condenser	Type	U-AC	U-SC	U-AAC	
		Abbe achromat condenser	Swing-out achromat condenser	Achromat aplamat condenser	
	N.A.	1.25	0.9 - 0.16	1.40	
	Aperture iris diaphragm	With aperture iris diaphragm scale			
	Usable objectives	4X to 100X (for wide field observations) 10X-100X (for ultra-wide field observations)	2X to 100X (for wide to ultra-wide field observations)	10X to 100X (for wide to ultra-wide field observations)	

Table 5

7 OPTICAL CHARACTERISTICS



Optical character / Objectives	Mag.	N.A.	W.D. (mm)	Cover glass thick-ness	Reso-lution (μm)	Eyepiece						Remarks
						WH10X			WH15X			
						Total mag.	Depth of focul	Field of view	Total mag.	Depth of focul	Field of view	
Ach	10X	0.25	6.1	—	1.34	100X	28.0	2.2	150X	20.9	1.4	
Achromat	20X	0.40	3.0	—	0.84	200X	6.09	1.1	300X	4.64	0.7	
(FN22)	40X	0.65	0.45	0.17	0.52	400X	3.04	0.55	600X	2.35	0.35	
	60X	0.80	0.15	0.17	0.42	600X	1.76	0.37	900X	1.39	0.23	
	100XO	1.25	0.13	—	0.27	1000X	0.69	0.22	1500X	0.55	0.14	
Plan	4X	0.10	22	—	3.36	40X	175	5.5	60X	85.8	3.5	
Plan Achroma	10X	0.25	10.5	—	1.34	100X	28.0	2.2	150X	20.9	1.4	
(FN22)	20X	0.40	1.2	0.17	0.84	200X	6.09	1.1	300X	4.65	0.7	
	40X	0.65	0.56	0.17	0.52	400X	3.04	0.55	600X	2.35	0.35	
	50XOI	0.60-0.90	0.15	—	0.37	500X	1.75	0.44	750X	1.30	0.28	Iris
	100XO	1.25	0.15	—	0.27	1000X	0.69	0.22	1500X	0.55	0.14	
UPlan FI	4X	0.13	17	—	2.58	40X	127	5.5	60X	92.9	3.5	
Universal	10X	0.30	10	—	1.12	100X	22.4	2.2	150X	16.5	1.4	
	20X	0.50	1.6	0.17	0.67	200X	7.00	1.1	300X	5.22	0.7	
(FN26.5)	40X	0.75	0.51	0.17	0.45	400X	2.52	0.55	600X	1.93	0.35	
	100XO	1.30	0.10	0.17	0.26	1000X	0.66	0.22	1500X	0.52	0.14	
	100XOI	0.60-1.30	0.10	0.17	0.26	1000X	0.66	0.22	1500X	0.52	0.14	Iris
UPlan Apo	4X	0.16	13.0	—	2.1	40X	99.5	5.5	60X	71.7	3.5	
Universal	10X	0.40	3.1	0.17	0.84	100X	15.9	2.2	150X	11.5	1.4	
	20X	0.70	0.65	0.17	0.48	200X	4.65	1.1	300X	3.39	0.7	
(FN26.5)	40X	0.85	0.2	0.11-0.23	0.39	400X	2.14	0.55	600X	1.62	0.35	Collar
	40XOI	0.5-1.00	0.12	—	0.34	400X	1.70	0.55	600X	1.30	0.35	Collar
	100XOI	0.5-1.35	0.10	0.17	0.25	1000X	0.62	0.22	1500X	0.49	0.14	Collar
Plan Apo	1.25X	0.04	5.1	—	8.38	12.5X	872	17.6	18.75X	639	11.2	
	2X	0.08	6.0	—	4.19	20X	398	11.0	30X	287	7.0	
(FN26.5)	40X	0.95	0.14	0.11-0.23	0.35	400X	1.86	0.55	600X	1.40	0.35	Collar
	100XO	1.40	0.10	0.17	0.24	1000X	0.59	0.22	1500X	0.47	0.14	

Table 6

8 TROUBLESHOOTING GUIDE

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

Problem	Cause	Remedy	Page
1. Optical System			
a) Lamp does not light.	Bulb burned out.	Replace bulb.	3
	Fuse burned out.	Replace fuse.	5
b) Lamp lights, but field of view remains dark.	Field stop is not open wide enough.	Open the field iris diaphragm.	16
	Condenser is too low.	Adjust the condenser position.	16
	Light path selector lever is in the 📷 position.	Move the lever to the 👁 📷 or 👁 position.	15
c) Field of view is obscured, or field of view is not evenly illuminated.	Light path selector knob is in the middle position.	Set the knob according to the observation method.	15
	The revolving nosepiece is not accurately engaged.	Make sure that the objective clicks properly into place.	8
	You are using an objective that falls outside of the condenser's illumination range.	Use a condenser that matches the objective.	17
	The condenser is not properly centered.	Center the condenser.	16
	The field iris diaphragm is stopped down too far.	Open the field iris diaphragm.	16
	The halogen bulb is not mounted properly.	Push the pins of the halogen bulb in to the holes.	3
d) Dirt or dust is visible in the field of view.	Dirt on the light exit glass	Clean thoroughly.	—
	Dirt on the top surface of the condenser		
	Dirt/dust on the specimen		
	Dirt/dust on the eyepiece		
e) The image is too contrasty and dark.	The condenser is lowered too far.	Adjust the condenser position.	16
	The numerical aperture is stopped down too far.	Open the aperture.	17
f) Visibility is poor. • Image is not sharp. • Contrast is poor. • Details are indistinct.	You are using an objective that is not made for the UIS series.	Use an objective made for the UIS series.	—
	The objective lens is not properly positioned in the light path.	Make sure that the object clicks properly into place.	8
	The cover glsss compensation ring is incorrectly adjusted on an objective with such a ring.	Turn the compensation ring while adjusting the focus to search for best focus.	—
	The tip of the objective is dirty.	Clean the objective.	—
	Immersion oil is not being used with an oil immersion lens.	Use oil.	19
	The immersion oil contains bubbles.	Remove the bubbles.	19

Table 7

Problem	Cause	Remedy	Page
f) Visibility is poor. • Image is not sharp. • Contrast is poor. • Details are indistinct.	You are not using the specified immersion oil.	Use the oil provided.	19
	Specimen is dirty.	Clean.	—
	Cendenser is dirty.		
	The slide glass or cover glass thickness is not appropriate.	Change to glass of appropriate thickness.	12
g) Part of the image is blurred.	The objective is not properly positioned in the light path.	Make sure that the objective clicks properly into place.	8
	The specimen is not properly mounted on the stage.	Put the specimen properly on top of the stage and secure it properly with the specimen clamp.	12
h) The image appears to waver.	The objective is not properly positioned in the light path.	Make sure that the objective clicks properly into place.	8
	The condenser is not properly centered.	Center the condenser.	16
i) The field of view becomes only slightly brighter when the voltage is raised.	The condenser is not properly centered.	Center the condenser.	16
	The condenser is lowered too far.	Adjust the condenser position.	16
2. Electrical System			
a) The bulb intermittently lights and goes out.	The bulb is nearly burned out.	Replace the bulb.	3
	A connector is not properly connected.	Check all connections.	—
b) The bulb burns out almost immediately.	You are using the wrong type of bulb.	Use a bulb of the rated type.	3
c) Light intensity does not change when you move the light intensity lever.	The light preset button is set ON.	Press the button to OFF.	10
d) The voltage indicator LEDs do not light, or the bulb does not light.	The voltage selector switch is set to the wrong position.	Set the switch to the position matching to the local line voltage (100 – 120V or 220 – 240V).	5
e) The voltage indicator LEDs all light, and are not affected by the light intensity lever.	The halogen bulb is not installed.	Install the bulb.	3
	The bulb is burned out.	Replace the bulb.	3
	The lamp housing output connector is disconnected.	Properly connect the lamp housing output connector.	3
3. Coarse/Fine Focus Adjustment			
a) The coarse adjustment knob is hard to turn.	The tension adjustment ring is overtightened.	Loose the ring.	18
	You are trying to raise the stage with the coarse adjustment knob even though the coarse adjustment stopper is locked.	Unlock the stopper.	18
b) The stage goes down by itself, or focus is lost in the course of observation.	The tension adjustment ring is too loose.	Tighten the ring.	18

Table 7

Problem	Cause	Remedy	Page
c) The image is not focused.	When adjusting the stage height, you forgot to reinstall the upper stopper screw.	Reinstall the upper stopper screw.	13
d) Coarse adjustment will not go all the way up.	The coarse adjustment stopper is keeping the stage down.	Unlock the stopper.	18
e) Coarse adjustment will not go all the way down.	The condenser ring is too low.	Raise the condenser ring.	4
f) The objective bumps into the specimen before focus is obtained.	The specimen is mounted upside-down.	Properly mount the specimen.	—
4. Observation Tube			
a) Field of view of one eye does not match that of the other.	The interpupillary distance is incorrect.	Adjust the interpupillary distance.	14
	The diopter is not correctly adjusted.	Adjust the diopter.	14
	Different eyepieces are used on the left and right.	Change one eyepiece to match the other so that both sides are the same.	—
	The light axes are not parallel.	Upon looking into the eyepieces, try looking at the overall field before concentrating on the specimen range. You may also find it helpful to look up and into the distance for a moment before looking back into the microscope.	—
5. Stage			
a) The image moves remarkably when you touch the stage.	The stage is not properly clamped.	Clamp the stage.	3
b) Specimen stops midway of the X axis traverse.	The specimen is not correctly positioned.	Properly set the specimen.	12
c) The X and Y axes knobs are too tight, or too loose.	Is X or Y axis tension too high or too low?	Adjust the tension.	12

Table 7

When Requesting Repair

If checking all of the above points does not correct the problem, please contact the dealer from whom you purchased the microscope for assistance. When doing so, please provide the following information.

- Model name
- Manufacture number
- Problem

A APPENDIX A

Accessories

MICROSCOPE STAND

BX40F — BX40F: Microscope Stand for Olympus B-MAX modular system. Y-shaped design provides exceptional stability and ergonomic positioning of the coaxial coarse and fine focus knobs. Heavy-duty nichrome plated steel rack and pinion coarse focus gears move the stage elevation by means of roller bearings over a 25mm range. Fine focus graduation: 1 micron (0.001mm). Stroke per rotation of fine focus: 0.1mm; stroke per rotation of coarse focus: 15mm. Adjustable focus tension control and focus stop. The stage mount can be detached for relocation 15mm below the standard position, accommodating a specimen height of 40mm. Mount for B-MAX series observation tube, rotatable 360 degrees. Dust-free design with RMS thread quintuple inward-facing ball-bearing nosepiece. Transmitted light Koehler illumination optics. On/off switch; internal thyristor controlled continuously variable 6V/30W DC power supply. The LED voltage display and continuously variable light intensity controls are egonomically positioned. The built-in intensity pre-set switch is adjustable throughout the entire intensity range. Built-in outlet for powering illuminated arrow pointer of multi-viewing attachments. Built-in graduated field diaphragm; accepts optional attachable filter cassette. Circular dovetail stage mount accepts B-MAX series interchangeable stages, and permits rotation of stage about the vertical axis. Attached rack and pinion vertical substage condenser mount with left and right control knobs; 26.5mm condenser stroke and centering screws. Includes dustcover, immersion oil, instruction manual, allen wrench and warranty card. (Requires U-LS30 6V/30W lamp socket, bulb and power cord).

Required Accessories for B-MAX 40 Microscope Stand

5-UL103 — U-LS30: Lamp Socket for 6V/30W Halogen Bulb; precentered; plugs into back of B-MAX 40 microscope stand. Built-in louvres for convection cooling. Easily removeable for bulb replacement.

8-C410 — 6V/30W Bulb for B-MAX 40 microscope.

UYCP-11 — UYCP-11: UYCP Power Cord.

9-U115 — LBD filter, 45mm; for daylight color temperature conversion. Fits directly above field diaphragm.

OBSERVATION TUBES

3-U123 — U-BI30: Binocular Observation Tube with 30 degree eyepiece inclination, dust-free design; F.N. 22 capable; Siedentopf-type. For Olympus B-MAX microscopes, using 30mm diameter WH series eyepieces. High transmision coated prisms; antifungal treatment. Graduated interpupillary distance adjustment 50mm-76mm. Left eyepiece tube with +/- 5 diopter control.

3-U129 — U-TBI: Binocular Observation Tube with continuously variable eyepiece inclination from 5 to 35 degrees, dust-free design; F.N. 22 capable; Siedentopf-type. For Olympus B-MAX microscopes, using 30mm diameter WH series eyepieces. High transmission coated prisms; antifungal treatment. Graduated interpupillary distance adjustment 50mm-76mm. Left eyepiece tube with +/- 5 diopter control.

3-U133 — U-TR30: Trinocular Observation Tube with 30 degree eyepiece inclination, dust-free design; F.N. 22 capable; Siedtopf-type. For Olympus B-MAX microscopes, using 30mm diameter WH series eyepieces. High transmission coated prisms; antifungal treatment. Vertical photo port. Three position light path selector: 100% observation, 20% / 80% observation/photo, or 100% photo. Graduated interpupillary distance adjustment 50mm-76mm; left eyepiece tube with +/- 5 diopter control. Right eyepiece tube with rotation stop maintaining perpendicularity of eyepiece reticle, regardless of interpupillary distance setting. Requires use of Video Adapters (U-V105, U-V110), Photo Tubes U-SPT (Cat # 3-U801) or U-DPT-2 Dual Port Tube (Cat # 3-U803), plus appropriate video/photo mount adapters for photomicrography or video applications.

3-U183 U-SWTR: Super Widefield Trinocular Observation Tube with 30 degree eyepiece inclination, dust-free design; F.N. 26.5 capable; Siedentopf-type. For Olympus B-MAX microscopes, using 30mm diameter SWH series superwidefield focusing eyepieces. High transmission coated prisms; antifungal treatment. Vertical photo port. Three position light path selector: 100% observation, 20%/80% observation/photo, or 100% photo. Graduated interpupillary distance adjustment 50mm-76mm. Both eyepiece tubes are notched to position focusing eyepieces. Right eyepiece tube with automatic compensation to maintain perpendicularity of eyepiece reticle, regardless of interpupillary distance setting. Requires use of Video Adapters (U-V105, U-V110), Photo Tubes U-SPT (Cat # 3-U801) or U-DPT-2 (3-U803) and appropriate video/photo mount adapters for photomicrography or video applications.

PHOTO TUBES

3-U801 U-SPT: Vertical Photo Tube; mounts onto the photo port of the trinocular observation tubes or the second port of the double port tube U-DPT-2.

3-U803 U-DPT-2: Double Port Tube: used in conjunction with the trinocular observation tubes, providing a second photo/video port for simultaneous mounting of photo and video cameras. Three position light path selector: 100% to front port, 100% to back port, 50% / 50% to both ports.

NOSEPIECES / ACCESSORIES (dealer replaceable)

U-R106 U-6RE: Sextuple Revolving Nosepiece; 15 degree, inward-facing, ball-bearing RMS thread. For Olympus infinity-corrected B-MAX series microscopes.

U-R156 U-D6RE: Sextuple Revolving Nosepiece for DIC/POL. Inward-facing, ball-bearing RMS thread. For Olympus infinity-corrected B-MAX series microscopes. With slot for Nomarski DIC sliders (U-DICT/U-DICR). Also includes empty slider which accepts drop-in analyzer U-ANT (Cat # U-P115).

U-R157 Adapter to install sextuple revolving nosepiece on B-MAX 40 microscope frame.

U-P115 U-ANT: Analyzer for Transmitted Light. Fits into empty position of slider included with the U-D6RE nosepiece.

GOUT KIT

U-P800 GOUT KIT-2: Provides clinical diagnostic test for gout/pseudogout, consisting of: A) Special Filter Cassette containing a 45mm preoriented polarizer and two 45mm preoriented first order red, 530nm full wave plates and B) Analyzer Adapter Intermediate Attachment with slider with open position to accept analyzer and C) U-ANT Analyzer (Cat # U-P115).

U-P801 Filter Cassette Module (for use with U-R156 nosepiece).

STAGES WITH LOW POSITION COAXIAL CONTROL

4-U111 U-SVRS: Rectangular Mechnical Stage for Olympus B-MAX microscopes, with right hand low position coaxial X and Y controls and user-adjustable torque. Ultra-durable ceramic coated platform; 180mm x 135mm. Y travel 52mm, X travel 76mm. Rotatable 232 degrees clockwise, 20 degrees counterclockwise, with locking screw. X axis rack and pinion recessed into back of stage plate, leaving a solid, unbroken platform surface, unaffected by dust or other debris. Uniform ball bearing movement with vernier reading to 0.1mm. Detachable specimen holder with parallel spring tension finger.

4-U113 U-SVRD: Rectangular Mechanical Stage for Olympus B-MAX microscopes, with right hand low position coaxial X and Y controls and user-adjustable torque. Ultra-durable ceramic coated platform; 180mm x 135mm. Y travel 52mm, X travel 76mm. Rotatable 232 degrees clockwise, 20 degrees counterclockwise, with locking screw. X axis rack and pinion recessed into back of stage plate, leaving a solid, unbroken platform surface, unaffected by dust or other debris. Uniform ball bearing movement with vernier reading to 0.1mm. Detachable specimen holder, with curved stainless steel stage finger on left side to hold two slides.

4-U116 U-SVLS: Rectangular Mechanical Stage for Olympus B-MAX microscopes, with left hand low position coaxial X and Y controls and user-adjustable torque. Ultra-durable ceramic coated platform; 180mm x 135mm. Y travel 52mm, X travel 76mm. Rotatable 20 degrees clockwise, 232 degrees counterclockwise, with locking screw. X axis rack and pinion recessed into back of stage plate, leaving a solid, unbroken platform surface, unaffected by dust or other debris. Uniform ball bearing movement with vernier reading to 0.1mm. Detachable specimen holder with parallel spring tension finger.

4-U117 U-SVLD: Rectangular Mechanical Stage for Olympus B-MAX microscopes, with left hand low position coaxial X and Y controls and user-adjustable torque. Ultra-durable ceramic coated platform; 180mm x 135mm. Y travel 52mm, X travel 76mm. Rotatable 20 degrees clockwise, 232 degrees counterclockwise, with locking screw. X axis rack and pinion recessed into back of stage plate, leaving a solid, unbroken platform surface, unaffected by dust or other debris. Uniform ball bearing movement with vernier reading to 0.1mm. Detachable specimen holder with curved stainless steel finger to hold two slides.

STAGES WITH SUPER LOW POSITION COAXIAL CONTROL

4-U121 U-SVRSB: Rectangular Mechanical Stage for Olympus B-MAX microscopes; with right hand "super" low position coaxial X and Y controls and user-adjustable torque. Ultra-durable ceramic coated platform; 180mm x 135mm. Y travel 52mm, X travel 76mm. Rotatable 232 degrees clockwise, 20 degrees counterclockwise, with locking screw. X axis rack and pinion recessed into back of stage plate, leaving a solid, unbroken platform surface, unaffected by dust or other debris. Uniform ball bearing movement with vernier reading to 0.1mm. Detachable specimen holder with parallel spring tension finger.

4-U123 U-SVRDB: Rectangular Mechnical Stage for Olympus B-MAX microscopes, with right hand "super" low position coaxial X and Y controls and user-adjustable torque. Ultra-durable ceramic coated platform; 180mm x 135mm. Y travel 52mm, X travel 76mm. Rotatable 232 degrees clockwise, 20 degrees counterclockwise, with locking screw. X axis rack and pinion recessed into back of stage plate, leaving a solid, unbroken platform surface, unaffected by dust or other debris. Uniform ball bearing movement with vernier reading to 0.1mm. Detachable specimen holder with curved stainless steel finger on left side to hold two slides.

4-U126 U-SVLSB: Rectangular Mechanical Stage for Olympus B-MAX microscopes, with left hand "super" low position coaxial X and Y cntrols and user-adjustable torque. Ultra-durable ceramic coated platform; 180mm x 135mm. Y travel 52mm, X travel 76mm. Rotatable 20 degrees clockwise, 232 degrees counterclockwise, with locking screw. X axis rack and pinion recessed into back of stage palte, leaving a solid, unbroken platform surface, unaffected by dust or other debris. Uniform ball bearing movement with venrier reading to 0.1mm. Detachable specimen holder with parallel spring tension finger.

A

4-U127 U-SVLDB: Rectangular Mechcnical Stage for Olympus B-MAX microscopes, with left hand "super" low position coaxial X and Y controls and user-adjustable torque. Ultra-durable ceramic coated platform; 180mm x 135mm. Y travel 52mm, X travel 76mm. Rotatable 20 degrees clockwise, 232 degrees counterclockwise, with locking screw. X axis rack and pinion recessed into back of stage plate, leaving a solid, unbroken platform surface, unaffected by dust or other debris. Uniform ball bearing movement with vernier reading to 0.1mm. Detachable specimen holder with curved stainless steel finger to hold two slides.

PLAIN / CIRCULAR STAGES

4-U100 U-SP: Plain Rectangular Stage without mechcnical stage movement; for Olympus B-MAX microscopes. Platform size: 180mm x 135mm. Rotatable 360 degrees, with locking screw.

4-U351 U-SRG: Circular Rotating Graduated Stage: 142mm diameter, rotatable 360 degrees, graduated to 1 degree. For Olympus B-MAX microscopes. Centerable within a 5mm range, using two centration screws, with provision to lock rotation. Includes two stage clips, and holes tapped to accept an attachable mechanical stage.

4-P103 C-FMP; Attachable Graduated Mechanical Stage: For half slides. (For mounting onto U-SRG circular stage 4-U351).

4-P104 C-FMP; Attachable Graduated Mechanical Stage: For full 1" X 3" slides. (For mounting onto U-SRG Circular stage 4-U351).

STAGE ACCESSORIES

4-U191 U-HL: Specimen Holder with curved stainless steel finger on right side. Holds a 2" x 3" slide or two back-to-back 1" x 3" slides.

4-U192 U-HL2: Specimen Holder with parallel spring tension finger to hold one slide.

4-U193 U-HR: Specimen Holder with curved stainless steel finger on left side. Holds a 2" x 3" slide or two back-to-back 1" x 3" slides.

CONDENSERS

6-U110 U-AC: Abbe Condenser, N.A. 1.25, oil immersible. For Olympus B-MAX series microscopes. All metal body with aperture iris diaphragm graduated in numerical apertures; detachable white cover to facilitate finding area to be viewed. Covers full field-of-view with 4X - 100X standard objectives (F.N. 22) and 10X - 100X objectives (F.N. 26.5).

6-U120 U-SC: Swing-out Achromatic Condenser, N.A. 0.9. For Olympus B-MAX series microscopes. All metal body with aperture iris diaphragm graduated in numerical apertures; detachable white cover to facilitiate finding area to be viewed. Covers full field-of-view with 2X - 100X.

6-U130 U-AAC: Achromatic / Aplanatic Condenser, N.A. 1.40, oil immersible. For Olympus B-MAX series microscopes. All metal body with aperture iris diaphragm graduated in numerical apertures. Covers full field-of-view with 10X - 100X objectives up to F.N. 26.5.

6-U140 U-ULC: Ultra-Low Magnification Condenser, N.A. 0.16. For Olympus B-MAX series microscopes. Aperture iris diaphragm graduated in numerical apertures. Covers full field-of-view with 1.25X - 4X objectives.

6-U180 U-DCD: Darkfield Condenser, Dry. N.A. 0.92/0.80. For Olympus B-MAX series microscopes. For use with 10X, 20X and 40X dry objectives, with numerical apertures below 0.80.

A

6-U185 U-DCW: Darkfield Condenser, Oil immersion; N.A. 1.4 / 1.2. For Olympus B-MAX series microscopes. For use with 10X, 20X, 40X dry objectives, and 40X, 50X, 60X and 100X oil immersion objectives with iris diaphragm to reduce aperture below 1.2.

6-U450 U-PCD: Phase Contrast Turret Condenser: N.A. 1.25, oil immersible. For Olympus B-MAX series objectives. Rotating turret with centerable phase annuli nos. 1, 2 & 3, to accommodate 10X - 100X phase cotnrast objectives, darkfield stop for 10X - 40X dry objectives. "0" position for brightfield, with aperture iris diaphragm.

ACRHOMAT OBJECTIVES (for eyepieces with F.N. up to 22)

1-UB123 ACH10X: 10X Achromat Flatfield Objective, infinity-corrected, F.N. 22; N.A. 0.25; W.D. 6.10mm.

1-UB125 ACH20X: 20X Achromat Flatfield Objective, infinity-corrected, F.N. 22; N.A. 0.40; W.D. 3.00mm.

1-UB127 ACH40X: 40X Achromat Flatfield Objective, infinity-corrected, F.N. 22; N.A. 0.65; W.D. 0.45mm; spring-loaded.

1-UB131 ACH60X: 60X Achromat Flatfield Dry Objective, infinity-corrected, F.N. 22; N.A. 0.80; W.D. 0.15mm; spring-loaded.

1-UB135 ACH100XO: 100X Achromat Flatifeld Oil Immersion Objective, infinity-corrected, F.N. 22; N.A. 1.25; W.D. 0.13mm; spring-loaded.

1-UB136 ACH100XOI: Achromat Flatfield 100X Oil Objective with Iris, infinity-corrected. F.N. 22; N.A. 0.5 - 1.25; W.D. 0.133mm; spring-loaded.

PLAN ACHROMAT OBJECTIVES (for eyepieces with F.N. up to 22)

1-UB222 PL4X: 4X Plan Achromat Objective, infinity-corrected, F.N. 22; N.A. 0.10; W.D. 24.60mm.

1-UB223 PL10X: 10X Plan Achromat Objective, infinity-corrected, F.N. 22; N.A. 0.25; W.D. 10.50mm.

1-UB225 PL20X: 20X Plan Achromat Objective, infinity-corrected, F.N. 22; N.A. 0.40; W.D. 1.20mm; spring-loaded.

1-UB227 PL40X: 40X Plan Achromat Objective, infinity-corrected, F.N. 22; N.A. 0.65; W.D. 0.56mm; spring-loaded.

1-UB230 PL50XOI: 50X Plan Achromat Oil Immersion Objective with Iris, infinity-corrected, F.N. 22; N.A. variable from 0.90 to 0.60. W.D. 0.15mm; spring-loaded.

1-UB235 PL100XO: 100X Plan Achromat Oil Immersion Objective, infinity-corrected, F.N. 22; N.A. 1.25; W.D. 0.15mm; spring-loaded.

UNIVERSAL PLAN FLUORITE OBJECTIVES (for eyepieces with F.N. up to 26.5)

1-UB522 UPLFL4X: 4X U Plan Fluorite "Universal" Objective, infinity-corrected, F.N. 26.5; N.A. 0.13; W.D. 16.50mm. For brightfield, polarization and high UV transmission fluorescence.

1-UB523 UPLFL10X: 10X Plan Fluorite "Universal" Objective, infinity-corrected, F.N. 26.5; N.A. 0.30; W.D. 10.10mm, For brightfield, darkfield, Nomarski DIC, polarization and high UV transmission fluorescence.

1-UB525 UPLFL20X: 20X U Plan Fluorite "Universal" Objective, infinity-corrected, F.N. 26.5; N.A. 0.50; W.D. 1.60mm; spring-loaded. For brightfield, darkfield, Nomarski DIC, polarization and high UV transmission fluorescence.

1-UB527 UPLFL40X: 40X U Plan Fluorite Dry "Universal" Objective, infinity-corrected, F.N. 26.5; N.A. 0.75; W.D. 0.51mmm; spring-loaded. For brightfield, darkfield, Nomarski DIC, polarization and high UV transmission fluorescence.

1-UB535 UPLFL100XO: 100X U Plan Fluorite Oil Immersion "Universal" Objective, infinity-corrected, F.N. 26.5; N.A. 1.30; W.D. 0.10mm; spring-loaded. For brightfield, Nomarski DIC, polarization and high UV transmission fluorescence.

1-UB536 UPLFL100XOI: 100X U Plan Fluorite Oil Immersion "Universal" Objective with Iris, infinity-corrected, F.N. 26.5; N.A. variable from 1.30 to 0.70. W.D. 0.10mm; spring-loaded. For brightfield, darkfield, Nomarski DIC, polarization and high UV transmission fluorescence.

NO COVER GLASS OBJECTIVES

1-UM527 UMPLFL40X: Universal Plan Fluorite 40X Reflected Light Objective, infinity-corrected, RMS thread. F.N. 26.5; N.A. 0.75; W.D. 0.63, spring-loaded. Biological applications: examination of smears and other non-coverslipped specimens which require a "No Cover Glass" objective for brightfield, darkfield, Nomarski DIC, polarization and fluorescence techniques.

1-UM230 MPL50X: M Plan Achromat 50X Reflected Light Objectives, infinity-corrected, RMS thread. F.N.22; N.A. 0.75; W.D. 0.38mm; spring-loaded. Biological applications: examination of smears and other non-coverslipped specimens which require a "No Cover Glass" objective for brightfield, darkfield and visible wavelength fluorescence techniques.

1-UM530 UMPLFL50X: Universal Plan Fluorite 50X Reflected Light Objective, infinity-corrected, RMS thread. F.N. 26.5; N.A. 0.80; W.D. 0.70mm; spring-loaded. Biological applications: examination of smears and other non-coverslipped specimens which require a "No Cover Glass" objective for brightfield, darkfield, Nomarski DIC, polarization and fluorescence techniques.

1-UM935 MPLAPO100XO: M Plan Apochromat 100X Oil Reflected Light Objective, infinity corrected, RMS thread. F.N. 26.5; N.A. 1.40; W.D. 0.10mm; spring-loaded. Biological applications: examinations of smears and other non-coverslipped specimens which require a "No Cover Glass" objective for brightfield, Nomarski DIC, polarization and fluorescence techniques.

PHASE CONTRAST OBJECTIVES - ACHROMAT (for eyepieces with F.N. up to 22)

1-UC123 ACH10XPH: 10X Achromat Flatfield Phase Contrast Objective, infinity-corrected, F.N. 22; N.A. 0.25; W.D. 6.10mm. For use with PH1 Phase Annulus.

1-UC125 ACH20XPH: 20X Achromat Flatifeld Phase Contrast Objective, infinity-corrected, F.N. 22; N.A. 0.40; W.D. 3.00mm. For use with PH1 Phase Annulus.

1-UC127 ACH40XPH: 40X Achromat Flatfield Phase Contrast Objective, infinity-corrected, F.N. 22; N.A. 0.65; W.D. 0.45mm; spring-loaded. For use with PH2 Phase Annulus.

1-UC135 ACH100XOPH: 100X Achromat Flatfield Phase Contrast Oil Immersion Objective; infinity-corrected, F.N. 22; N.A. 1.25; W.D. 0.13mm; spring-loaded. For use with PH3 Phase Annulus.

PHASE CONTRAST OBJECTIVES - PLAN ACHROMAT (for eyepieces with F.N. up to 22)

1-UC223 PL10XPH: Plan Achromat 10X Phase Contrast Objective, infinity-corrected, F.N. 22; N.A. 0.25; W.D. 10.50mm. For use with PH1 Phase Annulus.

1-UC225 PL20XPH: Plan Achromat 20X Phase Contrast Objective, infinity-corrected, F.N. 22; N.A. 0.40; W.D. 1.20mm, spring-loaded. For use with PH1 Phase Annulus.

1-UC227 PL40XPH: Plan Achromat 40X Phase Contrast Objective, infinity-corrected, F.N. 22; N.A. 0.65; W.D. 0.56mm, spring-loaded. For use with PH2 Phase Annulus.

1-UC235 PL100XPH: Plan Achromat 100X Oil Phase Contrast Objective, infinity-corrected, F.N. 22; N.A. 1.25; W.D. 0.15mm, spring-loaded. For use with PH3 Phase Annulus.

PHASE CONTRAST OBJECTIVES - U PLAN FLUORITE (for eyepieces with F.N. up to 26.5)

1-UC523 UPLFL10XPH: 10X U Plan Fluorite Phase Contrast "Universal" Objective, infinity-corrected, F.N. 26.5; N.A. 0.30; W.D. 10.10mm. For brightfield, darkfield, phase contrast, Nomarski DIC, polarization and high UV transmission fluorescence. For use with PH1 Phase Annulus.

1-UC525 UPLFL20XPH: 20X U Plan Fluorite Phase Contrast "Universal" Objective, infinity-corrected, F.N. 26.5; N.A. 0.50; W.D. 1.60mm; spring-loaded. For brightfield, darkfield, phase contrast, Nomarski DIC, polarization and high UV transmission fluorescence. For use with PH1 Phase Annulus.

1-UC527 UPLFL40XPH: 40X U Plan Fluorite Phase Contrast Dry "Universal" Objective, infinity-corrected, F.N. 26.5; N.A. 0.75; W.D. 0.51m,m; spring-loaded. For brightfield, darkfield, phase contrast, Nomarski DIC, polarization and high UV transmission fulorescence. For use with PH2 Phase Annulus.

1-UC535 UPLFL100XOPH: 100X U Plan Fluorite Phase Contrast Oil Immersion "Universal" Objective, infinity-corrected, F.N. 26.5; N.A. 1.30; W.D. 0.10mm; spring-loaded. For brightfield, phase contrast, Nomarski DIC, polarization and high UV transmission fluorescence. For use with PH3 Phase Annulus.

EYEPIECES

2-U100 WH10X Eyepiece: high eyepoint, widefield, F.N. 22; 30mm diameter; with shelf for 24mm reticle

2-U100H WH10X-H Eyepiece: high eyepoint, wide field, F.N. 22; helical focusing; 30mm diameter, with shelf for 24mm reticle

2-U102 Cross WH10X Eyepiece: high eyepoint, wide field, F.N. 22; focusing eyepiece with graduated crosshairs, 30mm diameter.

2-U103 35WH10X Eyepiece: high eyepoint, wide field, F.N. 22; focusing eyepiece with 35mm photomask; 30mm diameter

2-U105 P-WH10X Eyepiece: high eyepoint, widefield, F.N. 22; focusing eyepiece with photomask for Polaroid film: 3¼ x 4¼. 30mm diameter.

2-U120 WH12.5X Eyepiece: high eyepoint, F.N. 18; 30mm diameter; with shelf for 24mm reticle

2-U120H WH12.5X-H Eyepiece: high eyepoint, F.N. 18; helical focusing; 30mm diameter; with shelf for 24mm reticle

2-U150 WH15X Eyepiece: high eyepoint, F.N. 14; 30mm diameter; with shelf for 24mm reticle

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DUAL-VIEWING AND CONFERENCE STATION COMPONENTS

U-DO100 — U-DO: Dual Observation Attachment, for front-to-back viewing; 1X magnification factor. Illuminated arrow pointer with adjustable brightness control with separate joystick controls for teacher and student positions; powered directly from B-MAX microscope base. Green and orange filters for choice of different pointer colors. Upright and unreversed image matches that of main observation tube. Accepts any B-MAX series observation tube, rotatable 360 degrees. Includes three 6V / 5W bulbs (Cat # 8-G101), Instruction Manual.

U-DO120 — U-SDO: Dual Side-by-Side Viewing Atachment, consisting of Dual Viewing Body, Side Viewing Tube and Telescoping Support Stand. All viewing positions see a similar image. Microscope magnification is not affected by this component. Dual-viewing Body contains an illuminated arrow pointer with joystick control and built-in green and orange filters for choice of arrow colors. Low voltage illuminator. Three 6V / 5W bulbs (Cat # 8-G101) and instruction manual are included. The distance between optical axes is 25" (642mm) providing a comfortable shoulder-to-shoulder distance between observers.

U-D0200 — U-MDOB: Multi-Viewing Body. Illuminated moveable arrow pointer with joystick control, green and orange filters for choice of different arrow colors. 1X magnification factor, low voltage illuminator. Includes three 6V / 5W bulbs (Cat # 8-G101), instruction manual. Accepts one observation tube and two Cat # U-DO300; Side viewing tubes.

U-DO300 — U-MDOSV: Multi-Viewing Optical Relay Unit; Consisting of Side-Viewing Tube and Support Stand. All viewing positions see a similar image; accepts two observation tubes.

UNIVERSAL REFLECTED LIGHT ILLUMINATOR (U-URA)

5-UR500 — U-URA: Universal Vertical Illuminator, for Olympus B-MAX series microscopes; 1X magnification factor. With turret to accept any combination of four "U" series beam splitter or fluorescence filter cubes. Universally capable of all reflected/incident light techniques singly or in combination with any transmitted light techqniues. Pull knob in the ilumination path with closed or open position. Centerable aperture iris diaphragm and pre-focused centerable field iris diaphragm. FURA capable. Slots to accept polarizer and analyzer slider. Accepts all Lamp House assemblies.

FILTER FOR U-URA

9-U579 — U-DND: ND 12 Filter Slider to be used with U-URA Universal Vertical Illuminator. Used to equalize image intensitites when switching from brightfield to darkfield.

9-U520 — U-IF550: IF550 Filter Slider for the U-URA Universal Vertical Illuminator.

9-U573 — U-ND25: Filter Slider for the U-URA Universal Vertical Illuminator, containing a 25% transmission neutral density filter.

9-U571 — U-ND6: Filter Slider for the U-URA Universal Vertical Illuminator, containing a 6% transmission neutral density filter.

9-U590 — U-FR: Filter Slider for the U-URA Universal Vertical Illuminator, containing a diffusion filter.

9-U510 — U-LBD: Filter Slider for the U-URA Universal Vertical Illuminator, containing a color conversion filter for daylight balanced film.

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FLUORESCENCE EXCITATION CUBES

U-M536	U-MWU: modular filter cube for fluorescence microscopy, wide band UV excitation, exciter filter BP 330-385, dichromatic beamsplitter DM 400, barrier filter BA 420.
U-M534	U-MNU: modular filter cube for fluorescence microscopy, narrow band UV excitation, exciter filter BP 360 - 370, dichromatic beamsplitter DM 400, barrier filter BA 420.
U-M534A	U-MNUA: modular filter cube for fluorescence microscopy, narrow band UV excitation with bandpass barrier, exciter filter BP 360 -370, dichromatic beamsplitter DM 400, bandpass barrier filter BA 420 - 460.
U-M546	U-MNV: modular filter cube for fluorescence microscopy, narrow band violet excitation, exciter filter BP 400 - 410, dichromatic beamsplitter DM 455, barrier filter BA 455.
U-M556	U-MWBV: modular filter cube for fluorescence microscopy, wide band blue violet excitation, exciter filter BP 400 - 440, dichromatic beamsplitter DM 455, barrier filter BA 475.
U-M554	U-MNBV: modular filter cube for fluorescence microscopy, narrow band blue violet excitation, exciter filter BP 420 - 440, dichromatic beamsplitter DM 455, barrier filter BA 475.
U-M516	U-MWB: modular fitler cube for fluorescence microscopy, wide band blue excitation, exciter filter BP 450 - 480, dichromatic beamsplitter DM 500, barrier filter BA 515.
U-M514	U-MNB: modular filter cube for fluorescence microscopy, narrow band blue excitation, exciter filter BP 470 - 490, dichromatic beamsplitter DM 500, barrier filter BA 515.
U-M518	U-MSWB: modular filter cube for fluorescence microscopy, super wide band blue excitation, exciter filter BP 420 - 480, dichromatic beamsplitter DM 500, barrier filter BA 515.
U-M566	U-MWIB: modular filter cube for fluorescence microscopy, wide band interference blue excitation, exciter filter BP 460 - 490, dichromatic beamsplitter DM 500, barrier filter BA 515 IF.
U-M564	U-MNIB: modular filter cube for fluorescence microscopy, narrow band interference blue excitation, exciter filter BP 470 - 490, dichromatic beamsplitter DM 500, barrier filter BA 515 IF.
U-M566A	U-MWIBA: modular filter cube for fluorescence microscopy, wide band interference filter blue excitation with bandpass barrier, exciter filter BP 460 - 490, dichromatic beamsplitter DM 500, bandpass barrier filter BA 515 - 550 IF.
U-M565A	U-MNIBA: modular filter cube for fluorescence microscopy, narrow band interference filter blue excitation with bandpass barrier, exciter filter BP 470 - 480, dichromatic beamsplitter DM 500, bandpass barrier filter BA 515 - 550.
U-M526	U-MWG: modular filter cube for fluorescence microscopy, wide band green excitation, exciter filter BP 510 - 550, dichromatic beamsplitter DM 570, barrier filter BA 590.
U-M524	U-MNG: modular filter cube for fluorescence microscopy, narrow band green excitation, exciter filter BP 530 - 550, dichromatic beamsplitter DM 570, barrier filter BA 590.

U-M528 U-MSWG: modular filter cube for fluorescence microscopy, super wide band green exciation, exciter filter BP 480 - 550, dichromatic beamsplitter DM 570, barrier filter BA 590.

U-M576 U-MWIG: modular filter cube for fluorescence microscopy, wide band interference green excitation, exciter filter BP 520 - 550, dichromatic beamsplitter DM 565, barrier filter BA 580 IF.

U-M586 U-MWIY: modular filter cube for fluourescence microscopy, wide band interference yellow excitation, exciter filter BP 545 - 550, dichromatic beamsplitter DM 600, barrier filter BA 610 IF.

U-M510 U-MF: modular filter cube with provisions to accept lightsource side (exciter) filters, (dichromatic) beamsplitter and observation side (barrier) filters. Filter diameter accepted is 25mm with a maximum thickness of 6mm. Beamsplitter dimension is 26 x 38mm, thickness 1mm.

SINGLE WAVELENGTH FLUORESCENCE EXCITATION CUBES

U-M41002 Modular B-MAX filter cube for fluorescence microscopy, optimized for the flurochrome Texas Red. Excitation 560/55, dichroic beamsplitter 595, emission 645/75.

DUAL WAVELENGTH FLUORESCENCE EXCITATION CUBES

U-M41004 Modular B-MAX filter cube for fluorescence microscopy, optimized for the fluorochromes TRITC (Rhodamine)/DiI. Excitation 535/50, dichroic beamsplitter 565, emission 610/75.

U-M51000 Modular B-MAX filter cube, optimized for dual wavelength excitation of the fluorochromes DAPI/FITC.

U-M51001 Modular B-MAX filter cube, optimized for dual wavelength excitation of the fluorochromes DAPI/TRITC.

U-M51002 Modular B-MAX filter cube, optimized for dual wavelength excitation of the fluorochromes DAPI/Propidium Iodide.

U-M51003 Modular B-MAX filter cube, optimized for dual wavelength excitation of the fluorochromes DAPI/Texas Red.

U-M51004 Modular B-MAX filter cube, optimized for dual wavelength excitation of the fluorochromes FITC/TRITC.

U-M51005 Modular B-MAX filter cube, optimized for dual wavelength excitation of the fluorochromes FITC/Propidium Iodide.

U-M51006 Modular B-MAX filter cube, optimized for dual wavelength excitation of the fluorochromes FITC/Texas Red.

TRIPLE WAVELENGTH FLUORESCENCE EXCITATION CUBES

U-M3100 Modular B-MAX filter cube for fluorescence microscopy, optimized for the fluorochromes DAPI/Hoechst/AMCA. Excitation 360/40, dichroic beamsplitter 400, emission 460/50.

U-M41001 Modular B-MAX filter cube for fluorescence microscopy, optimized for the fluorochromes FITC/Bodipy/Fluo 3/DiO. Excitation 480/40, dichroic beamsplitter 505, emission 535/50.

U-M61000 Modular B-MAX filter cube, optimized for triple wavelength excitation of the fluorochromes DAPI/FITC/TRITC.

U-M61001 Modular B-MAX filter cube, optimized for triple wavelength excitation of the fluorochromes DAPI/FITC/Propidium Iodide.

U-M61002 Modular B-MAX filter cube, optimized for triple wavelength excitation of the fluorochromes DAPI/FITC/Texas Red.

UNIVERSAL MULTI-WAVELENGTH FILTERS AND COMPONENTS

U-M00011 Five position slider for B-MAX microscopes equipped with Universal Vertical Illuminator. Permits mounting of 25mm exciter filters for use in multi-wavelength excitation applications (FISH). Mounting tool is provided, includes two 25mm blocking disks Cat. # U-M00020.

U-M00050 Multi-wavelength filter cube for B-MAX microscope. Includes pre-installed triple band emitter and polychromatic beamsplitter, exciter position remains empty.

U-C83001 Filter set for multi-wavelength excitation, dimensioned to fit Olympus universal filter cubes (not included). Triple band emitter, polychromatic beamsplitter and five exciters. Single band exciters are for DAPI/Hoescht/AMCA, FITC, Texas Red/Propidium Iodide. Dual exciter is for FITC and Texas Red/TRITC/Propidium Iodide. Triple Exciter is for DAPT, FITC, Texas Red/TRITC/Propidium Iodide.

U-C83000 Filter set for multi-wavelength excitation, dimensions to fit Olympus universal filter cubes (not included). Triple band emitter, polychromatic beamsplitter, and 6 exciters. Single band exciters are for DAPI/Hoescht/AMCA, Chromomycyn, FITC, Texas Red/Propidium Iodide. Dual exciter is for FITC and Texas Red/TRITC/Propidium Iodide. Triple exciter is for DAPI, FITC, Texas Red/TRITC/Propidium Iodide.

U-M83001 Complete filter set for multi-wavelength excitation, pre-installed triple band emitter and polychromatic beamsplitter in the Olympus universal filter cube. Five position exciter slider for mounting of excitation filters, five included which are: Single band - DAPI/Hoescht/AMCA, Texas Red/Propidium Iodide; Dual band - FITC and Texas Red/TRITC/Propidium Iodide; Triple band - DAPI, FITC, Texas Red/TRITC/Propidium Iodide. Mounting tool included.

U-M8300 Complete filter set for multi-wavelength excitation, pre-installed triple band emitter and polychromatic beamsplitter in the Olympus universal filter cube. Five position exciter slider for mounting of excitation filters, six included which are: Single band - DAPI/Hoescht/AMCA, Chromomycyn, FITC, Texas Red/Propidium Iodide; Dual Band - FITC and Texas Red/TRITC/Propidium Iodide; Triple band - DAPI, FITC, Texas Red/TRITC/Propidium Iodide. Mounting tool included.

U-M00010 Five position slider for B-MAX microscope, equipped with Universal Vertical Illuminator. Permits mounting of 25mm exciter filters for multi-wavelength excitation applications (FISH). Mounting tool included.

U-M00020 Light blocking disk, 25mm diameter. Anodized aluminum for use in filter slider to exclude light.

U-M00030 Light blocking disk, 45mm diameter. Anodized aluminum for use in filter cassette U-FC to block transmitted light.

U-C83101 Triple band emission filter for multi-wavelength excitation. Dimensioned to fit Olympus universal filter cube.

U-C83100 Polychromatic Beamsplitter for multi-wavelength. Dimensioned to fit Olympus universal fitler cube.

U-C83360 UV Exciter, 25mm, for 360nm for DAPI/Hoechst/AMCA.

U-C83490 Blue Exciter, 25mm, for 490nm, for FITC.

U-C83570 Green Exciter, 25mm, for 570nm, for Texas Red/TRITC/Propidium Iodide.

U-C83102 Dual Exciter, 25mm, for FITC and Texas Red/Propidium Iodide.

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U-C83103 Triple Exciter, 25mm, for DAPI/Hoechst/AMCA; FITC; Texas Red/TRITC/Propidium Iodide.

U-C83405 Violet Exciter, 25mm, for 405nm, for Chromomycyn.

REFLECTED POLARIZED LIGHT

U-P210 U-PO: Polarizer Slider for U-URA Universal Vertical Illuminator.

U-P219 UAN360: Analyzer for polarized light with 360 degrees rotation for the U-URA Universal Vertical Illuminator.

U-P215 U-AN: Analyzer Slider for U-URA Universal Vertical Illumnator.

BRIGHTFIELD/DARKFIELD/DIC/POL/IMMO GOLD MIRROR CUBES FOR U-URA

U-M501 U-MBF: Brightfield Beamsplitter Cube for U-URA Universal Vertical Illuminator, containing beamsplitter for reflected light brightfield illumination.

U-M505 U-MDIC: DIC/POL/Immo Gold Mirror Cube for U-URA Universal Vertical Illuminator. Dovetailed cube containing a polarizer and analyzer in crossed position with neutral beamsplitter, for vertical on-axis reflected light Nomarski Differential Interference Contrast.

HALOGEN INCIDENT LIGHT SOURCE

5-UL111 U-LH100L: 12V / 100W Halogen light soruce with long cord, complete, including convection-cooled lamp house and precentered lampsocket. 80cm connecting cord with quick connect plug to plug into external TH-3 transformer.

8-C406 12V / 100W Halogen Bulb.

5-LM226 TH-3; Low Voltage Transformer, variable output with (0-12V) regulating knob, "on-off" switch and power light. Capable of powering either 12V / 50W or 12V / 100W lamphouse (includes power cord).

LIGHT SOURCES - INCIDENT LIGHT (w/Universal Lamp Housing)

Halogen Light Source Requires:

5-UL500 U-ULH Universal Lamp Housing: accepts 100W Halogen, 100W Mercury and 75W Xenon lamp sockets and collector lenses.

5-UL510 U-ULS100H Lamp Socket: 100W Halogen; for use in U-ULH Universal Lamp Housing. Accepts 12V / 100W Halogen bulb (Cat. # 8-C406).

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5-UL590 U-UCLH Collector Lens: for 100W Halogen with U-ULH Universal Lamp Housing.

8-C406 12V / 100W Bulb.

5-LM226 TH-3: Low Voltage Transformer. Variable output with (0-12V) regulating knob, "on/off" switch and power light. Capable of powering either 12V / 50W or 12V / 100W halogen lamphouse.

Mercury Light Source Requires:

5-UL500	U-ULH Universal Lamp Housing: accepts 100W Halogen, 100W Mercury and 75W Xenon lamp sockets and collector lenses.
5-UL515	U-ULS100HG Lamp Socket: 100W Mercury (HG); for use in U-ULH Universal Lamp Housing. Accepts HBO100W / 2 Mercury burner (Cat. # 8-B192).
5-UL592B	U-UCLHG/XEB Collector Lens for HG100W or XE75W burners in U-ULH Universal Lamp Housing.
8-B192	HBO 100 W / 2 Mercury Super Pressure Burner.
5-LB256	BH2-RFL-T3: 100 Watt Mercury Power Supply Unit; 115 volt AC input, DC output. Combined "on/off" and starter switch with pilot light; elapsed burning time meter. New solid-state design.

Xenon Light Source Requires:

5-UL500	U-ULH Universal Lamp Housing: accepts 100W Halogen, 100W Mercury and 75W Xenon lamp sockets and collector lenses.
5-UL525	U-ULS75XE Lamp Socket: 75W Xenon (XE), for use in U-ULH Universal Lamp Housing. Accepts UXL-75B Xenon burner (Cat. # 8-B198).
5-UL592B	U-UCLHG/XEB Collector Lens for HG100W or XE75W burners in U-ULH Universal Lamp Housing.
8-B198	UXL-75XB; 75W Xenon burner.
5-LB261	AHT-RX-T: 75W and 150W D.C. Xenon Power Supply unit with elapsed burning time meter.

Accessory Collector and Conversion Lenses

5-UL592A	U-UCLHG/XEA Chromatically Corrected Collector Lens for HG100W and XE75W burners in U-ULH Universal Lamp Housing.
5-UL595	U-UCV Conversion Lens: for boosting light intensity with Mercury or Xenon burners.

45mm Filters

9-U115	LBD filter, 45mm; for daylight color temperature conversion. Fits directly above field diaphragm.
9-B305	DB-80; Blue Clear Daylight Filter, visual; not for photography.
9-H312	45LBTN; 45mm Light Balancing LBT Filter, for tungsten color film.
9-B323	43IF550-W45; 45mm diameter Interference Green Filter.
9-B320	Green clear filter, 45mm.
9-B302	BG-20; Didymium filter for intensifying H & E stains.

9-B330	Yellow clear filter, 45mm.
9-U171	ND6 filter, 45mm Neutral Density Filter; 6% Transmission without changing the color temperature.
9-H371	43ND12-W45; 45mm Neutral Density Filter; 12% Transmission without changing the color temperature.
9-U173	ND25 filter, 45mm Neutral Density Filter; 25% Transmission without changing the color temperature.
9-H372	43ND50-W45; 45mm Neutral Density Filter; 50% Transmission without changing the color temperature.

Filter Cassette for 45mm filters

9-U500	U-FC: Filter Cassette, holds up to three 45mm filters. The cassette is placed above the field diaphragm of the B-MAX series microscopes.

OLYMPUS VIDEO MONITORS

OEV-141	Olympus 14" Color Video Monitor. Extra fine 0.31 dot pitch CRT with over 750 lines of horizontal resolution, control of picture size from NORMAL to OVERSCAN providing a 117% enlargement. Maximum compatibility with ancillary equipment with RGB, S-VHS (Y/C) and Composite terminals including loop-through terminals for connection of additional moniters. NTSC, PAL, SECAM or M-NTSC color systems are automatically detected and switched. Automatic white balance function maintains consistent, realistic color reproduction for the life of the monitor. Meets all hospital requirements for operating safety. Dimensions: 341mm(H) x 356mm(W) x 447mm(D); weight: 14.5kg.
OEV-201	Olympus 20" Color Video Monitor with over 700 lines of horizontal resolution. Control of picture size from NORMAL to OVERSCAN providing a 117% enlargement. Maximum compatibility with ancillary equipment with RGB, S-VHS (Y/C) and Composite terminals including loop-through terminals for connection of additional monitors. NTSC, PAL, SECAM or M-NTSC color systems are automatically detected and switched. Automatic white balance function maintains a consistent, realistic color reproduction for the life of the monitor. Meets all hospital requirements for operating safety. Dimensions: 414mm(H) x 448mm(W) x 532mm(D); weight: 27.5kg (60.5 lb.).

VIDEO ACCESSORIES

U-V105	U-TV0.5X: 0.5X Video Adapter (Video projection lens; 0.5X). Used with any of the video camera mount adapters (i.e.; C-mount, ENG-mount, etc.).
U-V110	U-TV1X: 1X Video Adapter. Used with any of the video camera mount adapters (ie; C-mount, ENG-mount, etc.).
U-V210	U-PMTVC: Direct video C-mount adapter with 0.3X reducing lens. Connects to the standard Olympus "ring dovetail" adapter of the vertical photo tube of trinocular and quadrocular observation tubes U-SPT, U-DPT-2. Requires use of a photo or video eyepiece.
U-V220	U-PMTV: Intermediate Video Camera Adapter with 0.3X reducing lens. Accepts any of the camera mount adapters. Connects to the standard Olympus "ring dovetail" adapter of the vertical photo tube of trinocular and quadrocular observation tubes U-SPT, U-DPT-2. Requires use of a photo or video eyepiece.
U-V310	U-CMAD: C-Mount Adapter, attaches video camera to intermediate adapter (U-PMTV, U-TV0.5X, U-TV1X).

U-V320	U-BMAD: ENG-Mount Adapter, attaches video camera to intermediate adapters (U-PMTV, U-TV0.5X, U-TV1X).
U-V330	U-960AD: Adapter to mount Sony DXC-960MD color video camera to intermediate adapters (U-PMTV, U-TV0.5X, U-TV1X).
2-U720	2.5X Photoeyepiece: for photo projection with U.I.S. infinity-corrected objectives.
2-U730	3.3X Photoeyepiece: for photo projection with U.I.S. infinity-corrected objectives.
2-U740	4X Photoeyepiece: for photo projection with U.I.S. infinity-corrected objectives.
2-U750	5X Photoeyepiece: for photo projection with U.I.S. infinity-corrected objectives.

ACCESSORIES

U-IT100	U-EPA: Eyepoint Adjuster - 30mm height; 1X magnification factor.
U-IT110	U-CA: Magnification Changer, with 1X, 1.25X, 1.6X and 2X discrete magnification lenses in turret. For Olympus B-MAX series microscopes.
U-IT120	U-DA: Drawing attachment; for B-MAX infinity-corrected microscope system. No magnification factor; adjustable length for use with intermediate attachment.
U-P110	U-POT: Polarizer for Transmitted Light. To be placed above field diaphgram of the B-MAX 40 and B-MAX 50 frames.
2-U930	U-CT30: Centering Telescope for aligning phase condenser annuli to phase rings of phase objectives.
B-0896	BH2-SGRF; Burner Centering Device: Fits into nosepiece thread. Burner image is projected against a frosted glass in the barrel, via a 45 degree mirror.
B-0897	Olympus Objective Marker Set, parfocal with DIN Standard 45mm adjustment length LB objectives. It is furnished in a special cylindrical package containing: the marker, plastic bottles of black and green marking ink and ink remover and a metal stamp pad with refills.
B-0898	Green Marking Ink for Cat # B-0897 Olympus Objective Marker.
B-0899	Black Marking Ink for Cat # B-0897 Olympus Objective Marker.
C-0120	Hand-Rest Mats for the B-MAX Microscopes.
Z-81011	Immersion Oil; 8cc, Non-FL.
9-U180	12.6ND25; 12.6mm ND25 filter for use with the PL10X objective. Equalizes the light intensity between the 10X and 40X objective.
9-U900	FNR20; Field Number Reducer. Reduces F.N. 22 to F.N. 20. Requires one per each eyepiece.
8-G101	6V / 5W bulb for dual and multi-viewing attachments.

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OLYMPUS AMERICA INC.
PRECISION INSTRUMENT DIVISION

CATALOG NO.	PRODUCT DESCRIPTION
	B-MAX 40 MICROSCOPE ITEM LIST
BX40F3	BX40F3: Microscope Stand for Olympus B-MAX modular system. Y-shaped design provides exceptional stability and ergonomic positioning of the coaxial coarse and fine focus knobs. Heavy-duty nichrome plated steel rack and pinion coarse focus gears move the stage elevation by means of roller bearings over a 25mm range. Fine focus graduation: 1 micron (0.001mm). Stroke per rotation of fine focus: 0.1mm; stroke per rotation of coarse focus: 15mm. Adjustable focus tension control and focus stop. The notched stage mount can be detached for relocation 15mm below the standard position, accommodating a specimen height of 40mm. Mount for B-MAX series observation tube, rotatable 360 degrees. Dust-free design with RMS thread quintuple inward-facing ball-bearing nosepiece. Transmitted light Koehler illumination optics. On/off switch; internal thyristor controlled continuously variable 6V/30W DC power supply. The LED voltage display and continuously variable light intensity controls are ergonomically positioned. The built-in intensity pre-set switch is adjustable throughout the entire intensity range. Built-in outlet for powering illuminated arrow pointer of multi-viewing attachments. Built-in graduated field diaphragm; accepts optional attachable filter cassette. Circular dovetail stage mount accepts B-MAX series interchangeable stages, and permits rotation of stage about the vertical axis. Attached rack and pinion vertical substage condenser mount with left and right control knobs; 26.5mm condenser stroke and centering screws. Includes dustcover*, immersion oil, instruction manual, allen wrench and warranty card. (Requires U-LS30 6V/30W lamp socket, bulb and power cord).
5-UL103	U-LS30: Lamp Socket for 6V/30W Halogen Bulb; precentered; plugs into back of B-MAX 40 microscope stand. Built-in louvres for convection cooling. Easily removeable for bulb replacement.
8-C410	6V/30W Bulb for the B-Max 40 and IX 50 microscopes.
9-U115	LBD filter, 45mm; for daylight color temperature conversion.
Z-89031	Dust Plug for Nosepiece.
3-U123	U-BI30: Binocular Observation Tube with 30 degree eyepiece inclination, dust-free design; F.N. 22 capable; Siedentopf-type. For Olympus B-MAX microscopes, using 30mm diameter WH series eyepieces. High transmission coated prisms; antifungal treatment. Graduated interpupillary distance adjustment 50mm-76mm. Left eyepiece tube with +/- 5 diopter control.
2-U1002	WH10X-2 Eyepiece: high eyepoint, widefield, F.N. 22; 30mm diameter; with shelf for 24mm reticle.
1-UB223	PL10X: 10X Plan Achromat Objective, infinity-corrected, F.N. 22; N.A. 0.25; W.D. 10.50mm.
1-UB227	PL40X: 40X Plan Achromat Objective, infinity-corrected, F.N. 22; N.A. 0.65; W.D. 0.56mm; spring-loaded.
1-UB235	PL100XO: 100X Plan Achromat Oil Immersion Objective, infinity-corrected, F.N. 22; N.A. 1.25; W.D. 0.15mm; spring-loaded.
6-U110	U-AC: Abbe Condenser, N.A. 1.25, oil immersible. All metal body with aperture iris diaphragm graduated in numerical apertures; detachable white cover to facilitate finding area to be viewed. Covers full field-of-view with 4X - 100X standard objectives (F.N. 22) and 10X - 100X objectives (F.N. 26.5).

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CATALOG NO.	PRODUCT DESCRIPTION
4-U116	U-SVLS: Rectangular Mechanical Stage with left hand low position coaxial X and Y controls and user-adjustable torque. Ultra-durable ceramic coated platform; 180mm x 135mm. Y travel 52mm, X travel 76mm. Rotatable 20 degrees clockwise, 232 degrees counterclockwise, with locking screw. X axis rack and pinion recessed into back of stage plate, leaving a solid, unbroken platform surface, unaffected by dust or other debris. Uniform ball bearing movement with vernier reading to 0.1mm. Detachable specimen holder with parallel spring tension finger.
4-U191	U-HL: Specimen Holder with curved stainless steel finger on right side allowing observation of the slide to the very edge. Holds a 2" x 3" slide or two back-to-back 1" x 3" slides.
B-0430	BX40 microscope carrying case, will hold fully assembled microscope with pockets for extra bulbs and other supplies, suitcase type with locks and keys.
UYPC-15	Power cord, 15 feet long with green dot hospital plug for 110 V.
UYCP-16	Power cord, 15 feet long with no plug to be used in location not 110 V.
Z-85017	Mirror and fork assembly, 40 mm mirror, one side flat mirror and other side concave mirror, mounts in light well to provide illumination when no power source is available.
	* Dustcover is plastic cover which is included with the microscope stand. This is placed over the microscope when not being used to protect it.
	These are the items supplied and no other equipment is required to operate the microscope. Equipment required for service is listed in table 1, Test Equipment and Tool Kit List in Medical Support Kit Lists (DI-ILSS-80865).

Storage

1. Microscopes should be stored indoors in their carrying cases at all times.

2. Operating and storage environments should be maintained at temperatures between 0-40 degrees Centigrade and humidity of 30-90%. Failure to do so may lead to microscope malfunction.

3. Microscopes are delicate instruments and should be stored and moved carefully.

OLYMPUS TOKYO

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