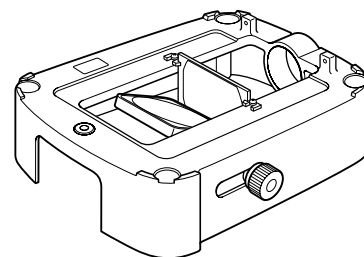


# OLYMPUS®

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*Optional Modules*

**SZ-ADD**  
**SZ-POL-2**  
**SZH-CLJ**



## INSTRUCTIONS

# SZ2-ILA

## TRANSMITTED ILLUMINATION ATTACHMENT

This instruction manual is for the Olympus SZ2-ILA Transmitted Illumination Attachment. To ensure the safety, obtain optimum performance and to familiarize yourself fully with the use of this equipment, we recommend that you study this manual thoroughly before operating the system. Retain this instruction manual in an easily accessible place near the work desk for future reference.

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# CONTENTS

Correct assembly and adjustments are critical for this unit to manifest its full performance. If you are going to assemble this unit by yourself, please read Chapter 6, "ASSEMBLY" (p. 8 to 9). For the assemblies of the modules for which instruction manuals are available, refer to their instruction manuals.

**IMPORTANT – Be sure to read this section for safe use of the equipment. – 1-2**

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# IMPORTANT

The transmitted illumination attachment enables transmitted light observation when it is placed under the SZ2-ST standard stand for the SZ2 series microscopes.

## SAFETY PRECAUTIONS





1. If water is splashed on the unit, promptly set the main switch to “○” (OFF) and wipe with a dry cloth.
2. The lamp housing becomes very hot during operation. When installing it, reserve enough spaces (more than 10 cm) around it, particularly above it.
3. If the power cord comes in contact with the lamp housing or surrounding equipment, the cord may melt and result in shock hazard. To prevent this, distribute the power cord apart from the lamp housing.
4. Before replacing the lamp bulb of the light source, set the main switch to “○” (OFF), disconnect the power cord from the wall outlet and allow the lamp housing and old bulb to cool down.

Illumination System	Lamp Bulb Specifications
LSGA	6V15WHAL (PHILIPS 13528), average life 500 hours
U-LH100L-3	12V100WHAL-L (PHILIPS 7724), average life 2000 hours
SZ2-LGB	12V22WHAL (PHILIPS JCR12V22WA/3), average life 100 hours

5. Always use the power cord provided by Olympus. If the proper power cord is not used, product safety performance cannot be warranted.
6. Always ensure that the grounding terminals are properly connected. If the equipment is not grounded, Olympus can no longer warrant the electrical safety performance of the equipment.
7. Never allow a metallic object enter the air vents of the unit as this could result in electrical shock or malfunction.
8. The illumination light may be pointed downward with certain mirror angles. As this makes the desktop surface hot, do not place an object that is vulnerable to heat or easily flammable below the transmitted light illumination attachment.


### Safety Symbols

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

Symbol	Explanation
	Indicates that the surface becomes hot, and should not be touched with bare hands.
	Before use, carefully read the instruction manual. Improper use could result in personal injury to the user and/or damage to the equipment.
	Indicates that the main switch is ON.
	Indicates that the main switch is OFF.

## Warnings

Warning engravings are placed at parts where special precaution is required when handling and using the unit. Always heed the warnings.

Warning engraving positions	Lamp housing (U-LH100L-3)	(High Temperature warning )	
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## 1 Getting Ready

1. The transmitted light illumination attachment is a precision instrument. Handle it with care and avoid subjecting it to sudden or severe impact.
2. Do not use the transmitted light illumination attachment where it is subjected to direct sunlight, high temperature and humidity, dust or vibrations. (For the operating conditions, refer to Chapter 5, "SPECIFICATIONS" on page 7)

## 2 Maintenance and Storage

1. To clean the lenses and other glass components, simply blow dirty away using a commercially available blower and wipe gently using a piece of cleaning paper (or clean gauze).  
If a lens is stained with fingerprints or oil smudges, wipe it gauze slightly moistened with commercially available absolute alcohol.
- ▲ Since the absolute alcohol is highly flammable, it must be handled carefully.**  
**Be sure to keep it away from open flames or potential sources of electrical sparks - for example, electrical equipment that is being switched on or off.**  
**Also remember to always use it only in a well-ventilated room.**
2. Do not attempt to use organic solvents to clean the parts other than the glass components. To clean them, use a tint-free, soft close slightly moistened with a diluted neutral detergent.
  3. Do not disassemble any part of the equipment as this could result in malfunction or reduced performance.
  4. When the microscope is not in use, be sure to set the main switch to "○" (OFF). After checking that the lamp housing has been cooled down, place the dust-prevention cover on the microscope for storage.

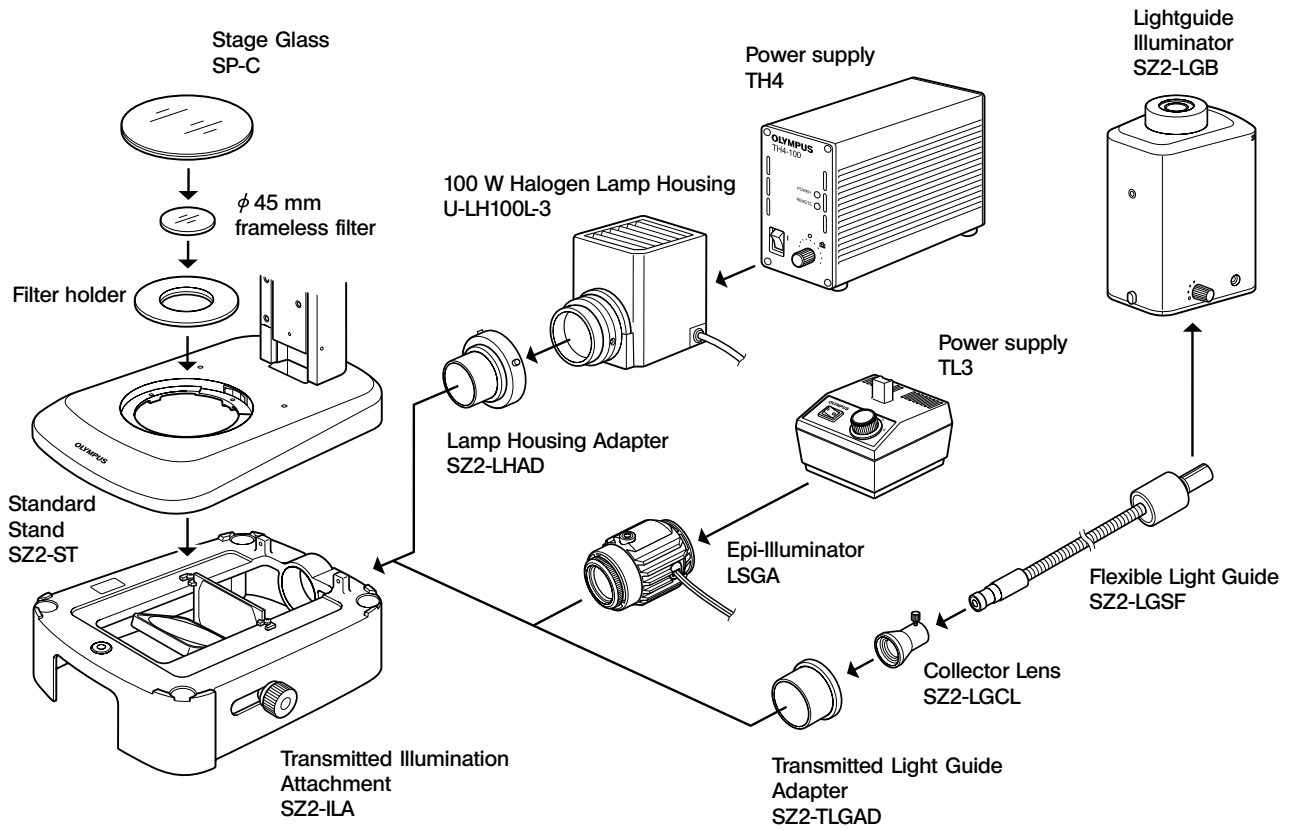
## 3 Caution

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

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

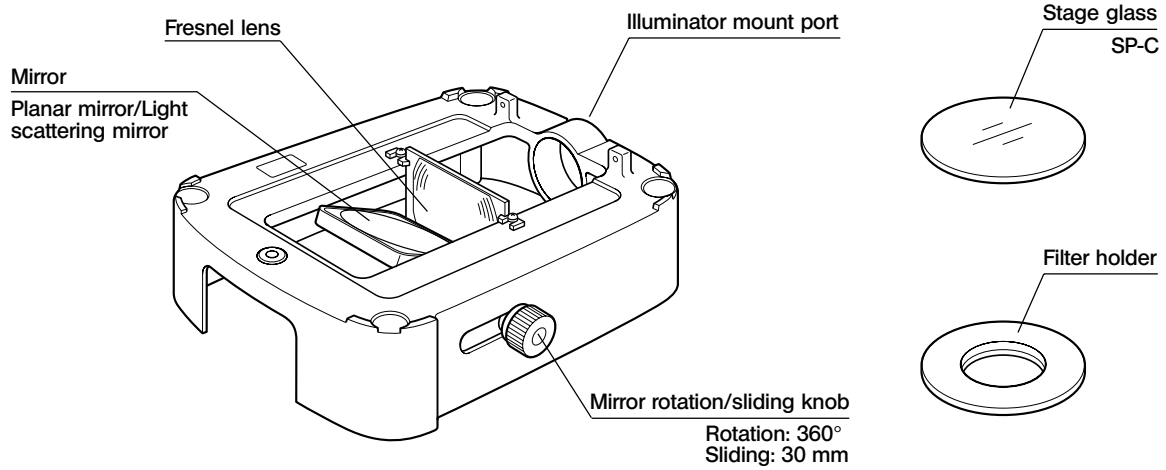
- ▲ : Indicates that failure to follow the instructions in the warning could result in bodily harm to the user and/or damage to equipment (including objects in the vicinity of the equipment).
- ★ : Indicates that failure to follow the instructions could result in damage to equipment.
- ◎ : Indicates commentary (for ease of operation and maintenance).

# 1 SYSTEM CHART



# 2 NOMENCLATURE

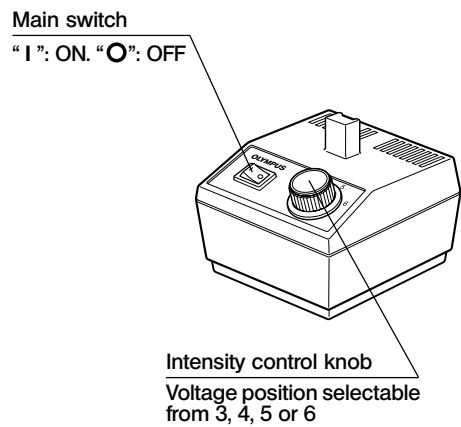
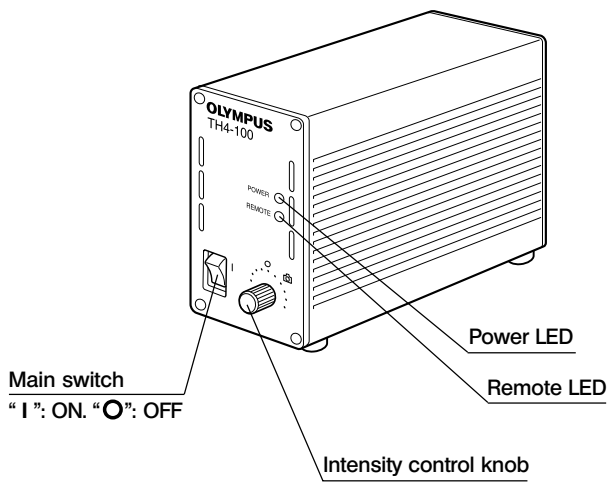
**Transmitted Illumination Attachment  
SZ2-ILA**



**Power Supply  
TH4**

For details, refer to the instruction manual.

**Power Supply  
TL3**



# 3 TRANSMITTED LIGHT OBSERVATION

☉ If you have not assembled the transmitted illumination attachment yet, please read Chapter 6, "ASSEMBLY" (p. 8 to 9).

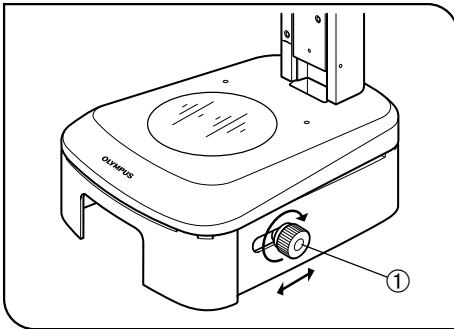


Fig. 1

## 1 Using the Mirror Rotation/Sliding Knob (Fig. 1)

1. Set the main switch of the power supply to " I " (ON) and adjust the brightness with the intensity control knob.
  2. Adjust the illumination by rotating or sliding the mirror rotation/sliding knob ①.
- ☉ Usages of the planar and light scattering mirrors
- Planar mirror: Bright illumination.
  - Light scattering mirror: Illumination with little light irregularities.
3. With a standard transmitted light illumination, slide the mirror rotation/sliding knob ① to the deep part of the slide stroke and then rotate the knob ① for an illumination with highest brightness and least irregularities.

### Oblique Illumination

☉ When observing the specimen by shading on it, use oblique illumination by rotating and sliding the knob ①.

- While looking through the eyepieces, adjust the image contrast by sliding and rotating the knob ① gradually toward you.

# 4 TROUBLESHOOTING GUIDE

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

Problem	Cause	Remedy	Page
<b>1. Optical system</b>			
a) Illumination is too bright or too dark.	The intensity is adjusted improperly.	Adjust the light intensity optimally.	–
	A wrong ND filter is in use.	Adjust the light intensity optimally.	–
b) Illumination irregularities are noticeable.	The lamp bulb is attached improperly.	Mount it properly.	9
	The angle and/or position of the mirror are set improperly.	Rotate and/or slide the mirror.	5
	The stage glass is dirty.	Clean thoroughly.	2
c) Dirt or dust is noticeable in the field of view.	The stage glass is dirty.	Clean thoroughly.	2
	The mirror is dirty.		
	The eyepiece and/or objective are dirty.		
<b>2. Electrical system</b>			
a) The lamp bulb will not light up.	The bulb is blown.	Replace it.	9
b) The lamp bulb blows easily.	The supply voltage is too high.	Reduce the voltage using a slidac.	–
	A bulb other than designated is in use.	Replace it with a designated bulb.	9
c) The lamp turns on and off intermittently.	The bulb is half blown.	Replace it.	9
	Connectors are connected imperfectly.	Connect connectors firmly.	–

# 5 SPECIFICATIONS

Item	Specifications	
Illumination system*	LSGA (Illumination System) 6 V, 15 W halogen bulb (6V15WHAL)	U-LH100L-3 (Illumination System) (SZ2-LHAD required) 12 V, 100 W halogen bulb (12V100WHAL-L)
Power source	TL3 (Power Supply) Voltage switching steps: 3, 4, 5 and 6 V	TH4 (Power Supply) Step-less voltage switching
Effective field	Diameter 33 mm	
Filter	45 mm frameless filter usable (Filter with thickness up to 5 mm can be accommodated in the filter holder)	
Lighting types	Rotation/sliding of the planar and light scattering filters. Oblique illumination possible.	
Combined stand	SZ2-ST (Standard Stand) Combined stage height: 92.5 mm	
Weight	Approx. 1.1 kg (SZ2-ILA only)	
Power consumption	Max. 30 VA	Max. 180 VA
Other	<ul style="list-style-type: none"> <li>• Various stages applicable.</li> <li>• Darkfield Adapter (SZ-ADD) mountable.</li> <li>• Simplified Polarization System (SZ-POL-2) mountable.</li> </ul>	
Operating environment	<ul style="list-style-type: none"> <li>• Indoor use</li> <li>• Altitude: Max. 2000 m</li> <li>• Ambient temperature: 5° to 40°C (41°F to 104°F)</li> <li>• Maximum relative humidity: 80% for temperatures up to 31°C (88°F), decreasing linearly through 70% at 34°C (93°F), 60% at 37°C (99°F), to 50% relative humidity at 40°C (104°F)</li> <li>• Supply voltage fluctuations: ±10%</li> <li>• Pollution degree: 2 (in accordance with IEC60664)</li> <li>• Installation (overvoltage) category: II (in accordance with IEC60664)</li> </ul>	

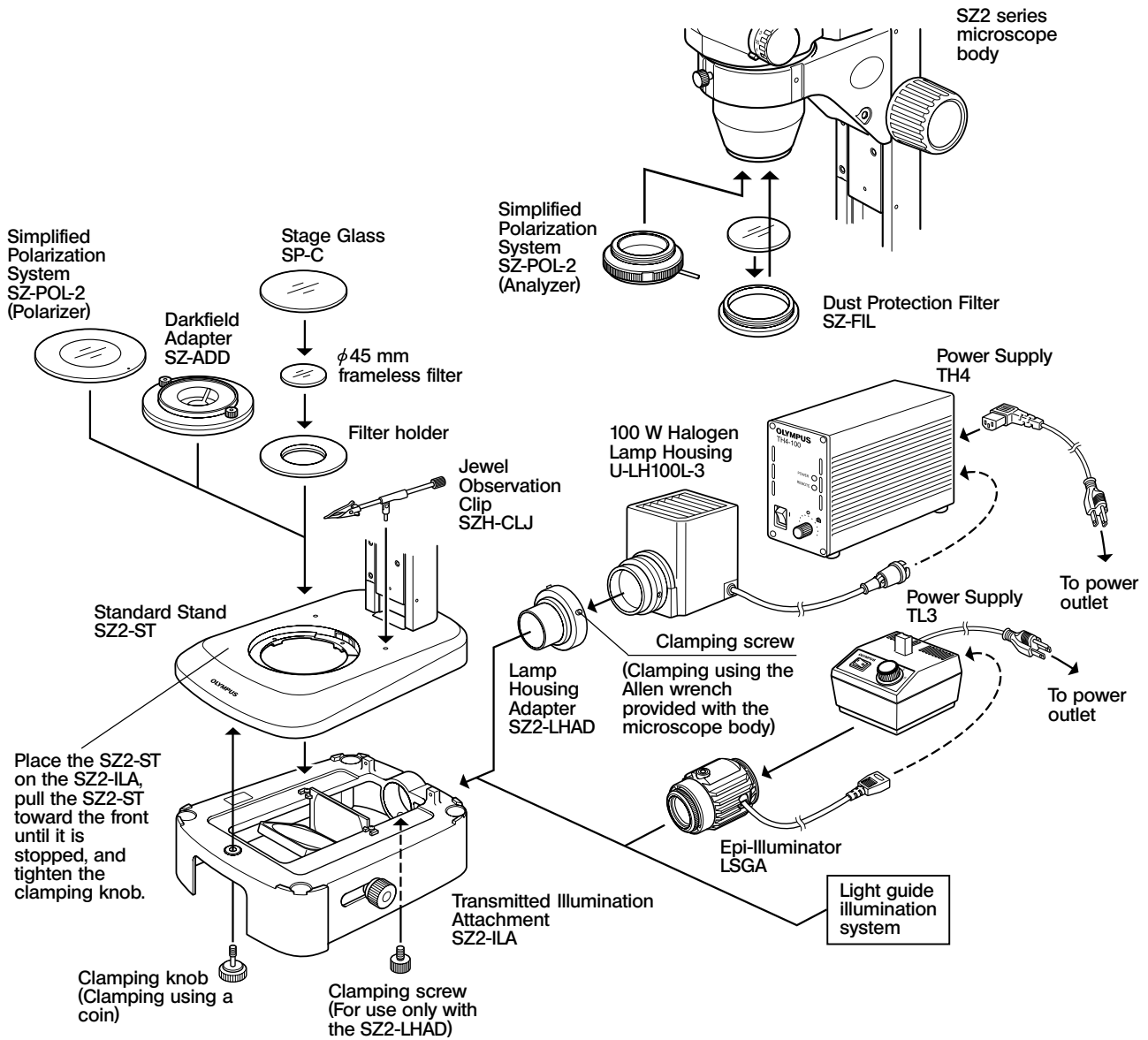
\* For the light guide illumination, refer to the separate instruction manual.

# 6 ASSEMBLY

The modules shown in the following figure are merely the typical examples. For other applicable modules that are not given below, please consult your Olympus representative or the latest catalogues.

The detailed assembly procedure is given only for how to mount the halogen bulb.

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



★ For the connections of the cables and power cord, refer to the instruction manuals for the TH4 and LSGA. For the assembly of the light guide illumination system, refer to its instruction manual.

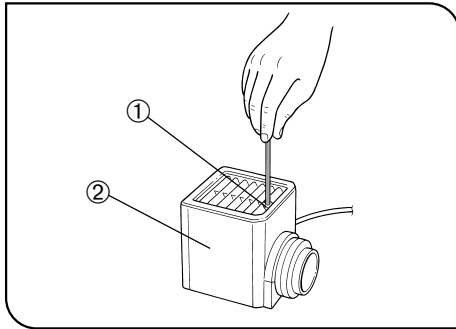


Fig. 2

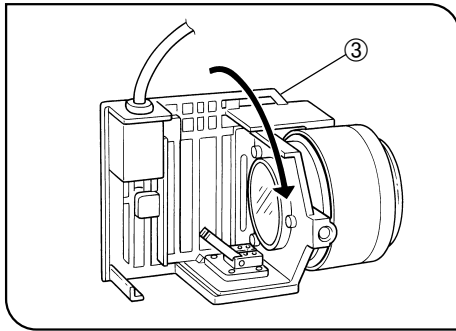


Fig. 3

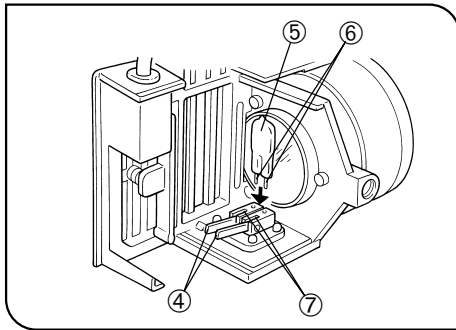


Fig. 4

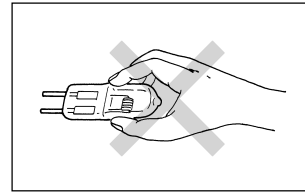
## 1 Attaching the Halogen Bulb

(Figs. 2 to 4)

With the U-LH100L-3

Ⓞ The applicable lamp bulb model is the 12V100WHAL-L (PHILIPS 7724) halogen bulb.

1. Fully loosen the clamping screw ① at the top of the lamp housing using the Allen screwdriver provided with the microscope body.
2. Lift up the lamp housing ② to remove it.
3. Tilt the bulb socket ③ by 90° in the direction of the arrow.
4. While pushing down the bulb clamping lever ④ down, hold the halogen bulb ⑤ with gloves or a piece of gauze, insert the bulb pins ⑥ straight and fully into the pin holes ⑦ on the lamp socket. Then return the lamp clamping lever gently back to the original position to clamp the bulb.



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

5. Fit the lamp housing from up and tighten the clamping screw ① by applying downward pressure. (Fig. 2)

### ▲ Caution for Bulb Replacement During or Right After Use

The bulb, lamp housing and areas near these will be extremely hot during and right after use.

Set the main switch to "O" (OFF), disconnect the power cord from the wall outlet, then allow the old bulb and lamp socket to cool before replacing the bulb with a new of the designated type.

With the LSGA

Ⓞ Refer to the instruction manual for the LSGA.

# 7 OPTIONAL MODULES

©For the mounting methods, see the Assembly on page 8.

## 7-1 Darkfield Adapter SZ-ADD

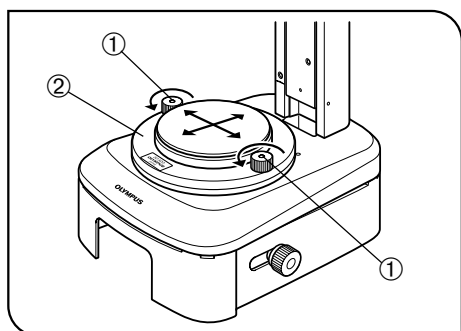
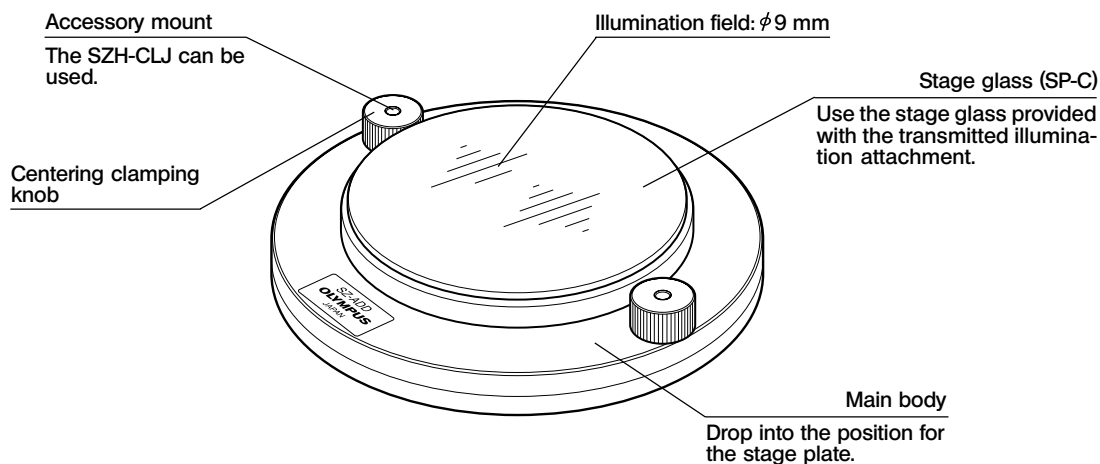


Fig. 5

### Centering Procedure

(Fig. 5)

1. Loosen the centering clamping knob ①.
2. Place a sheet of thin paper as the specimen and observe it with the lowest magnification of the microscope.
3. Turn on the illumination and move the main body ② so that the illumination field comes on the center of the field of view.
4. Tighten the centering clamping knob ①.

★ When using the SZH-CLJ, tighten the centering clamping knob particularly firmly so that it is not loosened by rotation of the SZH-CLJ.

### Operating Precautions

- ★ The SZ-ADD does not incorporate a light source. It can be used only in combination with the transmitted illumination attachment.
- ★ The observation brightness depends on the brightness setting of the transmitted illumination attachment. The standard combination is with the SZ2-ILA. When high brightness is required, use the SZ2-ILA for the 100 W halogen bulb.
- ★ The peripheral light may be insufficient at low magnifications. It is recommended to use zoom magnifications of 2.5X or more.
- ★ When a 1.5X or higher-magnification auxiliary objective is used, the brightness may be insufficient. When a 0.75X or lower-magnification auxiliary objective is used, the peripheral light may become insufficient.

## 7-2 Simplified Polarization System SZ-POL-2

### Cross-Nicol Adjustment and Observation

1. Drop the polarizer below the stage glass so that the index dot (•) can be viewed horizontally.
2. Turn on the transmitted light source, look through the eyepieces and rotate the analyzer so that the field of view is darkest (cross-Nicol condition).
3. Place a polarized observation specimen and observe it by rotating it or the stage glass.

### Operating Precautions

- ★ Polarized light observation is possible without problem with any auxiliary objective, except for the 2X auxiliary objective with which the peripheral part of image may be cut off.
- ★ It is not possible to mount a filter holder, etc., in the same position as the polarizer.

## 7-3 Jewel Observation Clip SZH-CLJ

The SZH-CLJ makes it possible to hold a jewel or small article beneath the objective by pinching it between the clips. The specimen can be moved in any orientation by holding the knob and turning the clip or moving it to the front, rear, up, down, left and right.

