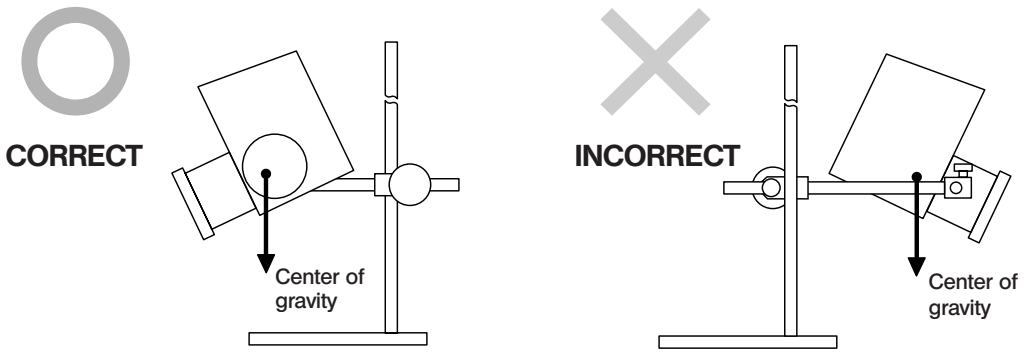
OLYMPUS

MACRO IN SPECTION ILLUMINATOR

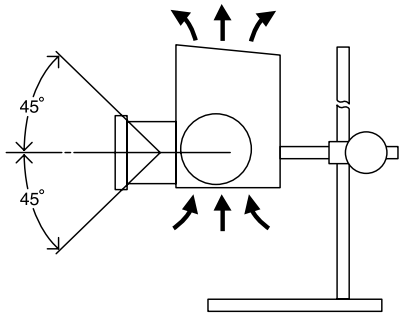
WA-LSH-4 INSTRUCTIONS

⚠ SAFETY PRECAUTIONS

1. Do not connect any lamp socket to this light source unit other than the one provided with the unit. For power supply, use the Olympus TH-3 only. If a different lamp socket or power supply unit is used, the designated electrical safety standard cannot be guaranteed.
2. The surface of the lamp housing becomes extremely hot during operation. When installing the lamp housing, make sure that there is ample free space around the lamp housing. Also allow 10 cm or more space around the power supply unit.
3. To prevent the lamp housing from overturning, position the lamp housing so that its center of gravity is in the stand base (within ϕ170 mm).



4. Set the illuminating angle of the lamp housing at 45° in the up and down directions. If the angle is not set to this range, the natural heat convection is interfered with, making the lamp housing extraordinarily hot. This may cause the lamp housing to deform and even result in a fire.



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5. To avoid potential shock hazards and burns when replacing the bulb, make sure the power switch is set to "O" (OFF), the power cord is unplugged from the outlet, and that the bulb and the area around the lamp socket have cooled sufficiently.

Applicable bulbs:	12 V 100 W HAL (PHILIPS 7023)
	12 V 100 W HAL-L (PHILIPS 7724)

1 Getting Ready

1. This unit is a precision instrument. Handle it with care and avoid subjecting it to sudden or severe impacts.
2. Do not expose the unit to direct sunlight, high temperature and humidity, dust or vibrations. (Operating environment: ambient temperature — 5°C to 40°C (41°F to 104°F); relative humidity — 15% to 85%)
3. Make sure the bulb is mounted and all the cables are connected securely.

2 Maintenance and Storage

1. Clean all glass components by wiping them gently with gauze. To remove fingerprints or oil smudges, use gauze slightly moistened with a mixture of ether (70%) and alcohol (30%), EE System Cleaner (Olympus EE-6310).

⚠ **Solvents such as ether are highly flammable. Make sure you keep these chemicals away from open flames and potential sources of electrical sparks, such as power switches.**

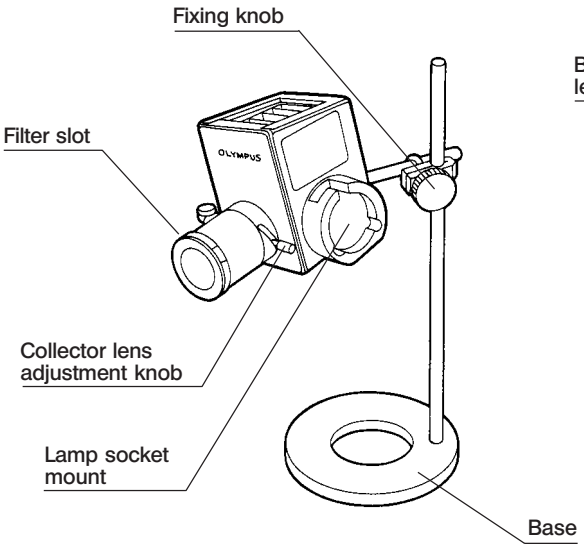
2. Wipe the unit with a clean cloth only. Do not use organic solvents to clean non-optical components. If smudges are difficult to remove, wipe them with a soft cloth slightly moistened with a diluted neutral detergent.
3. Never disassemble any part of the unit. Doing so could cause malfunctions or reduced performance.

3 Caution

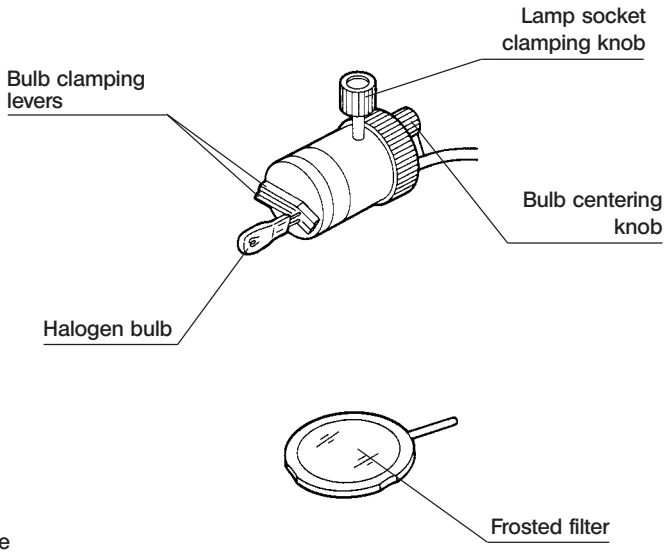
If the equipment is used in a manner not specified by these instructions, the safety of the user may be imperiled. In addition, the equipment may also be damaged. Always use the equipment as outlined in these instructions.

4 Nomenclature

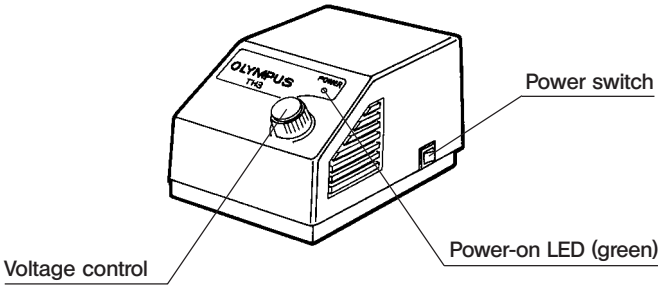
Lamp Housing



Lamp Socket



Power Supply Unit



For details on the lamp socket and power supply unit, refer to their instruction manuals.

5 Operation

A) Adjusting the Illumination Range

1. Make sure the frosted filter is not in the light path.
2. Confirm that the voltage control on the power supply unit is set to the low voltage side. Then set the power switch to "**I**" (ON).
3. Turn the voltage control until appropriate brightness is achieved.
4. Turn the collector lens adjustment knob until the illumination range becomes an appropriate size.

★ **When the illumination range is small, brightness increases but unevenness is likely to occur.**

B) Fixing the Lamp Housing

Set the illuminating direction at an appropriate position within the specified illuminating angle. Then tighten the fixing knob.

C) Using the Frosted Filter

If illumination is uneven, insert the frosted filter into the filter slot.

Replacing the Bulb

◎ Refer to the power supply unit's instruction manual for more details.

⚠ **To avoid burns when replacing the bulb, make sure that the bulb and the area around the lamp socket have cooled sufficiently.**

1. Set the power switch of the power supply unit to " O " (OFF). To assure safety, disconnect the power cord plug from the outlet.
2. Loosen the lamp socket clamping knob and remove the lamp socket.
3. Push the two bulb clamping levers and replace the bulb.

Applicable bulbs:

• High-intensity type	12 V 100 W HAL (PHILIPS 7023) 50-hour average service life
• Long service-life type	12 V 100 W HAL-L (PHILIPS 7724) 2,000-hour average service life

Bulb Service Life

When the 12 V 100 W HAL is on continuously, its service life is approximately 50 hours. To avoid shortening the bulb's service life, do not turn the bulb on repeatedly when the voltage is high, do not use it with more than 12 V, and do not use it when it is dirty.

If the bulb is used at less than 12 V, service life is increased by a magnitude of 10 at 10 V and by a magnitude of about 70 at 8 V. Therefore, we recommend you use the bulb at lower voltage unless intense brightness is required.

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