

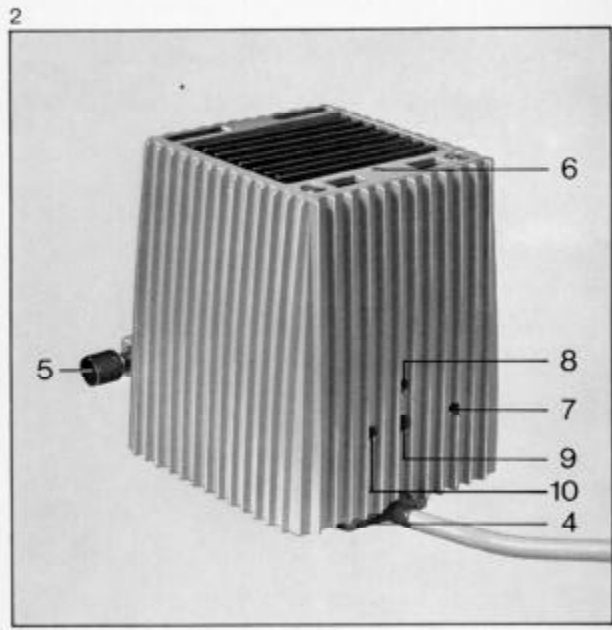
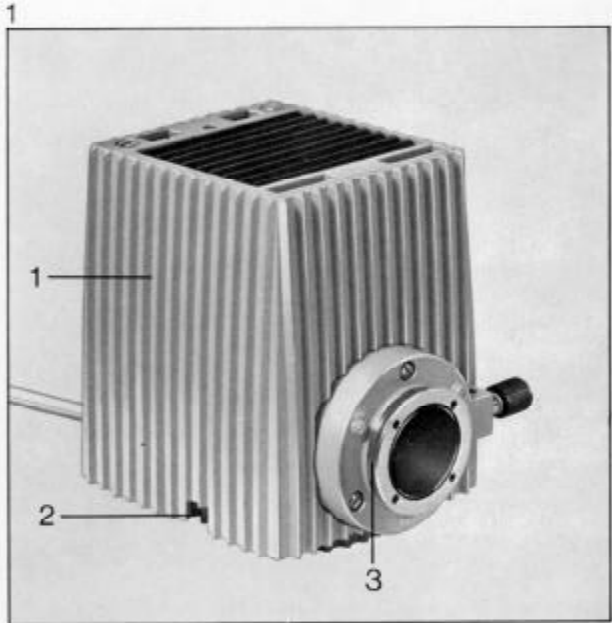
# Microscope Illuminator 100

## Operating Instructions

G 41 - 310 / I - e

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Fitting the HBO 50W high- pressure mercury source	7
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- 1 Lamp housing 100 (46 72 59), air cooled, with cooling ribs
- 2 Set screw for lamp socket
- 3 Annular dovetail for attachment to the microscope
- 4 Lamp socket plugged into lamp housing
- 5 Focusing knob for light source image
- 6 Vertical adjustment of light source
- 7 Lateral adjustment of light source
- 8 Vertical adjustment of mirror image
- 9 Focusing of mirror image
- 10 Lateral adjustment of mirror image

Super-pressure mercury lamp  
 HBO 100 W/2 (38 00 18-4060) and  
 super-pressure xenon lamp  
 XBO 75 W/2 (38 00 53-9870) are described in insert  
 GE 41-310/I-e.

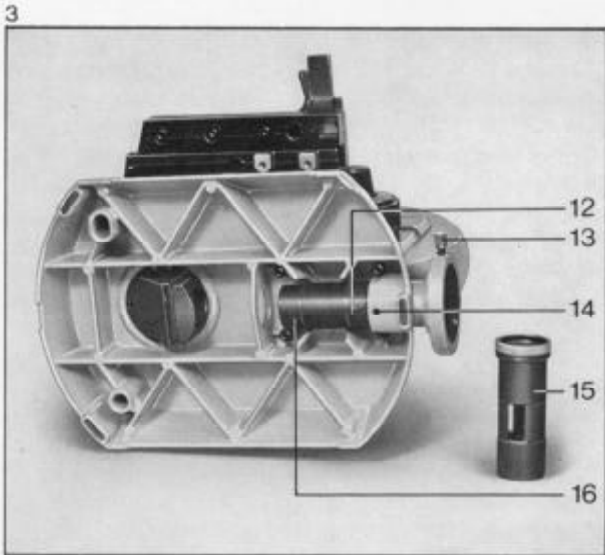
# Microscope illuminator 100

The lamp housing 100 contains adjusting and focusing means for light source and concave mirror. Most of the assembling and adjusting work is done in the factory, e.g. adjusting the concave mirror with regard to the lamp condenser axis, inserting and adjusting the 12 V 100 W halogen source, and mounting the lamp condenser corresponding to the light source used.

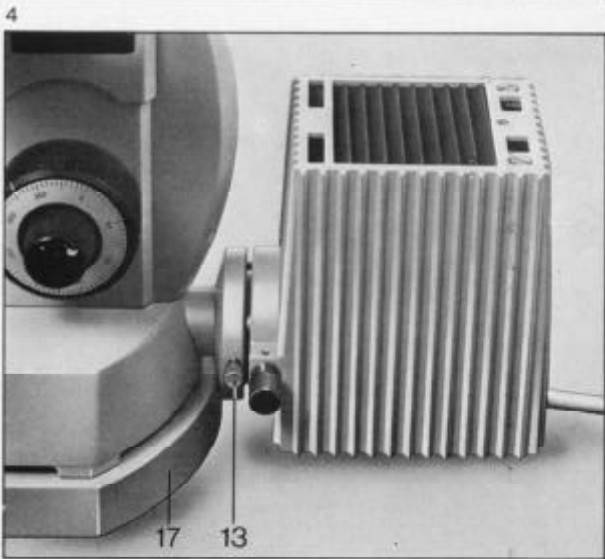
Microscope illuminator 100 with 12 V 100 W halogen source can be directly attached to the microscope and connected to the mains, e.g. via transformer with voltameter 3–15 V 120 VA (39 25 33). Do not instantaneously supply full load to the halogen source, but set voltage or current slowly to 12 V or 8 A respectively. Focus light source image and its mirror image (Fig.13) with knob (5) and screw (9). Re-adjust with screws (6), (7) and (9), if necessary; the microscope illuminator with 12 V 100 W source is operative.

The screws (8) and (10) marked with red dots are adjusted in the factory and should not be changed by the user. Instead of the 12 V 100 W halogen source (38 00 59-1660) the HBO 50 W high-pressure mercury source (38 16 19) can be used in the lamp housing 100.

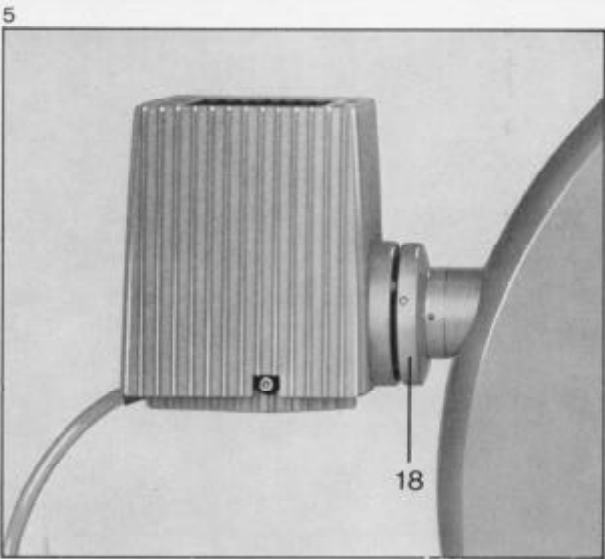
# Attaching the illuminator 100 to microscopes



Fitting the illuminator to the microscope base instead of the substage illuminator: loosen screw (14) and remove the tube (46 70 50) (15). On microscopes STANDARD, WL and Invertoscope M fix in its place with the same screw the connecting tube (46 70 40-9902) (16). With an Allen type wrench remove the diffusion disk (12) from the beam path during adjustment. After adjustment of the 12 V 100 W source return the diffusion disk for homogeneous illumination. In the same way fit the connecting tube (46 70 41) on UNIVERSAL and Photomicroscope. Loosen set screw (13), press the spring bolt back with the annular dovetail of the tilted illuminator, insert the annular dovetail completely and fix with the set screw.



Mount STANDARD microscope and Invertoscope M on riser plate (46 72 86)\* (17), WL microscope on riser plate (46 72 85)\*; fix the microscope on the riser plate with the two hexagonal recessed screws. The hexagonal screw of the diffusion disk on the connecting tube (46 70 40-9902) can be operated with the Allen type wrench through a borehole in the riser plate.

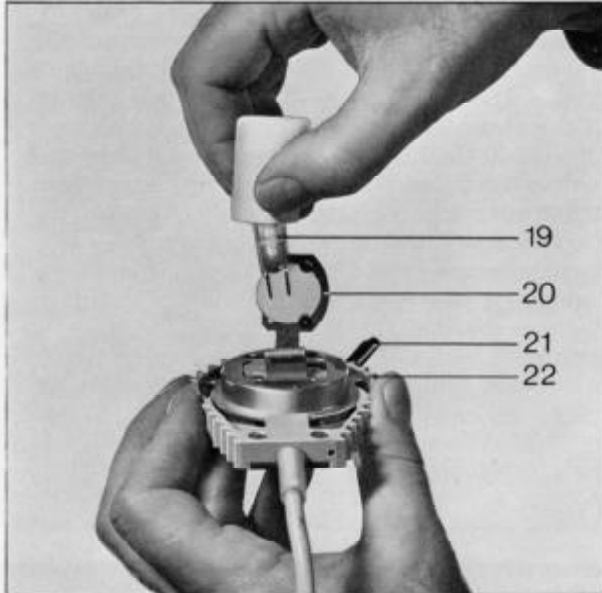


For reflected light illumination with UNIVERSAL microscope, mount the microscope illuminator 100 with the connecting piece (46 70 42) (18) and fix it.

\* When using lamps HBO 100 W/2 and XBO 75 W/2 the respective lamp socket rests on the table top with one riser plate (17, Fig. 4). We recommend using a second riser plate or letting the microscope illuminator protrude beyond the back edge of the table.

# Exchanging the 12 V 100 W halogen source (38 00 59-16 60)

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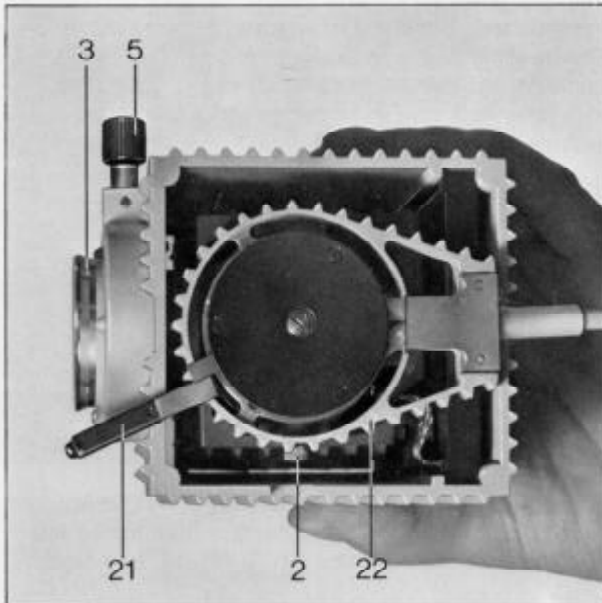


Pull the lamp socket plug on transformer (39 25 33). Loosen screw (13), press the spring bolt down and remove the lamp housing from the microscope. With knob (5 Fig. 7) bring the lamp condenser in front position.

Loosen set screw (2 Fig. 1) and take the lamp socket (22) downward out of the lamp housing. Insert 12 V 100 W source (19) with protective sleeve in lamp socket (46 80 19). Remove sleeve and wipe off fingerprints on the bulb with alcohol and a soft cloth. Insert lamp socket with light source into lamp housing to the stop; the guide pin (23 Fig. 10) must engage the borehole (24 Fig. 10) in the socket. Tighten screw (2).

- 19 Inserting the 12 V 100 W halogen source
- 20 Diffusion disk
- 21 Lever to operate the diffusion disk
- 22 Socket of 12 V 100 W halogen source

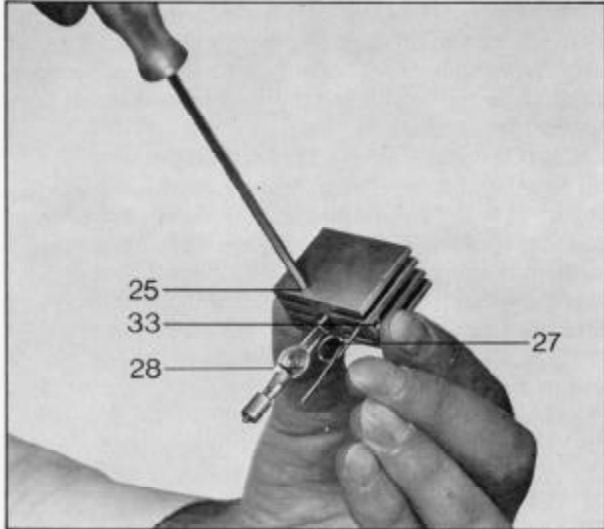
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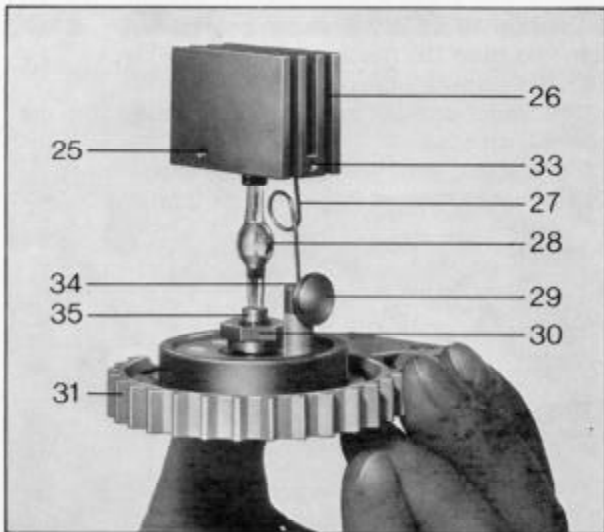
Socket for 12 V 100 W halogen source mounted in lamp housing 100 (viewed from below).

- 2 Set screw for lamp socket
- 3 Annular dovetail to attach the illuminator to the microscope
- 5 Focusing knob for light source image
- 21 Lever to remove diffusion disk from the beam path

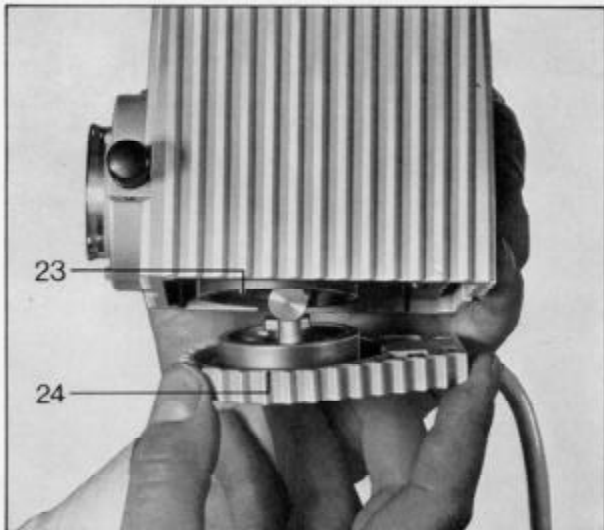
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## Inserting the HBO 50 W high-pressure mercury source

Disconnect cable to power supply (39 26 41). With knob (5) bring lamp condenser into front position (towards the annular dovetail). Loosen hexagonal recessed screw (2) and pull the lamp socket out of the lamp housing from below.

In the radiator insert the lamp socket bearing the number of the new HBO 50 W source. Align the fuse tip (28) parallel with the radiator. If necessary, align the wire loop (27) with the lamp after loosening set screws (33). Fix the upper lamp socket with the screw (25).

Insert HBO 50 W source with radiator and lead in the corresponding opening of the lamp socket (31), and secure with nut (30) and knurled screw (29). The longitudinal side of the radiator (26), lead outlet (34), fuse tip of light source (28) and wire loop (27) must lie in one line.

**NB:**

Make all clampings carefully, because insecure contacts are liable to occur owing to heat development in the operative instrument. If necessary, re-tighten screws after first operation of light source.

Insert the socket with HBO 50 W source in the lamp housing to the stop; the guide pin (23) of the lamp housing must engage the borehole (24) of the lamp socket; tighten set screw (2 Fig. 1).

Set switch (35) of the power supply unit 220–240 V, 350 VA, 50 . . . 60 Hz (39 26 41) to the light source used (L 1 or L 2). Connect lamp and power supply by a cable. Attach lamp housing to the microscope. Switch on lamp with knob on the front panel of the power supply. The HBO 50 W source ignites automatically and is operative after 2 to 3 minutes warm-up time.



# Exchanging the lamp condenser

Two-lens lamp condenser 100 (46 72 73) for halogen source 12 V 100 W, three-lens lamp condenser 100 (46 72 74) for HBO 50 W high-pressure mercury source. For optimum light yield of the light source, exchange the lamp condenser when changing the lamp type. Pull out knob (5) and take the lamp condenser forward out of the lamp housing. Insert the proper lamp condenser for the light source so that the pin of knob (5) engages guide slot (32) of the lamp condenser.

# Focusing and centering

Remove diffusion disk (20) from the beam path with lever (21 Fig. 7). With the illuminator in the hand direct the light source towards a surface about 2 to 3 m away. Focus the light source by turning the lamp condenser knob (5).

Mount the microscope illuminator on the corresponding dovetails of the microscope. To attenuate light of bright light sources insert gray filter into filter receptacle.

## 1.1 Transmittal light microscopes

Take the condenser out of the condenser carrier, rack up the microscope condenser carrier completely, and put a sheet of vellum paper on the condenser carrier. Remove diffusion disk (12 Fig. 3) from the beam path. Open luminous field stop.

1.2 Open the aperture diaphragm of reflected light microscopes UNIVERSAL and Photomicroscope. Close luminous field stop, if any. Take objective out of vertical illuminator. Place a sheet of white paper on the specimen stage.

2. Check the focus of the light source image; if necessary, re-adjust with knob (5), adjust vertically with screw (6) and laterally with screw (7). Focus the mirror image with screw (9). The mirror is adjusted at the plant. If mirror image is not parallel to lamp filament, carefully correct it vertically with screw (8) and laterally with screw (10) (see Figs. 13 and 14).

Fig. 13: Coils of the 12 V 100 W halogen source and its mirror image centered.

Fig. 14: Focal spots of the HBO 50 W high-pressure mercury source and its mirror image centered.

Insert the items removed according to 1.1 and 1.2. For the 12 V 100 W halogen source bring the diffusion disks (20 Fig. 6) and (12 Fig. 3) in the beam path.

