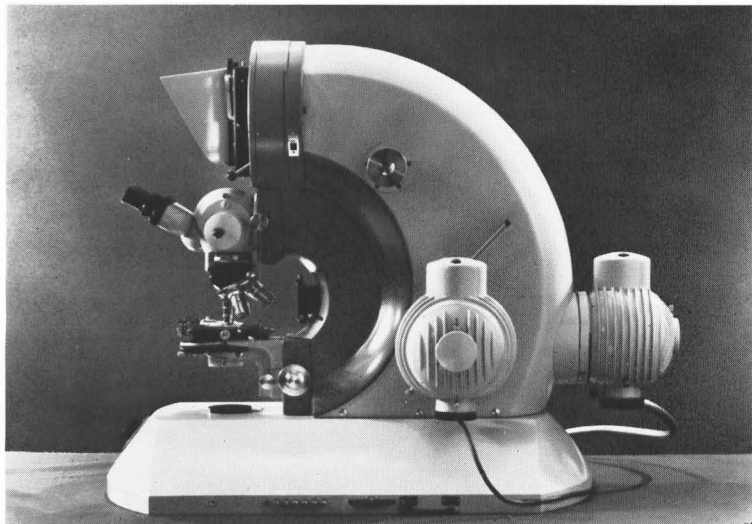


ULTRAPHOT III

Supplement to Operating Instructions G 40-450



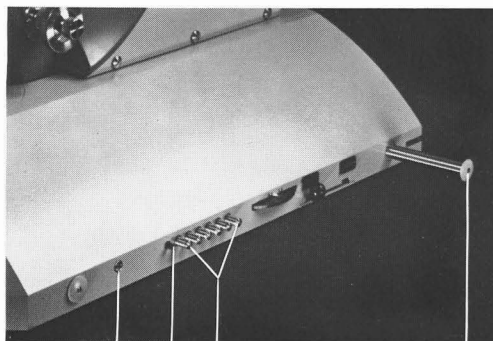
1

The **automatic exposure control** of the ULTRAPHOT III uses a model 931-A photomultiplier tube of spectral type S-4. This is insensitive to red. The detector is situated on the left, adjacent to the focusing screen. This point is marked on the focusing-screen mount by two horizontal lines. An object detail for which the exposure time is to be determined should be brought into coincidence with this area.

The exposure control may be set for film speeds from 5 DIN (approx. 2.5 ASA) to 40 DIN (approx. 8,000 ASA). This applies without restriction to

monochrome photography. For color photography, there is a reservation: it is recommended that two trial exposures be made before starting the actual work with the ULTRAPHOT III, in addition to the exposure with the speed setting specified by the manufacturer of the photographic emulsion. For one of the additional exposures advance the switch B 6 (Fig. 3) by one step (i. e. 3 DIN or the double ASA value), for the other turn it back by the same amount. For these trial exposures, the masks shown in Figs. 42 and 43 of the Operating Instructions may be used.

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A 36 A 37 A 38 A 39

2

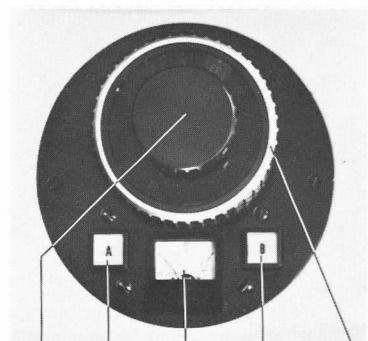
A 36 Terminal for flash unit to be attached to the transmitted-light aperture (A 10)

A 37 Release button for light filters A 38

A 38 Light-filter buttons. May be operated simultaneously; order of filters:

Two 50 % gray filters	} Same as Table 16, page 87, of Operating Instructions
One 12 % gray filter	
One 3 % gray filter	
One conversion filter for daylight film - One VG-9 green filter	

A 39 One of the four handles for carrying the ULTRAPHOT III, shown pulled out.



B 6 A 15 A 35 A 14 B 10

3

The switches for automatic exposure control at the front of the ULTRAPHOT III base are operative when switch L 15 (Fig. 6) at the front of the work table is set to II.

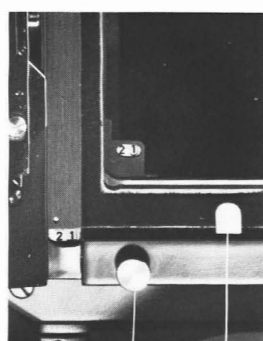
A 14 Button **B** opens the shutter electrically. The shutter closes when this button is released.

A 15 Luminous button **A** opens the shutter. It remains lit until the shutter is automatically closed at the end of the exposure.

A 35 Galvanometer readout. The traveling speed of the pointer is a measure of brightness and exposure duration. The shortest exposure time with the 9×12 cm photo head is 1/2 second. With the 35 mm head (Fig. 7) it is 1/100 sec.

B 6 Film-speed knob of automatic exposure control with increments of 3 DIN, equivalent to an increase of ASA-values by the factor 2.

B 10 Speed-correcting switch with increments of ± 1 DIN, equivalent to a modification of ASA-values by the factor 1.26.

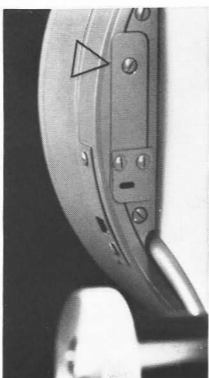


B 16 B 17

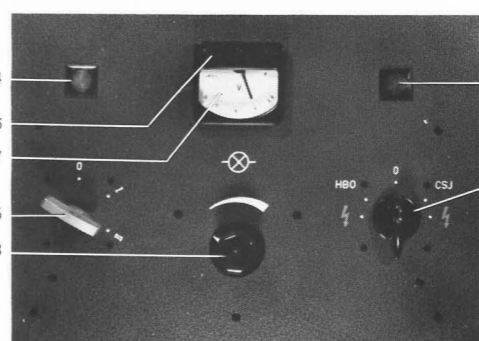
4

To facilitate identification of the negative, a figure from 0 to 99 can be set by the knob (B 16). This figure will then appear in the lower left-hand corner, next to the focusing screen. Via the switch (B 17), the magazine will advance the counter to the next number.

The filament lamp on the right-hand side of the ULTRAPHOT III can be replaced after removing the screw marked by an arrow.



5



L 14 L 16 L 17 L 15 L 18 L 19 L 13

6

To connect the ULTRAPHOT III to the work table, insert the near end of the large plug (i. e. the end nearest the cable) into the multipoint connector and then push in the far end until the plug snaps into position.

L 13 Switch controlling 200-w mercury lamp or CSI 250-W metal halide lamp, each with starting contact.

L 14 Signal lamp indicating that switch L 15 is on.

L 15 Master switch
Position I: low-voltage filament lamp - which can be regulated by means of L 18 - is switched on together with illumination of voltmeter L 17.
Position II: in addition, automatic exposure control and all signal lamps for 9×12 cm camera are switched on.

L 16 Socket of 12-v, 35-ma scale-illumination lamp, Cat.No. 38 02 14.

L 17 Voltmeter for low-voltage filament lamp which should preferably be operated at lower than rated voltage to increase its life.

L 18 Voltage control of filament lamp.

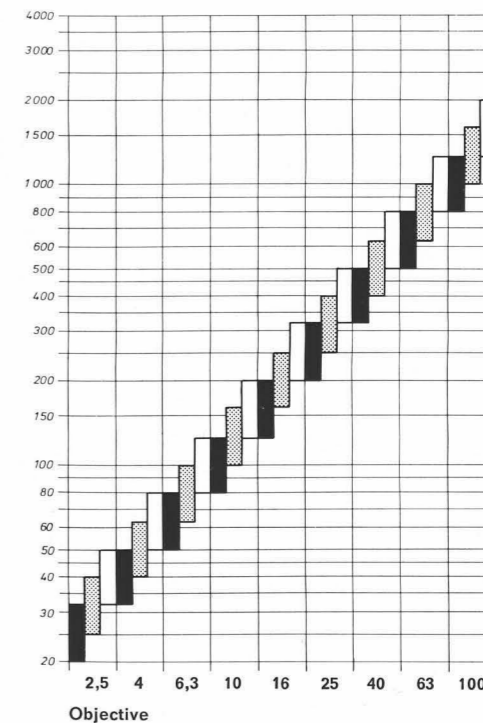
L 19 Signal lamp. Remains lit as long as the lamp switched on by L 13 has not yet ignited.

ULTRAPHOT III

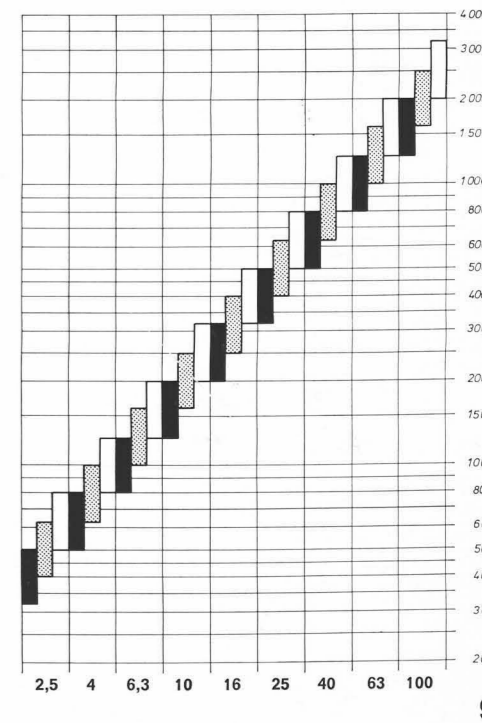
Transmitted light

Magnifications on the focusing screen (B 7) with the Compound Microscope

Wide-field system (factor 0.63)



Standard system (factor 1)



OPTOVAR factor 1.25



OPTOVAR factor 1.6

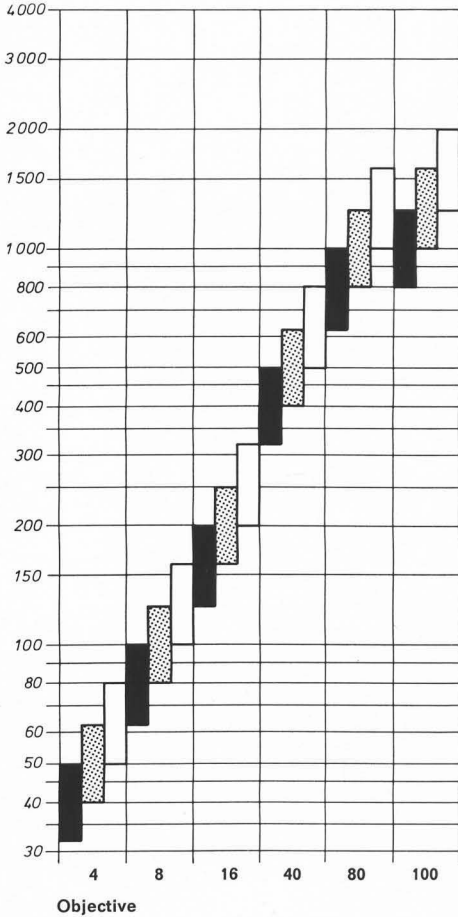


OPTOVAR factor 2

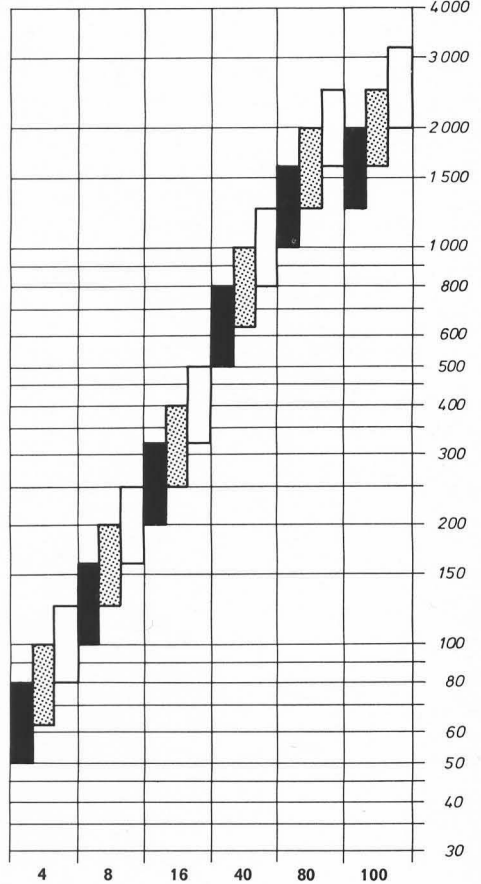
Reflected light

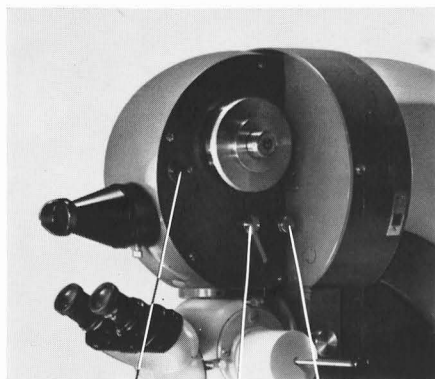
Magnifications on the focusing screen (B 7) with the Compound Microscope

Wide-field system (factor 0.63)



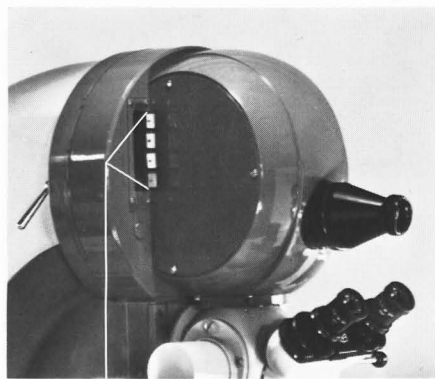
Standard system (factor 1)





C 19 C 4 C 21

7



C 22

8

35 mm Photo Head (47 25 27)

For 35mm photography, use the controls illustrated in Fig. 3.

The film magazine is provided with a green index line to facilitate insertion. The magazine No. 47 20 26 has an integral frame counter.

Controls of 35mm Photo Head:

- C 4 Lever for changing reticule and ground glass in focusing eyepiece.
- C 19 The capping shutter designed to prevent stray light from entering the focusing eyepiece during exposure may be opened with the aid of this knob, thus allowing observation of the object in the case of prolonged exposure.
- C 21 Knob pulled out (normal setting): the automatic control adapts the exposure to the average brightness of $\frac{2}{3}$ of the field. Knob pushed down: spot measurement. If there is extreme contrast in the image, small object areas being important in the picture and for exposure, the latter will be controlled in accordance with the bright-

ness within the double circle in the focusing eyepiece. This setting is of importance for fluorescence microscopy, polarized-light work and dark-field illumination.

- C 22 Button **T** opens the shutter which may be closed by means of button **O**.

Button **f** prepares the equipment for flashing. Once the flash unit has been attached and this button pressed, the flash can be fired by pressing button **B** (A 14). Button **I** indicates trouble and blank exposures. When this button flashes - except during film advance - the automatic exposure control is simultaneously locked due to: lack of film, broken film or end of film.

To unlock the film transport, press this button.

Depressing this button will advance the film by one frame without opening the shutter.

To interrupt an exposure, either press this button, or press the master switch (L 15 in Fig. 6), switch to I or turn the film-speed knob (B 6 in Fig. 3) to maximum speed.

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