

**ZEISS**

West Germany

Carl Zeiss

D-7082 Oberkochen

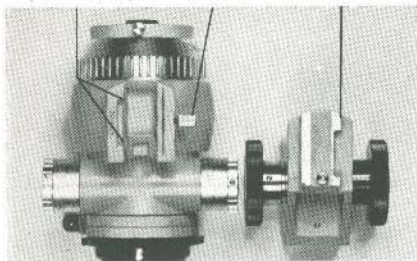
TESSOVAR

Photomacrographic Zoom System

Operating Instructions

## How to assemble the instrument

10                      11                      12



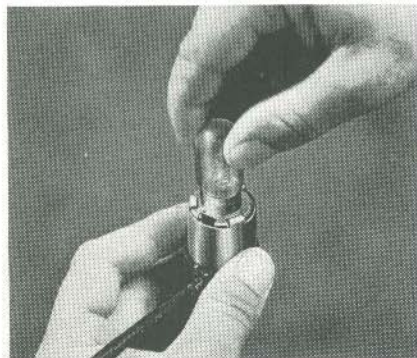
1

For attachment to the supplementary rack and pinion 47 52 10 or the type F stand, loosen the clamp screw (11). Attach the TESSOVAR high enough for the edge (12 in Fig. 1) to fit into the cutout (10). Then move the TESSOVAR all the way down and tighten the clamp screw (11).



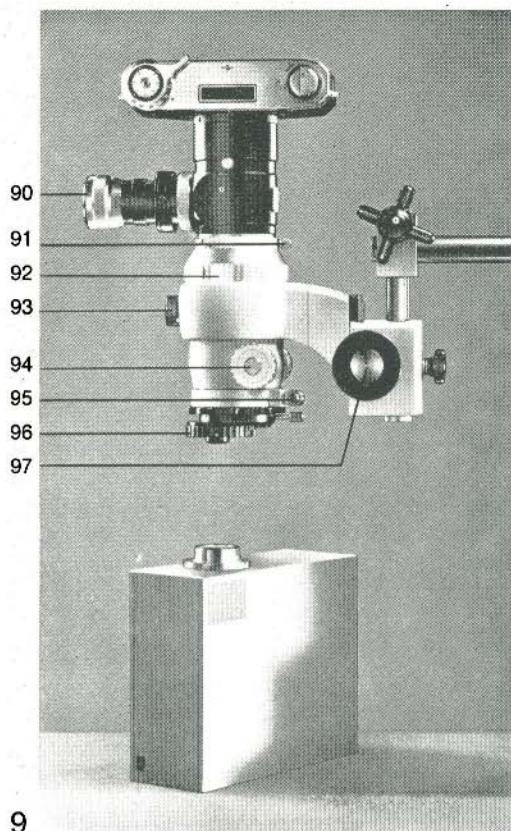
2

The **illuminator carrier** can be mounted when the thumb screw is turned back far enough for the holder to slip onto the pair of cones of the TESSOVAR!

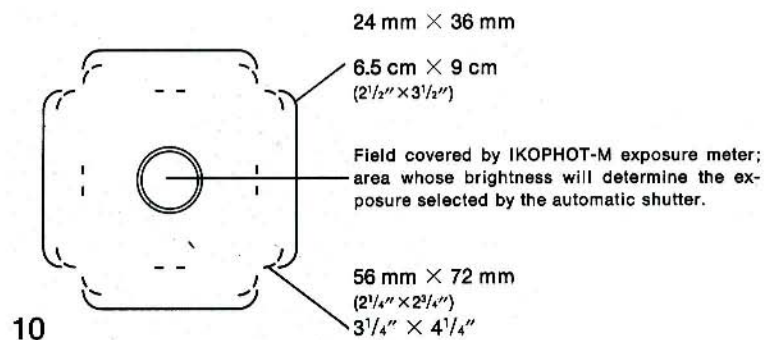


3

Press the **6-volt, 15-watt lamp**, 38 01 77, down into the socket (red dot facing red pin) and lock it by clockwise rotation. Wipe fingerprints from the glass bulb to avoid their burning in and slip the black sleeve serving as glare shield over the bulb.



9

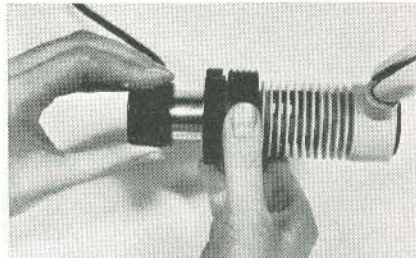


10

4 a

When the two red dots are facing each other, the clamp ring is released and the socket of the low-voltage lamp can be easily inserted or shifted, allowing the light beam to be focused on the object as desired.

4



To insert the fluorescent tubes into the **diffused-light illuminator** unscrew the transparent cover, position the tubes and turn them through about 90° around their own axis. Insert the safety latch with its serration facing down and replace the cover plate.

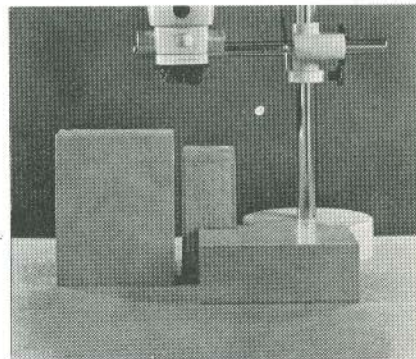
Check in the window in the bottom cover whether the power supply unit is set for the correct line voltage.

5

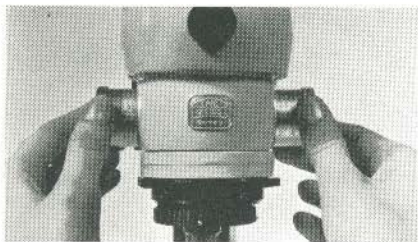


In every position of the revolving nosepiece (96 in Fig. 9) the TESSOVAR has a different working distance. If the object is placed on the surface of the **support** marked in the same color as the particular position of the nosepiece, the image will always remain approximately focused. The size of the color frame indicates the maximum object field that can be covered in that position of the nosepiece.

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## Lens and image formation



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The focal length of the zoom lens can be varied continuously. Every change in the position of the revolving nosepiece is equivalent to a change in magnification on the film by the factor 4.

The magnifications engraved on the control knob apply to 35 mm film. The color corresponds to that of the nosepiece positions. For other formats than 24 mm x 36 mm these values have to be multiplied by a camera factor:

For camera attachment	Camera factor
-----------------------	---------------

**C-120:**

Negative sizes 6 x 6 cm, 6.5 x 9 cm 2.5

**CR-120:**

Negative size 56 x 72 mm 2.5

**CP-100:**

Polaroid film 3 1/4" x 4 1/4" 3.2

The true size of an object detail on the film can be found by dividing the image distance by the magnification.

The magnifications applying to the different positions of the revolving nosepiece partly overlap. Thus 3.2x magnifications can be obtained in each of the three ranges, although the numerical aperture is different in each case (page 15).

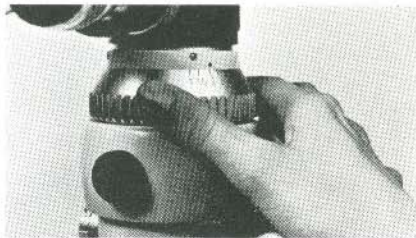
**Optimum resolution** of the fine detail is obtained at the position with the highest numerical aperture.

Stopping down the TESSOVAR reduces the numerical aperture.

**Maximum depth of field** calls for the lowest numerical aperture possible.

The figures on the aperture selector (92) are multiplying factors for exposure. Thus the exposure determined in position "1" of the aperture selector has to be increased by 3x if the lens is stopped down to 3. This is of practical importance, for instance, if in the case of dim pictures the light meter responds only at full aperture.

If the magnification control (94) is moved from stop to stop, this will automatically engage the aperture interlock. As a result, turning the control (94) will automatically vary the aperture so as to keep the exposure in this position of the nosepiece constant. This makes it possible to maintain a constant distance between flash tubes and object.



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## Framing and focusing

1. Set the revolving nosepiece (96 in Fig. 9) to the same color symbol as on the object support (Fig. 6).
2. Illuminate object.
3. Set the focusing eyepiece (90 in Fig. 9) so that it suits your eyesight. To do this, turn the eyelens down until the double circle is just seen in sharp focus.
4. Use the knob (97) to focus the image detail immediately adjacent to the double circle.
5. Frame the object to be photographed by varying magnification with the aid of the control (94). The camera can be rotated after releasing the clamp screw (91), the TESSOVAR after loosening the clamp (93).

Depending on whether the camera was attached crosswise or lengthwise, the reticule frame outlines for horizontal or vertical pictures apply.

6. Only in the case of objects with considerable relief should the lens be stopped down (92) far enough to ensure sufficient depth of field.

### Light metering with the IKOPHOT-M

7. Set the film speed on the DIN or ASA scale of the IKOPHOT-M exposure meter.

Set the red index to the calibration figure.

For negative size	Calibration figure
24 x 36 mm	5
6.5 x 9 cm or 56 x 72 mm	7.5
Polaroid 3 <sup>1</sup> / <sub>4</sub> " x 4 <sup>1</sup> / <sub>4</sub> "	8.5

8. Move detector on slide into light path of focusing eyepiece (90).
9. Press the central red knob of the exposure meter and release it when the meter needle has come to rest. Use the outer dial to make the follow pointer coincide with the meter needle.
10. Read the required exposure:  
Normally at the red index.  
In the case of relatively dark background: at the black index.  
2 stands for 1/2 sec.  
2" stands for 2 sec.  
2' stands for 2 minutes.
11. Take photograph.  
In the case of the 35 mm attachment, release the filmtransport lock by pressing the proper button (not applicable if the double cable release is used).  
Advance the film by one frame.

### Exposure with automatic CS-matic shutter

- 7a Set CS-matic shutter to AUTO. On the pointer unit, set the film speed (DIN or ASA) by means of the outer dial and the negative size by the inner ring.

- 8a Move the detector on the slide into the light path.

The automatic shutter will function properly as long as the observer's eye looking into the focusing eyepiece is not dazzled.

- 9a Trip the shutter by briefly depressing the cable release.

- 10a With 35 mm camera attachment only:

Press the film-transport release (if the double cable release is used, this is done simultaneously with depression of the shutter release) and advance the film by one frame.



11

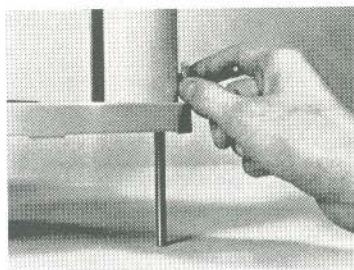
**The supplementary rack and pinion** (47 52 10) has a mechanism for focusing the TESSOVAR which is attached as shown in Fig. 1. The rack and pinion fits onto a stud of 18 mm diameter as on our table stands.

Should the TESSOVAR on the rack and pinion slide down under its own weight, increase the stiffness of motion. Behind one of the controls there is a bright ring on the knob's shaft. Insert a pin into the holes in this ring and turn it. In order not to damage the ring, do not turn it any further than is necessary to correct the defect.

**The F-stand** (47 52 00) is high enough to allow the TESSOVAR to be used with the revolving nosepiece in any position. In the red position, however, objects should not be higher than 20 mm and should be placed directly on the table, without any specimen stage in the base.

Regulate the motion of the focusing drive on the F-stand as was described for the rack and pinion.

Attach the specimen stage to the F-stand in the position indicated by the red dots, turn it through approx 90° and clamp it by means of the lever in the base.

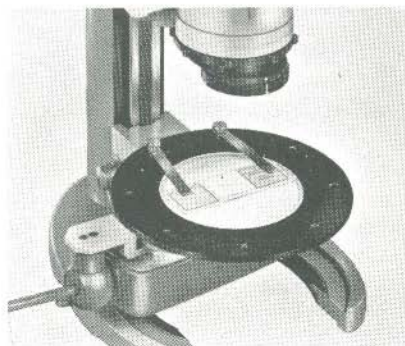


12

To take photographs by transmitted light with the TESSOVAR set up on the F-stand, use the yellow or green position of the nosepiece. For illumination, use the diffused-light substage illuminator 47 52 56 (Fig. 13).

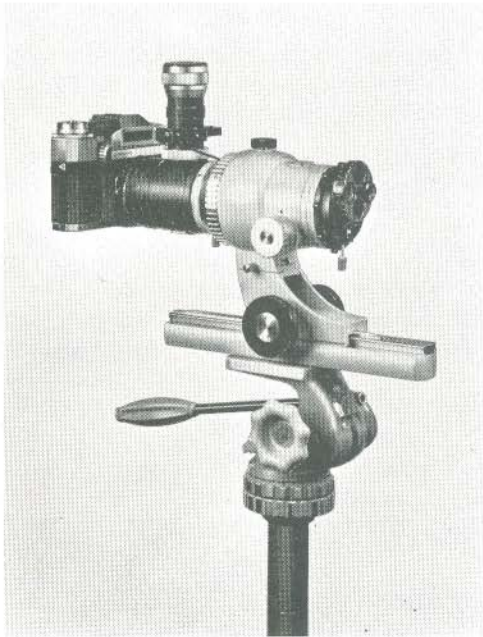
Insert the holder of this illuminator with the edge opposite the clamping lever into the changing guide of the F-stand. Then apply it to the stand until the spring-loaded bolt behind the guide snaps into position. Finally, clamp it by means of the lever.

With the F-stand, the TESSOVAR may be placed directly on large objects — even on one side only — and propped by means of the supporting rod in the stand (can be extended up to 120 mm) (Fig. 12).



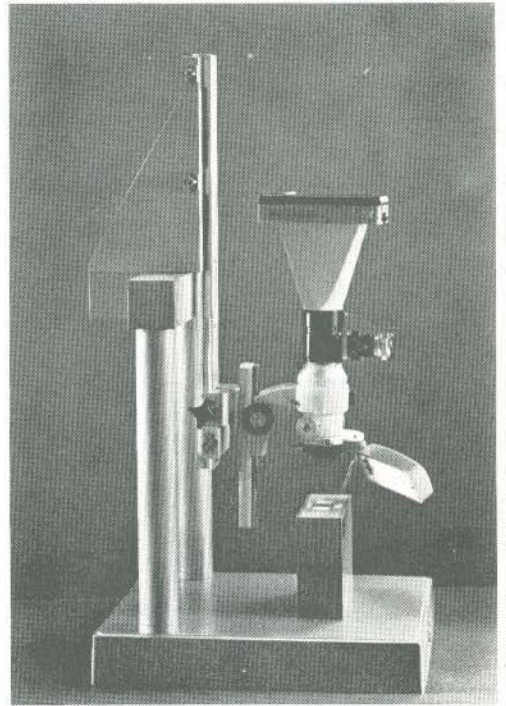
13





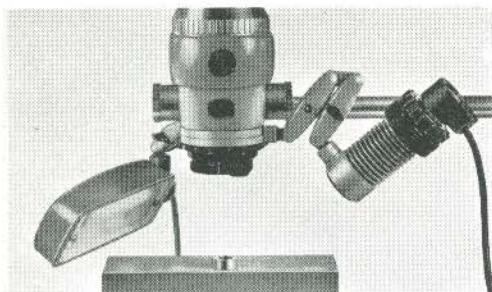
14

TESSOVAR with focusing slide (47 52 11) on a camera tripod.



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TESSOVAR with focusing slide on the versatile AC column stand (47 61 03).



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Diffused-light illuminator (left) and surface illuminator (right).

Rotation of the lamp holders on the TESSOVAR can be clamped with the aid of the black ring above the revolving nosepiece.



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## Illumination

The **surface illuminator** with a 6-volt, 15-watt lamp (38 01 77) is operated via a transformer. In general, it will be sufficient to use lower than rated voltage. This will increase the life of the lamp, which should be overrun only briefly.

The two fluorescent tubes of the **diffused-light illuminator** are likewise connected to a power supply unit.

The white-light tubes are slightly brighter, while the daylight tubes are especially suited for photography in natural colors.

The illuminator is switched on by briefly pressing the white knob. It is switched off by the red knob.

### Tubes used in diffused-light illuminator

Type of tube	Manufactured by	Our Cat. No.
F 4 T 5/D - daylight	SYL- VANIA	38 00 53 - 2570
F 4 T 5/W - white light		38 00 53 - 2580
TL 4 W/29	PHILIPS	—
TL 4 W/33		—

Filters of 18 mm diameter fit into the filter holder 47 65 48 below the viewing system.

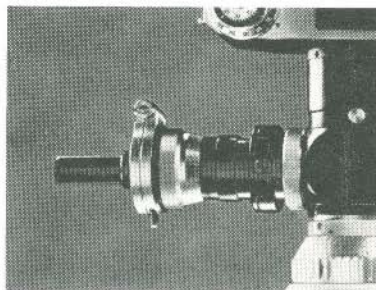
It is recommended to cut these out of filter foil of which a large selection is available on the market, e. g. more than 100 different types from Kodak.

A green filter is recommended for black-and-white photography.

## Viewing system

The **basic unit I** (47 60 10) contains the beam-splitting system of the TESSOVAR. It directs approx.  $\frac{1}{3}$  of the light to the eyepiece for viewing or light metering.

The focusing eyepiece T (47 60 27) contains a reticule with the frame lines for the different negative sizes. The eyelens of the eyepiece should be set to suit the observer's eyesight, i. e. so that the double circle is seen sharply defined. Sharp photographs can only be expected if the image detail directly adjacent to this circle is seen in sharp focus together with the circle. Special attention should be given to focusing when low magnifications are used.



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2.5x telescope on focusing eyepiece T. Considerably increases the focusing accuracy in the case of low-power images.

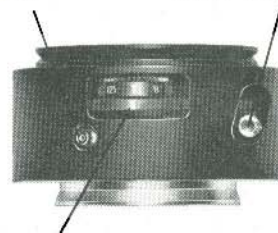
## Shutter

Each of the two shutters can be combined with any of the camera attachments.

**Model CS shutter** (47 60 37) for manual release and combination with the camera attachments listed on page 13.

Flash terminal

Cable-release socket



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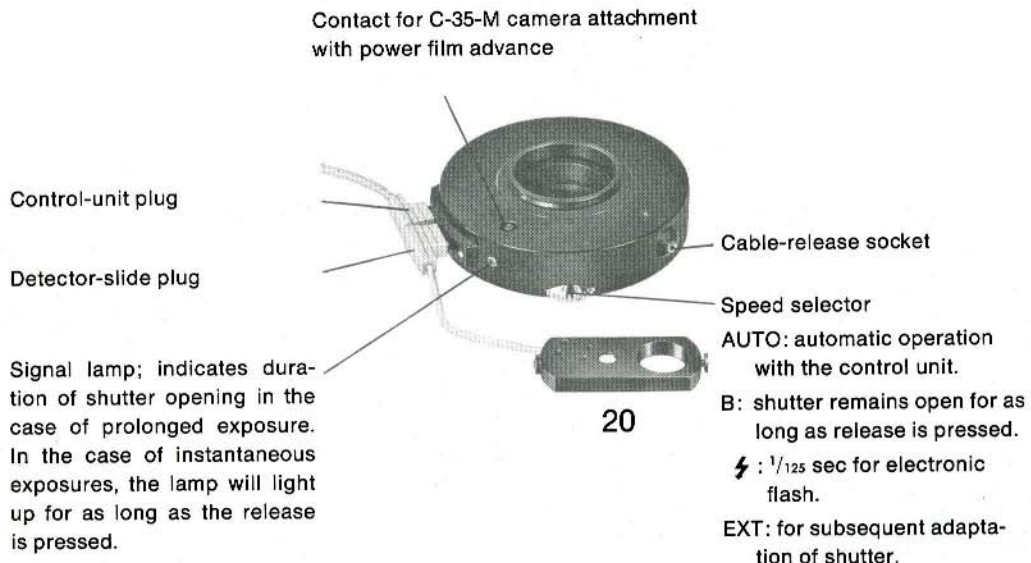
Speeds from  $\frac{1}{125}$  sec to 1 sec.

**B:** shutter remains open for as long as release is pressed.

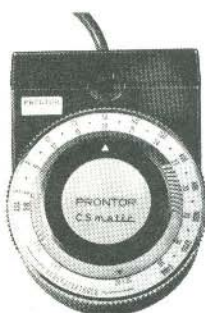
**T:** first depression of release opens shutter, second depression closes it.

**CS-matic shutter (47 60 39)**

Vibration-absorbing single-action shutter for automatic exposures of  $\frac{1}{125}$  sec and longer.



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Control unit for setting film speed and negative size.

Position 6 x 9 also applies to 6 x 6 and 56 x 72 mm.

Position 9 x 12 also applies to 4" x 5" and 3 1/4" x 4 1/4" Polaroid film.

The power source is a 4.2-V Mallory type PX-13 mercury battery (49.4 mm x 16.6 mm diameter).

If the battery is exhausted, the shutter will operate at a speed of  $\frac{1}{125}$  sec.

A regular exchange of batteries once a year guarantees perfect operation at all times.

## Camera attachments

In addition to the camera attachments illustrated on pages 11–13, the TESSOVAR may be used in conjunction with commercial focal-plane cameras. Adapters to replace the lens are available on request.

**C-35-M camera attachment (47 60 71)** with forward frame counter in bottom cover.

Film-transport control switch  
Signal lamp indicates advance of film

Film-transport lock

Contact for automatic CS-matic shutter

Insert short-circuit plug if mechanical shutter is used. Not on TESSOVAR.



Knob to be pressed while re-winding film with crank

Receptacle for transformer of film-transport motor

Rewind crank

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In conjunction with the automatic shutter, this camera attachment is equivalent to a fully automatic 35 mm camera.

The integral film-transport motor is supplied with power by the transformer 110-220/6.75-8.2 V, 6 VA.

The second outlet of the variable transformer, 0...8 V, 50...60 Hz, 30 VA, for 6-V, 15-W lamps, can also be used if it is set to somewhere between 5 and 7.5 volts.

Automatic film advance after exposure takes approx. 2 sec. The red signal lamp lights up during this period and the shutter must not be tripped again before it has gone out.

At the end of the film roll, the motor will continue to operate via a friction clutch, and the red lamp will remain lit. In this case stop the motor by means of the red switch and reconnect it after rewinding the film.



*Notes regarding the 35mm camera attachment:*

**The double cable release** (47 60 96) will simultaneously trip the shutter and release the film-transport lock of the camera. As a result, the film can immediately be advanced by one frame, and double exposures are impossible.

Owing to manufacturing tolerances, every cable release has to be individually adapted to the camera with which it is used. This should be done when the camera is not loaded with film.

The sleeve surrounding one of the cables can be adjusted with the aid of the longer knurled disk. When it is turned fully up against the release knob, the two cables are identical in length and will act simultaneously. Unscrew the sleeve until pressure on the release knob causes the cable to emerge from the sleeve only when the second

cable already projects by about 3 mm. Then screw the cable of variable length firmly into the film-transport lock of the camera and the other cable into the shutter. Set the shutter to B.

Now operate the film advance lever and depress the release fully. Should the shutter fail to open properly, screw the sleeve out by about one revolution, operate the film advance lever a second time and once more press the release. Repeat these operations until the position has been found in which the shutter opens properly only once after the advance lever has been actuated. The cable release should, however, be tightly secured in the respective sockets.

Finally secure the adjustable sleeve by means of the clamp screw.

Fig. 24

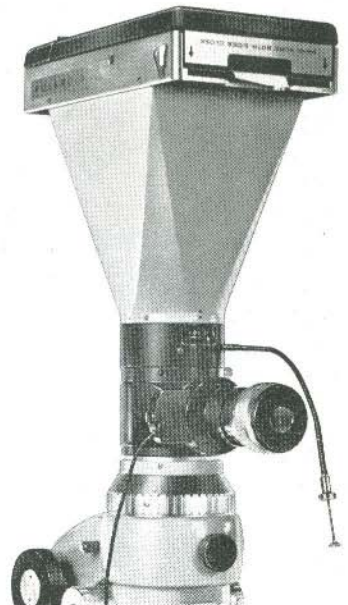
TESSOVAR with C-120 camera attachment  
(47 60 30 - 9901) for 6.5 x 9 cm format.

Fig. 25

CR-120 camera attachment (47 60 52 - 9901) for  
accessories fitting on the Linhof Technica-70  
back, shown here with Super-Rollex back  
(47 60 86) for ten 56 x 72 mm exposures.

Fig. 26

CP-100 camera attachment for 3 1/4" x 4 1/4" Pola-  
roid film pack (47 60 54 - 9901).





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## IKOPHOT-M exposure meter

(47 42 02)

This meter works like an ordinary exposure meter but uses calibration figures instead of f-stops. The detector employed is a slide-mounted photoconductor cell. The slide is inserted into the focusing eyepiece and secured against falling by means of a clamp.

Slides and pointer instruments are not interchangeable. Both must be marked with the same number on the back.

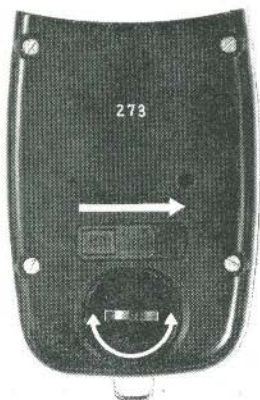
Being an electrical measuring instrument, the IKOPHOT-M is sensitive to shock and impact.



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### Battery testing:

Operate the spring-loaded switch on the rear of the IKOPHOT-M and simultaneously press the red knob. A new Mallory PX-13 battery should be inserted if the meter needle does not reach the black test dot. To do this, open the screw cap on the back of the meter with the aid of a coin.



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**A check of calibration figures** is required only for critical black-and-white or color photography (due to differences between emulsion batches). In this case, a series of trial exposures should be made.

1. Set the camera as described on pages 4 and 5, paragraphs 1 to 9, however without making allowance for the calibration factor.
2. Take a series of eight trial exposures, using the shutter speeds opposite the calibration figures 1, 2, 3 . . . 8 on the IKOPHOT-M.
3. Process the film, determine the best exposure and set the red index of the meter to the corresponding shutter speed. The correct calibration figure has then been determined.





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Data Table  
for the Tessovar  
Photomacrographic  
Zoom System

Addendum

to operating instructions G 41-450-e

# Data Table for the Tessovar Photomacrographic Zoom System

Nosepiece set to		with auxiliary lens 0.25 x <b>I</b>							with auxiliary lens 0.5 x <b>II</b>			
Free working distance		320 mm							150 mm			
35 mm camera attachment (C 35) (engraved figures) magnification factor 1 x		0.4	0.5	0.63	0.8	1	1.25	1.6	<b>0.8</b>	<b>1</b>	<b>1.25</b>	<b>1.6</b>
C 120 and CR 120 camera attachments factor 2.5 x		1	1.25	1.6	2	2.5	3.2	4	2	2.5	3.1	4
CP 100 camera attachment (Polaroid) and C 912 (9x12; 4"x5") magnification factor 3.2 x		1.25	1.60	2	2.5	3.2	4	5	2.5	3.2	4	5
N.A. at aperture 1		0.007	0.0075	0.0085	0.01	0.011	0.0125	0.014	0.014	0.015	0.017	0.019
35 mm camera attachment (C 35)	Aperture	Relative apertures = effective apertures							Relative apertures = ef			
	1	1: 30		1: 36		1: 45		1: 64	1: 30		1: 36	
	2	42		50		64		90	42		50	
	4	60		72		90		125	60		72	
C 120 and CR 120 camera attachment	Aperture	1: 75		1: 90		1:112		1:160	1: 75		1: 90	
	2	105		125		150		225	105		125	
	4	150		180		225		320	150		180	
	Aperture	1: 90		1:112		1:150		1:180	1: 90		1:112	
Camera attachments CP 100 (Polaroid) and C 912 (9x12; 4"x5")	1	125		150		225		280	125		150	
	2	180		225		300		400	180		225	
	4											
	Aperture											
Depth of field* (mm)	1	10.2		6.9		4.1		2.6	2.6		1.7	
	2	20.4		13.8		8.2		5.2	5.2		3.4	
	4	40.8		27.6		16.4		10.4	10.4		6.8	
	Aperture											

\* with reference to Airy disk. Approximate values based on formula  $T_g = \frac{0.0224}{N.A.}$

where  $T_g$  = total depth of field and N. A. = object-side numerical aperture.

	without auxiliary lens <b>III</b>						with auxiliary lens 2 x <b>IV</b>					
mm	75 mm						36 mm					
Magnification	Magnification						Magnification					
<b>2 2.5 3.2</b>	<b>1.6 2 2.5 3.2 4 5 6.4</b>	<b>3.2 4 5 6.4 8 10 12.8</b>										
5 6.3 8	4 5 6.3 8 10 12.5 16	8 10 12.5 16 20 25 32										
6.4 8 10	5 6.4 8 10 12.8 16 20	10 12.8 16 20 25.6 32 40										
9 0.022 0.025 0.028	0.028 0.031 0.034 0.039 0.044 0.050 0.056	0.056 0.062 0.068 0.078 0.088 0.100 0.110										
effective apertures	Relative apertures = effective apertures				Relative apertures = effective apertures							
1: 45 1: 64 64 90 90 125	1: 30 1: 36 42 50 60 72	1: 45 1: 64 64 90 90 125	1: 30 1: 36 42 50 60 72	1: 45 1: 64 64 90 90 125	1: 30 1: 36 42 50 60 72	1: 45 1: 64 64 90 90 125	1: 30 1: 36 42 50 60 72	1: 45 1: 64 64 90 90 125	1: 30 1: 36 42 50 60 72	1: 45 1: 64 64 90 90 125	1: 30 1: 36 42 50 60 72	
1:112 1:160 150 225 225 320	1: 75 1: 90 105 125 150 180	1:112 1:160 150 225 225 320	1: 75 1: 90 105 125 150 180	1:112 1:160 150 225 225 320	1: 75 1: 90 105 125 150 180	1:112 1:160 150 225 225 320	1: 75 1: 90 105 125 150 180	1:112 1:160 150 225 225 320	1: 75 1: 90 105 125 150 180	1:112 1:160 150 225 225 320	1: 75 1: 90 105 125 150 180	
1:150 1:180 225 280 300 400	1: 90 1:112 125 150 180 225	1:150 1:180 225 280 300 400	1: 90 1:112 125 150 180 225	1:150 1:180 225 280 300 400	1: 90 1:112 125 150 180 225	1:150 1:180 225 280 300 400	1: 90 1:112 125 150 180 225	1:150 1:180 225 280 300 400	1: 90 1:112 125 150 180 225	1:150 1:180 225 280 300 400	1: 90 1:112 125 150 180 225	
1 0.64 2 1.28 4 2.56	0.64 0.43 1.28 0.86 2.56 1.72	0.16 0.11 0.32 0.22 0.64 0.44	0.64 0.43 1.28 0.86 2.56 1.72	0.26 0.16 0.52 0.32 1.04 0.64	0.16 0.11 0.32 0.22 0.64 0.44	0.26 0.16 0.52 0.32 1.04 0.64	0.16 0.11 0.32 0.22 0.64 0.44	0.06 0.04 0.12 0.08 0.24 0.16	0.16 0.11 0.32 0.22 0.64 0.44	0.06 0.04 0.12 0.08 0.24 0.16	0.16 0.11 0.32 0.22 0.64 0.44	





# TESSOVAR®

a universal photomacrographic zoom system

Not without reason, the photography of objects in the order of millimeters and centimeters is considered as difficult and awkward. Contrary to the normal approach — special-purpose lenses on a camera of variable extension — the first special-purpose photomacrographic system, the ZEISS TESSOVAR, offers the following advantages:

1. Object distances do not vary with changes in magnification. Instead, there are only four fixed working distances.
2. No need for refocusing after every change of magnification, but use of a zoom lens.
3. No time-consuming computation of magnification with the aid of formulas, but direct reading on an index.
4. No conversion of nominal to effective aperture for using depth-of-field tables.
5. Exposure-correction factors do not vary. Instead — if desired — constant exposure time over the entire range of magnifications (and, of course, fixed distance of reflector in the case of flash photography).
6. Change-over from 35 mm film to medium formats or Polaroid does not require a complete change of equipment, but simply exchange of the camera attachment.
7. Practically unlimited adaptability, e. g. conversion for automatic exposure control and power film advance, or for use of perforated 70 mm film (52 exposures  $2\frac{1}{4}'' \times 2\frac{7}{8}''$ ).

The new instrument system consists of a TESSAR-type zoom lens, the TESSOVAR® turret-mounted auxiliary optical system and a projective. With the 24 x 36 mm negative size (35 mm film) it covers a magnification range from 0.4 x to 12.8 x, with medium formats up to 2.5 x and with Polaroid film up to 3.2 x, which is equivalent to

object fields of approx. 55 x 82 mm down to 1.7 x 2.6 mm. A prism reflex viewfinder with format reticule and frames for vertical and horizontal pictures serves for focusing and framing. In the plane of this reticule, the photodetector of the special Iko-phot-M (CdS) light meter can be inserted, the measuring area of which is marked in the viewfinder. Practically all the cameras known from the ZEISS line of photomicrographic equipment can be used, in addition to existing 35 mm or  $2\frac{1}{4}'' \times 2\frac{1}{4}''$  cameras such as Contarex, Icarex, Leica, Pentax, Nikkor F, Yashica, etc., as well as Hasselblad and Linhof Technika-70 backs.

The effective relative aperture of the system was chosen so that an optimum compromise could be achieved between the two factors of particular importance for low-power photography, depth of field and resolving power. In spite of the large depth of field, the speed of the system is high enough to make a compact amateur flash unit adequate for color photography even at the highest powers. In order to allow the reflector distance determined for flash photography to be left unchanged, the magnification setting in the zoom lens is interlocked with the aperture setting. As a result, the relative aperture is kept constant. A manual override is provided to allow full use to be made of the resolving power or, on the other hand, to increase the depth of field even further.

An ingenious system of color marks makes the TESSOVAR extremely easy to use. A support providing three different heights is used for opaque objects. With this simple aid, the eyepiece height remains constant when passing from one magnification range to the next, eliminating awkward readjustments. The object fields possible are marked in color on the support. Once the proper field size has been found for a certain object,

the support need only be turned so that the corresponding color mark faces upwards. Next, the lens marked in the same color is moved into the light path with the turret and optimum focusing obtained through the eyepiece, which is done very quickly because the working distance is automatically correct. Finally, when the object has been optimally framed with the aid of the zoom lens, the magnification on the film is read — again in the same color — on an index.

Either low-voltage filament lamps or reflector lamps for mains connection are used for illuminating the object. The TESSOVAR may be mounted in different ways, for example on ZEISS stereomicroscope stands, but also on any sturdy camera tripod with the aid of a focusing slide. Particularly good on the sturdy AC stand.

The TESSOVAR is designed to fill the gap previously existing between the working range of so-called system cameras on the one hand and microscopes on the other. The new instrument will be of particular interest in the following fields: medicine (pathology, dermatology, medical entomology), zoology (parasitology, embryology, developmental physiology, systematics), botany (systematics, ecology, plant pathology, mycology), paleontology, mineralogy, crystallography and gemology, criminology and forensic medicine, agricultural science, forestry, technology (materials testing, e. g. fractures, polished metal surfaces, corrosion), numismatics, philately and, finally, amateur photography.

Fig. 1: TESSOVAR photomacrographic zoom system.  
C-35 M camera with CS-matic shutter and motorized film transport.  
Focusing eyepiece with attachment telescope.  
Sturdy stand AC with focusing drive.  
Two 6 V 15 W epi-illuminators and Comptalux Cool-Flood lamp.



Fig. 2: *Trichophyton violaceum*, three different variants of growth. TESSOVAR with Icarex. Magnification 1.6 x, enlarged to 4.2 x.

Fig. 3: Colonies of bacteria beside a *Trichophyton violaceum* culture. The bacteria were left by mites walking across the plate. TESSOVAR with Icarex. Magnification 0.9 x, enlarged to 2.7 x. Specimens for Figs. 2 and 3: Dr. Rieth, Hamburg.

Fig. 4: Spruce, photographed by transmitted light. TESSOVAR with Icarex. Magnification 6.4 x, enlarged to 16 x. Specimen: J. Lieder, Ludwigsburg.

Fig. 5: Gall bladder of wasp. TESSOVAR with Contarex. Magnification 2.5 x, enlarged to 6.9 x.

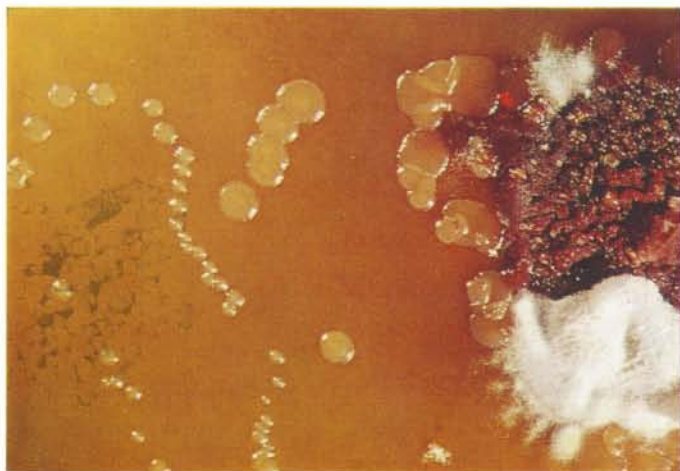
Fig. 6: *Mesostoma ehrenbergii*, in vivo photo. TESSOVAR with Icarex and electronic flash. Magnification 2.5 x, enlarged to 6.7 x. Specimen: Dr. Giesa, Zool. Institut, Göttingen.

Fig. 7: Textile material. TESSOVAR with type C-35 CS-matic camera. Magnification 3.2 x, enlarged to 10 x.

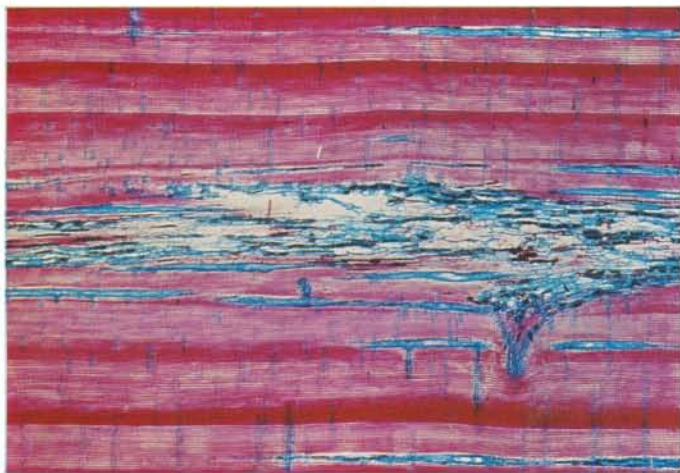
2



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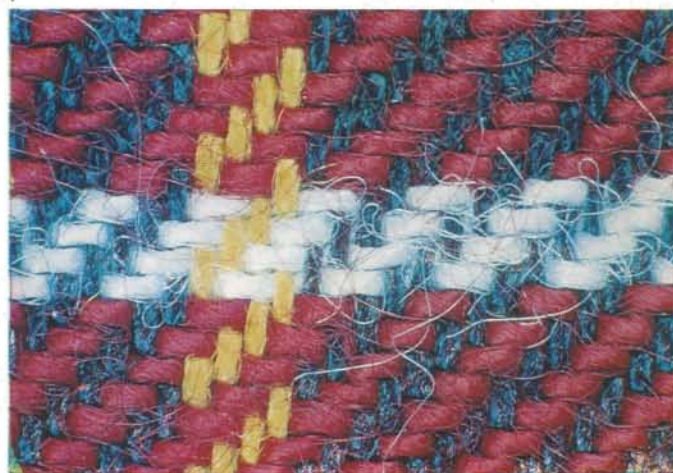




Fig. 8: TESSOVAR with CONTAREX on attachable stand D with focusing drive. Object support for adaptation to the three working distances.

Fig. 9: TESSOVAR equipped for horizontal photography, the instrument being mounted on a focusing slide attached to a camera tripod. In this case, the type C-35-M motorized magazine with a fully automatic model CS-matic shutter serves as a camera.

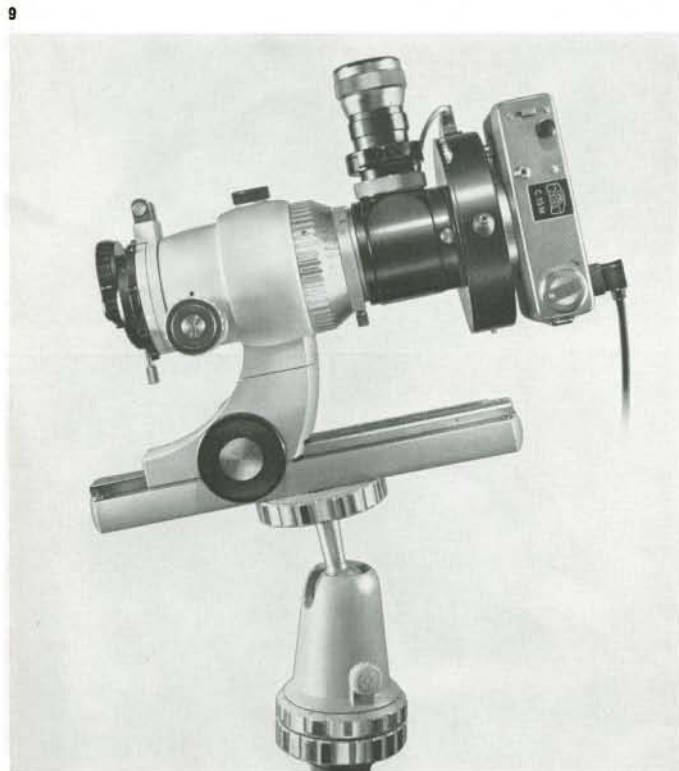
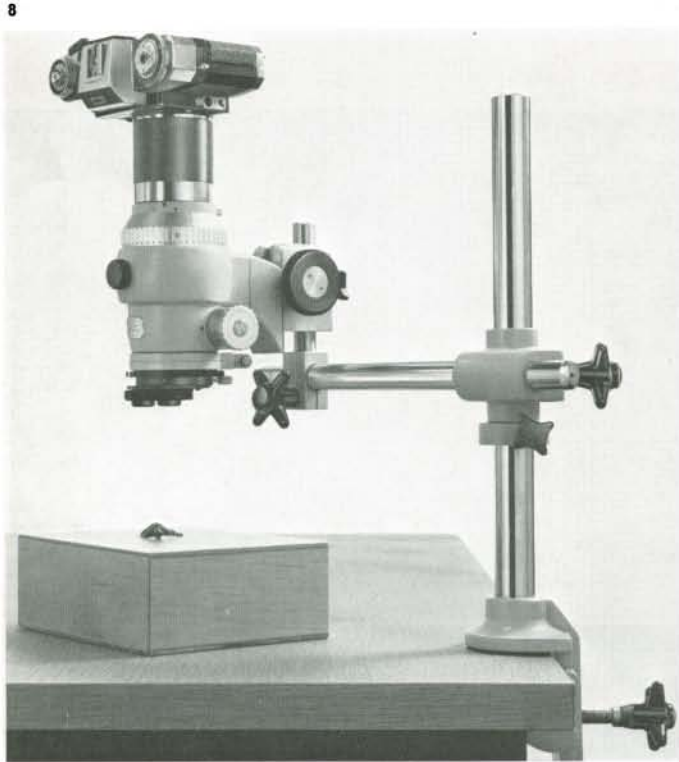


Fig. 10: Ammonite of the Lias. (Magnification 1 x, enlarged to 3.8 x).

Fig. 11: Pistol bullet (photograph made available by Kriminalkommissariat der Staatsanwaltschaft in Basel. Magnification 2.5 x, enlarged to 7 x.)

