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soft cloth and to keep the interior of the camera, particularly the film guide and the spool chambers, free from all foreign particles which could damage the film.

A serial number is engraved on the back of every NETTAR camera. It is recommendable to note down this number in order to be able to identify the camera in case it is lost or unintentionally exchanged.

The technical development may require slight changes on the camera as compared to the description.

Bright Sun 8/10 - 1/16
Cloudy 6/4 - 1/8
Hazy Sun 1/11



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INSTRUCTION BOOK



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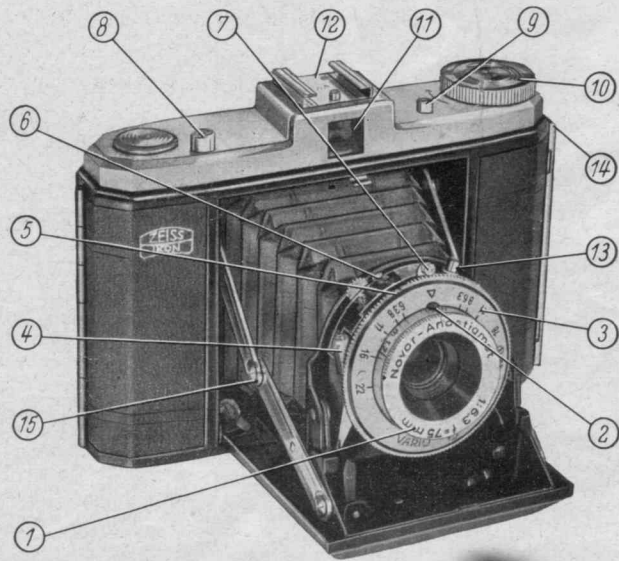
INSTRUCTION BOOK



NETTAR

2 1/4 x 2 1/4"

ROLLFILM CAMERA

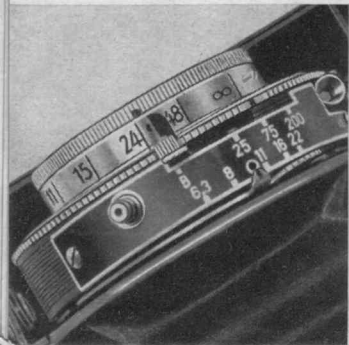


THE PARTS OF THE NETTAR

- 1 Rotating front lens for distance setting
- 2 Distance setting mark
- 3 Depth of field scale
- 4 Thread for cable release
- 5 Exposure time setting ring
- 6 Lever for diaphragm setting
- 7 Lever for winding shutter
- 8 Body shutter release
- 9 Knob for opening camera
- 10 Film winding knob
- 11 Built-in optical viewfinder
- 12 Shoe for slip-on accessories
- 13 Flash synchronization contact
- 14 Bolt for locking camera back
- 15 Struts
- 16 Lever for delayed action release (see p. 8)
- 17 Synchro switch (see p. 8)

THE ZEISS IKON RED-DOT SETTING

enables the NETTAR owner to take instant snapshots in good lighting conditions without previous time-consuming settings. Set the diaphragm setting lever and the distance setting mark on the red dots and everything from 13 feet to infinity will be rendered sharply. According to the prevailing lighting conditions, exposure times from $1/25$ to $1/100$ sec. may be used.

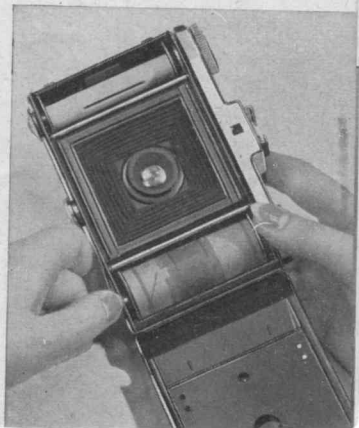


LOADING OF CAMERA

The camera back can be opened after pulling out the locking bolt.

Pull out the spring at the bottom of the camera and insert the film spool into the lower spool chamber. Slit open the gummed label of the film spool and pull the protective paper toward the empty take-up spool. Tighten the protective paper by turning the film winding key several times and then close the camera.

Open the small window at the back of the camera and turn the film winding key until the number "1" appears in the window. In order to prevent double exposures the film has to be wound on by one frame immediately after every exposure.



THE ZEISS IKON
ROLLFILM CAMERA

NETTAR 2 1/4 x 2 1/4

The easiness of its manipulation is a conspicuous feature of this camera, which, if handled properly, gives excellent results, as is proved by the two pictures contained in this booklet, which were made with NETTAR cameras. The picture of the house was taken with lens stop 11 and 1/50 second and the snapshot of the motorcycle race, with lens stop 4.5 and 1/300 second. Once you are familiar with the few manipulations

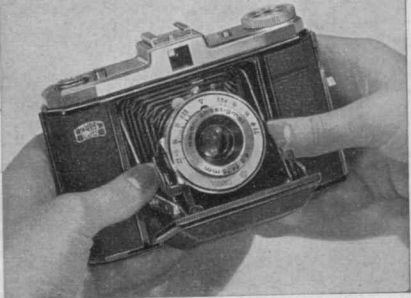
explained in this booklet, you will have no difficulty in obtaining good photographs, and will take a great pleasure in photography.

The NETTAR takes 12 pictures 2 1/4" x 2 1/4" on standard B II-8 roll film. It is equipped either with a Novar f/6.3 or with a Novar f/4.5 lens. Its lenses are factory-coated, ensuring utmost sharpness in black and white as well as colour photography.

**HOW TO OPEN
THE NETTAR**

Hold the camera in one hand, slightly tilting it forward. Press opening knob and the NETTAR will snap into the taking position.





HOW TO CLOSE THE NETTAR

Take the camera in both hands as in the illustration, press the struts (15) down with your two thumbs and close the lid.

In order to close the NETTAR in the taking position press the struts (15) down with your two index fingers and close the camera lid.

FOCUSING

Distances in terms of feet are engraved on the lens mount. The NETTAR is focused on the object to be photographed by turning the front-lens mount. The respective setting figure

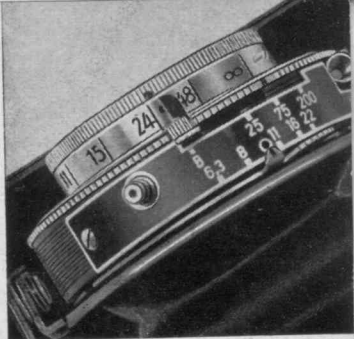
must be opposite the distance setting mark. Intermediate settings can be made easily. The setting must be made in accordance with the straight edge of the setting mark.

SETTING OF THE DIAPHRAGM

For setting the diaphragm on the desired lens aperture turn the diaphragm setting lever (6) until (seen from above) the diaphragm setting mark points at the desired lens aperture figure.

SETTING OF THE EXPOSURE TIME

Turn the milled setting ring (5) until the exposure time setting mark is opposite the desired exposure time. The figures engraved on the exposure time setting ring indicate fractions of a second, i. e. "25" means $\frac{1}{25}$ sec. With setting "B" the shutter remains open as long as the body shutter





release is pressed down. Prior to every exposure the shutter must be wound with the shutter winding lever (7).

THE SHUTTER

NETTAR models are equipped with either Vario, Pronto, or Prontor-SV shutters.

All shutters have built-in flash synchronization contacts with

which all available flash bulbs can be fired.

A delayed action release

is built into all models with f/4.5 lenses. If the photographer wants to photograph himself alone or within a group he may screw the NETTAR to a tripod, put it on a table or on some other solid support where it will not be shaken during the exposure. Then, after setting the distance, diaphragm, and exposure time, wind the shutter as usual and press down the lever (16) of the delayed action release.

Upon pressing the body shutter release knob the delayed action mechanism starts running and releases the shutter with

an 8-second delay. The delayed action release cannot be used for time exposures (shutter speed setting ring on "B").

Flash Photographs with Vario or Pronto shutter.

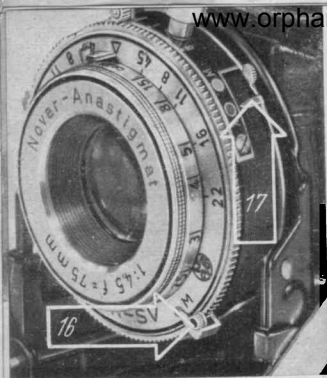
To fire flash bulbs with Vario or Pronto shutter set the exposure time on $1/25$ sec., wind the shutter, fit the plug of the cable of the flash unit to the flash contact (13), insert the flash bulb, and release the shutter. With electronic flashes shorter exposure times can be chosen.

For flash photographs with Prontor SV shutter, the following instructions must be observed.

Flash Photographs with Prontor SV shutter.

For flash photographs with Prontor SV shutter two positions of the synchro switch are possible (X and M). In both cases the distance, diaphragm and exposure time have to be set before taking the picture.

Then set the synchro switch (17) on X resp. M (see below), fit the plug of the flash cord to the contact nipple (13), insert the flash bulb and finally press down the shutter release button. Detailed information about film sensitivity, diaphragm setting and distance of the flash bulb can be ascertained from the instructions added to every flash bulb.



Setting X

With synchro switch (17) in position **X**, flash photographs can be made with

- electronic flashes in conjunction with all shutter speeds from 1 to $1/300$ sec.;
- flash bulbs in conjunction with all shutter speeds from 1 to $1/25$ sec.

Special Observations:

With the push lever in position "**X**", the delayed action release can also be used for flash photography.

For this, push lever with red dot (16) clockwise as far as possible, thereby setting the delayed action mechanism. On pressing down the release button the mechanism will start running and release the shutter and the flash after approx. 8 sec.

Setting M

With the synchro switch (17) in position **M**, and the lever (16) pushed until stop it is possible to fire flash lamps in conjunction with shutter speeds from $1/25$ to $1/300$ sec. The **M**-setting must be re-set for every shot.

Kind of flash lamp	Synchro-Position	Shutter speed
Osram Vacublitz F 0, F 1, F 2	X	$1-1/25$
Osram Vacublitz S 0, S 1, S 2	X	$1-1/25$
	M	$1/25-1/300$
Philips Photoflux PF 14, PF 25, PF 56	X	$1-1/25$
	M	$1/25-1/300$
Philips Photoflux PF 110	X	$1-1/10$
	M	$1/25-1/50$
Electronic flashes	X	$1-1/100$

LENS APERTURE, DEPTH OF FIELD AND EXPOSURE TIME

A large depth of field can be achieved by reducing the lens aperture. The lens aperture and the diaphragm setting figures are reciprocal, i. e. the smaller the lens aperture the

higher the diaphragm setting figure. Every reduction of the lens aperture necessitates an extension of the exposure time. When reducing the lens aperture, the depth of field increases both in forward and in backward direction from the distance on which the lens is focused. The depth of field for any given lens aperture and distance setting can be correctly ascertained from the depth of field scale. It is represented by the distance settings opposite the two diaphragm setting figures on the right and left side of the diaphragm setting mark.

THE CORRECT EXPOSURE TIME

can be ascertained from exposure tables or with the aid of the photo-electric exposure meter ZEISS IKON "IKOPHOT". The exposure time depends on the diaphragm setting, the film sensitivity, and the prevailing lighting conditions.

Basic Rule:

Outdoor photographs
in bright sunshine:
film sensitivity 32 ASA
diaphragm setting 8
 $\frac{1}{100}$ sec.

Outdoor photographs
sky overcast:
film sensitivity 32 ASA
diaphragm setting 5.6
 $\frac{1}{50}$ sec.

DEPTH OF FIELD SCALE

for NETTAR 2 $\frac{1}{4}$ " x 2 $\frac{1}{4}$ ", focal length 75 mm

Lens setting	Diaphragm					
	4.5	5.6/6.3	8	11	16	22
inf.	55' 0"	44' 4"	31' 0"	22' 8"	15' 8"	11' 4"
	∞	∞	∞	∞	∞	∞
48'	25' 8"	23' 4"	19' 0"	15' 8"	12' 0"	9' 4"
	364' 0"	∞	∞	∞	∞	∞
24'	17' 0"	15' 8"	13' 8"	11' 8"	9' 8"	8' 0"
	42' 0"	51' 4"	101' 0"	∞	∞	∞
12'	10' 0"	9' 8"	8' 8"	8' 0"	7' 0"	8' 0"
	15' 0"	16' 4"	19' 0"	24' 4"	47' 0"	∞
9'	7' 8"	7' 8"	7' 0"	6' 6"	5' 10"	5' 2"
	10' 8"	11' 0"	12' 4"	14' 4"	19' 8"	35' 8"
6'	5' 6"	5' 4"	5' 2"	4' 10"	4' 6"	4' 1"
	6' 8"	6' 10"	7' 4"	8' 0"	9' 4"	11' 8"
4'	3' 9"	3' 9"	3' 7.5"	3' 5.5"	3' 3.5"	3' 1.5"
	4' 3"	4' 4"	4' 6"	4' 8.5"	5' 1.5"	5' 8.5"

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LOADING OF CAMERA

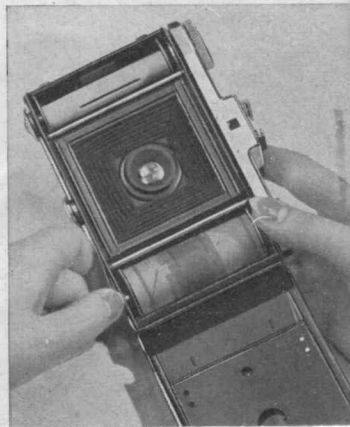
The camera back can be opened after pulling out the locking bolt.

12

Pull out the spring at the bottom of the camera and insert the film spool into the lower spool chamber. Slit open the gummed label of the film spool and pull the protective paper toward the empty take-up spool. Tighten the protective paper by turning the film winding key several times and then close the camera.

Open the small window at the back of the camera and turn the film winding key until the number "1" appears in the window. In order to prevent double exposures the film has to be wound on by one frame immediately after every exposure.

13



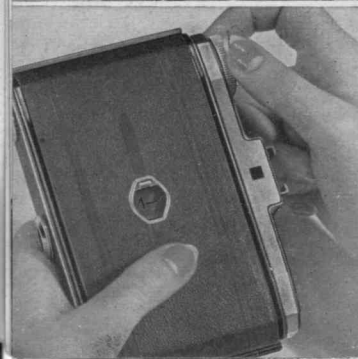
UNLOADING OF THE CAMERA

After the twelfth exposure, turn film winding key until the end of the protective paper of the spool passes the window at the back of the camera. Then open the camera back, pull out the spring prong as when inserting the film, remove the spool carefully in the shadow (not in bright sunshine!) and seal it. Before inserting a new film, the empty feeding spool must be inserted into the take-up spool chamber. By turning the

film winding key, make sure that the empty spool has engaged with the prong of the film winding key.

HOLDING THE NETTAR

The NETTAR must be held calmly during the exposure. The right-hand index finger rests on the body shutter release. The exposure is made by pressing down the shutter release. When making time exposures with setting "B", the shutter remains open as long as the shutter release (8) is pressed down.



PHOTOGRAPHIC EQUIPMENT AND ACCESSORIES FOR THE NETTAR

THE EVEREADY CARRYING CASE

The ZEISS IKON Eveready Carrying Case for the NETTAR is elegant and protects the camera from any detrimental external influences. The NETTAR is screwed into the Case and need not be removed for taking pictures.

THE CABLE RELEASE

The shutter can also be released with a cable release to be screwed into the thread of the shutter. It is especially advisable to use a cable release for time exposures from a tripod or in cases where the slip-on brilliant viewfinder is used.

ZEISS IKON FILTERS

improve the rendering of the tone values in black and white photography. The effect depends on the colour and on the absorbing qualities of the filter. The use of a filter necessitates an extension of the exposure time.

Slip-on filters are used with the NETTAR models with Vario shutter whilst for the NETTAR models with Pronto or Prontor-SV shutters screw-on filters are to be used.

SUPPLEMENTARY LENSES FOR CLOSE-UPS

With the standard lens equipment of the NETTAR, photographs can be made of objects from 3.5 feet to infinity. Objects closer than 3.5 feet can be photographed only with the aid of supplementary lenses ZEISS Proxar, which are slipped on to the camera lens mount. Two different Proxar lenses are available for the NETTAR. See table on page 18.

When making close-ups with supplementary lenses, the photographer has to allow for the distance between the viewfinder and the lens. The field embraced by the viewfinder will always be somewhat too high in close-up work.

When using supplementary lenses ZEISS Proxar the following table is applicable:

	Lens setting	Distance between object and camera	Reduction 1:	Size of picture field	
				Width	Height
F = 1 m	inf.	3' 3 ¹ / ₄ "	13.3	2' 6" x 2' 6"	
	48'	3' 1 ¹ / ₂ "	12.3	2' 3 ³ / ₄ " x 2' 3 ³ / ₄ "	
	24'	2' 10 ¹ / ₂ "	11.7	2' 2 ¹ / ₂ " x 2' 2 ¹ / ₂ "	
	15'	2' 8"	10.8	2' 1 ¹ / ₂ " x 2' 1 ¹ / ₂ "	
	12'	2' 6 ¹ / ₂ "	10.3	1' 11 ¹ / ₄ " x 1' 11 ¹ / ₄ "	
	9'	2' 4 ¹ / ₄ "	9.5	1' 9 ¹ / ₂ " x 1' 9 ¹ / ₂ "	
	4'	1' 9 ¹ / ₄ "	6.9	1' 3 ¹ / ₂ " x 1' 3 ¹ / ₂ "	
F = 0.5 m	inf.	1' 7 ³ / ₄ "	6.7	1' 3 ¹ / ₄ " x 1' 3 ¹ / ₄ "	
	48'	1' 7"	6.4	1' 2 ¹ / ₂ " x 1' 2 ¹ / ₂ "	
	24'	1' 6 ¹ / ₄ "	6.2	1' 2" x 1' 2"	
	15'	1' 5 ¹ / ₂ "	5.9	1' 1 ¹ / ₄ " x 1' 1 ¹ / ₄ "	
	12'	1' 5"	5.7	1' 1" x 1' 1"	
	9'	1' 4 ¹ / ₂ "	5.5	1' 1 ¹ / ₂ " x 1' 1 ¹ / ₂ "	
	4'	1' 1 ¹ / ₂ "	4.5	10 ¹ / ₄ " x 10 ¹ / ₄ "	

The distance of the object must be measured from the front edge of the supplementary lens mount. In order to achieve

a sufficiently large depth of field, it is necessary to use at least the diaphragm setting "8".

THE LENS HOOD

prevents flares or haze in against-the-light photography and protects the lens from rain or snow.

TRIPOD THREAD

The NETTAR has at its bottom a thread for fixing the camera on a tripod.

COLOUR PHOTOGRAPHY

The ZEISS IKON Novar lenses are carefully colour corrected and are, therefore, most suitable for colour photography, which every amateur can, in fact, master with the same ease as black and white photography.

It is recommendable to use a photo-electric exposure meter, such as the ZEISS IKON IKOPHOT, for good black and white photography; for colour photography, however, it is absolutely indispensable.

HOW TO TAKE CARE OF THE NETTAR

The NETTAR does not require special maintenance work. It is advisable to clean the lens from time to time with some