

# EXA 500

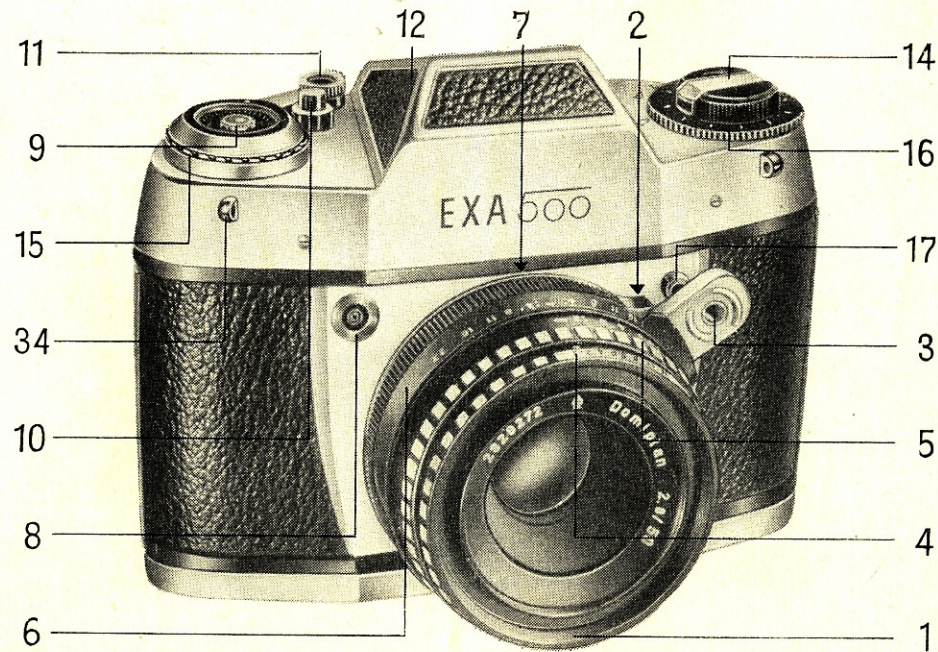


# EXA 500

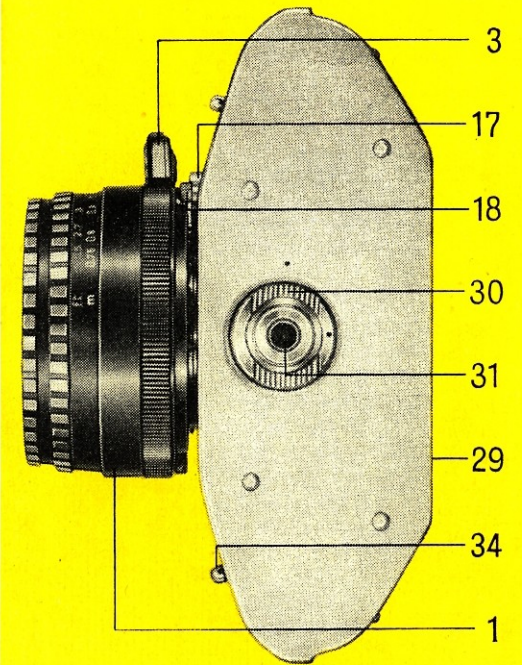
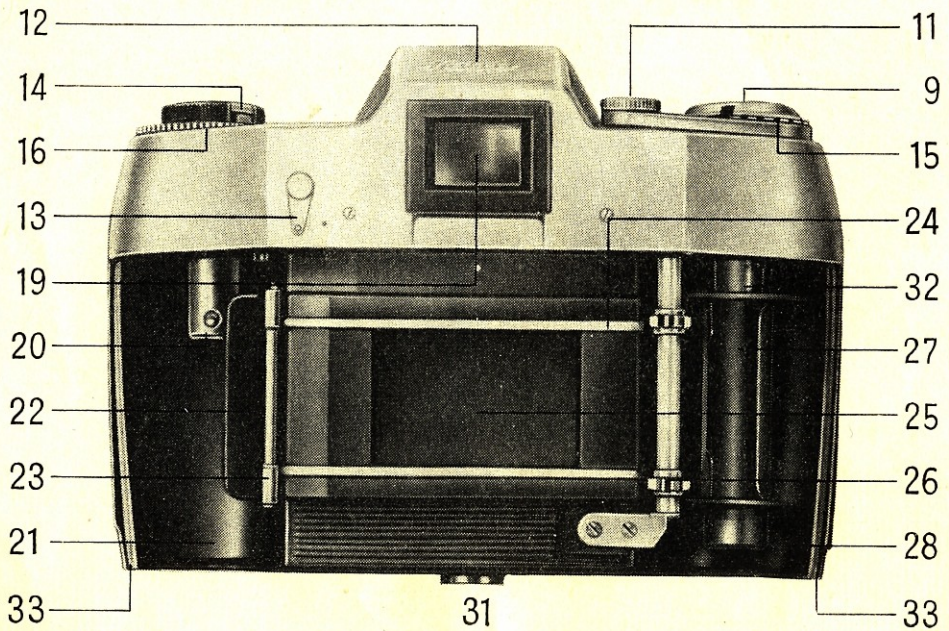
We would like to give your creative partnership with the EXA 500 a good start by congratulating you on your choice, and wishing you lots of success and plenty of fun with your new camera.

You have acquired a highly versatile camera in the EXA 500, which despite its simplicity of operation will meet all your photographic requirements as you gradually become more ambitious. All that the EXA 500 demands in return is intelligent handling: in your own interests therefore you should not start using the camera before reading these instructions carefully. Fold out the cover pages of this booklet, so that you can keep the numbered illustrations ready for reference whilst you are reading.

I H A G E E K A M E R A W E R K A G in Verwaltung · 8016 D R E S D E N







**The most important operating controls of the EXA 500**

- 1 Lens
- 2 Red positioning dot for exchanging lenses
- 3 Release mechanism for lenses with automatic diaphragm (release rocker or release knob)
- 4 Aperture setting ring
- 5 Distance (focus) setting ring
- 6 Depth-of-field scale
- 7 Red positioning dot for exchanging lenses
- 8 Flash connection socket



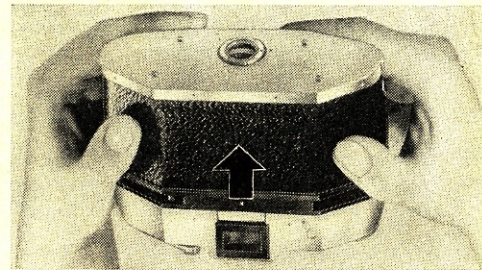
- 9 Frame counter
- 10 Rewind declutching button
- 11 Rapid-wind lever for tensioning shutter and advancing film simultaneously
- 12 Penta-prism viewfinder
- 13 Shutter release lock
- 14 Rewind crank
- 15 Film-type reminder ring
- 16 Shutter-speed setting disc
- 17 Shutter release knob
- 18 Locking lever for lens bayonet
- 19 Eyepiece of penta-prism viewfinder
- 20 Dog shaft of rewind crank
- 21 Film chamber for cassette containing unexposed film
- 22 Guide plate
- 23 Film guide roller
- 24 Film guide runners
- 25 Film gate, with blind of focal plane shutter
- 26 Film transport sprocket
- 27 Take-up spool
- 28 Exposed film chamber containing take-up spool or cassette
- 29 Detachable camera back (with exchangeable film pressure plate)
- 30 Rotating milled ring for locking camera back
- 31 Tripod bush
- 32 Friction-drive dog of rapid-wind lever
- 33 Guide channels for camera back
- 34 Eyelets for carrying strap or cord

1. Turn milled ring (30) to the left until the red dots are in line.

2. Slide camera back (29) downwards by pressing gently with both thumbs, to slide it out from beneath the chrome-plated top cap. When the red dot above the film gate (25) is visible, then lift the back (29) from its guide channels.



## Loading the film

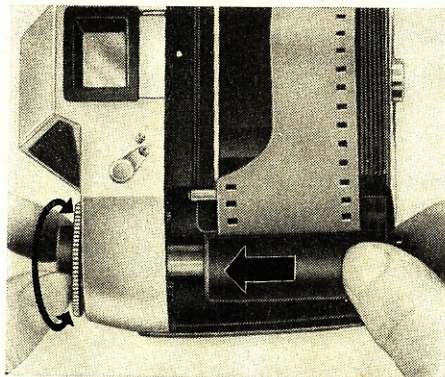
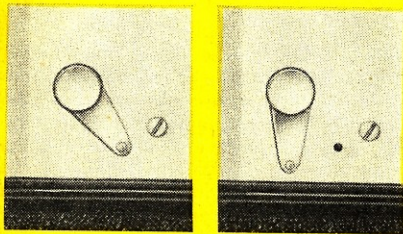


Films should never be loaded or unloaded in direct sunlight. The EXA 500 uses 35 mm miniature film in cassettes for 20 or 36 exposures 24 mm x 36 mm in size. Trouble-free film transport depends upon using faultless cassettes; daylight-loading spools should only be used in cassette shells from the same manufacturer.



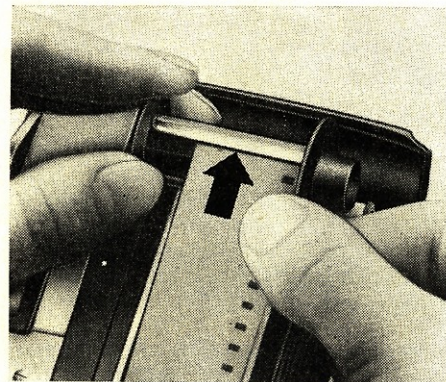
3. Move shutter release lock (13) to the right: the shutter can then be released by depressing the body release button (17) or the release mechanism (3) on the lens.

When you have finished taking pictures set the shutter release lock (13) to the vertical position (red dot visible): the shutter mechanism is then locked and cannot be released accidentally.



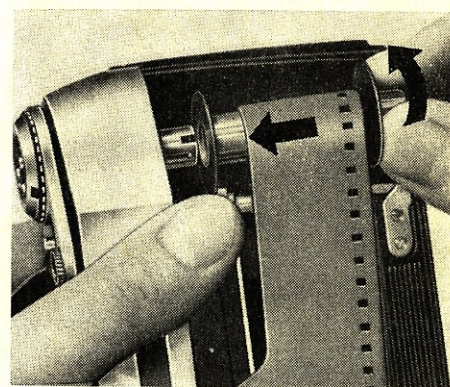
4. Insert cassette containing unexposed film into film chamber (21), and turn the knob of the rewind crank (14) to ensure that the dog of the rewind spindle engages with the bar in the cassette core. The mouth of the cassette must lie against the guide plate (22).

2



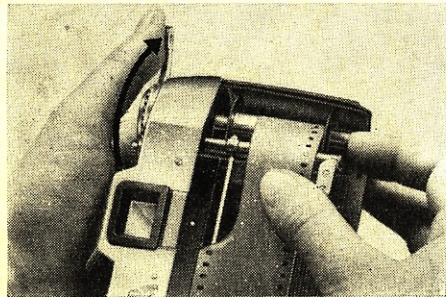
5. Remove the take-up spool (27) from the other film chamber (28). Push the end of the film beneath the clamping spring on the take-up spool and wind half a turn of film around the core of the spool.

3

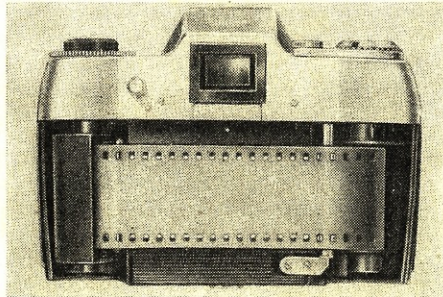


6. Replace the take-up spool (27) in the film chamber (28) and turn it gently in the take-up direction until the friction-drive dog (32) engages with the bar in the spool core and the spool can be pushed right home into the film chamber.

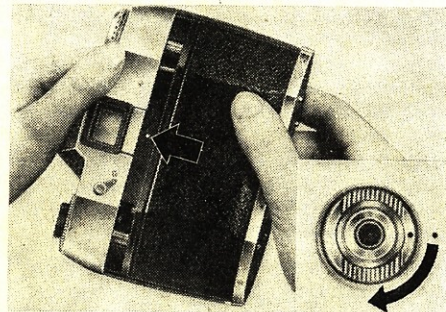




7. Swing the rapid-wind lever (11) as far as it will travel (if necessary first releasing the shutter). If need be repeat both operations, until the teeth of the film transport sprocket (26) engage the perforation holes on both sides of the film.



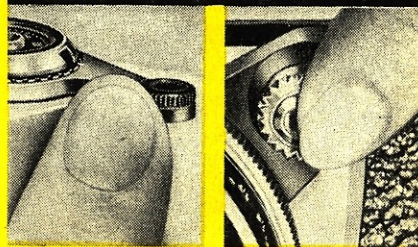
8. When correctly loaded, the film passes from the full cassette, over the guide roller (23), along the guide runners (24) through the slightly recessed film track, and then is pulled as taut as possible over the transport sprocket (26) and on to the take-up spool (27).



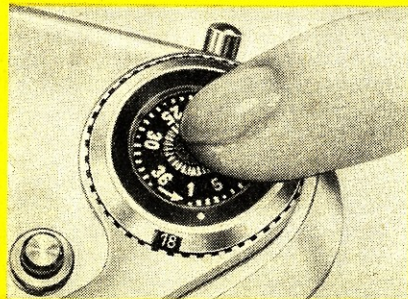
9. Replace the camera back (29): the red dots on the milled ring (30) must be in line. Fit the back (29) from above into the two guide channels (33) in the camera body, with the upper edge of the back level with the red dot above the film gate (25). Then push the back right home. Turn the milled ring (30) to the right, until the red dots are at 90° to one another.

10. Take two "blank exposures" to wind off the exposed leader of the film by pressing the release button and turning the rapid-wind lever (11) right up to its stop; repeat these two operations in sequence once again.

2x



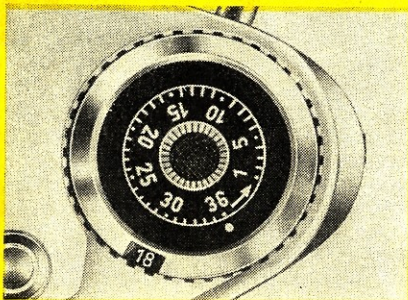




**11.** Set the frame counter (9). Turn the disc of the frame counter (9) with your index finger in the direction of the arrow until the figure "36" (when using a 36-exposure film) or the figure "20" (for a 20-exposure film) is opposite the red dot.

The EXA 500 is now ready for action and after taking each picture the frame counter will show how many more exposures can still be taken on the film in the camera.

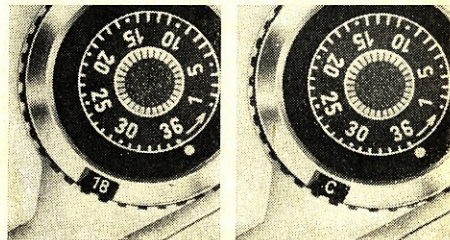
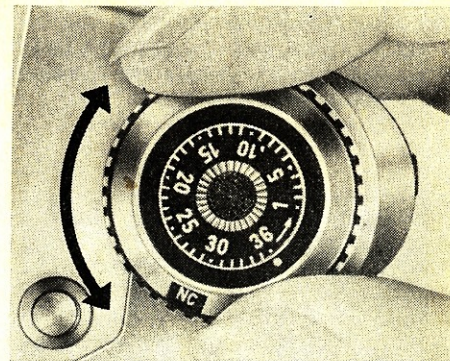
When the film is being advanced correctly, the folded rewind crank (14) will also rotate as the film is wound on after the first 6 or so exposures.



6

7

**12.** As soon as you have loaded the film, set the film-type reminder ring (15) so that later on you will not forget what kind of film is in the camera. The ring bearing the black figures can be turned in either direction until the appropriate film-speed number appears in the opening. The numbers from 12 to 30 are for black-and-white films rated in DIN degrees, whilst the figures from 25 to 400 are for black-and-white films rated in ASA or similar indices. The white letters indicate daylight-type colour films (C = reversal film, NC = negative film), whilst the red letters are for artificial-light colour films (C = reversal film, NC = negative film).

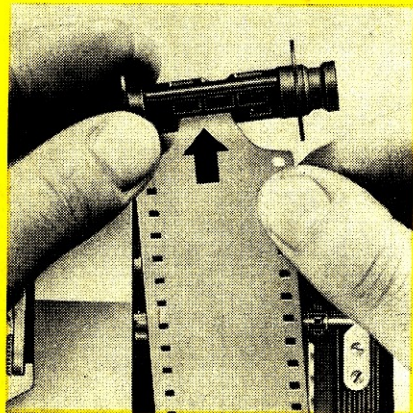


Left: Black-and-white film, 18 DIN  
Right: Reversal colour film for daylight.



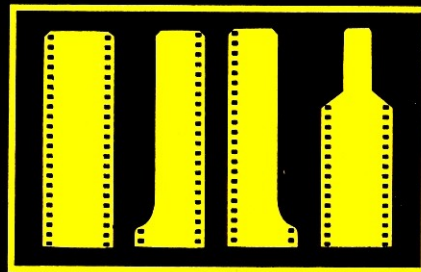
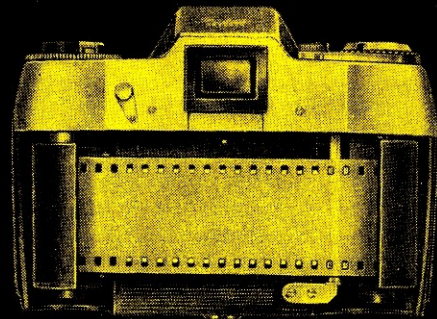
## Using a take-up cassette

Standard empty film cassettes may also be inserted in the film chamber (28) instead of the take-up spool (27).



Take care to check the condition of the take-up cassette thoroughly: the core should move easily within the cassette shell and must not jam (if necessary, the friction points of the core may be lubricated by rubbing them with paraffin wax). Then proceed as follows: attach the leader tongue to the core of the cassette spool, taking care that the end of the core containing the bar is on the left as you look along the film. Replace the spool in the cassette and insert the cassette into the camera so that the friction-drive dog (32) of the rapid-wind lever engages the bar in the cassette core, and finally ensure that the film is pulled taut and runs accurately along the recessed film track from one cassette to the other.

8



9

When using a take-up spool in the EXA 500 it is not necessary to trim the beginning of the film to any special shape. Any shape of leader can be used, either the normal narrow tongue or (even better) a straight cut-across end, e.g. when using bulk film.

When using a take-up cassette, the beginning of the film must be cut to fit the core of the cassette spool.

For instructions on changing the film, see page 26.



## Operating the shutter



1. The rapid-wind lever (11) both tensions the shutter and winds on the film. After taking each picture always swing this lever right up to its stop with a single movement and then allow it to spring back.

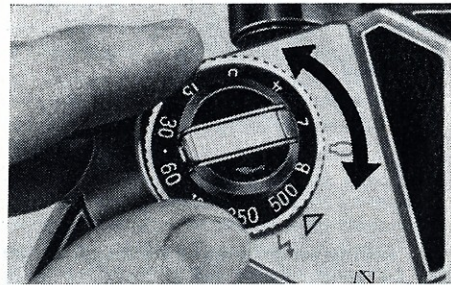
The shutter tensioning and film transport are coupled to prevent double exposures and blank frames. For this reason it is impossible to operate the rapid-wind lever (11) before the shutter has been released. Similarly, the shutter cannot be released until the film has been advanced and the shutter tensioned completely; never employ force!



2. The reflex image in the penta-prism viewfinder (12) remains visible after the shutter has run off (quick-return mirror). The red signal to the left of the reflex image indicates that the camera is not ready for action and that the rapid-wind lever (11) must be operated before taking the next exposure.

10

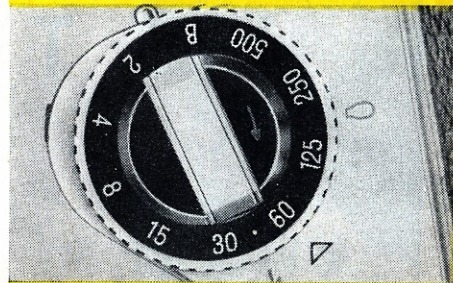
The shutter speed can be selected either before or after tensioning the shutter.



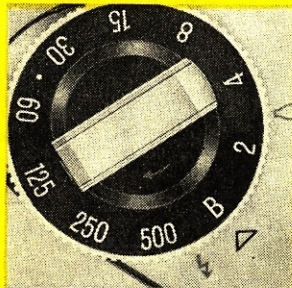
3. **Setting the shutter speed ( $1/2$  to  $1/500$  sec):** Turn the shutter-speed setting disc (16) in either direction until the desired shutter speed is opposite the black triangle. The figures represent fractions of seconds, e.g. 2 =  $1/2$  sec, 30 =  $1/30$  sec, 125 =  $1/125$  sec. Intermediate speeds cannot be selected.

11

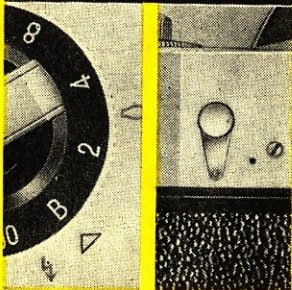
Pictures can safely be taken with a hand-held camera at shutter speeds from  $1/500$  to  $1/30$  sec, without the need for a tripod (with practice in holding the camera steady, it is even possible to use speeds as slow as  $1/15$  sec). Slower shutter speeds should only be used when the camera is firmly supported or attached to a tripod; the tripod bush (31) is in the base of the camera.





**B**

**4. B setting for exposures longer than 1/2 sec:** Set the shutter-speed setting disc (16) to B. The shutter will open when the body shutter release button (17) or the release mechanism (3) on the lens is depressed, and will remain open for as long as this pressure is maintained.

**T**

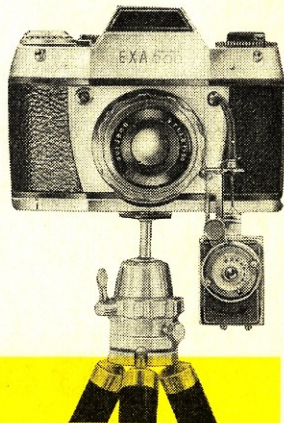
**5. T setting for prolonged time exposures:** Set the shutter-speed setting disc (16) to B, open the shutter by depressing the body shutter release button (17) or the release mechanism (3) on the lens, and whilst maintaining this pressure set the shutter release lock (13) to its vertical position. The shutter will then remain open without your having to touch the camera, until the release lock (13) is once again turned to the right. This provides a good insurance against camera shake.

The B and T settings are particularly important for night and indoor photography.

When taking time exposures (especially with the B setting) it is highly advisable to use a cable release with a long plunger. This can be screwed into the body shutter release button (17) or into the release mechanism (3) on the lens. For all time exposures the camera must be placed on a firm support (table, wall, etc.) or on a tripod.

When using the T setting, lenses with fully-automatic diaphragms should be set for manual aperture operation, or otherwise the diaphragm will open prematurely. See the special instructions on pages 18—19 for use with the Domiplan 2.8/50 mm lens.

It is also possible to take delayed-action exposures. A separate selftimer release (obtainable from photographic dealers) can either be attached to the cable release or screwed into the body shutter release button (17) or the release mechanism (3) on the lens.

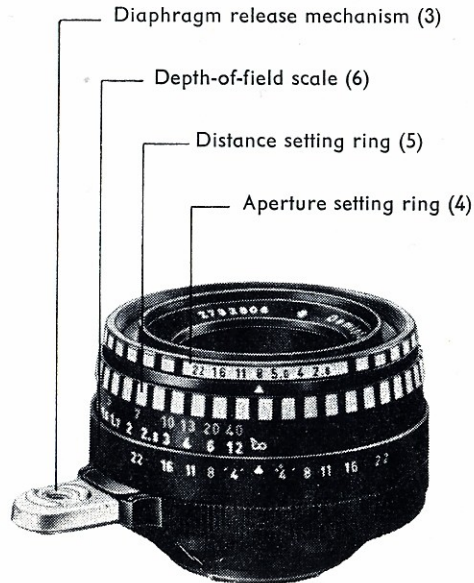




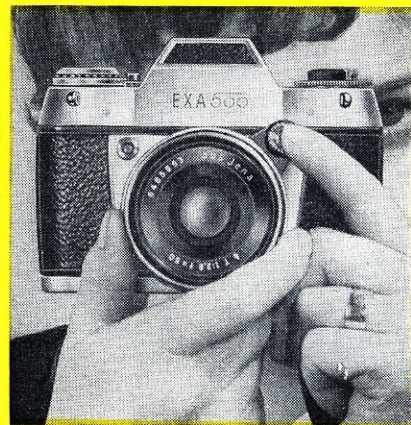
## Adjusting the lens

1. The aperture value (f/No) is adjusted by means of the aperture setting ring (4). Turn this ring until the desired f/No on the aperture scale is opposite the mark. For instructions on operating the diaphragm mechanism, see the sections dealing with the various lenses on page 17 onwards.

The smaller aperture **numbers** e. g. f 2, 2.8, 4, indicate relatively large diaphragm openings: these permit brief exposures (fast shutter speeds), but give only shallow depth of field. The larger aperture numbers, e. g. 16, 22, indicate relatively small diaphragm openings requiring longer exposure times (slower shutter speeds), but giving great depth of field. Further information on the depth of field will be found on page 16.



14



2. The lens is focused by turning the distance setting ring (6) and observing the definition of the reflex image in the pentaprism viewfinder (12).

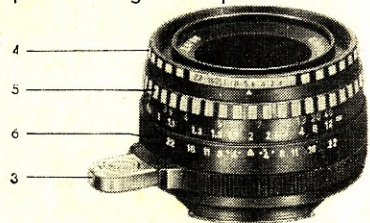
15

The lower values on the distance scale indicate metres, whilst the larger values above them represent feet. All distances are measured from the back of the camera to the subject. When the image of the subject in the reflex viewfinder attains its sharpest definition, then the correct camera-subject distance in feet or metres will be in line with the red setting mark. For further information on using the fresnel lens (with microprism field) see page 25.

When focusing the reflex image use the maximum aperture of the lens (i. e. smallest f/No) to obtain the most brilliant image, and then stop down just before the exposure. It is not necessary to take the camera from your eye to do this, since all the lenses are equipped with either click-stop diaphragms, pre-set diaphragms or fully-automatic spring or pressure diaphragms. For more detailed information see the descriptions of the lenses on page 17 onwards.

**Fully-automatic pressure diaphragm on Domiplan 2.8/50 lens:** Always open the diaphragm fully for focusing. Pre-select the required smaller aperture (larger f/No) by turning the aperture setting ring (4); intermediate settings between the marked f/numbers can also be selected. By depressing the release rocker (3), the lens will stop down automatically; when the pressure on the rocker is relaxed, the diaphragm re-opens automatically. The release rocker should therefore be held down until the shutter has closed. To check the depth of field when focusing, the release rocker (3) may be depressed part way so that the diaphragm closes down without releasing the shutter.

Technique for taking time exposures:

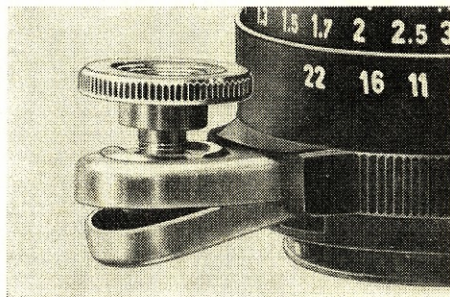
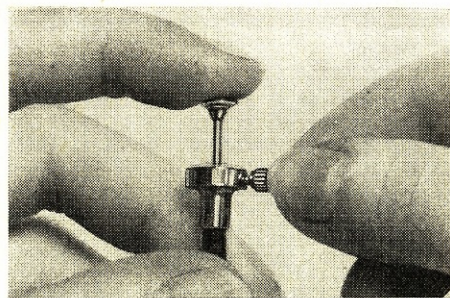


1. Set the shutter to B and screw a cable release with a long plunger and locking device into the release rocker. By locking the plunger in its depressed position, there is no need to hold it down during the exposure period (so avoiding camera shake).

2. Screw the locking knob (available as an accessory) into the release rocker (3), whereupon it will disengage the automatic diaphragm mechanism by holding up the lower part of the rocker. The diaphragm will then remain stopped down to the pre-selected aperture, and the T setting of the shutter can be employed.

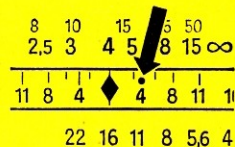
18

19



**Focusing for infra-red pictures (applicable to all lenses)**

When using infra-red film, first focus the reflex image normally then note the distance indicated by the red setting mark (either in feet or metres, or the infinity symbol), and turn the focusing ring to set this distance against the red dot (infra-red setting mark) which is either to the right or left of the normal setting mark. By doing this the image produced by the invisible infra-red rays, which lies at greater distance from the lens than an image formed by visible light, will be brought into sharp focus in the film plane of the camera and consequently will appear sharp in the negative.

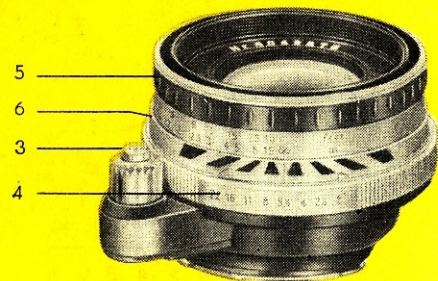


22 16 11 8 5.6 4





Automatic diaphragm disengaged

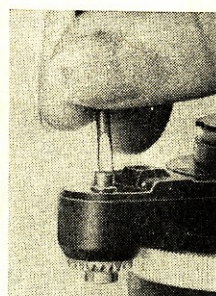
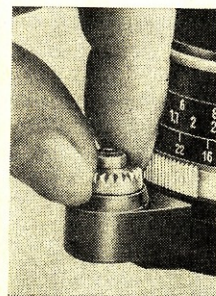


Automatic diaphragm engaged

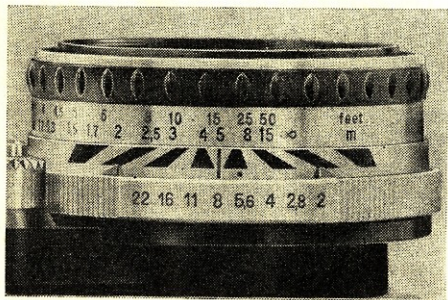
### Fully automatic spring diaphragm on T 2.8/50 and Pancolar 2/50 lenses from Jena:

Engage the automatic diaphragm mechanism by pushing the release knob (3) on the lens towards the camera together with its mount and turning it to the right (viewed from the front of the camera). To disengage the automatic diaphragm, press the release knob (3) together with its mount towards the camera and turn it to the left (again looking from the front).

When the automatic mechanism is disengaged (= manual diaphragm setting), the diaphragm will remain stopped down to the selected f/No (this is important when using slow shutter speeds). When the automatic mechanism is engaged, the diaphragm should be fully opened for focusing. Select the required smaller aperture (larger f/number) by turning the aperture setting ring (4), which can also be set to intermediate stops. By depressing the lens release knob (3) the diaphragm is stopped down automatically; by letting go of the release knob (3) the diaphragm re-opens automatically. Pressure on the release knob (3) should not be relaxed until the shutter has closed.

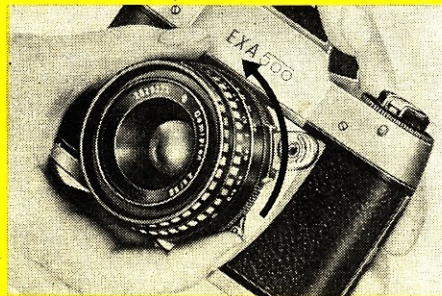


If you want to check the depth of field whilst focusing, depress the lens release knob (3) just far enough to stop down the lens as required without releasing the shutter. In order to ensure that the shutter release knob (17) on the camera body is always depressed far enough to trigger the shutter, the setscrew on the release mechanism of the lens should be adjusted to the required length with a screwdriver. A cable release with a long plunger can be screwed into the lens release knob (3).



Automatic depth-of-field indicator on the Pancolar 2/50 lens: After setting the aperture and distance, follow the appropriate black/white bands from the two red markers to the distance scale, upon which the depth-of-field range can be read off. Example: aperture setting f 8, distance 5 metres (17 feet) = depth of field from barely 3 metres (10 feet) to over 15 metres (actually 23 metres or 76 feet).





3. Changing the lens (1): depress the locking lever (18) towards the lens, then turn the lens to the left until the two red dots (2 and 7) are in line, and lift the lens out towards the front. To insert a lens proceed in the reverse sequence: line up the red dots, and turn the lens to the right until it locks. All special-purpose lenses can be used, with focal lengths ranging from the shortest to the longest.

### Special-purpose lenses for the EXA 500

Designation, speed and focal length in mm	Type of aperture *	Angle of view (horizontal)	Front mount for screw-in and push-on accessories
Flektogon 4/20	FSD	93°	M 77 × 0.75, 80 mm Ø
Flektogon 2.8/35**	FSD	62°	M 49 × 0.75, 51 mm Ø
B 1.5/75 from Jena	PSD	32°	M 58 × 0.75, 60 mm Ø
Bm 2.8/80 from Jena	FSD	30°	M 49 × 0.75, 51 mm Ø
Trioplan N 2.8/100	PD	25°	M 55 × 0.75, 57 mm Ø
Bm 2.8/120 fr. Jena	FSD	21.5°	M 67 × 0.75, 70 mm Ø
Orestor 2.8/135	PSD	18°	M 55 × 0.75, 57 mm Ø
S 4/135** from Jena	FSD	18.5°	M 49 × 0.75, 51 mm Ø
S 2.8/180 from Jena	FSD	14°	M 86 × 1. 90 mm Ø
Orestegor 4/200	PSD	12°	M 58 × 0.75, 60 mm Ø
S 4/300 from Jena	PSD	8°	M 77 × 0.75, 80 mm Ø
Tele-Megor 5.5/400	PSD	6°	M 82 × 0.75, 85 mm Ø
Orestegor 5.6/500	PSD	5°	M 118 × 1. 125 mm Ø
Catoptric (mirror) lens 4/500 from Jena	no diaphragm	5°	Built-in filter turret
Catoptric (mirror) lens 5.6/1000 from Jena	no diaphragm	2.5°	Built-in filter turret

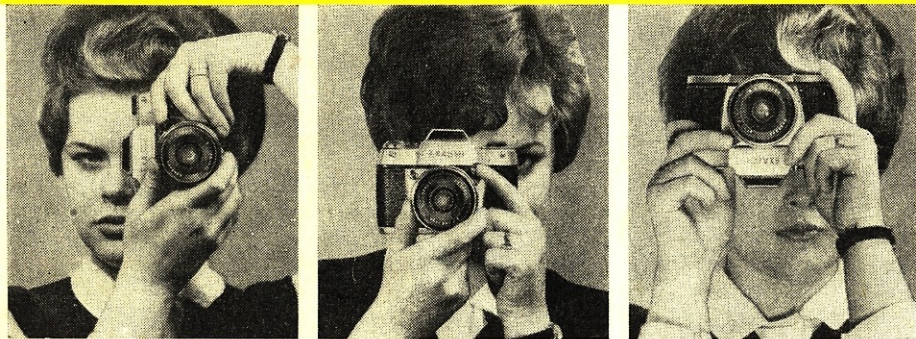
\* PSD = Pre-set diaphragm  
 PD = Fully-automatic pressure diaphragm  
 FSD = Fully-automatic spring diaphragm

\*\* with extra-long helical thread for close-up focusing without special accessories, with Flektogon 2.8/35 down to 6<sup>3</sup>/<sub>4</sub> inches, and with S 4/135 from Jena down to 40 inches.





## Using the penta-prism viewfinder



For normal vertical and horizontal pictures it is generally most convenient to hold the EXA 500 in your right hand and to focus with the right thumb and forefinger. The left hand provides additional support for the camera whilst the left-hand forefinger releases the shutter. Users with defective eyesight should use their distance glasses for focusing in the prism viewfinder.

When taking horizontal (landscape-format) pictures, the camera can also be held upside down: the back of the EXA 500 is then pressed against the forehead to guard against camera shake.

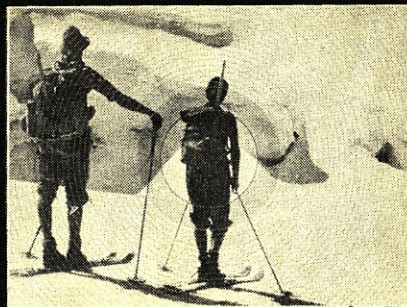
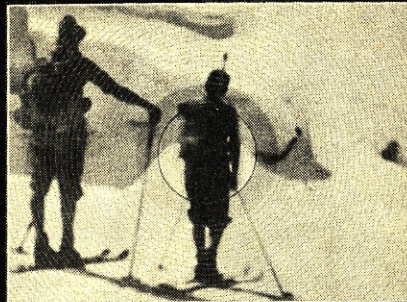
24

## Fresnel lens with microprism field

Where the EXA 500 fitted with a Fresnel lens, the centrally placed matt ring, which does not have the line structure of the remaining field, is mainly used for ground-glass focusing. To increase the accuracy of focusing, a microprism is centered in this ring. The extra brilliant image visible in this patterned field serves for focusing in the same way as the image on the ground-glass screen, except that with the microprism, incorrect focusing will result in an image which is blurred to a greater degree.

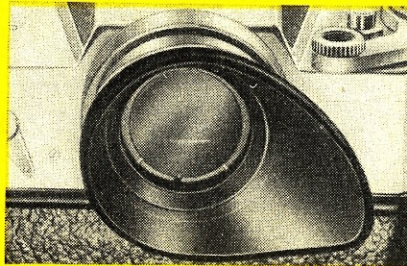
Focusing is, therefore, easier, faster, and more accurate. The lens will be correctly focused when the image in the microprism is at its sharpest. It is, however, absolutely essential to focus with a large aperture, as with apertures of  $f$  5.6 and smaller, the image in the microprism field will appear relatively sharp, even with the lens incorrectly focused. This, of course, will lead to unsatisfactory results.

25



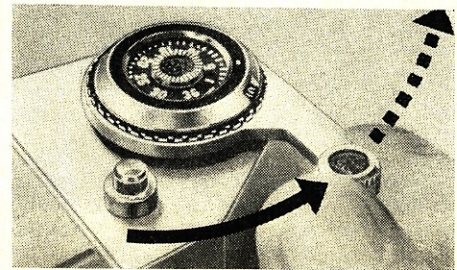


The eyepiece cup is an indispensable accessory which is fitted over the eyepiece (19) of the prism viewfinder to keep out distracting straylight. It can also be used by spectacle-wearers, since corrective lenses can be inserted by your optician in its mount; it will then be possible to focus without wearing glasses.

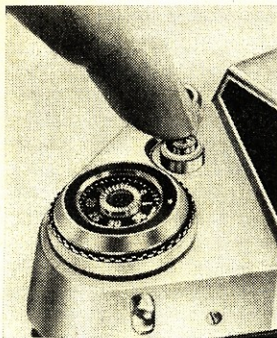


## Changing the Film

When using a take-up spool it may be possible to take one or two more exposures after the 36th frame before the film cannot be wound on any further. It may also happen that the rapid-wind lever (11) sticks before it can be swung right up to its stop. The film should then be rewound.

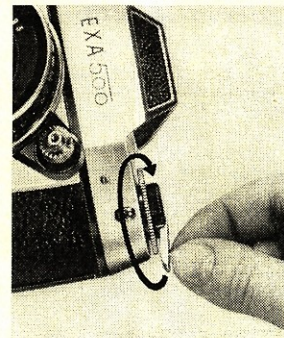


26

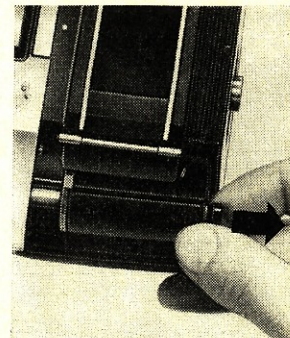


1. Depress the rewind declutching button (10) into its mount. It will stay in this position, but will spring back the next time the shutter is tensioned.

27



2. Swing out the rewind crank (14) and turn it in the direction of the arrow until you feel that it is turning more easily; the film will then be rewound. If the rapid-wind lever (11) has previously come to a halt in mid-travel, it should now be swung right up to its stop and released.

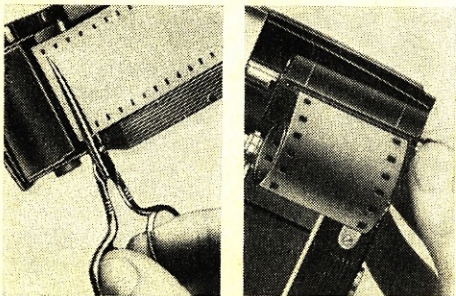


3. Remove the camera back (29) and lift the cassette containing the exposed film out of the film chamber (21).

Take-up spool

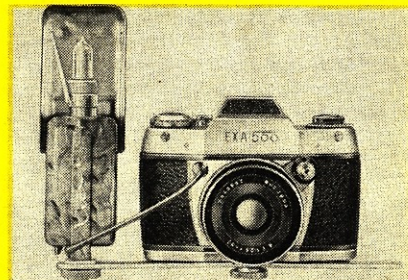
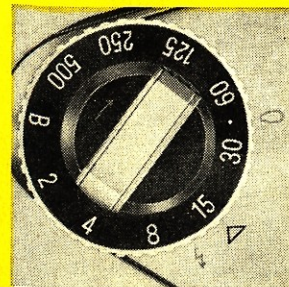


When using a take-up cassette, expose one more frame after the 36th exposure, taking care not to photograph anything of importance on it. Then operate the rapid-wind lever (11) to wind the 36th frame right inside the cassette. Remove the back and cut or tear off the film. Take the full take-up cassette out of the take-up chamber (28) and wind the end of the film right inside the cassette.

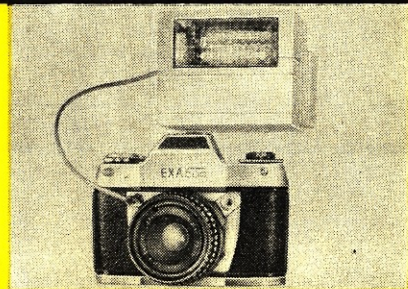
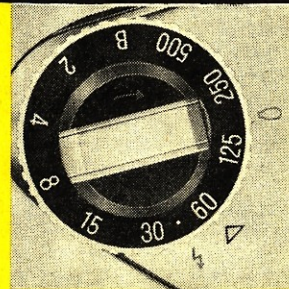


## Flash pictures

When using flashbulbs, turn the shutter-speed setting disc (16) so that the white dot points to the flashbulb signal (⊖). The shutter will then be set to  $1/15$  second. Plug the flashgun cable into the flash contact socket (8), first tensioning the shutter.



When using an electronic flash unit, turn the shutter-speed setting disc (16) so that the white dot points to the electronic flash symbol (⚡). The shutter will now be set to  $1/60$  sec. When using electronic flashguns without storage capacitors intended solely for mains operation, the shutter must however be set to  $1/8$  sec. Plug the cable of the flash unit into the flash contact socket (8), first tensioning the shutter.





The following European flashbulbs are suitable for use with the EXA 500:

Osram Vacublitz bulbs			Philips Photoflux flashbulbs		
Type	Guide No. for 17 DIN (40 ASA)*	Flash duration (approx. exposure time)	Type	Guide No. for 17 DIN (40 ASA)*	Flash duration (approx. exposure time)
AG 1	105	$\frac{1}{80}$ sec	AG 1	105	$\frac{1}{100}$ sec
XM 1	100	$\frac{1}{100}$ sec	PF 1	100	$\frac{1}{100}$ sec
XM 5 Z	166	$\frac{1}{80}$ sec	PF 5	166	$\frac{1}{80}$ sec
			PF 24	110	$\frac{1}{40}$ sec
			PF 60	300	$\frac{1}{50}$ sec
			PF 100	384	$\frac{1}{45}$ sec

\* These guide numbers are for black-and-white films only, and are for use with distances measured in feet.

If a flashbulb should fail to fire e. g. because of poor contact with the flashholder, remove the bulb from the flashgun after the shutter has run off. Do not insert a new flashbulb until the shutter has been re-tensioned.

## Care of the camera and lenses

Always keep the camera in its ever-ready case with the lens (or lens cap) in position; alternatively keep it wrapped in a fluff-free cloth.

All parts easily accessible from the outside should be kept clean and dusted with a soft brush; this applies particularly to the film track, including the film guide runners (24), the film guide roller (23), the transport sprocket (26), the film chambers (21 and 28), and also the camera back (29) and pressure plate. The reflex

mirror should only be dusted when absolutely necessary, using a very soft brush without applying pressure; do not allow the brush to touch the lightly-greased metal mount of the mirror. Protect the camera against damp, dust and wind-borne sand, etc. Never touch the glass surfaces of the lenses, the viewfinder eyepiece (19) or the mirror with your fingers. The lenses and viewfinder eyepiece (19) should only be cleaned when necessary, using a very soft piece of linen. It is most inadvisable to attempt to interfere with the mechanism of the camera; repairs should be undertaken solely by authorised servicing agencies.



## Accessories

Ever-ready case

Lens hood with screw-in mount

Giant release knob for enlarging the shutter release

Polarizing filter

Accessory shoe

Two-in-one bayonet ring for close-ups

Bayonet rings and extension tubes for close-ups (1)

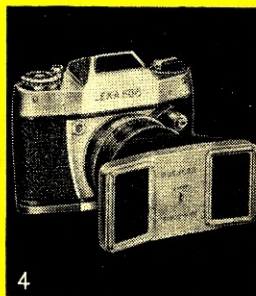
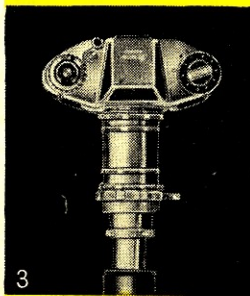
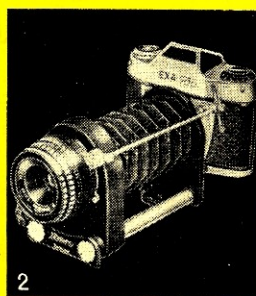
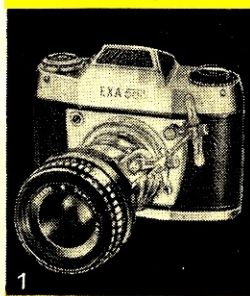
Autocouple extension release for close-ups (1 and 2)

Miniature Bellows Attachment (2)

Microscope adaptor (3)

Stereo Attachment (4)

Ihagee "Vielzweck" (multi-purpose) device for close-up photography, copying, photomicrography, etc.



We will gladly send you special leaflets free of charge, and invite you to write and let us know what are your special fields of interest.

We also recommend the following technical manual:

"Foto-Exkursionen mit der EXA", by Werner Wurst (VEB FOTOKINOVERLAG Leipzig).

The illustrations in this manual may differ in certain details from the actual appearance of the camera and its accessories.



**IHAGEE KAMERAWERK AG in Verwaltung · 8016 DRESDEN**

Form 963/7/6607

Made in Germany III-6-15 1600-66 Jt 1719-66

**Engl.**