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so that the spool may be pushed right home in the take-up chamber.

Now operate winding lever (11) as far as the stop (subsequently firing shutter) to ascertain that the film strip is running correctly from the full cassette over the film guide roller (24) and between the film guides (25) as tightly as possible on the film transport sockets (27) and thence to the take-up spool (28). The sprockets (27) must, of course, engage with the film perforations (fig. 25).

Camera back (51) must now be closed, and two "blind" exposures should be run off for spooling on the film leader. Operate lever-wind (11) to its stop and turn dial of exposure counter (9) in arrow direction, and set to "1" (fig. 26). Your EXA II is now ready for action.

Instead of the take-up spool (28), an empty cassette may be used in the chamber (29), with film leader fastened to the cassette centre spool, but with the centre spool fitted into the cassette the opposite way round to normal, so that the fork of the lever-wind (11) engages the centre spool of the cassette, allowing the film to be drawn from cassette to cassette (fig. 27).

Special trimming of the film leader is not necessary with the normal take-up spool, any standard trimming (or straight cut, as when film is cut from bulk) being suitable. When a take-up cassette is used, the trimming of the leader must depend on the type of centre spool (see fig. 28).

To check that film is transporting properly, the rewind button (14) and film speed indicator (15) should revolve as the lever-wind is operated.

Immediately after loading, set film speed indicator (15) as a reminder. Turn indicator in either direction until the appropriate indication faces the red mark. Numbers from 12 to 30 are for DIN ratings of monochrome films, the numbers from 25 to 400 for monochrome films in ASA or similar ratings, the white letters indicating daylight colour films (C = reversal, NC = neg/pos)

Fig. 25

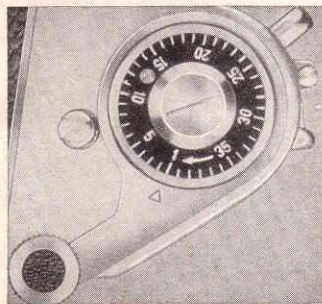
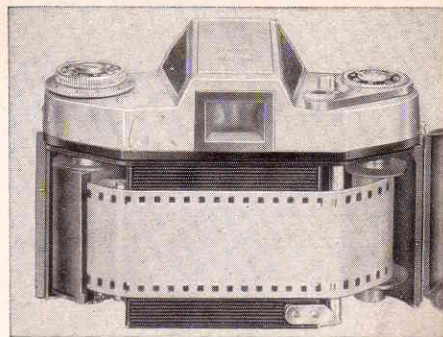


Fig. 26

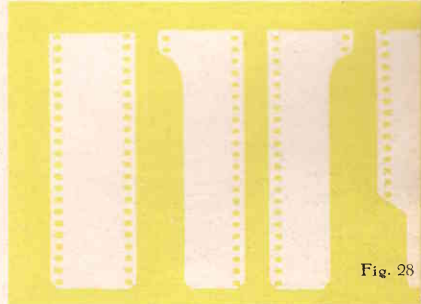
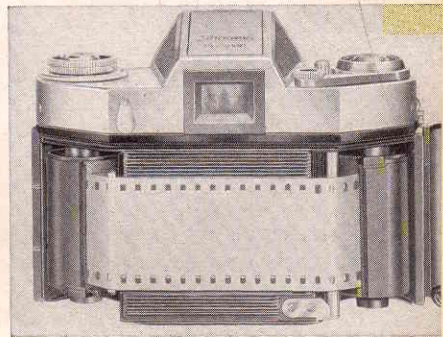


Fig. 28

Fig. 27



and the red letters indicating artificial light colour films (C = reversal, NC = neg/pos). There is never then any uncertainty as to what film is in the camera if it is left unused for a period.

Examples of typical settings will be seen in figs. 29, 30, 31, and 32, which show indications for, respectively, 18° DIN (monochrome), 200 ASA (monochrome), neg/pos daylight colour film, and reversal artificial light colour film.

Fig. 29

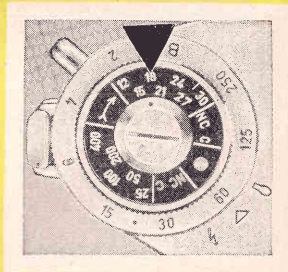


Fig. 31

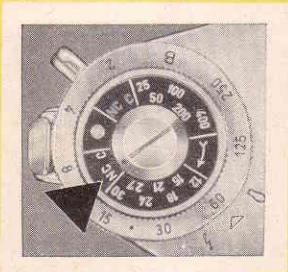


Fig. 30

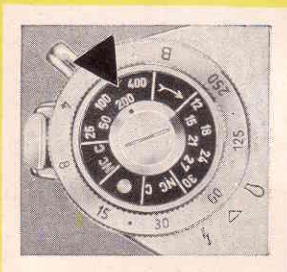
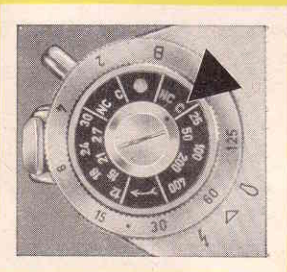


Fig. 32



*Exa II*

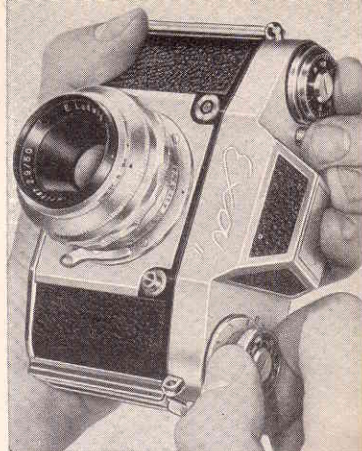


Fig. 33

### Changing films

Using the EXA take-up spool, it is possible that one or two exposures beyond the normal 36 can be made before the film ceases to transport, and it may be that the winding lever (11) will stop part-way along its travel. On reaching the end of the film, rewind by pulling out the rewind button (14) as far as its stop, taking the EXA in your left hand, pressing rewind release pin (10) and then, as shown in fig. 33, turning rewind button (14) in the direction of the arrow. When the rewinding movement suddenly becomes markedly easier, the film will have pulled off the take-up spool and be fully rewound into the cassette. If the wind-on lever stopped in mid-travel, it will now be possible to finish the wind-on, to enable the lever to be returned to its "rest" position. Open camera back (31) and remove cassette with exposed film from film chamber (22).

When using take-up cassette, make one exposure "blind" after the 36th, then operate the lever again to spool the 36th exposure into the cassette. Open camera. Cut or tear off the film, and extract take-up cassette from the chamber (29), finally spooling film-end into the cassette.

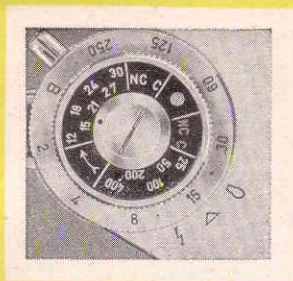


Fig. 34

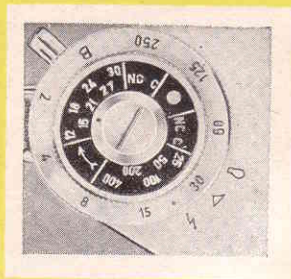


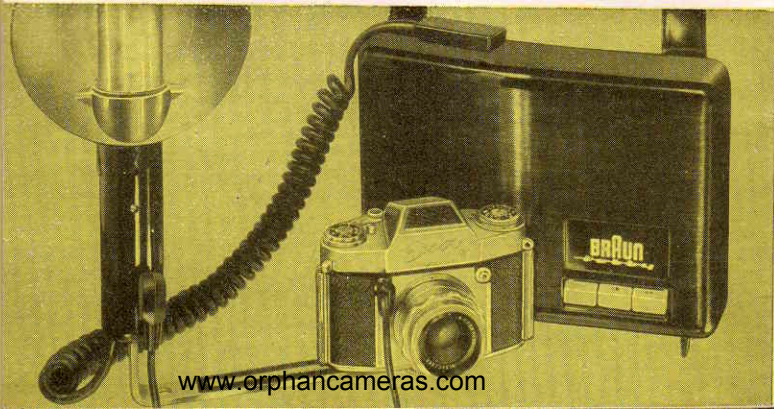
Fig. 35

## Flash photography

The EXA II has a flash contact (7) with symbol setting for the shutter speeds required in flash work. When working with flash-bulbs, turn speed setting ring (16) so that the red dot is alongside the flashbulb symbol (⊙) (fig. 34) and working with flashtube, the red point should be alongside the flashtube symbol (⚡) (fig. 35).

In this way, the correct shutter setting is automatically obtained, being  $\frac{1}{15}$ th second for flashbulbs,  $\frac{1}{30}$ th second

Fig. 36



for electronic. In both cases, openflash working is used, as the flash comes when the focal plane shutter of the EXA II is fully open.

To connect for flash, first set the shutter by operating the lever-wind, and connect the cable from any flashgun to the flash contact on the camera. (Fig. 36 shows EXA II connected with an electronic equipment.) - The following flashbulbs are suitable for EXA II:

Osram-Vakublitz-Bulbs			Philips-Photoflux-Flashbulbs			RFT-Photo-Flashbulbs		
Type	guide number 17° DIN *	Flash duration = approx. exposure time	Type	guide number 17° DIN *	Flash duration = approx. exposure time	Type	guide number 17° DIN *	Flash duration = approx. exposure time
XM 1	30	$\frac{1}{100}$	PF 1	30	$\frac{1}{100}$	X 1	18	$\frac{1}{200}$
XM 5	50	$\frac{1}{80}$	PF 2	50	$\frac{1}{80}$	X 2	35	$\frac{1}{100}$
			PF 24	33	$\frac{1}{40}$	XM 2	35	$\frac{1}{50}$
			PF 60	90	$\frac{1}{50}$			
			PF 100	115	$\frac{1}{45}$			

\* ) monochrome only

“Dud” flashbulbs should be removed from the flashgun after the shutter’s travel, and replacements for them should not be inserted until the shutter has been re-cocked.

## Care in handling camera and lens

The camera should always be kept with its lens or a protective body cover in position, and either fitted in its ever-ready case or wrapped in a soft, dust-proof cloth. All easily accessible parts must be kept clean

and dusted with a soft camelhair brush, especially the film track with film guides (25), film guide roller (24), film transport sockets (27), chambers (22 and 29), camera back (31), and film pressure plate (50). Occasionally, the mirror may be delicately dusted with a very soft brush, and the camera should always be protected against moisture, dust, blown sand, etc. Never touch the glass surfaces of the lenses, the ocular of the Pentaprism (20), or the mirror with your fingers. Lenses and the ocular (20) may, if need be, receive a very careful cleaning with very soft leather or soft, smooth linen. Do not in any circumstances interfere with the camera mechanism, and repairs should be entrusted to Ihagee specialists or our own Works only.

## Accessories

Increasing the versatility of the EXA II, and indispensable for many purposes, a wide range of ancillary equipment is available for the camera.

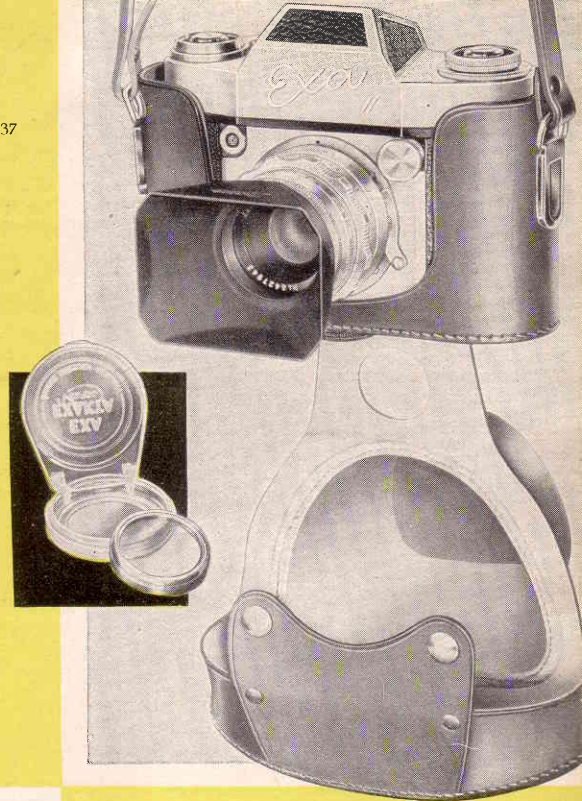
### *Leather ever-ready case (fig. 37)*

Valuable protection for the camera when being stored or carried, and does not impair its readiness for picture-taking. Securing screw for camera includes tripod bush to allow camera and case to be used together on tripod.

### *Filters (light absorption) (fig. 57)*

For black-and-white photography, filters capable of absorbing varying forms of light are essential for good results: clouds, for example, can be rendered effectively only by using a suitable filter. Ihagee precision light filters consist of first-class plano-parallel polished colour filter glasses in hardchrome mounts with screw threads. The filters are marketed in elegant translucent plastic cases. Available with screw thread M 35.5×0.5 (slip-on Ø 37 mm.), and M 49×0.75 (slip-on Ø 51 mm.).

Fig. 37



Standard colour range includes light yellow (2× exposure), medium yellow (5× exposure), yellow-green (2× exposure), green (4× exposure), orange (4× exposure), red (6× exposure), and blue (2× exposure). An ultraviolet suppression filter is also available.

### *Soft focus discs*

These give photographs a pleasantly soft and rounded effect, with an air of sunshine. Ihagee soft focus lenses are supplied in two grades, in the same precision screw mounts and elegant plastic cases as Ihagee filters.

### *Lens hoods (fig. 37)*

Indispensable for protecting lenses from stray light, or for contra-jour work, especially when taking colour pictures, and additionally for protecting lenses from raindrops and snowflakes. Ihagee hoods have a modern rectangular shape, giving excellent light protection, and are supplied with screw threads M 35.5 × 0.5 (slip-on Ø 37 mm.), M 40.5 × 0.5 (slip-on Ø 42 mm.), and M 49 × 0.75 (slip-on Ø 51 mm.) for certain special lenses. Soft focus disc mounts and filter mounts will screw into lens hoods of corresponding diameter.

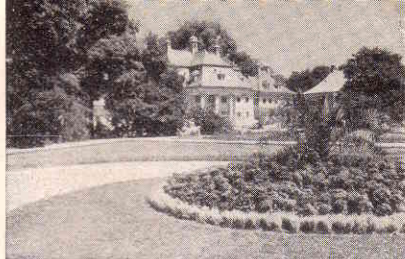
### *Giant release button (fig. 37)*

Principally needed in winter, this increases the pressure area of the release button, for easy operation of the shutter when gloves are worn. (Lenses which are equipped with a big release knob or tilter do not require the giant release button.)

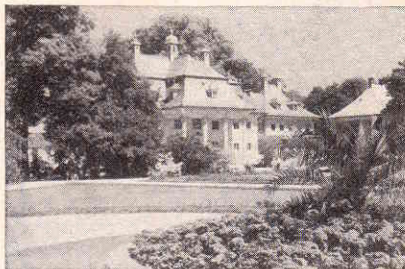
### *Polarizing filters*

Special filters for cutting out reflections on non-metallic surfaces, such as glass, water, paint, etc. Delivered with screw-in mounts for EXA lenses. Photography with polarizing filters is only possible at an angle to the reflecting surfaces - about 35° with glass - and the filter must be turned to the "Extinguish" position in front of the lens (marked by lines on the mount). The Pentaprism reflex image enables a visual control of the polarisation effect to be maintained (increase the exposure of 2-3 times).

f = 35 mm



f = 50 mm



f = 135 mm



f = 300 mm



Fig. 38

### Special lenses

Advanced photography depends essentially on the advantages associated with lens interchangeability, but only the single lens reflex can fully exploit those advantages. The EXA II, foremost in its fields, exploits them to perfection, thanks to the ground glass image always giving exactitude in picture composition, subject sharpness, and depth of focus.

Wide-angle lenses, with their shorter focal lengths, cover a substantial field of view, but objects in that field are reduced in size (fig. 38). Indispensable for interiors, architectural work, landscapes, art galleries, etc.

Long-focus special lenses and telephoto lenses, with their greater focal lengths provide a reduced field of

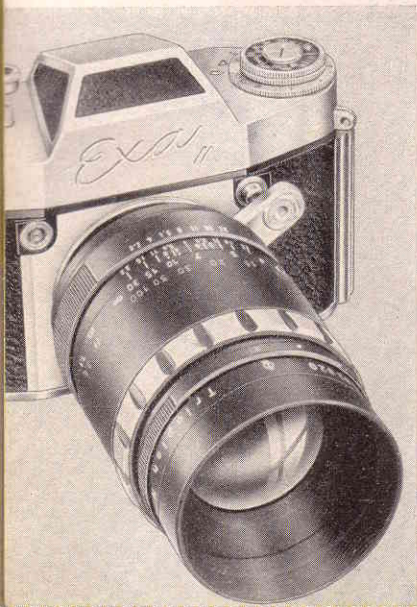
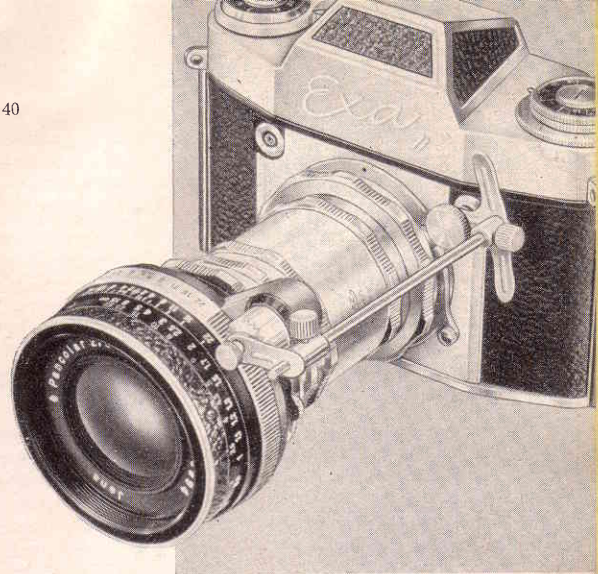


Fig. 39

*Exa II*

Fig. 40



view but bring subjects closer, so that they occupy a larger area of the picture, and in certain cases correct perspective distortion (fig. 38). Employed for child photography, portraits, sports, animal pictures, and a wide variety of other work. Fig. 39 shows the EXA II with the popular fully automatic f/2.8 100 mm. Trioplan. Another wonderful lens, with amazing lightpassing characteristics, is the f/1.5 75 mm. Jena B.

The normal lens is to be removed - as described - and replaced by a special lens. Some lenses with a very long focal length use the outer-bayonet of the EXA II. The distance scales of these lenses are also measured from the back of the camera to the object.

### *Bayonet Adapter Rings and Tubes*

Close-ups (macrophotography) are a major feature of single lens reflex application, the ground glass focusing screen being unsurpassed for this work.

Bayonet rings and tubes, in any desired combination, are inserted between camera and lens (fig. 40), and provide simple focusing for either normal close-ups or extreme close work. Close-up fittings available include Two-in-One-Ring, providing an extension of 5 mm. and the complete set of Bayonet Rings and Tubes in which the adapter rings together give 10 mm. extension, while the tubes provide extra extensions of 5, 15, and 30 mm.

### *Miniature Bellows Attachment*

This apparatus (fig. 41) which is easy to carry is particularly recommended when taking close-up photos and you want to change the image distance quickly and unbroken. The bellows, therefore, can be set continuously from 3.5 mm. to 12.5 cm. The apparatus especially is used for photography by hand but, of course, can also be employed on every tripod and on our Copying Stand 61.

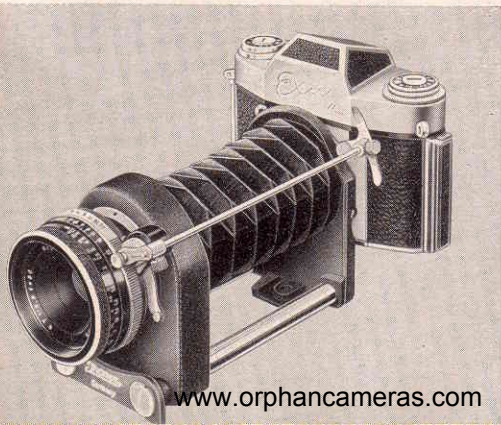


Fig. 41

### *Autocouple Extension Release*

In order to employ the Fully Automatic Diaphragm of modern lenses, also when using Bayonet Adapter Rings and Tubes or the Miniature Bellows Attachment for close-ups, the Autocouple Extension Release is inserted between lens and camera (fig. 40 and 41).

### *Microscope Attachment*

A Micro Adapter is taken for connecting the EXA II to a microscope for micro-photography. The attachment is equipped with a rapid-change mount so that the camera may be removed from the microscope when interrupting the work with one single movement only. In photomicrography too, focusing is done by the image screen.

### *Ihagee "Vielzweck" Equipment*

This universal equipment, based on the "add-on" principle, is suitable for use with the EXA II on a variety of special fields. The single parts of the "Vielzweck" equipment can be used on their own or in combination so that you may complete the unit piece by piece.

Available are: Swing Angle Attachment with focusing slide for convenience in close-up work with bayonet rings and tubes.

The big Bellows Attachment for an economical taking of close-ups is especially recommended for very short object distances: the bellows may be extended continuously from 3.5 cm. to 22 cm. so that you will get all ratios of reproduction within this range.

The Transparency Copying Equipment for the Bellows Attachment enables transparencies to be copied optically.

The Copying Stand 61 and the Repro Attachment 61 (figure 42) (if desired with own lighting equipment) are intended for reproduction but they may also be used as table-top tripods when taking close-ups. Repro-Attachment 61 with special equipment for photomicrography may also be used.



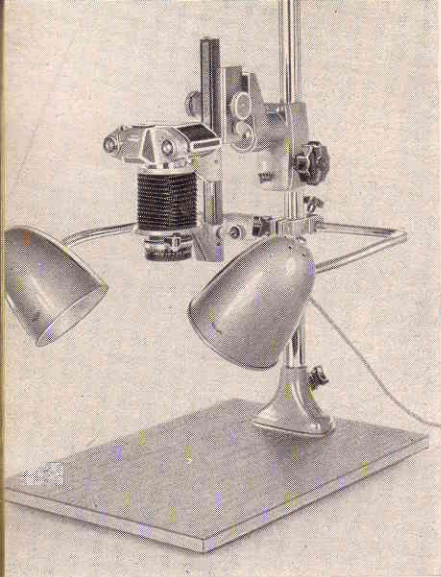


Fig. 42

*Exa II*

#### *Stereo-Attachments (fig. 43)*

have been developed for three-dimensional photography. The large Stereo Attachment permits taking pictures from  $\infty$  (infinity) up to 2 metres, whereas the small Stereo Attachment yields photos at distances ranging between 2 metres and 0.15 metres (when focusing short distances there are three auxiliary lenses available for the small Stereo Attachment). Both Stereo Attachments can be screwed into the front mount of the normal 50 mm. lenses; suitable are the lenses Tessar f2.8/50 mm. with Click-Stop, Tessar f2.8/50 mm. and Pancolar f2/50 mm. both with Fully Automatic Diaphragm. Other lenses with the same focal lengths and a similar mount could perhaps be employed by means of an adapter

ring. After having screwed the Stereo Attachment into the front mount of a lens the attachment is fixed by turning the fastening ring in the opposite direction as soon as the separation line in the centre of the ground glass screen runs perfectly parallel with the vertical sides of the half-images. The ground glass must already reveal two rectangular half images. Perpendicular setting is facilitated by paying attention to the fact that a certain point in either picture has to be at the same distance from the bottom edge of the image. Focusing is performed as usual, on the ground glass image only. When using the Stereo-Attachments the exposure time must be increased 1.5 times. Due to the fact that the two pictures always have to stand side by side, the EXA II can be used only in a horizontal position and, therefore, always yields upright stereo-photos.

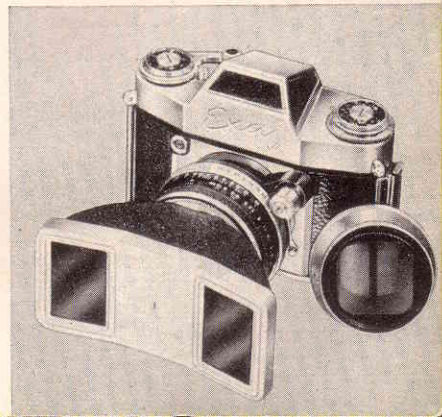


Fig. 43