



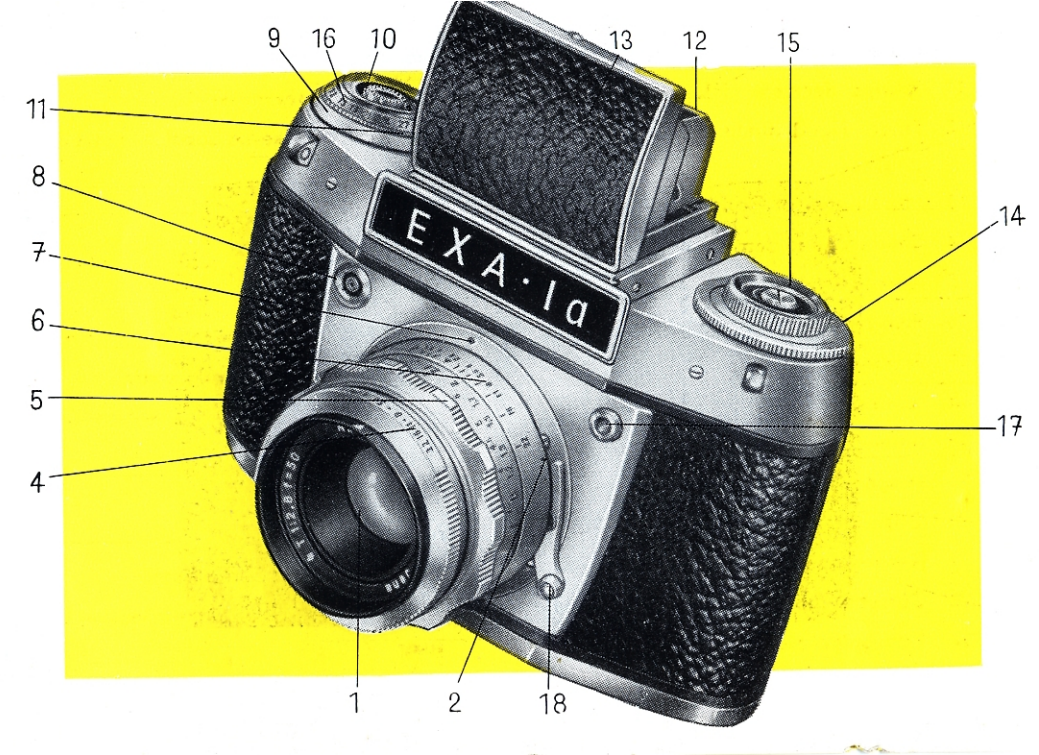
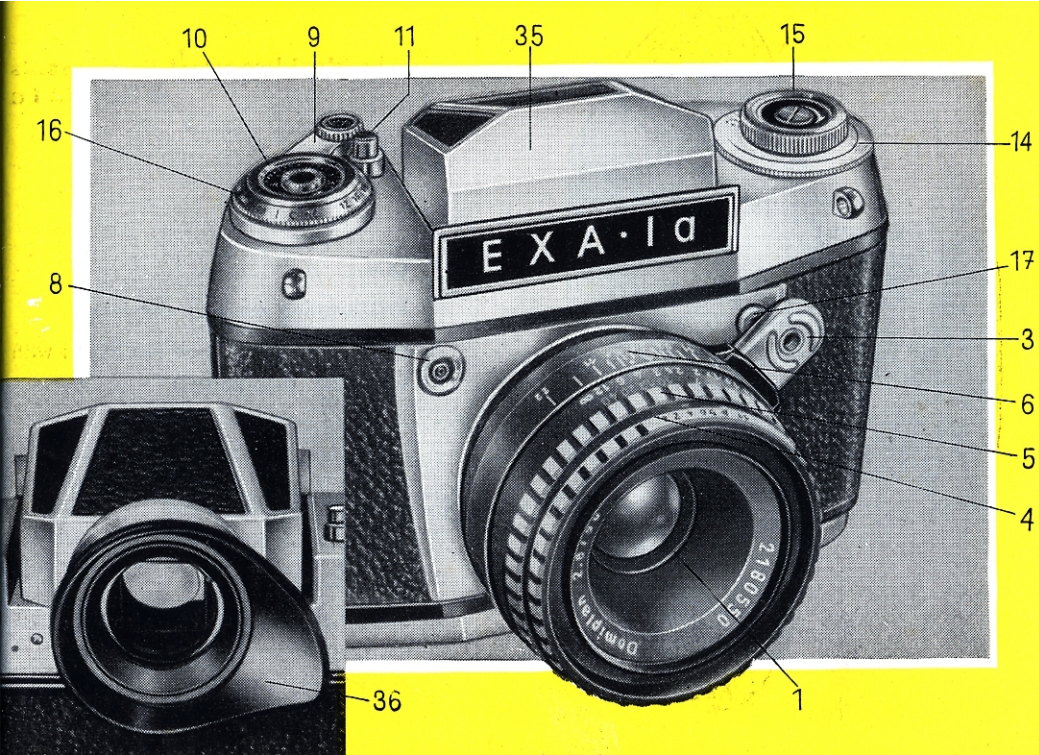
EXA-1a

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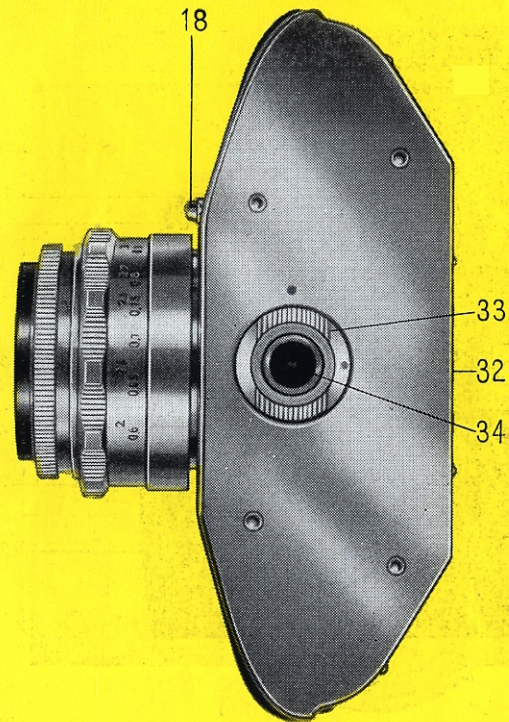
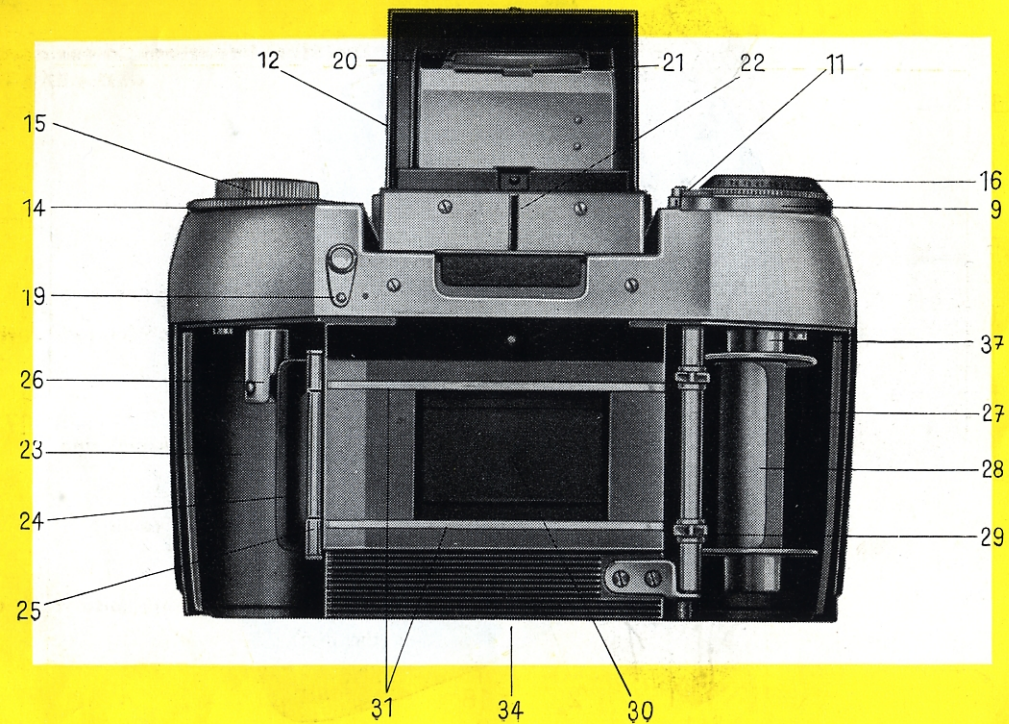
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Jena

EXA-1a



## The Most Important Components of the EXA I a



- 1 Lens
- 2 Red locating mark on the lens
- 3 Release rocker or knob (on lenses with automatic diaphragms)
- 4 Aperture setting ring
- 5 Distance-setting (focusing) ring
- 6 Depth-of-field scale
- 7 Red locating dot on camera
- 8 Flash connection
- 9 Shutter-tensioning lever (also winds on the film)

- |    |   |    |   |
|----|---|----|---|
| 10 | Frame counter                             | 25 | Idler roller  |
| 11 | Rewind declutching button                 | 26 | Dog shaft of rewind knob  |
| 12 | Finder Hood (finder hood viewfinder unit) | 27 | Chamber for take-up spool or cassette                             |
| 13 | Front panel of Finder Hood                | 28 | Take-up spool   |
| 14 | Shutter speed setting ring                | 29 | Film transport sprocket   |
| 15 | Rewind knob                               | 30 | Film gate   |
| 16 | Film-type reminder ring                   | 31 | Film guide rails  |
| 17 | Shutter release knob                      | 32 | Detachable camera back (with interchangeable film pressure plate) |
| 18 | Lens bayonet catch                        | 33 | Rotating knurled ring for locking the camera back                 |
| 19 | Safety catch for shutter release knob     | 34 | Tripod bush   |
| 20 | Hinged focusing magnifier                 | 35 | Penta Prism   |
| 21 | Grip for raising focusing magnifier       | 36 | Eyepiece cup for Penta Prism                                      |
| 22 | Key for opening Finder Hood               | 37 | Friction coupling of shutter-tensioning lever                     |
| 23 | Cassette chamber for unexposed film       |    |   |
| 24 | Film guide plate                          |    |   |

### The EXA I a 24 mm x 36 mm camera

is now your property, and we congratulate you on your choice. This camera will give you a great deal of pleasure, for it is easy to operate, quickly set for action and is specially designed for keeping always ready for immediate use.

You will almost certainly already be aware of the principal advantages of the EXA I a. It is, as you know, a single-lens reflex camera. Inside the body there is a small mirror which reflects the image formed by the lens onto the ground-glass screen. Only in this way is it possible to obtain a viewfinder image which is always identical to the final photograph; you have complete freedom from parallax and can compose and focus your picture on the ground-glass screen with perfect confidence.

Before actually taking any photographs with your new camera, read this instruction manual carefully. Once you have practised the correct method of operation a few times,

you can be certain of always taking successful photographs and avoiding damage to the mechanism of the camera. It is preferable to fold out the inside pages of the front cover of this manual, so that you can keep the key to the various controls in front of your eyes whilst reading the instructions.

Before you load a film into your EXA I a, first make yourself as familiar as possible with the handling of the empty camera. Practice operating the shutter, removing and replacing the back, and the use of the Finder Hood or Penta Prism for locating the subject and focusing the image. Handle the camera just as though it contained a film. Finally, make yourself familiar with the film-loading procedure; here it is advisable to practice with an old or already exposed and developed film.

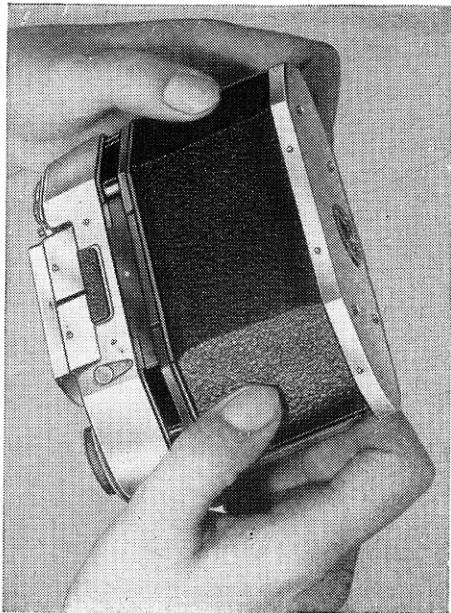
And now we wish you every success with your new EXA I a. If you have any queries concerning your camera, we are always at your disposal for advice and information.

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## Removing and replacing the camera back

Turn the milled ring (33) in the base of the camera until the red dots are in line. Grasp the camera with both hands, with the back (32) facing upwards and the Finder Hood (12) or the Penta Prism (35) pointing towards your body. Slide the back (32) up from beneath the chrome-plated top capping by pressing gently on it with both thumbs, until the red dot above the film gate (30) becomes visible (Fig. 1). Then lift the camera back (32) out of its grooves. When replacing the camera back (32), check that the red dots on the milled ring (33) are opposite one another; then fit the back from above into its guiding grooves on either side of the camera body, so that the upper edge of the back is in line with the red dot (just as when removing the back). Then push the back right home and turn the milled ring (33) until the red dots are at 90° to one another.

Fig. 1



## Opening and closing the Finder Hood

The Finder Hood (12) is opened by depressing the key (22), and closed by pushing back against the front panel (13) until it locks. The focusing magnifier (20) is swung into its working or rest position by means of grip (21).

Further details on the use of the Finder Hood will be found on page 13. The reflex image in the Finder Hood will only be visible when the shutter is tensioned; for tensioning the shutter, see the next paragraph.

## Shutter tensioning and film advance

are coupled (eliminating double exposures and blank frames). When the shutter-release safety catch (19) is turned to the right (Fig. 2), the shutter release can be operated either by pressing directly on the shutter release knob (17) or indirectly by

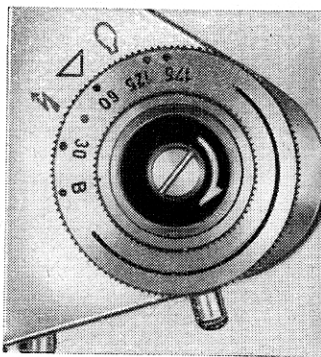
depressing the release rocker (3) or release knob on the lens.

When the shutter-release safety catch (19) is set vertically (with the red dot visible), the shutter cannot be released; this prevents it from being released accidentally whilst the camera is packed away or being carried.

Fig. 2



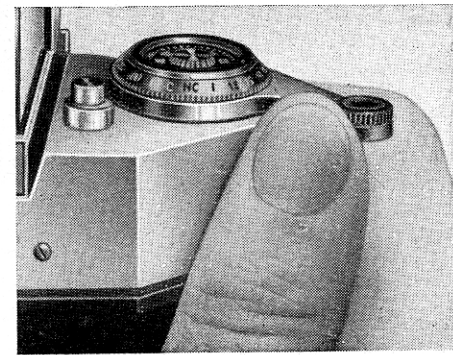
Fig. 3



The shutter is tensioned and the film advanced by means of the shutter-tensioning lever (9). After every exposure this lever should be swung right up to its stop in a single movement; the lever will spring back automatically to its initial position. It is impossible to operate the rapid-wind lever (9) before releasing the shutter; the shutter

cannot be released until the film has been wound on by a whole frame and the shutter fully tensioned. Never employ force in operating the rapid-wind lever. When you have finished taking photographs, set the shutter-release safety catch (19) to the vertical position, with the red dot visible.

Fig. 4



## Operating the shutter

**Instantaneous exposures:** turn the shutter-speed setting ring (14) so that the desired speed setting is exactly opposite the engraved triangle (Fig. 4). The ring cannot be turned past the  $1/175$  sec. and B settings. The numbers represent fractions of seconds, e. g.  $60 = 1/60$  sec. Intermediate speeds cannot be selected. All four instantaneous speed-settings can safely be used for "hand-held" exposures, i. e. without a tri-

pod. Longer time exposures using the B setting should only be made from a tripod or with the camera firmly supported. The tripod bush (34) is in the base of the camera.

**Time exposures:** set the shutter-speed setting ring (14) to B. The shutter will open when the release knob (17) or the release mechanism of the lens is depressed, and will remain open for as long as this pressure is maintained. It is also possible to improvise a "T" setting for very long time exposures: set the shutter-speed setting ring (14) to B, open the shutter by depressing the shutter release knob (17) or the release control on the lens, and then set the shutter-release safety catch (19) to the vertical position. The shutter will then remain open without your touching the camera until the safety catch (19) is once again turned to the right. This method provides ideal protection against camera shake. Lenses with fully automatic diaphragms (e. g. Jena T 2.8/50 mm) should be set for normal (manual) stopping-down, or otherwise the diaphragm will re-open pre-

maturely. When using the Domiplan 2.8/50 mm lens for long time exposures either use the B-setting and if necessary a cable release with a long plunger and locking device, or else the T-setting method described above together with an additional locking knob for the release rocker. Further details will be found in the sections dealing with these lenses, pages 8 ... 12.

The B and T settings are particularly important for night and interior photography. When taking time exposures (and particularly with the B setting) it is advisable to use a cable release with a long plunger; this can be screwed either into the shutter release knob (17) or into the release mechanism of the lens.

For all time exposures the camera should be placed on a tripod or some other firm support (table, wall, etc.).

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

Delayed action releases, obtainable from photographic dealers, can either be attached to the cable release or screwed directly into the release knob (17) or into the release mechanism of the lens.

## Operating the lens

The lens (1) is interchangeable: press the bayonet catch (18) inwards, turn the lens to the left (Fig. 5) until the two red dots (2 and 7) are adjacent, and then lift out the lens 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 into position.

A wide range of special-purpose lenses can be employed (with certain restrictions on long-focus lenses; for further details see page 35).

The lens is focused by turning the distance-setting ring (5) bearing the distance scale (the lower-value figures = metres, the larger-value figures = feet). The focus is adjusted by observing the sharpness of the reflex image in the Finder Hood or Penta Prism. When using the Fresnel Lens you should focus on the broad ground-glass ring in the centre of the image, which does not possess the fine-line structure which covers the rest of the viewfinder field. When the image of the subject on the



Fig. 5

reflex screen attains its maximum definition, then the exact subject distance in feet or metres will be opposite the red setting mark. This distance is measured from the camera back to the subject.

If the camera is fitted with a Distance Meter or Fresnel Lens focusing screen, the split-image rangefinder can be employed

to give a double assurance of focusing accuracy. Further details will be found on page 18.

Setting the diaphragm opening by means of the aperture setting ring (4): the numerically-smaller aperture values, e. g. 2.8, 4, provide relatively large lens openings, permitting short exposure times but giving shallow depth of field. The numerically-larger aperture values, e. g. 16, 22, give relatively small lens openings requiring longer exposure times but providing a large depth of field.

"Depth of field" means the ability to produce a sharp image of objects at varying distances from the camera. The precise extent of this sharp zone is indicated by the depth-of-field scale (6) on the EXA lenses: on either side of the red distance-setting mark, locate the aperture value you wish to use for your picture and note the distance in feet or metres which is opposite the two relevant f/numbers on the scale. In this way you can read off the distances at which the depth of field (or "sharp zone") begins and ends. If the relevant aperture figure on one side of the setting mark lies

opposite or even beyond the infinity symbol ( $\infty$ ), then the depth-of-field zone extends to infinity.

Three examples:

Distance setting  $\infty$  (infinity), aperture setting f/11 = depth of field extends from approx. 26 feet (5 m) to infinity, see Fig. 6. Distance setting 26 feet (5 m), aperture setting f/8 = depth of field from approx. 10 feet (3 m) to beyond 40 feet (12 m), see Fig. 7.

Distance setting 6½ feet (2 m), aperture setting f/5.6 = depth of field from approx. 5 feet (1.6 m) to 8 feet (2.5 m), see Fig. 8. When focusing by means of the reflex image, always set the lens to its maximum diaphragm opening (i. e. to the numerically-smallest aperture value) to obtain the most brilliant image and then stop down just before the exposure. There is no need to take the camera away from the taking position provided that the lens has either a click-stop diaphragm, pre-set diaphragm or a fully-automatic spring or pressure diaphragm.

### Click-stop diaphragm on Jena T 2.8/50 mm (Fig. 6) and Trioplan 2.9/50 mm lenses

When turning the aperture setting ring a gentle click will be heard as the ring engages momentarily at each f/stop marking on the aperture scale. To stop down

the lens (which is done by turning the aperture setting ring, it is only necessary to count the previously-determined number of clicks in order to set the lens to the desired f/number. There is no need to remove the camera from the taking position.

Fig. 6

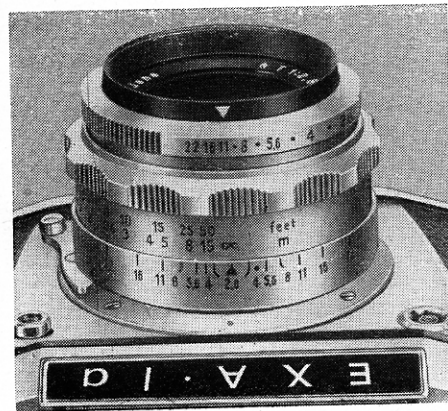
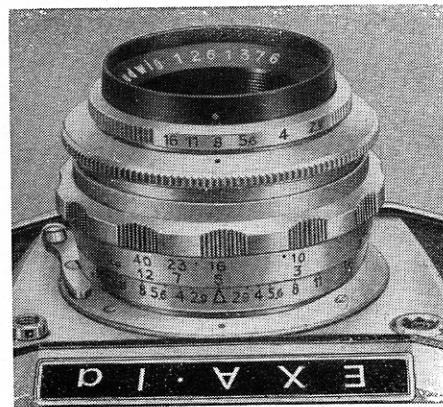


Fig. 7





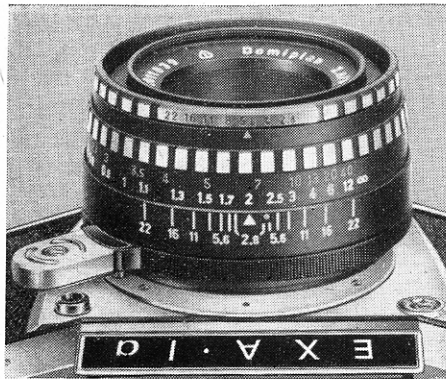


Fig. 8

**Pre-set diaphragm on Meritar 2.9/50 mm lens (Fig. 7)**

Press the knurled ring behind the aperture scale in the direction of the camera body and then turn the aperture setting ring until the desired f/number is opposite the red indicator dot. Then let the milled ring spring back to its original position. For fo-

cus, open the lens right up to its full aperture and then just before the exposure turn the aperture setting ring as far as it will go, which will have the effect of stopping the lens down to the pre-selected f/number, once again without lowering the EXA 1a.

**Fully-automatic pressure diaphragm on Domiplan 2.8/50 mm lens (see Fig. 8)**

The fully-automatic pressure diaphragm is always wide open for focusing and observing the reflex image. The smaller aperture desired for taking the picture is pre-selected by turning the aperture setting ring round the very front of the lens; the appropriate f/number must be set opposite the red triangle mark. Intermediate values between two f/numbers can also be selected. The lens is automatically stopped down by pressing the release rocker (3); when the rocker is released the diaphragm automatically opens up once again to its maximum opening. The pressure on the release rocker should therefore not be relaxed until the shutter has closed. To take time exposures two methods may be adopted: 1) use the B-setting of the shutter and screw a

able release with long plunger and locking device into the release rocker. Pressure can be maintained upon the release rocker or the shutter release knob throughout the duration of the exposure without having to keep the release depressed with the hand (thus avoiding camera shake). 2) A locking knob (available as an accessory) can be screwed into the release rocker, and by lifting the lower part of the rocker will disengage the automatic diaphragm mechanism. The lens is then stopped down to a smaller aperture by turning the aperture setting ring. The diaphragm will then remain stopped-down to the aperture setting selected, and it is therefore also possible to use the T-setting of the shutter.

In order to check the depth of field whilst focusing, the release rocker should be depressed just far enough to stop down the lens to the selected aperture without releasing the shutter.

**Fully-automatic spring diaphragm on Jena T 2.8/50 mm lens (Fig. 9):**

Focusing is performed by turning the front (distance-setting) ring.

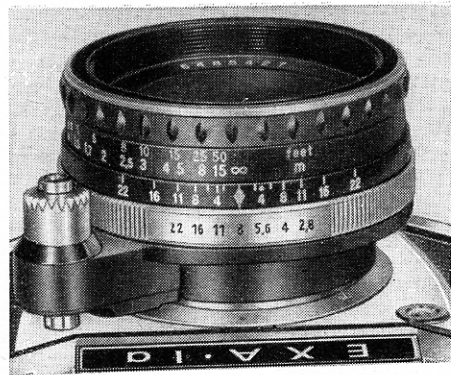


Fig. 9

The diaphragm can be set for either fully-automatic or manual operation: when using the fully-automatic spring diaphragm mechanism, the release knob on the lens must project (together with its mount) by about a quarter of an inch towards the rear of the black housing. If necessary press the mount and the release knob gently towards

the camera and then turn it to the right (looking towards the camera from the front); the mount and release knob will then lock into the automatic-diaphragm setting. The automatic diaphragm can be disengaged as follows: press the diaphragm release knob and its mount towards the camera and turn them to the left (looking towards the camera from the front). When the release knob and its mount have been pushed back and locked in the release-mechanism housing, the lens can be stopped-down normally by turning the aperture setting ring lying just in front of the camera body. The aperture setting ring is provided with click-stops at all f/numbers, including intermediate values mid-way between each setting (these are not marked on the scale). The desired f/number must be in line with the red setting mark.

The diaphragm release button on the lens can be adjusted to ensure that it always depresses the camera release knob so as to operate the shutter. Beneath the diaphragm release knob is a screw, which can be adjusted with a screwdriver to provide the correct amount of travel.

When using this fully-automatic spring diaphragm, the diaphragm remains at its maximum opening for critical focusing and composition of the reflex image. It only closes down to the pre-selected smaller aperture (numerically-larger f/number) when the release knob is depressed. The f/number required for each photograph is selected by means of the aperture setting ring. When the release knob is depressed, first the lens diaphragm closes down to the pre-selected smaller aperture and then the camera shutter is released. When pressure on the release button on the lens is relaxed, the diaphragm automatically opens up once again to its maximum aperture; the knob should therefore not be released until the shutter has closed. When taking time exposures the lens should be set for normal (manual) diaphragm operation: a cable release (with long plunger) should be screwed into the diaphragm release knob on the lens. In order to check the depth of field when focusing whilst the lens is set for automatic-diaphragm operation, the release knob on the lens should be depressed just far enough to close the diaphragm

own to the desired f/number but without releasing the shutter.

#### **Focusing for infra-red photography**

When using infra-red film, first of all focus the image on the ground-glass screen. Then note the indicated subject distance (in metres, or feet, or infinity) and turn the focusing ring until the indicated distance

is in line with the red dot either on the right or left of the normal red distance-setting mark. The object of this is to ensure that the image produced by the invisible infra-red rays, which is formed at a slightly greater distance from the lens than an image produced by visible light, is focused upon the film plane of the camera and so will appear sharp in the negative.

#### **Using the Finder Hood**

In the Finder Hood (12) of the EXA I a will be seen a brilliant, upright, and magnified reflex image. This can be used for sighting the subject, composing the picture and also for focusing and (by experimentally stopping-down the lens) for adjusting the depth of field. For general observation of the image the magnifying ground-glass screen of the Finder Hood will generally provide a large enough image, but for critical focusing it is advisable to use the

hinged focusing magnifier (20). This magnifier springs into the operational position when the Finder Hood is opened, but can be folded down into its rest position by means of grip (21); see also page 4. For details on using the Distance Meter or Fresnel Lens screens, see page 18. Normally, the EXA I a is held at chest or shoulder height (Fig. 10). The method of holding the camera when using both focusing magnifiers is shown in Figs. 11 and 12. When taking vertical-format pictures with the Finder Hood, the photographer can stand at right angles to the subject



Fig. 10



Fig. 11

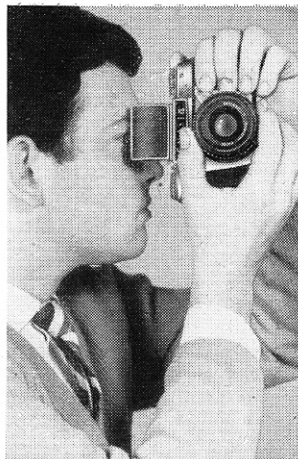


Fig. 12

(Fig. 12): this is particularly useful for working unobserved since the photographer himself can remain hidden (Fig. 13). The Penta Prism (see next section) allows you

to take vertical pictures while looking directly at the subject, and provides an upright and laterally-correct finder image. The reflex image in the Finder Hood (12)

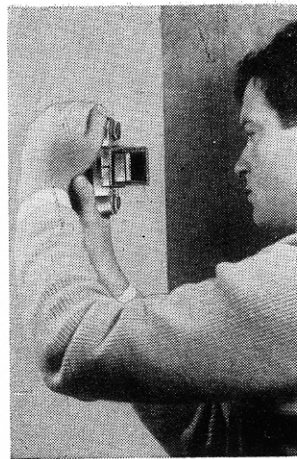


Fig. 13

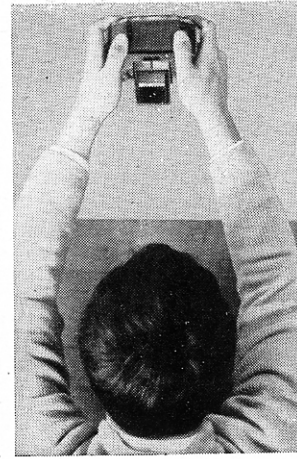


Fig. 14

can also be observed from underneath when the camera is held above the head (Fig. 14). This is an ideal way for taking pictures over walls, the heads of crowds, etc.

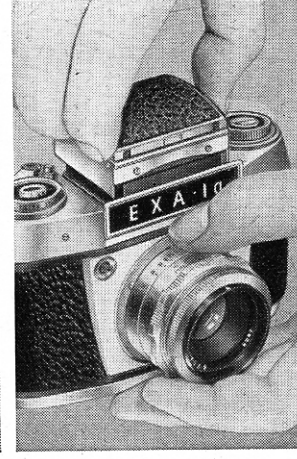


Fig. 15

The EXA 1a is multiple-system camera: the Finder Hood is interchangeable, allowing the Penta Prism (35) to be fitted in its place when required. To remove

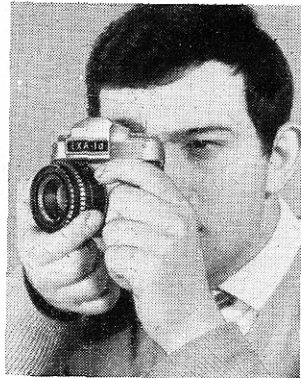


Fig. 16

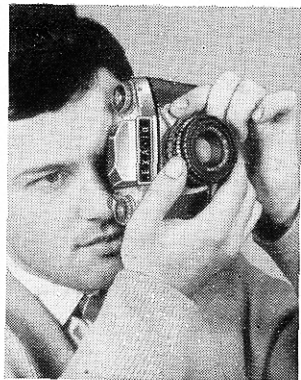


Fig. 17



Fig. 18

the Finder Hood (12) it should first be closed, and then lifted out by pulling straight upwards (15). When replacing the Finder Hood, guide it vertically into position and then press downwards until it clicks home. Never employ force.

People who normally wear spectacles

should use their reading glasses for focusing with the Finder Hood.

#### **Using the Penta Prism**

The Penta Prism (35), the second of the principal focusing systems for the EXA Ia,

is virtually indispensable for taking pictures of sports events and other moving subjects.

The Penta Prism (35) is attached and removed from the camera in just the same way as the Finder Hood. The camera is always held at eye level for taking pictures with the Penta Prism. The viewfinder eyepiece can be held to either the left or the right eye. With both vertical and horizontal pictures, the reflex image is always upright and laterally correct (i. e. the right way round); this is a particularly useful feature when photographing moving subjects, since they appear to move across the viewfinder in the same direction as they are in fact. When the subject is moving very fast, e. g. with racing cars, the camera may be "panned" by swinging it slowly in the direction of motion of the subject.

When taking normal upright and horizontal pictures with the Penta Prism (35), the

EXA Ia is best held in the right hand, using the right thumb and forefinger for focusing. The left hand can be used to provide additional support, whilst the shutter is released with the left-hand forefinger (Figs. 16 and 17). The camera can also be held upside down for taking horizontal-format pictures: the back of the EXA Ia can then be pressed against the forehead to give added protection against camera shake (Fig. 18).

Users who normally wear spectacles should use their distance glasses for focusing with the Penta Prism.

A most important accessory is the flexible Eyepiece Cup (36); this is fitted over the eyepiece of the Penta Prism (35) and excludes distracting sidelight. It can also be used by spectacle-wearers, and it is possible to fit vision-correction lenses (obtained from your optician) in its mount. It will then be possible to focus without spectacles.

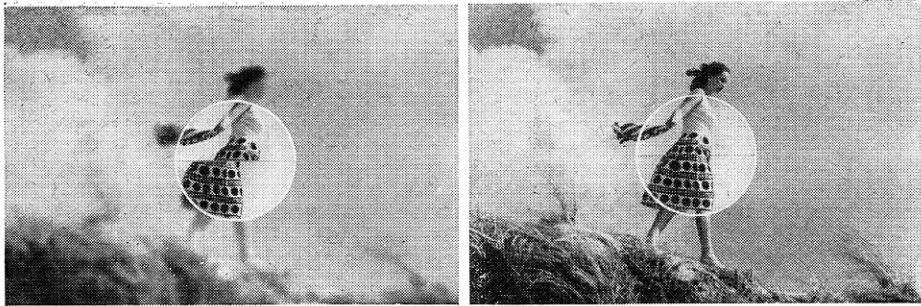


Fig. 19

### Exchanging the focusing screen and use of Distance Meter or Fresnel Lens screens

The magnifying ground-glass screen in the viewfinder units for the EXA Ia is interchangeable. Before removing the focusing screen from the Finder Hood, close the hood.

Remove the viewfinder unit from the camera, grasp the focusing screen by the edges of its longer sides and lift it out of the viewfinder. When replacing the screen, once again grip it by the long sides (avoid touching the matted surface) and press it home between the clamping springs on the viewfinder unit. (With the Finder Hood, first close the hood itself.)

In place of the normal, magnifying ground-

glass screen, the Distance Meter or Fresnel Lens screens can also be used in both the Finder Hood and Penta Prism of the EXA Ia (Fig. 19). With both these screens, there is a split-image rangefinder in the centre of the image field, which makes focusing twice as accurate in every case (this will be of particular advantage to users with sub-standard eyesight, and also when taking pictures under poor lighting conditions). When the lens is correctly focused, the half-images in the circular

rangefinder field must line up accurately, with no lateral or vertical displacement. Focusing should not be performed at apertures smaller than  $f/5.6$ , or otherwise one half of the rangefinder field will appear dark. When focusing the eye must be kept exactly in the centre of the viewfinder eyepiece (when using the Penta Prism) or over the centre of the magnifier (with the Finder Hood); an oblique line of vision can lead to incorrect focusing and consequently to unsharp pictures.

### Loading the film

Size of film: perforated 35 mm miniature film, in lengths of 1.6 metres (5½ feet), giving 36 exposures 24 mm x 36 mm in size. To ensure correct film transport it is abso-

lutely essential to use only faultless film cassettes. Daylight-loading spools should only be inserted in cassette shells made by the same manufacturer.

Remove the camera back (32) as described earlier in this manual, insert the cassette containing the unexposed film in the film

chamber (23) (Fig. 20) and if necessary turn the rewind knob (15) slightly to ensure that the dog shaft (26) engages with the bar in the cassette core. The slot in the cassette through which the beginning of the film protrudes must lie against the guide plate (24). Remove the take-up spool (28) from the opposite film chamber (27) and push the beginning of the film beneath the retaining spring on the spool (Fig. 21); then wind the film round the core of the spool by half a turn. Replace the take-up spool (28) in the film chamber (27) and turn it slightly in the take-up direction to ensure that the friction coupling (37) of the shutter-tensioning lever (9) is gripping the bar across the end of the spool and that the spool is pushed right home into the film chamber.

Now swing the shutter-tensioning lever (9) right up to its stop (if necessary first releasing the shutter), thus drawing the film out of the full cassette, over the idler roller (25) and across the film guide rails (31); the film should be pulled as taut as possible over the film transport sprocket (29) and on to the take-up spool (28). The teeth

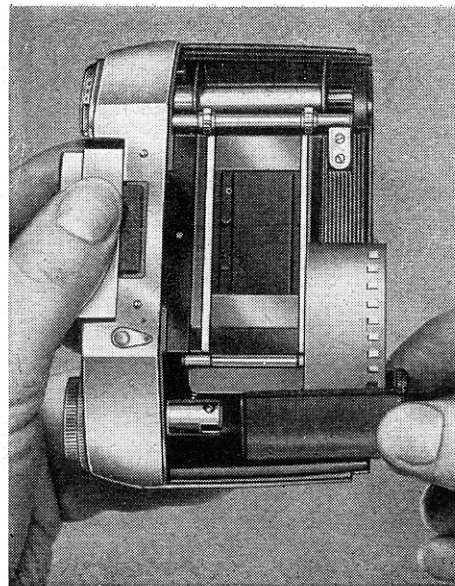


Fig. 20

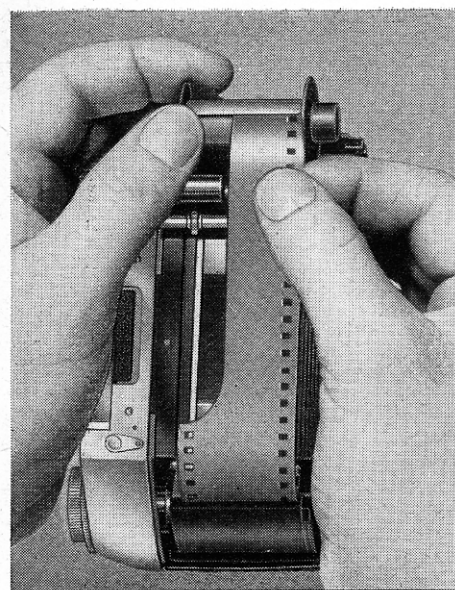


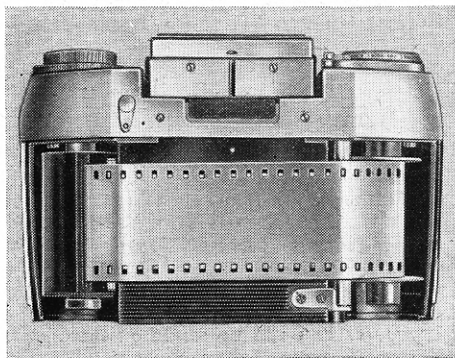
Fig. 21

of the film transport sprocket (29) must engage with the perforations on both sides of the film, thus ensuring that the film runs accurately within the slightly recessed film track (Fig. 22).

Replace the camera back (32) in the manner already described and turn the knurled ring (33) until the red dots are at 90° to one another. It is now necessary to fire off two blank frames in order to wind on the fogged beginning of the film: release the shutter, swing the shutter-tensioning lever (9) right up to its stop, then release the shutter again and swing the shutter-tensioning lever up to its stop for the second time. The disc of the frame counter (10) is then turned in the direction of the arrow which represents the full number of exposures available on the film you are using; when using a 36-exposure film, set the counter to "36" (Fig. 33), and with 20-exposure films set it to "20". The EXA I a is then ready for action, and after taking each picture the frame counter will show how many more exposures can still be made on the film in the camera.

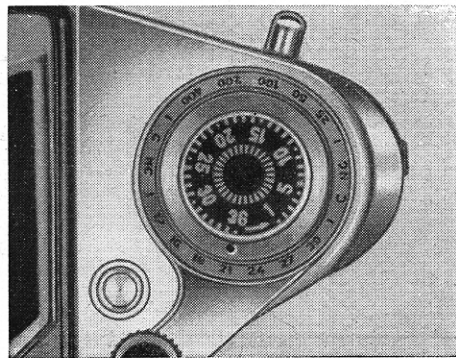
In place of the take-up spool (28), it is also possible to insert an empty standard film cassette in the take-up chamber (27). It is most important to ensure that such take-up cassettes are in good condition: the cassette core must move easily within the shell and not jam at any point (if necessary the friction points of the core may

Fig. 22



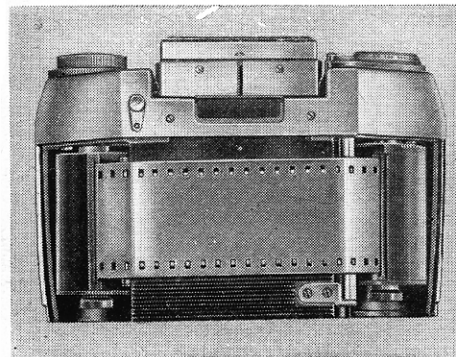
be rubbed with a little paraffin wax). When using a take-up cassette, proceed as follows: secure the beginning of the film to the core of the cassette so that it winds on from the **left** (i. e. from the opposite direction to the normal method of loading a cassette with unexposed film). Then fit the spool into the cassette shell and insert the

Fig. 23



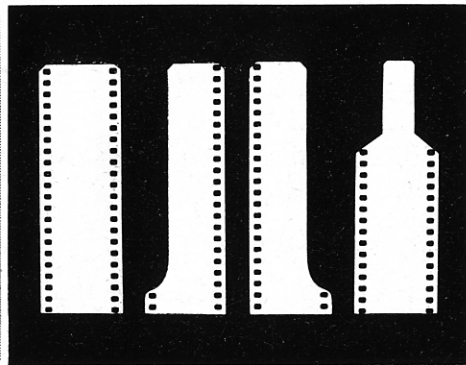
cassette into the camera so that the friction coupling (37) of the shutter-tensioning lever (9) grips the bar across the end of the cassette core and the film is stretched taut from one cassette to the other across the slightly recessed film track (Fig. 24). It is not necessary to cut the beginning of the film to any special pattern. The take-

Fig. 24



up spool of the EXA I a will accept films with the beginning of the leader cut to any pattern, either the standard half-width tongue or, even better, a straight cut across the full width of the film (as when using bulk rolls). When employing a take-up cassette, however, the beginning of the film must be cut so as to fit into the core

Fig. 25



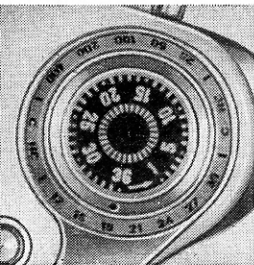


Fig. 26

of the cassette (for method of trimming see Fig. 25).

After taking about 6 exposures, the rewind knob (15) will also rotate when the film is wound on, as an indication that it is being advanced correctly.

Immediately after loading the film, the film-type reminder ring (16) should be set so that you do not have to keep remembering what type of film is in the camera. Turn the ring in either direction until the appropriate markings are opposite the red dot. The

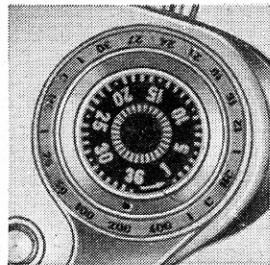


Fig. 27

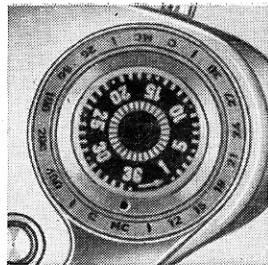


Fig. 28

numbers from 12 to 30 are for black-and-white films rated in DIN indices, the numbers from 25 to 400 are for black-and-white films rated in ASA speeds; the white letters are for 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). Here are four examples: 18 DIN (black-and-white film), Fig. 26; 200 ASA (black-and-white film), Fig. 27; daylight-type colour negative film, Fig. 28; reversal colour film for artificial light, Fig. 29.

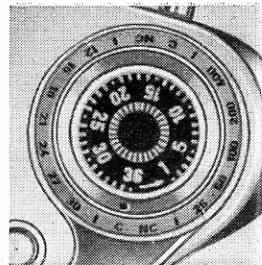


Fig. 29

## Removing the film

When using the standard take-up spool it is generally possible to take one or two pictures after the 36th exposure, before the film cannot be advanced any more. If the shutter-tensioning lever (9) stops before it reaches the end of its swing, then it is necessary to depress the rewind declutching button (11) and then swing the tensioning lever (9) right up to its end stop and allow it to spring back into its rest position. The film should now be rewound: hold the EXA I a in your left hand, maintain a steady pressure on the rewind declutching button (11), then pull out the rewind knob (15) and turn it in the direction of the arrow (Fig. 30) until you can distinctly feel the knob turning more easily, which means that the film has been rewound completely. Then press the rewind knob (15) back into the camera body. Remove the camera back (32) and lift the cassette containing the exposed film out of the film chamber (23).



Fig. 30



When using a take-up cassette, expose an additional blank frame after the 36th exposure, but do not use this for taking any photograph that you will value. Then swing the shutter-tensioning lever (9) as far as it will go so as to wind the 36th exposure into the cassette. Remove the camera back, cut or tear the film across, remove the take-up cassette from the take-up chamber (27) and wind the end of the film right into the cassette.

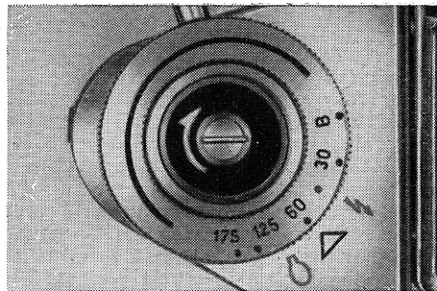


Fig. 31

### Flash photography

The EXA Ia has a flash connection with symbol-settings for the various shutter speeds required for different types of flash-light.

When working with the most commonly-used, quick-burning miniature flash bulbs, the shutter-speed setting ring (14) should be turned so that the red dot is set to the flash bulb symbol (☄) (see Fig. 31); the shutter will then be set to  $1/30$  sec.

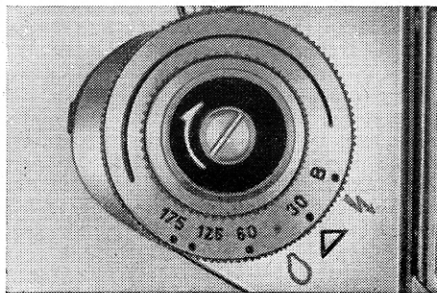


Fig. 32

### Data for German flashbulbs

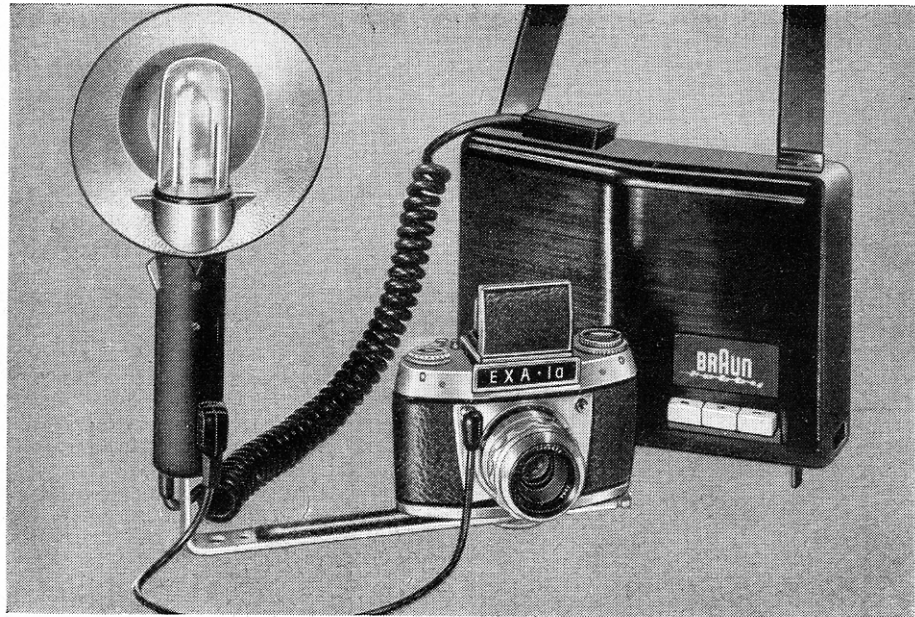
| Osram (GE) Vacublitz bulbs |                       |                            | Philips Photoflux bulbs |                       |                            | RFT bulbs |                       |                            |
|----------------------------|-----------------------|----------------------------|-------------------------|-----------------------|----------------------------|-----------|-----------------------|----------------------------|
| Type                       | Guide No. for 40 ASA* | Flash duration (~Exp.time) | Type                    | Guide No. for 40 ASA* | Flash duration (~Exp.time) | Type      | Guide No. for 40 ASA* | Flash duration (~Exp.time) |
| XM 1                       | 100                   | 1/100 sec                  | PF 1                    | 100                   | 1/100 sec                  | X1        | 60                    | 1/200 sec                  |
| XM 5                       | 166                   | 1/80 sec                   | PF 5                    | 166                   | 1/80 sec                   |           |                       |                            |

\* For black-and-white film only; calculated for flash-subject distances in feet.

When using other types of flashbulbs with a longer flash duration, then the shutter must be set to B; immediately after the flash has fired, pressure on the shutter release knob (17) on the camera (or on the diaphragm release rocker (3) or knob on the lens) must be relaxed in order to allow the shutter to close. If the shutter remains open for too long, there is a danger of "ghost images" being formed by the existing room lighting.

When using electronic flash units, turn the shutter-speed setting ring (14) so that the red dot is opposite the lightning-flash sym-

bol for electronic flash (☄) (Fig. 32). The shutter will then be set to  $1/60$  sec. This setting can only be used for taking electronic-flash photographs at normal image distances (distance between lens and film). When using bayonet rings and extension tubes for close-up photographs, and also with long focus lenses, electronic flash units can only be employed by setting the shutter to B. The basic technique is similar to that described above for using flashbulbs; non-capacitor electronic flash units designed exclusively for mains operation can also be used at the B-setting. The  $1/30$  sec shutter-



← Fig. 33

speed setting cannot be used for electronic flash pictures since the synchronization at this setting is specially designed for flashbulbs to allow for their considerably longer delay to peak brilliance.

In all cases, the "open flash" technique is used for taking flash pictures with the EXA 1a, i. e. the flash is fired whilst the shutter is fully open. The synchro-cable of the flashgun or electronic flash unit is plugged into the flash connection (8); before doing this it is important first to tension the shutter. Fig. 33 shows the EXA 1a with an electronic flash unit connected.

If a flashbulb fails to fire, e. g. because of a faulty contact in the base of the bulb, then it should be removed from the flash unit as soon as the shutter has run off. Do not insert a fresh flashbulb before the shutter has been re-tensioned.

#### **Care of the camera and lens**

Always keep the camera either in its ever-ready case or wrapped in a fluff-free cloth,

with the lens (or protective cap) and viewfinder unit in position. All components which are easily accessible should be kept clean and dusted with a soft brush; this applies particularly to the film track and guide rails (31), the idler roller (25), the film transport sprocket (29), the film chambers (23 and 27), and also the camera back (32) and its pressure plate. The reflex mirror should only be dusted when absolutely necessary, using a very soft brush and avoiding undue pressure, at the same time taking care not to touch the slightly greasy metal mount of the mirror with the brush. Protect the camera against moisture, dust, wind-borne sand, etc. Never touch the glass surfaces of the lenses, the reflex mirror, the focusing screen or magnifier or the eyepiece of the Penta Prism with the fingers. These glass surfaces may if necessary be wiped very gently with a soft chamois leather or a piece of soft, fluff-free linen cloth. Under no circumstances attempt to tamper with the mechanism of the camera; any repairs should only be undertaken by an authorized service agency or by the manufacturers.

## Accessories

Accessories increase the versatility of your EXA Ia and for many types of work they are quite indispensable.

### Leather Ever-Ready Case

This provides ideal protection for your camera both in storage and when carrying it. It does not restrict its readiness for action. The tripod nut allows the camera to be screwed to a tripod without removing it from the case.

### Lens Hood (Fig. 34)

This is essential for shielding the lens against side- and back-lighting, particularly for colour photographs. In addition the Lens Hood keeps raindrops and snowflakes from falling on the lens surface. Our Lens Hoods are of the latest rectangular design, providing a most effective protection against unwanted light, and are available with the following screw-in threads: M 35.5 x 0.5 mm, M 40.5 x 0.5 mm and M 49 x 0.75 mm.

### Giant Release Knob (Fig. 34)

This increases the contact area of the shutter release knob, allowing it to be operated easily even with numbed or gloved fingers; invaluable for winter photography. (If the lens is fitted with a release rocker or its own broad diaphragm release knob, then it will not be necessary to use the Giant Release Knob.)

### Accessory Shoe

The accessory shoe is attached to the eyepiece mount of the Penta Prism of the EXA Ia and is employed for attaching accessories such as flashguns, exposure meters, etc. to the camera.

### Polarizing Filter

A special filter for rendering invisible reflections from non-metallic surfaces such as glass, water, paint, etc. The filter is supplied in a screw-in mount. Reflections will only be eliminated by the polarizing filter when the photograph is taken at an acute angle to the reflecting surface (with glass, at about 35°). The filter should be rotated in front of the lens until the reflec-

tion appears least noticeable; its effect can be observed on the focusing screen. (The exposure should be increased by about 2 to 3 times.)

### Special-purpose lenses

Without a range of special-purpose interchangeable lenses the scope of photography is most severely restricted; despite its modest price, the EXA Ia provides all the versatility which can only be offered by a single-lens reflex camera. The reflex image on the focusing screen always shows exactly the coverage, definition, and depth of field of the final picture.

Wide-angle lenses (with a shorter-than-normal focal length) cover a wider angle of view and allow you to get more into your picture, although individual details will appear smaller. These lenses are invaluable for interior photographs, architectural work, panoramic landscapes and for photographing pictures in art galleries, etc.

Long-focus and telephoto lenses have a long focal length and make distant objects appear nearer; they thus cover a smaller section of the subject but make the details



Fig. 34

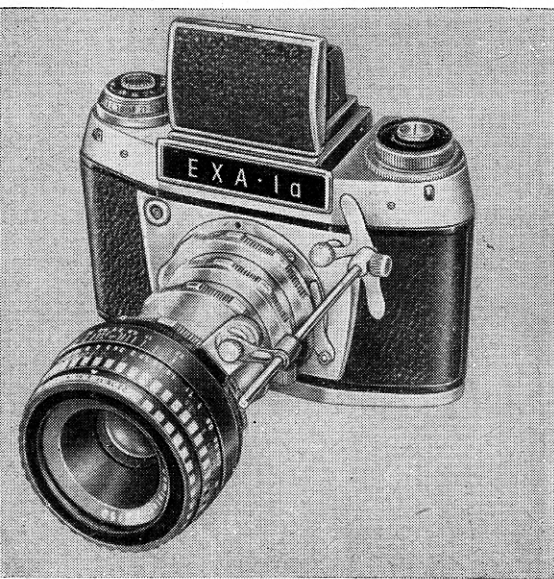


Fig. 35

appear larger. They also provide a more "correct" perspective. They are often used for taking portraits, also for photographing children, sporting events, animals, and distant landscapes. There are, however, some limitations on the use of long-focus lenses with the EXA 1a: further information will be found on page 35. The standard lens should be removed in the manner described elsewhere in this manual and the special lens inserted in its place. The distances shown on the focusing scales of these interchangeable lenses are all measured from the camera back to the subject.

#### Bayonet Rings and Extension Tubes

Close-up photography is the field in which the single-lens reflex camera performs most efficiently, since here too the reflex focusing screen always shows the exact appearance of the final picture. Bayonet Rings and Extension Tubes can be fitted in any desired combinations between the camera and the lens (Fig. 35), enabling the image to be focused down to even the shortest distances. The following equipment is available: a Two-in-One Ring providing an

additional 5 mm lens extension, and a set of Bayonet Adapter Rings and Extension Tubes (the two Bayonet Rings together give 10 mm increase in extension, whilst the tubes provide additional extensions of 5, 15, and 30 mm). There is, however, a limit to the number of Extension Tubes and Bayonet Rings which can be employed; for further information see page 35.

#### Autocouple Extension Release

This device is fitted between the lens and the camera (Fig. 35) to allow the fully-automatic spring or pressure diaphragms provided on the latest lenses (e. g. the Domiplan 2.8/50 mm or Jena T 2.8/50 mm) to be employed even when using Bayonet Rings and Extension Tubes for taking close-up photographs.

#### Stereo Attachments (Fig. 36)

These are specially designed for taking three-dimensional photographs. The large Stereo Attachment (with a 65 mm interpupillary base) is intended for taking pictures at distances from infinity ( $\infty$ ) down

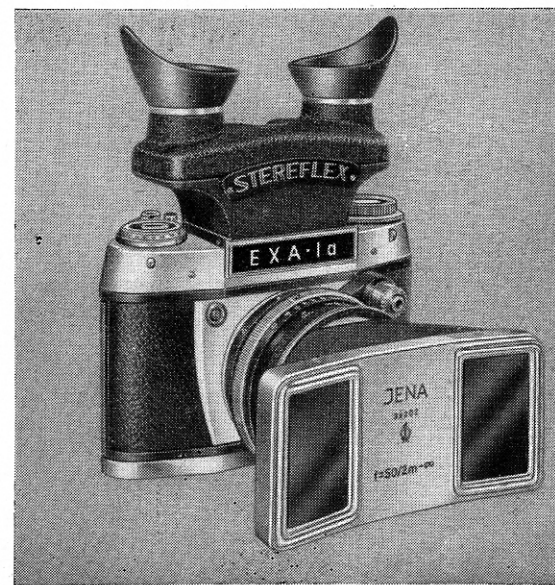


Fig. 36

to 6½ feet, whilst the small Stereo Attachment (12 mm base) is for pictures from 6½ feet down to 6 inches; three supplementary lenses are available for focusing the small Stereo Attachment at the closest distances. Both Stereo Attachments are designed solely for use with standard lenses (f = 50 mm) and are screwed into the front mount of these lenses. One such suitable lens is the Jena T 2.8/50 mm with either clickstop or fully-automatic spring diaphragm; the attachments can also be fitted to other lenses of the same focal length and with similar front mounts, with the aid of adapter rings. After screwing it to the lens, the Stereo Attachment or its inner component should be rotated until the dividing line running through the centre of the reflex image is exactly vertical, i. e. parallel to the longer sides of the two half-images which will be visible on the focusing screen. This vertical adjustment will be made easier by checking that a given point in both of the two images appears at an identical distance from the lower edge of the image. The large Stereo Attachment can then be locked in position by turning

the knurled securing ring. Focusing is then undertaken in the normal manner by observing the image on the reflex screen. When using the Stereo Attachments the normal exposure should be increased by a factor varying from 1.5 (for landscapes and similar distant subjects) to 1.8 (for close-up pictures). The lens opening should thus be increased by a half to whole f/stop, e. g. instead of f/8 set the aperture midway between f/5.6 and f/8, or even to f/5.6. Since the two half-images must always be alongside one another, the EXA Ia must always be held in the horizontal-format position to produce upright stereo pictures.

It is possible to assess the stereoscopic effect before taking the picture by fitting the "Stereflex" Stereo View Finder on to the EXA Ia: this produces a 3-dimensional image on the ground-glass screen. The "Stereflex" can also be used as a simple stereo viewer for 3-D slides; for this purpose the magnifying ground-glass screen is removed from the Stereo View Finder by grasping the longer sides of the screen and withdrawing it from its Clamping springs. Then insert the push-in frame provided into

the stereo viewer, ensuring that the small studs engage in the slots of the clamping springs.

### **Limitations on the use of the EXA Ia**

The EXA Ia is a highly-efficient single-lens reflex camera supplied at a remarkably moderate price. This has only been achieved by incorporating a relatively simple shutter, the design of which necessarily imposes a few restrictions on the employment of the camera; these restrictions will not limit the scope of the EXA Ia for the vast majority of users.

If, when using Bayonet Rings and Extension Tubes, the distance between the lens and the film plane is greater than 70 mm, then a narrow strip along the longer sides of the negative will remain unexposed (vignetting). When using standard lenses these areas of cut-off will be insignificant at extensions from 20 to 50 mm, so that a perfectly adequate area of the image field will

remain useable. It is not however advisable to use longer lens extensions, e. g. by employing our Bellows Attachments.

Similar vignetting can occur when using long-focus lenses, according to their type of construction. With long-focus lenses of standard design the cut-off will remain imperceptible at focal lengths of 70 to 100 mm, whilst marginal vignetting may become apparent with focal lengths longer than 100 mm. True telephoto lenses will give better results. It is advisable to test the selected lens for vignetting by placing a piece of ground glass over the film gate (30).

The design of the shutter also imposes certain limitations on the use of electronic flash units. When using extension tubes and long-focus lenses it is not possible to obtain flash synchronization at the 1/60 sec shutter-speed setting; as described in the Flash Photography section, the B-setting should be used in these circumstances. It should be repeated once again that the 1/30 sec speed setting is intended only for use with fast-burning flashbulbs and must not be used with electronic flash units.

If you require any more detailed information please consult your photographic dealer or ask us for advice and special leaflets, etc. Please write to us whatever your photographic interests may be.

We also recommend the following technical manual: "Foto-Exkursionen mit der EXA" by Werner Wurst (VEB Fachbuchverlag Leipzig).

The illustrations in this booklet may differ slightly in particular details from the models of the camera and its accessories supplied.

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