

**Kodak**

*Retina*

**III C**

with Large-size Finder



**Instructions for Use**

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You have made a wise choice: in your RETINA III C you have a miniature camera of the highest precision which has undergone the strictest tests. It thus satisfies all requirements for first-class results.

Your RETINA III C is definitely a quick-action camera with an ultra-fast 6-element f/2 lens of 50 mm focal length; interchangeable lens units for telephoto and wide-angle shots; a Synchro-Compur shutter with light value scale and speeds to 1/500 second; a built-in exposure meter; and a novel large-size view- and rangefinder with reflected image frames for different focal lengths. In addition, the RETINA III C features many other technical refinements which we shall go into in more detail on the following pages.

Like all RETINA models, the RETINA III C is easy to use. We would, however, advise you to make a point of studying this instruction booklet carefully. First practise the most important operations without a film in the camera; you will then already be on intimate terms with your RETINA III C by the time you come to take your first pictures.

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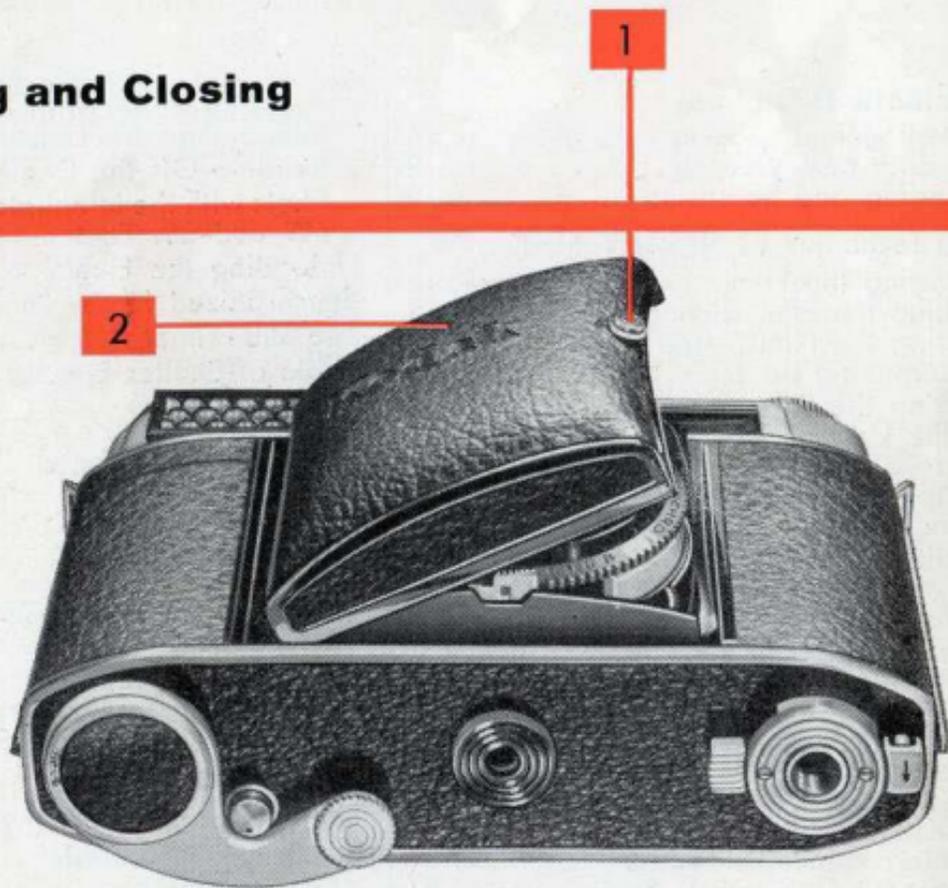
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## Opening and Closing

### The Basic Operations

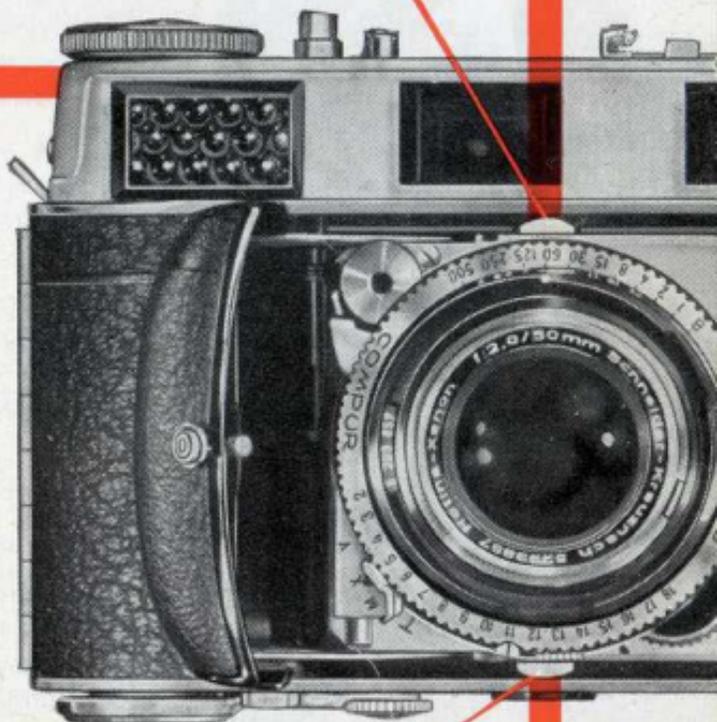


Open the camera by pushing the small button (1) on the baseboard (2) in the direction of the word "Kodak". At the same time pull open the baseboard until it engages with an audible click.

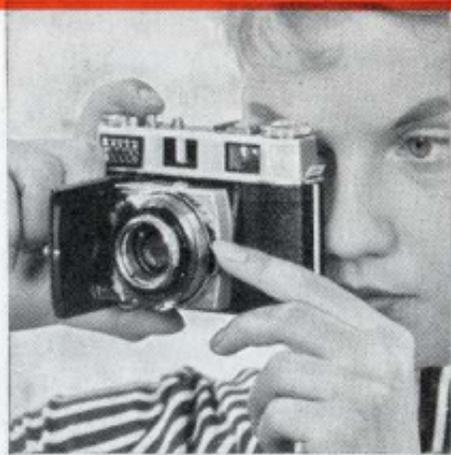
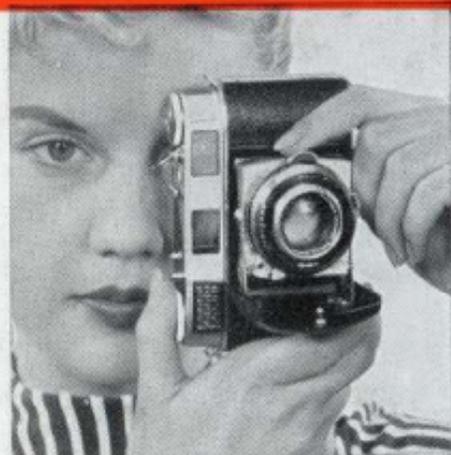
You can only close the camera when the focusing scale (9)\* is set to infinity. Simultaneously press in the two buttons (16) at the side of the lens panel with two fingers of one hand, and fold up the baseboard. Practise these operations a few times.

Feel how smoothly the RETINA III C opens and closes!

\* The numbers not shown on individual pages are indicated on the general view of the camera features on pages 42-45 (unfold page).



## Holding and Viewing



Now hold your RETINA with both hands and try different ways of gripping it until you have found a camera hold that suits you best. Our illustrations for horizontal and vertical shots are intended just as suggestions. After a few attempts you will soon have a really sure grip on it.

Look through the finder eyepiece (35): the new large-size view- and rangefinder shows you the subject in almost natural size. You will be agreeably surprised by the brilliant finder image.

The three reflected line frames indicate the appropriate field of view with the standard, telephoto, and wide-angle lenses respectively, and prevent faulty viewing.

Please note:

The middle line frame applies to the standard 50 mm lens;

the inner line frame applies to the 80 mm telephoto lens;

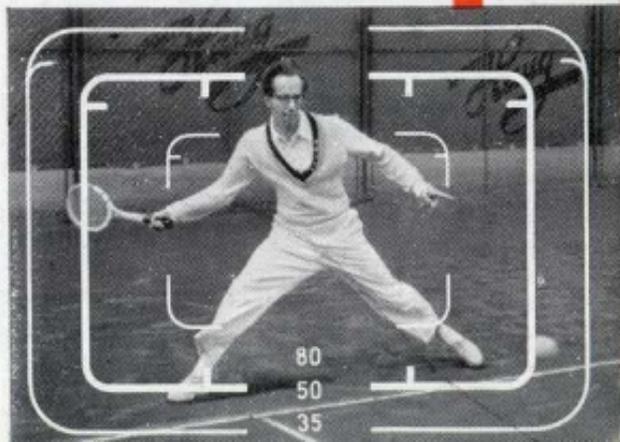
the outer line frame applies to the 35 mm wide angle lens.

For further details of the image frames for telephoto and wide angle shots see page 27, for setting the distance see page 22.

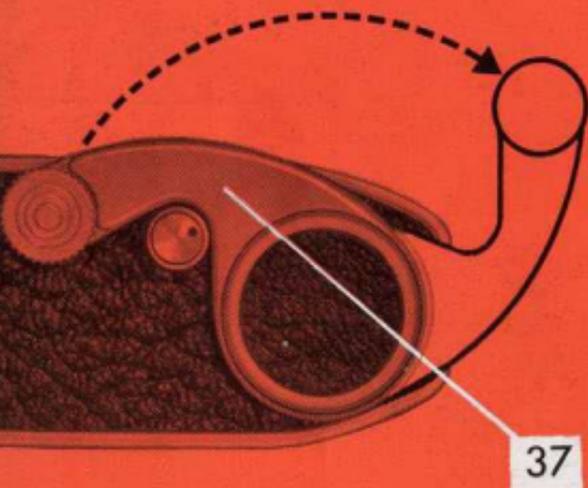
At near subject distances (closer than 8 feet) please note the remarks on page 37 about the parallax correction marks on each image frame.



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## Winding and Releasing



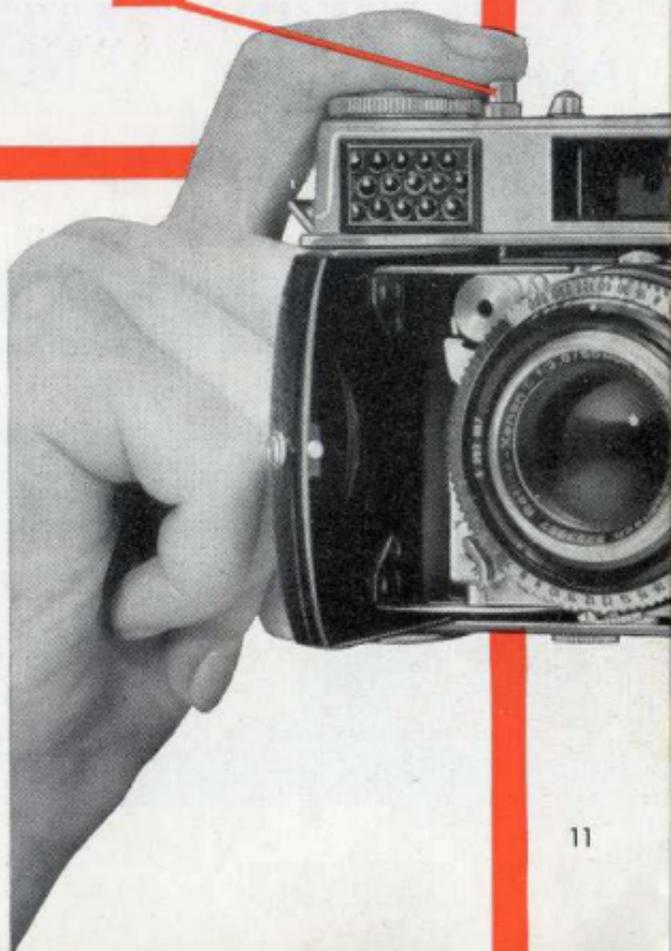
To tension the shutter, pull out the rapid winding lever (37) in one movement as far as it will go (see illustration). Then let it shoot back to its original position. If it should not fly back, it was not moved far enough. So pull out the rapid winding lever fully every time.

This movement tensions the shutter, and advances the film (if there is one in the camera) and the film counter (see page 14).

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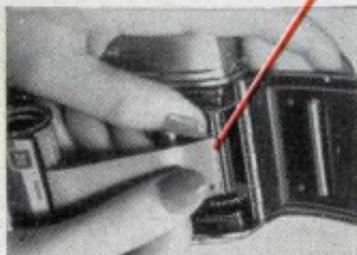
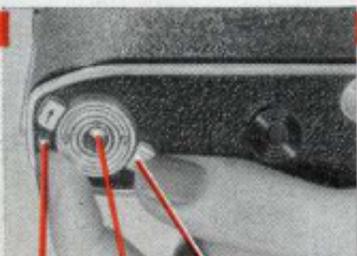
When you have your subject nicely framed in the viewfinder, press the release button (13) through. The particularly smooth action of the release of your RETINA effectively guards against camera shake.

You can only press the release button once you have tensioned the shutter. So make a habit of operating the rapid winding lever immediately after every exposure. Your RETINA is then always ready for action. Keeping the shutter tensioned – even for some time – does not harm it in any way.



# THE TECHNIQUE OF PICTURE TAKING

## Inserting the Film



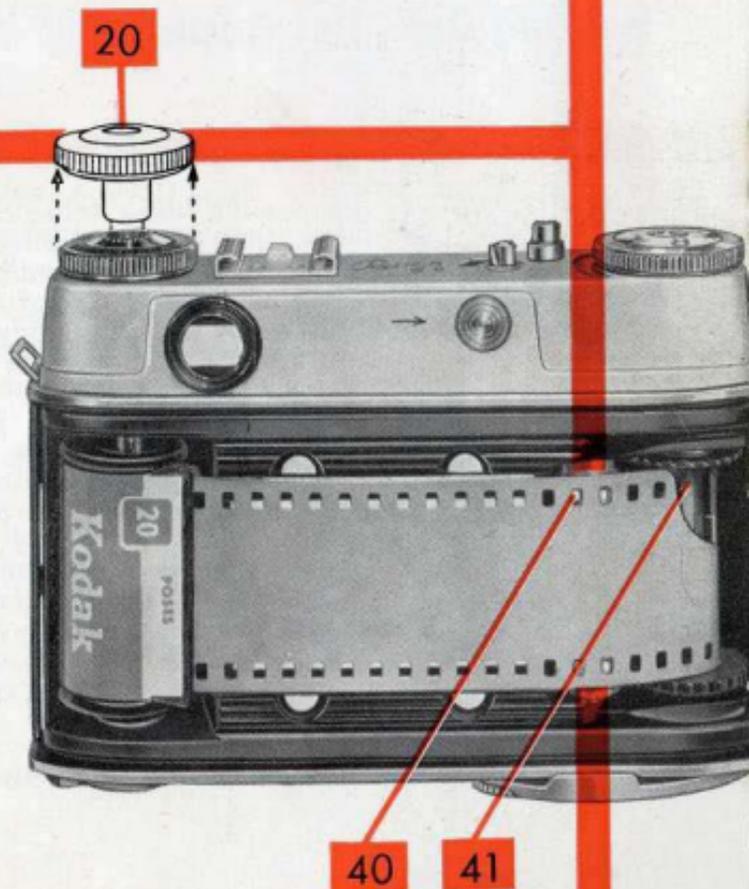
Your first shots will soon show the advantage of having practised the basic operations without a film in the camera. You have already got the feel of your RETINA, and can devote more attention to the subject itself. So let us start taking pictures in earnest.

To load the film you must open the camera back. Turn the milled end of the safety lever (34) surrounding the tripod bush (33) in the direction of the arrow to uncover the opening button (32). Depress this button, and the camera back will spring open. The advantage of this double locking system of the camera back is that you cannot open the back by any accidental movement or knock.

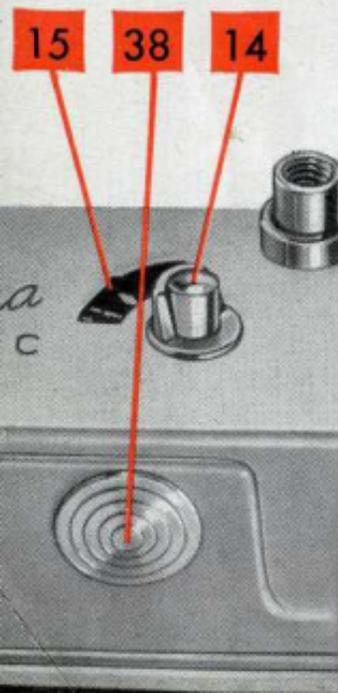
Fully pull out the rewind knob (20) **to its second stop.**

Turn the built-in take-up spool (41) by its serrated flange, until one of the slits in the spool core points upwards. Push the trimmed end of the film into this slit, so as to anchor a perforation hole in the little hook of the slit (see bottom illustration opposite).

Now draw the film across the film track, and insert the cassette into the cassette chamber. Push back the rewind knob (20), turning it at the same time in the direction of the arrow until you feel a slight resistance, thus tensioning the film. The teeth of the transport sprocket (40) must properly engage both rows of perforations of the film. Then close the camera back.



## Setting the Film Counter



Press the film release button (14) and at the same time push the film counter setting button (38) in the direction of the arrow. Repeat this until the diamond-shaped  $\blacklozenge$  mark between No. 1 and No. 36 of the film counter (15) is opposite the notch in the upper edge of the film counter window. With a 20-exposure cassette set the film counter to the diamond  $\blacklozenge$  mark at No. 23.

Now press the film release button (14) again, and operate the rapid winding lever (37). Repeat this until No. 36 (or 20) appears opposite the notch in the film counter window. At the same time, the rewind knob (20) must rotate against the direction of the arrow engraved on it. That shows that the film is advancing properly. If it does not rotate, tension the film again as described on page 13.

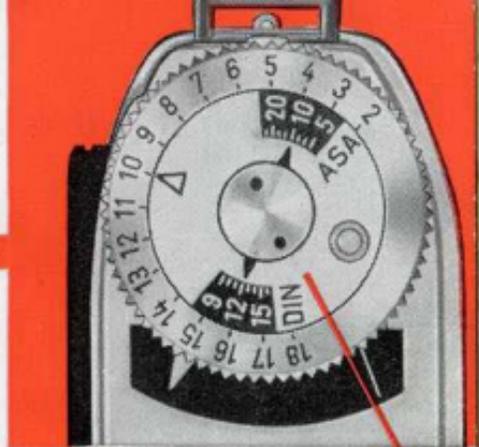
The film counter always indicates the number of shots still available. When you release the shutter after the counter has reached No. 1, an automatic transport lock comes into operation and the rapid winding lever locks. See the remarks on the film release on page 38. A guard on the film release button prevents accidental releasing.

## Setting the Film Speed

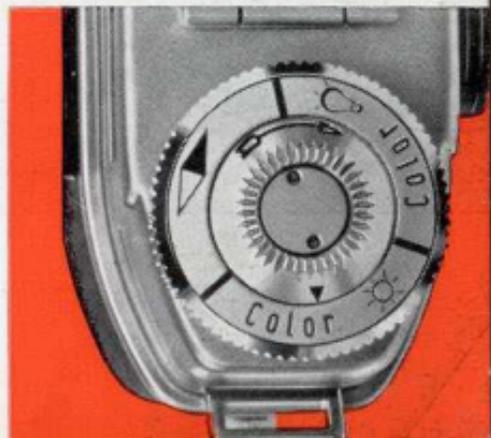
Set the speed of the film loaded in the camera on the film speed disc (11) of the exposure meter. **If you omit this setting, the meter may indicate incorrect light values, and thus lead to wrong exposures.** Use the small stud to rotate the film speed disc (11) until the black triangular index points to the appropriate speed figure of the film in one of the two windows. For instance use 10 for a 10 ASA film.

The film indicator (illustration below) on the rewind knob is also a useful memory aid. Turn the serrated ring until the triangular ▼ mark points to the type of the film loaded. **The position of this film indicator does not affect the exposure in any way.**

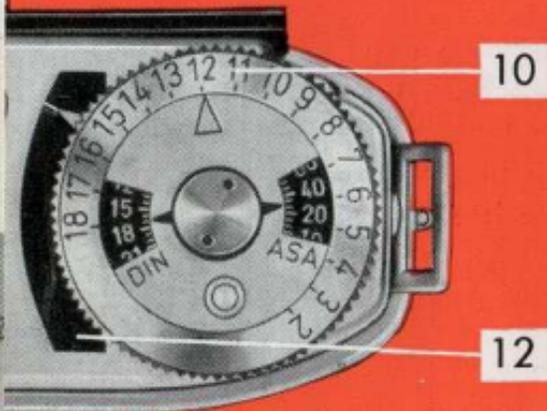
- ◀ = Black-and-white film
- Color ☀ = Daylight colour film
- Color ⚡ = Artificial light colour film



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## Determining the Light Value



Your RETINA III C has a single-range photo-electric exposure meter with precision scale built into the body. This eliminates a lot of calculations, for it indicates the correct "light value" for almost any subject. This light value is shown by a number (marked in red) which is a measure of the amount of light required for correct exposure.

The precision scale of the exposure meter enables you to read off **whole** as well as **intermediate** light values, which is important for accurate exposure with colour film.

Point the camera at the subject, taking care not to obscure the honeycomb lens of the exposure meter with your fingers. The white pointer of the meter will move in the window (12). Turn the meter setting ring (10) to move the **yellow** pointer until it coincides with the position of the **white** pointer when viewed from above. Now read off the light value opposite the red triangular index mark  $\Delta$  on the meter setting ring (10).

**For correct readings it is important first to set the meter to the appropriate film speed** (see page 15). The different ways of using the meter (reflected and incident light readings) are described on page 36.

## Setting the Shutter

### The Light Value Setting

For the exposure, set the light value scale (28) of the camera to the same number as you obtained by the exposure meter reading. Pull the light value setting lever (27) outwards and move it sideways, letting the pointer engage opposite the required light value figure (see illustration). If that should not be possible straightaway because the lever reaches the limit of its movement, rotate the shutter speed ring (6) until you can reach the measured light value. You can also set intermediate values, for example  $11\frac{1}{2}$ .

By setting the light value on the light value scale you have automatically coupled all the aperture-speed combinations you can select for correct exposure.

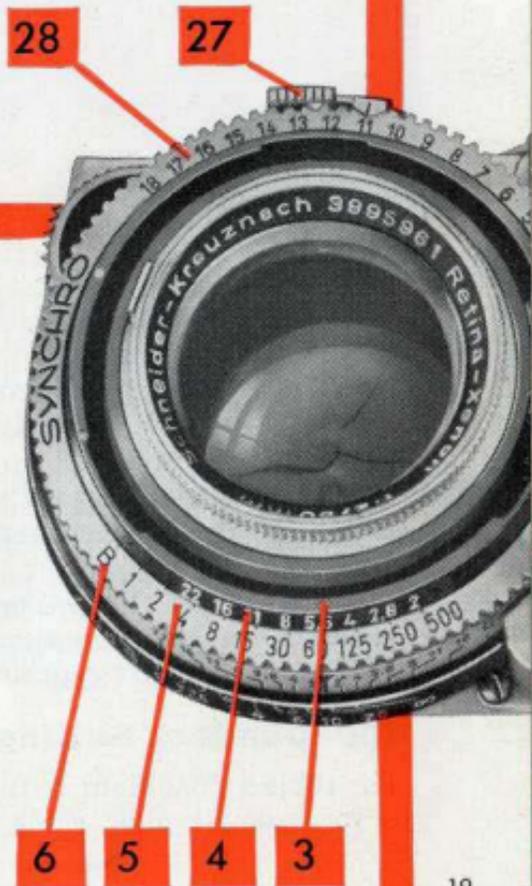
### Light Values and the Aperture-Speed Coupling

The shutter speeds are marked on the shutter speed scale (5). The figures indicate fractions of a second, for instance 2 stands for  $\frac{1}{2}$  second, 125 for  $\frac{1}{125}$  second, and so on. The B setting is used for time exposures of over

1 second. When set to B, the shutter remains open as long as you keep the release button depressed. The apertures (f/ numbers) are found on the aperture scale (4); the figures are relative lens openings. Thus f/2 is the largest, and f/22 the smallest lens opening. So remember: the higher the aperture number, the smaller the lens opening. The choice of the lens aperture is closely connected with the depth of field required (see page 23).

If, for instance, you have set a light value of 11 and you rotate the shutter speed ring (6), you can read off the following aperture-speed combinations in turn opposite the index mark (3):

<b>Aperture f/</b>	22	16	11	8	5.6	4	2.8	2
<b>Shutter speed</b>	1/4	1/8	1/15	1/30	1/60	1/125	1/250	1/500



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The choice of the most suitable aperture-speed combination will depend on the subject. Fast moving subjects call for short exposure times to avoid movement blur. For example if you want to take a sports shot at  $\frac{1}{500}$  second, turn the shutter speed setting ring until the index mark (3) is opposite 500. The aperture automatically adjusts itself to f/2.

On the other hand, if you require great depth of field, for instance in an architectural view, set an appropriate high aperture number (small aperture), e.g. f/16. The shutter speed will again follow suit automatically, and reset itself to  $\frac{1}{8}$  second.

**In all cases the light value, and thus the amount of light reaching the film, remains absolutely constant.** The shutter speed ring engages at each setting, thus ensuring exact exposure times.

### **Independent Settings**

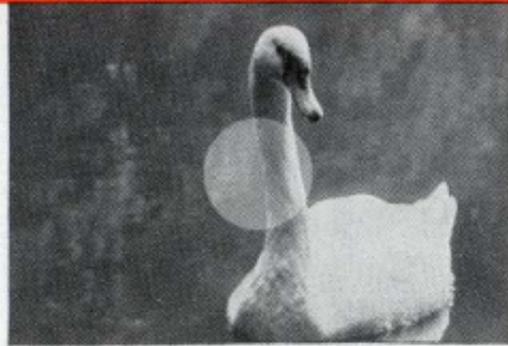
For subject conditions outside the range of sensitivity of your exposure meter – for example night shots, or flash pictures – you have to set the exposure

without reference to light values. In that case set the **shutter speed first**, and then the aperture. If you do it the other way round, the aperture-speed coupling would alter the aperture when setting the shutter speed.

Therefore first rotate the shutter speed setting ring (6) until the required speed is opposite the index mark (3). Then pull the light value setting lever outwards as already described, and move it sideways until the aperture to be set is also opposite the index mark (3). Even when you have set the exposure in this way, you can use the aperture-speed coupling to adjust the shutter speed and aperture together at will by turning the shutter speed setting ring.

If the shutter speed setting ring reaches the limit of its movement during adjustment, this indicates that the lighting conditions are not suitable for the aperture or speed you intended to use.

## Setting the Distance



When you look through the eyepiece (35) of the large-size view- and rangefinder, you will see a round rangefinder field appearing specially bright in the centre of the finder image. As long as the distance is not accurately set, part of the image appears with double outlines inside this rangefinder field. Therefore move the focusing knob (31) until the outlines of the double image **fuse into one**. Your camera is then correctly focused. For setting the distance with the interchangeable lenses see pages 28 and 29.

## The Depth of Field Scale

The lens reproduces sharply not only that part of the subject on which it is actually focused, but also a certain zone in front and behind. This zone is known as the depth of field.

You can instantly read off the depth of field for any aperture and distance on the depth of field scale (8) arranged symmetrically around the focusing index (7). For instance, if you have set the distance to 8 feet (see illustration on the right) you read off the depth of field at  $f/11$  from the two corresponding index lines:  $5\frac{1}{4}$  feet on the left, and about 20 feet on the right. This then tells you that with the distance set to 8 feet and the aperture to  $f/11$ , you have a depth of field zone from about  $5\frac{1}{4}$  to 20 feet. Within this zone everything will be sharp.

The depth of field scale also shows you that the zone of sharpness increases the smaller the aperture used, and the greater the subject distance.



## Focusing Zones



Your RETINA III C has two zone focus settings. With these you do not have to set the distance afresh for every shot, provided the subject keeps within the quite appreciable region covered by the depth of field.

### a) The Near Focusing Zone

For near subjects set the distance to the small circle near the 10 feet mark, and the aperture to f/8. This yields a depth of field from about 6½ to 20 feet.

### b) The Far Focusing Zone

For more distant subjects set the scale to the small circle corresponding to 20 feet, and the aperture to f/8. You then have at your disposal a zone of sharp focus from about 10 feet to infinity.

For the zone focus settings you must, however, have enough light to permit a sufficiently fast shutter speed at an aperture of f/8. On that point consult your exposure meter: for example, a light value of 12 corresponds to 1/60 second at f/8.

## The Interchangeable Lenses of the RETINA III C

The interchangeable lens system of the RETINA extends your scope to cover the interesting fields of tele and wide-angle photography. Do not miss this fascinating opportunity!

With the standard RETINA **Xenon C** lens only the **interchangeable** RETINA **Xenon C** units can be used. Similarly, the **interchangeable** RETINA **Heligon C** units must only be used with the standard RETINA **HELIGON C** lens. When changing lenses, also be sure not to change the standard lens removed from your RETINA III C against that from another RETINA. The serial number engraved on the lens must be identical with the serial number engraved on the bayonet mount of the camera.

You have the choice of the following interchangeable units:

- For telephoto shots:** The 80 mm RETINA Longar Xenon C f/4 or RETINA Heligon C f/4 respectively.
- For wide-angle photography:** The 35 mm RETINA Curtar Xenon C f/4 or RETINA Heligon C f/4 respectively, or  
The 35 mm RETINA Curtar Xenon C f/5.6 or RETINA Heligon C f/5.6 respectively.

The most important hints for photography with the interchangeable lenses are summed up on the following pages. In addition, detailed instructions are enclosed with every interchangeable lens. Here is one point of immediate importance: with the interchangeable lenses you can use the same light value settings as with the standard lens, provided that the aperture **value** is not lower than 4 (with the interchangeable f/4 lenses) or 5.6 (with the interchangeable f/5.6 units) respectively.

## Removing and Inserting the Lens



The front component of the RETINA lens is interchangeable. To remove the standard lens, rotate it anti-clockwise as far as it will go, and lift out of the shutter. We recommend the use of the special lens container designed for the standard lens for easy changing and convenient storage.

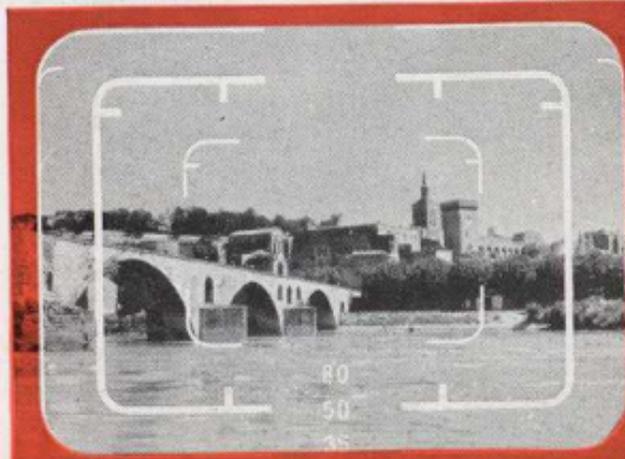
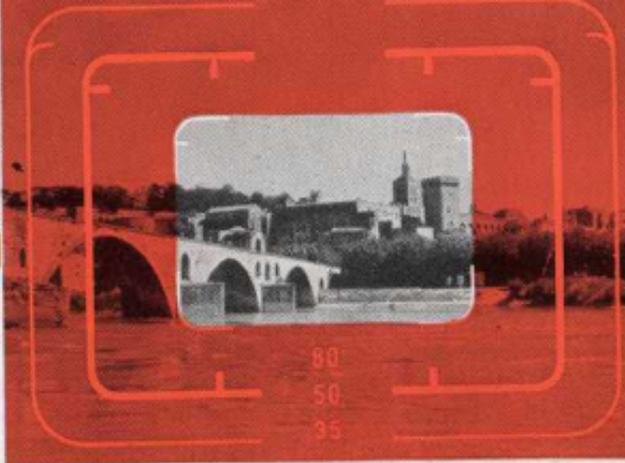
To insert the alternative lens unit in the camera, place the red dot on the mount of the lens (18) opposite the red dot on the bayonet fitting (19), as in the illustration. Then turn the lens clockwise as far as it will go, to engage the bayonet lock. To remove the alternative lens unit again, proceed as described above.

## The Large-size View- and Rangefinder

The new large-size view- and rangefinder for a series of focal lengths greatly simplifies photography with the interchangeable lenses. While previously an accessory multiple finder was necessary to determine the field of view, the reflected image frames of the new multiple combined view- and rangefinder instantly show the correct field for tele and wide-angle shots.

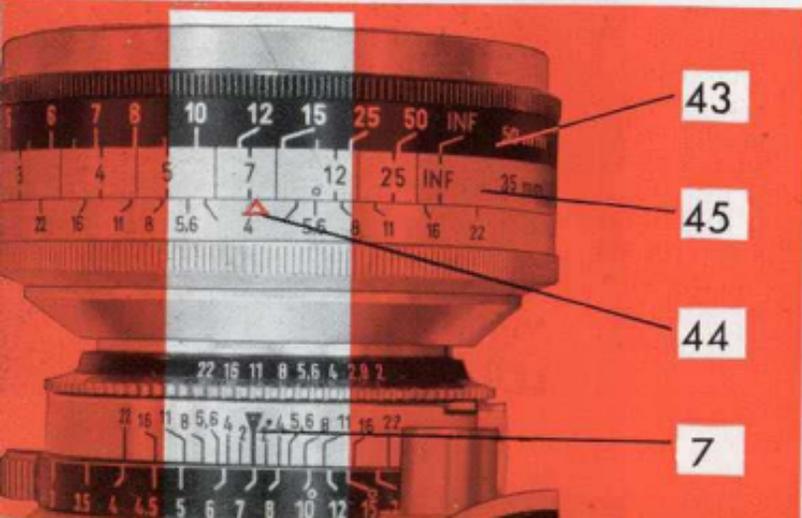
The **inner brilliant frame** outlines the field area for **telephoto exposures** (see top illustration), the **outer brilliant frame** the view for **wide-angle shots** (see bottom illustration). You therefore see at the same time which lens is the most suitable one for any given subject.

The marks on the image frames serve for parallax correction with near subjects closer than 8 feet (see page 37).



## Setting the Distance

When photographing with the interchangeable lenses, first measure the subject distance as described on page 22, and read off the figure obtained on the distance scale (9) of the camera opposite the focusing index (7). Then set this figure on the white scale ring of the alternative lens unit (45) opposite the red triangular index (44). This scale ring is marked in red "35 mm." on the wide-angle lens, and "80 mm." on the telephoto lens.



Now read off the distance figure on the **black scale** (43) of your alternative lens unit opposite the red triangular index. **Set the same figure on the distance scale of the camera opposite the focusing index (7).** The alternative lens is now sharply focused at the measured distance.

For example (see illustration on the left) you are shooting with the wide-angle lens, and with the large-size view- and rangefinder have found the subject distance to be 7 feet. On the white scale of the wide-angle lens (45) therefore set the figure 7 opposite the red triangular index mark (44). On the black scale (43) you read off approximately 13 feet opposite the triangular index. Now set this figure opposite the focusing index (7) of the camera.

## Setting Interchangeable Lenses without Comparison Scales

If you have an alternative RETINA lens without comparison scale, use the two scales below the lens panel on the camera, on the other side of the distance scale, for focusing (see illustration). Move the focusing lever (31) to set the distance for **wide-angle shots opposite the ▲ mark (29)** on the white scale (30) (black figures on white), and for **telephoto shots opposite the T-index mark (24)** on the black scale (26) (white figures on black). The zone focus settings for the wide-angle lens (O at 10 feet) and for the telephoto lens (O at 50 feet for the far zone, and O at about 15 feet for the near zone) are also marked on these two scales. The yellow figures on the black telephoto scale (25) are for exposures with the telephoto lens in conjunction with the T 1/60 close-up lens at distances between 6 and 3½ feet.

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## **Focusing Zones with the Interchangeable Lenses**

### **1. The Wide-angle Lens**

The zone focus setting is marked on your wide-angle lens by a black circle. Set this circle opposite the red triangular index (44), you can then read off approximately 20 feet on the black scale ring (43).

With the aperture set to  $f/11$ , you then have a depth of field zone from about  $5\frac{1}{2}$  feet to infinity (see left-hand illustration on page 31). Finally set the distance scale (9) of your RETINA III C to 20 feet.

### **2. The Telephoto Lens**

Your telephoto lens carries two zone focus settings marked by two black circles:

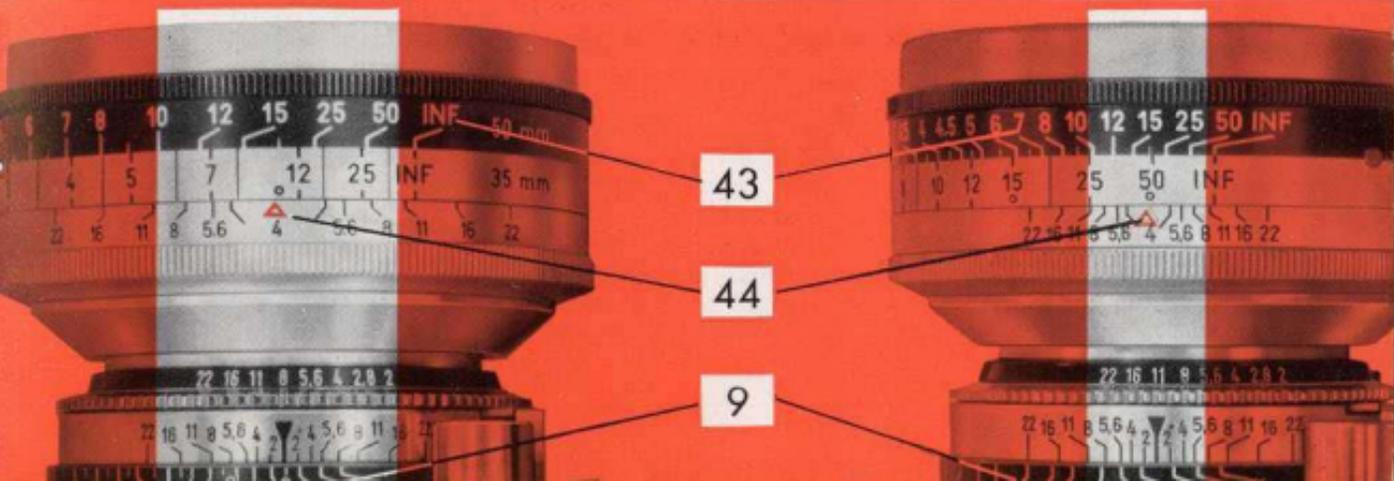
#### **a) The Near Focusing Zone**

Set the black circle near the 15 feet mark to the red triangular index (44). The black scale ring (43) of the telephoto lens then indicates a distance of about 6 feet.

Now set the distance scale (9) of your RETINA at about 6 feet. With the aperture set to f/11, this yields a depth of field zone from about 12 feet to 23 feet.

### b) The Far Focusing Zone

If you set the black circle near the 50 feet mark to the red triangular index (44), you can read off 20 feet on the black scale ring (43) of the telephoto lens. With the aperture set to f/11, you then have a depth of field zone from about 25 feet to infinity (see right-hand illustration below). Finally set the distance scale (9) of your RETINA III C to 20 feet.



## Reading Off the Depth of Field

If you wish to know the depth of field at your disposal, read off the distance measured by the large-size view- and rangefinder opposite the focusing index (7) of your RETINA III C, and set this figure on the white scale ring (45) of the alternative lens opposite the red triangular index (44).

**To the left and right** of the red triangular index you can now read off the depth of field limits for the various aperture settings on the **white scale ring (45)** of the alternative lens.

**Note:** The reference Nos. 43 to 45 apply only to parts of the alternative lens units, and do not therefore appear in the survey of the camera features on pages 42-45.



## Shots with the telephoto lens between 6 and 3 1/2 Feet

The telephoto lens covers subject distances from infinity to 6 feet. With the T 1/60 close-up lens fitted in front you can also take telephoto shots of subjects between 6 and 3 1/2 feet (e.g. portraits to avoid perspective distortion). Set the distance in exactly the same way as described on page 28 for the interchangeable lenses, but in this case use the **yellow figures** on the white scale (45) to obtain the figure to which the distance scale of the camera must be set.

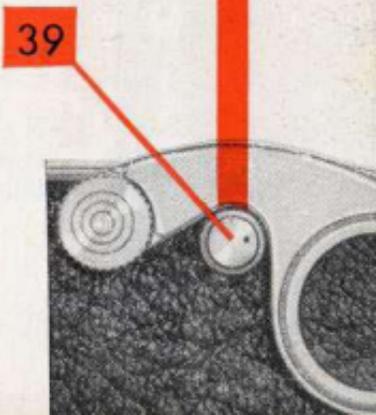
## Unloading the Film



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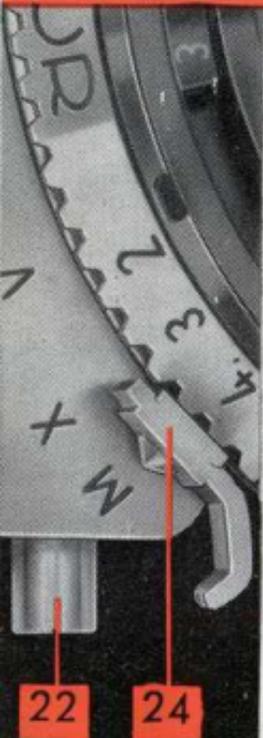
To rewind the exposed film, depress the reversing button (39) in the base of the camera, and half pull out the rewind knob (20) **to its first stop** to get at it more easily.

Turn the rewind knob in the direction of the arrow until the reversing button ceases to rotate. This button carries a black dot near its edge for easier observation. You have now rewound the film into its cassette. Open the camera back (see page 12), fully pull out the rewind knob, and remove the cassette from the film chamber. The exposed film is best protected against the light in its original packing. In any case do not load or unload a film in full sunlight or strong artificial light, to avoid possible fogging.



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## Synchronized Flash



The shutter of your RETINA III C is **speed-synchronized**; you can take flash shots at all shutter speeds up to the fastest setting of  $1/500$  second with any flash bulb or electronic flash unit on the market.

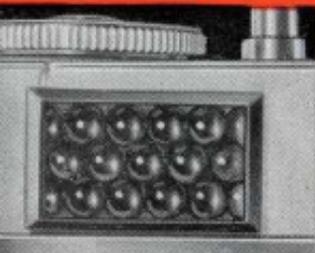
The holder of the flash socket (22) carries three letters engraved on it: **M, X, and V**. M and X are synchronizing settings for flash, while V is the self-timer setting. The flash is fired on pressing the shutter release button of the camera. You must of course first connect the flash gun to the flash socket (22) of the camera. Our table (see page 35) or the data of the flash bulb manufacturer will indicate the suitable shutter speeds and the synchronizing setting (X or M) of the green synchronizing lever (24) required in each case. For electronic flash the green lever must always be set to X.

The aperture to be used can be obtained from the so-called guide number included with each package of flash bulbs. Divide this guide number by the distance to obtain the aperture;

$$\text{for instance, } \frac{\text{guide number } 96}{\text{distance of 12 feet}} = \text{aperture } f/8.$$



## IMPORTANT HINTS



Reflected Light Readings



Incident Light Readings

### Reflected and Incident Light Readings

The exposure meter of your RETINA III C can be used for reflected light readings and for incident light readings.

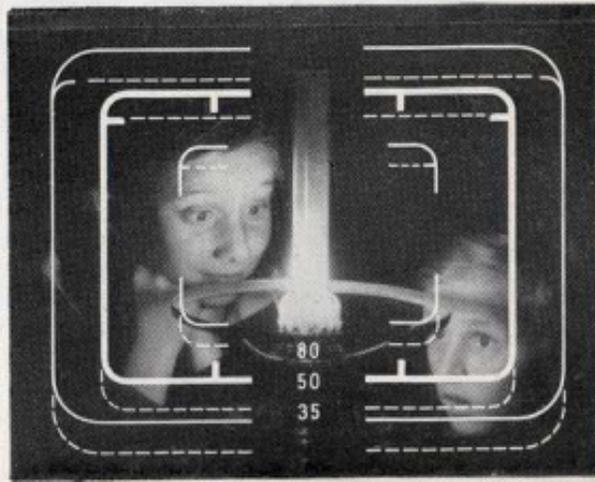
**Reflected light readings** are taken from the camera position towards the subject as described on page 17. You therefore measure the light **reflected** from the subject. This is the most usual method, and gives reliable exposures when the light is behind, or to one side of, the camera. If the scene includes great brightness differences, do not point the exposure meter at too bright or too dark a part of the subject, but choose an area of average tone. Do not tilt the camera upwards when taking a reading, otherwise your exposure meter will measure the brightness of the sky instead of the subject, and give misleading readings.

**Incident light readings** are taken in the reverse direction, with the meter pointing from the subject towards the taking position. This is the more accurate method, for it directly measures the light actually reaching the subject. **For incident light readings the diffusing screen must always be fitted over the cell** (see bottom left illustration).

The diffusing screen is normally carried in the loop of elastic in the lid of the ever-ready case. Incident light readings are particularly suitable for determining the exact light value with against-the-light subjects and snow scenes as well as close-ups of small objects.

### Close-up Parallax

The reflected line frame in the finder makes accurate framing of the subject really easy. This is particularly important with colour shots, as you cannot normally crop a colour transparency. At subject distances below 8 feet it becomes necessary to compensate for parallax. For that purpose take an imaginary line between two opposite marks on the line frame of, for instance, the standard lens (dotted in the illustration) as the upper limit of the field of view at  $2\frac{3}{4}$  feet. At distances beyond  $2\frac{3}{4}$  feet this limit gradually moves upwards, until it coincides with the edge of the line frame itself for subjects at 8 feet and over. Similarly, use the dotted lines on the line frames of the alternative lens units as the limits of the field of view at the corresponding nearest focusing distances.



## The Film Release

If you forgot to set the film counter when loading the film (see page 14), it may happen that the film counter reaches No. 1 before the film is finished. At No. 1, however, the rapid winding lever automatically locks. You then have to re-adjust the film counter accordingly to enable you to work the rapid winding lever again and advance the film.

If the film is finished before the film counter reaches No. 1, the rapid winding lever may stop in a half-way position. If you cannot pull it out completely, press the film release button (14) to make it fly back.

## Deliberate Double Exposures

The double exposure lock of the RETINA III C prevents accidental double exposures. To make a double exposure for special effects, press the reversing button (39) after the first exposure, and keep it depressed while tensioning the shutter with the rapid winding lever (37). The film then remains in position for a second exposure on the same frame. The film counter then indicates **one frame more** than you have in fact exposed.

## Changing Partly Exposed Films

If you want to change a film already partly exposed, against another one, rewind the film in the camera into its cassette (see page 33). However, take care not to wind the trimmed film leader fully into the cassette (stop rewinding immediately the reversing button (39) ceases to rotate), and **note on the film leader the number of the last exposure read off the film counter.**

When reloading the partly exposed film proceed as described on page 12. As

before, set the film counter to the † mark near No. 20 or No. 36, according to the number of exposures. Close the camera back, and advance the film by alternately working the rapid winding lever (37) and pressing the **film release button (14)**. **On no account press the shutter release.** Carry on until the film counter indicates the same number at which you unloaded the film. To be on the safe side, advance the film by an extra frame.

## **Infra-red Photography**

For shots on infra-red film use the small red dot, to the right of the normal focusing index (7) on the depth of field scale, as the focusing index. An infra-red filter must also be used in front of the lens.

## **Eyesight Correction**

The eyepiece of the RETINA is designed to permit easy viewing of the whole finder image even when wearing spectacles. For users with defective eyesight (other than astigmatism) who do not wear spectacles a correction lens is available to special order (please state + or - dioptres required) for clearer vision of the finder image. This lens simply screws into the finder eyepiece mount.

## **Care of the Camera**

Protect your lens against injury, and avoid touching the glass surfaces. The best means of cleaning the glass surfaces and the finder eyepiece is a soft rag as used for cleaning spectacle lenses. Careful treatment especially of these parts of your RETINA III C will ensure really brilliant pictures. Clean also the film track and film chambers occasionally with a soft brush to remove any accumulated dust.

## **MORE SCOPE WITH ACCESSORIES**

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The world-wide fame of the RETINA is based as much on its recognized precision as on its versatility. Here we can mention only briefly the many fields of application, and refer you to our detailed general catalogue "The RETINA and its System", available free from your photo dealer or from us.

### **The Lens Hood and Filters**

A handy lens hood is available for your RETINA, and is just as indispensable an accessory as the various filters for black-and-white and for colour photography. Note the light value corrections given on page 46 when using filters.

### **The Close-up Rangefinder**

The RETINA close-up rangefinder with its two supplementary N-lenses opens up a fascinating world of small subjects. It permits close-ups over a range from about 38 to 12 inches.

### **The Close-up Attachment**

With the aid of four sets of distance gauges and three supplementary R-lenses this will take close-ups on a scale of reproduction from 1:4.5 to 1:1.5 at distances from about 13 to 6 inches. The close-up attachment is specially useful for near shots of live subjects such as insects and butterflies.

### **The Table Stand**

The highly versatile table stand has been designed for close-ups of subjects which require longer exposure times, and for all shots (especially interiors) where quick setting up and absolute steadiness of the camera are important.

### **The Copying Stand**

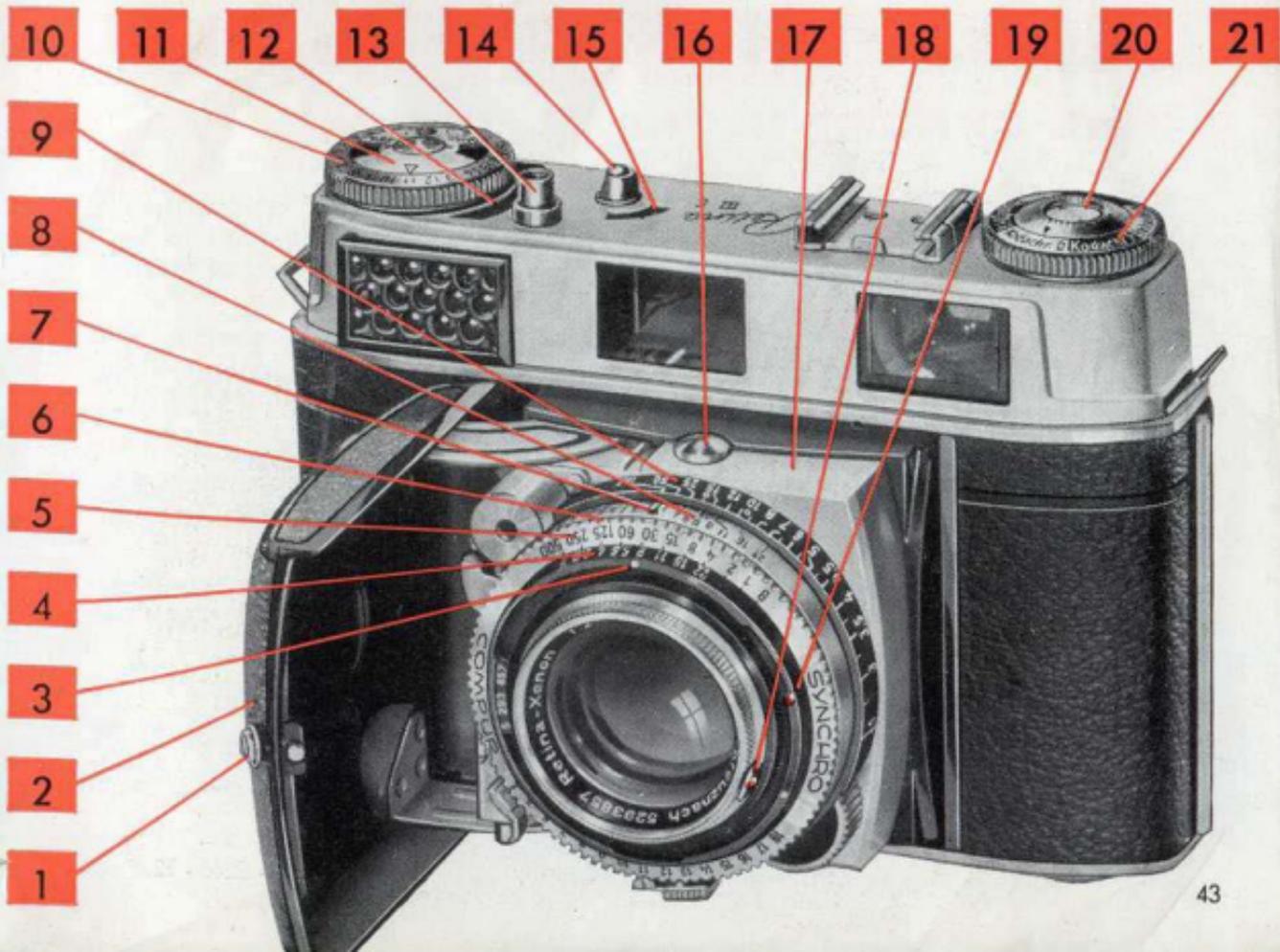
For quick and convenient copying of documents, important letters, valuable prints, books, and collector's items from about 6 x 8 inches to 8 x 12 inches large, use the copying stand. A special lighting unit is available separately.

### **The KODABLITZ**

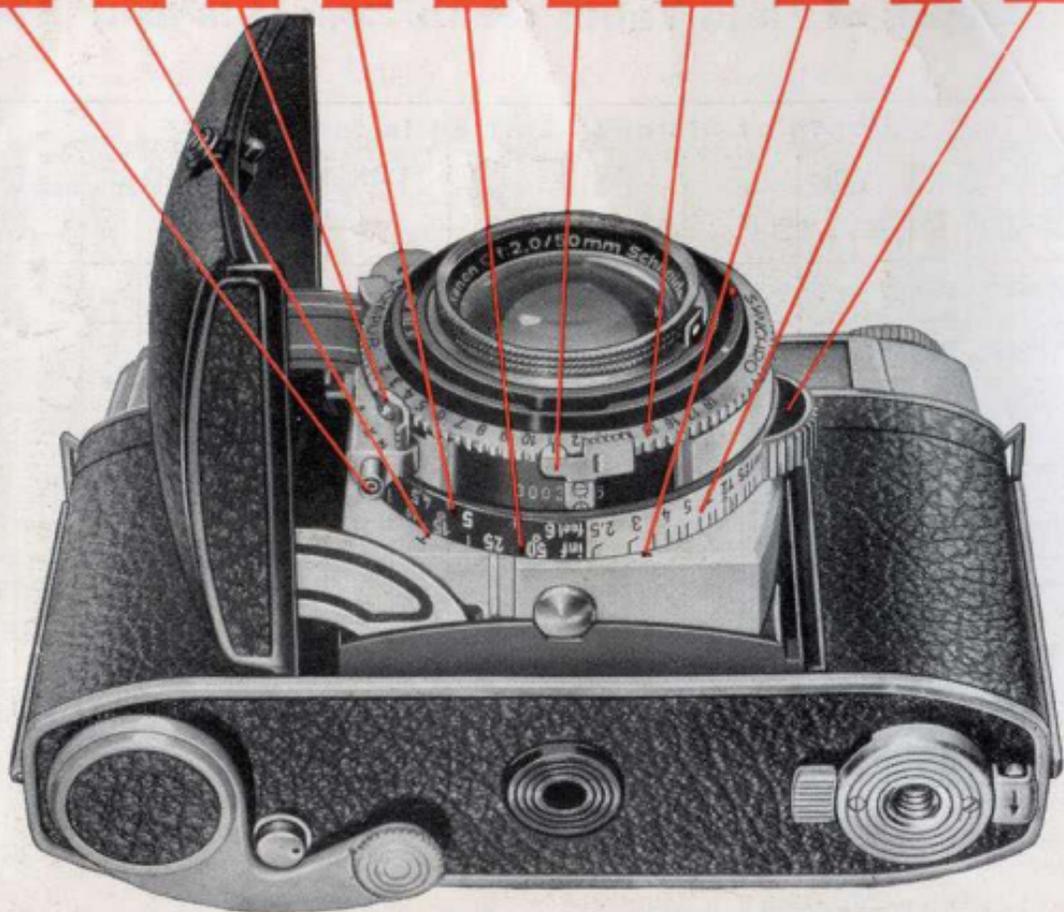
Be ready for action with your RETINA at any time and in any light: get the handy KODABLITZ flash gun with its grained soft-light reflector. It fits either into the accessory shoe, or it can be fixed to the tripod bush of your camera by means of a flash bracket. The 22.5 volt anode battery of the KODABLITZ will also feed two or three extension units without an additional power source.

## The Camera Features

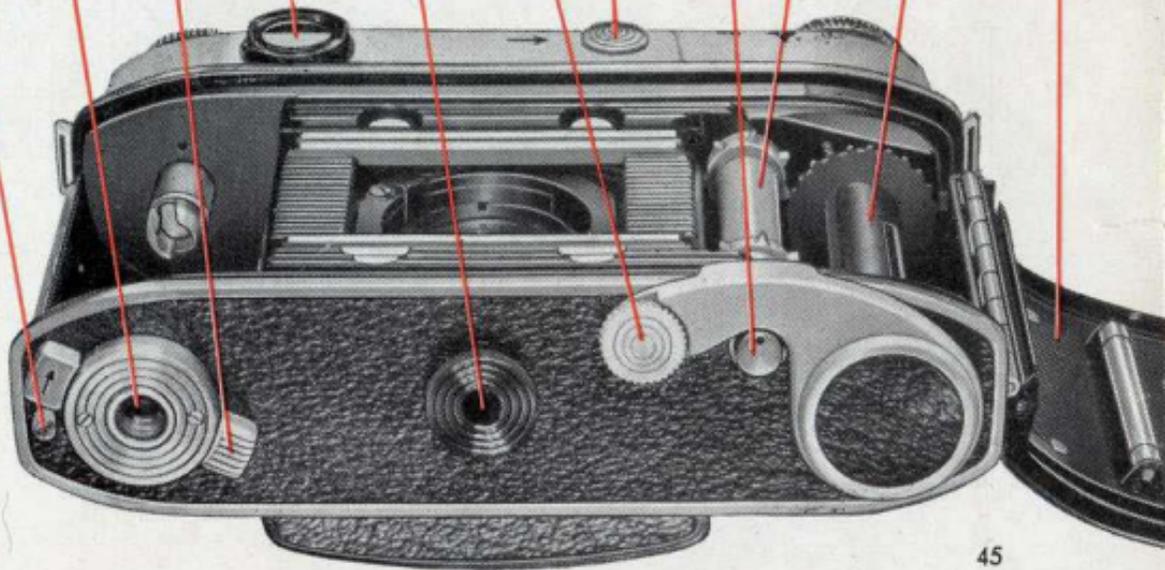
- |    |  |    |  |
|----|--|----|--|
| 1  | Button to open camera front                    | 23 | Focusing index for tele lens                           |
| 2  | Baseboard                                      | 24 | Green synchronizing and self-timer lever               |
| 3  | Setting index for apertures and shutter speeds | 25 | Distance scale for tele lens with T 1/60 close-up lens |
| 4  | Aperture scale                                 | 26 | Distance scale for tele lens                           |
| 5  | Shutter speed scale                            | 27 | Light value setting lever                              |
| 6  | Shutter speed setting ring                     | 28 | Light value scale                                      |
| 7  | Focusing index                                 | 29 | Focusing index for wide-angle lens                     |
| 8  | Depth of field scale                           | 30 | Distance scale for wide-angle lens                     |
| 9  | Distance scale                                 | 31 | Focusing knob  |
| 10 | Exposure meter setting ring                    | 32 | Button to open camera back                             |
| 11 | Film speed disc of exposure meter              | 33 | Tripod bush  |
| 12 | Exposure meter cell                            | 34 | Safety lever for button 32                             |
| 13 | Shutter release button                         | 35 | Eyepiece of large-size view- and rangefinder           |
| 14 | Film release button                            | 36 | Locating hole for accessories                          |
| 15 | Film counter                                   | 37 | Rapid winding lever                                    |
| 16 | Button to close camera                         | 38 | Button to set film counter                             |
| 17 | Lens panel                                     | 39 | Reversing button                                       |
| 18 | Red dot on lens mount                          | 40 | Transport sprocket                                     |
| 19 | Red dot on bayonet mount of camera             | 41 | Built-in take-up spool                                 |
| 20 | Rewind knob                                    | 42 | Camera back  |
| 21 | Film indicator                                 |    |  |
| 22 | Flash socket                                   |    |  |



22 23 24 25 26 27 28 29 30 31



32 33 34 35 36 37 38 39 40 41 42



## Light Value Correction with Filters

Colour filters are indispensable for good pictures – the range covers colours from light yellow to blue. As you may know, most filters have a so-called filter factor according to the density of the filter. You can allow for this factor on the light value scale.

Filter		Factor	Reduce Light Value Setting by
Light yellow	F I	1½ x	1½
Medium yellow	F II	2 x	1
Yellow green	F III	2 x	1
Orange	F IV	3 x	½
Red	F V	7 x	3 (2¾)
Blue	F VI	2½ x	1½ (1¼)
Ultra-violet	-	-	-
Polarising filter	-	2½ x	1½ (1¼)

There are also special filters for KODACHROME film.

Aperture	2 ½		3		3 ½		
	from	to	from	to	from	to	fr
2	2'5"	2'7"	2'11"	3'1"	3'4"	3'8"	3'
2,8	2'5"	2'8"	2'10"	3'3"	3'4"	3'9"	3'
4	2'5"	2'8"	2'10"	3'3"	3'3"	3'10"	3'
5,6	2'4"	2'9"	2'9"	3'4"	3'2"	4'	3'
8	2'3"	2'10"	2'8"	3'6"	3'	4'3"	3'
11	2'2"	3'	2'6"	3'9"	2'10"	4'6"	3'
16	2'1"	3'3"	2'4"	4'2"	2'8"	5'4"	2'
22	1'11"	3'7"	2'1"	4'10"	2'5"	6'8"	2'

## Depth of Field Table (Sharp Zones \* in feet)

Depth at Distance Setting in feet																									
4		4 1/2		5		6		7		8		10		12		15		25		50		INF			
m	to	from	to	from	to	from	to	from	to	from	to	from	to	from	to	from	to	from	to	from	to	from	to	from	to
0"	4'2"	4'3"	4'9"	4'9"	5'4"	5'7"	6'6"	6'5"	7'8"	7'3"	8'11"	8'9"	11'6"	10'3"	14'3"	12'5"	18'9"	18'6"	38'	29'	166'	70'9"	INF		
3"	4'4"	4'2"	4'11"	4'7"	5'6"	5'4"	6'9"	6'2"	8'	7'	9'4"	8'4"	12'3"	9'9"	15'5"	11'8"	20'10"	16'10"	48'	25'	220'	51'	INF		
6"	4'5"	4'2"	5'1"	4'6"	5'10"	5'3"	7'1"	5'11"	8'6"	6'8"	10'1"	8'	13'6"	9'1"	17'7"	10'7"	25'3"	14'9"	81'	20'10"	INF	35'10"	INF		
9"	4'8"	3'11"	5'4"	4'3"	6'1"	5'	7'8"	5'7"	9'5"	6'3"	11'8"	7'3"	16'	8'3"	21'11"	9'7"	35'	12'9"	91'5"	16,11"	INF	25'7"	INF		
12"	4'11"	3'9"	5'10"	4'	6'8"	4'8"	8'8"	5'2"	11'	5'8"	13'10"	6'6"	21'6"	7'4"	34'6"	8'4"	85'	10'7"	INF	13'4"	INF	18'	INF		
15"	5'6"	3'6"	6'9"	3'9"	7'10"	4'3"	10'3"	4'8"	14'9"	5'1"	20'5"	5'9"	43'9"	6'4"	192'	7'2"	INF	9'	INF	10'3"	INF	12'9"	INF		
18"	6'8"	3'2"	8'	3'5"	10'7"	3'9"	16'	4'2"	27'6"	4'5"	57'6"	4'11"	INF	5'4"	INF	5'10"	INF	6'10"	INF	8'	INF	9'2"	INF		
21"	9'	2'10"	12'	3'1"	17'7"	3'4"	49'	3'7"	INF	3'10"	INF	4'2"	INF	4'5"	INF	4'10"	INF	5'5"	INF	6'	INF	6'10"	INF		

The distances are measured from the film plane.

\* The depth of field is calculated for a circle of confusion of 1/500 inch.

## **A Final Point:**

# **KODACHROME IN THE RETINA**

KODACHROME film is easy to use right from the start. If you have ever taken black-and-white pictures, you only have to follow a few simple rules to turn out successful color shots without the costly "experience" of loads of wasted films.

**Direct color enlargements** from your successful color transparencies are the latest KODACHROME development. Kodak color prints are supplied ready for mounting in your album in the following sizes: 2½ x 3½", 3½ x 5", 5 x 7", 7 x 10" and 10 x 13".

**The finished mounting** of your transparencies, ready for projection, saves you both time and money. The KODACHROME processing service returns your finished slides right to your doorstep.

**The outstandingly faithful color rendering** of KODACHROME film is mainly responsible for its great popularity. Once you have tried KODACHROME film, you will always stick to it.

**K O D A K A G · S T U T T G A R T - W A N G E N**