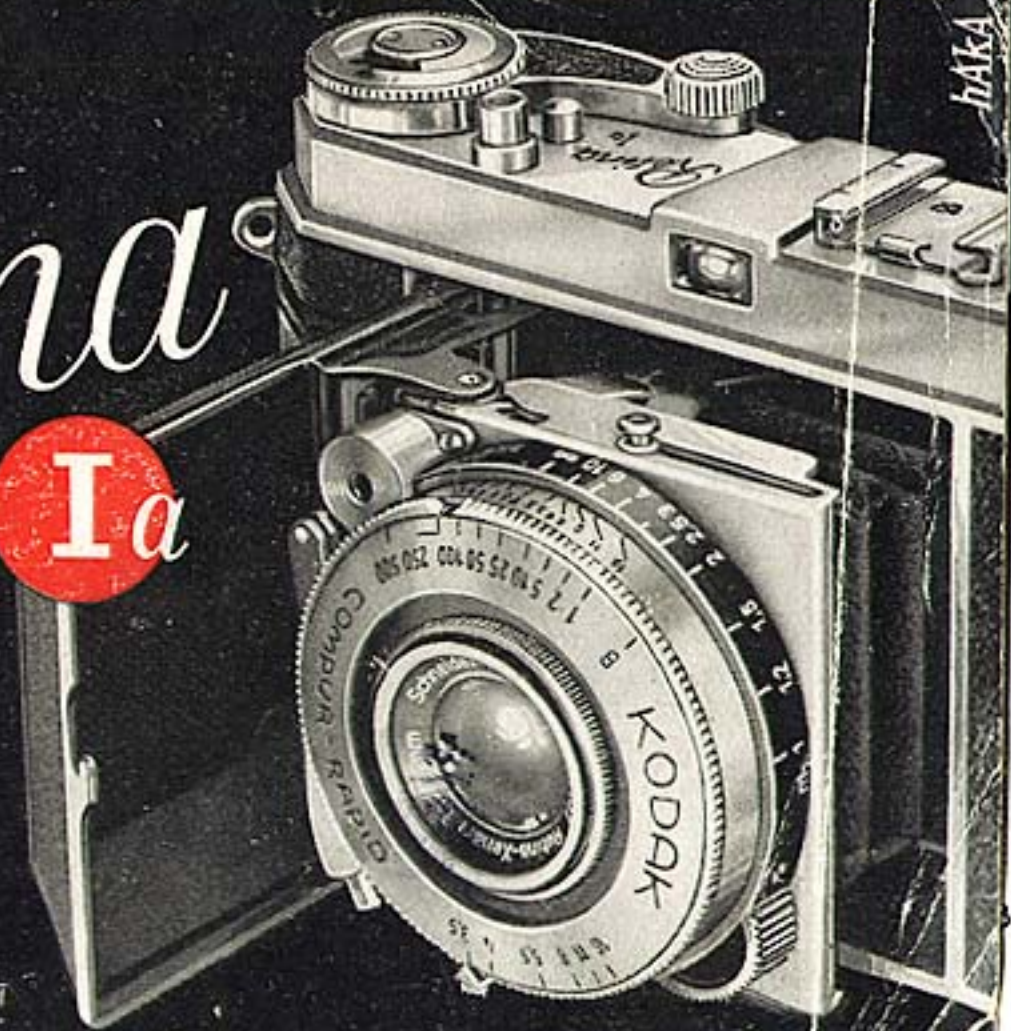


**Kodak**

*Retina*

**Ia**

**AND HOW TO  
USE IT**



KODAK

*M*ake friends with your "Retina".

If you do it will bring more fun to your hours of leisure and lend a hand with any job; it will never let you down. Learn to explore and to enlist the great possibilities now open with this precision camera and its superior equipment...

But first of all, get well acquainted with it.

## **THE FIRST STEPS**

How to open the camera . . . and how to close it.  
How to hold it

## **POINTS THAT MATTER**

Lens opening - Exposure - Distance -  
Depth of Field

## **HOW TO FOCUS**

Distance - Lens opening - Exposure - Zone Focusing - Focusing for Infra red -  
Operating the Film Winding and Shutter Cocking Mechanism - Release

## **FOUR FEATURES OF IMPORTANCE**

Depth of Field Scale - Synchronised Flash Contact -  
Film Release - Film Indicator

## **SETTING TO WORK**

Loading the Film - The Exposure Counter - Taking the Picture -  
Removing the Film

## **WIDEN YOUR SCOPE WITH ACCESSORIES**

Close-up Range Finder - Sport Finder - Table Tripod - Sun Shade - Filters -  
Ever-ready Case - Cable Release

**TO SUM UP** - Film Changing Made Easy

## **THE CAMERA PARTS**

## How to Open the Camera

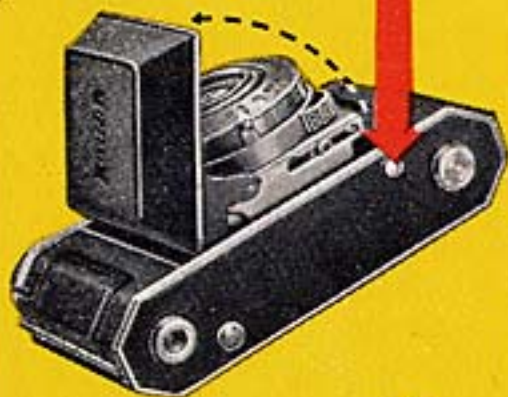
A slight pressure on the button (1) – the smaller of the two buttons underneath the camera – opens the front. Then draw down the bed carefully until you hear it click into position.

Before closing the camera make sure that the focusing scale (3) is set to  $\infty$  (inf.). Only then can you close the camera. Do not force it.

The "Retina Ia" can be closed even with a filter screwed on.

## . . . And how to Close it

Release the bed by simultaneously pressing in the two closing buttons (2) on each side of the front plate. It will now close up easily. The shutter release (10) is arrested once the camera is closed.



# STEPS

## How to Hold it

for horizontal pictures. The "Retina" body is shaped for your grip. The camera nestles firmly and safely in both hands, with your right index finger resting on the body shutter release (10) on top of the body.

Just try this a few times until you have got the knack of holding the camera correctly. Get used to holding the camera even with gloves on, for you are sure to want to use your "Retina" in almost any place and in any weather, too. Also try gripping the camera with one hand only in case you have to hold onto something else with the other.



**Lens Opening · Exposure Time ·**

To produce a correct negative, the film must receive a definite amount of light through the lens. On a sunny Summer day more light will pass through the open lens in a given time than, for instance, on a dull Winter afternoon. So in the latter case we must keep the lens open for a longer time to get the same amount of light acting on the film. In other words, we need more exposure. The shutter with its varying speeds will regulate the necessary supply of light.

However, it is not the only means of doing so. Another control is the lens opening or lens stop. It acts rather like a water tap; the wider you open it, the more light passes in a given time. And the more you close it down, or stop it down - as the photographic term goes - the less light can come through the lens.

The lens stop has yet another important function. It not only regulates the light, but also controls the so-called depth of field. How does it do so?

The lens draws really sharply only the subjects on which it is focused. This utmost sharpness decreases gradually, so that there is a belt of space in front of and

# MATTER

## Distance · Depth of Field

---

behind the focused subject within which the picture is not yet noticeably unsharp. That region is the depth of field.

This depth of field increases as you stop down the lens and also with the focusing distance. For instance, when the lens is focused for 15 feet the depth of field extends from about 9 feet to about 50 feet at  $f/8$ , at  $f/5.6$  from 20 feet to  $\infty$  (inf.) when focused for 50 feet. And for instance at 50 feet the depth at  $f/3.5$  extends from 25 feet to  $\infty$  (inf.).

These facts are worth some thought. For the whole secret of a technically good negative is the right choice of lens opening, shutter speed and distance setting. You will soon find the right combination to suit your own photography with a little practice. Until then you can mostly manage with the focusing zones recommended on p. 11 which provide ready made and adequate depths of field for a near and a distant region of subjects.



## The Distance

The focusing scale (3) shows distances in feet 3.5; 4; 5 and so on to  $\infty$  (100 feet or beyond) with their corresponding divisions. The numbers are white on black to make them more easily readable. Opposite this scale, in the centre of the depth of field scale (9) you will find a heavy black line with a triangle at its end. Turn the focusing knob (4) to bring this index mark opposite the figure corresponding to the distance of your subject from the camera. Your "Retina" is now sharply focused.

For near subjects (remember the shallow depth of field) measure the distance between the lens and subject as accurately as possible. For more distant subjects you may estimate the distance, or pace it (one average pace is about 2.5-3 feet). Subjects more than 100 feet away count as at infinity ( $\infty$ ).

### Infra-red Shots

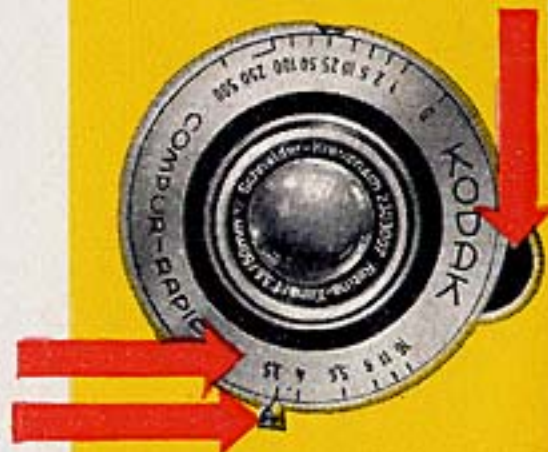
The depth of field scale carries a small red dot between the index mark and the figure 3.5 or 2.8.

You use this dot in black place of the index mark when exposing infra-red film. In other words, turn the focusing knob to bring the red dot opposite the figure for your subject distance. For infra-red shots you must use a suitable infra-red filter in front of the lens.



## The Lens Opening

First a few words about the lens itself. Your "Retina" is fitted with a four-component "Retina-Xenar" of  $f/3.5$  or  $f/2.8$  maximum lens opening and a focal length of 50 mm. This lens is hard-coated (you can recognise that by its bluish violet sheen) to eliminate internal reflections and is specially corrected for colour photography. The lens is the eye of your camera. Do take care of it. If you want clear and sharp pictures, your lens must also be clean. The best material for cleaning it is a clean, soft, lintless cloth. Sudden changes of temperature may condense moisture on the lens surface. Wait until this disappears rather than try to wipe it off. Above all, never attempt to screw the lens apart. This may easily lead to lack of sharpness and loss of quality in your negatives. **And now the Lens Opening.** The lower part of the shutter casing carries a scale with the figures 2.8 (or 3.5), 4, 5.6, 8, 11 and 16. The lowest number (2.8 or 3.5) marks the largest lens opening, and the highest number (i. e. 16) the smallest opening. The opening numbers in between are so arranged that the light the lens lets through is halved as you go from each number to the next higher one. This means that, other things being equal, you must expose twice as long when you stop down from one opening number to the next. If for instance the exposure time at  $f/5.6$  is  $1/100$  second, you would need  $1/50$  second at  $f/8$ , or  $1/25$  second at  $f/11$ . In all these cases the film will still receive the same amount of light, provided the lighting conditions remain the same. To set the lens opening simply push the lever (5) to the required number.





## The Exposure Time

### The shutter of your "Retina"

is a Compur-Rapid and offers exposure times (shutter speeds) of 1,  $\frac{1}{2}$ ,  $\frac{1}{5}$ ,  $\frac{1}{10}$ ,  $\frac{1}{25}$ ,  $\frac{1}{50}$ ,  $\frac{1}{100}$ ,  $\frac{1}{250}$  and  $\frac{1}{500}$  second. You will find these values engraved as whole numbers on the upper part of the shutter casing. Thus 2 means  $\frac{1}{2}$ , 5 means  $\frac{1}{5}$  and so on. In addition you will also find the letter "B" for exposures of unlimited duration. To set the exposure time, simply turn the milled shutter speed ring (6) until the dot in the cut-out is opposite the desired time.

You can adjust the shutter speeds before or after cocking the shutter. But set  $\frac{1}{500}$  second preferably before cocking, since for technical reasons it is easier to do so. To set  $\frac{1}{500}$  second after cocking

requires a little additional effort, although it will not harm the camera.

To avoid blurred pictures, use a tripod or other firm support for exposures longer than  $\frac{1}{25}$  second. The tripod head screws into the socket (18) underneath the camera. A further, quite inexpensive accessory for making time exposures free of camera shake is the "Kodak" cable release with locking screw. The cable release screws into the thread of the body shutter release (10).

You will find an exposure guide at the end of this booklet. Alternatively, you can get the correct exposure from an electric exposure meter.

## Zone Focusing

We mentioned before that a technically good negative depends on the skilled combination of distance setting, exposure time and lens opening. You will need a little experience to get this right every time. Moreover, you often have to shoot without spending much time on working out the ideal combination (as in sports and action shots, photographing children and animals etc.) if you do not want to miss the picture altogether. The "Retina" solves this problem for you with its settings for near and distant focusing zones.

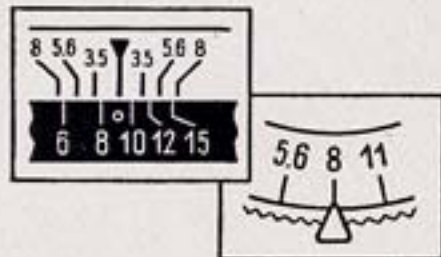
### Near Subjects

Set the focusing scale to the small circle between 8 and 10 feet. Use lens opening f/8. This gives a depth of field (zone of sharpness) from about 7 to 15 feet.

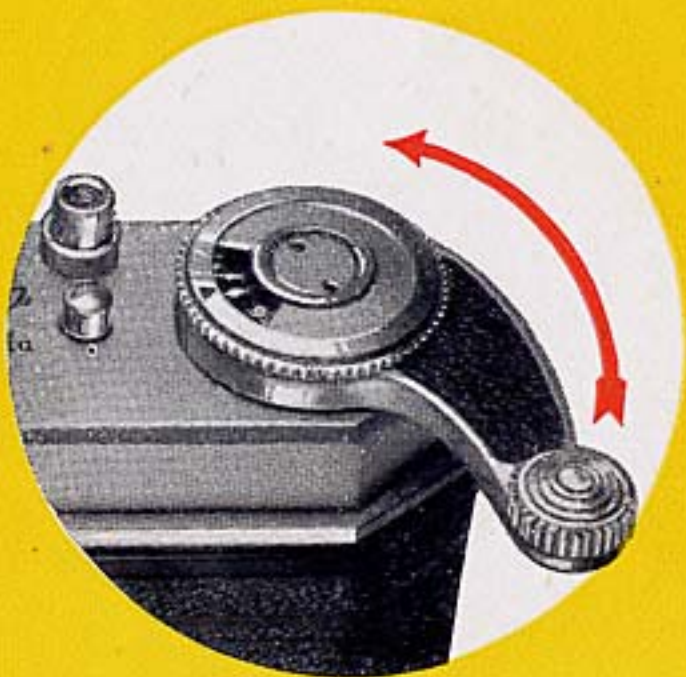
### Distant Subjects

Set the focusing scale to the small circle near 25 feet. Use lens opening f/8. This gives a depth of field (zone of sharpness) from about 12 feet to  $\infty$  (inf.).

**Remember** to set the focusing scale to  $\infty$  (inf.) before you close the camera.



## Operating the Film Winding



When you have set the distance, lens opening and shutter speed (the order doesn't matter), work the rapid winder. Pull it out in one movement, as far as it will go, then let it fly back. This movement cocks the shutter and at the same time winds the film.

If the lever does not fly back, you didn't pull it out completely. The winder will stay put in any position until film and shutter are fully wound.

Now the camera is ready to shoot. If you know by now how to hold the camera (as described on p. 5) your

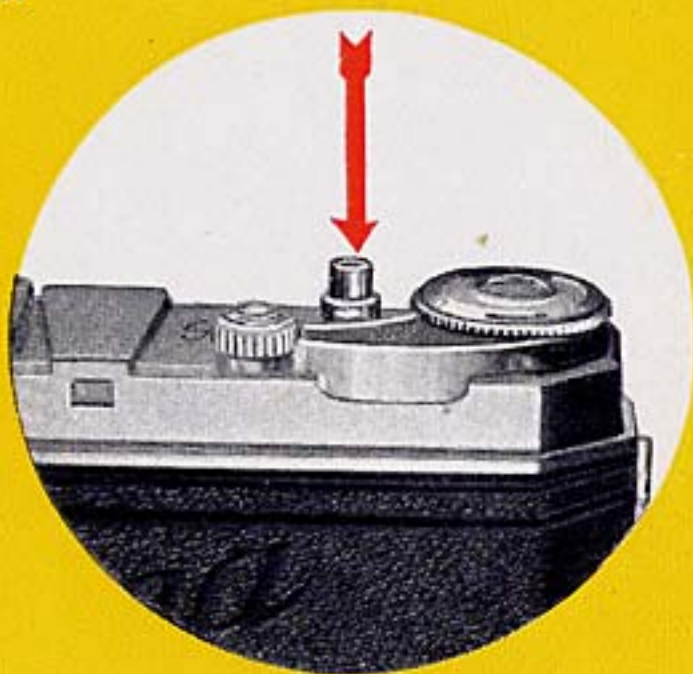
## and Shutter Cocking Mechanism

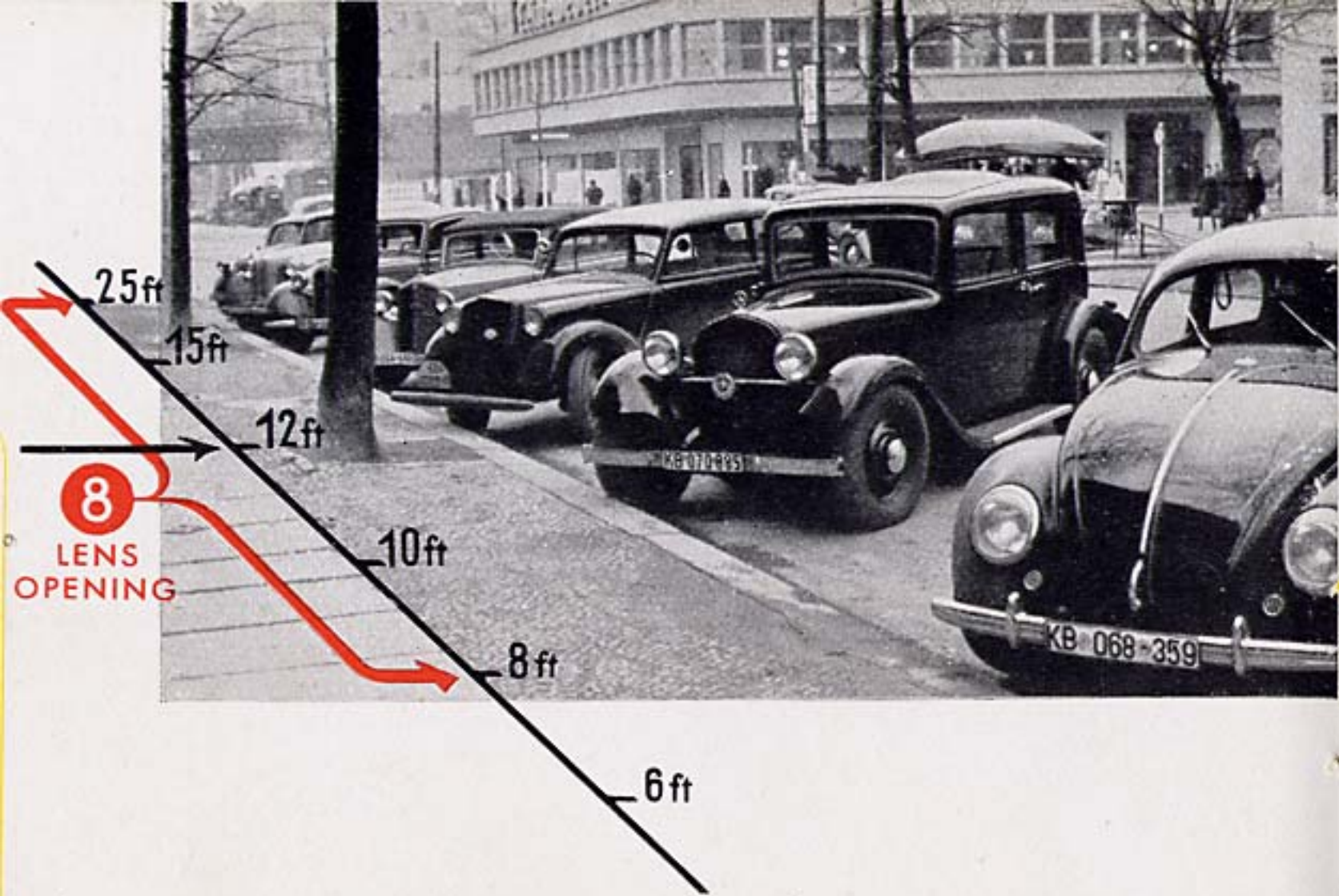
index finger will be resting in the right place—on the body shutter release (10).

Compose the picture in the finder, gently press the release, and you have taken the picture.

You will notice how smoothly the release works, ensuring pictures free of camera shake.

When making time exposures (shutter set to "B") the shutter remains open as long as you press the body shutter release. Use a cable release for time exposures.

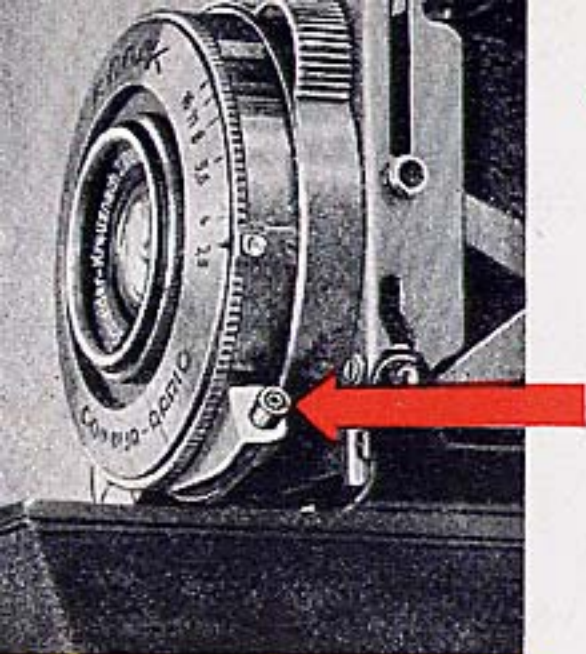




# FOUR FEATURES OF IMPORTANCE

## 1. The Depth of Field Scale

You will have noticed on your "Retina" that the numbers 2.8 (or 3.5) 5.6 etc. of the lens opening scale are repeated opposite the black focusing scale ring, to the left and right of the index mark. This is the depth of field scale (9). On it you can quickly read off the depth of field for any subject distance and lens opening. If, for instance, your "Retina" is focused for 15 feet, then at  $f/8$  the range of distances on the focusing scale between the two lines marked 8 on the scale represents the depth of field. In our example the one 8-line will be in the middle between 8 and 10, and the other opposite 50 on the focusing scale. This means that with the lens focused for 15 feet and set to lens opening  $f/8$  your depth of field extends from about 9 to 50 feet.



## 2. The Synchronised Flash Contact

built into the Compur-Rapid shutter of your "Retina" enables you to make flash exposures with the most up-to-date flash equipment in the same way as you may have seen press photographers doing it. "Synchronised" means that the flash goes off in the very instant when the shutter is fully open.

Screw the flash gun itself to the tripod socket (18) of the camera. Connect the lamp with the shutter by means of a special cable of the Compur type which is plugged into the socket (8) on the shutter.

We do not advise you to fix the flash gun to the accessory clip (19). Most flash guns are too heavy for this clip which is designed to take precision accessories.

For further details about the flash synchroniser see the enclosed special instruction sheet.





## Loading the Film

Now that you know all the steps and controls for working with your "Retina" let us put in a film.

Open the back of your camera by lifting the lock for camera back (17) and draw out the rewind knob (15) to its fullest extent. Then turn the built-in take-up spool towards the back of the camera until the slit in the spool is at the top. Thread the trimmed end of the film protruding from its cartridge into this slit as far as possible. Pull the film over the film-guides, getting just enough film out of the cartridge to allow you to insert the latter in the empty film chamber. Make sure that a tooth of the transport spindle engages in a perforation hole of the film.

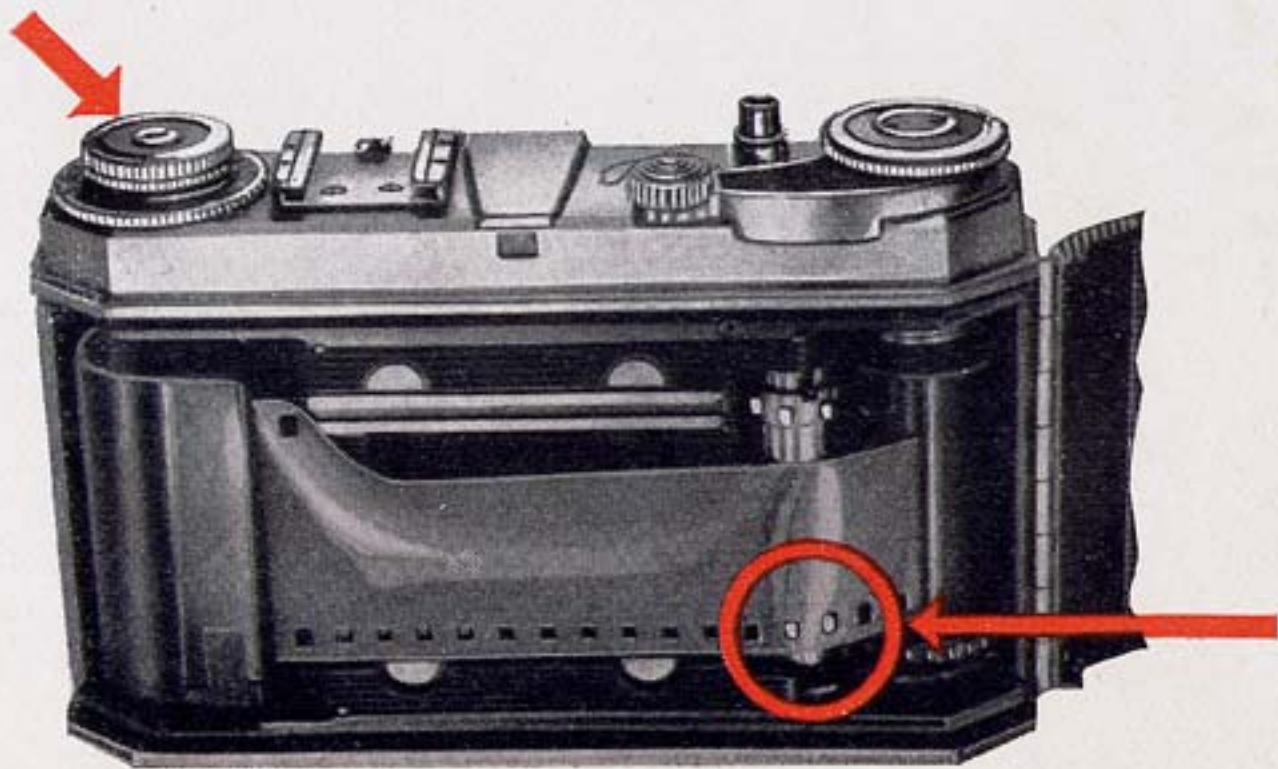
Now push the rewind knob (15) fully back into the camera body, at the same time turning it in the direction of the arrow. Close the back and lock it by folding down the lock (17).

This way of loading the film has proved to be the



# T O W O R K

simplest and also the most suitable should you want to change a partly exposed film (p. 34).





## The Exposure Counter

The rapid winder (7) incorporates a window in which you can see numbers and markings engraved white on black. This is the exposure counter (13) which shows you how many frames on your film are still unexposed.

To set the exposure counter, proceed as follows: After you have loaded the film, turn the milled ring (13) in the direction of the arrow until the diamond mark  $\diamond$  next to the figure 36 points to the triangular mark  $\Delta$ . When using 20-exposure cartridges, set the diamond mark  $\diamond$  next to the figure 20 to the triangle  $\Delta$ . Now advance the film several times with the rapid winder (pressing the shutter release each time) until the triangle ( $\Delta$ ) points to the figure 36 (or 20). If the rewind knob turns in the direction opposite to the engraved arrow, you can be sure that the film is correctly loaded and advanced.

Your camera is now ready for the first exposure.

This ingenious exposure counter mechanism has the following practical advantages:

- 1) By shooting three blind exposures you are sure of a perfect first picture. Experience has shown that the very beginning of the film may easily get fogged by light leaking into the mouth of the cartridge.
- 2) When the exposure counter reaches No. 1, and you have thus made the last exposure, the rapid winder and shutter release are automatically locked. Thus the camera reminds you that you have finished your film. In addition, you cannot accidentally pull the film end out of the cartridge. You unlock the mechanism again when you turn the milled ring (13) in the direction of the arrow.

## Removing the Film

When you have exposed the whole film and the exposure counter shows No. 1, press in the clutch knob (14) underneath the camera. Pull out the rewind knob (15) to its first stop to allow easier rewinding, and turn it until the clutch knob (14) ceases to turn.

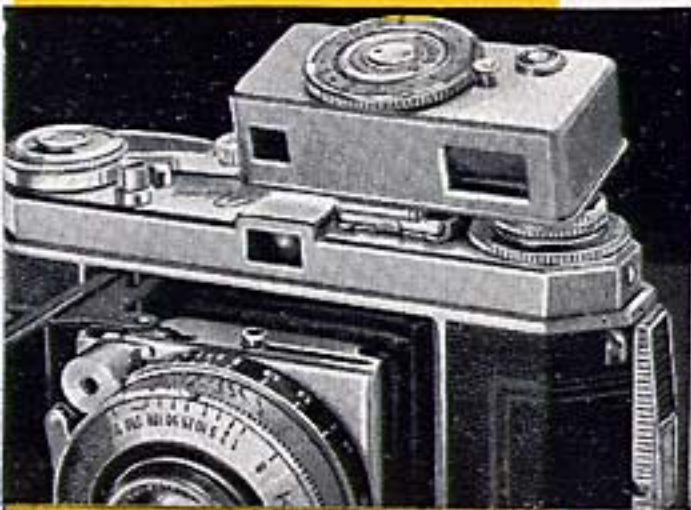
To show the rotation of the clutch knob more clearly, it carries a black dot.

The whole length of the film is now wound back into its cartridge. All you have to do now is to open the back of the camera and fully pull out the rewind knob. You can then easily take out the cartridge.



Do not load or remove the film in direct sunlight, or you may fog the first few exposures. If possible, rewrap the exposed film in its original packing.





## W I D E N Y O U R S C O P E

### **The »Retina« Close-up Range Finder**

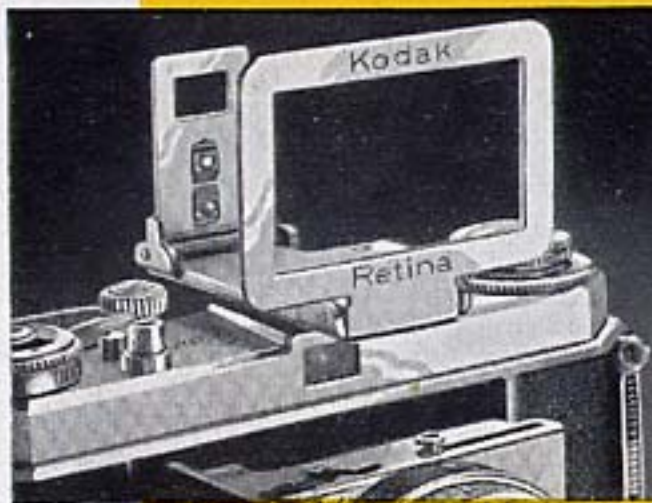
Designed to the high "Retina" standards of quality and precision, this instrument serves as a combined view- and rangefinder. It fits into the accessory clip of the "Retina" and is used in conjunction with a set of supplementary lenses for close-ups from 36 down to 8 $\frac{1}{2}$  inch., at scales of reproduction from 0.055 to 0.225. It thus opens up a whole new world for the "Retina" owner.



## WITH ACCESSORIES

### The »Retina« Sport Finder

This important accessory for photographing very quick subjects fits into the accessory clip of the camera. With it you can sight and follow your subject in full size before it enters the actual field of view. Its position on the camera automatically eliminates any lateral parallax while the vertical parallax is compensated by moving the viewing aperture according to a fitted scale. The finder can be folded up while still on the camera. When not in use, it is kept in a leather case.



## The »Retina« Table Tripod

is a practical and versatile piece of equipment to widen the scope of, and simplify work with the close-up-focusing attachment. This universal stand is a useful aid to amateur and professional alike. The research worker, the engineer and the scientist will conveniently and successfully turn it to particularly interesting tasks. When used in connection with a set of three cemented high quality supplementary lenses, the table tripod enables the "Retina" to make pictures up to a scale of reproduction of 0.5; which opens up the whole field of macro-photography. Thus the "Retina" combined with the table tripod becomes a close-up and copying camera.



## The »Retina« Ever-ready Case

You must of course have a leather case to protect the "Retina". In your own interest get a genuine "Retina" case. The new "Retina" ever-ready case has a hinged lid which automatically swings down whichever way you hold the "Retina". This prevents the lid from getting in the way of the lens when you are taking upright pictures.





## The »Retina« Sun Shade

makes attractive against-the-light pictures safe. But shots by side light also gain in brilliance when you use the sun shade. No exposure should really be made without it.

The "Retina" sun shade can be attached to the lens even with a filter screwed on. It can also be used together with supplementary lenses or supplementary lens plus filter.

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### Light Yellow N I

gives good tone reproduction in all daylight exposures where otherwise the blues would come out too light. Factor 1.5.

### Medium Yellow Filter N II

gives good tone reproduction with still darker blues. Factor 2.

## »Retina« Screw-in Filters

### **Green Filter N III**

gives correct tone reproduction particularly with excessively red sensitive panchromatic films., Factor 2.

### **Orange Filter N IV**

cuts out atmospheric haze and increases contrast between yellow to red and blue to green tones. Factor 3.

### **Red Filter N V**

makes blues very dark for dramatic effects. Factor 6—8.

### **Blue Filter N VI**

subdues the excessive red sensitivity of panchromatic films in artificial light; lightens blues, darkens yellows and reds; increases the effect of haze in outdoor exposures. Factor 2—3.

### **Filter N UV**

cuts out invisible ultra-violet radiation in mountain photographs above 6000 feet.

You will find full instructions about the correct use of all types of filters in a detailed filter leaflet.



## The »Retina« Cable Release

carries a locking screw. It allows you to keep the camera shutter open for any length of time without having to press the release during the whole of the exposure. The "Retina" cable release is available in two sizes 6.4 and 10 inch. long.



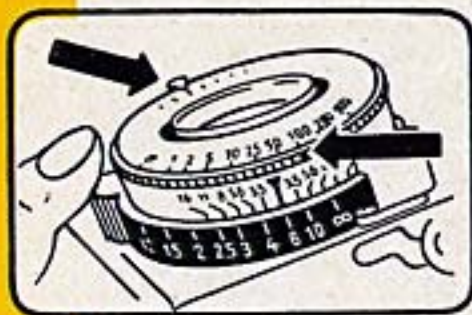
## TO SUM UP

It may be that all these technical data will strike you at first as a little confusing. In fact photography is much simpler than it looks to the beginner. Fundamentally there are only three things to take a picture.

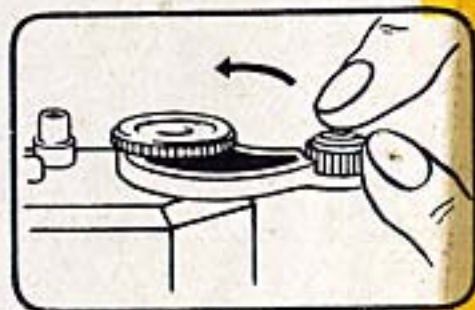
**1** Set distance, lens opening and shutter speed. Remember the focusing zones.

**2** Wind the rapid winder, thus cocking the shutter and advancing the film.

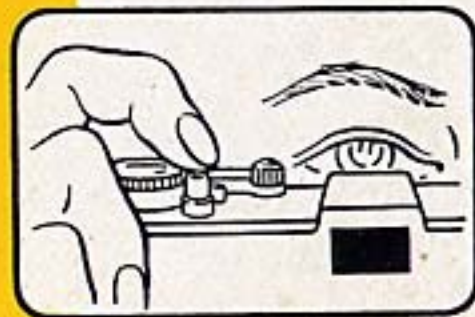
**3** Compose the picture in the viewfinder and release the shutter.



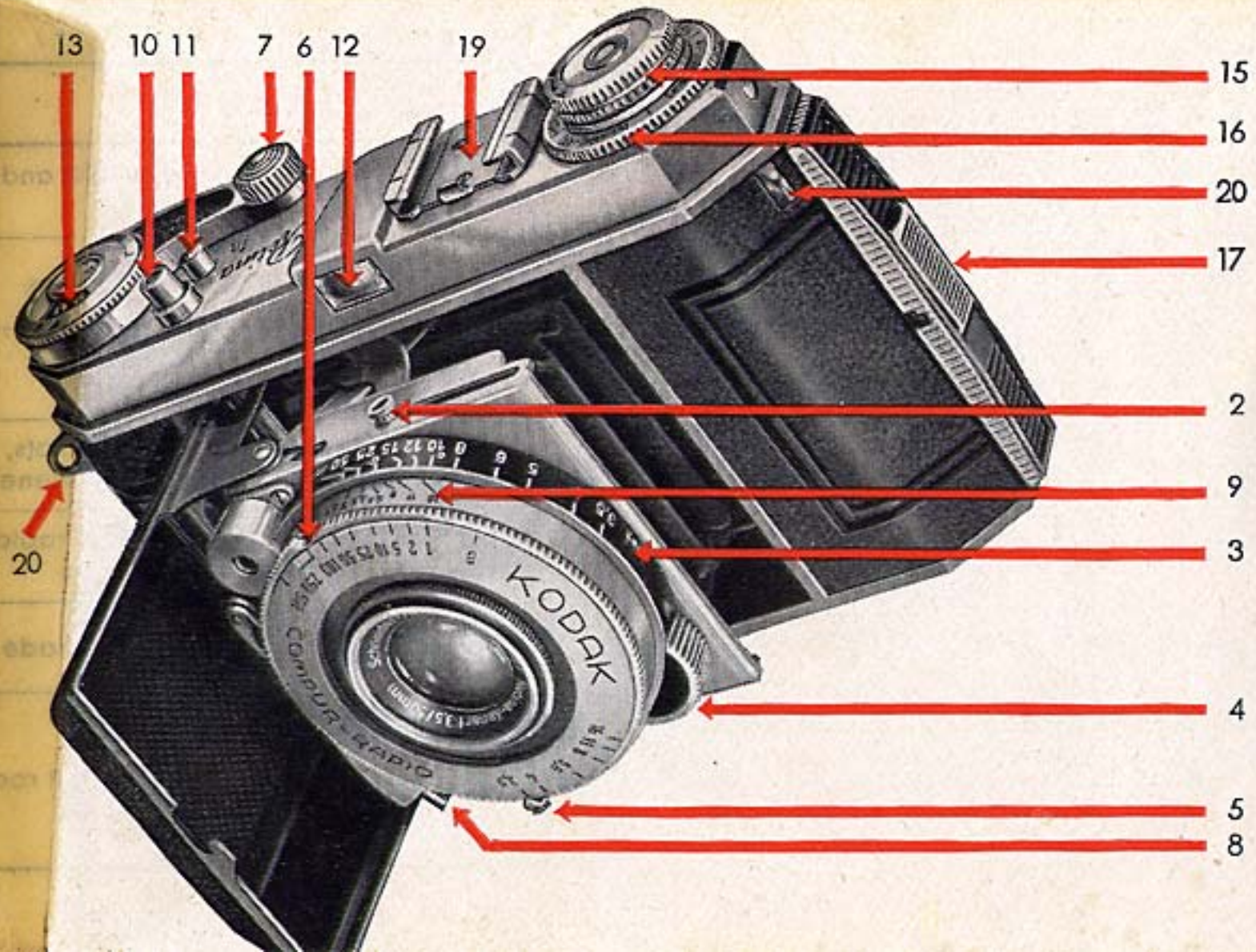
**1**



**2**

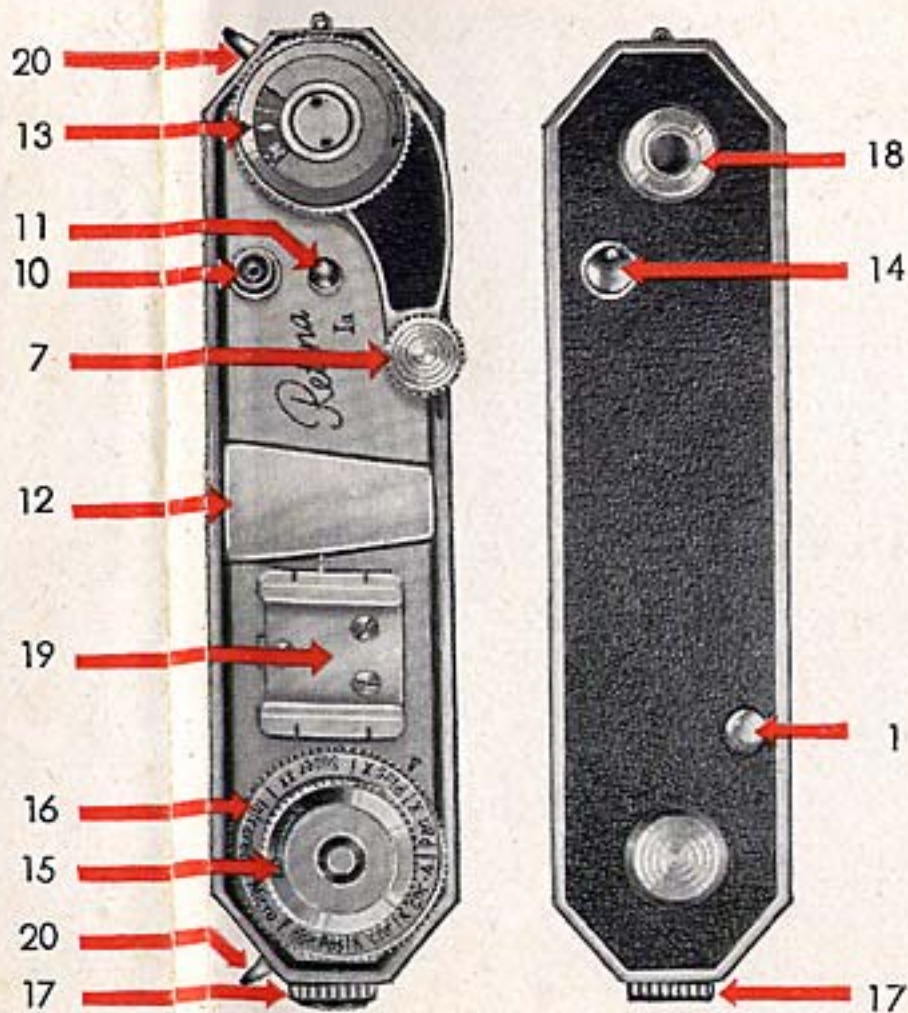


**3**





## THE CAMERA PARTS



- 1 Button for opening camera
- 2 Buttons for closing camera
- 3 Focusing scale
- 4 Focusing knob
- 5 Lens opening lever
- 6 Shutter speed ring
- 7 Film winder and shutter cocker (Rapid winder)
- 8 Socket for flash contact
- 9 Depth of field scale
- 10 Body shutter release
- 11 Film release button
- 12 Viewfinder
- 13 Exposure counter
- 14 Clutch knob for rewinding
- 15 Rewind knob
- 16 Film indicator
- 17 Lock for camera back
- 18 Tripod socket
- 19 Accessory clip
- 20 Carrying eyelets

## Film Changing Made Easy

You may want to change from one partly exposed film to another (e. g. from black-and-white to colour). To avoid losing any exposures, note these few additional points when loading the film.

Open the camera, and wind the rapid winder. Count off a number of perforations from the film end—say 8—and mark this perforation hole with a nick in the edge of the film. Turn the built-in take-up spool against its normal winding direction until you can insert the film end into the slit. Push in the film so far that the marked perforation hole engages in a tooth of the transport spindle. Make sure that the film rides properly in the path provided for it. Pulling just enough film out of the cartridge so that you can insert the latter in the empty film chamber. Now proceed as described under "Loading the Film" (p. 18).

Set the exposure counter to the appropriate  $\diamond$  mark (the one next to No. 36 for a 36-exposure cartridge, or the one next to 20 for a 20-exposure cartridge such as "Kodachrome").


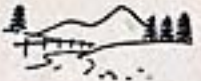




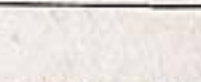
Press the shutter release, and wind the rapid winder until the exposure counter shows No. 36 or No. 20 respectively.












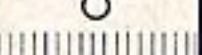




If the film was already partly exposed, for instance up to No. 5, depress the film release button. You can then advance the film with the rapid winder without having to press the shutter release. Continue winding on the film until the required picture number (the next unexposed frame) appears on the exposure counter. The camera is now ready to shoot again.


The method is really much simpler to carry out than to describe, and if you make a habit of loading in this way from the outset, you will never have any difficulties in changing partly exposed films.


# AND A FEW MORE HINTS FOR EXPOSURE

**The »Retina Ia« - Exposure Table  
for Black-and-White Subjects**

The Subjects	
	Seaside, beach and snow shots
	Open landscapes
	Landscapes with foreground <sup>1)</sup>
	Average snapshots, groups, street scenes
	Sports, action, rapidly moving subjects
	Figures in the shade
	Figures in a light room

Recommended Lens Opening	Weather	"Kodak" - Film	
		Plus-X <sup>2)</sup>	Super-XX
11-8	 	$1/100 - 1/250$	$1/250 - 1/500$
		$1/50 - 1/100$	$1/100 - 1/250$
8	 	$1/50 - 1/100$	$1/100 - 1/250$
		$1/25 - 1/50$	$1/50 - 1/100$
8 5.6	 	$1/25 - 1/50$	$1/50 - 1/100$
		$1/25 - 1/50$	$1/50 - 1/100$
8-5.6	 	$1/50 - 1/100$	$1/100 - 1/250$
		$1/25 - 1/50$	$1/50 - 1/100$
4 or 3.5	 	$1/250 - 1/500$	$1/500$
		$1/100 - 1/250$	$1/250 - 1/500$
4	 	$1/25 - 1/50$	$1/50 - 1/100$
		$1/10 - 1/25$	$1/25 - 1/50$
3.5 or 2.8	 	$1/2 - 1/10$	$1/5 - 1/25$
		$1 - 1/5$	$1/2 - 1/10$
	 	$1/2 - 1/25$	$1/5 - 1/50$
		$1 - 1/10$	$1/2 - 1/25$

 = Clear sun

 = Overcast sky

The table is valid for the months of May to August between 10 a. m. and 4 p. m.

Use double the exposures during March, April, September, and October; or between 9 and 11 a. m. and 4-6 p. m.

Use four times the exposures between the winter months of November to February.

- 1) Use the focusing zones.
- 2) For Kodak-"Panatomic-X" Film give twice the recommended exposure.

# Kodak

M-Stellung:  
Synchrohebel auf „M“



X-Stellung:  
Synchrohebel auf „X“.

**Der vollsynchronisierte Verschluss**

der *Retina*

Zusatzanleitung für den Synchro-Compur-Verschluss

## Mögliche Belichtungszeiten in Sekunden

Klasse		F		M				S			für Blitzlampen	Klasse	X	F				
Type	Fabrikat	SM	SF	PF 14	No 5	Press 25	No 11	Press 40	No 2	Press 50					No 3	PF 110	No 50	No 3
<b>M</b>	Verschlusszeit kürzer als Blitzdauer	Nicht für M-Stellung bestimmt		$1/50$ bis $1/500$				$1/50$ bis $1/100$			$1/25$ bis $1/50$			<b>Synchrohebel-Stellung</b>	<b>X</b>	Verschlusszeit länger als Blitzdauer	1	1
<b>M</b>	Verschlusszeit länger als Blitzdauer	1 bis $1/100$		1 bis $1/25$				$1$ bis $1/25$			1 bis $1/10$						1 bis $1/500$	1 bis $1/100$