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Paul Fuchs

Kodak

Retina
REFLEX S

Instructions for Use

A Supreme Camera!

The RETINA REFLEX S is the most advanced model of the RETINA series: a genuine single-lens reflex camera for 24 x 36 mm. pictures with full-size ground glass screen, split image rangefinder, and automatic exposure control.

Like all RETINA models, the RETINA REFLEX S is very simple to use: you only superimpose the two pointers of the exposure meter and automatically get correctly exposed pictures.

Whether you are keen on telephoto shots or close-ups, on photomicrography or on copying — your RETINA REFLEX S and the versatile RETINA system of equipment tackles practically any photographic subject.

Standard Lenses	50 mm RETINA Xenar or RETINA Ysarex f/2.8.
Alternative Lenses	50 mm RETINA Xenon or RETINA Heligon f/1.9 (Close-up lenses and the copying stand, and also the micro adapter, cannot be used with the f/1.9 lens.) RETINA 28, 30, and 35 mm. wide-angle lenses and RETINA 85 and 135 mm. telephoto lenses.
The Reflex Finder	The full-size brilliant ground glass screen shows you exactly what you get on the film with all focal lengths, and all distances, free from any parallax error.
Automatic Exposure Control	Exposures set automatically on the Synchro-Compur shutter coupled with the exposure meter.
Dual Rangefinder System	The image is focused either on the ground glass screen or with the aid of the optically coupled split-image rangefinder.
Automatic Sharp Zone Indicator	Two pointers automatically show the full zone of sharpness with any lens at any distance.

The RETINA REFLEX S has many other advanced features. We shall come back to them in more detail in the following pages.

◀ Take pictures like this with the RETINA REFLEX S.

How you do it

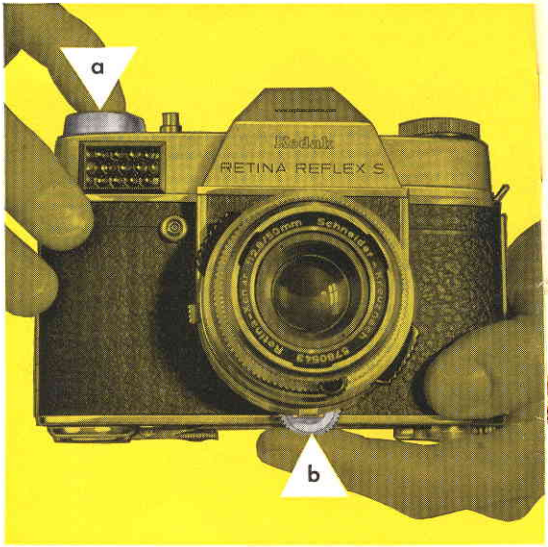
After inserting the film and setting the film speed the actions for the opposite picture were as follows:

Select the shutter speed:
1/60 second
Superimpose the pointers,
Focus and Release.

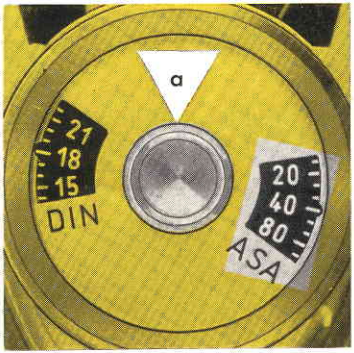
To start with, practise the various operations without a film in the camera. You will soon become really familiar with your RETINA REFLEX S.

Setting the Film Speed

The exposure depends on the speed of the film in your camera. You must set this correctly, or your exposures will be wrong. Look for the required film speed on the film package or in the instructions. (The ASA values for Kodak films are listed on page 19.) Set this value on your camera:



Depress the button (a) on the film speed disc of the exposure meter. At the same time turn the setting wheel (b) underneath the lens barrel until the cut-out near the rim of the speed disc indicates the correct ASA or DIN value. The illustration on the right shows the film speed set to 40 ASA. (Setting DIN values is of course exactly the same.)



Setting the Shutter Speed

Turn the setting wheel below the lens until the required shutter speed is opposite the triangular ▲ mark. The illustration on the left shows the shutter set to 1/60 second.

While turning the **setting wheel,** a resistance may be encountered before the desired shutter speed has been set. This indicates that the end of the aperture range has been reached. By firmly turning the setting wheel further, you can however still set the shutter speed you want.

The black figures on the shutter speed ring indicate fractions of a second: 1 = 1 second, 2 = 1/2 second, 4 = 1/4 second . . ., 60 = 1/60 second, 125 = 1/125 sec., and so on.

Note that the speed settings must always click into place. (You will learn all about "B" and the green figures on page 32.)

The Automatic Exposure Control

Your RETINA REFLEX S has a shock-proof photo-electric exposure meter built into the body. The yellow setting pointer of the exposure meter is coupled with the aperture control of the Synchro-Compur shutter.

Point the camera at the subject so that areas of medium brightness are covered. Keep your fingers well clear of the honeycomb window of the meter cell. Turn the setting wheel below the lens barrel until the yellow setting pointer covers the thin white meter needle. Look vertically down to the pointer.

The white lines visible in the corners of the meter window indicate the limits of the measuring range. Correctly exposed pictures are possible within this measuring range only. If the white exposure needle is outside these marks, the light is too strong or too weak for the measuring range of the meter.

As you superimpose the two pointers, the correct aperture figure (even intermediate stops) automatically moves opposite the set shutter speed (against the triangular ▲ mark).

The exposure is now correctly set. In our illustration the aperture value 8 had moved opposite the previously selected 1/60 second.

As you turn the setting wheel you may come up against a resistance before the pointers are superimposed. In that case, firmly keep on turning the wheel. By that you change the preset shutter speed. Make sure that the new shutter speed clicks into place opposite the triangular ▲ mark. Now you can superimpose the pointers of the exposure meter.

If you want to increase or decrease your zone of sharpness (see page 26), you can adjust it by gently turning the combination control. That is the ring with the two black serrated keys. Of course this is only possible within the available range of f/stops. Make sure the **speed setting** always locks into place. Do never force the setting ring! This automatically sets a new aperture speed combination opposite the triangular ▲ mark.

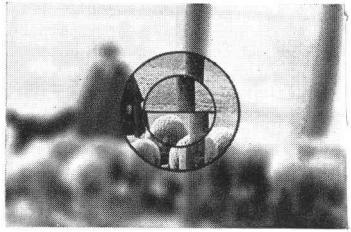
In our example, going from f/8 to f/11 changes the shutter speed from 1/60 to 1/30 second.

The red figure 4 on the aperture scale, and the catch below the lens mount next to the setting wheel, are only used when fitting alternative lenses. The figure 1.9 on the aperture scale can be set with the fitted 50 mm f/1.9 lens only.

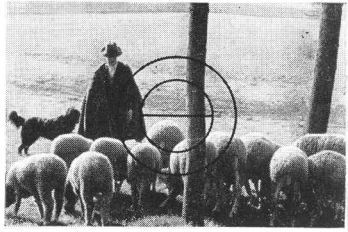
For shots with the wide-angle and telephoto lenses you will find full details in a special instruction booklet enclosed with every interchangeable RETINA lens.

Focusing

You can focus the image in two ways: with the aid of the ground glass screen, or with the optically coupled split-image rangefinder.



Subjects without prominent horizontal or vertical lines are more easily focused on the ground glass screen. But if the subject has such lines, the split-image rangefinder is very suitable for checking the correct focus (hold the camera horizontally for vertical lines, and upright for horizontal lines).



You can only see the finder image after you have operated the rapid winding lever.

a) On the Ground Glass Screen

Turn the focusing ring or the focusing knob (a) until the ground glass screen image appears perfectly sharp. (See page 26 for the depth of field table.)

b) With the Split-image Rangefinder

With the camera held horizontally, point it so that the bright circular area in the centre of the screen image covers a vertical line on your subject (for instance the edge of a window frame or a building, etc.). Turn the focusing ring or the focusing knob (a) until the two halves of the image in the bright circular area join up exactly.

Zone Focusing

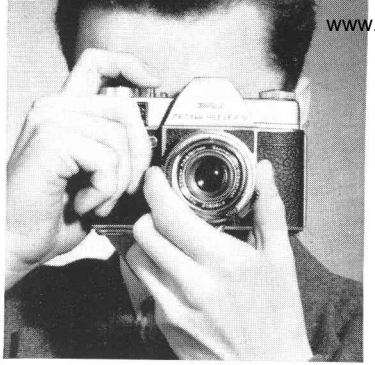
The main advantage of zone focusing is that you do not have to set the distance afresh for every shot. If, for instance, after setting the shutter speed your meter reading gives you an aperture of f/8, you can use these zones:

For near subjects set the distance to 10 feet. The automatic depth of field indicator then shows that you have a sharp zone extending from about 7½ to 15 feet.

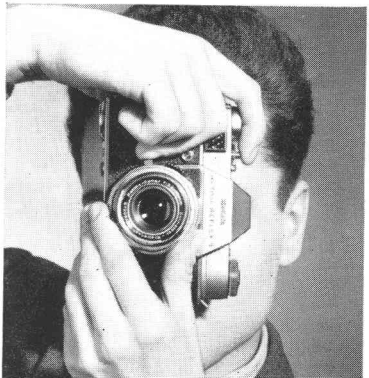
With more distant subjects set the focusing scale between 25 and 50 feet. The automatic depth of field indicator then shows a sharp zone from about 17 feet to infinity (∞).

At other aperture settings you get the greatest depth of field by setting the infinity mark (∞) of the distance scale against the right-hand pointer of the depth of field indicator.

Watch, however, that the light remains constant during your picture series. In other words, check that needle and pointer still coincide in the meter window.

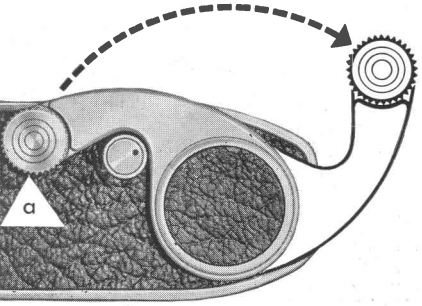


Viewing



Hold your RETINA REFLEX S in both hands and try out a few camera holds until you find the one that suits you best. As shown in our illustrations, you can hold the camera either horizontally or vertically. After a few attempts you will soon find a really steady grip for your RETINA REFLEX S.

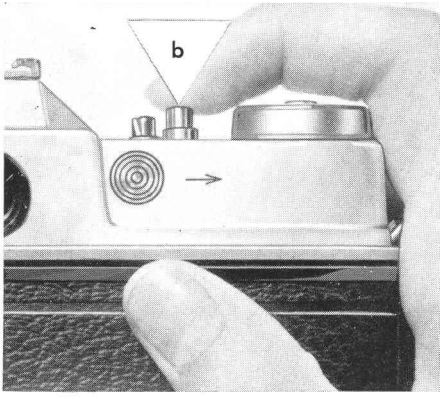
Tensioning and Releasing



Pull out the rapid winding lever (a) as far as it will go. It will shoot back again into its original position. If it should not fly back, it was not pulled out fully (see page 24).

This movement tensions the shutter, advances the film in the camera (page 20) by one frame, and also advances the film counter (page 22).

When you have your subject nicely framed in the viewfinder, fully press down the release button (b). The smooth release of your RETINA REFLEX S effectively guards against camera shake. You can only press the button if you have previously tensioned the shutter. So operate the rapid winding lever immediately after every exposure. Keeping the shutter tensioned — even for some time — does not harm it in any way.



KODAK films for every occasion

Colour films

Kodachrome is a reversal colour film. The cost of processing and mounting for projection is included in the purchase price. Use Kodachrome daylight type film for pictures by daylight, with electronic flash, and with blue flash bulbs. For shots with clear bulbs use Kodachrome type F, with artificial light use Kodachrome type A film.

Ektachrome daylight type film is a high-speed reversal colour film. You can process this yourself, or give it to your photo dealer for processing. There is also an Ektachrome type F film for shots with clear flash bulbs.

Kodacolor is a high-speed negative colour film which can be used with any type of light. You can develop Kodacolor film yourself, or get your photo dealer to do it for you.

Black-and-white Films

Panatomic X
is an all-round Kodak black-and-white film. It yields fine-grained negatives for very big enlargements.

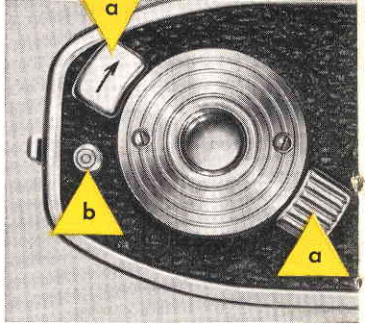
Plus-X Pan
is a fast fine grain film of great exposure latitude.

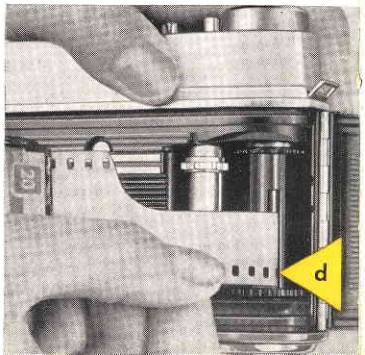
Tri-X Pan
is an extreme speed film specially suitable for sports and indoor photography.

Kodachrome daylight type	10 ASA
Kodachrome type A	16 ASA
Ektachrome daylight type	32 ASA
Kodacolor Negative	32 ASA
Panatomic X	25 ASA
Plus-X Pan	80 ASA
Tri-X Pan	200 ASA

Inserting the Film (Do it in subdued light)

1. Turn the double safety lever (a) underneath the camera in the direction of the arrow.
2. This uncovers the opening button: press that (b) and the camera back will spring open.
3. Fully pull out the rewind knob (c).
4. Turn the built-in take-up spool (d) by its serrated flange until one of its slits ponts upwards. Push the trimmed end of the film into the slit so as to anchor a perforation hole in the little hook of the slit.
5. Draw the film across the film track, and insert the cassette in the cassette chamber. The teeth of the transport sprocket (e) must properly engage both perforation rows of the film. Now push back the rewind knob (c), and turn it at the same time in the direction of the arrow until you feel a slight resistance. That tensions the film.
6. Finally close the camera back, making sure that the catch engages audibly.





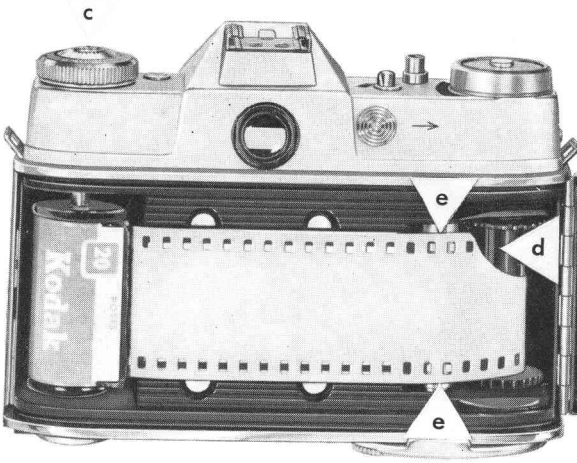
a Safety lever

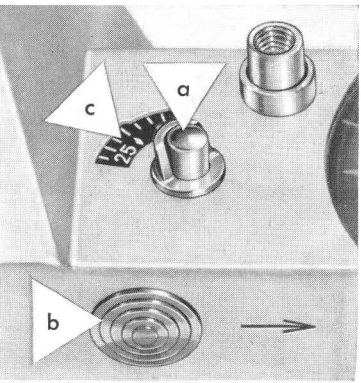
b Opening button

c Rewind knob

d Built-in take-up spool

e Transport sprocket





Setting the Film Counter - Checking the Film Transport

Depress the film release button (a), and at the same time push the film counter setting button (b) in the direction of the arrow. Repeat this until the ◊ mark between the figures 1 and 36 is opposite the notch in the upper edge of the film counter window. With a 20-exposure cassette set the film counter to the ◊ mark at No. 23 (c).

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

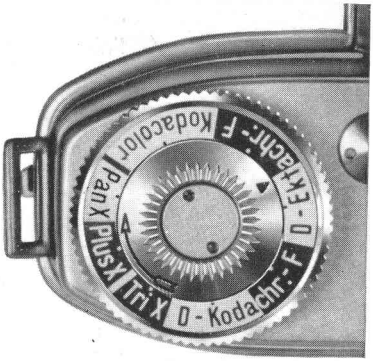
When the film counter reaches No. 1, the transport locks automatically. In that case see page 24.

Setting the Film Indicator

The film indicator on the rewind knob is a useful memory aid. To set it, hold the rewind knob, and turn the inner serrated ring until the triangular ▲ mark points to the type of film in the camera.

Now you know at a glance what type of film you have loaded even when you have exposed part of it already.

The position of the film indicator does not affect the exposure in any way.

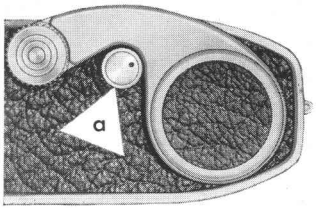


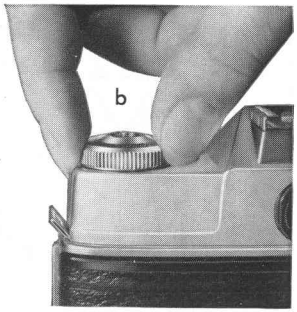
The Film Release

Should you forget to set the film counter when loading the film, the counter may reach No. 1 before the film is finished. At No. 1, however, the rapid winding lever automatically locks. To release this lock, depress the film release button, and at the same time push the film counter setting button fully in the direction of the arrow.

Now you can carry on shooting. But advance the film carefully with the winding lever, as you do not know how many exposures you still have left. So go easy to avoid tearing off the film end out of the cassette.

It may also happen that the rapid winding lever stops in a half-way position. This indicates that the film is finished. In that case depress the film release button to make the winding lever fly back. On the next page you can read how to rewind the film.





Unloading the Film

Make a point of never unloading the film from the camera in brilliant sunlight or strong artificial light.

To rewind the exposed film, depress the reversing button (a) in the base of the camera. Now turn the rewind knob (b) in the direction of the arrow until the reversing button ceases to rotate. You can watch this button turn by the black dot near its rim.

When you have rewound the film into its cassette, open the camera as described on page 20. Fully pull out the rewind knob, and remove the cassette from the film chamber.

Wrap up the exposed film in its original packing to protect it against light.

Depth of Field

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. It varies according to the aperture and the distance set. A high aperture number (e. g. 22) yields great depth of field, a low aperture number (e. g. 2.8) yields little depth.

You can instantly read off the depth of field at any distance and aperture with the aid of the two red pointers of the automatic depth of field indicator. If for instance you have set the standard lens to 10 feet and the aperture to f/11, you will find that the sharp zone extends from about 7 feet to about 17 feet (see illustration).

Exact depth of field values are given in the table opposite.

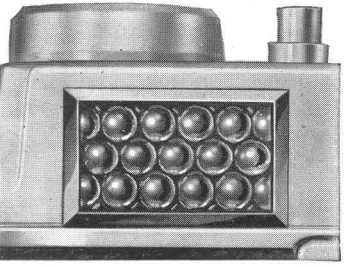
Depth of Field Table

for the 50 mm Lens (Sharp Zones* in Feet.)

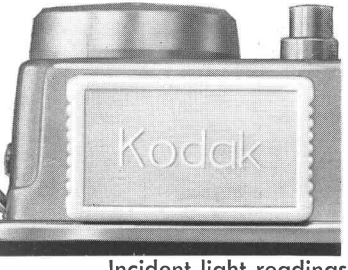
Aperture f/	Depth	At Distance Setting in Feet												
		3′	3′6″	4′	4′6″	5′	6′	7′	8′	10′	15′	25′	50′	∞
1,9	from	2′11″	3′5″	3′11″	4′4″	4′10″	5′9″	6′8″	7′7″	9′4″	13′5″	21′2″	36′7″	135′
	to	3′1″	3′7″	4′1″	4′8″	5′2″	6′3″	7′4″	8′6″	10′9″	16′10″	30′7″	79′1″	∞
2,8	from	2′11″	3′5″	3′10″	4′4″	4′9″	5′8″	6′6″	7′5″	9′1″	12′11″	19′9″	32′6″	91′8″
	to	3′1″	3′7″	4′2″	4′8″	5′3″	6′5″	7′6″	8′9″	11′2″	17′10″	37′2″	109′	∞
4	from	2′11″	3′4″	3′9″	4′3″	4′8″	5′6″	6′4″	7′2″	8′8″	12′3″	18′1″	28′3″	64′3″
	to	3′1″	3′8″	4′3″	4′10″	5′5″	6′7″	7′10″	9′1″	11′9″	19′5″	40′7″	222′	∞
5,6	from	2′10″	3′3″	3′9″	4′2″	4′7″	5′4″	6′2″	6′10″	8′3″	11′5″	16′4″	24′1″	45′11″
	to	3′2″	3′9″	4′4″	4′11″	5′7″	6′10″	8′2″	9′7″	12′8″	22′	54′1″	∞	∞
8	from	2′9″	3′2″	3′7″	4′	4′5″	5′1″	5′10″	6′6″	7′9″	10′4″	14′2″	19′8″	32′2″
	to	3′3″	3′10″	4′6″	5′2″	5′10″	7′3″	8′10″	10′6″	14′3″	27′7″	108′	∞	∞
11	from	2′8″	3′1″	3′6″	3′10″	4′2″	4′10″	5′6″	6′1″	7′1″	9′3″	12′3″	16′1″	23′6″
	to	3′4″	4′	4′9″	5′5″	6′3″	7′11″	9′9″	11′10″	17′	40′4″	∞	∞	∞
16	from	2′7″	2′11″	3′3″	3′7″	3′11″	4′6″	5′	5′5″	6′3″	7′11″	9′11″	12′4″	16′2″
	to	3′7″	4′4″	5′2″	6′	7′	9′2″	11′11″	15′3″	25′	178′	∞	∞	∞
22	from	2′6″	2′9″	3′1″	3′4″	3′7″	4′1″	4′6″	4′11″	5′6″	6′9″	8′1″	9′7″	11′10″
	to	3′10″	4′9″	5′9″	6′11″	8′3″	11′7″	16′2″	23′2″	58′4″	∞	∞	∞	∞

Distances are measured from the film plane.

* The depth of field is calculated for a circle of confusion of $^1/_{750}$ inch ($^1/_{30}$ mm.)



Reflected light readings



Incident light readings

Reflected and Incident Light Readings

The exposure meter of your RETINA REFLEX S can be used in two ways.

For reflected light readings the meter is pointed in the direction of the subject. It therefore measures the light reflected from the subject. This is the most common method and gives reliable exposures when the light is behind or to one side of the camera.

Incident light readings are used for many contrasty subjects — especially when shooting into the light — and frequently also for close-ups. Here you point the camera in the opposite direction, in other words from the subject towards the taking position. This measures light falling on the subject.

For incident light readings the diffusing screen must always be fitted over the honeycomb cell of the exposure meter.

Using Flash

The shutter of your RETINA REFLEX S is speed-synchronized. You can therefore take flash shots with any flash bulb or electronic flash unit on the market and use all shutter speeds up to $^{1}/_{500}$ second.

The side of the lens barrel carries the engraved letters V, X and M next to the green serrated synchronizing lever (illustration 1). You can move this lever only if you have depressed the locking lever (illustration 2) on the other side of the lens.

Before taking a flash shot, connect the flash gun to the flash socket on the front panel of your camera.

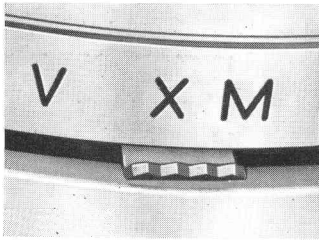


Illustration 1

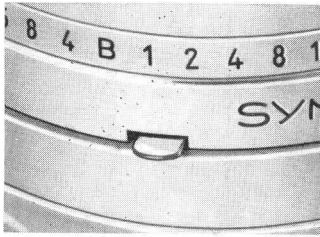


Illustration 2

The X, M, and V settings

The X setting is the normal setting for class X and class M flash bulbs (at a shutter speed of 1/30 second) as well as electronic flash at any shutter speed.

The M setting is intended for class M flash bulbs at all shutter speeds up to 1/500 second.

You can easily work out the aperture required for the flash shot from the so-called guide number. This you usually find on the flash bulb packing or on the electronic flash unit.

Use the following rule:

Guide No. divided by distance = aperture.

Example: $\frac{\text{Guide number } 72}{9 \text{ feet}}$ = aperture f/8.

You will find the KODABLITZ a handy flash gun that takes both S.C.C.-capped and capless bulbs.

The V setting is for the delayed action release (self-timer).

The Self-timer

If you want to include yourself in a shot, release the synchronizing lock by depressing the lever (illustration 2, page 29) and move the synchronizing lever (illustration 1, page 29) to **V**. You must set this lever only after operating the rapid winding lever. If you now press the shutter release, the delayed action mechanism starts running down and releases the shutter after about 10 seconds.

Once you have tensioned the delayed action mechanism, you must make the exposure with it.

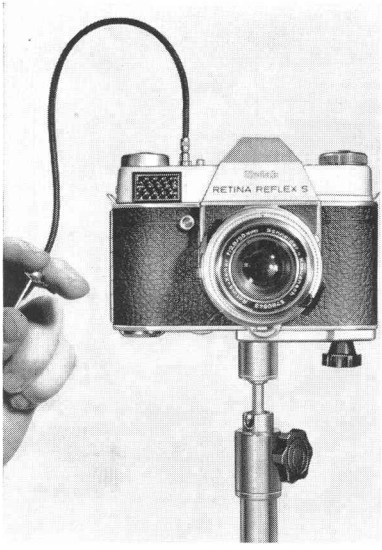
Make a habit therefore of operating the green serrated lever only after you have set all the other controls.

If you use the self-timer for flash shots, the camera is automatically X-synchronized. As the delayed action mechanism runs down, the synchronizing lever automatically moves to X. For such shots therefore be sure to use the correct shutter speed for X-synchronization (see table on the right).

Suitable Shutter Speeds in Seconds

PHILIPS and OSRAM flash bulbs					G. E., G. E. C., MAZDA, and SYLVANIA flash bulbs			
X-Synchronization		X- and M-Synchronization			X-Synchronization		M-Synchronization	
Bulb	Shutter speeds	Bulb	Shutter speeds M	Shutter speeds X	Bulb	Shutter speeds	Bulb	Shutter speeds
XP **XO**	**$^1/_{60}$ sec.** **$^1/_{30}$ sec.**	**PF 1** **PF 25** **XM 1** **XM 5** **SO**	**1 to $^1/_{500}$ sec.**	**1 to $^1/_{30}$ sec.**	**PH/M 2** **PH/SM** **SF** **M 25**	**1 to $^1/_{60}$ sec.**	**PH 8** **PH 5** **M 5** **Bantam 8** **Press 25** **No. 1** **No. 5**	**1 to $^1/_{500}$ sec.**

Unless otherwise stated by the makers, all shutter speeds from 1 to $^1/_{500}$ second can be used. For electronic flash set the synchronizing lever to X.



Time Exposures

For time exposures the green figures on the shutter speed ring are a useful aid. These figures indicate full seconds. They are however only intended to tell you how long you must depress the release button. The letter B is the time exposure setting, in other words at this setting you can keep the shutter open as long as you like by depressing the release button.

For time exposure mount the camera on a tripod with the aid of the camera platform. To avoid camera shake during the exposure, release the shutter with a cable release (this screws into the thread in the release button)

Here is an Example:

At the slowest automatically timed shutter speed of 1 second your meter reading gives you an aperture of f/4 (see top illustration).

To obtain more depth of field you may want to use f/11. In that case rotate the combination selector to bring the figure 11 on the aperture ring opposite the triangular ▲ index mark. Below the figure 11 you now see a green figure 8 (bottom illustration). This tells you that you have to depress the release button for 8 seconds.

Double Exposures

The release lock of the RETINA REFLEX S prevents accidental double exposures. To make a deliberate double exposure for special effects, depress the reversing button (page 25) after the first of the two exposures. Keep it in this position and turn the rapid winding lever. The film then remains in position for a second exposure on the same frame. The film counter, however, indicates one frame more than you have in fact exposed.

Changing Partly Exposed Films

Rewind the partly exposed film as described on page 25. Take care however to leave the trimmed film leader outside the cassette (keep rewinding only as long as the reversing button rotates). 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 20. After closing the camera back, keep advancing the film by

working the rapid winding lever and at the same time depressing the film release button, until the film counter window shows the number at which you unloaded the film.

Eyesight Correction

If you use spectacles but do not want to wear them while taking pictures, you can order a special correction lens from your photo dealer. This lens screws into the finder eyepiece mount. When ordering, please state the exact power required + or — dioptres. No correction lenses are available for astigmatism.

Care of the Camera

Protect your lens against damage and avoid finger prints on the lens surface and the finder eyepiece. For cleaning use a soft sable brush or a soft rag. Use the sable brush from time to time also for dusting the film track and the cassette chamber.

Filters

With a filter special effects may be obtained. As you probably know, most filters have a so-called filter factor. This indicates by how many steps you must reduce the aperture (f/) number obtained by means of the automatic exposure control.

Filters for Black-and-white Films		Correction
Light yellow	(F I)	½ aperture step lower
Medium yellow	(F II)	1 aperture step lower
Yellow green	(F III)	1 aperture step lower
Orange	(F IV)	1½ aperture steps lower
Red	(F V)	3 aperture steps lower
Blue	(F VI)	1½ aperture steps lower
Ultra violet	(F VII)	No correction
Polarizing filter		1½ aperture steps lower

Filters for Kodak Colour Films	Correction
Skylight filter	No correction
Daylight 85 filter for type A film	1 aperture step lower
Daylight filter 85 C for type F film	½ aperture step lower
Photoflood filter 80 B	1 aperture step lower
Light balancing filter 82 A	½ aperture step lower
Polarizing filter	1½ aperture steps lower

The film speed setting must not be changed when using these filters.

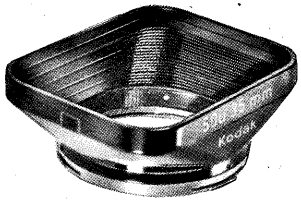
Here is an example: You are using a medium yellow filter (F II), and by taking an exposure reading with your RETINA REFLEX S you have set a combination of 1/60 second at f/11.

From the table opposite you now see that with this filter you must use one aperture step lower. So turn the setting wheel until aperture f/8 is opposite 1/60 second on the scale.

However, if you still want to shoot at f/11, increase the exposure time by rotating the combination control (see page 11) through one step (from 1/60 second to 1/30 second). This alters the aperture to f/16 and you therefore bring it back to f/11 with the setting wheel.

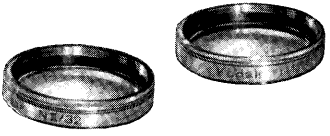
The Lens Hood

The push-on lens hood is a useful accessory for every shot. It prevents flare when shooting against the light, and also protects the lens in rainy or snowy weather. You can use the same lens hood also for the 35 mm wide-angle lens.



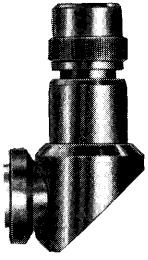
Close-ups

You only need the supplementary N and R close-up lenses for fascinating near shots with your RETINA REFLEX S (with 50 mm f/2,8 lens). The ground glass screen of your camera shows you an exact and parallax-free view of the subject at all distances. For close-ups of butterflies, insects, etc., we recommend the use of the close-up attachment.



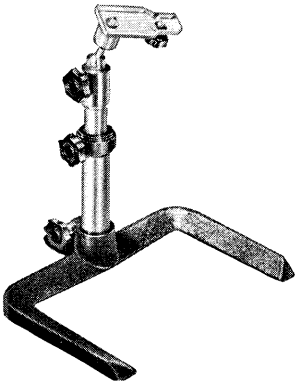
The Right-angle Finder

On occasions when you cannot easily view the subject through the camera finder — for instance with low-level close-ups — fit the right-angle finder over the eyepiece of the camera. You can then view at right angles to the shooting direction.



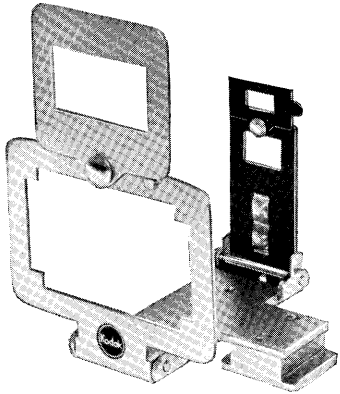
The Table Stand

The table stand is particularly useful for close-ups of subjects which require long exposure times, or for shots where absolute steadiness of the camera is important.



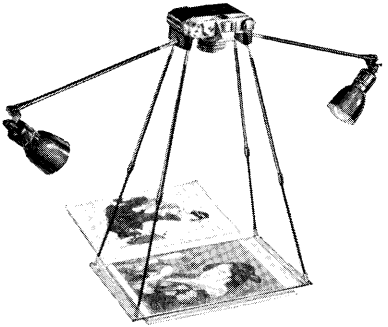
The Frame Finder

The frame finder model c is very useful for high speed action shots. The swivelling front frame can also be used with the 85 mm telephoto lens.



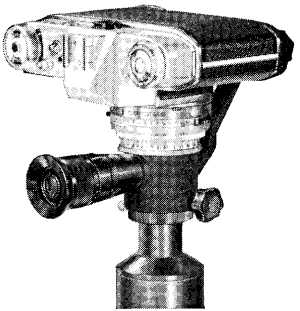
The Copying Stand

This is ideal for rapid copying of documents, valuable prints, books and other collectors items. The originals can be about 6 x 8 inches or nearly 8 x 12 inches large. A special lighting unit is available separately. (Only for use with the 50 mm f/2.8 lens.)

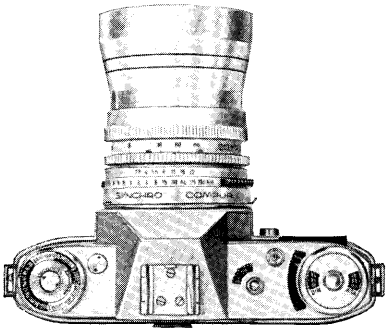


The Micro Adapter

The micro adapter is an invaluable accessory in scientific work as well as for lecture illustration. It adapts the RETINA REFLEX S (with 50 mm f/2.8 lens) to photography through a microscope. It fits all microscopes with a 25 mm eyepiece draw tube.



More Fun with More Lenses



Interchangeable lenses are hard to beat for creative picture taking.

If you have a RETINA REFLEX S, don't miss the immense scope they offer. You will have a lot of fun with the interchangeable lenses of the RETINA REFLEX S: from "fetching" distant subjects with the tele lens to covering the largest possible view with the wide-angle units.

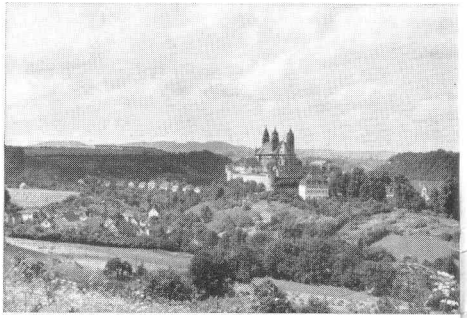
Like the standard lens, every interchangeable RETINA lens has an automatic depth of field indicator. You instantly see the available zone of sharpness.

On the two following pages we show you the various interchangeable lenses for the RETINA REFLEX S.

Wide-Angle Lenses

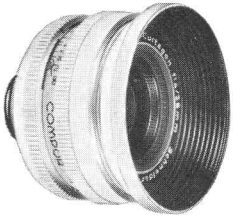
RETINA Eurygon
f : 4/35 mm

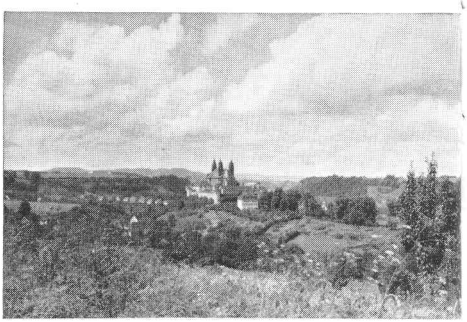
RETINA Curtagon
f : 2,8/35 mm



RETINA Eurygon
f : 2,8/30 mm

RETINA Curtagon
f : 4/28 mm

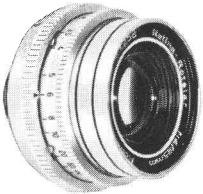




Telephoto Lenses

RETINA Tele-Arton
f : 4/85 mm

RETINA Rotelar
f : 4/85 mm



RETINA Tele-Xenar
f : 4/135 mm

RETINA Rotelar
f : 4/135 mm