Picture taking with the

KODAK DUO SIX-20

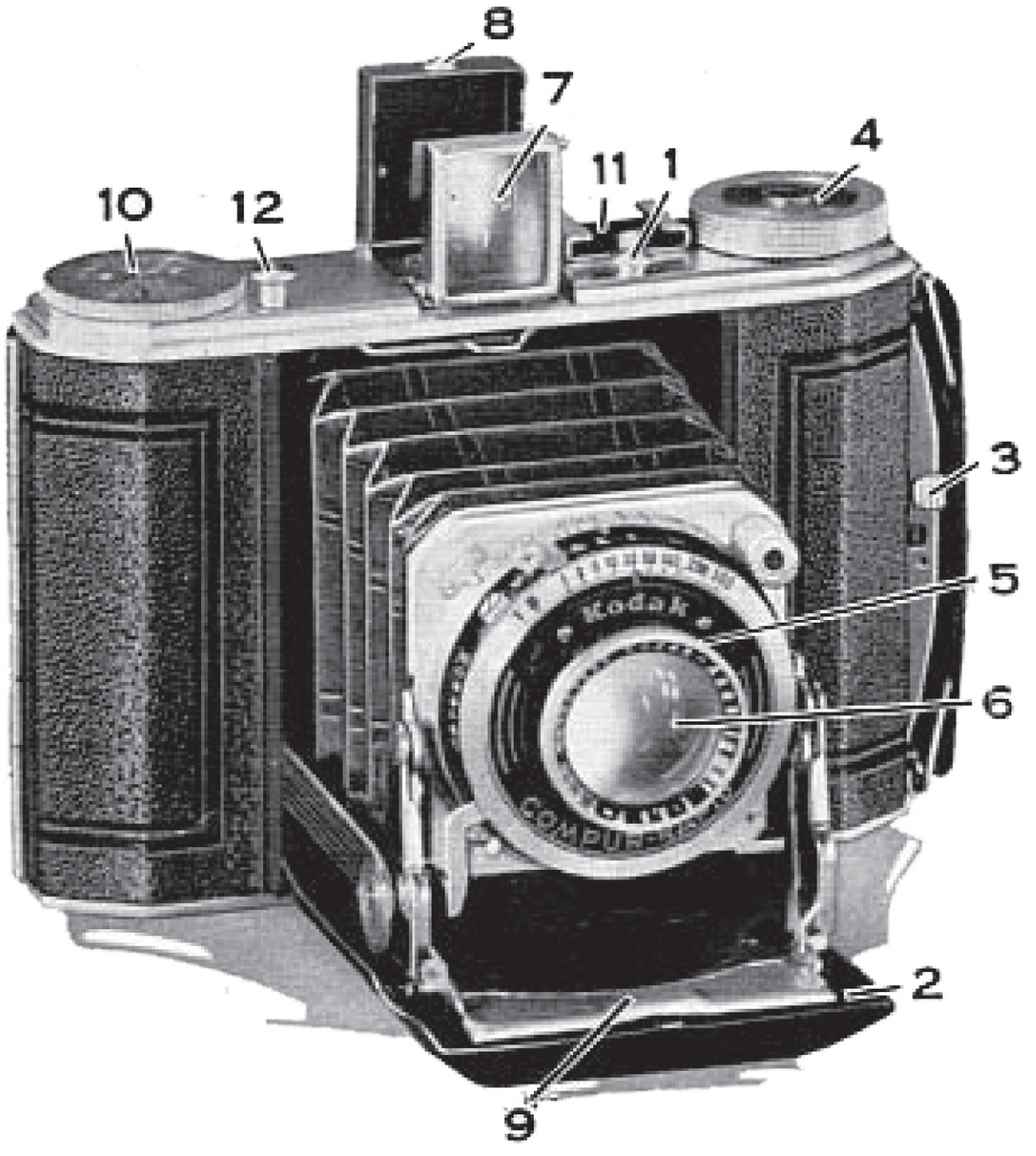
SERIES II

KODAK ANASTIGMAT LENS *f*.3.5
AND COMPUR-RAPID SHUTTER

Picture Size
1⅝ x 2¼ inches

EASTMAN KODAK COMPANY
Rochester, New York, U. S. A.

THE CAMERA



1—Button for Opening Front of Kodak
2—Bed
3—Latch for Opening Back of Kodak
4—Winding Knob
5—Shutter
6—Lens
7—Sight Finder
8—Button for Raising Finder
9—Release for Closing Front
10—Depth of Focus Scale
11—Range Finder Holder
12—Exposure Button

IMPORTANT

BEFORE loading your Kodak with film, and before taking any pictures with it, read these instructions carefully. Take especial care to learn how to operate the shutter, see page 11.

While loading and unloading, be careful to keep the protective paper wound tightly around the film to prevent light striking it. The Kodak can be loaded or unloaded in subdued daylight.

To Load

Use Kodak Film number **F 620, V 620, SS 620** or **620.**

Kodak Panatomic Film (F 620) is a very fine grain panchromatic film intended for use in miniature cameras. The best possible enlargements can be made from Kodak Panatomic Film negatives.

Lift the latch 3 and open the back of the camera. There is an empty spool in the winding end of the camera; this is to be used as the reel.

Important: Place the roll of film in the end opposite the reel, so that when the paper is drawn off the spool, the colored side of the paper will be up, and the black side will be towards the lens. Engage the hole in the spool, with the spool pin on the side of the camera with the tripod socket. Push the spool against this pin, which will then spring out, and permit the other pin to engage with the opposite hole in the spool.

Remove the band that holds the end of the protective paper and pass the paper *over* the rollers.

Thread the paper through the longer opening of the slit in the reel as far as it will go. Draw the paper taut, giving a few turns to the winding knob 4, page 2. The paper must draw straight.

Close the back and push down the latch 3, page 2, to lock the back.

Push the knob of the slide covering the red windows towards the carrying handle.

Turn the winding knob 4, page 2, in the direction of the arrow and watch

the red window nearest the hinge of the back. After a few turns a warning hand will appear; then turn slowly until the *figure 1 is exactly in the center of this window.* The film is now in position for the first exposure.

Push back the slide over the red windows. *The windows should be uncovered only when winding the film;* this should be done in a *subdued light, never in direct sunlight.*

The film is numbered from 1 to 8 but with this Kodak 16 pictures can be made. After making the first exposure turn the winding knob until the *figure 1 is centered* in the other window. The second exposure can now be made. Each number appears twice, first in the window nearest the hinge of the back, then in the other. After every exposure, turn the winding knob until the same or a new number appears in one of the two windows. This prevents making two pictures on the same section of film. *Be careful to* ***center*** *the numbers in the red windows.*

Opening the Kodak

To open the camera press the button 1, page 2, and push down the bed 2 until it locks in position.

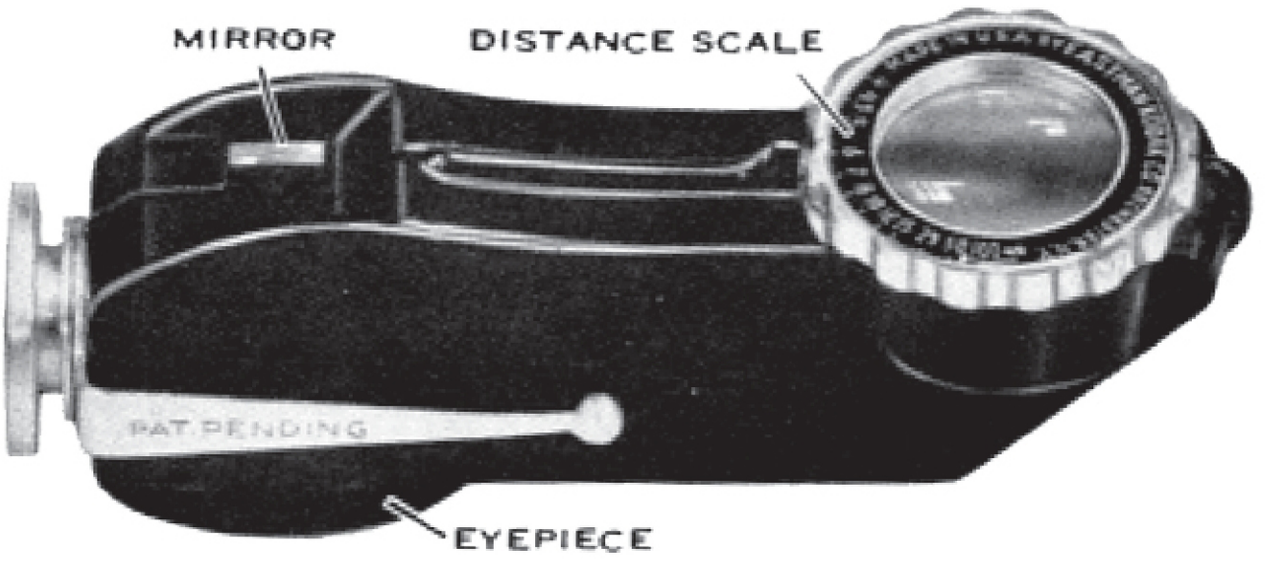
Focusing the Kodak

To focus the Kodak move the lever H, page 12, until the figure representing the distance required comes to the focusing indicator I, page 12. The focusing collar is engraved for the following distances: 3.5, 4, 5, 6, 8, 10, 12, 15, 25 and 50 feet, and Inf. (infinity).

The Kodak Pocket Range Finder will be found a very useful accessory for determining the distance.

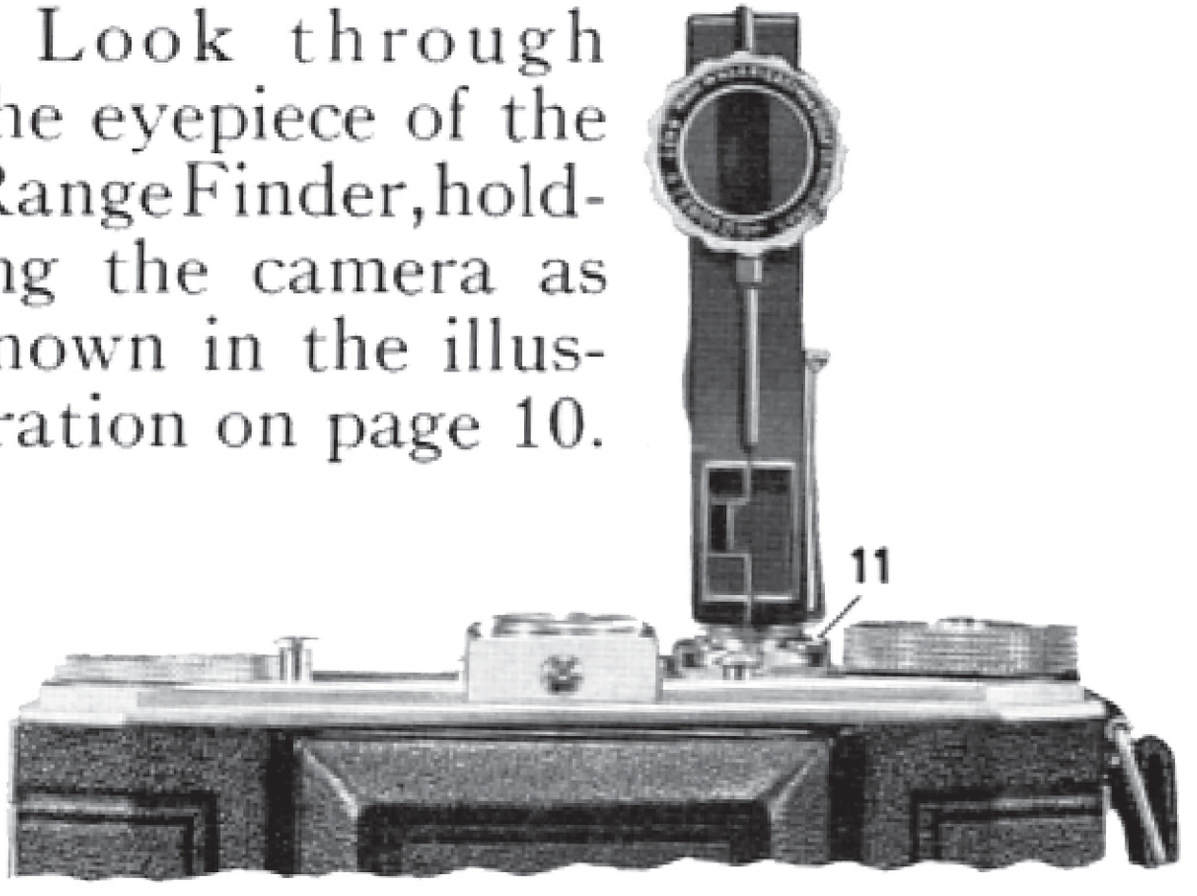
Kodak Pocket Range Finder

To be sure of obtaining sharply focused pictures, a Kodak Pocket Range Finder is recommended, which can be attached to the top of the Kodak Duo Six-20 Series II by sliding the round end of the Range Finder between the two grooves of the Range Finder Holder 11, with the distance



scale towards the front of the Kodak; see illustration below.

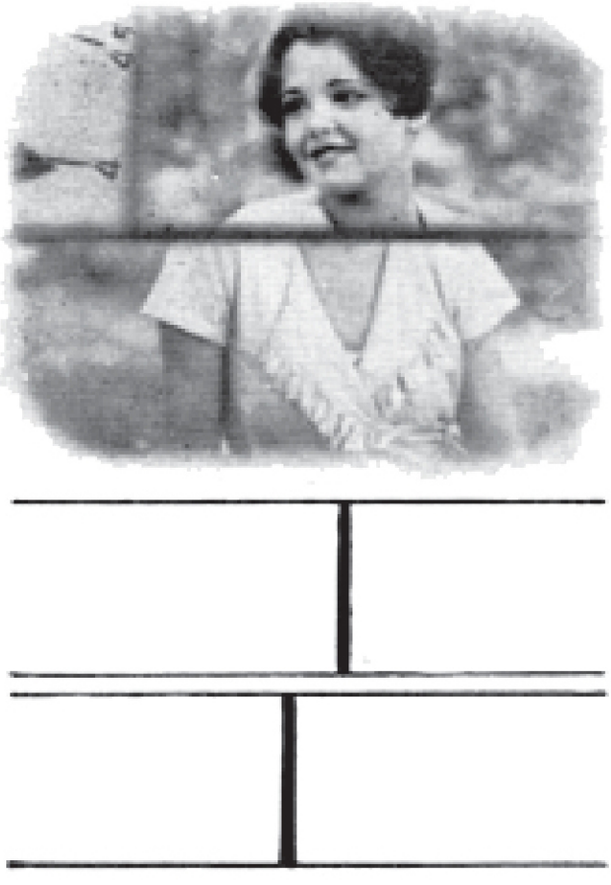
Look through the eyepiece of the RangeFinder, holding the camera as shown in the illustration on page 10.



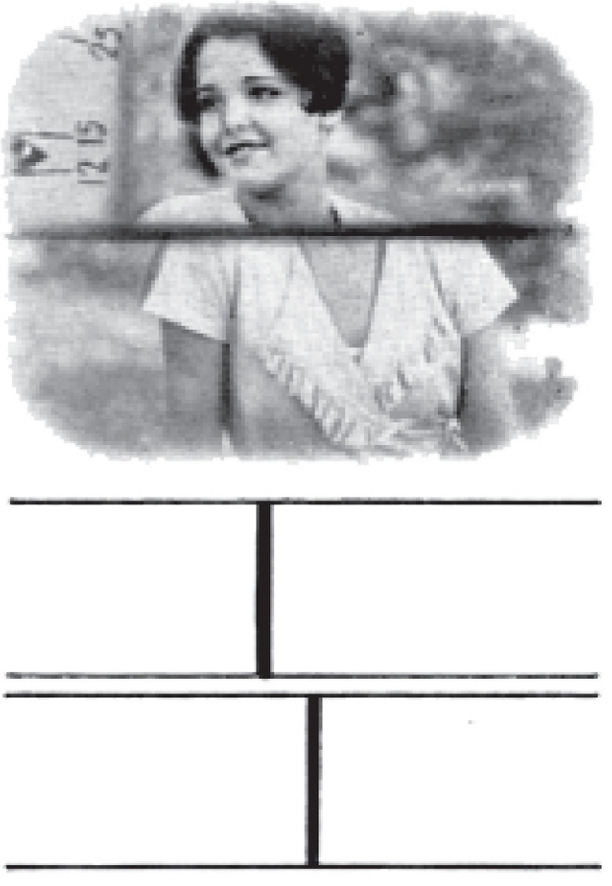
Be careful to keep the fingers away from the mirror.

Revolve the distance scale slowly, looking at some vertical part of the

subject when holding the camera for a horizontal picture. The selected vertical line will appear broken. The part seen in the upper area will be either to the right or left of the vertical line which is seen in the lower area. (To include these two areas, it may be necessary to tilt the finder slightly.) If the upper line is seen to the right of the lower line, turn the distance scale to the left until the line is unbroken.

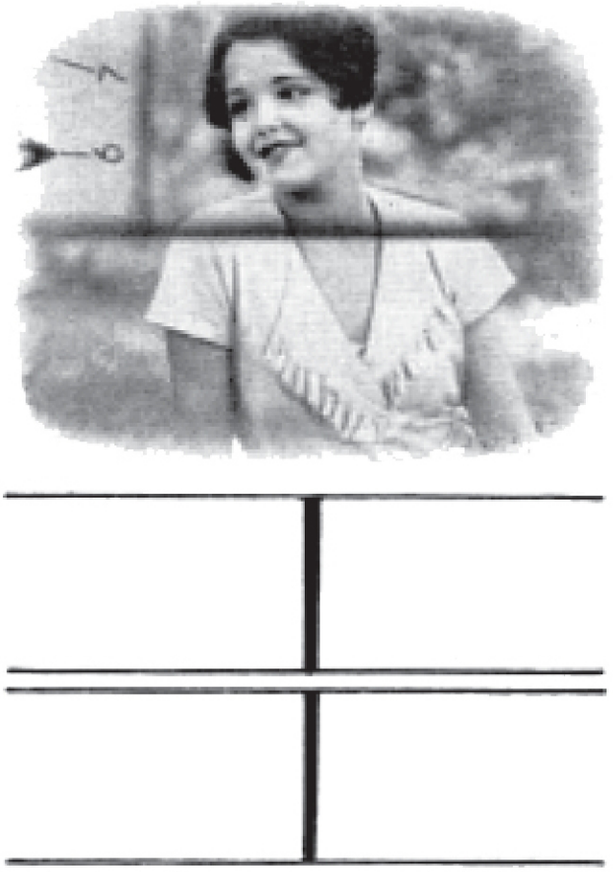


As image will appear when Range Finder is set for a distance nearer than the correct one.



As image will appear when Range Finder is set for a distance beyond the correct one.

If the upper line is seen to the left of the lower line, turn the distance scale to the right until the line is continuous. A pointer and scale can be seen to the left of the subject focused on. The distance between the subject and Range Finder can be read directly in the field of view without referring to the outside scale. The distance 3.5 feet on the focusing scale of the Kodak does not appear on the Range Finder.



As image will appear when Range Finder is correctly focused.

This Finder can be used only on subjects that are motionless.

The Range Finder can also be used with the camera held for a vertical picture. When it is used in this position, focus on some *horizontal line* in the subject.

Holding camera for a horizontal picture.

When the line is continuous, take the reading of the distance between Range Finder and subject, and focus the Kodak for this distance. Then compose the picture in the sight finder 7, page 2, before making the exposure.

SIGHT FINDER

The sight finder 7, page 2, shows what will appear in the picture, but on a much reduced scale. To bring the finder into position lift the button 8, page 2, and the finder will spring into position as in the illustration. In view-

ing, the back sight is brought as close to the eye as possible with the camera pressed firmly against the cheek bone. The subject is seen clearly within the frame lines of the finder. All vertical lines in the subject should appear parallel with the vertical lines of the front frame of the finder.

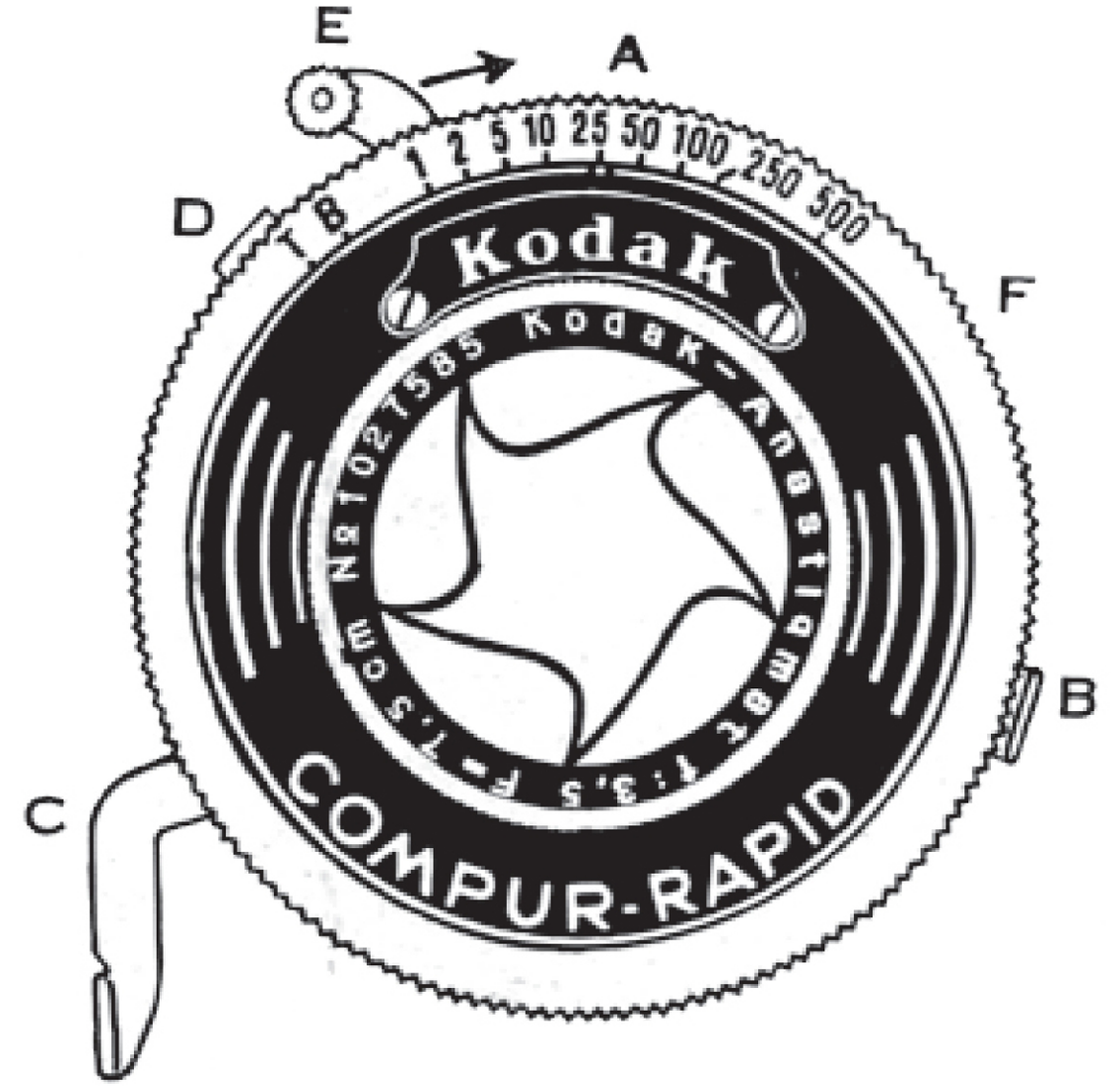
For horizontal pictures the camera is simply turned end up.

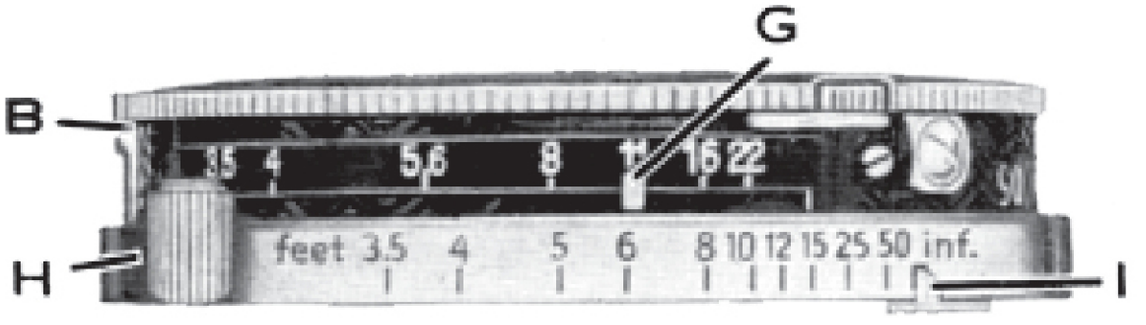
THE SHUTTER

The shutter is marked for exposures of 1 second and 1/2, 1/5, 1/10, 1/25, 1/50, 1/100, 1/250 and 1/500 second, as well as Time and "Bulb" Exposures.

Exposures of intermediate speeds can be made from 1 second to 1/100 (except between 1/10 and 1/25) by setting the shutter between the exposure numbers on the shutter; thus an exposure of 1/75 second is made by turning the knurled collar so that the white pointer A is midway between 1/50 and 1/100. Intermediate exposures cannot be made between 1/100

and 1/250 second or between 1/250 and 1/500 second.





Revolve the knurled collar F on the front of the shutter until the figure representing the time of exposure desired is at the white pointer A.

Before an exposure from 1 to 1/500 second can be made, the shutter must be *set* by pressing the lever E towards the top of the shutter. The exposure is then made by pressing the exposure button 12, page 2, on the top of the Kodak. The exposure can also be made by pressing the lever C. The use of button 12, however, is recommended for snapshots, as it assures a steadier holding of the camera. Time and "Bulb" Exposures do not require *setting* the shutter.

To make a Time Exposure the letter "T" engraved on the shutter must be at the white pointer A and the exposure button 12 or the exposure lever C pressed twice, once to open the shutter, and again to close it.

For "Bulb" Exposures the letter "B" engraved on the shutter must be at the white pointer A and the exposure button 12 or the exposure lever C pressed down; the shutter remains open as long as the exposure button 12 or lever C is held down.

Automatic exposures of 1 second, 1/2, 1/5, or 1/10 second must not be made with the camera held in the hands; a tripod or other firm support must be used for exposures slower than 1/25 second.

Important: *Never oil the shutter.*

STOP OPENINGS

Stop openings regulate the amount of light passing through the lens. These openings are enlarged or reduced by moving the lever B, see page 12. Lever B moves pointer G.

A knowledge of the comparative values of the stop openings is necessary for correctly timing exposures.

The stop openings are marked *f*.3.5, 4, 5.6, 8, 11, 16 and 22.

The largest stop opening is *f*.3.5. This opening allows approximately thirty per cent more light to enter than *f*.4, and about two and a half times more than *f*.5.6. From *f*.4 to *f*.22 each smaller opening (larger number)

admits half the light of the preceding larger stop opening. Thus, if the correct exposure is 1/100 second at *f*.5.6, then for the other smaller stop openings the exposure should be approximately: *f*.8 and 1/50; *f*.11 and 1/25; *f*.16 and 1/10; and *f*.22 and 1/5 second.

The exposure for the average outdoor subject, when the sun is shining, is *f*.5.6 and 1/100 second. If the day is hazy or slightly cloudy, use the next larger opening, that is *f*.4 and 1/100 second. In this way you will give twice the normal exposure. If the day is exceptionally brilliant use the next smaller stop, that is *f*.8 and 1/100 second. *The important thing to remember is the average exposure of f.5.6 and 1/100 second.* When the light conditions differ from the average, change the aperture, keeping in mind the basic exposure *f*.5.6 and 1/100 second. See the exposure guide on the back cover.

The smaller the stop opening the greater the depth of focus or range of sharpness.

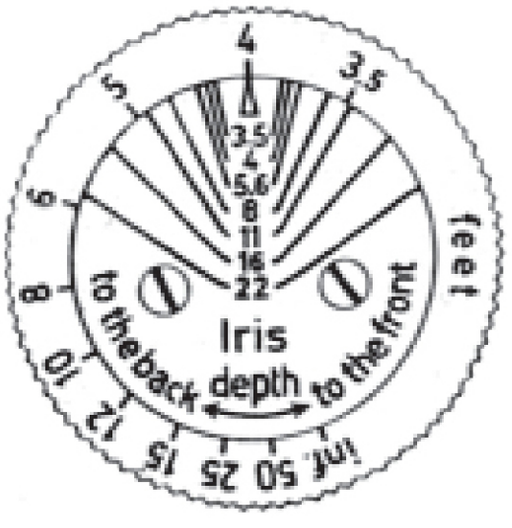
Depth of Focus

Depth of focus is the distance from the nearest to the farthest objects that will appear sharp in the negative or print. It depends upon the distance between the subject and lens, the focal length of the lens, and the size of the stop opening used. The smaller the stop opening the greater the depth of focus or range of sharpness.

Depth of Focus Scale

The Depth of Focus Scale, engraved on the disk 10, page 2, is a help in obtaining correctly focused pictures.

After adjusting the focus of the lens for a certain number of feet, turn the outer ring of the scale 10, page 2, until the number for which the lens is focused is at the pointer.

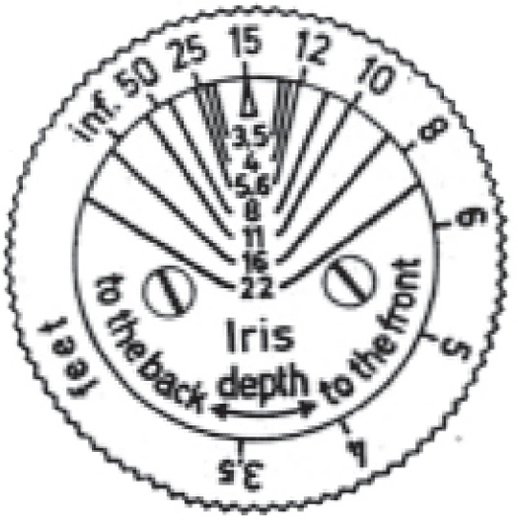


Example 1

Example 1: To find the depth of focus when the lens is focused for four feet, turn the outer ring of

the scale until 4 is at the pointer. We now can read the depth of focus which will be obtained with the various stop openings. With *f*.11 everything from about 3½ feet to a little less than 5 feet will be sharp.

Example 2: To find the correct combination of stop opening and distance for a near-by landscape, turn the outer ring of the scale until 15 is at the pointer. With the Kodak focused for 15 feet and with stop opening *f*.16 everything from about 8 feet to infinity will be sharp.



Example 2

When the subject is 3½ feet from the camera the depth of focus scale on the camera does not show the depth of focus with the various stop openings.

With the Kodak focused at 3½ feet the depth of focus when using *f*.3.5 is 3 feet 4 inches to 3 feet 7 inches; with *f*.5.6 the depth is 3 feet 3 inches to

3 feet 8 inches; and with *f*.11 the depth is 3 feet 2 inches to 4 feet.

When the subject is five feet or nearer to the Kodak and a stop opening of *f*.8 or larger is used, it is advisable to measure the distance between the subject and lens or to use the Kodak Pocket Range Finder. This is especially important when using stop *f*.3.5 or *f*.4.

Hold Kodak Level

The Kodak must be held level if it is desired to have the vertical lines of the subject parallel with the sides of the picture. Unusual effects can be obtained by tilting the Kodak.

Hold Kodak Steady

When making instantaneous exposures or snapshots, hold the Kodak firmly against the cheek bone, and when pressing the exposure button or the exposure lever, hold the breath for the instant. If the Kodak is moved during the exposure, the picture will be blurred.

Closing the Kodak

Before closing the Kodak, *first make sure it is focused for infinity*. To close the Kodak, press the plate release 9, page 2, raise the bed 2 and snap it shut.

Removing the Film

After the last section of the film has been exposed, turn the winding knob 4, page 2, until the end of the paper passes the red window nearest this knob.

In a subdued light, open the back of the Kodak as described on page 3.

The film is removed by pushing down on one of the flanges of the spool and disengaging the pin on the winding knob from the hole in the end of the spool. Fold under about half-an-inch of the protective paper, and fasten with the sticker.

"Cinch" Marks: After removing the film from the camera, do not wind it tightly with a twisting motion, or the film might be scratched.

Important: Film should be developed as soon as possible after exposure. The quality of the image on all sensitized products is retained by prompt development after exposure.

Remove the empty spool and place it in the chamber on the winding side of the roll holder. The slot in the end of the spool must engage the web in the winding knob 4, page 2.

It is a good plan to reload the camera as soon as an exposed film has been removed, to be ready for the next pictures. For the best results, load with Kodak Panatomic Film.

Kodak Sky and Color Filters

The Kodak Sky Filter should be used for obtaining more detail in clouds, when photographing landscapes. The same exposure should be made when using a Sky Filter as would be required without it.

The Kodak Color Filter is valuable when recording the correct color *values* in a black-and-white print of clothing,

flowers, fruits and other colored objects. When using the Color Filter and Kodak Verichrome Film the exposure should be increased about twice; with Kodak Super Sensitive Panchromatic Film and Kodak Panatomic Film the exposure should be increased about fifty per cent.

Use Kodak Sky Filter, Color Filter Portrait Attachment, Diffusion Portrait Attachment and Pictorial Diffusion Disk No. 17 with this Kodak.

When using the Kodak Portrait Attachment or the Kodak Diffusion Portrait Attachment the subject must be at one of the distances from the lens given in the table below. Measure the

Distance Subject to Lens	Focusing Indicator Must be at
1 ft. 11 in.	3½ feet
2 " 1 "	4 "
2 " 4 "	5 "
2 " 6 "	6 "
2 " 9 "	8 "
3 "	10 "
3 " 2 "	12 "
3 " 4 "	15 "

distance carefully from the lens to the subject, and move the focusing lever H, page 12, until the correct figure is at the focusing indicator I, page 12.

CLEANING THE LENS

It is well to wipe the front of the lens with Lens Cleaning Paper or a clean handkerchief before using the camera. Never remove the lens.

Wipe the inside of the camera and bellows, occasionally, with a slightly damp cloth, especially if the camera has not been used for some time.

EASTMAN KODAK COMPANY,
ROCHESTER, N. Y.

AT YOUR SERVICE

The Service Department

THOUGH the essential directions for obtaining good pictures with the Kodak Duo Six-20 Series II are given in this manual, further information on any subject discussed, or any other subject in photography, may be obtained by writing our Service Department. Send your negatives and prints to the department for helpful, constructive criticism of your work. There is no charge — no obligation.

You are also invited to send for a free copy of "At Home with Your Kodak," and "Picture Taking at Night," two booklets containing suggestions and diagrams for taking interesting pictures both indoors and outdoors.

Address all Communications

SERVICE DEPARTMENT

EASTMAN KODAK COMPANY

ROCHESTER, N. Y.

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Outdoor Exposure Guide

for cameras fitted with the *f*.3.5 Anastigmat Lens

Subject	Stop Opening	Shutter Speed
Near-by landscapes with little or no sky. Near-by subjects in open field, park or garden. Street scenes.	*f*.5.6	1/100
Ordinary landscapes with sky, and a principal object in foreground.	*f*.8	1/100
Marine and beach scenes. Extremely distant landscapes. Mountains. Snow scenes without prominent dark objects in the foreground.	*f*.11	1/100
	f.8	1/250
Candid portraits in the open shade, not under trees or the roof of a porch. Shaded near-by scenes.	*f*.3.5	1/75
Narrow and slightly shaded streets.	*f*.4	1/100
Moving objects: When photographing a moving object such as a runner, train or an automobile, the subject should be traveling towards or away from the camera at an angle of about 45 degrees.	*f*.3.5	1/250 or 1/500

Exposures are for the hours from one hour after sunrise until one hour before sunset on days when the sun is shining. If pictures are made earlier or later, or if it is a *slightly* cloudy or hazy day, use a larger stop opening. This table is for Kodak Panatomic, Verichrome, and Super Sensitive Panchromatic Films; if using Kodak N. C. Fim, exposures can be made from 2½ hours after sunrise until 2½ hours before sunset.

Kodak Super Sensitive Panchromatic Film is about fifty per cent faster with morning or afternoon light, than Kodak Verichrome Film.