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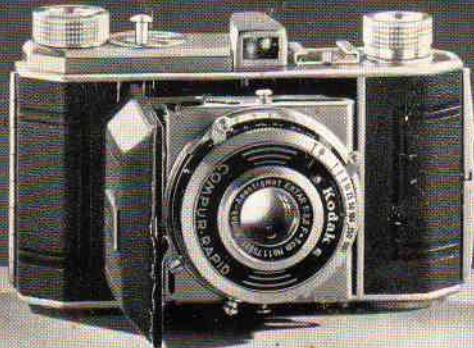
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HOW TO USE THE

KODAK

*Retina*  
I



KODAK ANASTIGMAT EKTAR LENS f.3.5 • COMPUR RAPID SHUTTER

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# KODAK RETINA I

**B**EFORE 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 pages 12 to 15.

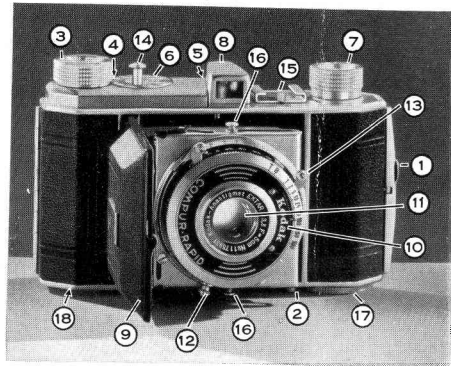
## TO LOAD

Use the Kodak Magazine loaded with one of the following films.

**Kodak Panatomic Film F 135.** This film records color *values* correctly in a black-and-white print. Its very fine grain permits making enlargements of great size. Available in 36- and 18-exposure (24 x 36 mm.) lengths.

**Kodak Super Sensitive Panchromatic Film SS 135.** For indoor pictures with artificial light, and when the lighting conditions are poor. This film gives correct color *values* in a black-and-white print. In 36-exposure lengths only.

**Kodak Super X Panchromatic Film X135.** This extraordinary film goes a step farther even than Kodak SS Panchro-



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1. Lock for Back
2. Button for Opening Front
3. Film Winding Knob
4. Lever Controlling Clutch for Forward and Reverse Winding
5. Lever Release for Winding Film
6. Exposure Counter
7. Film Rewind Knob
8. Finder
9. Bed
10. Shutter
11. Lens
12. Focusing Knob
13. Shutter Setting Lever
14. Shutter Release
15. Range Finder Holder
16. Buttons for Closing Front
17. Depth of Field Indicator
18. Tripod Socket

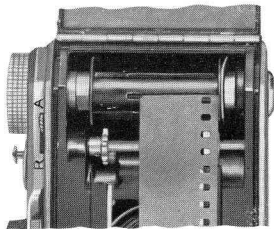
matic Film. In spite of its great speed, Super X does not show any increase in grain size. In 36- and 18-exposure lengths.

**Kodachrome Film K135 or K135A.** For color film positives, use the K135 for daylight, and the K135A for Photoflood or Photoflash light. Both in 18-exposure lengths only. The Kodachrome Film must be returned to an Eastman Kodak Laboratory for processing.

Load and unload your camera in subdued light, never in direct sunlight or in exceptionally strong artificial light. The magazine should not be allowed to remain unprotected in the light; any slight light-leak through the slot will fog the film.

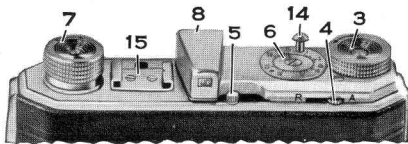
Lift the lock 1, page 2, and open the back of the Kodak. Draw out the film rewind knob 7, page 5, as far as it will come and insert the Kodak Magazine in the recess opposite the reel, with the end in which a crosspiece is seen, towards the rewind knob. Push in the rewind knob as far as it will go.

Insert the end of the film in a slot of the reel, see illustration. *Do not attempt to remove the reel from the camera.*



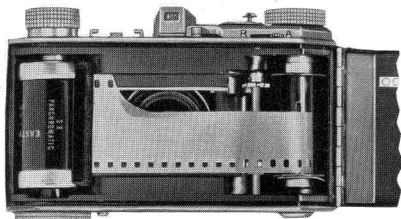
The lever 4, controlling the clutch for winding forward, must be at the letter "A." Turn the film winding knob 3, in the direction of

the arrow, to bind the film on the reel until the full width of film just emerges from the magazine. See illustration on page 6. Be sure that the film will ride



properly in the path provided for it. Should the film winding knob 3 be locked, push the lever release 5 to the opposite end of the slot. This release will automatically return to its original

position. Now close the back of the camera and lock it.



Turn the film winding knob 3, page 5, in the direction of the arrow until it locks. Push the lever release 5 to the other end of the slot, let it spring back, and again turn the winding knob until it locks. *Repeat this operation.* Enough film will now be wound on the take-up reel to avoid having the first exposure ruined by fog. The lever release 5 should now be moved, as often as it may be necessary, to bring the indicator of counter 6 to the figure 1. The Kodak is now ready for the first exposure.

After making the exposure, push the lever release 5, page 5; this automatically controls the exposure counter which gives an accurate check on the

number of exposures made. Immediately after pushing the lever release 5, turn the film winding knob 3 until it locks; this brings the next section of film into position. Either 36 or 18 exposures can be made on the film in the Kodak Magazine, see pages 3 and 4. After every exposure, push the lever release 5 and turn the winding knob 3 to bring the next section of film forward. This prevents making two pictures on one section of film.

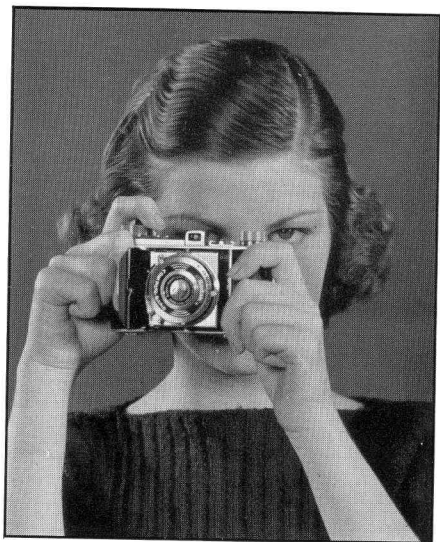
### **OPENING THE KODAK**

Press the button 2, page 2, and draw down the bed 9 until it locks.

### **THE FINDER**

The finder 8, page 5, shows what will appear in the picture, but on a much reduced scale. In viewing, the rear of the finder is brought as close to the eye as possible with the camera pressed firmly against the face, see page 8. All vertical lines in the subject should appear parallel with the vertical lines of the front frame of the finder.

For vertical pictures the camera is simply turned end up.

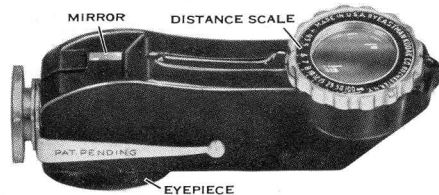


### FOCUSING THE KODAK

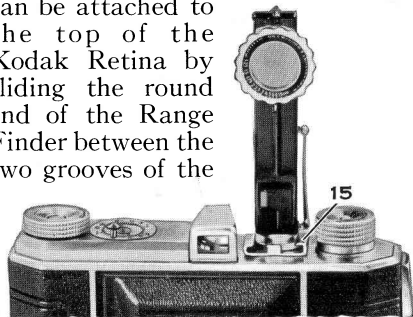
To focus the Kodak move the focusing knob 12 until the figure representing the distance between the subject and camera comes to the focusing line 12A, see page 13. The focusing collar is engraved for the following distances: 3.5, 4, 5, 6, 8, 10, 12, 15, 25, and 50 feet, and Inf. (infinity).

Before making a horizontal exposure, when using the focusing scale marked in red, tilt the Kodak a trifle to see if it is correctly focused.

### 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 Retina by sliding the round end of the Range Finder between the two grooves of the



Range Finder Holder 15, with the distance scale towards the front of the Kodak; see lower illustration on page 9.

Look through the eyepiece of the Range Finder, holding the camera as shown in the illustration on page 12. 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 vertical picture. The selected vertical line will appear broken. The part seen

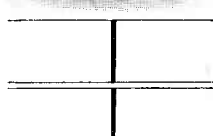


As image will appear when Range Finder is set for a distance nearer than the correct one.



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

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. 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

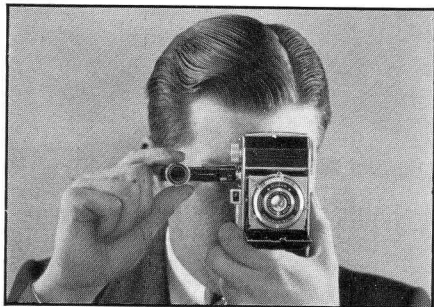


As image will appear when Range Finder is correctly focused.

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.

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

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



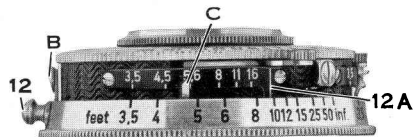
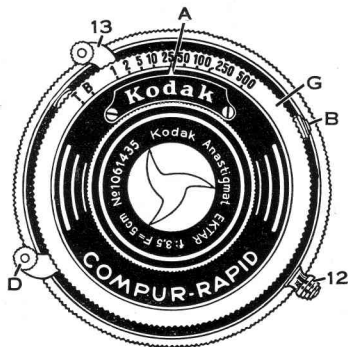
When the line is continuous, take the reading of the distance between Range Finder and subject, and focus the Kodak for this distance. Then compose the picture in the sight finder 8, page 5, before making the exposure.

## 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 expo-

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

Revolve the knurled collar G on the front of the shutter until the figure representing the time of exposure desired is at white pointer A, page 13.

Before an exposure from 1 to 1/500 second can be made, the shutter must be *set* by pressing the lever 13 towards the top of the shutter. The exposure is then made by pressing the shutter release 14, page 2, or the release D, page 13. It is not advisable to change the speed of the shutter from 1/250 to 1/500 or vice versa *after the shutter has been set*. 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 shutter release 14 (or the release D) 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 shutter

release 14, page 2, or the release D, page 13, pressed down; the shutter remains open as long as the release 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 13. Lever B moves pointer C.

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, 5.6, 8, 11, and 16.

The largest stop opening is *f.3.5*. This opening allows approximately sixty per cent more light to enter than *f.4.5*, and about two and a half times more than *f.5.6*. From *f.5.6* to *f.16*



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 the exposure for *f.3.5* should be 1/250 second; for *f.8*, 1/50 second; for *f.11*, 1/25 second; and for *f.16*, 1/10 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 largest opening, that is, *f.3.5* and 1/100 second. If the day is exceptionally brilliant, use the next smaller stop to *f.5.6*, 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. (For Kodachrome Film follow the guide included with the film.)

The smaller the stop opening the greater is the range of sharpness.

## DEPTH OF FIELD

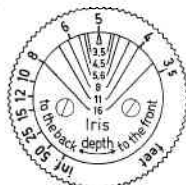
Depth of field is the distance from the nearest to the farthest objects that will appear sharp in the negative or print. It depends upon the distance between subject and lens, the focal length of the lens, and the size of the stop opening used; the smaller the stop opening the greater the range of sharpness.

## DEPTH OF FIELD INDICATOR

The Depth of Field Indicator, engraved on the disk 17, 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 indicator until the number for which the lens is focused is at the pointer.

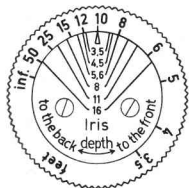
Example 1: To find the depth when the lens is focused for five feet, turn the outer ring of the indicator until 5 is at the pointer; we now can read the range of



Example 1

sharpness which will be obtained with the various stop openings. With  $f.11$  everything from about 4 feet to almost 7 feet will be sharp.

Example 2: When the lens is focused for ten feet, turn the outer ring of the indicator until 10 is at the pointer; we then find that with  $f.5.6$ , objects as near as 8 feet and as distant as about 13 feet will be sharp; with  $f.16$  every-



Example 2

thing from a little less than 6 feet to about 50 feet will be sharp.

When the subject is  $3\frac{1}{2}$  feet from the camera, the depth of field indicator shows the range of sharpness to the rear only, with the various stop openings.

With the Kodak focused at  $3\frac{1}{2}$  feet, the range of sharpness when using  $f.3.5$  is 3 feet 4 inches to 3 feet 9 inches; with  $f.5.6$ , the depth is 3 feet 2 inches to 3 feet 10 inches; and at  $f.11$ , the range is 3 feet to 4 feet 4 inches.

## HOLD KODAK STEADY

When making instantaneous exposures or snapshots, hold the Kodak firmly against the face, see page 8; and when pressing the shutter release 14, page 2, or the release D, page 13, hold the breath for the instant. If the Kodak is moved during the exposure, the picture will be blurred.

The Kodak should 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.

## CLOSING THE KODAK

Before closing the Kodak, *first make sure it is focused for infinity*. The Kodak cannot be closed when the shutter is set. To close the Kodak, press the two buttons 16, page 2, and raise the bed 9.

## REMOVING THE FILM

After the thirty-sixth exposure has been made (eighteenth exposure with an 18-exposure magazine), push the lever 4, page 5, controlling the clutch, to "R." The film should now be re-

wound into the magazine by turning the film rewind knob 7, page 5, in the direction of the arrow. Rewinding the film after the thirty-sixth exposure (eighteenth exposure with an 18-exposure magazine) will prevent any possibility of the film winding too far and tearing loose from the supply spool.

When rewinding the film with rewind knob 7, page 5, the film winding knob 3 will turn. When the film winding knob 3 stops turning, give a few more turns to the rewind knob 7. The film is now rewound into the magazine. The magazine should be replaced in the aluminum tube, in which it was originally packed, immediately after removal from the Kodak, to avoid light leaking into the slot.

**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.

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.

## KODAK RETINA I FILTERS

There are four filters obtainable for the Kodak Retina I for black-and-white pictures: N-1 Light Yellow, N-2 Medium Yellow, N-3 Green, and N-4 Orange. These filters are screwed into the inside flange of the lens mount. The factors for Kodak Super Sensitive Panchromatic, Kodak Super X Panchromatic, and Kodak Panatomic Films are:

Retina I Filter	Daylight	Tungsten
N-1	1.5	1.5
N-2	2.0	1.5
N-3	2.5	1.5
N-4	3.0	—

By a filter factor is meant the number of times the exposure must be increased when using a filter.

The N-1 filter is recommended when only a partial correction of color values in a black-and-white negative is desired; the N-2 filter gives a better color correction; and the N-3, a full correction with daylight. Write to the Service Department, Eastman Kodak Company, Rochester, N. Y., for a

free copy of the booklet "Color Filters and Kodak Films."

The N-4 filter should be used only for cutting haze when making a distant landscape.

Use the No. 17 Kodachrome Filters with Kodachrome Film, see directions included with the film.

The No. 17 Kodak Sky Filter, Diffusion Portrait Attachment, and Pictorial Diffusion Disk can be used with the Kodak Retina I.

### **KODAK RETINA I PORTRAIT ATTACHMENTS A, B, AND C**

While this Kodak can be focused for subjects as close as  $3\frac{1}{2}$  feet, permitting the obtaining of head and shoulder portraits, it can be focused for much closer distances when the Kodak Retina I Portrait Attachments are used.

By using the Kodak Retina I Portrait Attachments, large images of flowers and similar "still life" subjects can be obtained. For the best results when making pictures of subjects at short distances, it is advisable to use *f*.8 or a smaller opening.

Screw the Attachment into the lens mount. When making a horizontal picture, center the subject in the finder; then tilt the camera up *slightly*. When making a vertical exposure, the finder should not be used, as the short distances at which the subject must be from the shutter make it necessary to center the subject by eye instead of by the finder. This is done by sighting over the top of the camera, the eye being very close to the camera.

The subject must be at one of the distances from the Kodak given in the tables on pages 24 and 25, depending upon which Attachment is used. Measure the distance carefully from the shutter to the face, and turn the focusing knob 12, page 13, until the correct figure is at the focusing line 12A, page 13, according to the table.

The same exposure is required as without the Attachment.

The fronts of the Kodak Retina I Portrait Attachment Mounts are threaded so that a color filter can be screwed into the front of the Attachment.

## RETINA I PORTRAIT ATTACHMENT A

WITH THE FOCUS SET AT	DISTANCE SUBJECT TO SHUTTER	SIZE OF SUBJECT SHOULD NOT EXCEED
3½ feet	21 inches	9⅝ x 14½ inches
4 "	22 "	10⅛ x 15¼ "
5 "	24 "	11⅛ x 16¾ "
6 "	26 "	12 " x 18⅛ "
8 "	29 "	13⅝ x 20½ "
10 "	31 "	14⅝ x 22 "
12 "	32 "	15⅛ x 22¾ "
15 "	34 "	16⅛ x 24¼ "
25 "	36 "	17⅛ x 25¾ "
50 "	39 "	18¾ x 28⅞ "
Inf.	41 "	19¾ x 29⅝ "

## RETINA I PORTRAIT ATTACHMENT B

WITH THE FOCUS SET AT	DISTANCE SUBJECT TO SHUTTER	SIZE OF SUBJECT SHOULD NOT EXCEED
3½ feet	16 inches	7⅜ x 11 inches
4 "	17 "	7⅞ x 11¾ "
5 "	18 "	8⅜ x 12¾ "
6 "	18½ "	8⅝ x 12⅞ "
8 "	20 "	9⅜ x 14 "
10 "	21 "	9⅞ x 14⅞ "
12 "	21½ "	10¼ x 15¼ "
15 "	22½ "	10⅝ x 16 "
25 "	23½ "	11⅛ x 16¾ "
50 "	24½ "	11¾ x 17½ "
Inf.	25 "	12 " x 17⅞ "

## RETINA I PORTRAIT ATTACHMENT C

WITH THE FOCUS SET AT	DISTANCE SUBJECT TO SHUTTER	SIZE OF SUBJECT SHOULD NOT EXCEED
3½ feet	12⅜ inches	5⅝ x 8⅞ inches
4 "	12⅞ "	5⅞ x 8⅞ "
5 "	13⅜ "	6¼ x 9⅜ "
6 "	13¾ "	6⅜ x 9⅝ "
8 "	14⅜ "	6¾ x 10⅜ "
10 "	14¾ "	7 " x 10½ "
12 "	15 "	7⅞ x 10⅝ "
15 "	15¼ "	7¼ x 10⅞ "
25 "	15½ "	7⅜ x 11⅝ "
50 "	15¾ "	7⅞ x 11⅝ "
Inf.	16 "	7⅞ x 11⅝ "

## EXPOSURE TABLE FOR INTERIORS

The table on page 26 gives suitable exposures when using stop *f.5.6*.

With stop <i>f.3.5</i>	give	two-fifths;
" " <i>f.4.5</i>	"	two-thirds;
" " <i>f.8</i>	"	twice;
" " <i>f.11</i>	"	four times;
" " <i>f.16</i>	"	eight times

the exposure given in the table on page 26.

## CLEANING THE LENS

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

## EXPOSURE TABLE FOR INTERIORS USING STOP f.5.6

	BRIGHT SUN	HAZY SUN	CLOUDY BRIGHT	CLOUDY DULL
White walls and more than one window.	½ sec.	1 sec.	3 secs.	5 secs.
White walls and only one window.	¾ sec.	2 secs.	4 secs.	8 secs.
Medium colored walls and furnishings and more than one window.	1 sec.	3 secs.	5 secs.	10 secs.
Medium colored walls and furnishings and only one window.	1 ½ secs.	4 secs.	8 secs.	15 secs.
Dark colored walls and furnishings and more than one window.	2 secs.	5 secs.	10 secs.	20 secs.
Dark colored walls and furnishings and only one window.	5 secs.	10 secs.	20 secs.	40 secs.

These exposures are for rooms where windows get the direct light from the sky and for hours from three hours after sunrise until three hours before sunset. If earlier or later the exposures must be longer.

## AT YOUR SERVICE

### *The Service Department*

THOUGH the essential directions for obtaining good pictures with the Kodak Retina I 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.

## OUTDOOR EXPOSURE GUIDE

SUBJECT	STOP OPENING	SHUTTER SPEED
Near-by landscapes with little or no sky. Near-by subjects in open field, park or garden. Street scenes.	<i>f.5.6</i>	1/100
Ordinary landscapes with sky, and a principal object in the foreground.	<i>f.8</i>	1/100
Marine and beach scenes. Extremely distant landscapes. Mountains. Snow scenes without prominent dark objects in the foreground.	<i>f.11</i>	1/100
	<i>f.8</i>	1/250
Portraits in the open shade, not under trees or the roof of a porch. Shaded near-by scenes.	<i>f.3.5</i>	1/100
Narrow and slightly shaded streets.	<i>f.4.5</i>	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.	<i>f.3.5</i>	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. The above exposure table is for use with Kodak Panatomic Film. Kodak Super X Panchromatic Film is twice as fast as Kodak Panatomic Film by daylight, if the films are developed in Developer D-76. For Kodachrome Film, follow the exposure guide supplied with the film; do not use the above guide.

Kodak Super X Panchromatic Film is about fifty per cent faster than Kodak Super Sensitive Panchromatic Film.