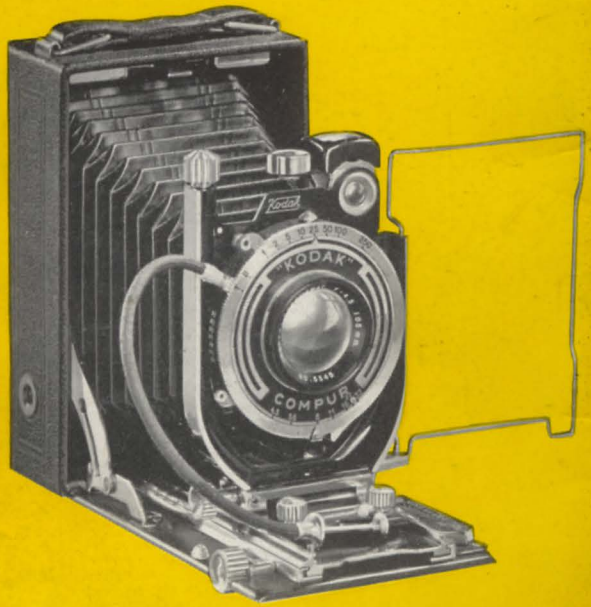
How to Use the

KODAK RECOMAR

NOS. 18 AND 33

KODAK ANASTIGMAT LENS f/4.5

Versatility



THE KODAK RECOMAR

THE Kodak Recomar is the complete camera. All the various types of sheet film and plates can be used with it, as well as the convenient film packs in the popular emulsions.

Besides its use for black-and-white photography it can be used for making transparencies in full color on Kodachrome and this, either in full size, or the 35 mm. (1 x 1½ inch) size, with the aid of the Miniature Kodachrome Adapter (available as an accessory). These miniature transparencies are then returned to you, ready for projection in one of the Kodaslide Projectors.

The double extension bellows, rising and falling front and ground glass screen of the Kodak Recomar are great advantages in composing the picture. The Kodak Recomar is ideally suited for making copies.

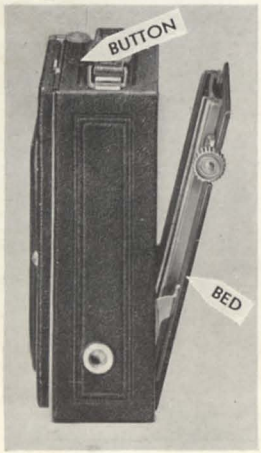
IMPORTANT

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 5.

How to Use the KODAK RECOMAR

OPENING THE FRONT

PRESS the BUTTON behind the carrying handle, and draw down the BED until it locks. Press the left FINGER GRIP towards the grip on the right and draw out the LENS STANDARD until the FOCUSING POINTER strikes the catch at *Inf.* on the focusing scale.

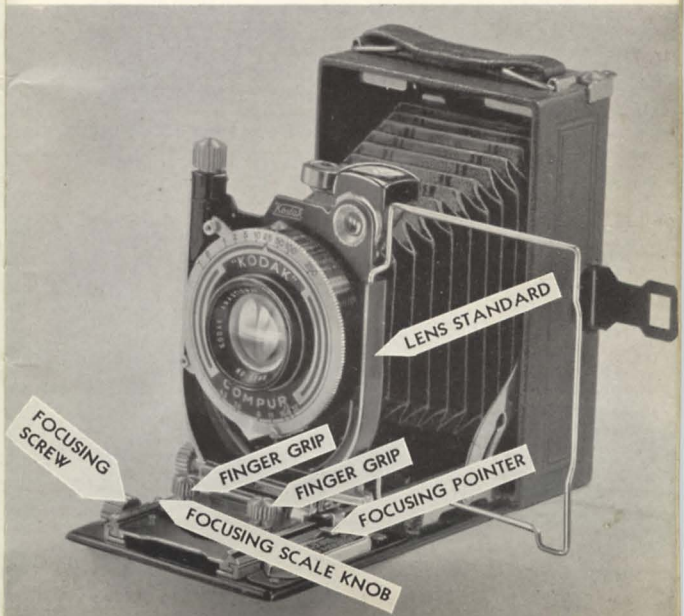


TO FOCUS THE KODAK

The focusing scale is marked for Infinity, 50, 25, 15, 10, 8, 6, 5 and 4 feet.

When the LENS STANDARD is drawn out to the Infinity line, the Kodak is in focus for anything about 100 feet or beyond. To adjust the focus for subjects at distances nearer than 100 feet, move the focusing scale to the right by pulling the FOCUSING SCALE KNOB out and away from the camera, and turn the FOCUSING SCREW forward until the FOCUSING POINTER is exactly at the line marked with the figure corresponding nearest to the distance in feet, between the camera and the *principal object* to be photographed.

The distance between the subject and Kodak



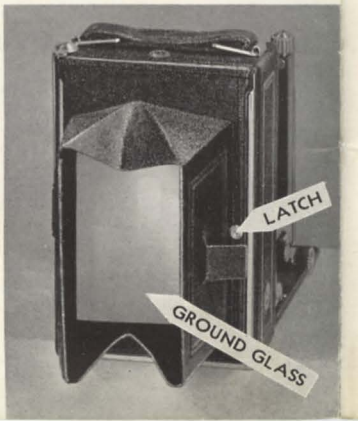
can be estimated without focusing on the ground glass or measuring, when the subject is *fifteen feet and beyond.*

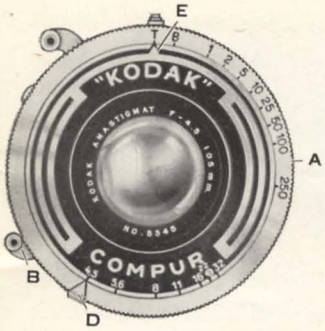
For ordinary street pictures the focus may be kept at 25 feet, but where the *principal object* is nearer or farther away, the focus should be changed accordingly.

For distant views set the focus at Infinity.

FOCUSING ON THE GROUND GLASS

PUSH the LATCH holding the focusing hood to the right, and open the hood. Turn the collar A of the shutter until "T" is above the pointer E, then press the lever B to open the shutter. The stop opening lever D should be at *f*/4.5. Focus the Kodak moving the lens back and forth by means of the FOCUSING SCREW, page 3, until the image appears sharp on the GROUND GLASS. The eyes should be at the ordinary reading distance, from the GROUND GLASS. When focusing on a subject which has considerable depth, or on a group of

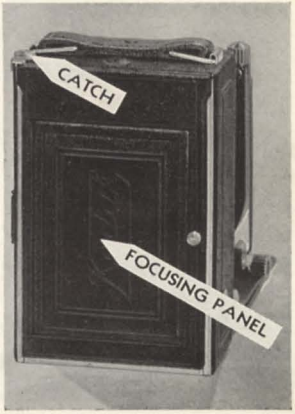


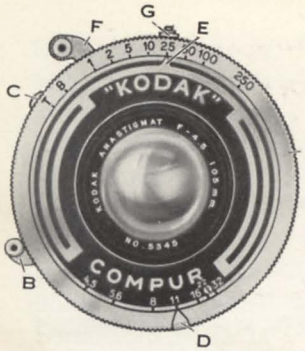


people in several rows, focus on the middle distance, and then stop down the lens to about *f*/11. This will make the entire picture sharp. See Depth of Field Tables, pages 10 and 11. Close the shutter. Push the CATCH away from the camera, and slide out the FOCUSING PANEL. When inserting a Combination Plate and Film Holder or the Film Pack Adapter hold back the CATCH.

THE SHUTTER

THE Compur Shutter is marked for making exposures of 1 second and 1/2, 1/5, 1/10, 1/25, 1/50, 1/100 and 1/250 second on the No. 18 Recomar (1/200 second on the No. 33 Recomar), also Time and "Bulb" Exposures.





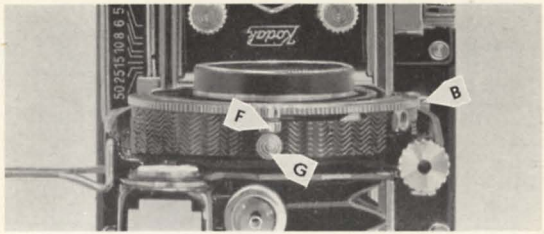
Exposures of intermediate speeds can be made from 1 second to 1/100 (except between 1/10 and 1/25) by setting the shutter between the exposure numbers on the shutter, thus an exposure of 1/75 second is made by turning the knurled collar so that the white pointer E is midway between 1/50 and 1/100. Intermediate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

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

For all exposures from 1 second to 1/200 or 1/250 second the shutter *must* be *set* by pressing the lever F towards the top of the shutter. The exposure is made by pressing the exposure lever B or by the cable release which can be screwed into the opening C. Time and "Bulb" Exposures do not require *setting* the shutter.

THE SELF-TIMER

THERE is a release built into the shutter, for those who wish to be included in the picture.



To use the "Self-Timer," push the setting lever F, as far as it will go, then push the knob G, towards the back of the camera, now push the setting lever F, to the end of the slot. Push the exposure lever B or the push-pin of the cable release. Get into the picture. After about twelve seconds the exposure will be made.

This self-acting release cannot be used with speeds of 1/200 or 1/250 second, nor with Time or "Bulb" Exposures.

TIME AND "BULB" EXPOSURES

To make a Time Exposure the letter "T" engraved on the shutter must be at the white pointer E, and the exposure lever B or cable release 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 pointer E, and the exposure lever B or release C pressed

down; the shutter remains open as long as the lever B or release 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. The Kodak has two tripod sockets for use with a tripod, or an Optipod.

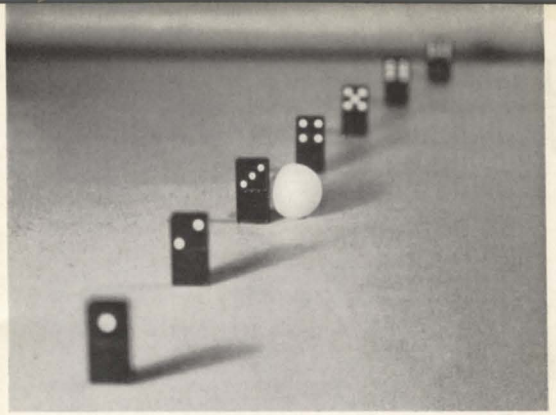
STOP OPENINGS

STOP openings regulate the amount of light passing through the lens. These openings are enlarged or reduced by moving the lever D, see page 6.

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

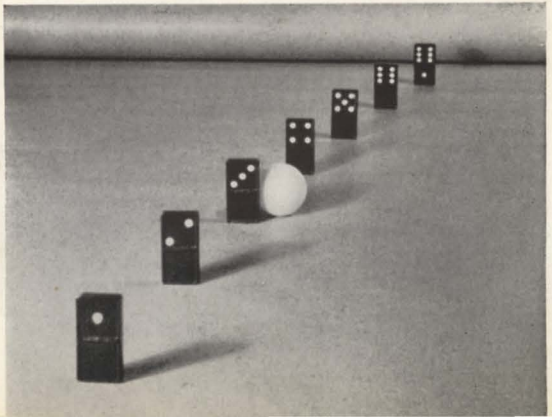
The largest stop opening is *f*/4.5. This opening allows approximately fifty per cent more light to enter than *f*/5.6. From *f*/5.6 to *f*/16 each smaller opening (larger number), admits half the light of the preceding larger stop opening. Thus if the correct exposure is 1/100 second at *f*/5.6, then for the other stop openings the exposure should be approximately: *f*/8 and 1/50; *f*/11 and 1/25; *f*/16 and 1/10; *f*/22 and 1/5; and *f*/32 and 1/2.

The smaller the stop opening the greater is the depth of field or range of sharpness, see the tables on pages 10 and 11.



The picture above was made with the lens focused on the third domino, using a large stop opening.

In the illustration below the focus is on the third domino, but a much smaller stop opening was used. Note the increase in the range of sharpness by using a smaller stop opening.



THE DEPTH OF FIELD FOR DIFFERENT STOP OPENINGS

By "depth of field" is meant the distance or range of sharpness in front of and behind the subject focused on, within which details in the picture will be sharp and distinct.

Table for use with the Kodak Recomar No. 18

Distance Focused Upon	*f*/4.5	*f*/5.6	*f*/11	*f*/16	*f*/22
INF.	63 ft. to inf.	51 ft. to inf.	26 ft. to inf.	18 ft. to inf.	13 ft. to inf.
50 ft.	28 ft. to 238 ft.	25 ft. to inf.	17 ft. to inf.	13 ft. to inf.	9 ft. to inf.
25 ft.	18 ft. to 41 ft.	17 ft. to 49 ft.	12¾ ft. to inf.	10½ ft. to inf.	8½ ft. to inf.
15 ft.	12 ft. to 19⅜ ft.	11½ ft. to 21½ ft.	9½ ft. to 35½ ft.	8 ft. to 95 ft.	7 ft. to inf.
10 ft.	8⅜ ft. to 12 ft.	8⅓ ft. to 12½ ft.	7¼ ft. to 16⅓ ft.	6½ ft. to 22½ ft.	5⅔ ft. to 44 ft.
8 ft.	7 ft. to 9⅙ ft.	6¾ ft. to 9½ ft.	6 ft. to 11½ ft.	5½ ft. to 14½ ft.	5 ft. to 21 ft.
6 ft.	5½ ft. to 6⅔ ft.	5⅓ ft. to 7 ft.	5 ft. to 8 ft.	4½ ft. to 9¼ ft.	4⅛ ft. to 11⅔ ft.
5 ft.	4⅔ ft. to 5⅓ ft.	4½ ft. to 5½ ft.	4¼ ft. to 6¼ ft.	4 ft. to 7 ft.	3⅔ ft. to 8½ ft.
4 ft.	3¾ ft. to 4¼ ft.	3⅔ ft. to 4⅓ ft.	3½ ft. to 4⅝ ft.	3⅓ ft. to 5¼ ft.	3 ft. to 6 ft.

The depth of field is not given for *f*/8 or *f*/32. The depth or range of sharpness for these two openings can be estimated by comparison.

"Inf." is the abbreviation for Infinity—meaning an unlimited distance from the lens.

THE DEPTH OF FIELD FOR DIFFERENT STOP OPENINGS

By "depth of field" is meant the distance or range of sharpness in front of and behind the subject focused on, within which details in the picture will be sharp and distinct.

Table for use with the Kodak Recomar No. 33

Distance Focused Upon	*f*/4.5	*f*/5.6	*f*/11	*f*/16	*f*/22
INF.	104 ft. to inf.	84 ft. to inf.	43 ft. to inf.	29½ ft. to inf.	21½ ft. to inf.
50 ft.	33 ft. to 95 ft.	31 ft. to 123 ft.	23 ft. to inf.	18½ ft. to inf.	15 ft. to inf.
25 ft.	21 ft. to 32 ft.	19½ ft. to 35½ ft.	15⅜ ft. to 60 ft.	13½ ft. to 167 ft.	11½ ft. to inf.
15 ft.	13 ft. to 17½ ft.	12⅜ ft. to 18½ ft.	11 ft. to 23 ft.	10 ft. to 30½ ft.	9 ft. to 50 ft.
10 ft.	9½ ft. to 11 ft.	9 ft. to 11½ ft.	8 ft. to 13 ft.	7½ ft. to 15 ft.	7 ft. to 18¾ ft.
8 ft.	7½ ft. to 8⅜ ft.	7½ ft. to 9 ft.	6⅜ ft. to 10 ft.	6⅓ ft. to 11½ ft.	6 ft. to 13½ ft.
6 ft.	5⅝ ft. to 6⅓ ft.	5½ ft. to 6½ ft.	5⅓ ft. to 7 ft.	5 ft. to 7⅔ ft.	4⅔ ft. to 8½ ft.
5 ft.	4⅝ ft. to 5¼ ft.	4⅔ ft. to 5½ ft.	4⅓ ft. to 5⅔ ft.	4⅓ ft. to 6 ft.	4 ft. to 6⅔ ft.
4 ft.	3⅞ ft. to 4⅛ ft.	3¾ ft. to 4¼ ft.	3⅝ ft. to 4½ ft.	3½ ft. to 4⅔ ft.	3½ ft. to 5 ft.

The depth of field is not given for *f*/8 or *f*/32. The depth or range of sharpness for these two openings can be estimated by comparison.

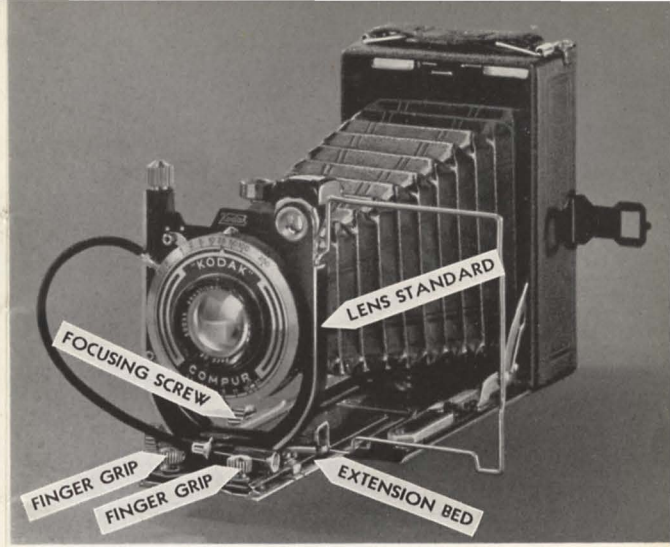
"Inf." is the abbreviation for Infinity—meaning an unlimited distance from the lens.

DEPTH OF FIELD

DEPTH of field is the distance or range of sharpness from the nearest to the farthest objects that will appear reasonably sharp in the negative or print. It depends upon the distance between the subject and lens, the focal length of the lens, (the shorter the focal length of a lens, the greater its depth of field,) and the size of the stop opening used—the smaller the opening the greater the depth of field or range of sharpness, see the tables on pages 10 and 11.

USE OF THE DOUBLE EXTENSION BED

AFTER having drawn the focusing scale to the right with the FOCUSING SCALE KNOB (page 3), the full extension is obtained by drawing out the LENS STANDARD by the FINGER GRIPS as far as it will come, that is, to the end of the track. Then extend the bellows by racking out the EXTENSION BED by means of the FOCUSING SCREW.



Focusing must be done on the ground glass. The long bellows draw when used with the regular lens permits photographing small objects in *almost* their actual size. This is shown by the photograph of the ruler, which was made with a No. 33 Kodak Recomar with the bellows drawn out to its full extension. The double EXTENSION BED also permits the making of large head and shoulder portraits. When making use of the double EXTENSION BED for copies or close-

EXPOSURE CORRECTIONS FOR CLOSE-UP PICTURES

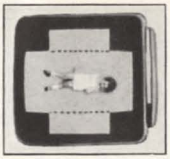
DISTANCE FROM LENS TO SUBJECT WITH KODAK RECOMAR NO. 18	DISTANCE FROM LENS TO SUBJECT WITH KODAK RECOMAR NO. 33	FACTOR FOR INCREASE IN EXPOSURE	EFFECTIVE APERTURE WITH DIAPHRAGM SET AT						
			f/4.5	*f*/5.6	*f*/8	*f*/11	*f*/16	*f*/22	*f*/32
22½ inches	29 inches	1.5	5.5	6.9	9.8	13.5	20	28	40
14 "	17¼ "	2.0	6.3	8	11	16	22	32	45
11¼ "	14½ "	2.5	7.1	8.8	12.5	17.5	25	36	50
9½ "	12½ "	3.0	7.8	10	14	19	28	40	56
*8¼ "	*10¾ "	4.0	9	11	16	22	32	45	64

*Example: Should you be using the Kodak Recomar No. 18 and the distance from subject to lens is 8¼ inches or if you are using the Kodak Recomar No. 33 and this distance is 10¾ inches and the diaphragm lever is at *f*/16 on your shutter, the effective aperture would be *f*/32, and you would have to give four times the exposure *f*/16 requires.

ups, there is a change in the effective *f*/ marking on your lens. The table on page 14 gives the changes in the effective aperture at several close-up distances. It also gives you the number of times you should increase the exposure.

THE VIEW FINDER

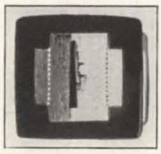
THE VIEW FINDER (page 18) shows what will appear in the picture, but on a much reduced scale.



Look into the finder from directly over the center of it and include what is wanted by turning to the right or left.

Only what is seen in that part of the finder within the dotted lines, will appear in a vertical picture.

To make a horizontal picture, turn the finder and hold the Kodak in the horizontal position. Only what is seen in that part of the finder within the dotted lines in the lower illustration, will appear in a horizontal picture.



THE WIRE FRAME FINDER

IN addition to the brilliant VIEW FINDER (page 18) the camera is equipped with a WIRE FRAME FINDER. This consists of a folding peep SIGHT

attached to the side of the camera and the wire frame. To use this finder raise the SIGHT and swing out the wire frame as shown on page 18. Hold the camera with the SIGHT as close to the eye as possible and frame your picture within the wire frame of the finder. All vertical lines in the subject should be kept parallel with the vertical wires of the finder, when holding the camera either in the vertical or horizontal position.

HOLD THE KODAK LEVEL

THE Kodak must be held level. If all the subject cannot be included in the finder without tilting the lens upwards, move backwards until it is all included *with the camera held level.* The spirit level attached to the VIEW FINDER is a great help for holding the camera level.

If the subject is below the normal height, like a small child or a dog, the Kodak should be held down level with the center of the subject.

When making instantaneous exposures or snapshots, hold the Kodak firmly against the body (or hold it very steady with the hands if using the WIRE FRAME FINDER), and when pressing the push-pin of the cable release (if it is attached to camera) or the exposure lever, hold the breath for the instant. If Kodak is moved during the exposure, the picture will be blurred.

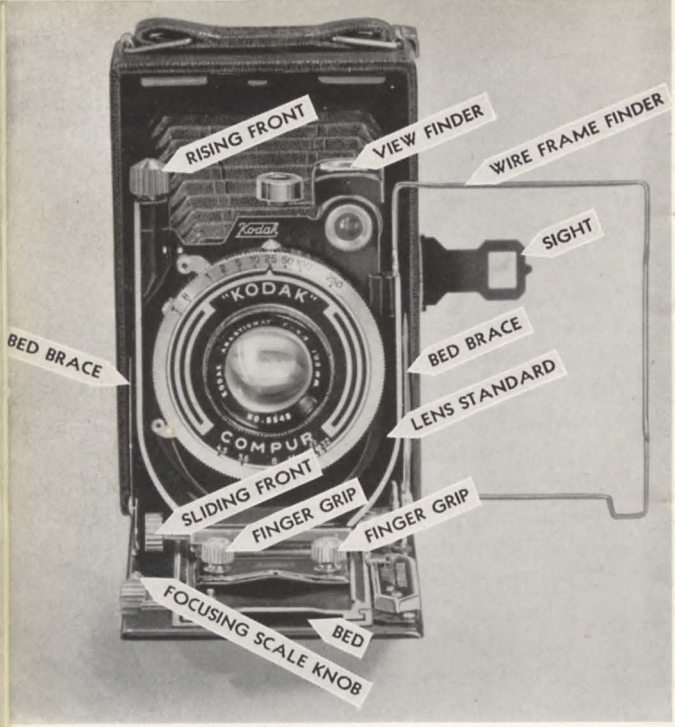
RISING AND SLIDING FRONT

THE RISING FRONT (page 18) is used to cut out undesirable foreground or to include the top of a high building when making a vertical picture. The SLIDING FRONT is for this same purpose when making a horizontal picture.

To raise or lower the front, turn the milled screw marked RISING FRONT shown on page 18. To slide the front, turn the milled screw marked SLIDING FRONT. After using either the rising or sliding front be sure to return the lens to its original position before closing the camera. The two white dots located below the milled screw marked RISING FRONT must be in line and also the red and white dots on the LENS STANDARD directly below the shutter.

To make the entire picture sharp, when using the rising front, use a small stop opening (*f*/22 or *f*/32) and as this necessitates a comparatively long exposure, a tripod or some other firm support must be used.

When using the rising or sliding front the VIEW FINDER does not show exactly the same view that is registered on the film or plate by the lens of the camera. It is advisable to focus and compose your picture on the GROUND GLASS, see page 4. A dark cloth over the back of the camera will be a help, when focusing.



CLOSING THE KODAK

BEFORE closing the Kodak make sure that the extension bed is racked entirely back; and that the FOCUSING SCALE KNOB is pushed back so that it does not extend beyond the edge of the BED; that the VIEW FINDER is in the upright

position and the WIRE FRAME FINDER folded over to its closed position.

If the rising or sliding front has been used, the lens must be centered. The two white dots on the front standard near the rising front milled screw must be in line, and the red and white dots on the bottom of the lens standard must also be in line.

Press the left FINGER GRIP towards the grip on the right and slide the LENS STANDARD back as far as it will go.

Important: The cable release must be in position below the catch used for locking the bed of the camera. If the cable release should be between the catch and top of the Kodak, when the camera is closed, it will be impossible to open the camera. On the No. 33 Kodak Recomar the cable release should be slipped under the hook on the bar at the top of the WIRE FRAME FINDER.

Press the BED BRACES on each side of the case and raise the BED.

No Filter

Kodak
Color Filter

G Filter

A Filter

Getting the Most from Your KODAK RECOMAR

While the Kodak Recomar can be used as a hand-held camera—and it should be held in the hands for action, news and sport shots—better pictorial results are obtained when the Kodak is used on a tripod. This permits focusing and composing the picture on the ground glass.

When making pictures of children the view finder will be found very convenient. For sports and action shots the use of the wire frame finder will be preferable. Better pictures will be secured if a lens hood (see pages 42 and 43) is used, especially when photographing side or back-lighted subjects.

FILTERS

Kodak Verichrome Film and Eastman orthochromatic films and plates are affected by those

Outdoor Exposure Guide

Subject	Stop Opening	Shutter Speed
Average Subjects: Near-by People, Gardens, Houses, Scenes *not in shade.*	*f*/11	1/25
Bright Subjects: Near-by People in Marine, Beach, and Snow Scenes. Scenics with foreground objects.	*f*/16	1/25
Brilliant Subjects: Beach, Marine, and Snow Scenes, Distant Landscapes and Mountains, without prominent dark objects in the foreground.	*f*/22	1/25
Shaded Subjects: People, Gardens, and other subjects in Open Shade (lighted by open sky, not under trees, porch roof, etc.).	*f*/5.6	1/25
Moving Objects: When photographing a moving object such as a runner, train or an automobile, the subject should be moving towards or away from the camera at an angle of about 45 degrees.	*f*/4.5	1/200 or 1/250

This exposure guide is 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 in the day or if it is a *slightly* cloudy or hazy day use a larger stop opening. The exposures given in the guide are for Kodak Verichrome Film Pack. The comparative speeds for different films are given in the table on page 26.

Stop *f*/4.5 admits approximately 50% more light than *f*/5.6. From *f*/5.6 to *f*/32 each higher number admits approximately half the light of the preceding lower number. *The higher the number the smaller the opening.* Thus *f*/5.6 admits twice as much light as *f*/8; *f*/8 twice as much light as *f*/11, etc.

rays of the spectrum from the ultra-violet through the yellow. Kodak and Eastman Panatomic-X, and all the Panchromatic Films and Plates respond to the ultra-violet and the whole of the visible spectrum, right through the red.

Even though the new emulsions have been made more sensitive in the green, yellow and red regions of the spectrum, they all have their greatest sensitivity in the blue violet and ultra-violet regions. In this respect the sensitivity of photographic materials differs from that of the human eye. The eye has its greatest sensitivity in the green, is less sensitive to blue and violet, and is not at all sensitive to ultra-violet. Therefore, in order to have the tone values in a landscape picture almost the same as the eye sees them in the original subject, it is necessary to use a filter.

The action of the filter is to allow the free passage of certain colors and to absorb others either wholly or in part.

Some of the more commonly used filters are: the Kodak Sky Filter, Kodak Color Filter, K1, K2, G, and A Filters. Other filters are described in the Eastman Kodak Company publications: "The Photography of Colored Objects," price $1.00, and "Wratten Light Filters," 50 cents.

The **Kodak Sky Filter** gives correction of the

sky and records clouds that may be present, without necessitating increase in exposure.

The **Kodak Color Filter,** the *K1* and the *K2 Filters* are yellow correction filters for photographing through haze; for darkening the sky to record clouds that may be present; for photographing foliage to make it lighter than if no filter were used; for photographing scenes or objects in which strong colors predominate. The *K1 Filter* gives slightly less correction than the Kodak Color Filter, and the *K2* slightly more.

The **G Filter** is a deep yellow contrast filter intended for use with panchromatic materials. It gives greater penetration of haze than the K2 Filter. Red and yellow objects are rendered somewhat lighter than they appear to the eye, and blue sky and water are rendered darker. The *G Filter* is recommended for photographing architectural subjects against a blue sky.

The **A Filter** is a red filter and can be used only with panchromatic materials. It is used where strongest contrast effects are desired. Red and yellow photograph almost as white, while blues and greens are recorded as black.

FILTER FACTORS: The filter factor represents the number of times the exposure must be increased with a filter. A filter having a factor of 2 requires twice the exposure necessary without it.

Below is given a table of daylight filter factors of the commonly used filters with Kodak Films.

FILTER FACTORS FOR DAYLIGHT

FILTER	KODAK VERI-CHROME FILM PACK	KODAK SUPER-XX PANCHRO-MATIC FILM PACK	KODAK PANA-TOMIC-X FILM PACK
Kodak Color Filter	2	1½	1½
K1	2	1½	1½
K2	2½	2	2
G	5	2½	3
A	—	4	7

Most Sheet Films have filter factors included with the instructions packed with the films.

THE FILM

Each camera has three Kodak Combination Plate and Film Holders for use with either films or plates. These must be loaded in a darkroom. A Film Pack Adapter is also provided.

With the No. 18 Kodak Recomar, use Eastman Sheet Film or Plates, size 6.5 x 9 cm.

With the No. 33 Kodak Recomar, use Eastman Sheet Film or Plates, size 9 x 12 cm. or 3¼

x 4¼ in., using a Holder of the proper size.

When the Film Pack Adapter is used with the No. 18 Kodak Recomar, use Kodak Film Pack (Verichrome, Super-XX Panchromatic, or Panatomic-X): V 520, XX 520 or FX 520, size 2¼ x 3¼ inches or 6 x 9 cm. When using the kit in the Film Pack Adapter for the No. 33 Recomar, use Kodak Film Pack V 518, XX 518 or FX 518, size 3¼ x 4¼ inches or 8 x 10.5 cm.; if the kit is *not* used Kodak Film Pack V 541, XX 541 or FX 541, size 9 x 12 cm. or 3½ x 4¾ inches should be used.

COMPARATIVE KODAK SPEEDS OF EASTMAN SHEET FILM AND KODAK FILM PACKS

Material	Daylight	Tungsten
Eastman Safety Portrait Par Speed	160	50
Eastman Safety Portrait Super Speed Ortho Antihalation	200	100
Eastman Safety Portrait Panchromatic	200	125
Eastman Safety Super-XX Panchromatic Antihalation	320	200
Eastman Safety Panatomic-X Antihalation	125	80
Eastman Safety Commercial Panchromatic	125	64
Eastman Safety Commercial Ortho	125	40
Eastman Safety Commercial	100	25
Eastman Safety Super Panchro-Press Antihal.	500	400
Eastman Safety Panchro-Press Antihalation	200	160
Eastman Safety Super Ortho Press Antihal.	400	200
Eastman Safety Ortho-X	500	250
Eastman Safety Tri-X Panchromatic	640	500
Kodak Verichrome Film Pack	160	80
Kodak Super-XX Panchromatic Film Pack	400	320
Kodak Panatomic-X Film Pack	125	80

All films should be developed in the Formula and for the time recommended in the instructions, included with the film.

EXPOSURES FOR INTERIORS BY DAYLIGHT

It is easy to make pictures of interiors by daylight where the windows get direct light from the sky.

To make a picture of a room interior by daylight, adjust the shutter for a "bulb" or time exposure by revolving the knurled collar A (page 6) until the letter "B" or "T" is at the white pointer E. Set the stop opening lever D at *f*/16; this opening gives the best average results, see Depth of Field Table on page 10 or 11.

When the Kodak is on a table, do not place it more than two or three inches from the edge, or the table will show in the picture.

Compose your subject in the finder to include more of the floor of the room than of the ceiling.

Leave the furniture in the room in its usual place, as far as possible, but be sure there are no

pieces close to the camera lens.

After drawing the focusing scale against the track with the FOCUSING SCALE KNOB, focus the Kodak by turning the FOCUSING SCREW until the FOCUS POINTER comes to the proper figure on the focusing scale, see page 3, corresponding with the average distance between the objects in the room and the camera.

For an interior with medium-colored walls and furnishings and two windows, with the sun shining—make an exposure of about *8 seconds*, with stop *f*/16 and Kodak Verichrome Film. With one window, double the exposure, and if there are more than two windows, halve the exposure. If the day is cloudy, make an exposure of 16 seconds to 32 seconds.

No definite rule can be given for all interiors because of the great variety of light conditions. It is suggested that a series of exposures be made from about 4 seconds to 32 seconds, using stop *f*/16, doubling each successive exposure.

Interiors by daylight should be made from 3 hours after sunrise until 3 hours before sunset; if earlier or later the exposures must be longer.

If no more time exposures are to be made, adjust the shutter for an instantaneous exposure, turning the knurled collar A until 50 comes to the white pointer E, see page 6.

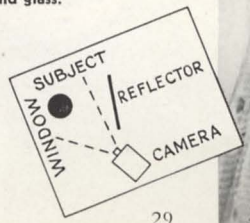
DAYTIME PORTRAITS INDOORS

TO MAKE an indoor portrait by daylight, similar to that shown below, have the subject stand or be seated in front of an unshaded window, with the body preferably at a diagonal to the camera.

Place a reflector (a sheet or tablecloth thrown over a screen or chair will do) a few feet from the subject and at the angle shown in the diagram. This reflects light to the shaded side of the face.

Place the Kodak in a vertical position on a solid support (or on a tripod) a little higher than an ordinary table. The Kodak must not be more than two or three inches from the edge of the support.

For large portraits focus and compose the picture on the ground glass.



SNAPSHOTS

It is easy to make snapshots at night with your Kodak, using No. 1 or No. 2 Photofloods and Kodak Handy Reflectors, see page 31.

PHOTOFLASH

When the subject is likely to move, make the exposure with a Photoflash Lamp, see page 33.

When making portraits, more pleasing results are obtained if the background and surrounding objects are not quite so sharp and clear as the face. This effect is obtained by using a large stop opening, *f*/4.5 or *f*/5.6. With these stops make an exposure of 1/10 second with Kodak Verichrome Film, when the light is bright.

INDOOR PICTURES AT NIGHT

To TAKE snapshots or other indoor pictures at night, you need only a few Kodak Handy Reflectors, and a few Photoflood or Photo*flash* bulbs. The bulbs can be screwed into all regular lamp sockets.

PhotoFLOOD gives a steady light of great brilliance. Comes in two sizes for the amateur: No. 1 and No. 2. The No. 2 bulb gives twice the light and lasts three times as long.

SNAPSHOTS with PHOTOFLOODS

To TAKE snapshots at night with the Kodak Recomar, load the camera with Kodak or Eastman Film. Place two bridge lamps fitted with the Kodak Handy Reflectors, Model C and two No. 2 Mazda Photoflood Lamps, one four feet from the subject and the other eight feet, as shown in the illustration on page 30.

Move the stop opening lever D (page 6) to

EXPOSURE TABLE FOR KODAK SUPER-XX PANCHROMATIC FILM AND TWO PHOTOFLOOD LAMPS

With Kodak or Eastman Panatomic-X Film, or with Kodak Verichrome Film, use two stop openings larger, or give four times the exposure.
If using any other film, consult the table of Comparative Speeds on page 26.

Distance Lamps to Subject	Diaphragm or Stop Opening	Exposure in Seconds					
		Two No. 1 Photofloods		Two No. 2 Photofloods			
		Kodaflectors without Adapters	Kodak Handy Reflectors	Kodaflectors with Adapters	Kodak Handy Reflectors	No. 1 Photoflood Lamps without Reflectors	No. 2 Photoflood Lamps without Reflectors
6 feet	*f*/4.5	1/250 or 1/200	1/100		1/250 or 1/200	1/25	1/50
"	*f*/5.6	1/100	1/50	1/250 or 1/200	1/100	1/10	1/25
"	*f*/8	1/50	1/25	1/100	1/50	1/5	1/10
"	*f*/11	1/25	1/10	1/50	1/25	1/2	1/5
"	*f*/16	1/10	1/5	1/25	1/10	1	1/2
8 feet	*f*/4.5	1/100	1/50	1/250 or 1/200	1/100	1/10	1/25
"	*f*/5.6	1/50	1/25	1/100	1/50	1/5	1/10
"	*f*/8	1/25	1/10	1/50	1/25	1/2	1/5
"	*f*/11	1/10	1/5	1/25	1/10	1	1/2
"	*f*/16	1/5	1/2	1/10	1/5	2	1
12 feet	*f*/4.5	1/50	1/25	1/100	1/50	1/5	1/10
"	*f*/5.6	1/25	1/10	1/50	1/25	1/2	1/5
"	*f*/8	1/10	1/5	1/25	1/10	1	1/2
"	*f*/11	1/5	1/2	1/10	1/5	2	1
"	*f*/16	1/2	1	1/5	1/2	4	2

This table is for portraits and light-colored interiors. For dark-colored interiors without people and for dark clothing, double the above exposures.

With double the number of lamps, halve the exposure.

When the lamps are used for general illumination to make a picture of a room, use stop *f*/16 to get sufficient depth or range of sharpness.

If a Kodaflector Diffuser is used in front of the Kodaflector to soften the light, the exposure must be increased about three times.

NOTE: Do not use more than five No. 1, or three No. 2 Photoflood Lamps on a single fused circuit.

f/4.5 and focus the camera. With Kodak Super-XX Panchromatic Film make an exposure of 1/200 or 1/250 second; with Kodak Verichrome Film make an exposure of 1/50 second.

Other combinations for making snapshots and quick time exposures are given in the table on the opposite page.

Caution: Photoflood Lamps, especially the No. 2 size, become quite hot and should not be kept burning any longer than necessary. Do not permit bulbs to come into contact with Kodak Handy Reflectors or the fabric of lamp shades.

PHOTOFLASH PICTURES

PhotoFLASH gives an instantaneous flash; it is good for one picture. No smoke, no noise.

WHEN making a Photo*flash* picture, adjust the shutter for a time exposure, with "T" at the pointer E, see page 5.

Leave the room lights on and focus on the ground glass.

Use the proper stop opening, depending upon distance between lamp and subject, and kind of film, see exposure table, page 34.

Use a Photo*flash* bulb in any home lamp or a

EXPOSURE TABLE FOR NO. 7 OR NO. 11 PHOTOFLASH LAMP IN KODAK HANDY REFLECTOR MODEL C

With the No. 15 or No. 21 Photoflash Lamp, use the next smaller stop opening.

For Kodak Verichrome or Panatomic-X Film

DISTANCE LAMP TO SUBJECT	DIAPHRAGM OR STOP OPENING
25 feet	*f*/4.5
20 "	*f*/5.6
14 "	*f*/8
10 "	*f*/11
7 "	*f*/16

For Kodak Super-XX Pan Film use the second stop opening smaller. For comparative speeds of Eastman Sheet Film and Kodak Film Packs, see table on page 26.

portable reflector unit having flashlight batteries.

Close the shutter; then remove the focusing panel. Insert the film pack adapter or a Combination Plate and Film Holder in the camera, and remove the dark slide from the adapter or holder.

To make the exposure, turn out all lights (except a small light behind the camera), direct the Photo*flash* at the subject, open the shutter, flash the bulb, and close the shutter.

PICTURES IN FULL COLOR

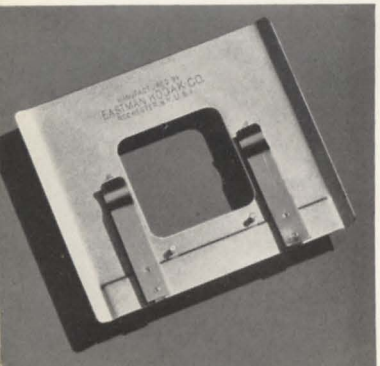
KODACHROME pictures of miniature size can be made with the Kodak Recomars when the Kodaks are fitted with the Miniature Kodachrome Adapter Back (Price $23.50).

This Adapter consists of a sliding focusing screen and a film compartment for holding No. 828 Kodak Bantam Film, size 28 x 40 mm. Kodachrome Film is supplied in two emulsions K828 for making pictures by daylight and K828A for use with artificial light. The use of the comparatively long focal length lens of your Kodak Recomar for making these miniature transparencies assures your obtaining pictures of fine perspective. The Miniature Kodachrome

Adapter permits the obtaining of transparencies mounted at the laboratory in 2 x 2-inch Kodaslide Ready-Mounts, ready for projection in the Kodaslide Projector. The use of your Recomar with the Adapter is particularly fine for flower photography, portraiture, photomicrography, copying, clinical work, etc.

The Eastman Kodaslide Adapter, see illustration below, permits the use of Kodachrome or black-and-white slides of the 2 x 2-inch size, in a regular lantern slide projector. These slides are slipped into the Adapter which in turn is put into the slide carrier of the projector.

If you prefer Kodachrome transparencies in larger sizes, there is the 6.5 x 9 cm. size of Kodachrome Professional Film available for the No. 18 Recomar (price for ½ dozen films $4.25), and either the 3¼ x 4¼-inch (price for ½ dozen films $5.25) or the 9 x 12 cm. size (price for ½ dozen films $6.40) for the Kodak Recomar No. 33. The 6.5 x 9 cm. transparencies can be made up into large slides, using the standard size mask with an opening of 3 x 2¼-



inches. Like the Kodachrome Roll Film No. 828, the sheet film is supplied in two emulsions, one color-balanced for daylight, the other for tungsten light (Type B).

Kodachrome Film produces for viewing or reproduction a direct full color positive, free from any screen pattern.

All Kodachrome Film must be returned to an Eastman Kodak Laboratory for processing. The Kodachrome Sheet Film must be returned to the Eastman Kodak Company, Rochester, N. Y., for processing. Prices given above include processing and return transportation to any place in the United States.

SUPPLEMENTARY LENSES

THERE are three supplementary lenses available for each Kodak Recomar. Two of these lenses, A and B, increase the focal length of the lens with which the camera is equipped, and therefore can be used for telephoto work and home portraiture. The other lenses, D for the No. 18 Kodak Recomar and E for the No. 33 Kodak Recomar, decrease the focal length and thus are admirably adapted to wide angle work. A table is given on page 38 of the focal lengths when using the supplementary lenses as well as an exposure factor to be followed with these lenses. Of course

SUPPLEMENTARY LENSES

To obtain the best results with the supplementary lenses, move the lever D, on the shutter (page 6) to *f*/22 or *f*/32, and multiply the exposure you would ordinarily give with *f*/22 or *f*/32 by the factor given in the table below:

KODAK RECOMARS	FOCAL LENGTHS WITH *f*/4.5 LENSES	FOCAL LENGTHS WITH SUPPLEMENTARY LENSES			
		Lens A	Lens B	Lens D	Lens E
Nos. 18	105 mm.	138 mm.	170 mm.	90 mm.	
33	135 mm.	180 mm.	230 mm.		110 mm.
	Exposure multiplying factor	1.8X	2.7X	0.7X	0.67X
	Picture Enlargement and Reduction	1.3X	1.6X	0.85X	0.8X

When ordering lenses A and B specify whether for the No. 18 or for the No. 33 Kodak Recomar.

when using the supplementary lenses the effective diaphragm apertures differ from those marked on the shutter. Focusing must be done by means of the ground glass.

With the Lens B placed before the regular lens of either the No. 18 or No. 33 Recomar, there is an increase in the focal length, which narrows the angle of view. This effect is shown on page 40. Note how several more sections of the fence are included in the upper picture. While less is included in the lower picture, a larger image of the building is obtained. The use of either Supplementary Lens A or B is recommended when it is impossible to get close enough to the subject to get an image of satisfactory size with the regular lens, or to cut out an undesirable foreground.

Supplementary Lenses A and B are also recommended for portrait work because larger images are obtained with them, without making it necessary to approach too close to the subject.

Supplementary Lenses D and E used on the Recomar No. 18 and No. 33 respectively, reduce the focal length of the regular lens and give a wider angle of view. The lower picture on page 41 includes a greater area, but the individual objects are smaller in size than in the upper picture.

Made with No. 33 Kodak Recomar with the Regular Lens (focal length 135 mm.) ***without*** a Supplementary Lens.

Made with No. 33 Kodak Recomar with the Regular Lens (focal length 135 mm.).

Made with No. 33 Kodak Recomar with the Regular Lens and the Supplementary Lens B (focal length 230 mm.). Both photographs were taken from the same position.

Made with No. 33 Kodak Recomar with the Regular Lens and the Supplementary Lens E (focal length 110 mm.).

Note how much more is included in the picture made with the Supplementary Lens E.

Adapter Ring

Wratten Filter

Filter Retaining Ring

KODAK COMBINATION LENS ATTACHMENTS

Series VI

THE design of the KODAK COMBINATION LENS ATTACHMENTS permits using any desired combination of Pola-Screens, Wratten Filters, and Lens Hood, such as Pola-Screen and Wratten Filter, Lens Hood alone, two Pola-Screens with Lens Hood, Wratten Filter with Lens Hood, etc.

With the Kodak Recomar No. 18 use a $1\frac{1}{4}$-inch Adapter Ring, and with the Kodak Recomar No. 33 use a $1\frac{21}{32}$-inch Adapter Ring, Wratten Filter in "B" glass unmounted, Filter Retaining Ring, Kodak Pola-Screen, Lens Hood. All these lens attachments must be Series VI.

The Adapter Ring is first slipped onto the lens mount. A $1\frac{5}{8}$-inch Wratten Filter is inserted into a Filter Retaining Ring Series VI, which screws into the Adapter Ring. The filter

Kodak Pola-Screen, Type IA

Kodak Lens Hood

can be used alone in this way or a Kodak Lens Hood can be screwed into the Filter Retaining Ring, or if desired, a Kodak Pola-Screen Type IA can be threaded into a Filter Retaining Ring and then the Kodak Lens Hood into the Pola-Screen.

It should be understood that any combination or sequence of these attachments is possible. Two filters and a Lens Hood, a Lens Hood only, or a Pola-Screen and Lens Hood are examples of everyday applications of the Kodak Combination Lens Attachments.

For a free copy of the booklet "Color Filters and Kodak Films" write to the Service Department, Eastman Kodak Company, Rochester, N. Y.

For details and prices see your Kodak dealer.

KODAK POLA-SCREEN TYPE IA

WITH a Kodak Pola-Screen in front of your lens you can control sky brightness and oblique reflections from non-metallic surfaces. Pola-Screens, Type IA, are intended for both black-and-white and Kodachrome photography.

The Kodak Pola-Screen Viewer fits the handle of your Kodak Pola-Screen permitting the viewing of effects obtained with the Pola-Screen over your lens.

For a clear blue sky, the Pola-Screen acts as a variable depth filter for that part of the sky at right angles to the sun. Any sky effect from light to dark may be obtained by rotating the Pola-Screen to the desired position. The Pola-Screen offers the only known way of obtaining dark sky effects in color photography.

When using Kodachrome Film, some subjects, such as blossoms, trees, and buildings are improved by being photographed with a dark blue sky as a background. This effect can be easily obtained by following the instructions included with the Pola-Screen.

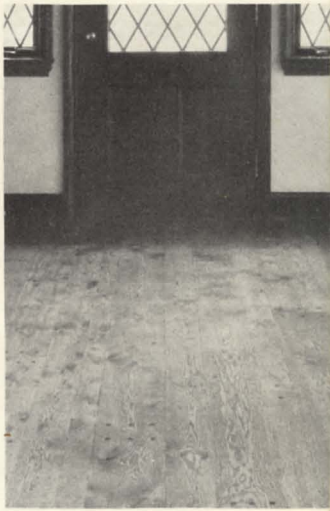
The Pola-Screen can also be used in subduing oblique reflections from non-metallic surfaces, such as water, glass, woodwork, and so forth.

When the camera axis is at roughly 35° to

the surface, reflections can be subdued from glass or water to show detail beyond or below, by rotating the Pola-Screen to the most effective position.

Full directions accompany each Pola-Screen. For further information regarding the use of polarized light in photography, obtain the book: "Photography by Polarized Light," published by the Eastman Kodak Company, price 50 cents.

No Pola-screen. **Photograph of polished oak floor taken towards the light showing reflections.**



Pola-screen over lens. **Reflected light from door and windows reduced to bring out grain in floor.**

EASTMAN INFRA-RED ANTIHALATION SAFETY FILM AND EASTMAN INFRA-RED SENSITIVE PLATES

THESE films and plates reach into that portion of the spectrum beyond the visible red. The most common use for the Eastman infra-red sensitive films and plates is distant landscape photography.

When a distant landscape is photographed on an ordinary film, the distance often lacks detail on account of the haze. This is because violet and blue light, to which an ordinary film is sensitive, is scattered by atmospheric haze. The longer wave lengths of the visible light and particularly the invisible infra-red, however, are freely transmitted by the haze. A photograph made on an infra-red material with a deep yellow or red filter over the lens, to absorb the violet and blue light, will often (depending on atmospheric conditions) show distant objects very clearly even if the haze makes them invisible to the eye.

Landscape photographs taken on infra-red films or plates, outdoors in sunlight, frequently have the appearance of pictures taken by moonlight.

While several Wratten Filters can be used, we recommend the Wratten Filter No. 25 (A) (red)

Made with Kodak Recomar No. 33, using Eastman Infra-Red Sensitive Plate, and No. 25 (A) Wratten Filter. Exposure: f/5.6 and 1/25 second.

Made with Kodak Recomar No. 33, using Eastman Panatomic-X Film, without filter. Exposure: f/16 and 1/50 second.

and an average exposure with bright sunlight of about *f*/5.6 and 1/25 second, or *f*/11 and 1/5 second.

When ordering a filter for the No. 18 Kodak Recomar, specify a Wratten No. 25 (A) Filter, in "B" glass in cell 1¼ in. diameter. For the No. 33 Kodak Recomar specify a Wratten No. 25 (A) Filter in "B" glass in No. 16 mount. If you have the Series VI Kodak Combination Lens Attachments, use the same filter unmounted, 1⅝-inch diameter, with either camera.

For high contrast, develop the films or plates in D-19; for low contrast, in D-76; these formulas are given in the instructions packed with the films or plates.

PRICE LIST

KODAK VERICHROME FILM PACK, V 520, for the No. 18 Kodak Recomar, size 2¼ x 3¼ in., twelve exposures	$ .60
KODAK SUPER-XX PANCHROMATIC FILM PACK, XX 520, size 2¼ x 3¼ in., twelve exposures.	.70
KODAK PANATOMIC-X FILM PACK, FX 520, size 2¼ x 3¼ in., twelve exposures	.70
KODAK VERICHROME FILM PACK, V 541, for the No. 33 Kodak Recomar, size 9 x 12 cm. or 3½ x 4¾ in., twelve exposures	1.10
KODAK SUPER-XX PANCHROMATIC FILM PACK, XX 541, size 9 x 12 cm., twelve exposures	1.30
KODAK PANATOMIC-X FILM PACK, FX 541, size 9 x 12 cm., twelve exposures	1.30
KODAK VERICHROME FILM PACK, V 518, for the No. 33 Kodak Recomar, with the kit in the Film Pack Adapter, size 3¼ x 4¼ in., twelve exposures	1.00
KODAK SUPER-XX PANCHROMATIC FILM PACK, XX 518, size 3¼ x 4¼ in., twelve exposures	1.20
KODAK PANATOMIC-X FILM PACK, FX 518, size 3¼ x 4¼ in., twelve exposures	1.20
EASTMAN SAFETY PORTRAIT FILM, PAR SPEED and SUPER SPEED ORTHO ANTIHALATION, size 6.5 x 9 cm., for the No. 18 Kodak Recomar, per dozen	.50
EASTMAN SAFETY PORTRAIT PANCHROMATIC FILM, SUPER-XX PANCHROMATIC ANTIHALATION or PANATOMIC-X ANTIHALATION FILM, size 6.5 x 9 cm., for the No. 18 Kodak Recomar, per dozen	.55

EASTMAN INFRA-RED ANTIHALATION SAFETY FILM, size 6.5 x 9 cm., for the No. 18 Kodak Recomar, per dozen ..... $ .70

EASTMAN INFRA-RED SENSITIVE PLATES, 6.5 x 9 cm., for No. 18 Kodak Recomar, per doz... .75

EASTMAN SAFETY PORTRAIT FILM, PAR SPEED and SUPER SPEED ORTHO ANTIHALATION, size 9 x 12 cm., for the No. 33 Kodak Recomar, per dozen ..... .80

EASTMAN SAFETY PORTRAIT PANCHROMATIC FILM, SUPER-XX PANCHROMATIC ANTIHALATION or PANATOMIC-X ANTIHALATION FILM, size 9 x 12 cm., for the No. 33 Kodak Recomar, per dozen ..... .90

EASTMAN INFRA-RED ANTIHALATION SAFETY FILM, size 9 x 12 cm., for the No. 33 Kodak Recomar, per dozen 1.15

EASTMAN INFRA-RED SENSITIVE PLATES, 9 x 12 cm., for No. 33 Kodak Recomar, per doz... 1.10

EASTMAN SAFETY PORTRAIT FILM, PAR SPEED and SUPER SPEED ORTHO ANTIHALATION, size 3¼ x 4¼ in., for the No. 33 Kodak Recomar, per dozen ..... .65

EASTMAN SAFETY PORTRAIT PANCHROMATIC, SUPER-XX PANCHROMATIC ANTIHALATION or PANATOMIC-X ANTIHALATION FILM, size 3¼ x 4¼ in., for No. 33 Kodak Recomar, per dozen ..... .75

EASTMAN INFRA-RED ANTIHALATION SAFETY FILM, size 3¼ x 4¼ in., for the No. 33 Kodak Recomar, per dozen ..... .95

EASTMAN INFRA-RED SENSITIVE PLATES, 3¼ x 4¼ in., for No. 33 Kodak Recomar, per doz. .90

KODAK COMBINATION PLATE AND FILM HOLDER for No. 18 Kodak Recomar, 6.5 x 9 cm., each $ .75

KODAK COMBINATION PLATE AND FILM HOLDER for No. 33 Kodak Recomar, either 9 x 12 cm., or the 3¼ x 4¼ in., each 1.00

SUPPLEMENTARY LENSES, A, B, and D, for the No. 18 Kodak Recomar, each 3.50

SUPPLEMENTARY LENSES, A, B, and E, for the No. 33 Kodak Recomar, each 3.50

KODAK COLOR FILTER No. 5A, for the No. 18 Kodak Recomar 1.75

KODAK SKY FILTER No. 5A 1.75

KODAK PICTORIAL DIFFUSION DISK No. 5A ... 3.00

KODAK COLOR FILTER No. 16, for the No. 33 Kodak Recomar 3.25

KODAK SKY FILTER No. 16 ..... 3.25

KODAK PICTORIAL DIFFUSION DISK No. 16 .... 5.00

WRATTEN No. 25 (A) FILTER cemented in "B" glass in metal cell 1¼-inch diameter for No. 18 Kodak Recomar 3.30

WRATTEN No. 25 (A) FILTER cemented in "B" glass in No. 16 mount for No. 33 Kodak Recomar 3.25

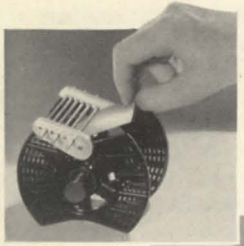
CARRYING CASE, brown cowhide, to hold camera, Combination Plate and Film Holders and Film Pack Adapter, for the No. 18 Kodak Recomar 5.00

CARRYING CASE (same as above) for the No. 33 Kodak Recomar 5.50

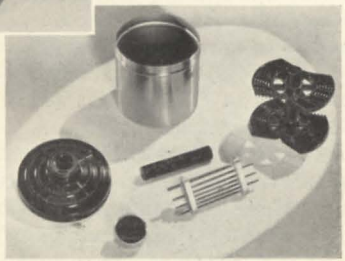
All prices subject to change without notice.

EASTMAN KODAK COMPANY,
ROCHESTER, N. Y., U. S. A.

Enjoy Developing Convenience and Ease with the



KODAK ADJUSTABLE CUT FILM AND FILM PACK TANK



ABOVE

Ease of loading is an outstanding feature.

● Remarkable loading ease . . . uniform development . . . wide adaptability . . . are but a few features of the Kodak Adjustable Cut Film and Film Pack Tank.

Loading is done in darkness. After loading, all developing, fixing and washing operations may be carried out in daylight. Loaded capacity: 32 ounces.

The Kodak Adjustable Cut Film and Film Pack Tank includes a loading fixture, a set of flanges and two cores for accommodating the various film sizes.

EASTMAN KODAK COMPANY, Rochester, N. Y.

At Your Service

THE SERVICE DEPARTMENT

THOUGH the essential directions for obtaining good pictures with the Kodak Recomar Nos. 18 and 33 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.

9-39-CH-6 PRINTED IN THE UNITED STATES OF AMERICA.