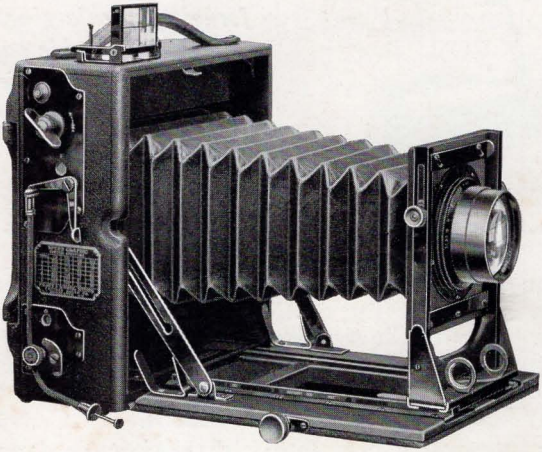
Directions for Operating

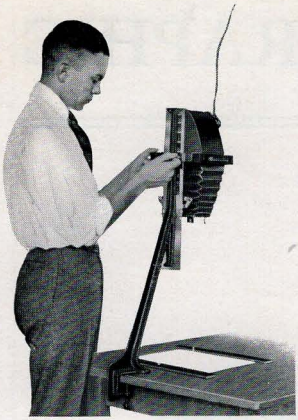
the SPEED GRAPHIC



Eastman Kodak Company

Folmer & Schwing Department ROCHESTER, N. Y., U. S. A.

A New Enlarger



Kodak Auto-Focus Enlarger

Amateur apparatus that eliminates focusing in enlarging. Makes prints on Bromide paper from 1½ to 3½ times the dimensions of any size negative up to 4 x 6

The KODAK AUTO-FOCUS ENLARGER changes enlarging into a printing process almost as rapid and easy as contact printing.

As you slide the camera up or down on its standard—it clamps to any table top and operates vertically—the image shrinks or grows to the size desired but always remains critically sharp. The mechanically accurate, auto-focus device automatically changes the adjustment of the camera lens and constantly keeps the image in sharp focus.

The apparatus is complete with electric cord and plug, negative holder, paper holder, set of flexible masks in six sizes and Kodak Anastigmat Lens, but without the 60-Watt Mazda Lamp required for illumination.

Kodak Auto-Focus Enlarger	$35.00
Diffusing Disc for same	1.00

EASTMAN KODAK COMPANY

At your dealers' ROCHESTER, N Y

"KODAKERY"

A monthly magazine that teaches how to make better pictures, will be sent FREE OF CHARGE to anyone who purchases one of our amateur cameras from a dealer in photographic goods, provided this blank is filled out and sent to us within 30 days from the date the camera was purchased

EASTMAN KODAK COMPANY

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To the EASTMAN KODAK CO., Rochester, N Y

In accordance with your offer, please put my name on the mailing list for "KODAKERY" (with the understanding that there is to be no cost to me), I having purchased a

.....

(Kind of Camera)

from .....

(Name of dealer)

on .....

(Date here)

Write name and address plainly

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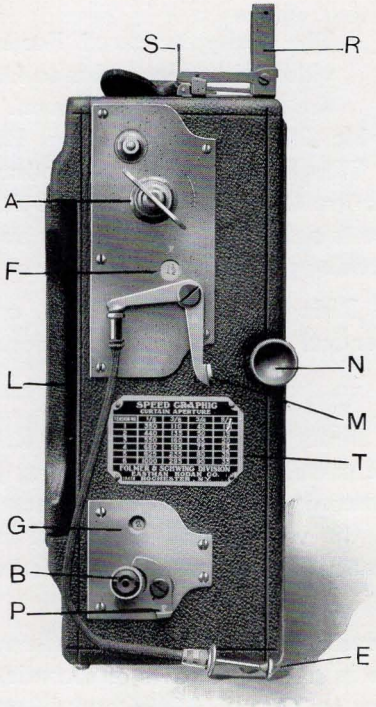
N B.—The magazine will be sent for one year only on above offer After that the subscription price will be 60 cents per annum, but you are not under the slightest obligation to renew. —E. K. Co.

Form No. 202-22

Directions for Operating

THE SPEED GRAPHIC



Open the camera by pressing the concealed spring at the top, swing the bed down until the spring-actuated side arms lock the bed in extended position. Grasp the front standard clamp and draw the lens standard out to the "infinity stop" fastened on the bed track.

FOCUSING When the lens is set at the "infinity stop" the white line on the focusing pointer, attached to the base of the lens standard, should be in line with the 100-foot mark on the graduated focusing scale on bed of camera. When focusing upon objects nearer than 100 feet, the lens is advanced into focus, by means of the focusing pinion N, to a point on the focusing scale representing the distance from the camera to the point focused upon.

THE FOCUSING PANEL The spring actuated Focusing Panel **L** is provided with side shields to facilitate focusing upon the Ground Glass Screen. This panel recedes to accept the Graphic Plate Holder or Film Pack Adapter When the Plate Holder or Film Pack Adapter is withdrawn from the camera, and the curtain aperture **O** (open) is registered at **F**, accurate focus of the full negative size image can be obtained by varying the position of the lens with the focusing pinion **N**

The adjustable Rising and Falling Front, on the lens standard, affords means for vertical centering of the composition with the exposure aperture.

THE VIEW FINDER A Direct Vision View Finder **R**, is located on top of the camera. The subject being photographed can be centered with the exposure aperture by means of the sighting bar **S**, and the vertical and horizontal lines engraved on the finder lens. When not in use the finder is folded down and compactly closed.

The Shutter Speed Table **T**, attached to the camera, gives approximate shutter speeds in fractional parts of seconds, obtainable with the various curtain apertures **O**, 1½, ¾, ⅜ and ⅛, and the tension numbers 1 to 6.

THE CURTAIN APERTURE When the letter **O**, "full opening," appears at **F** the shutter is wide open. The other apertures 1½, ¾ ⅜ and ⅛ follow in rotation at **F** as the key **A** is turned to the left.

SETTING THE SHUTTER The shutter is set by turning key **A** to the left, until the curtain aperture indicated on the Speed Plate for a certain exposure, is registered at **F** If the curtain is already set so that any one of the aperture numbers 1½, ¾, ⅜ or ⅛ appears at **F**, release the curtain by pressing Shutter Release **M** until the proper aperture is in position.

The 3¼ x 4¼ Speed Graphic is equipped with a Focal Plane Shutter having but four, instead of five curtain apertures, and the speeds range from "time" to $\frac{1}{500}$ second. The shutter curtain is wound in opposite direction to that on the other models.

CAUTION The *dark slide* of Plate Holder, or Film Pack Adapter MUST BE IN POSITION WHEN THE SHUTTER IS SET, otherwise injurious fogging of Plate or Film will result.

REGULATING THE SHUTTER SPEED Tension on the curtain is regulated by turning the milled head **B** to the right until the tension number indicated on the Shutter Speed Plate for a certain exposure, appears at **G**. The numbers run from 1 to 6—the highest number indicating the greatest speed.

To decrease speed of shutter, release tension on shutter curtain by pushing escapement **P** back and forth until the required lower tension number is registered at **G**.

INSTANTANEOUS EXPOSURES When the shutter has been set in accordance with the above directions, the exposure is made by carefully pressing Shutter release **M**, or plunger **E** of the Cable Release.

EXAMPLE For an Instantaneous Exposure $\frac{1}{235}$ second, use curtain aperture ⅜ and tension No. 5 To set shutter for $\frac{1}{205}$ second, wind the tension to No. 6.

TIME EXPOSURES Wind or release the curtain until **T** (TIME) appears at **F** Set the tension at No. 1, rest the camera upon a rigid support, open the shutter with one pressure upon release **M** or **E**, and terminate the exposure by a second pressure. Immediately after an exposure is made, a Plate or Film should be placed in position for the next exposure.

GRAFLEX EXPOSURE TABLE FOR VIEWS

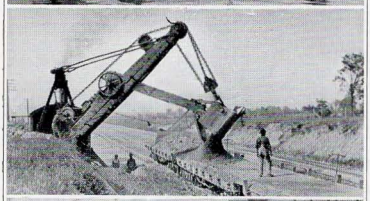
Approximately Correct Exposures with Stop F.8

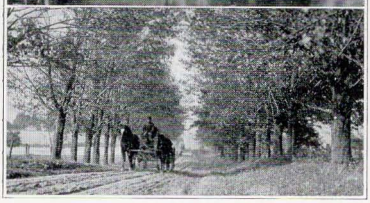
Exposures with stops LARGER or SMALLER than F.8 should be respectively DECREASED or INCREASED ONE-HALF with each succeeding larger or smaller stop used.

Example=Third group—May—Bright—9 A.M. to 3 P.M.=160—F8.

Stop numbers F=	4.5	5.6	6.3	8	11	16	22	32
Relative exposure	550	350	235	160	80	40	20	10

Table shows exposures with Graflex Film, Eastman Film, Seed 30 Plates. With Seed Graflex Plates, shutter speed can be increased one-third.

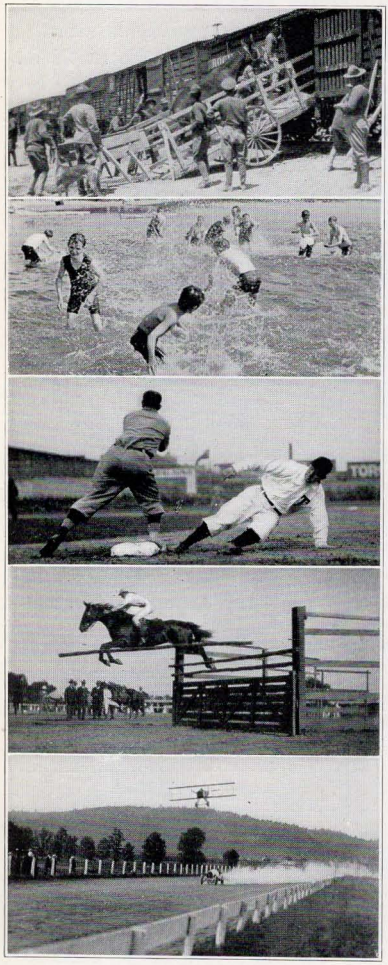




		May June July Aug.		Mar. Apr. Sept. Oct.		Jan. Feb. Nov. Dec.	
		9 AM to 3 PM	7 AM and 5 PM	10 AM to 2 PM	8 AM and 4 PM	11 AM to 1 PM	9 AM and 3 PM
Distant: Landscapes, Mountains, Vessels	Bright Sun	350	160	295	135	235	110
Very Open: Beach Views, Snow Scenes, River Views	Hazy	195	90	160	75	135	60
Aviators in Flight; Open Views from Train	Cloudy Dull	80	50	65	40	50	35
Open: Landscapes, Roads & Fields, Snow Scenes	Bright Sun	195	110	160	90	135	75
Nearby: Beach Views, Vessels and Boats	Hazy	110	60	90	50	65	40
Light Buildings; Athletic Events from Grandstand	Cloudy Dull	65	35	50	30	35	25
Open Park Views; Snow Scenes with Objects Nearby	Bright Sun	160	80	135	60	110	50
Large Figures or Groups in the Open	Hazy	90	50	75	40	65	35
Vessels at Wharf; Medium Buildings; Light Streets	Cloudy Dull	50	25	40	20	30	15
Shady Park Views; Figures in Shade of Building or in Direct Light with Dark or Foliage Background	Bright Sun	110	60	90	50	80	40
	Hazy	65	35	50	30	40	25
Dark Buildings; Light City Street; Shady Porch Groups	Cloudy Dull	35	20	30	15	20	10
Shady Driveway, Views with Overhanging Trees	Bright Sun	50	30	40	25	35	20
	Hazy	30	20	25	15	20	10
Figures under Piazza or Pergola; Dark City Street	Cloudy Dull	20	10	15	1/8	10	1/2

GRAFLEX EXPOSURES FOR STOPPING MOTION AT RIGHT ANGLES TO CAMERA

One-third less will stop motion at 45 degrees.
Two-thirds less will stop motion directly toward or from camera.



SPEED OF OBJECT PER HOUR

DISTANCE OF OBJECT FROM CAMERA

FOCAL LENGTH OF LENS		FEET	4½"	5½"	6½"	7½"	8½"
Pedestrians	5 MILES	25	110	135	160	235	350
Cattle	5 MILES	50	90	110	135	160	195
Average Views	5 MILES	100	90	110	135	160	195
Street Traffic	10 MILES	25	235	295	350	440	550
Boating	10 MILES	50	110	135	160	235	295
Children Playing	10 MILES	100	90	110	135	160	195
Athletics	20 MILES	25	440	550	680	825	1000
Boat Races	20 MILES	50	235	295	350	440	550
Baseball	20 MILES	100	110	135	195	235	295
Autos in Street	20 MILES						
Horse Racing	30 MILES	25	680	825	1000	45° 825	
Motor Boats	30 MILES	50	350	440	550	680	825
Diving	30 MILES	100	160	235	295	350	440
Views from Trains	30 MILES						
			TOWARD CAMERA				
Auto Races	60 MILES	25	45° 1000	550	680	825	1000
Motorcycles	60 MILES	50	680	825	1000	45° 825	
Aeroplanes	60 MILES	100	350	440	550	680	825
Fast Trains	60 MILES						

DEPTH OF FOCUS

Depth of Focus or Field expresses the ability of a lens to give a sharply defined image of both near and distant objects. It is impossible to secure speed and great depth of focus at the same time, except with lenses of a very short focal length.

The degree of depth depends upon the relation between the focal length of lens and stop used.

The depth of focus increases as the focal length of lens and diameter of stop decreases. Focus a lens of known focal length upon a point at the hyperfocal distance of the stop used and objects beyond one-half that distance from camera will be in focus.

Example = 6½ in. Lens—Stop F.16—Point of Focus, 44 ft. = Area in Focus, 22 ft. from camera to infinity.

HYPERFOCAL DISTANCES

The following tables are based upon a circle of confusion of $\frac{1}{200}$ inch.

STOP F		4 5	5 6	8	11	16	22	32
FOCAL LENGTH OF LENS	4½″	75′	60′	42′	31′	21′	15′	13′
	5½″	112′	90′	63′	46′	32′	23′	16′
	6½″	156′	126′	88′	64′	44′	32′	22′
	7½″	208′	167′	117′	85′	59′	43′	29′
	8½″	268′	215′	151′	108′	75′	55′	38′

When it is required that subject be sharply defined throughout its area, focus upon a point at the hyperfocal distance, in large figures on table, for lens and stop designated, and objects from about one-half that distance—22 feet—from camera to infinity will be in focus. With next smaller stop nearest object in focus will be about 16 feet.

The nearer the point focused upon the greater the loss in depth of focus, unless the lens stop is decreased in diameter sufficiently to give the required sharpness to objects in foreground and background.

Table showing the nearest and farthest objects in focus when focusing lenses of different focal lengths, with stop F.8, upon a point at different distances from camera.

DISTANCE OF SUBJECT FOCUSED UPON

STOP F.8		6 FT	12 FEET	25 FEET	50 FEET
FOCAL LENGTH OF LENS	4½″	63″—84″	9½′—17′	16′—62′	23′—Infinity
	5½″	65″—79″	10′—15′	18′—41′	28′—Infinity
	6½″	68″—77″	10½′—13½′	19½′—35′	32′—116′
	7½″	68½″—76″	11′—13′	20½′—3	35′—88′
	8½″	69″—75″	11½′—12½′	21′—30′	37½′—75′

SUGGESTIONS

Find the subject group, and the exposure for movement at right angles to camera will be found in the square on the line of "distance of object" and under "focal length of lens."

Example:

Subject	Motor Boat
Distance	50 Feet
Speed of Subject	30 Miles per hour
Focal Length of Lens	6½"
Exposure	$\frac{1}{550}$th of a second

The shutter speeds given are necessary to stop the motion. The lens opening must be regulated to meet the prevailing light conditions.

For bright days it is suggested that Stop F.8 be used with exposures $\frac{1}{1000}$ to $\frac{1}{850}$, F.5.6 with exposures $\frac{1}{850}$ to $\frac{1}{550}$ F.4.5 for exposures $\frac{1}{680}$ to $\frac{1}{1000}$.

On hazy or dull days, with same exposure, proportionately larger lens openings should be used.

It is not advisable to operate the shutter at a higher speed than is necessary to stop movement of the subject, thereby gaining the advantage of full exposures and the ability to use smaller lens openings, which will give greater depth of focus.

To decrease a given shutter speed ⅓ for movement at 45 degrees, or ⅔ for oncoming subjects, use the second lower speed on Graflex exposure plate for ⅓ less, and the fifth lower exposure for ⅔ less.

Example:

	1000
	825
	680
Right angles →	550
	440
45 degrees; ⅓ less →	350
	295
	235
Toward camera; ⅔ less →	195
	160

Eastman Kodak Company

Folmer & Schwing Department ROCHESTER, N. Y

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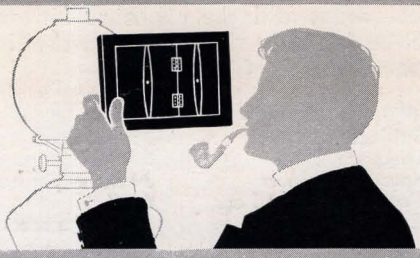

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