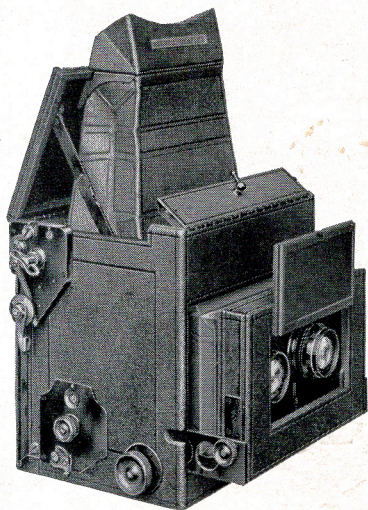


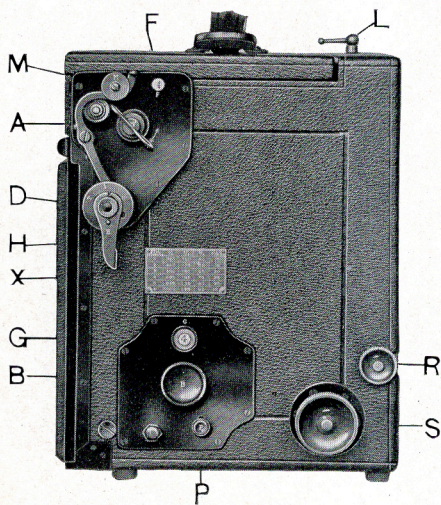
DIRECTIONS FOR OPERATING Stereo Auto Graflex

Made only in 5 x 7 Size



FOLMER & SCHWING DEPARTMENT
EASTMAN KODAK CO. ROCHESTER, N. Y.

Directions for Operating the Stereo Auto Graflex



FOCUSING Release the spring catch L, and raise the forward section of top. Grasp handle and swing top back until Focusing Hood is extended, then lock with side arms. Rack the lens out with the focusing pinion S, which causes the lens cover to open instantly, exposing the lens.

FOCUSING PRISMS The prisms mounted in the Focusing Hood permit viewing the subject upon the focusing screen as it will appear in the Stereoscope.

RISING AND FALLING FRONT The lenses may be raised or lowered to adjust the required amount of sky and foreground by turning the milled head R.

SETTING THE MIRROR Press down the lever H until the mirror locks in focusing position.

THE CURTAIN APERTURES The shutter curtain contains five apertures ranging from full opening O to $\frac{1}{8}$ of an inch. When the letter O appears at F, the shutter is wide open. The other apertures, $1\frac{1}{2}$, $\frac{3}{4}$, $\frac{3}{8}$ and $\frac{1}{8}$, follow in rotation at F as key A is turned to the left.

THE SHUTTER SPEED PLATE The metal plate X, attached to the side of camera, gives the approximate shutter speeds, in fractional parts of seconds, obtainable with the various combinations of curtain apertures and tension numbers.

SETTING THE SHUTTER Push down lever H. Depress the disc on H, turn and set I opposite the slot, indicating instantaneous exposure. Wind the curtain by turning key A to the left, until the required aperture appears at F. If the curtain is set at a smaller aperture than required, release the curtain by pressing button M backward until the proper aperture number is registered at F.

CAUTION A safety lock prevents the winding of the curtain before the mirror is set in focusing position. This prevents fogging of the film, making it necessary to set the mirror before rewinding the shutter curtain.

REGULATING THE SHUTTER SPEED Tension on the curtain is regulated by turning the milled head B to the right until the required tension number appears at G. The numbers run from 1 to 6—the highest number indicating the greatest speed. If the tension number is set at a higher tension than required, release tension of spring by pressing escapement P, up and down, until the proper tension number is registered at G. Example: for an exposure $\frac{1}{2\frac{1}{3}}$ of a second, register curtain aperture $\frac{3}{8}$ at F, and tension No. 5 at G.

INSTANTANEOUS EXPOSURES After the shutter has been set, and the image on the Ground Glass Focusing Screen properly focused, the exposure is made by one gentle, downward pressure of the release lever, located on the forward, left-hand side of the camera body. The pressure on the lever simultaneously releases the mirror and curtain. *Slow instantaneous exposures* of about $\frac{1}{5}$ second can be made with the curtain set at O (full opening), and tension No. 1. Pressure upon the shutter release causes the mirror to rise just before the curtain drops, closing the recording plane.

TIME EXPOSURES Press down lever H. Depress the disc on H, turn to right and set T in the notch opposite the slot, indicating time exposures. Wind the curtain until the letter T is registered at F. After focusing the image, *release the mirror*, and commence the exposure by a gentle, backward pressure on button M. At the expiration of the required time, terminate the exposure by a second pressure on button M.

TO REMOVE LENS BOARD Rack out the front extension with focusing head S and press the concealed button beneath the center of extension front. Then swing the front of extension upward.

ACCESSORIES All Graflex attachments will interchange with the Plate Holders on Graflex Cameras. The Graflex Plate Magazine is designed to carry 12 Glass Plates or cut Films in metal sheaths; the Graflex Roll Holder takes the new Eastman Graflex Film, consisting of 6 exposures; the Graflex Film Pack Adapter takes the Premo Film Pack.

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.

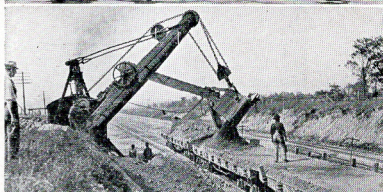
Example=Third group—May—Bright—9 A.M. to 3 P.M.=160—F.8.

Stop numbers F=	4.5	5.6	6.3	8	11	16	22	32	May July	June Aug.	Mar. Apr. Sept. Oct.	Jan. Feb. Nov. Dec.		
Relative exposure	550	350	235	160	80	40	20	10	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

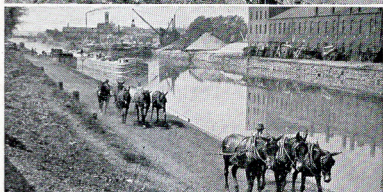
Table shows exposures with Graflex Film, Eastman Film, Seed 30 Plates.
With Seed Graflex Plates, shutter speed can be increased one-third.



Distant	Landscapes Mountains Vessels	Bright Sun	350	160	295	135	235	110
		Hazy	195	90	160	75	135	60
Very Open	Beach Views Snow Scenes River Views	Cloudy Dull	80	50	65	40	50	35
		Aviators in Flight Open Views from Train						



Open	Landscapes Roads & Fields Snow Scenes	Bright Sun	195	110	160	90	135	75
		Hazy	110	60	90	50	65	40
Nearby	Beach Views Vessels and Boats	Cloudy Dull	65	35	50	30	35	25
		Light Buildings Athletic Events from Grandstand						



Open Park Views	Snow Scenes with Ob- jects Nearby	Bright Sun	160	80	135	60	110	50
		Hazy	90	50	75	40	65	35
		Cloudy Dull	50	25	40	20	30	15
Large Figures or Groups in the Open	Vessels at Wharf Medium Buildings Light Streets	Bright Sun	110	60	90	50	80	40
		Hazy	65	35	50	30	40	25
		Cloudy Dull	35	20	30	15	20	10



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
		Cloudy Dull	35	20	30	15	20	10
Dark Buildings Light City Street Shady Porch Groups	Dark Buildings Light City Street Shady Porch Groups	Bright Sun	50	30	40	25	35	20
		Hazy	30	20	25	15	20	10
		Cloudy Dull	20	10	15	10	10	10



Open Woods	Shady Driveway, Views with Overhanging Trees	Bright Sun	50	30	40	25	35	20
		Hazy	30	20	25	15	20	10
		Cloudy Dull	20	10	15	10	10	10
Figures under Piazza or Pergola	Dark City Street	Bright Sun	50	30	40	25	35	20
		Hazy	30	20	25	15	20	10

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— $6\frac{1}{2}$ 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 $\frac{1}{100}$ inch.

STOP F		4.5	5.6	8	11	16	22	32
FOCAL LENGTH OF LENS	$4\frac{1}{2}''$	75'	60'	42'	31'	21'	15'	13'
	$5\frac{1}{2}''$	112'	90'	63'	46'	32'	23'	16'
	$6\frac{1}{2}''$	156'	126'	88'	64'	44'	32'	22'
	$7\frac{1}{2}''$	208'	167'	117'	85'	59'	43'	29'
	$8\frac{1}{2}''$	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.

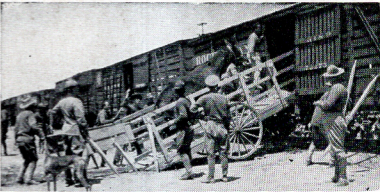

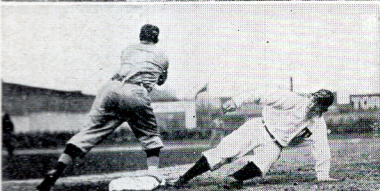
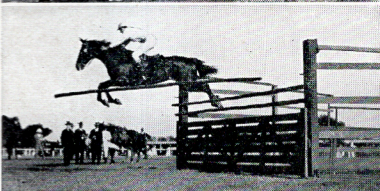
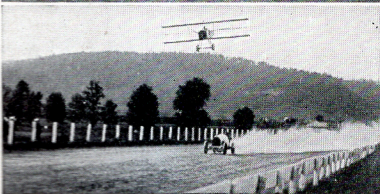
DISTANCE OF OBJECT FOCUSED UPON

STOP F.8		6 FT.	12 FT.	25 FT.	50 FT.
FOCAL LENGTH OF LENS	$4\frac{1}{2}''$	63"—84"	$9\frac{1}{2}'$ —17'	16'—62'	23'—Infinity
	$5\frac{1}{2}''$	65"—79"	10'—15'	18'—41'	28'—Infinity
	$6\frac{1}{2}''$	68"—77"	$10\frac{1}{2}'$ — $13\frac{1}{2}'$	$19\frac{1}{2}'$ —35'	32'—116'
	$7\frac{1}{2}''$	$68\frac{1}{2}''$ —76"	11'—13'	$20\frac{1}{2}'$ —32'	35'—88'
	$8\frac{1}{2}''$	69"—75"	$11\frac{1}{2}'$ — $12\frac{1}{2}'$	21'—30'	$37\frac{1}{2}'$ —75'

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.

FOCAL LENGTH OF LENS		4 1/2"	5 1/2"	6 1/2"	7 1/2"	8 1/2"	
	Pedestrians	25	110	135	160	235	350
	Cattle	50	90	110	135	160	195
	Average Views	100	90	110	135	160	195
5 MILES							
	Street Traffic	25	235	295	350	440	550
	Boating	50	110	135	160	235	295
	Children Playing	100	90	110	135	160	195
10 MILES							
	Athletics	25	440	550	680	825	1000
	Boat Races	50	235	295	350	440	550
	Baseball	100	110	135	195	235	295
20 MILES							
	Autos in Street	100	110	135	195	235	295
	Horse Racing	25	680	825	1000	45° 825	
	Motor Boats	50	350	440	550	680	825
30 MILES							
	Views from Trains	100	160	235	295	350	440
	Auto Races	25	45° 1000	550	680	825	1000
	Motorcycles	50	680	825	1000	45° 825	
60 MILES							
		TOWARD CAMERA					
Aeroplanes	100	350	440	550	680	825	
Fast Trains	100	350	440	550	680	825	

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	$\frac{1}{500}$ 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 $\frac{1}{105}$ to $\frac{1}{350}$; F.5.6 with exposures $\frac{1}{350}$ 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 $\frac{1}{3}$ for movement at 45 degrees, or $\frac{2}{3}$ for oncoming subjects, use the second lower speed on Graflex exposure plate for $\frac{1}{3}$ less, and the fifth lower exposure for $\frac{2}{3}$ less.

Example :

	1000
	825
	680
Right angles \Rightarrow	550
	440
45 degrees; $\frac{1}{3}$ less \Rightarrow	350
	295
	235
Toward camera; $\frac{2}{3}$ less \Rightarrow	195
	160

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