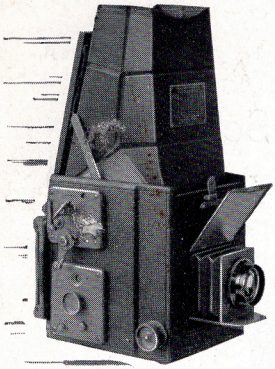
Directions *for* Operating

GRAFLEX *Series B*

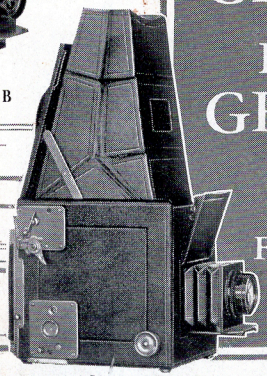
Revolving Back GRAFLEX *Series B*

Revolving Back GRAFLEX *Series D*

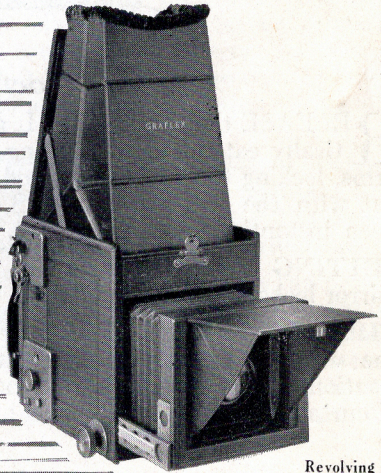
FOLMER GRAFLEX CORPORATION
ROCHESTER, N. Y.



Graflex, Series B



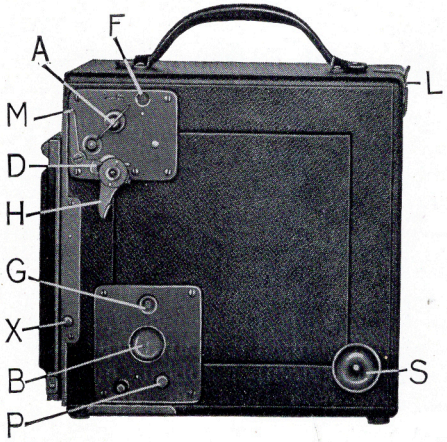
Revolving Back Graflex, Series B



Revolving Back Graflex, Series D

Directions for Operating

Graflex, Series B
Revolving Back Graflex, Series B
Revolving Back Graflex, Series D



Focusing

RELEASE the spring catch L, and raise the cover, which automatically extends the Focusing Hood. Press down the two side arms, locking the Focusing Hood in rigid position. Rack the lens out with the focusing pinion S, which causes the lens cover to open instantly, exposing the lens.

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

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

THE CURTAIN APERTURES . . . The shutter curtain contains 5 apertures ranging from full opening O to 1/8 of an inch. When the letter O appears at F, the shutter is wide open. The other apertures, 1½, ¾, ⅜ and 1/8, follow in rotation at F as key A is turned to the left.

SETTING THE SHUTTER CURTAIN . . . Push down lever H. Slide the bar D to the left, exposing I, indicating instantaneous exposure. Wind the curtain by turning key A to the left, until the required aperture appears at F. If curtain is set at a smaller aperture than required, release the curtain by pressing lever M to the left until the proper aperture number is registered at F. Example: If the subject requires an exposure of 1/160 of a second, register the ⅜ curtain aperture at F, and tension 3 at G.

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

REGULATING THE SHUTTER SPEED . . . Tension or pull 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 sliding escapement P, up and down, until the proper tension number is registered 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 a downward pressure on release lever E, 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 . . . Exposures of about 1/5 second can be made with the curtain set at O (full opening), and tension No. 1. Pressure upon the mirror release causes the mirror to rise just before the curtain drops, closing the exposing aperture.

TIME EXPOSURES . . . Press down lever H, and slide the bar D to the right, exposing T, indicating time exposures. Wind the curtain until the letter T is registered at F. After focusing the image, **release the mirror** by pressing the lever E, and commence the exposure by a gentle, backward pressure on lever M. At the expiration of the required time, terminate the exposure by a second pressure on lever M.

VERTICAL AND HORIZONTAL PICTURES . . . With the revolving back models, press button X, and revolve the back to vertical, horizontal, or any intermediate position. This can be done without danger of fogging the plate or film when the dark slide is drawn. With the non-revolving back models the camera must be held on its side.

CARE OF THE CAMERA . . . Graflex Cameras are sturdily constructed but like any piece of precision equipment should be handled with consideration. To preserve the neat appearance of your camera the leather may be cleaned with an occasional application of saddle soap.

The life of the focal plane shutter will be greatly lengthened if all tension is released when the camera is not in use. This tension is released by operating levers "M" and "P" until the curtain and tension is run down.

For best results the lens of your camera should be regularly cleaned. To clean, use a well washed linen handkerchief only. First, blow off the dust, then wipe. To remove fingermarks or moisture, breathe upon the surface, and wipe; always wipe lightly, and with a circular movement. A camels hair brush is convenient to remove dust before cleaning; and afterward to remove lint. Never use acids or any solvent for cleaning lenses. If the inner surfaces require cleaning, the utmost care should be observed to remove the lens elements one by one, clean and replace before others are taken out.

The mirror and under side of the ground glass of the camera can be cleaned by removing the lens and inserting through this opening a soft lint-free cloth attached to a pencil or small stick.

The top surface of the ground glass will require cleaning more often than the mirror. Release the focusing hood by pressure on the small spring clip holding the front of the hood frame. This will permit the hood to be folded back far enough so that a damp chamois can be wiped across the glass. CAUTION: DO NOT REMOVE THE GROUND GLASS FROM THE CAMERA.

Lenses not fitted to a removable lens board can be removed by unscrewing same from rigid mount. Care should be taken in removing lens to prevent front element from being taken out separately.

Lens boards may be removed by a slight pressure upward which will allow proper clearance of bottom retaining strip. To place lens board in camera fit beveled edge into top groove of camera, press upward, and swing lower portion of lens board past retaining strip into bottom groove.

DEPTH OF FIELD*

Depth of field is the distance from the nearest to the farthest objects that appear sharp when the lens is focused on any given point.

This depth of field depends on the focal length of the lens and the size of the stop used. The depth of focus increases as the focal length of the lens and the diameter of the stop decrease.

It is sometimes desirable to have such great depth of field that practically all of the picture from foreground to distance will be fairly sharp. To secure such general sharpness the stop used should not be larger than *f*.8 and the lens should be focused on an object at the hyperfocal distance rather than at 100 feet or at infinity.

The hyperfocal distance is the nearest point to the camera that has satisfactory sharpness when the lens is focused on infinity. This distance varies with the size of the stop used.

By focusing an object at the hyperfocal distance of the stop used, objects from one-half this distance to infinity will be satisfactorily sharp. To secure general sharpness from approximately 22 feet to infinity, focus on the distance shown in heavy figures, in the table, opposite the focal length of the lens, and set the diaphragm to the stop indicated at the head of that column.

Example: For 5½ inch focus lens, focus at 46 feet, use stop *f*.11 and objects will be in focus from 23 feet to infinity.

HYPERFOCAL DISTANCES

	STOP F	4.5	5.6	8	11	16	22	32
Focal Length of Lens	4⅜″	71′	57′	**40′**	29′	20′	14′	10′
	5½″	112′	90′	63′	**46′**	32′	23′	16′
	6⅜″	151′	121′	85′	62′	**43′**	31′	21′
	7½″	208′	167′	117′	85′	59′	**43′**	29′
	8½″	268′	215′	151′	108′	75′	55′	**38′**
	10″	370′	297′	209′	151′	107′	76′	53′
	12″	534′	429′	301′	219′	151′	110′	76′

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

Table below shows the nearest and farthest objects in focus when lenses of different focal lengths are focused with stop *f*.8, upon points at different distances from camera.

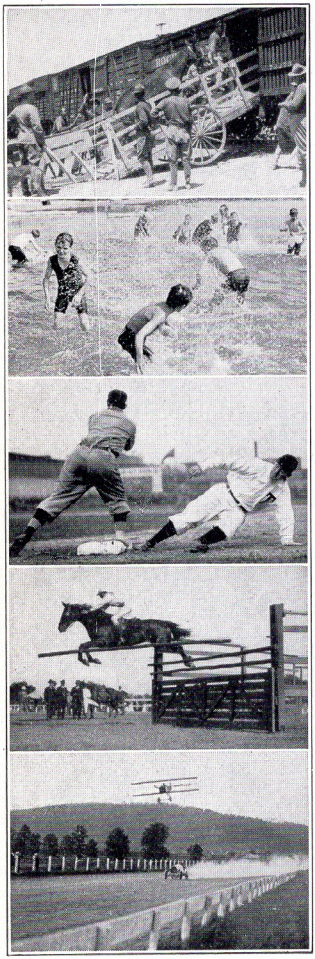
DEPTH OF FIELD*

	Distance focused upon at stop *f*.8	6 FT.	12 FT.	25 FT.	50 FT.
Focal Length of Lens	4⅜″	62″—85″	9′—17′	15′—66′	22′—Infinity
	5½″	65″—79″	10′—15′	18′—41′	28′—Infinity
	6⅜″	67″—78″	10′—14′	19′—35′	31′—121′
	7½″	68½″—76″	11′—13′	20½′—32′	35′—88′
	8½″	69″—75″	11½′—12½′	21′—30′	37½′—75′
	10″	70½″—73½″	11½′—12¾′	22½′—28′	41′—65′
	12″	71″—73″	11¾′—12½′	23′—27′	43′—60′

*Depth of field is often referred to as depth of focus.

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

		Feet	$4\frac{3}{8}$″	$5\frac{1}{2}$″	$6\frac{3}{8}$″	$7\frac{1}{2}$″	$8\frac{1}{2}$″	10″	12″
5 MILES	Pedestrians	25	110	135	160	235	350	440	550
	Cattle	50	90	110	135	160	195	235	350
	Average Views	100	90	110	135	160	195	235	350
10 MILES	Street Traffic	25	235	295	350	440	550	680	825
	Boating	50	110	135	160	235	295	350	440
	Children Playing	100	90	110	135	160	195	235	295
20 MILES	Athletics	25	440	550	680	825	1000		
	Boat Races	50	235	295	350	440	550	680	825
	Baseball								
	Autos in Street	100	110	135	195	235	295	350	440
30 MILES	Horse Racing	25	680	825	1000	45° 825			
	Motor Boats								
	Diving	50	350	440	550	680	825	1000	
	Views from Trains	100	160	235	295	350	440	680	825
				TOWARD CAMERA					
60 MILES	Auto Races	25	45° 1000	550	680	825	1000		
	Motorcycles								
	Aeroplanes	50	680	825	1000	45° 825			
	Fast Trains								
		100	350	440	550	680	825	1000	

GRAFLEX EXPOSURE TABLE FOR VIEWS

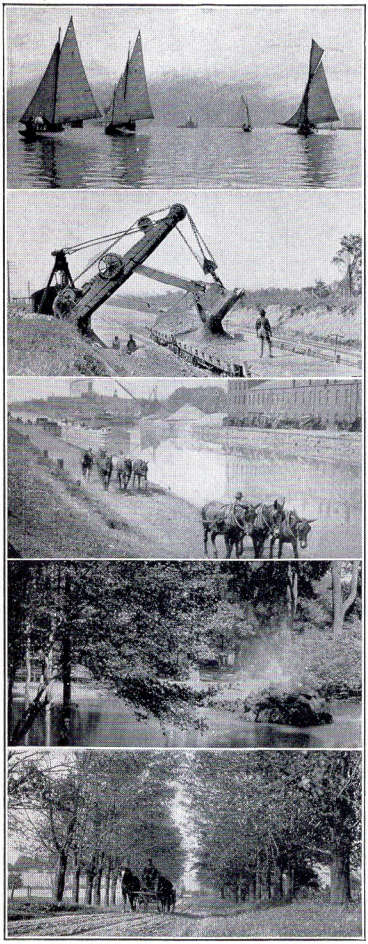
Approximately Correct Exposures with Stop F.8

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 exposure when Verichrome Film is used.



		May June July Aug. 9 AM to 3 PM	May June July Aug. 7 AM and 5 PM	Mar. Apr. Sept. Oct. 10 AM to 2 PM	Mar. Apr. Sept. Oct. 8 AM and 4 PM	Jan. Feb. Nov. Dec. 11 AM to 1 PM	Jan. Feb. Nov. Dec. 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	65
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	65	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	65	110	50
Large Figures or Groups in the Open; Vessels at Wharf	Hazy	90	50	75	40	65	35
Medium Buildings; Light Streets (wide)	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	65	90	50	80	40
Dark Buildings; Light City Street; Shady Porch Groups	Hazy	65	35	50	30	40	25
	Cloudy Dull	35	20	30	15	20	10
Shady Driveway, Views with Overhanging Trees	Bright Sun	50	30	40	25	35	20
Figures under Piazza or Pergola	Hazy	30	20	25	15	20	10
Dark City Street	Cloudy Dull	20	10	15	1/8	10	1/2

How to Use Table to Stop Motion at Right Angles to Camera

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	6⅜"
Exposure	1/550th 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 1/195 to 1/350; *f*.5.6 with exposures 1/350 to 1/550; *f*.4.5 for exposures 1/680 to 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 field.

To decrease a given shutter speed 1/3 for movement at 45 degrees, or 2/3 for oncoming subjects, use the second lower speed on Graflex exposure plate for 1/3 less, and the fifth lower exposure for 2/3 less.

Example:	
	1000
	825
	680
Right angles ⟶	550
	440
45 degrees; 1/3 less ⟶	350
	295
	235
Toward camera; 2/3 less ⟶	195
	160

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