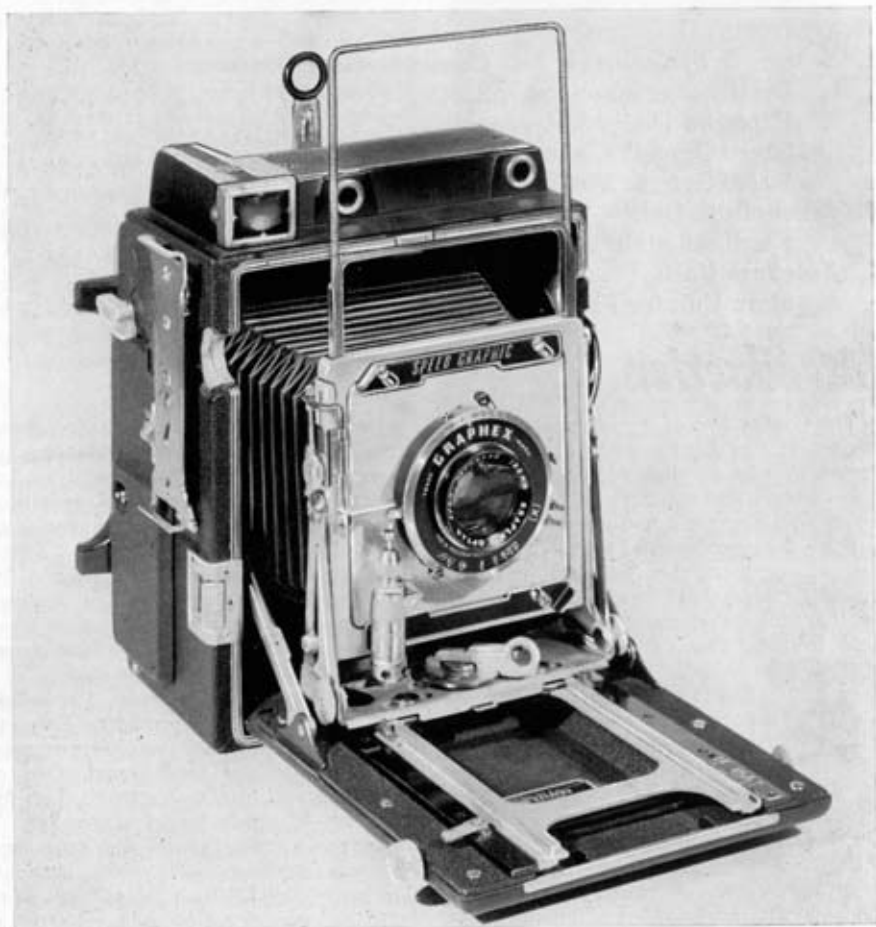


*New Equipment Supplement to the
10th Edition*

GRAPHIC GRAFLEX PHOTOGRAPHY

WILLARD D. MORGAN & HENRY M. LESTER



New Graphic Rangefinder, Optical Viewfinder and Flexible Frame Finder on
Pacemaker 45 Speed Graphic Camera.

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Introduction

The Graflex line of quality photographic equipment has been greatly expanded in recent months by the addition of three new cameras and a variety of flashlighting units, both electronic and chemical.

For the professional and the advanced amateur, the well-known Pacemaker Graphics "45" have been improved by the addition of several new and valuable features. One of the most valuable is the new Graphic Rangefinder, which may be coupled to nine different lenses by the simple process of changing a small cam. This rangefinder also features a built-in Rangelite for focusing in dark places or at night, a magnifying eyepiece for easy focusing under all conditions, and a parallax-correcting optical viewfinder. With this new rangefinder, the larger press camera takes on a versatility and ease of operation at least equal to that of many miniature cameras.

Two new miniature cameras have also been added to the Graflex line. The Graphic 35 is a precision miniature camera using 35mm film, simple enough for the

beginner, yet versatile enough for many professional purposes. This camera incorporates the new "Push-Button" Focusing system for ease and speed of operation, and Spectramatic scale setting for easy color flash photography. The Stereo Graphic is a 35mm camera designed for 3-dimensional photography and features Depthmaster Autofocus, which does away with any need for the usual focusing operation before the picture can be made.

Three new Graflex-made *Strobflash* units are now offered, providing a variety of power outputs for various purposes, both amateur and professional. One of these units will provide electronic flash for the needs of nearly any photographer.

For those photographers who do a good deal of multiframe work with chemical flashlamps, the Teleflash "slave" unit eliminates any need for a complicated array of interconnecting cables, battery boxes and other accessory equipment. Each unit is photoelectrically operated; all are tripped simultaneously by the light of the flashgun on the camera.

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PACEMAKER 45 SPEED AND CROWN GRAPHIC CAMERAS—NEW EQUIPMENT

The Speed Graphic and its companion, the Crown Graphic, have come to be the recognized badge of the professional as well as the press photographer. In addition, they are standard equipment with the armed forces, where ruggedness and dependability are essential. The advanced amateur, naturally, has long recognized that the features which make these cameras valuable to the professional mean long, trouble-free service and convenience for his own purposes as well.

GRAPHIC RANGEFINDER

To the basic camera has now been added the new Graphic Rangefinder, designed especially for the Graphics and including features found most desirable by users of these cameras. The external housing of the new rangefinder is made of nylon, which is resistant to impact and temperature variations; its internal parts are ruggedly made, and the whole unit is designed for hard usage. It is mounted into and on top of the camera for greater convenience in use.

The principal feature of the new rangefinder is that it is instantly adaptable to any of 9 standard lenses of different focal lengths. This is accomplished simply by changing a small cam at the time the lens is being changed.

Each interchangeable cam is matched at the factory to the lens with which it will be used, and is designed to operate the rangefinder throughout the range of working distances for which the lens is intended. The cams are small, odd-shaped metal plates that fit in a receptacle at the top of the camera; they serve to operate the rangefinder mirror by means of an arm which extends through the top of the camera. The motion of the lens track of the camera is transmitted to the cam through a row of small steel balls encased in a tube; a small plunger enters the tube at the bed end and pushes the entire row



1. Back view of Graphic Rangefinder showing: (right) Optical Viewfinder; (center) Rangescope magnifier; (left) Rangelite switch.

of balls through the tube. At the upper end of the tube, the last ball pushes another plunger, activating the cam, which in turn operates the rangefinder mirror. Thus the tube filled with small steel balls takes the place of a complicated mechanical linkage which has always been thought necessary previously; the simplicity of the new system, containing no levers or connections to get out of order, adds a new degree of reliability to the rangefinder.

Cams can be changed quickly and easily, without any tools, as shown in the accompanying photographs (Figs. 2 to 6).

To install a cam, first rack out the lens track about 1 inch past the front of the camera bed. Next, pull down the hinged cover under the top of the camera body and hold it down with the left hand. Note the slot in the tube under the hinged door:



2. Hinged cover of Graphic Rangefinder, under the top of Speed Graphic Camera. Cover is pulled down to insert the cams that couple the interchangeable lenses to the rangefinder.



3. Hinged cover is held open as rangefinder cam is held ready to be placed in the slotted tube. Each lens has its own cam.

if this slot is not clear, hold the camera with the handle down and tap the body lightly, until the plunger drops into the tube, clearing a space for the cam.

The cam is a small, irregularly shaped piece of metal with numbers engraved on one side, and a hole toward the large end. Take the cam between the thumb and forefinger, hold it with the numbered side up and insert the smaller end into the slot and under the engaging lever to the left. Push the cam all the way to the left and drop the larger end into the slot. This is all done in one motion, in a matter of a second or so.



4. Smaller end of cam is dropped into slotted tube first. Cam is inserted with the numbered side up, facing top of camera.

The cam for each lens is stored, when not in use, under a clip at the back of the lens board; thus each lens has its associated cam instantly available. To aid in rapid identification of the various cams,

each cam, lens and viewfinder mask is coded with colored dots so that all accessories for any one lens can easily be located. In any case, it is wise to put the cam on the back of the lens board, under its clip, as soon as the board and its associated lens are removed from the camera. It is also well to make a record of the numbers on each cam so that replacements can be ordered if one should accidentally be lost.

Cams are available for lenses of the following focal lengths: 90mm, 100mm, 127mm, 135mm, 152mm, 162mm, 203mm, 250mm, and 380mm. However, since there are minor variations in focal length even among lenses of the same nominal focus,



5. Smaller end of cam is pushed to the left and under the engaging lever on the left.

each cam must be individually fitted to the lens with which it will be used. This fitting must be done at a Graflex Service Sales Department, and the lens must be sent in for matching. However, as previously men-



6. Pencil points to cam inserted in slot and in position to couple the lens to the rangefinder. Final step is to release hinged cover.



7. The Rangelite in the Graphic Rangefinder is operated by the push-button on the left of the rangefinder housing. Two beams of light are projected through the rangefinder windows.

tioned, replacements for cams already made can be ordered by giving the code number on the original cam. Cams for other than standard lenses can also be prepared on a special-order basis.

The Graphic Rangefinder is of the superimposed-image type, and due to its optical design the image appears to be brightest when the two beams are exactly superimposed. This makes the "end point" sharper and makes focusing quicker and more accurate.

The Rangescope, an accessory 1½X magnifier, is available as an attachment to the rangefinder eyepiece; it makes focusing even easier and more critical. It has a rubber eyepiece which excludes outside light and makes the use of the rangefinder more comfortable.

BUILT-IN RANGELITE IN GRAPHIC RANGEFINDER

Incorporated in the new Graphic Rangefinder is the Rangelite for night photography. The Rangelite projects two beams of light through the rangefinder windows upon the subject. As the camera is focused, these two beams of light converge, and when exact focus is reached the two spots of light projected on the subject merge into a single spot. This device will be found especially useful by press photographers and others who do a good deal of flash photography under difficult lighting conditions.

The Rangelite is a self-contained unit; it accepts two penlight batteries and has

a flashlight bulb, all neatly fitted into the rangefinder housing. Unlike previous units of this type, it requires no outside source of current and can be used without any need for connecting it to a flashgun or other external battery. The penlight cells which operate the Rangelite are installed through a small door on the left side, in the back of the Rangefinder housing. Press either end of the door to unlatch the spring clip; the door can then be removed. Two batteries are next inserted, and the door is replaced.

To install a new lamp, remove the two large screws from the top of the rangefinder housing and lift the entire housing off the camera. Fit the new lamp into the spring clip near the right-hand mirror; then replace the housing and the two screws. The Rangelite is operated by pressing the red button on the left of the rangefinder housing; the light goes out when the button is released. If the camera is to be stored for an extended period of time, remove the batteries; also, replace batteries as soon as they are exhausted to avoid corrosion and damage from leaky dead cells.

The Rangelite works accurately throughout the useful range of the lens coupled to the unit. In dim light, two images of the lamp filament can be seen projected on the subject. Rack the lens standard back and forth until the two images merge into one; the lens is then in accurate focus.

PARALLAX-CORRECTING OPTICAL VIEWFINDER

An optical viewfinder with parallax compensation is located in the right side of the



8. Rear peepsight used with flexible open-frame finder which is seen on the cover of this booklet. Peepsight has click-stops for parallax correction.



9. GRAPHIC 35 Camera uses standard 35mm film cartridges. The camera has two new and unusual features: Push-Button Focusing, a simple method of focusing by finger pressure; and Spectramatic Flash Settings, an easy system for correct color flash exposure by matching color bands. Also a coupled rangefinder, double-exposure prevention, automatic exposure counter.

rangefinder housing, and coupled to the rangefinder mechanism, in such a way that as focusing is carried out a parallax correction is automatically made.

The fields of the various lenses are outlined by slip-in masks which are available for all lenses except the wide-angle. For the wide-angle lens, an attachment lens element is supplied for the front of the viewfinder, and no mask is required.

FLEXIBLE OPEN-FRAME FINDER

A new type of open-frame finder on the Pacemaker 45 Graphics is now being featured. This is made of flexible stainless steel and is designed to yield under impact, without being permanently deformed; it springs back into shape upon release, and maintains its assigned position under nearly any condition of rough use. The rear peep-sight used with this finder frame is also made of chromed spring steel; it has a

sliding aperture with click-stops for parallax correction. Thus as the subject moves to or from the camera, correction may be made by sliding the sight up or down a notch at a time.

When not in use, the front frame telescopes into the camera front standard. The rear peepsight folds into a small niche in the back of the camera; it is important to be sure that the adjustable aperture slide is pushed all the way down before folding the rear sight into storage position.

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GRAPHIC 35 CAMERA

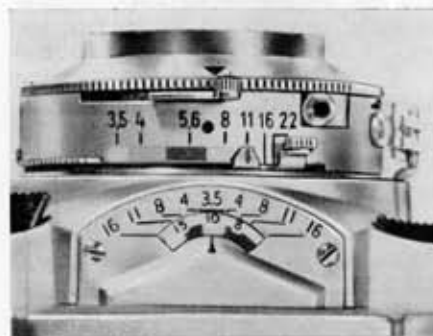
The Graphic 35 is a new miniature camera using all standard 35mm cartridges of both black-and-white and color films. It has two unusual features, not previously

found in any other camera regardless of size.

The first of these features is Push-Button Focusing, by means of which the lens is moved in or out in its mount through fingertip pressure on one of two small push-buttons conveniently placed on the front of the camera. The second feature is Spectramatic Flash, which provides correct color flash exposure settings simply by matching two color bands, without calculation or mathematics of any kind. Other important features are:

1. Coupled split-image rangefinder.
2. Visi-Ready Footage Scale.
3. Double-exposure prevention.
4. 50mm Graflar f/3.5 or f/2.8 lens.
5. Depth of field scale.
6. Shutter speeds of 1/300, 1/100, 1/50, 1/25, 1/10, 1/5, 1/2 and 1 second, as well as "Bulb." The shutter also has a built-in self-timer.
7. Built-in contacts for electronic flash and Class M flashlamps.
8. Accessory clip with contacts for mounting flash unit without connecting wires. This connection operates either the Graflash P-L or B-C units. Other flash units, and all electronic flash outfits, can be used with connecting cords.

The Graphic 35 has a die-cast metal body with corrosion-proof satin chrome finish, and an attractive, scuff-proof gray covering. The engine-turned knobs are



10. All controls on the Graphic 35 Camera are conveniently grouped for easy operation with the camera at eye level, or they can all be seen at a glance, from the top of the camera.



11. The Graphic 35 Camera is focused by fingertip pressure on either of the two small push-buttons under the index fingers. The second finger of the right hand stays conveniently on the shutter release, ready to make exposure.

easily grasped, and all controls are grouped for quick, simple operation.

All standard 20 or 36-exposure film loads can be used in the camera, producing the standard sized 1x1½-inch pictures; color transparencies made with the Graphic 35 can be mounted for projection in standard 35mm slide mounts or 2x2 inch glasses.

The automatic film counter is preset manually for the number of exposures on the roll; it indicates how many pictures are left on the roll at any time.

GRAPHIC 35 PUSH-BUTTON FOCUSING

For maximum speed of operation, the 35mm camera has always been preferred. The Graphic 35, with the new Push-Button Focusing system, increases the "top speed" of operation still further—in fact, after a few shots, it will be found that the camera can be operated almost as fast as the operator can think.

Focusing is done by a light pressure of the fingertip on one of two push-buttons that flank the lens barrel just under the rangefinder windows. With the camera held comfortably for shooting, the index fingers fall comfortably on the push-buttons, while the third finger of the right hand finds itself directly over the shutter release lever, ready to shoot as soon as focus is achieved. It is never necessary to look for the controls; they are always under the fingers when the camera is correctly held.

SAMPLE SPECTRAMATIC FLASH EXPOSURE

RECOMMENDATIONS

(Consult instruction book with camera for latest data)

Film	Lamp	Sync. Lever Setting	Shutter Speed Setting	
			Using Scale Marked 10	Using Scale Marked 30-35
Kodachrome, Daylight; Ansco Color, Daylight	5B, 25B	M	1/50	—
Kodachrome, Daylight; Ansco Color, Daylight	Stroboflash II	X	1/300	—
Kodachrome F or A, Ansco Color, Tungsten	5, 25	M	1/300	1/50
Kodachrome F or A, Ansco Color, Tungsten	SM, SF	X	1/100	—
Ansochrome, Daylight; Ektachrome, Daylight	5B, 25B	M	—	1/50
Ansochrome, Daylight; Ektachrome, Daylight	Stroboflash II	X	—	1/300
Ektachrome F	5, 25	M	—	1/100
Ektachrome F	SM, SF	X	1/100	—
Ektachrome F	8	M	—	1/50
Kodak Plus-X, Ansco Ultra Speed Pan	SM, SF	X	—	1/100
Kodak Plus-X, Ansco Ultra Speed Pan	8	M	—	1/300
Kodak Panatomic-X	5, 25	M	—	1/100
Kodak Panatomic-X	8	M	1/300	—
Anso Supreme	5, 25	M	—	1/300
Anso Supreme	8	M	—	1/100

When using a film not listed above, and for full details concerning exposure with any film, refer to the manufacturer's instruction sheet packed with each roll.

One push-button moves the lens outward, the other inward. As the point of sharp focus is approached in the rangefinder, a little pressure on the opposing button while the lens is being moved slows the motion of the lens barrel to a degree where critical focus is easily achieved. On the other hand, greater pressure on one button, and the virtual release of the other, moves the lens rapidly through its entire range, a useful procedure during preliminary line-up.

Meanwhile, since the third finger of the right hand is always on the shutter release, the picture can be snapped the instant sharp focus is attained, without taking the fingers off the focusing buttons. The shutter-cocking button is on top of the lens barrel, and the shutter can be quickly recocked after a shot, while the camera is still up to the eye and the next picture is being focused.

GRAPHIC 35 SPECTRAMATIC FLASH

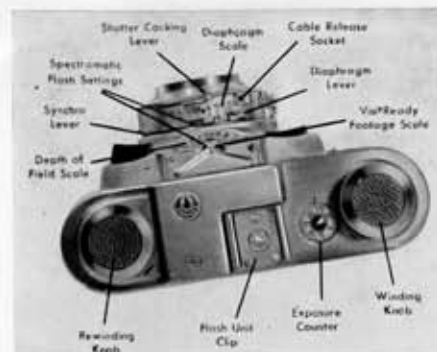
Any one of three Graflash units can be attached to the accessory clip on top of the Graphic 35; all that is necessary is to slide the unit into the clip and it is ready to shoot. There are no wires to plug in or to get lost or broken. The P-L Graflash uses penlight batteries; the B-C and the M-2 Graflash each use a 22½-volt battery-

capacitor unit. The first two of the above named units accept all bayonet-based flash-lamps, including the No. 5, 25, SM and SF lamps. The M-2 unit is for M-2 midjet lamps only.

The synchronization of the lamp is set by moving the flash synchro lever to either "X" or "M", as indicated in the table. The shutter may be used at any speed including 1/300. Exposure for color is adjusted merely by following the color code on the camera distance scale and lens barrel.

More recent models of the Graflex 35 have two colored bands, which increase the useful range of the Spectramatic setting system. One of these bands is designed for slower films, which have guide numbers in the vicinity of 40—this band is identified by the number "10." (Earlier cameras with only one band are designed for this guide number of 40.) The other band is for higher speed films, having guide numbers around 90—this band is identified by the number "30-35." The table indicates which of the two bands is to be used in any given situation. Some compensation must be made for personal taste in negatives and transparencies—information for such changes will be found in the instructions which accompany each camera.

To do this, first focus the subject with the push-button control and rangefinder.



12. External working parts of the Graphic 35 Camera. Note that all controls are conveniently grouped so that settings can be seen in a single glance, and exposures made easily.

Then note which color band the Visi-Ready footage indicator points to, and set the lens diaphragm pointer to the same color. Thus if your subject happens to be 5 feet away, the Visi-Ready Indicator will point to a yellow band. Then you simply set the lens diaphragm pointer on the yellow marker; this is equal to f/8, which would be the proper setting for an average picture in an average room. Very dark rooms will require somewhat more exposure—very light ones, somewhat less. The color bands allow some tolerance for correction for such subject variations; simply use the edge of the band, rather than the center, when setting the diaphragm pointer under such circumstances.

GRAPHIC 35 CONTROLS AND OPERATION

Instructions for loading and unloading the camera, and making ordinary types of pictures, are found in the instruction book supplied with each camera. Certain interesting features deserve further discussion here.

For those who like to get into their own shots, the Graphic 35 has a built-in self-timer. The self-timer setting will be found next to the flash settings on the side of the lens barrel; it consists of a "V" and a green dot. This setting causes a delay of 10 seconds between the time the shutter release is pressed and the time the exposure is actually made, thus giving the photographer time to get into the picture before

the shutter snaps. "X"-type flash synchronization is produced at this setting. When the self-timer is used the camera should be on a firm support, preferably a tripod, such as the Graphic Jr. Tripod.

The Graphic 35 has red-dot settings for outdoor color photography with Kodachrome Film Daylight Type and Ansco Color film. In bright sunlight, no exposure meter is necessary—the photographer simply sets the diaphragm lever to the red dot between f/5.6 and f/8, and the shutter to the red 1/50-second setting. This is the correct sunlight exposure for the films mentioned. With the new, fast color films such as Ansochrome and Ektachrome E-135, leave the shutter on the red 1/50 and move the diaphragm pointer to f/11.

A depth of field scale along the outer edge of the Visi-Ready Footage Scale shows, for any lens aperture and distance focused on, the distance before and beyond the point of focus within which the image will still be acceptably sharp.

The camera can be used in a vertical position just as easily as the horizontal one. All hand positions for focusing and tripping the shutter remain the same. For vertical pictures the image in the rangefinder will be split vertically, and it will be found easier to focus when some horizontal line in the subject is used as a reference point.

Accessories for the Graphic 35 include a carrying case, the Graphic Speed Tripod, Filter Kit, a Lens-shade Filter Holder, Graflash or Graflite Jr. flash units, and the Stroboflash Electronic Flash Units.

The Graphic 35 carrying case is made of top grain cowhide and has a removable front and adjustable neck strap. The camera can be both carried and used conveniently in the case, which affords it a constant protection. With the front of the case either dropped or removed, a Graflash unit can be attached to the accessory clip on top of the camera. Thus flash pictures can be made while the camera is carried in the ever-ready case.

The camera is removed from the carrying case when used with any of the Stroboflash electronic flash units. Figure 14 shows the Graphic 35 used with the smallest of the Stroboflash outfits—the Stroboflash I.



13. STEREO GRAPHIC Camera assures excellent stereo results without focusing or changing shutter speeds. A single control, the Exposure Dial, is set to give correct exposure for local lighting conditions; Depthmaster Autofocus gives sharpness throughout picture.

The camera and lightweight lamp head are mounted conveniently together on a mounting bracket, and the power pack is carried over the shoulder on its own built-in shoulder strap.

The Graflex Speed Tripod is well suited for use with the Graphic 35. It weighs only 4½ pounds, complete with Pan-Tilt Head, and has a lateral adjustment for leveling the camera. It opens to 67 inches, closes to 28 inches, and has a double extension center post for quick height adjustment.

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STEREO GRAPHIC CAMERA

The new Stereo Graphic camera has raised 3-dimensional picture taking to a new level of simplicity. It has only a single adjustment to be set by the photographer—a simple choice of aperture for the correct exposure is all that is required. No focusing or change of shutter speed is needed at all—for any picture taking, indoors or out. Thus the veriest tyro can secure excellent stereo pictures from the very first roll of color film.

DEPTHMASTER AUTOFOCUS

The lens system in the Stereo Graphic is called Depthmaster Autofocus, and consists of a unique setting of the two lenses that provides sharp focus throughout the entire scene without any adjustment on the part of the operator. The lenses are so positioned that one lens produces sharpest detail through the entire foreground range in one picture, while the other lens produces equally sharp detail in the middle distance and background of the other picture of the stereo pair. Thus when the pictures are viewed in a stereo viewer, the scene appears sharp from foreground to infinity. Matched 35mm Graflar lenses are used; they are, of course, anti-reflection-coated.

STEREO GRAPHIC EXPOSURE DIAL

The exposure dial of the camera is set between the two lenses and is operated by a knob directly below. There is a series of click-stops marked with both f-stops and light conditions, thus: Brilliant 11, Bright 8, Hazy 5.6, Cloudy 4. An additional f/16 stop is provided, but not marked with a light value. When using Kodachrome Film, Daylight Type, or Ansco Color Film, Day-

DAYLIGHT EXPOSURE TABLE FOR STEREO GRAPHIC
For Stereo Graphic Shutter Set at I

	Daylight Color Film		Kodachrome Type A with No. 85 Filter Kodachrome Type F with No. 85C Filter
	Kodachrome Ansco Color	Ektachrome Ansochrome	
Beach, water and snow scenes in bright sun	Brilliant f/11	f/16	Brilliant f/11
Nearby subjects of average color, sunny, clear sky	Bright f/8	Brilliant f/11	Bright f/8
Hazy, light clouds, transparent shadows, with no sharply de- fined edges	Hazy f/5.6	Bright f/8	Hazy f/5.6
Cloudy sky, overcast, no shadow**	Cloudy f/4	Hazy f/5.6	Cloudy f/4
Open shade.** Subject in open with ample light from sky over- head, but not in direct sunlight.	Cloudy f/4	Hazy f/5.6	Cloudy f/4

**Note that pictures taken under these conditions may have an excessive bluish cast. Picture taking is not recommended under these conditions because of difficulty of judging light values. Try one exposure at indicated setting, and if possible, one with the next larger lens opening.

light Type, it is simply necessary to set the dial to the prevailing light condition and take the picture. With other films, the lens aperture numbers can be used in the normal way, remembering that the shutter speed of the camera is fixed at approximately 1/50 second. An exposure meter may be used if desired, or the exposure table below can be referred to for there are no connecting cords or plugs required. However, a connecting cord is available for off-camera, sidelight effects. In addition, a Graflite Extension Flash can be used for two-flash shots, with either the Graflite Jr. or Graflash B-C unit.

Synchronization is correct for all Type M flashlamps, which includes the No. 5, 25, 5B and 25B.

To secure the correct exposure with any of the above lamps, simply measure or estimate the distance from flashlamp to subject, and consult the table below. In this table, find the number for the film being used and the approximate distance settings for average subjects with the films listed.

It is important to remember in this connection, never to set the lens aperture between lens stops.

FLASH EXPOSURE TABLE FOR STEREO GRAPHIC

	7-10 ft.	10-14 ft.	15-22 ft.
Kodachrome (daylight with blue bulbs)	5.6	4	—
Kodachrome (indoor type A or type F with clear bulbs)	11	8	5.6
Ektachrome (daylight with blue bulbs)	8	5.6	4
Ektachrome (indoor type F with clear bulbs)	16	11	8
Ansco Color Film (daylight with blue bulbs)	5.6	4	—
Ansco Color Film (indoor with clear bulbs)	11	8	5.6
Ansochrome (daylight with blue bulbs)	8	5.6	4
Ansochrome (indoor with clear bulbs)	16	11	8

*The correct diaphragm setting for flash pictures depends upon the distance between the flash bulb and the subject. These flash settings are for No. 5 or No. 25 flash bulbs (clear or blue as indicated) used with the Stereo Graphic and with the shutter selector set at "I."
Note: Do not set the exposure dial between stops.



14. GRAPHIC 35 Camera with STROBOFLASH I electronic flash outfit. The Graphic 35 and the lamp head are mounted together on one bracket. A Coiled Kord connects power pack to lamp head and the entire unit is synchronized with the shutter through the camera accessory clip.

STEREO GRAPHIC CONTROLS AND OPERATION

The shutter of the Stereo Graphic is coupled to the film-winding mechanism and is automatically cocked as the film is advanced. Thus double exposures are prevented, and the only thing necessary after taking a picture is to wind the film for the next one. The shutter also has contacts built in for flash synchronization.

Any of the three Graflash units can be mounted in the accessory clip on top of



15. Stereo Graphic Viewer has built-in light, focusing adjustment and lens separation adjustment for individual eyesight. A detachable battery case can be removed and the unit used with available light.

the camera and is ready for use at once; from lamp to subject. This number is the exposure dial setting. For example, if you are using Ektachrome Film, Daylight Type, with a No. 25B flashlamp, and the subject is 10 feet from the flash, the table gives the exposure dial setting as 8; just set the dial to 8 and take the picture.

Standard color film cartridges can be used in the Stereo Graphic. Regular 36-exposure cartridges will make 29 stereo pairs, and 20-exposure cartridges will make 16 stereo pairs. The finished transparencies can be mounted in double mounts for viewing by the user, or they will be mounted by the processing laboratory if so requested when the film is sent for developing.

STEREO GRAPHIC VIEWER

The viewer made as a companion piece of equipment to the Stereo Graphic is a convenient hand-held unit with built-in light source and battery case. It has ground glass diffusion screens for uniform illumination over both pictures of the stereo pair. Dual focusing knobs are provided so that the viewer can be focused with either hand, and the separation between lenses can also be adjusted for the user's comfort.

Slides are dropped into a slot on top of the viewer, and a pushbutton underneath the viewer lights the lamp.

If batteries are temporarily unavailable, the viewer can be used with any light source. It is simply necessary to remove the battery case and point the viewer toward a light; the ground glass screens will diffuse most external lights sufficiently for comfortable viewing.

4

STROBOFLASH UNITS — PORTABLE ELECTRONIC FLASH

The well-known Stroboflash series of electronic flashlighting units is now made by Graflex; from this group of units, almost any photographer will find one that will serve his needs. All are adaptable to any Graphic or Graflex camera.

Three different units are supplied for various light output requirements. All are battery-operated and are labeled respec-



16. Stroboflash II, lamp head mounted on Graflex battery case, Speed Graphic Camera.

tively Stroboflash I, Stroboflash II, and Stroboflash III. The lightest and most compact is the 50-watt-second Stroboflash I. Next in size is the Stroboflash II, a general-purpose unit of 100 watt-seconds rating. And the most powerful, but still easily portable, unit is the Stroboflash III, which has a power output of 200 watt-seconds.

While no single one of these units can be claimed to serve every possible need, the flexibility of the Stroboflash system permits a great variety of combinations of the three units, since the lamps, power packs and accessories are readily interchangeable. Thus the various components can be used in a variety of combinations for multiple flash shots, either directly interconnected, or by photoelectric "slave" operation. In selecting one or more units, therefore, the photographer should be guided by his specific needs, either for portability and low-cost operation, or for high light output, or a combination of both factors.

All Stroboflash units utilize identical lamp heads, and all have the flexible Coiled Kord connection from lamp head to power pack. The lamp head and power units are carried in flexible—but tough—Royalite cases that are resistant to temperature, moisture and shock, thus enabling the units to stand rugged use and hard knocks.

The Stroboflash units use electronic (triggertube) tripping, and can be connected to any type of camera shutter without danger of burning the contacts. In addition, there is no possibility of forgetting to turn off the unit after use; the power packs become inoperative as soon as the lamp heads are disconnected. Current drain when idling is negligible; total leakage current in an hour is no more than that consumed in a single flash.

Because of these features battery life is considerably prolonged, and cost per flash is correspondingly low. A further economy can be achieved by the use of the AC line-operated Battery Booster, available as an accessory; if this is used consistently, the life of a set of batteries can be nearly doubled. The Stroboflash I power pack uses 240-volt batteries; the Stroboflash II and III units use 225-volt batteries.



17. STROBOFLASH II, a general-purpose, portable electronic flash outfit of 100 watt-seconds. Flash duration approximately 1/1000 second.

Accessories for use with any of the units include a variety of brackets, adapters, clamps and extension cords by

which lamp heads can be mounted either on the camera or any convenient object. There is also available a phototube for converting the units to "slave" operation; a battery analyzer; "snoots" for light control; and extra lamp heads and other convenient items.

As a starting point for estimating the exposure required, the guide number table below is offered for use with the Stroboflash units. It must be kept in mind, however, that some variation may be necessary to suit individual needs, methods of working and density of negative desired. The numbers should be used as a starting point from which the photographer can determine guide numbers, either higher or lower, which best suit his needs. These numbers are based on the latest information from the manufacturer at the date of publication.

SPECIFICATIONS OF STROBOFLASH UNITS

To assist in choosing the unit most desirable for a given photographer's needs and methods of working, the following information gives the pertinent data on the three units:

TABLE OF GUIDE NUMBERS FOR STROBOFLASH MODELS I, II AND III

	STROBOFLASH		
	I	II	III
COLOR FILMS			
Kodachrome Film, Daylight Type	28-30	35-40	56-70
Anso Color Film, Daylight Type	28-30	35-40	56-70
Ektachrome E-135 and new fast roll film, daylight	45-55	70-80	100-115
Ansochrome, Daylight Type	45-55	70-80	100-115
BLACK AND WHITE			
Fast Pan Films*	140-200	220-320	350-450

*Guide numbers vary with film type and processing techniques. To get negatives of normal contrast, about 50 per cent longer development than usual is recommended. This is not force-developed, but is necessitated by the fact that films exposed to electronic flash usually have a lower than normal contrast. *Strob-X* Developer gives excellent results with 7 to 10 minutes development time.



18. STROBOFLASH III, the most powerful of the Stroboflash units, has a 200 watt-seconds rating, is battery-operated and easily portable. The flash duration is approximately 1/500 second.

Stroboflash I: Power output, 50 watt-seconds. Flash duration, approximately 1/1400 second. Recharging time, 3 seconds. Power pack weight, 3 lb. 2 oz. Size, 5½"x8¾"x15½". Equipped with L-bracket and rubber adapter for Graflite or Heiland flash units.

Stroboflash II: Power output, 100 watt-seconds. Flash duration, approximately 1/1000 second. Recharging time, 3 to 6 seconds. Power pack weight, 7 lb. 8 oz. Power pack size, 6½"x7"x4½". Equipped with L-bracket and rubber adapter for Graflite or Heiland flash units.

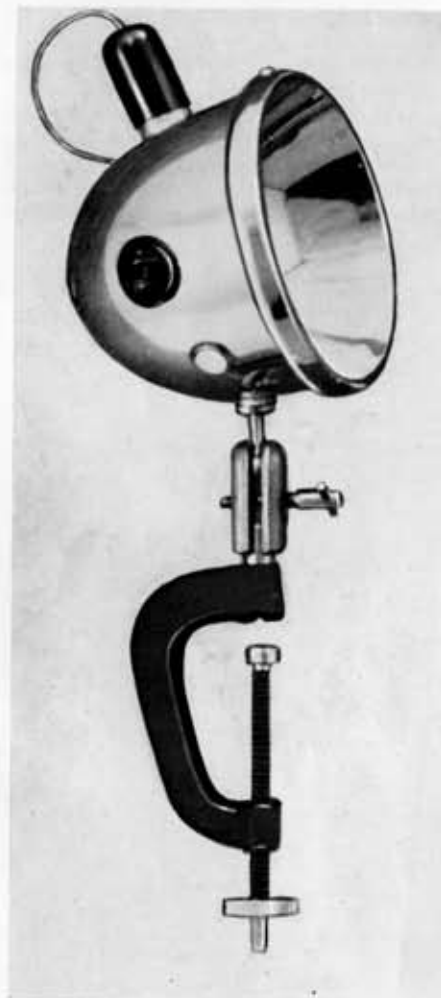
Stroboflash III: Power output, 200 watt-seconds. Flash duration approximately 1/500 second. Recharging time, 6 seconds. Power pack weight, 9 lb. 4 oz. Power pack size, 6½"x7½"x4½". Equipped with L-bracket and rubber adapter for Graflite and Heiland flash units.

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TELEFLASH SLAVE UNIT FOR FLASHLAMPS

The Teleflash is a battery-capacitor flash unit with phototube triggering. It may

be used in a number of ways for multiple flash photography, both by itself and in combination with other units. It automatically synchronizes any bayonet-based lamp with a flash fired from another source, such as the camera flash unit; in



19. TELEFLASH Slave Unit for flashlamps, is a battery-capacitor outfit with phototube triggering. It can be used as a single "remote" extension, in combination with other units, and even directly connected to the camera flash contacts.

addition, other flash units may be connected directly to the Teleflash, and will be fired by it in synchronization.

The Teleflash is ruggedly built for long, rough service. It can be used as a photoelectric flash without connecting cords, or it can be plugged directly to the camera flash contacts and do double duty as a regular flashgun. Its phototube circuit can also activate a solenoid. A single Teleflash can be connected by wire to as many as 5 sidelight units and will fire them all when its own lamp is fired.

The phototube projects from the side of the reflector housing and may be angled to receive the light from any direction. A metal cap is used to cover the phototube when photoelectric tripping is not desired,

as, for example, when other photographers are also firing flashlamps which might activate it.

The unit turns itself on whenever a new flashlamp is inserted in the socket. It ceases to operate as soon as the lamp is fired, and does not need to be switched off. In addition, its phototube circuit is sensitive only to a *change* in light intensity; it will work, therefore, regardless of room illumination. Any number of Teleflash units may be placed around a room, and, provided all their photocells are facing the camera flash, all will fire when the camera flash is fired. Each unit has a C-clamp and an adjustable swivel, and can be used on regular portable lamp stands or any support which happens to be handy.