

This manual is for reference and historical purposes, all rights reserved.

This page is copyright© by M. Butkus, NJ.

This page may not be sold or distributed without the expressed permission of the producer

I have no connection with any camera company

On-line camera manual library

This is the full text and images from the manual. This may take 3 full minutes for the PDF file to download.

If you find this manual useful, how about a donation of \$3 to: M. Butkus, 29 Lake Ave., High Bridge, NJ 08829-1701 and send your e-mail address so I can thank you. Most other places would charge you \$7.50 for a electronic copy or \$18.00 for a hard to read Xerox copy.

This will allow me to continue to buy new manuals and pay their shipping costs.

It'll make you feel better, won't it?

**If you use Pay Pal or wish to use your credit card,
click on the secure site on my main page.**

PayPal Name Lynn@butkus.org

How to use your

Bell & Howell

FOTON

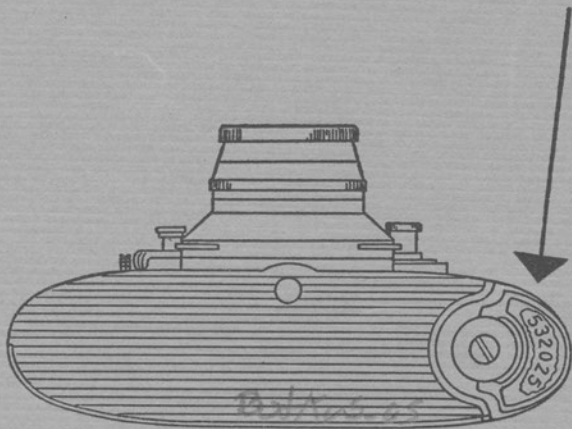
35mm still camera

IMPORTANT

The Bell & Howell Lifetime Guarantee is **VOID** unless you register the serial number of your equipment with Bell & Howell. Use the stamped self-addressed reply card over this cover. Registration of your equipment brings you the following advantages:

- 1. Obtaining the full benefits of the B&H Lifetime Guarantee.**
- 2. Assistance in finding your equipment in case of loss or theft.**
- 3. Free correspondence counsel from our Personal Service Department.**
- 4. Receipt of bulletins about movie equipment and its use.**

Use the stamped registration card over this booklet cover to register your equipment with Bell & Howell — mail it *today!* The serial number of your camera will be found on camera base, under the winding key.



Congratulations!

You have purchased the finest 35mm still camera owned by anyone, anywhere. And with it, a Bell & Howell promise of professional "stills" with amateur ease throughout its long life.

Behind this promise and your Foton stand ten years of painstaking research, the tireless workmanship of engineers and master craftsmen, and the finest materials in the more than 500 parts that compose your precision-built instrument.

Pride in your purchase — in its far-sighted functional design; its new T-calibrated lens; its wear-resistant finish; its attractive styling — will grow with the years. Confidence in your investment is justified by the knowledge that your Foton is guaranteed for life — during life of product, defects in workmanship or material will be remedied free (except transportation). Pictures with unusual sharpness and depth, in full natural color or sparkling black-and-white, single or in series, prove your Foton's inherent quality and flexibility.

To be sure you get the perfect pictures your new camera is made to give, study the following pages carefully with your Foton in front of you. Then, when you put it to work, you'll get matchless results from the very first picture.

If at any time you need advice or additional information, please feel free to call on your Bell & Howell dealer, or write directly to us.

BELL & HOWELL COMPANY
7100 McCormick Road
Chicago 45, Illinois

FOLD-OUT ILLUSTRATION

for convenient, ready reference while studying
this instruction manual.

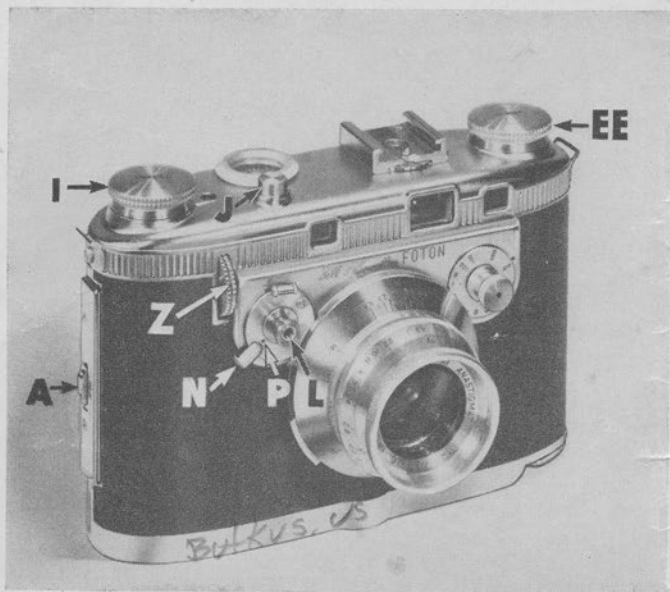
See Also

Fold-Out Illustration at Rear of Book

NOTE

When spring has been completely unwound, it must be rewound FULLY before shutter release button will operate.

For best results use either Ansco film, or use the new Eastman Kodak film with plastic core identified by ★ on yellow box. Should any film fail to advance, pull up take-up knob and turn in direction of arrow to complete film transport cycle (until positive resistance felt). Film will now be in position for next exposure. No film will have been spoiled or wasted.



- | | |
|-----------------------------------|---------------------------------------|
| A. Door latch | N. Shutter release button lock |
| EE. Rewind knob | P. Circle |
| I. Take-up knob | Z. Rangefinder drive wheel |
| J. Sprocket release button | |
| L. Shutter release button | |

Instructions for the Operation and Maintenance of
BELL & HOWELL

FOTON

Double-frame 35mm Automatic Still Camera

Loading the Camera. Raise winding key M and wind the camera, using the forward and backward motion employed in winding a watch, until you reach the stopping point; do not force the key beyond this point. Fold key flat against camera base. Open camera door by pressing door latch A downward. With the film feeding from the cartridge to your right, insert the top of the cartridge into pocket B so that it engages driving fork C. Pressing cartridge up-

B. Pocket

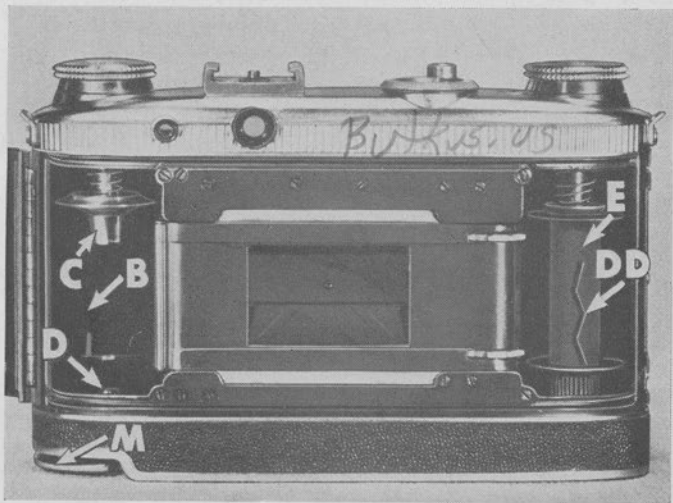
C. Driving fork

D. Pin

DD. Spring slot

E. Take-up spool

M. Winding key



Contents

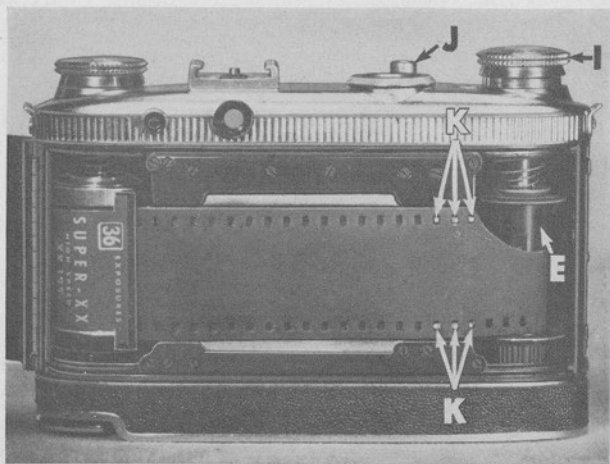
	<i>Page</i>
Loading the Camera.....	3
Shutter Speed Dial.....	6
Lens	6
Viewfinder	9
Focusing	9
Depth of Field.....	10
Shutter Release Button and Lock.....	13
Repeat Lever	14
Holding the Camera	15
Tripod	15
Unloading the Camera	17
Outdoor Pictures	18
Indoor Pictures	21
Flash Pictures	24
Rapid Sequence Pictures	29
Time Exposures	30
Double Exposures	32
Parallax	33
Filters	33
Auxiliary Lenses	36
Maintenance	38-40
Lens	38
Viewfinder	38
Rangefinder	38
Filters	38
Film Chamber	39
Lubrication	40
Reflector	40
Your Camera and Its Carrying Cases	41
Depth of Field (Table)	42-43

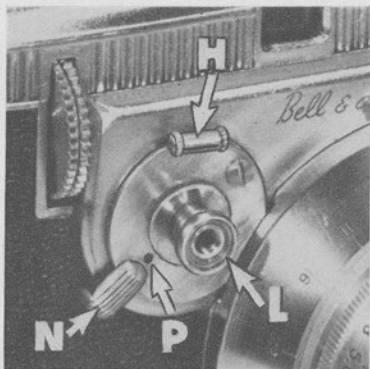
ward, slip bottom of cartridge over pin D. Pull out sufficient film to reach take-up spool E. Engage film end with spring slot DD in take-up spool E.

Pull up take-up knob I; *while depressing sprocket release button J*, turn take-up knob I in the direction of the arrow and wind the film forward until sprocket holes in each edge of film engage sprocket teeth K. The film should be tightly wound around take-up spool E. Release pressure on sprocket release button J and press take-up knob I downward; if you fail to press take-up knob down, film will not be taken up on spool E, but will jam in pocket while, outwardly, camera appears to be operating normally. Close camera door.

Press shutter release button lock N toward the lens until a

- | | |
|-------------------------|-----------------------------------|
| E. Take-up spool | J. Sprocket release button |
| I. Take-up knob | K. Sprocket teeth |





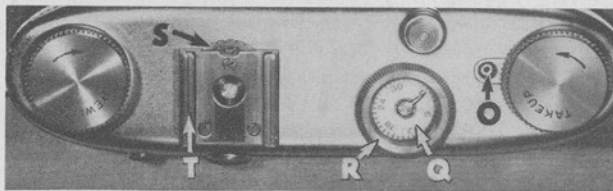
- H. Repeat lever**
- L. Shutter release button**
- N. Shutter release button lock**
- P. Circle**

red dot shows in the circle at P. With repeat lever H down as at left, depress shutter release button L twice, to move the film exposed while loading from before the aperture; press shutter release button lock N back to cover red dot so that film will not be accidentally exposed. Then, raise winding key M and again wind the camera to its stopping point.

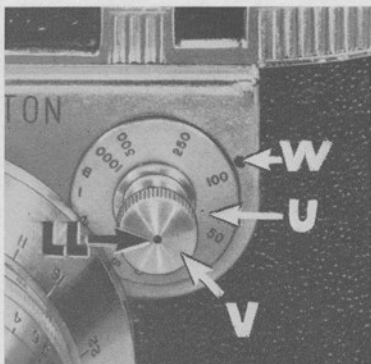
With the camera fully wound, shutter indica-

tor O will show a white circle, indicating that the shutter is cocked. Set exposure counter Q by rotating knurled ring R until the red pointer on the glass is over the zero mark on the calibrated dial. Turn film speed reminder dial S with the thumb nail until the figure corresponding to the film speed in use is opposite notch in accessory clip T.

- O. Shutter indicator**
- Q. Exposure counter**
- R. Knurled ring**
- S. Film speed reminder dial**
- T. Accessory clip**



- LL. Index mark for auxiliary lenses
- U. Shutter speed dial
- V. Shutter speed knob
- W. Index mark



Shutter Speed Dial. The shutter speed dial U is calibrated for the following exposures: B (bulb), 1 second, 1/2, 1/5, 1/10, 1/25, 1/50, 1/100, 1/250, 1/500, and 1/1000 of a second. *It may be reset at any time, since it operates independently of other camera mechanisms.*

To set the shutter speed, pull out shutter speed knob V and rotate dial until the desired speed calibration is opposite red index mark W. Then, allow the knob to drop back into place. The shutter speed dial will be locked in place at the desired setting.

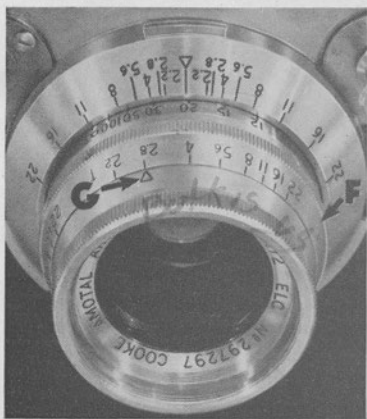
See the paragraphs on "Rapid Sequence Pictures," "Time Exposures," etc., pages 29 through 32, for information on use of various shutter speeds.

Lens. The standard 2" f/2 Cooke Amotal lens is calibrated in what are known as T stops rather than the usual f stops, for more accurate determination of the amount of light admitted to the film. The diaphragm control ring F is calibrated: T2.2, 2.8, 4, 5.6, 8, 11, 16, 22, each stop admitting 100% more light than the next smaller in size. T2.2 may be considered the equivalent of f/2 on this lens. As the T stop increases numerically, the lens opening de-

creases in size; that is, at T2.2 the maximum amount of light is admitted to the film, at T22 the least amount of light is admitted. The correct T stop to use for photographing a certain subject is not decided arbitrarily but is dictated by a combination of light conditions, film speed, the subject to be photographed, distance between camera and subject, and depth of field desired. See "Rapid Sequence Pictures," "Time Exposures," etc., pages 29 through 32.

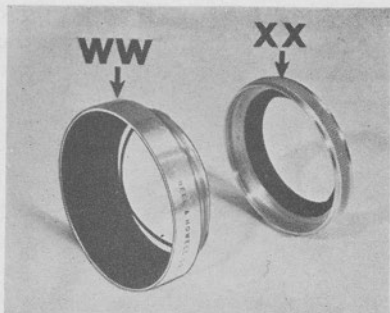
You will, of course, get the most accurate exposures by using a good photoelectric exposure meter. All exposure meters now give the lens setting in f stops. To use a meter calibrated in f stops with the T-stop calibrated Foton lenses, simply use the *next higher film speed number* when setting the film speed on the meter. For example, if the speed of the film in use is 8, use 10; 24, use 32; 64, use 80, etc.

When the correct exposure has been determined, set the lens by rotating knurled ring F until the desired T-stop calibration clicks into place opposite index mark G. It is recommended that the lens be set before it is focused; then,



F. Diaphragm control ring
G. Index mark

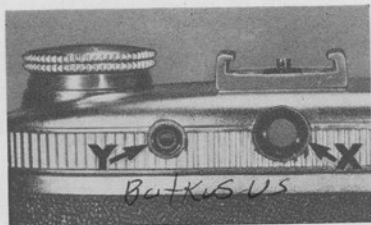
WW. Sunshade
XX. Adapter



you need only move your forefinger from the rangefinder drive wheel to the shutter release button to make the exposure. If the lens has been focused *before* it is set, place a finger on wheel to avoid accidentally changing the focus.

The lens has three matching sets of T-stop calibrations and an index mark for each set, to make lens setting more convenient. While the T-stop calibrations click into place opposite the index mark, it is possible to set the lens at any point between calibrations when desired. The click stops make it possible, with practice, to set the lens without looking at the calibrations, merely by counting the number of clicks from the T2.2 or T22 position and mentally identifying each. For example, rotating the lens from the T2.2 position toward the T22 position and counting the clicks, three clicks from T2.2 would be T5.6 while three from T22 would be T8. Practice will make it easy to follow this method of quickly changing lens settings.

The use of the combination sunshade and filter holder with the 2" lens is recommended to shade the lens from direct sunlight and to reduce the amount of stray light reaching the lens. When using without a filter, screw sunshade WW into adapter XX, and the combination into the lens. For use of the unit with a filter, see page 33.



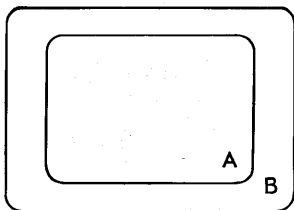
- X. Viewfinder eyepiece
- Y. Rangefinder eyepiece

Viewfinder. The viewfinder eyepiece X shows exactly as much of the subject as will appear in the finished picture when photographing with the 2" lens. The correct field of view — which matches the aperture mask area of standard slide holders — will be seen when the eye is centered at the eyepiece and the four corners of the viewfinder mask are visible in the eyepiece circle. The auxiliary viewfinder should be used with lenses of longer focal length.

When photographing, first compose the picture in the viewfinder, determining the angle of view and distance desired, then focus with the rangefinder as described below. View the scene through the viewfinder while photographing.

Focusing. The built-in lens-coupled rangefinder accurately determines the distance between camera and subject and adjusts the lens to form a sharp image of the subject on the film in one operation.

Looking through rangefinder eyepiece Y you will see two colored areas forming the pattern shown at top of page 10. Area A is light yellow in color; area B, slightly bluish. When viewing the subject — a person, for example — through the rangefinder you will see two images in the yellow area, as sketched here. Rotation of drive wheel Z will move the reflected images closer together or farther apart. Therefore, rotate drive wheel Z with the forefinger slightly in one direction or the other until the images begin to move together. When the two images in area A become one, remove



the finger from drive wheel Z; the lens is now correctly focused upon the desired object. When the change from one focus setting to another is great, turn the lens by means of the knurled ring on front of lens until the calibration on focusing ring CC which corresponds to the estimated distance between camera and subject is opposite index mark BB. Then rotate drive wheel Z until the point of *exact* focus is reached.

See also the paragraph on "Auxiliary Lenses," page 36.

Depth of Field. The term "depth of field" means the distances from the camera between which an object will be in reasonably sharp focus when photographed from a predetermined point using a predetermined lens opening. While the camera will photograph everything it "sees" within its field angle, which means everything you see in the finder, any object lying outside the depth of field will be blurred. Therefore, for best results, depth of field should be considered when setting the lens. For the photographer's convenience, a depth of field scale has been engraved on the base of the lens mount. When the lens has been set and focused, the scale will indicate the near and far limits for that lens opening and best focus point. Note that the depth of field increases as the lens opening is made smaller, or as the distance focused upon is increased.

To use the scale: The scale is marked off, to left and right of index mark BB, in lens settings from 2.2 to 22. With the lens set and focused, find the lens setting on scale AA



- AA. Depth of field scale
- BB. Index mark
- CC. Focusing scale

which corresponds to the lens setting in use. The point at which this figure meets the calibrated focusing scale CC at left and right of index mark BB indicates the near and far limits of focus for that particular lens setting and focus.

For example, in the illustration above, the lens has been set for T2.8 and focused on 21 feet. On scale AA appear two sets of calibrations — one to the left of index mark BB and one to the right. To find the near limit of good focus, find on the left (viewing the lens from above as in the above illustration) the 2.8 calibration. Follow it to focusing scale CC. The 2.8 calibration touches the scale at a point between the 15- and 20-foot marks, or at approximately 17 feet. Following the same procedure to find the far limit, on the righthand side of scale AA you will see the 2.8 calibration touches focusing scale CC between the 20- and 30-foot marks, or at approximately 27½ feet. For extremely critical sharpness of focus, the complete subject should then fall between 17 and 27½ feet from the camera, giving a depth of field of 10½ feet. For average work, a lesser degree of sharpness is acceptable; in this case, the near limit figure may be halved, the far limit doubled, and the depth of field thus increased to, here, 21 feet. The change from critical sharpness is so gradual as to be unnoticeable in the finished picture.

When desired, the 2" f/2 focusing mount lens may be used

as a universal, or fixed, focus lens by focusing the lens with the infinity mark on focusing ring CC opposite the righthand index mark (viewing the lens from above) on scale AA for the T stop at which the lens is set. The hyperfocal distance for that lens setting will now be in line with the focusing scale index mark BB. Find on the lefthand side of scale AA the figure corresponding to the lens setting in use. Follow that index mark to focusing scale CC. The point at which this index mark meets focusing scale CC indicates the near limit of good focus.

As an example: Suppose the T stop in use is T8. Viewing the lens from above, find on the righthand side of scale AA the 8 calibration. Now, rotate focusing ring CC until the infinity mark is opposite the index mark for the 8 calibration. Infinity is now the *far* limit of focus for this lens setting. Then, follow index mark BB to focusing ring CC. The point at which the index mark touches the focusing ring — 30 feet — is the best focus point; in this case, the hyperfocal distance for the T8 lens setting. Find on the lefthand side of scale AA the 8 calibration. Follow its index mark to focusing ring CC. The 8 calibration index mark touches the scale at a point between the 15- and 20-foot marks, or at approximately 16 feet. This, then, is the *near* limit of focus for the T8 lens setting.

This setting will prove helpful when a number of subjects must be photographed so rapidly that the interval between pictures is not sufficient for accurately changing the focus setting, or when time does not permit accurate judgment of distance.

For outdoor pictures, since the light *cannot* be controlled, it is necessary to set the lens at an opening determined by an exposure meter. This already-established lens opening and the distance from the camera to the point focused upon limits the depth of field of the photographic subject to the range indicated by the depth of field scale. When the sub-

ject matter is such that it cannot be kept within this range, sufficient depth of field may be obtained by changing one or more of the factors involved — i.e., shutter speed, distance between camera and subject, etc. In most cases, the subject matter will determine the course to be followed. Consider also the possibility of accepting a lesser degree of sharpness in order to double the depth of field, as described before.

For indoor pictures, since the light *can* be controlled, keeping the subject within the range indicated by the depth of field scale becomes a matter of changing one or more of the factors involved, usually the lens opening and the amount of artificial light rather than the distance focused upon. Depending upon the subject matter, it may be possible, too, to change to a slower shutter speed which would require a smaller lens opening and thus increase the depth of field. Consider also the possibility of accepting a lesser degree of sharpness, to double the depth of field, as described before.

For those occasions when the depth of field limits must be known to the inch, a depth of field table for the 2" f/2 lens is given on pages 42-3. The table indicates the near and far limits of focus, in relation to the (1) distance focused upon and (2) lens setting. When the best focus point falls between two shown in the table, use the figures given for the nearest best focus point.



- H. Repeat lever
- L. Shutter release button
- N. Shutter release button lock
- P. Circle

Shutter Release Button and Lock. The shutter release button L permits exposing one picture at a time or, in combination with the repeat lever H described on next page, exposing a series of pictures

with a single pressure of the button. To prevent accidental exposure, the button may be made inoperative by means of lock lever N.

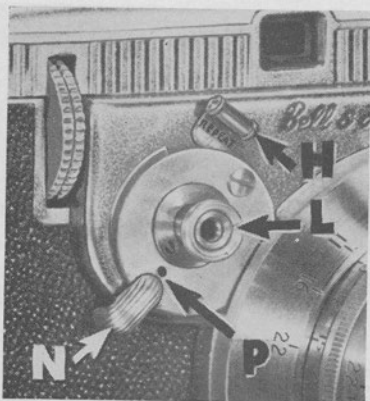
To make a single exposure, with repeat lever H down in the inoperative position, press lock lever N toward the lens until a red dot shows in the opening P; then, with the forefinger resting on the *center* of the button, press on shutter release button L with a gentle "squeezing" motion. *Only light, even pressure on the button is necessary to make an exposure.* Hard pressure may result in camera movement. On the longer exposures — 1/25 second or more — be sure to maintain pressure on the button until the exposure has been completed. You will hear the sound of the shutter and spring motor in operation and can use it as a guide. A single picture will be made, regardless of how long pressure on the button is maintained. If the camera is to be rewound or not used immediately, press lock lever N upward until the red dot is no longer visible through opening P, to prevent accidental exposure.

When spring has been completely unwound it must be rewound FULLY before shutter release button will operate.

Repeat Lever. Repeat lever H makes possible the photographing of successive motions without a pause. With the camera fully wound, as many as 10 to 15 pictures may be made without removing pressure from the shutter release button. Each exposure will be made at *exactly* the shutter speed for which the camera has been set. Deceleration of the spring motor affects only the interval *between* exposures, *not* the exposure time.

To make rapid sequence pictures, raise repeat lever H to its fullest extent, when the word REPEAT will be clearly visible. Then, release lock lever N and maintain pressure on shutter release button L until the desired number of exposures has been made or until the spring motor is fully unwound. As long as repeat lever H is in the operative posi-

- H. Repeat lever
- L. Shutter release button
- N. Shutter release button lock
- P. Circle



tion, pressure on shutter release button L will result in a succession of shots. Therefore, be sure to press repeat lever H down to the inoperative position when sequence shots have been completed.

The repeat lever is also used when time exposures are made without the addition of a cable release. See "Rapid Sequence Pictures" and "Time Exposures," pages 29-32.

Holding the Camera. For horizontal pictures, hold the camera as illustrated at top of page 16; for vertical pictures, as illustrated at bottom of page 16. In either case, keep both arms firmly against the body for greater steadiness. The viewfinder or rangefinder eyepiece should be close to the eye used for sighting or focusing. Press the release button with the finger only — do not move the entire arm — and avoid shaking the camera as the exposure is made. We suggest that you hold your breath for an instant as you press the shutter release button.

Tripod. When desired, the camera may be mounted on a tripod by using the standard tripod socket provided in camera base. When the camera is in its candid carrying case,

**Camera position
for horizontal
pictures**



**Camera position
for vertical
pictures**



GG. Camera retaining screw

unsnap and remove the lens cover and mount the camera on the tripod, using the standard tripod socket in the camera retaining screw GG.

Unloading the Camera. When all of the exposures on the cartridge have been made, pull up rewind knob EE and take-up knob I; while depressing sprocket release button J, turn rewind knob EE in the direction of the arrow and wind the film back into the cartridge. When the take-up knob stops rotating as the rewind knob is turned, all of the film except the leader film is back in the cartridge. Then, press door latch A downward and open camera door. Press film cartridge upward against spring pressure of driving fork C until the bottom of the cartridge slips from over pin D. Remove cartridge from pocket B. Press rewind knob EE downward.

Black-and-white film may be taken to a photo finisher for processing and printing or may be handled in your own darkroom. **Kodachrome film** should be placed in its metal container, slipped into the bag supplied with the film, the tag correctly addressed, postage applied, and the package mailed to the nearest processing laboratory as shown on the slip enclosed with each film; there are no processing charges. Film will be processed, cut and mounted in slide holders unless otherwise ordered, and returned. **Anscocolor film** may be processed in your own darkroom or returned to your Ansco dealer for handling; processing charges and mail-

ing instructions are given on the slip enclosed with each film. Information on duplicates, enlargements, black-and-white prints from color transparencies, etc., will also be found on this slip; read it carefully.

Outdoor Pictures. Most of your picture-taking will be done out of doors, since it is there that the best and widest variety of possibilities appear. With your Foton you may make your shots in color or black-and-white with equal ease and assurance of good pictures. Color photographs, usually in slide form, are daily gaining in popularity, since, when properly made, they reproduce the subject as we actually see it; however, they demand careful attention to lighting and exposure. Black-and-white shots may be made successfully under difficult or poor lighting conditions, with a wider latitude of exposure, and may be printed and enlarged in your own darkroom or at the photo finishers more easily and inexpensively. Take all factors — subject matter, light condition, the purpose of the picture, etc. — into consideration when deciding which medium to use. Then compose the picture, keeping the whole scene — background, lighting, shadows — in mind. Watch for the moving subject to pause in a position that suggests action, then snap the picture — or, better still, catch the whole action in a sequence of shots made with the aid of the repeat lever.

Remember that the Foton's automatic film movement feature offers the perfect answer to the problem of getting "natural" pictures of people. Most persons "freeze" when they know they're posing for a picture. With Foton, you can take that "posed" picture; then, when they relax into easy, natural positions, just press the shutter release button again and you've got the shot as you wanted it. This feature becomes especially important in portraits, or "close-ups," where a natural, relaxed facial expression is desirable.

Read carefully "Rapid Sequence Pictures," "Time Expos-

ures," "Flash Pictures," "Filters," etc., pages 24 through 36.

Black-and-white film: The ideal film for general outdoor picture-taking is one having a film speed (Weston) of 50. A film with a speed of 100 is especially suitable for shots under difficult lighting conditions or for shots early or very late in the day when light is weakest. If big enlargements are to be made, a slow film — one having a speed of 24 — is best. Slides, instead of prints, may be made by using direct positive panchromatic film.

While an exposure meter should be used whenever possible, occasionally time or the type of subject matter does not permit the brief delay necessary to the making of a light reading. In such instances, a knowledge of the common subject classifications and their standard exposures will prove helpful. Given on the following page are a number of subject classifications and the correct exposure for each based on the use of a film speed (Weston) of 50.

Color film: For outdoor color photography, you have a choice of Kodachrome Regular with a film speed of 10* (Weston), or Ansco Color, Daylight Type, with a film speed of 12* (Weston). Kodachrome Type A (indoor) may be used outdoors with the Kodachrome Type A filter; with the filter, it has a film speed of 10* (Weston). Ansco Color, Tungsten Type, may also be used outdoors with the proper conversion filter; with filter, it has a speed of 12* (Weston).

With color film, accurate exposure is necessary; use a good exposure meter to measure the existing light condition. Be sure to read thoroughly and follow any special instructions on the meter's use with regard to color film. The Foton flash attachment, with blue flash bulb, may be used to light shadowed areas or to supplement poor natural light.

There are some subjects which require special care in ex-

**when used with T-stop lens.*

posure. Close-ups of single flowers or cluster of flowers require a faster shutter speed to stop the motion caused by light breezes. Try to use a shutter speed of 1/100 second or faster. Your choice will, of course, be influenced by the

Daylight Exposures — Film Speed 50 (Weston)

Subject Matter	Light Condition	Lens Setting	Shutter Speed
Average: still or slow-moving	bright	T8	1/100
	hazy	T5.6	1/100
	cloudy-bright	T4	1/100
	cloudy-dull	T4	1/50
Average: action	bright	T5.6	1/250
	hazy	T4	1/250
	cloudy-bright	T2.8	1/250
	cloudy-dull	T2.8	1/100
Bright: marine, snow, beach, etc. with foreground object	bright	T11	1/100
	hazy	T8	1/100
	cloudy-bright	T5.6	1/100
	cloudy-dull	T4	1/100
Brilliant: marine, snow, beach, etc. without foreground object	bright	T16	1/100
	hazy	T11	1/100
	cloudy-bright	T8	1/100
	cloudy-dull	T5.6	1/100
Shaded: not in sun but lighted by open sky	bright	T8	1/50
		T5.6	1/100
	hazy	T4	1/100
	cloudy-bright	T4	1/50
	cloudy-dull	T4	1/25

With a film speed of 24 (Weston) give twice the recommended exposure.

With a film speed of 100 (Weston) give one-half the recommended exposure.

Use one lens opening larger for: pictures during the hour after sunrise or the hour before sunset; winter scenes without snow; backlighted subjects.

depth of field needed. To bring out texture, use side or back lighting with a white reflector for the shadowed side.

B. H. Kus. U.S.

When photographing a sunset, remember that under-exposure makes the sunset appear more advanced while more exposure makes it appear as at an earlier stage. To avoid flare spots, shoot the sunset when the sun is partly or wholly obscured by a cloud. The afterglow will require a long exposure at a large lens opening.

In some tropical areas, such as the southwest United States and central Mexico, the atmosphere is often extremely clear and the lighting contrast very great. Under these conditions, photos should be made with full front lighting so as to have relatively few shadow areas; midday shots should be avoided because the overhead sun casts shadows under eyes, nose and chin. If possible, make more than one exposure, using different lens settings.

In all cases, remember that accurate exposure is necessary to the making of good color shots. Use an exposure meter, following the manufacturer's directions.

Indoor Pictures. You may take pictures indoors as easily and well as outdoors, using sunlight from a nearby window, the Foton flash attachment, or photoflood lamps.

Try an indoor portrait on a bright sunny day with the subject posed near a window; using only sunlight, aided by a white cardboard reflector on the shadowed side, for illumination, a slow shutter speed will get the shot.

The Foton flash attachment is excellent for the short exposures required in making indoor pictures of children, large groups, active subjects — any unposed still or action shot. See the complete description given on page 24. Exposure data for the Foton flash attachment is engraved on the back plate of the attachment itself. Follow instructions for its use given under "Flash Pictures," page 24.

For posed pictures where time may be given to lighting the picture, photoflood lamps are the answer. They come in convenient sizes, are designed to give the maximum possible light with minimum current consumption, and may be placed in any ordinary lamp base, although they give the greatest light when used in reflectors. Since photofloods have a life of only two to three hours, ordinary lights should be used when setting up the shot and the photofloods turned on when the lens setting must be determined.

Basic exposures for photofloods are given on the data sheet supplied with the film in use; experimentation with different lighting effects will provide additional data which should be noted and kept in permanent form for future reference. When the basic exposure information is not used, measure the light *at the subject*, not from the camera position, with a good exposure meter and determine the correct lens setting.

There are a few general rules regarding the positioning of photofloods in black-and-white and color photography which should be noted. For instance, set the camera in place before positioning the lights; then, move the lights in as close to the subject as possible without bringing them into the subject area. Be sure that light does not strike the lens directly or a flare may appear in the finished picture. Keep notes on the lighting setups used and check the finished picture for improvements that might be made.

In even the simplest arrangements, at least two lights should be used. Consider a line drawn from the subject to the camera as a base line and the subject as a pivot point. From the pivot point consider imaginary lines 45° to the left and to the right of the camera. Place the lighting units on these lines, equally distant from the subject for color film, or with one light closer than the other for black-and-white photography. One of the lights should be about the same height from the floor as the face of the subject, the other about two feet

higher. Practice with this two light arrangement until your pictures prove satisfactory; then, improve this simple arrangement by placing a third light behind the subject, shielded so that its light does not strike the camera lens directly. You may change the distance from the camera to the subject without changing the lens setting and without decreasing or increasing the number of lights used, provided the distance from subject to lights is unchanged.

The following paragraphs offer some helpful hints on film selection, lighting, special types of subject matter, etc. Read also the information on pages 24 through 36.

Black-and-white film: A film having a speed under artificial light of 80* (Weston) is recommended, since it permits using a faster shutter speed.

When using the Foton flash attachment, consult the exposure guide on the attachment for the correct guide number; apply it according to the instructions given under "Flash Pictures," page 24. When using photofloods, consult the data table supplied with the film in use for distance between subject and lights and recommended exposure.

Try to attain an appearance of roundness and depth by careful control of shadows. Don't illuminate the entire scene evenly; brighten one side of the faces of your subjects more than the other side. Experiment with lighting effects until you find one that suits the mood of the picture.

Color film: For indoor color photography, you have a choice of Kodachrome Type A with a film speed of 16* (Weston) or Ansco Color, Tungsten Type, with a film speed of 16* (Weston). Kodachrome Regular and Ansco Color, Daylight Type, may be used indoors with the proper

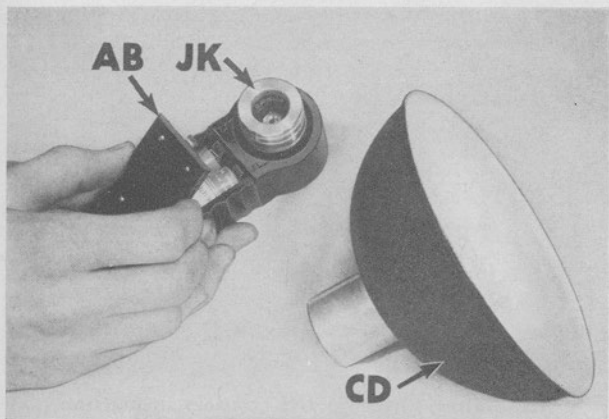
**when used with T-stop lens.*

filter and the necessary correction in exposure. However, use of the two indoor films is preferable, since their emulsion is balanced for exposure under artificial light.

Illuminate the entire scene as uniformly as possible; the natural colors of the subject will then give an illusion of depth and roundness to the scene. Auxiliary lamps to light backgrounds are particularly helpful in getting even over-all illumination. Care in the selection of colors for background, clothing and props will result in more pleasing shots.

When using the Foton flash attachment, consult the exposure guide on the attachment for the correct guide number; apply it according to the instructions given under "Flash Pictures," below. If outdoor color film is being exposed indoors, blue flash bulbs should be used. When using photofloods, consult the data table supplied with the film in use for information on distance between subject and lights and the recommended exposure. When daylight type film is exposed indoors, use blue photoflood lamps.

Flash Pictures. Use of the Foton flash attachment permits making pictures indoors more quickly and conveniently than with photoflood illumination. The attachment consists of three major parts: the body, with batteries and large flash bulb socket, the reflector, and the adapter for small flash bulbs. It accommodates three sizes of focal plane flash bulbs—General Electric or Westinghouse #6, #31 and Sylvania 2A—and has provision for an external flash unit. Provision for firing the flash bulb in correct synchronization with the camera shutter is built into the Foton; no external device of any kind is necessary. The flash synchronizer operates automatically when the shutter release button is pressed. A receptacle at the base of the attachment permits using an external flash connection. Either a #31 or Sylvania 2A flash bulb may be placed in a floor or table lamp, or at the end of an extension cord, and

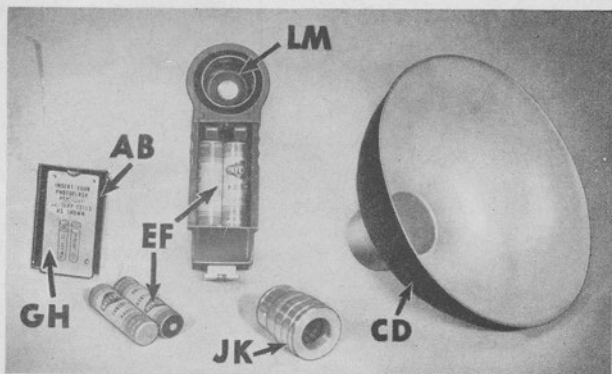


AB. Battery cover
CD. Reflector
JK. Adapter

discharged simultaneously with the lamp in the flash attachment.

The unit uses four photoflash penlite batteries. To replace batteries: With reflector CD removed, hold unit as illustrated above and pull off cover AB. Remove old batteries by rapping flash unit, open section down, on palm of hand; it is not necessary to pick batteries out with fingernail. Insert new batteries as shown on instruction plate GH on inside of cover AB. The arrangement is as follows: back left battery is top down, back right battery top up, the front left battery top up and front right battery top down. Then replace cover AB, pressing it firmly into place.

It is important to use Ray-O-Vac photoflash penlite batteries; regular penlite batteries and batteries of other makes will not give dependable results.



AB. Battery cover
CD. Reflector
EF. Batteries

GH. Battery instruction plate
JK. Adapter
LM. Socket

Flash bulbs #31 and Sylvania 2A fit into socket LM. Flash bulb #6 fits into adapter JK. When using either of the first two, place reflector CD over rim of socket LM and press it back into place. When using the #6 bulb, position reflector and then press adapter JK into socket LM. (Adapter may be positioned before reflector, if desired.) With lamp socket toward front of camera, slip contact base NP into camera accessory clip T, pressing the flash unit as far forward in the clip as it will go.

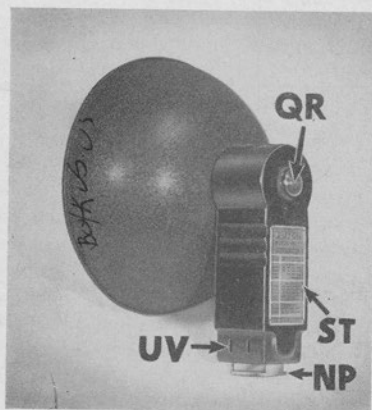
With shutter release button L made inoperative by lock lever N, insert a flash bulb into socket of adapter; when inserting a #31 bulb, give it a quarter turn to the right to insure good electrical contact. It is recommended that the shutter release button lock be used so that accidental pressure on the shutter release button will not fire the flash bulb while it is being positioned. Release the lock lever when ready to photograph. Bulbs should not be flashed in an explosive atmosphere.

To remove a used bulb from the flash attachment, merely press lamp ejector QR. The used bulb will drop out, eliminating the possibility of burning the fingers.

To use an auxiliary external flash connection: Connect the male plug of a floor or table lamp, or an extension cord with socket, to receptacle UV. *With the auxiliary flash holder turned on*, screw a #31 or Wabash 2A flash bulb into the socket. No more than one such auxiliary flash bulb unit should be used, but the length or type of extension cord is immaterial. The external lamp will fire at the same time as the lamp on the camera; pressure on the shutter release button fires both bulbs.

Guide ST, on the back of the Foton flash attachment, gives exposure data for indoor flash pictures. For convenience, the information is reproduced on page 28. It should be remembered that the exposure guide is subject to the variations of the actual subject matter (highly-reflective, dark, etc.), and to the requirements and development techniques of the individual photographer. To use the guide: Se-

- NP. Contact base
- QR. Lamp ejector
- ST. Exposure guide
- UV. Receptacle for external flash unit



lect the guide number for the flash bulb, shutter speed and film speed in use. Divide the guide number by the distance between light and subject. The resulting figure is the lens setting to use. For example: Suppose you are using a #6 flash bulb; your film has a speed of 64 (Weston) and your shutter speed is 1/250 second. The distance between light and subject is 5 feet. The guide number for a #6 bulb used with a film speed of 64 at 1/250 second is 70. Divide 70 by the distance between light and subject, 5 feet. The resulting figure is 14. Since the lens is not calibrated for T14, set the lens at a point about midway between T16 and T11.

Indoors: Select a shutter speed that is suitable for most

Shutter Speed	Film Speed			
	8	16	32	64
	GE6			
100	38	53	75	105
250	24	35	50	70
500		26	37	53
1000			25	35
	GE31			
50	85	120	170	245
100	60	85	120	170
250	38	54	77	110
500	28	39	55	78
1000		27	38	54
	Wabash 2A			
100	46	65	90	130
250	35	50	70	100

subject matter; then, make any necessary exposure adjustments by changing the lens setting. Too much light is worse than not quite enough; so, when in doubt as to which bulb to use, choose the smaller one. Avoid harsh background shadows by keeping the subject away from the background and shooting so that the background is at an oblique angle in the scene. Remember to watch for possible reflections of the flash itself in windows, mirrors, or other highly-reflective surfaces within the scene.

When making indoor portraits, use flash for illumination rather than photofloods. You'll get a more natural expression and pose, less movement, than occurs when hot bright lights are trained on the subject. Babies, small children, animals, and other active subjects pose more easily and amiably for flash pictures. If you are exposing daylight color film indoors use blue flash bulbs.

Outdoors: Use a sunshade on the lens. Take a meter reading of both the light and shadow area to see if it is necessary to use a flash for fill-in. If the ratio between light and shadow is greater than 4 to 1, a flash fill-in is necessary. Use blue flash bulbs — #6B or #31B — with outdoor color film. When the flash light is brighter than the sun light, change to a smaller bulb or diffuse the flash light with a thin white handkerchief or a sheet of tracing paper fastened over the reflector.

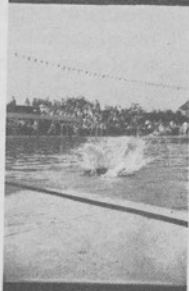
Rapid Sequence Pictures. Repeat lever H, in combination with shutter release button L, permits photographing any subject through successive motions without a pause between pictures. You can expose 4 to 6 frames per second, 10 to 15 pictures in sequence, with a full wind of the spring motor. For example, as shown on page 31, you may photograph a complete dive from springboard to water, then select one shot of perfect form and make an enlarged print.

When making sequence pictures, try to select in advance

a vantage point from which it will be possible to catch all of the action without moving from that spot. If this is done, only a slight movement of the camera while photographing will be necessary to keep the subject centered in the viewfinder, thus avoiding a noticeable pause in the sequence of pictures. Follow the usual steps preparatory to photographing, remembering to *wind the camera fully* and *raise the repeat lever*. Since it may be necessary to move the camera while photographing, to keep the subject properly centered in the viewfinder, a shutter speed of 1/250 or faster should be used; this will eliminate any blurring of the scene due to camera movement. Be sure to check the depth of field scale to see that as much of the subject as desired will be in best focus. Release the shutter release button lock lever. Depress the shutter release button at the beginning of the action and maintain pressure until the action ceases; then, release pressure instantly. Press the lock lever upward, to avoid accidental film exposure, and wind the camera fully again. Check the exposure counter to see how many shots remain unexposed before attempting another set of sequence pictures.

Sequence shots printed in a strip may be used for analysis purposes in tennis, swimming, etc., since any one fast action may be filmed from start to finish without a pause. Any one or all of the shots may then be enlarged for detailed examination. The same procedure can be followed even though the pictures have been shot in color, since black-and-white prints may be made from color transparencies.

Time Exposures. Many good picture possibilities occur when and where the light seems too poor for a good exposure. The B (bulb) setting on the shutter speed dial is provided for just such shots. With it you may make portraits indoors, using only sunlight aided by a simple reflector, or photograph unusual lighting effects at night outdoors. The B (bulb) setting may be used with or without the aid of a cable release.



To make time exposures with the aid of a cable release, wind the camera fully, screw a cable release having an external latch into the threaded hole YY in the center of shutter release button L, and place the camera on a tripod or other firm support. Set shutter speed dial U at the B (bulb) setting. Compose the picture in the viewfinder and adjust the camera's position as necessary. Set and focus the lens; check the depth of field scale. Be sure that repeat lever H is in the inoperative position. When ready to photograph, depress cable release plunger to open camera shutter and lock plunger in depressed position. When the exposure time is up, release the plunger lock and allow plunger to rise, closing the camera shutter.

While the use of a cable release eliminates the possibility of shaking the camera and spoiling the exposure, time exposures may also be made by using the repeat lever. **To make time exposures without the aid of a cable release,** wind the camera fully, raise repeat lever H, and place camera on tripod or other firm support. Set shutter speed dial at B (bulb) setting. Compose the picture in the viewfinder and adjust camera's position as necessary. Set and focus the lens; check the depth of field scale. Be sure that shutter release button lock lever N is pressed toward the lens. When ready to photograph, depress shutter release button L to open the shutter; then, *without shaking the camera*, lower repeat lever H to inoperative position. When the exposure time is up, depress shutter release button L again, to close the shutter.

Double Exposures. When desired, double exposures may be made with the Foton. To make a double exposure, follow all of the usual steps preparatory to making a shot. Then, depress sprocket release button J *and hold it down firmly* while pressing shutter release button L to make the first exposure. The exposed frame will then remain before the aperture ready for the second exposure. Make the sec-

ond exposure in the normal way. Another film frame will move to position before the aperture.

Parallax. When making close-ups, allowance must be made for the fact that the viewfinder is $1\frac{1}{2}$ " above and $\frac{3}{4}$ " to the left of the lens, as viewed by the user. For average picture-taking this offset may be ignored. If, however, the subject is such that the offset may make a difference in the finished picture, the camera's position should be adjusted as follows: With the camera mounted on a tripod, view the subject through the viewfinder; turn and/or tilt the camera and increase or decrease the distance between camera and subject until the desired picture area fills the viewfinder. Focus as usual. Then, tilt the camera up and left so that the field of view outlined by the finder moves $1\frac{1}{3}\frac{1}{2}$ " up and $\frac{2}{3}\frac{1}{2}$ " to the left on the subject itself. After tilting and turning to properly point the camera, the camera will photograph the area originally seen in the viewfinder.

Filters. You do not need filters to make good pictures, but, in many cases, they will make good pictures better. Filters hold back some of the light to which the film is most sensitive. The table on page 34 lists the most common subject matter, the effect desired, and the filter to use for that effect. When you are doubtful about which of several filters to use, photograph the subject with each filter and select the best result afterwards.

The combination sunshade and filter holder for the 2" f/2 lens accommodates the Series VI Wratten filters. To use the unit with filter: Select the correct filter for the film in use and effect desired. Be sure that the camera lens and filter are clean and free from fingerprints. Then, avoiding fingerprints, place the filter in adapter ring XX and screw sunshade WW firmly into ring. Filter will then be held between sunshade and adapter. Screw the combined units into lens.

SELECTION OF FILTERS FOR OUTDOOR USE

Subject	Effect desired	Filter
Clouds against blue sky or Blue sky as background for other subjects	Natural	K2
	Darkened	G
	Spectacular	A
	Almost black	F
Marine scenes when sky is blue	Natural	K2
	Water dark	G
Sunsets	Natural	None or K2
	Increased brilliance	G or A
Distant landscapes	Addition of haze for atmospheric effects	C5
	Very slight addition of haze	No filter
	Natural	K2
	Haze reduction	G
	Greater haze reduction	A or F
Nearby foliage	Natural	K2 or X1
	Light	B
Outdoor portraits against sky	Natural	X1 or K2
Flowers: Blossoms and leaves	Natural	K2 or X1
Red, "bronze," orange and similar colors	Lighter to show detail	A
Dark blue, purple and similar colors	Lighter to show detail	None or C5
"Foliage" plants	Lighter to show detail	B
Architectural stone, wood, fabrics, sand, snow, etc. when sunlit and under blue sky	Natural	K2
	Enhanced texture rendering	G or A

The following table lists the Series VI Wratten filters, the film with which they are used, the filter factor, and the color of the filter.

Wratten Filter	Film	Filter Factor		Lens Setting Increase*		Filter Color
		Sun.	Tung.	Sun.	Tung.	
K1	Plus-X or Super-XX or Panatomic-X	1.5	1.5	½	½	Light yellow
K2		2	1.5	1	½	Yellow
X1		3	2	1½	1	Light green
G		3	2	1½	1	Deep yellow
A		8	4	4	2	Red
F		16	8	8	4	Deep red
B		8	8	4	4	Green
C5		5	10	2½	5	Blue
Haze No. 1		Kodachrome Daylight (outdoor)	—	—	—	—
2A	—		—	—	—	Colorless
Type A No. 85	Kodachrome Type A (indoor)	—	—	—	—	Orange
Photoflood No. 80		—	—	—	—	Bluish
CC15		—	—	—	—	Pink tan

Since the filter absorbs a certain proportion of light, it reduces the amount of light reaching the film. To compensate for this absorption, the exposure must be increased. This necessary increase in exposure is expressed in terms of a "filter factor," which is governed by the film-and-filter combination. The necessary increase in exposure may be made in one of three ways: by using (1) a slower shutter speed, (2) a larger lens opening, or (3) a combination of 1 and 2. Consider the subject matter and the depth of field required. Then, apply the filter factor to the already-determined shut-

*in *T* stops

ter speed or the lens setting as follows: Suppose the meter reading or basic exposure table indicates a shutter speed of 1/100 second and a lens setting of T8; the factor of the filter in use is 2. The subject matter is such that a change in shutter speed is permissible. Therefore, multiply the shutter speed, 1/100 second, by the filter factor, 2; the resulting figure is the revised shutter speed, 1/50 second.

If, however, the subject matter is such that you cannot use a slower shutter speed, it becomes necessary to change the lens setting by the amount of the factor. For your convenience, the number of stops by which the present lens setting must be changed is indicated in the table on page 35. If it indicates an increase of one stop, your revised lens setting in this example would be T5.6. If the increase were $1\frac{1}{2}$ stops, it would be a setting half way between T5.6 and T4.

If the filter factor, when multiplied by shutter speed, calls for a setting not on the speed dial and the depth of the field must remain the same, you may change both the shutter and lens settings. For instance, you have a shutter speed of 1/100, a lens setting of T8, and a filter factor of 3. The shutter speed, 1/100 second, cannot be multiplied by 3, since the speed dial is not calibrated for the result. The subject matter is such that if the lens setting were to be altered by $1\frac{1}{2}$ stops, part of the subject would lie outside the depth of field. Therefore, the most satisfactory arrangement of applying the increase would be to alter the shutter speed by a factor of 2, to 1/50 second, and to increase the lens opening by a factor of 1.5, or $\frac{1}{2}$ stop larger, to a point half way between T8 and T5.6.

You will note that the use of a filter with color film does not necessitate an increase in exposure.

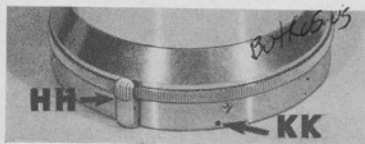
Auxiliary Lenses. Lenses of longer or shorter focal length than the standard 2" lens may be used with the Foton.

To remove the 2" lens: With the lens focused at infinity, hold the camera in the palm of one hand and place a finger firmly on rangefinder drive wheel Z to prevent it from turning; turn the lens counter-clockwise until it may be removed from lens mount JJ. **To remove an auxiliary lens:** Focus the lens at a point beyond 5 feet. Holding the camera in the palm of one hand with a finger on rangefinder drive wheel Z, depress bayonet latch HH and rotate the lens counter-clockwise slightly until it may be lifted off.

To position the 2" lens: With rangefinder set at infinity, holding the camera in the palm of one hand with a finger on rangefinder drive wheel Z, screw the 2" lens into lens mount JJ until it is home against the shoulder inside the mount. Do not force the lens beyond the stopping point.

To position an auxiliary lens: Set the focusing ring of the auxiliary lens at infinity. Set the rangefinder at infinity. Holding the camera in the palm of one hand with a finger on rangefinder drive wheel Z and the auxiliary lens in the other hand, line up red index dot KK on auxiliary lens with red index dot LL on shutter speed dial knob; then, press lens down firmly to seat on bayonet lugs in lens mount JJ. Turn lens clockwise slightly — about $\frac{1}{8}$ turn — until latch catches and lens is held firmly in place.

Rangefinder drive wheel Z is not operative with the auxiliary lenses due to the greater pull required to turn a larger lens. Focus the auxiliary lenses by rotating the knurled portion of the focusing ring with the fingers, while viewing the image through the rangefinder eyepiece.



HH. Bayonet lever
KK. Index mark

The mount of each auxiliary lens is marked to indicate the near limit of accurate focus when focusing with the rangefinder—for example, the 4" lens is marked: "matched to rangefinder from 6 ft. to infinity." Distances closer to the camera should be accurately measured and the focusing ring set to correspond to the measured distance. When measuring these shorter distances, measure from the object to the *back* surface of accessory clip T. The focusing ring of the lens is closely calibrated in feet and inches at the shorter distances to permit accurate setting.

Maintenance

Lens. As often as seems necessary, clean the camera lens, rangefinder eyepiece and windows, and the viewfinder eyepiece and objective. Remember that dirt or fingermarks on the lens will prevent your getting clear, brilliant sharp pictures. Keeping the lens covered with a lens cap when not in use will eliminate necessity for too frequent cleanings.

To clean the lens, remove from camera following the procedure for removing a lens described under "Auxiliary Lenses," page 36. Clean the exposed surfaces with B&H Lens Cleaning Fluid and Lens Cleaning Tissue—use no other cleaning materials as they may damage the Filmcoated lens surfaces. *Do not take the lens apart*—clean the exposed surfaces *only*. Return the lens to position, following the procedure described under "Auxiliary Lenses."

Viewfinder. Clean viewfinder eyepiece X and objective VV with the same materials as for the lens.

Rangefinder. Clean rangefinder eyepiece Y and two windows TT with the same materials as for the lens.

Filters. Clean color filters with the same materials as for the lens.



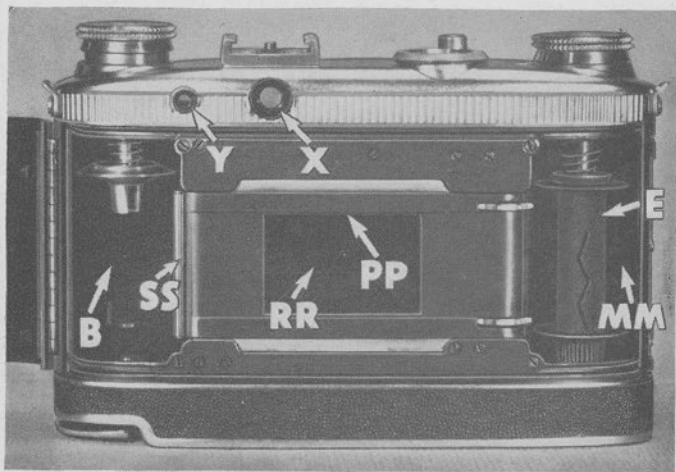
TT. Rangefinder windows

VV. Viewfinder objective

Film Chamber. Brush out pockets B and MM with camel's hair brush after every few cartridges of film exposed. Remove any dirt which may have collected around the edges of photographic aperture PP with the brush. *Use no sharp tools!* Remove dirt which has hardened with a

- B.** Pocket
- E.** Take-up spool
- MM.** Take-up spool pocket
- PP.** Aperture

- RR.** Shutter
- SS.** Roller
- X.** Viewfinder eyepiece
- Y.** Rangefinder eyepiece



swab of lens cleaning tissue moistened slightly with alcohol. Clean back plate on door and roller SS with the same materials. Brush dust and loose emulsion from shutter RR.

Lubrication. The camera is lubricated for one year's usage when it leaves the factory. Keep it in good working condition by returning it annually to the Bell & Howell factory, branch office, B&H dealer, or Authorized Service Station for servicing.

Reflector. Remove any dirt or finger marks from reflecting surface with B&H Lens Cleaning Fluid and Lens Cleaning Tissue or a soft cloth.

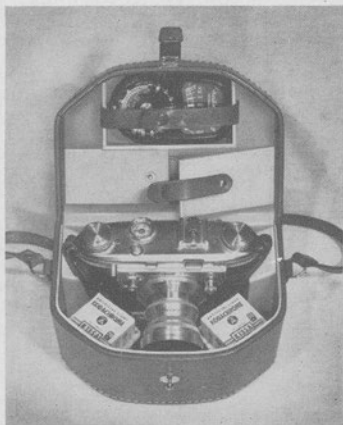
Your Camera and Its Carrying Cases. In addition to the convenient neck strap, two genuine leather cases have been designed for safe compact carrying of your Foton. One accommodates the camera, its necessary accessories and extra film; the other, the camera alone.

The combination carrying case illustrated below holds the camera mounting 2" f/2 lens with sunshade and filter holder, filters, exposure meter, and two extra film cartridges. The units should be positioned as shown here, to insure safe transportation.

The candid carrying case illustrated below accommodates the camera with 2" f/2 lens in place. The standard tripod socket in camera retaining screw GG permits mounting the camera in its case on a tripod. When the cased camera is so used, unsnap and remove the leather lens cover. Be sure to tighten the camera retaining screw securely at all times, to prevent accidentally dropping the camera out of its case.

Combination Case

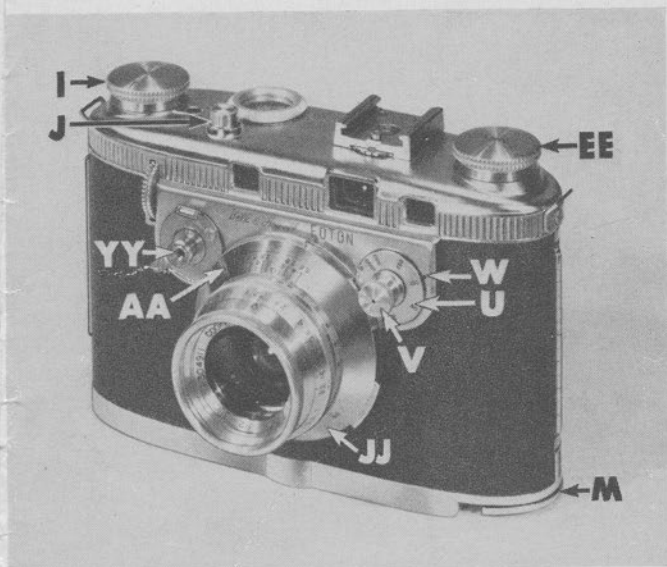
Candid Case



DEPTH OF FIELD AND OBJECT SIZE TABLE FOR 2" T2.2 (f/2) LENS

Object Area		Object Distance	Far Near	Far Limit, Near Limit and Limiting T Setting									
				T2.2	T2.8	T4	T5.6	T8	T11	T16	T22		
45' 2"	67'	100'	F	1821'	∞	∞	∞	∞	∞	∞	∞	∞	∞
			N	51' 5"	49' 6"	36' 4"	30' 2"	23' 6"	17' 4"	12' 10"	10'		
22' 6"	33' 5"	50'	F	94' 9"	122' 6"	244' 6"	∞	∞	∞	∞	∞	∞	∞
			N	33' 11"	31' 5"	27' 4"	23' 2"	19' 1"	14' 9"	11' 4"	9' 1"		
13' 5"	19' 11"	30'	F	41' 10"	46' 6"	59' 9"	98' 5"	1156'	∞	∞	∞	∞	∞
			N	23' 4"	22' 2"	20'	17' 8"	15' 2"	12' 4"	9' 10"	8' 1"		
8' 11"	13' 3"	20'	F	24' 8"	26' 2"	29' 11"	37' 3"	57' 7"	452' 4"	∞	∞	∞	∞
			N	16' 10"	16' 2"	15'	13' 8"	12' 1"	10' 3"	8' 6"	7' 2"		
6' 8"	9' 10"	15'	F	17' 6"	18' 3"	20'	23'	29' 3"	53'	∞	∞	∞	∞
			N	13' 2"	12' 9"	12'	11' 2"	10' 1"	8' 9"	7' 5"	6' 5"		
5' 3"	7' 10"	12'	F	13' 6"	14'	15'	16' 7"	19' 8"	28' 2"	65' 5"	∞	∞	∞
			N	10' 9"	10' 6"	10'	9' 5"	8' 8"	7' 8"	6' 7"	5' 9"		
4' 5"	6' 6"	10'	F	11'	11' 4.1"	11' 11.9"	13' 0.2"	14' 9.8"	19' 1.8"	31' 3.5"	98' 8"	∞	∞
			N	9' 2.0"	8' 11.3"	8' 6.9"	8' 1.4"	7' 6.6"	6' 9.2"	5' 11.4"	5' 3.2"		
3' 6"	5' 2"	8'	F	8' 7.9"	8' 10"	9' 2.7"	9' 9.8"	10' 9.7"	12' 11.4"	17' 6.7"	28' 5.5"	∞	∞
			N	7' 5.2"	7' 3.7"	7' 0.7"	6' 9"	6' 4.2"	5' 9.4"	5' 2.2"	4' 7.8"		

Object Area		Object Distance	Far Near	Far Limit, Near Limit and Limiting T Setting									
Height	Width			T2.2	T2.8	T4	T5.6	T8	T11	T16	T22		
3'	4' 6"	7'	F	7' 6"	7' 11"	8' 4.3"	9' 0.7"	10' 6.2"	13' 4.4"	18' 10.5"			
2' 7"	3' 10"	6'	F	6' 5.5"	6' 8"	6' 11.6"	7' 5.4"	8' 4.9"	10' 1.7"	13' 0.3"			
2' 1"	3' 2"	5'	F	5' 3"	5' 5.4"	5' 7.9"	5' 11.6"	6' 6.8"	7' 6.9"	9' 1"			
1' 10.7"	2' 9.7"	4' 6"	F	4' 8.4"	4' 10.4"	5' 0.3"	5' 3.3"	5' 8.8"	6' 5.8"	7' 6.7"			
1' 8"	2' 5.6"	4'	F	4' 1.9"	4' 2.4"	4' 4.9"	4' 7.2"	4' 11.3"	5' 6"	6' 2.9"			
1' 5.2"	2' 1.6"	3' 6"	F	3' 4.7"	3' 4.3"	3' 7.7"	3' 1.7"	3'	2' 9.9"	2' 8"			
Hyperfocal Distance				105' 9"	84' 6"	60' 3"	43' 2"	30' 9"	20' 11"	14' 8"			



- | | |
|-----------------------------------|-------------------------------|
| AA. Depth of field scale | M. Winding key |
| EE. Rewind knob | U. Shutter speed dial |
| I. Take-up knob | V. Shutter speed knob |
| J. Sprocket release button | W. Index mark |
| JJ. Lens mount | YY. Cable release hole |