How to use

your

BELL & HOWELL

magazine-loading

8mm 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.**

Congratulations!

You have made a wise decision in selecting B&H motion picture equipment, precision-made to give you professional results with amateur ease.

The name Bell & Howell is your guarantee of satisfactory, long-lasting performance. Since 1907 Bell & Howell Company has manufactured the professional equipment preferred by the motion picture industry. Experience gained in the designing and production of this equipment has been applied to supplying the needs of the amateur and semi-professional with the ultimate in performance, convenience, appearance.

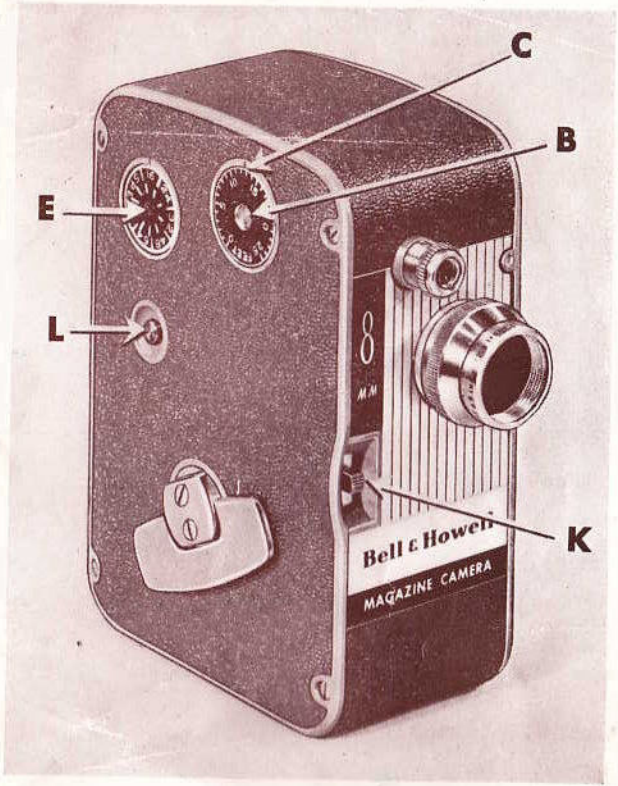
Precision operations in every phase of manufacture assure perfection in the finished product. Matched registration mechanisms in B&H cameras and projectors result in steady pictures in full, natural color or sparkling black-and-white on your movie screen.

The far-sighted basic design of your camera provides for a built-in capacity to keep pace with the latest developments. Your original investment is never lost because you can have the newest improvements developed by the Bell & Howell Laboratory added to your sturdy camera.

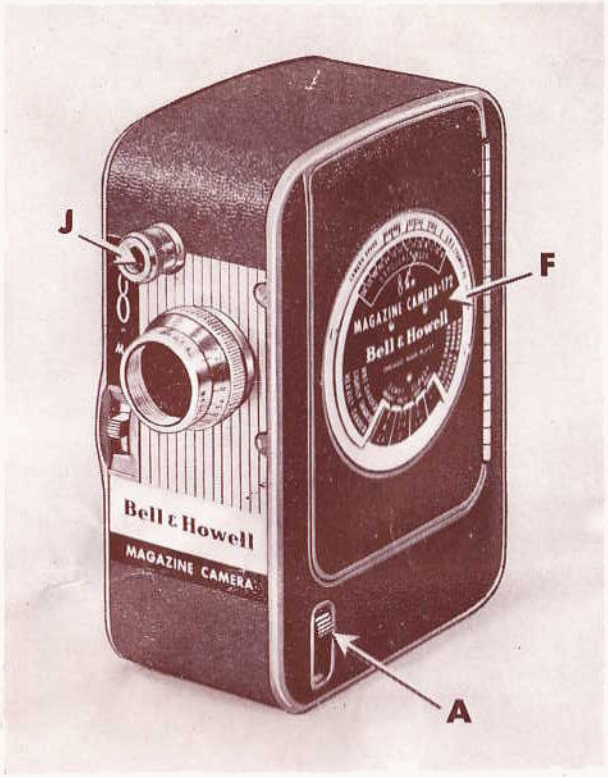
With such a capable instrument in your possession you will naturally want to get the fullest enjoyment from it by achieving the best results. To become properly acquainted with this new servant of yours, study the following pages carefully with your camera in front of you before putting it to work.

Should you desire additional help in your movie-making, please feel free to call on your Bell & Howell dealer or write directly to us.

BELL & HOWELL COMPANY
7100 McCormick Road
Chicago 45, Illinois

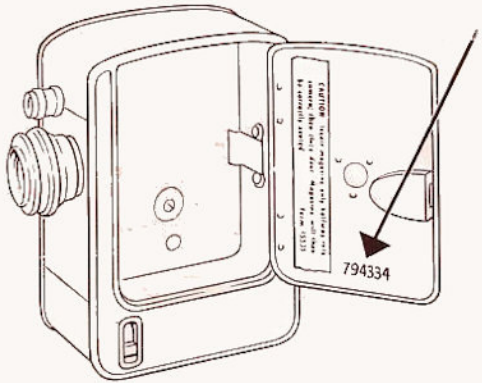


B. Camera footage dial
C. Camera footage dial index mark
E. Camera speed dial
K. Starting button
L. Magazine ejector



A. Door lock
F. Exposure calculator
J. Viewfinder objective

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 inside of door near the bottom.

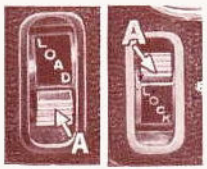


Contents

Instructions for Operation and Care of

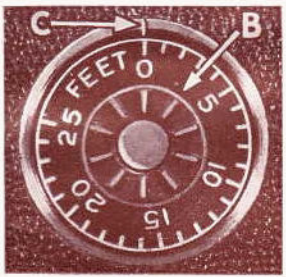
BELL & HOWELL
172-A and -B
MAGAZINE-LOADING
8MM CAMERA

Loading the Camera. Open the camera door by pressing door lock A downward to the "Load" position. If the light valve at the front of the magazine is open, turn stud until valve closes; do not insert magazine while valve is open. Drop the film magazine *loosely* into chamber in position as indicated on film magazine. Then close the door and press lock A upward to the "Lock" position. Pressure exerted by closing the door automatically seats magazine in correct position. Rotate footage dial B until the index mark for 0 is opposite index mark C. (See also paragraph on "Reloading the Camera," page 14.)



A. Door lock

Winding. Holding the camera in the palm of the left hand, raise winding key D and turn it clockwise until the stopping point is reached. Then fold the key flat against the camera. Each winding provides power for a run of approximately 9 feet of film at the chosen camera speed. A clicking sound will be heard when 6 to 7 feet have been run as a warning that only approximately 2 more feet may be



B. Footage dial
C. Index mark

run at the chosen camera speed before rewinding the camera. About 1 more foot of film may be run before the camera comes to a full stop, but it will be at a decreasing rate of speed. To insure always having the full running time available for each succeeding scene, wind the camera fully after each run.

Camera Speed. Camera speed dial E indicates the number of pictures, or frames, exposed per second. Every camera is individually calibrated at each of its speeds, an index mark being scored in each dial segment to indicate the correct setting point for each speed. Be sure that the dial is correctly set with the *index mark* for the chosen speed opposite the index mark M, as illustrated here.

E. Camera speed dial
M. Index mark

The 172 camera is calibrated for 16, 24, 32, 48, and 64 speeds. Normal speed is 16; use it generally. 24 speed slows down the rate of action in projected pictures to two-thirds normal; 32 speed to one-half normal; 48 speed reduces the rate of action to one-third normal; 64 speed produces semi-slow-motion pictures, the action being reduced to one-fourth normal speed. Use the speeds above 16 for filming fast-moving sporting events, for panoramic scenes (moving camera shots), for scenes taken from moving trains or automobiles, and for shots of unskilled actors whose movements are usually too rapid.

Since 16 (normal) speed is used generally, keep the speed dial set for 16 speed, being sure to return it to

that setting after using some other speed. (See also the paragraph on "Using Speeds Other Than Normal," page 16.)

Exposure Calculator—Turret Model 172-A and Single-lens Model 172-B. To ascertain the correct lens setting, using the new 2-dial exposure calculator **which is based on A.S.A. film speed ratings:**

Rotate dial 2 until the chosen camera speed is opposite the figure for the speed of the film in use, on dial 1. Decide whether Sunny-Bright, Sunny-Hazy, Cloudy-Light, or Cloudy-Dull best describes the day's light conditions. Follow the arrow for that designation down the column of lens settings in the opening in dial 1 to the setting opposite the designation (Not Shaded, Lightly Shaded, Heavily Shaded) which describes the subject lighting conditions. This, then, is the correct lens setting under the light conditions of the day and subject.

For example: Suppose you are photographing with Outdoor Kodachrome, which has an A.S.A. film speed of 10, at 16 frames per second. The day

is Sunny-Bright; the subject is a child playing beneath a tree which shades him only slightly. Follow the arrow for Sunny-Bright to the lens setting shown opposite Lightly Shaded, you find the correct lens setting to be f/4.

Lens. Every lens has a control ring which regulates the size of the diaphragm, thus governing the amount of light admitted to the film. This adjustment is calibrated in what are known as f stops, each stop admitting 100% more light than the next smaller in size. Note that as the stops decrease in size, they increase numerically. Every lens is named for its largest diaphragm opening. The 0.5" f/1.9 Filmocoted focusing mount lens, for instance, is calibrated for f stops from f/1.9 to f/22. At f/1.9 the maximum amount of light is admitted; at f/22 the least light is admitted. The correct f/setting is not decided arbitrarily but is dictated by the prevailing light conditions; it is determined by the use of the exposure calculator F or an exposure meter.

The use of lenses in focusing mounts calls for care in determining the distance of subjects from the camera before setting the focusing scale, but such lenses permit photographing subjects at very short distances even at the largest apertures. The focusing ring on the lens is calibrated in feet, and should be set to correspond to the distance between camera and subject. For all objects beyond the largest figure on the scale, the infinity setting should be used; distances falling between calibrations may be estimated and the ring set accordingly. Also use the infinity setting when a number of subjects must be filmed so rapidly that the interval between scenes is not sufficient for changing the focus setting, or when time does not permit accurate judgment of distance.

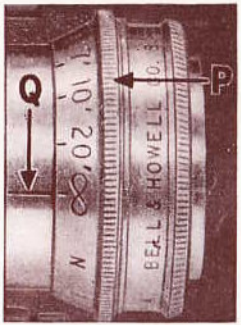
A universal focus lens needs no adjustment for focusing, but the diaphragm setting determines how close you may approach your subject and still be in sharp focus. The smaller the f/stop, the closer you may be.

N. Diaphragm control ring
O. Index mark

To set the lens, rotate diaphragm control ring N until the correct f/setting, as determined by exposure calculator F, or a meter, is opposite index mark O. Rotate focusing ring P until the figure for the distance between camera and subject is opposite index mark Q. The f/settings of the 0.5" f/2.5 universal focus lens will click into place opposite the index mark; it is possible to set the lens at any point between the calibrations when desired. This lens needs no adjustment for focusing.

The standard lens of the 172-B camera may be removed and replaced by any one of a wide range of extra lenses when desired. Merely unscrew one lens and screw in

another; remove and replace the matching viewfinder objectives in the same manner.

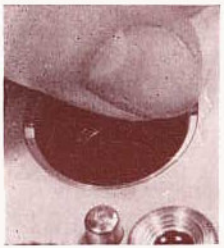


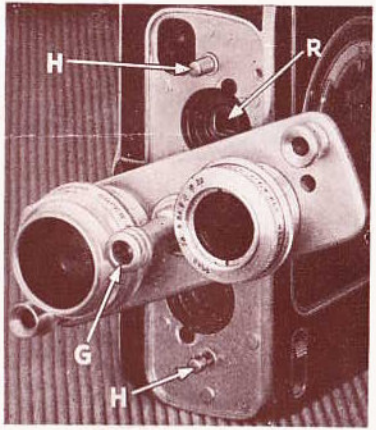
P. Lens focusing ring
Q. Index mark

Turret Head—Model 172-A. The turret model may be purchased with one or two lenses and their matching viewfinder objectives mounted upon its turret head. If only one lens is purchased with the camera, the other lens and viewfinder openings are closed with metal caps. These caps may be unscrewed and the second lens and its matching viewfinder objective mounted on the turret at any time.

To bring the second lens in front of the photographic aperture R, grasp the turret post G between thumb and finger and pull the turret off its seat, revolve it a half turn, and permit the turret to return to position over the two guide pins H. In judging the field of view to decide which lens is more suitable, you may revolve the turret with one hand while using the other to hold the camera at the eye.

G. Turret post
H. Guide pins
R. Photographic aperture





Adjusting Lens Seat for Readability—Turret Model. With the lens removed, the threads of the lens seat in the turret may be rotated with the thumb nail to any desired position, to place the lens graduations for the user's convenience.

Viewfinder. The viewfinder shows exactly as much of your subject as will appear on the screen, and, since it is of the "positive" type, the outlines of the field will not change as your eye moves from one side of the eyepiece to the other. The viewfinder objective used must match the focal length of the lens in use.

On the turret model, if correctly mounted, the matching objective is brought into place in front of the viewfinder when the turret is revolved. With an objective matching the lens in use, the same field is observed in the full area of the viewfinder as is covered by the lens.

In making close-ups, allowance should be made for the fact that the viewfinder is 7/8" above and 31/64" to the right of the lens, as viewed by the user. (See also the paragraph on "Parallax," page 18.)

On the turret model, to help you count the film footage being exposed while photographing, a pointer is introduced momentarily into the viewfinder field after each one-quarter foot (20 frames) of film is exposed. When the full 25 feet of film have been run, a much wider and view-obstructing portion of the pointer will be seen, to indicate that the useful end of the film has been reached. This eliminates the necessity for frequent glances at footage dial B.

Holding the Camera. A wrist cord, for protection against accidental dropping of the camera while filming or loading, may be screwed into the tripod socket in the camera base. When using the wrist cord, slip the right hand through the loop from the inside so that the cord is over the outside of the wrist. Then, with either model of camera, choose one of two recommended methods of holding the camera, as illustrated on page 13.

With either method, hold the right arm as close to the body as possible. For greater steadiness, place the left thumb under the camera and the left fingers over the top of the camera.

If desired, the camera may be mounted on a tripod by removing the wrist cord and using the standard tripod socket in the camera base.

Starting Button. The starting button K has three positions: top—for single-frame exposure; center—for running and instant stopping; bottom—for continuous running with or without the operator. The center position is the most commonly used; the bottom position permits the camera to run while, with the camera on a tripod or

Method 1 permits revolving the turret while the camera is at the eye, requiring only that the forefinger be moved to the side of the camera for free clearance of the revolving turret.

When using Method 2, remove the right forefinger and second finger from the front of the camera when the turret is to be revolved.

other solid support, you enter the picture yourself. The top position, single-exposure release, is described in detail on page 17.

Magazine Ejector. When the first half of the film has been run, press magazine ejector L to dislodge magazine, tip the camera, and allow the magazine to drop out into the hand. Turn the magazine over and reinsert in camera. Rotate footage dial until the figure 0 is opposite the index mark. (See also paragraph on "Reloading the Camera," page 14.)

Reloading the Camera. You may change from one magazine of film to another at any time, without waiting to finish the film in the camera and without fogging any film. When you wish to remove a partially exposed magazine, observe the footage shown on camera footage dial B, open the camera door, and, while the magazine is in the camera, mark with pen or pencil on the magazine footage dial the amount of footage shown on camera footage dial B. Then, reset the camera footage dial B to 0 position, press magazine ejector L, remove the partially used magazine and insert the new magazine.

When reloading the camera with a partially used magazine, set the camera footage dial B at the figure corresponding to the footage figure which you marked on the magazine footage dial when you removed the magazine from the camera. Then, to avoid confusion, cross off or

erase the figure on the magazine footage dial. In some cases, the markings on the magazine footage dial will be found helpful and at such times should remain legible.

Whether loading or unloading, *never expose the magazine to direct sunlight.* Keep it in its container when you are out of doors, and when the camera must be loaded in sunlight, do it in the shadow of your own body. Avoid, as much as possible, loading or unloading the camera in dusty air such as is often encountered outdoors on windy days.

Save the cardboard carton in which the magazine is packed—you will need it for sending the film to be processed. Print your name and address clearly on the carton, in the space provided, as the laboratory has no other way to identify you as the owner of the film. Address the carton to the processing station nearest you, as explained in the booklet enclosed with each magazine, and affix the correct amount of postage. There are no processing charges.

Length of Scenes. A common tendency, when first starting to use a motion picture camera, is to make the scenes too short—that is, to fail to keep the camera operating long enough on each subject. As a result the scenes, when projected, flash on and off the screen too quickly for the eyes of the audience to grasp the image. 1½ feet can be considered an absolute *minimum* of 8mm film footage for such scenes as close-ups of people, scenics, or any action which is not changing in nature.

If action is changing, more film may be required to tell the story. Ordinarily the camera should be started just before the action begins and stopped just after the action ends.

The easiest and most commonly used guide for counting footage while filming is to count seconds. 1 foot of film is exposed in 5 seconds of normal (16) speed operation; 2 feet in 10 seconds, etc. 1½ feet is considered the minimum length for an average scene. Consult the footage dial after every scene, to check the accuracy of your counting, until you become adept at the procedure.

While filming with the turret model, count the number of times the footage indicator pointer appears in the viewfinder. One foot of film will have been run for each 4 appearances.

Using Speeds Other Than Normal — Turret Model. The exposure calculator F of the turret model 172-A gives the correct f/settings to use at 16, 32, and 64 camera operating speeds. When you wish to use 24 or 48 speed:

For 24 speed, set the lens ½ stop wider open than exposure calculator indicates when set for 16 speed; **for 48 speed,** ½ stop wider open than exposure calculator indicates when set for 32 speed.

Examples: Chart reading at 16 speed, f/8; for 24 speed, set lens midway between f/5.6 and f/8.
Chart reading at 32 speed, f/5.6; for 48 speed, set lens midway between f/4 and f/5.6.

Shutter Speed. The following table gives the corresponding shutter speed for each of the various camera operating speeds:

Camera Speed	Shutter Speed
16	1/35 second
24	1/52 second
32	1/70 second
48	1/104 second
64	1/140 second

Single-Exposure Shutter Release. When starting button K is pressed upward, a single picture is photographed on the film. This provision is for animation work, which means making motion pictures of inanimate objects or drawings. When a series of single pictures is made, and the position or pose of the subject is changed very slightly between pictures, the subject will appear to move when the picture is shown on the screen.

The camera must be on a tripod for this work. Set speed dial E at 16 speed, and close the lens diaphragm one-half stop more than the f/setting you would use for a normal, continuous movie.

The single-exposure release is applicable also to other than inanimate objects. For example, landscapes featuring cloud effects can be filmed frame by frame at uniform intervals of from one-half to several seconds. On the screen the billowing advance of the clouds will be speeded up so as to be clearly visible. Again, you will secure an amazing film if you point your lens directly into a colorful sunset (with Kodachrome film in the camera) and expose single frames at intervals. The sun will actually set before your eyes, on the screen, the colors changing just as they did in nature.

When using the single-exposure release, be sure to make each scene long enough. Either watch the footage dial or count the frames exposed. There are 80 frames per foot, and the minimum length of a scene is 1½ feet—120 frames.

The single-frame exposure time is approximately 1/28 second at all camera speed dial settings.

Parallax. When taking close-ups, allowance must be made for the fact that the viewfinder is 7/8" above and 31/64" to the right of the lens, as viewed by the user. For all scenes six feet or more from the camera, this offset may be ignored.

Looking through the viewfinder, aim the camera and increase or decrease the distance between camera and subject until the desired picture area fills the viewfinder. With the desired area framed in the viewfinder:

With the single-lens camera:
Then tilt the camera up and right so that the field of view outlined by the finder moves 7/8" up and 31/64" to the right on the subject itself. After tilting and turning to properly point the camera, the camera will photograph the area originally seen in the viewfinder.

With the turret head camera:
For objects less than six feet from the camera imagine a field of view as indicated by the dotted lines in figure A below.

When photographing at any distance over six feet the full frame area of the finder should be used, as in figure B below.

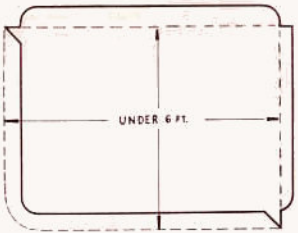


Figure A

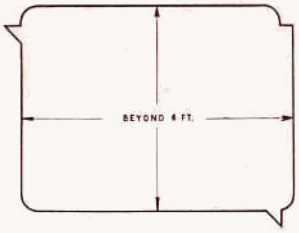


Figure B

The notches in the viewfinder are calibrated for the normal 0.5" lens. With a 1" lens they are correct for objects twelve feet or more from the camera. The distance is directly proportional to the focal length of the lens as compared to the standard 0.5", 8mm lens.

Camera Maintenance. As often as seems necessary, remove any dirt which may have collected around the edges of the photographic aperture with a camel's hair brush. *Use no sharp tools!* Remove dirt which has hardened with a swab of lens cleaning tissue moistened slightly with alcohol. Brush out film magazine chamber.

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

To clean the lens and viewfinder objective, remove from the camera by unscrewing and clean the exposed surfaces with B&H Lens Cleaning Fluid and lens cleaning tissue — use no other cleaning materials as they may damage the lens surfaces. *Do not take the lens apart* —clean the exposed surfaces *only*. Clean the viewfinder eyepiece with the same materials. Return the lens and viewfinder objective to position, screwing them firmly into place.

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

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 Approved Service Station for servicing.

DEPTH OF FIELD TABLE FOR 0.5" 8MM CAMERA LENS

Object Area Ht.	Object Area Wd.	Best Focus	Far Limit, Near Limit and Limiting f/ Numbers — Far Near	f/1.4	f/2*	f/2.5	f/2.8	f/4	f/5.6	f/8	f/11	f/16	f/22	f/32
3' 1"	4' 1"	12 ft.	F	32' 4"	102'	∞	∞	∞	∞	∞	∞	∞	∞	∞
			N	7' 2"	6' 4"	5' 8"	5' 4"	4' 4"	3' 5"	2' 8"	2'	1' 6"	1' 1"	10"
1' 5"	2' 0"	6 ft.	F	8' 8"	10' 6"	13'	15'	42'	∞	∞	∞	∞	∞	∞
			N	4' 7"	4' 2"	3'11"	3' 9"	3' 3"	2' 9"	2' 2"	1' 9"	1' 4"	1'	9"
1' 0"	1' 4"	4 ft.	F	5' 1"	5' 8"	6' 3"	6' 8"	9' 6"	20'10"	∞	∞	∞	∞	∞
			N	3' 4"	3' 1"	2'11"	2'10"	2' 6"	2' 3"	1'10"	1' 6"	1' 2"	11"	8"
9"	1' 0"	3 ft.	F	3' 7"	3'10"	4' 1"	4' 4"	5' 4"	7' 8"	23'	∞	∞	∞	∞
			N	2' 7"	2' 6"	2'4.3"	2' 4"	2' 1"	1'10"	1' 7"	1' 4"	1' 1"	10"	8"
6"	8"	2 ft.	F	2' 3"	2' 4"	2' 5"	2' 6"	2'10"	3' 4"	4' 9"	9'11"	∞	∞	∞
			N	1'10"	1' 9"	1'8.3"	1' 8"	1' 7"	1' 4"	1' 3"	1' 1"	11"	9"	7"
4"	6"	1 ft. 6 in.	F	1'7.5"	1' 8"	1'8.8"	1' 9"	1'11"	2' 2"	2' 8"	3' 9"	11'	∞	∞
			N	1' 5"	1' 4"	1'3.9"	1'3.6"	1' 3"	1' 2"	1' 1"	11"	10"	8"	7"
3"	4"	1 ft.	F	1'0.7"	1'0.9"	1'1.2"	1'1.3"	1' 2"	1' 3"	1' 5"	1' 8"	2' 4"	5' 6"	∞
			N	11.4"	11.2"	11.01"	10.9"	10.5"	10.0"	9.3"	8.6"	7.6"	6.6"	5.6"
Hyperfocal Distance				19'10"	13'11"	11' 1"	9'11"	6'11"	4'11.5"	3'5.7"	2'6.1"	1'8.8"	1'3.2"	10.4"

*f/1.9 may be considered the equivalent of f/2 for all practical purposes.

DEPTH OF FIELD—TABLE FOR 1.5" 8MM CAMERA LENS

Object Area		Best Focus	Far Limit, Near Limit and Limiting f/ Numbers										
Ht.	Wd.		Far Near	f/1.4	f/2	f/2.8	f/4	f/5.6	f/8	f/11	f/16	f/22	f/32
8' 6"	11' 4"	100 ft.	F	238'	475'	∞	∞	∞	∞	∞	∞	∞	∞
			N	63'	56'	48'	39'	31'	24'	19'	14'	10'	7' 4"
4' 3"	5' 7"	50 ft.	F	70'	88'	112'	238'	∞	∞	∞	∞	∞	∞
			N	39'	36'	32'	28'	24'	19'	16'	12'	9'	7'
2' 1"	2' 8"	25 ft.	F	29'	31'	35'	42'	57'	125'	∞	∞	∞	∞
			N	22'	21'	20'	18'	16'	14'	12'	10'	8'	6'
1' 3"	1' 7"	15 ft.	F	16'	17'	18'	20'	23'	29'	45'	375'	∞	∞
			N	13' 9"	13' 5"	12'10"	12' 1"	11' 3"	10' 2"	9'	8'	6' 4"	5' 2"
1'	1' 4"	12 ft.	F	12'11"	13' 3"	13'10"	14'10"	16'	20'	45'	52'	∞	∞
			N	11' 2"	10'11"	10' 7"	10' 1"	9' 6"	8' 8"	7'10"	6'10"	5' 9"	4' 9"
10"	1' 1"	10 ft.	F	10' 8"	10'10"	11' 3"	11'11"	13'	15'	18'	28'	104'	∞
			N	9' 5"	9' 3"	9'	8' 8"	8' 2"	7' 7"	7'	6'	5'	4' 5"
8"	11"	8 ft.	F	8' 5"	8' 7"	8'10"	9' 2"	9' 9"	11' 9"	12' 5"	16'	29'	∞
			N	7' 8"	7' 6"	7' 4"	7' 1"	6' 9"	6' 4"	5'11"	5' 4"	4' 8"	3'11"
7"	9"	7 ft.	F	7' 4"	7' 5"	7' 7"	7'11"	8' 4"	9'	10' 2"	13'	19'	67'
			N	6' 9"	6' 8"	6' 6"	6' 4"	6' 1"	5' 9"	5' 4"	4'10"	4' 3"	3' 8"
6"	8"	6 ft.	F	6' 3"	6' 4"	6' 5"	6' 8"	6'11"	7' 5"	8' 2"	9' 9"	13'	26'
			N	5'9.6"	5'8.7"	5'7.5"	5'5.7"	5' 4"	5'	4' 9"	4' 4"	3'11"	3' 5"
5"	7"	5 ft.	F	5'1.8"	5'2.5"	5'3.6"	5' 5"	5' 8"	5'11"	6' 5"	7' 4"	9' 2"	14'
			N	4'10.3"	4'9.7"	4'8.8"	4'7.6"	4' 6"	4'3.7"	4' 1"	3'10"	3' 5"	3' 1"
4"	5"	4 ft.	F	4'1.2"	4'1.6"	4'2.3"	4'3.3"	4'4 7"	4' 7"	4'10"	5' 4"	6' 3"	8' 2"
			N	3'10.9"	3'10.5"	3'9.9"	3'9.1"	3'8.1"	3'6.6"	3'4.8"	3'2.2"	2'11.2"	2'7.8"
3"	4"	3 ft.	F	3'0.6"	3'0.9"	3'1.3"	3'1.8"	3'2.6"	3'3.8"	3'5.5"	3'8.6"	4'1.5"	4'10"
			N	2'11.4"	2'11.2"	2'10.8"	2'10.4"	2'9.7"	2'8.8"	2'7.8"	2'6.2"	2'4.3"	2' 2"
2"	3"	2 ft. 6 in.	F	2'6.4"	2'6.6"	2'6.9"	2'7.3"	2'7.8"	2'8.6"	2'9.7"	2'11.7"	3'2.8"	3'8.1"
			N	2'5.6"	2'5.4"	2'5.2"	2'4.8"	2'4.4"	2'3.8"	2' 3"	2'1.9"	2'0.5"	1'11"
1.8"	2.4"	2 ft.	F	2'0.3"	2'0.4"	2'0.6"	2'0.8"	2'1.1"	2'1.6"	2'2.3"	2'3.5"	2'5.3"	2'8.3"
			N	1'11.7"	1'11.6"	1'11.5"	1'11.3"	1'11"	1'10.6"	1'10"	1'9.3"	1'8.3"	1'7.1"
Hyperfocal Distance				179'	125'	89'	62'	45'	31'	23'	16'	11'	7'10"

SIZE OF PHOTOGRAPHED AREA (approx.)covered by lenses for Filmo 8mm Cameras.
Note: For camera distances from 1 to 10 feet, read the following table direct. For greater distances, simply move decimal point. Example: Subject width for 0.5-inch lens on an 8mm camera is 2.05 feet at a distance of six feet. At sixty feet it would be 20.5 feet; at six hundred feet it would be 205 feet. The table is based upon the 8mm projector aperture.

Lens Focal Length	Object Size in Feet for Various Object Distances										
	1′	2′	3′	4′	5′	6′	7′	8′	9′	10′	25′
0.25′*	0.51 .67	1.02 1.36	1.54 2.05	2.05 2.74	2.57 3.43	3.09 4.11	3.60 4.80	4.12 5.49	4.63 6.18	5.15 6.89	12.89 17.19
0.5′ (12½mm)	.25 .33	.51 .67	.76 1.02	1.02 1.36	1.28 1.71	1.54 2.05	1.80 2.39	2.05 2.74	2.31 3.08	2.57 3.43	6.44 8.59
1″	.12 .16	.25 .33	.38 .50	.51 .67	.63 .85	.76 1.02	.89 1.19	1.02 1.36	1.15 1.53	1.28 1.71	3.21 4.29
1.5″	.08 .10	.16 .22	.25 .33	.32 .44	42 .56	.51 .67	.59 .79	.68 .90	.76 1.02	.85 1.13	2.14 2.85
2″	.05 .07	.12 .16	.18 .24	.25 .33	.31 42	.38 .50	.44 .59	.51 .67	.57 .76	.63 .85	1.60 2.14

Upper Dimension is Height of Picture

Lower Dimension is Width of Picture

*0.5″ lens with Wide Angle Attachment.

THE HYPERFOCAL DISTANCE is the minimum distance at which critical sharpness is obtained with a given diaphragm opening when the lens is focused at infinity. When a focusing lens is set at the hyperfocal distance, all objects at half the hyperfocal distance and beyond will be in focus. The table below shows the hyperfocal distances for lenses for Filmo 8mm cameras, expressed in feet and based upon a circle of confusion of 0.00075″ diameter. When used with U.F.H. lenses (universal focus, hyperfocal distance), the following table gives the distance of best focus corresponding to the full aperture of the lens; objects more than half this distance away will be in focus for all f/settings.

Lens Focal Length	Hyperfocal Distance in Feet for Various Apertures												
	f/1.4	f/1.5	f/1.9	f/2	f/2.5	f/2.7	f/3.5	f/4	f/5.6	f/8	f/11	f/16	f/22	f/32
0.25′*	5.0	4.6	3.6	3.5	2.8	2.6	2.0	1.7	1.2	0.9	0.6	0.4	0.3	0.2
0.5′ (12½mm)	19.8	18.5	14.6	13.9	11.1	10.3	7.9	7.0	5.0	3.5	2.5	1.7	1.3	0.9
1″	79.4	74.1	58.5	55.6	44.4	41.2	31.8	27.8	19.8	13.9	10.1	7.0	5.0	3.5
1.5″	178.6	166.7	131.6	125.0	100.0	92.6	71.4	63.5	44.6	31.2	22.7	15.6	11.4	7.8
2″	317.4	296.3	233.9	222.2	177.8	164.6	127.0	111.1	79.	55.6	40.4	27.8	20 2	13.9

*0.5″ lens with Wide Angle Attachment.

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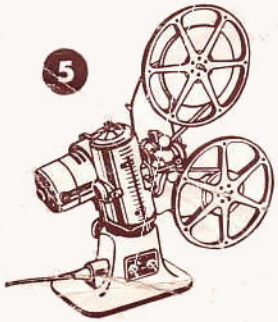

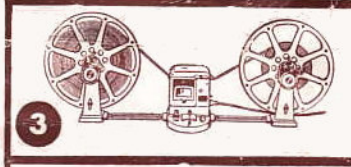

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