

**GUIDE TO MOVIE MAKING MAGIC**

with your

**240**

**ELECTRIC EYE**

**CAMERA**

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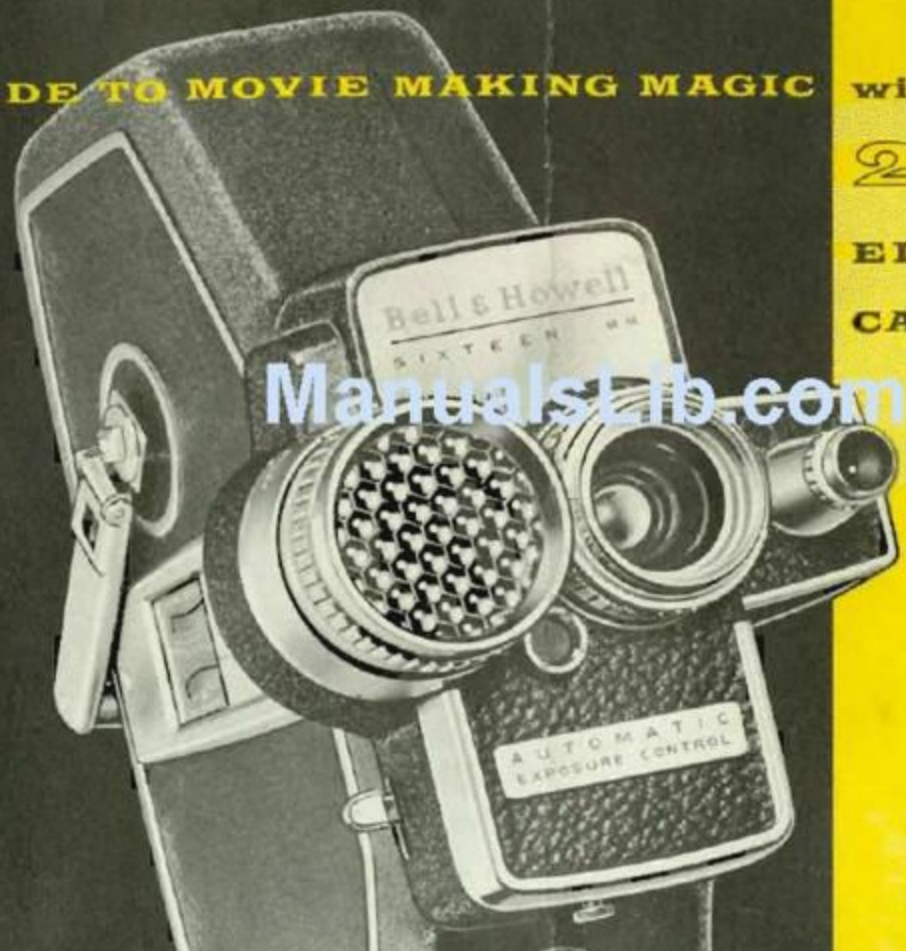


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**Bell & Howell**

*finer products through imagination*



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# WELCOME TO **Bell & Howell** OWNERSHIP...



Your 240 Electric Eye camera introduces you to a new era in the making of motion pictures, an era of automatic movie making. Check the outstanding features of your 240EE camera:

You're assured of the best lighting conditions while you're making movies.

- Viewfinder mask lights up in red when there isn't enough light for filming.
- Exclusive 20mm lens puts 56% more picture on your film.
- Self threading mechanism with loop formers that raise up out of film path when door is placed in position.
- Unusually long 32-foot film run (80 seconds of continuous filming) plus rapid winding crank.
- Shutter always stops in closed position even when motor is completely unwound, eliminates annoying "flash frames."
- Accepts cable release for animation and other special effects.
- Reserve Power Indicator shows you when to wind your camera.
- Accepts single or double-perforated film.

# YOUR 240 ELECTRIC EYE CAMERA IS DESIGNED FOR EASE OF



## 1. WIND

—your camera is exceptionally easy to wind. Just lift the winding crank on its hinge and wind in a clockwise direction. You can expose 32 feet of film on one winding. The spring motor dial shows how fully wound your camera is at all times. Page 5.



## 2. SET SPEED

—you'll use 16 frames per second for filming most of your scenes. The other speeds on your camera are used for slowing down or speeding up action for those special scenes that will add variety to your movies. Page 5.



## 3. LOAD

—drop your film in place on the upper spindle. Extend film end through film cutter, clipping off pointed end. Press the starting button and insert film into the threading slot—in seconds your film is threaded and ready to engage into the lower spool. Page 6.

## OPERATION

JUST FOLLOW THESE **6** SIMPLE STEPS AND YOU'RE READY TO TAKE LIFE-LIKE MOVIES.



### **4. SET THE ELECTRIC EYE**

—most of your filming will probably be done at 16 frames per second. Set the Electric Eye control barrel so this setting is directly opposite the index designating the emulsion speed of the film you use. Page 8.



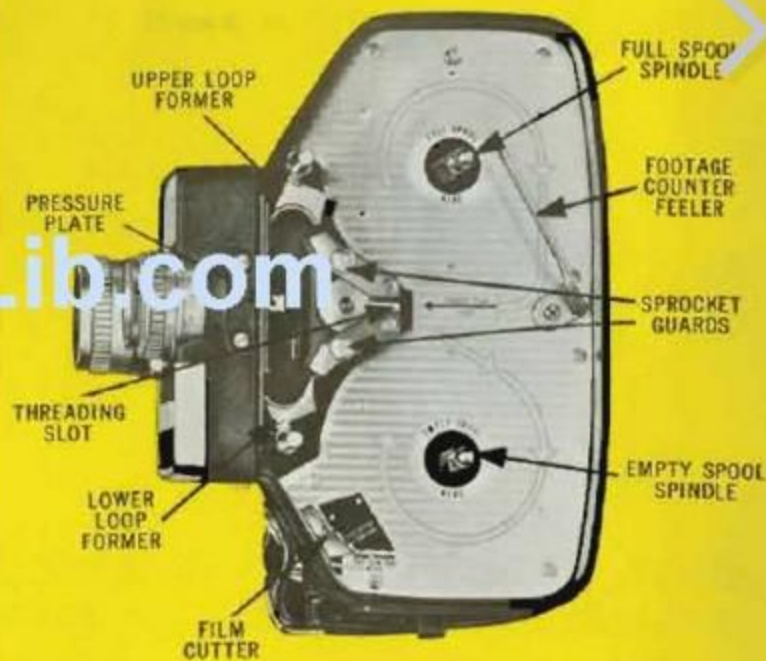
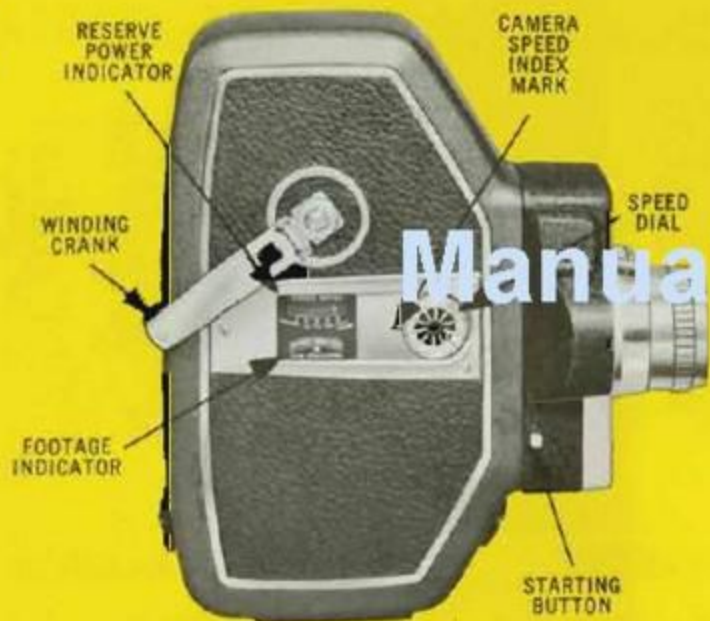
### **5. FOCUS YOUR LENS**

—a majority of your movies can be taken with your lens set at the universal focus setting (red mark between 20 feet and infinity) with entirely satisfactory results. Use the focusing scale when you're taking close-ups less than 10-feet away. Page 8.



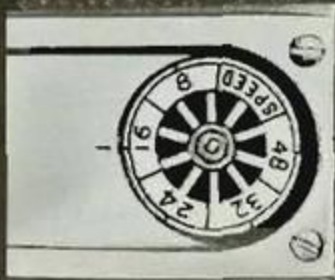
### **6. SIGHT and SHOOT**

—view your subject through the viewfinder. Press the starting button in until your lens iris ring stops moving. Then press the starting button down and you're taking properly exposed, life-like movies. Page 9.



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## WINDING THE CAMERA



To wind your 240EE camera, lift the WINDING CRANK and open it on its hinge. Wind with a clockwise motion, as fully as possible. After winding, snap the crank handle into place in the small recess in the back of the camera.

Always keep your camera wound between shots. This will save you from having the motor run down in the middle of a scene. A dial marked SPRING MOTOR shows you how far your camera motor has unwound. It is located just above the FOOTAGE INDICATOR dial (which shows number of feet of film remaining) on the right-hand side of the camera, and is marked *Unwound*  $\frac{1}{4}$ ,  $\frac{1}{2}$ ,  $\frac{3}{4}$ , and *Fully Wound*.

## SELECTING SPEEDS

The camera speed dial indicates the number of frames (pictures) exposed per second. To set the speed dial, revolve it until the desired speed is directly opposite the index mark at the left of the dial. An index mark in each dial segment indicates the correct setting point for every speed. Your 240EE will operate at 8, 16, 24, 32, and 48 frames per second. These speeds can be used as follows:

- **8 frames per second** is used for speeding up sluggish action and for gaining greater exposure through the slower shutter speeds when available light will not permit full exposure at your fastest lens opening at normal (16) speed.
- **16 frames per second** is considered "normal" speed. You'll use this speed most of the time.
- **24 frames per second** slows down the rate of action and is advantageous when you plan to add magnetic sound to your movies.
- **32 frames per second** is recommended for use when filming from a moving auto, train, or plane. It is also useful for "panning" (turning the camera from left to right) in those very rare instances where panning is necessary, as it minimizes camera motion.
- **48 frames per second** gives you slow-motion movies. Use this speed to film fast moving subjects and for analyzing sports in action.



DOOR  
LOCK  
KNOBS



FOOTAGE  
COUNTER  
FEELER



CLIP  
POINTED  
END

## LOADING THE CAMERA

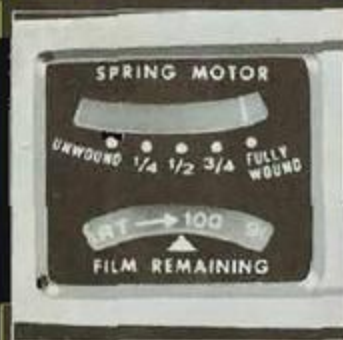
Always load your camera in subdued light or shade, never in bright sunshine.

After winding your camera, lay it on its side with the door upward and lens pointing away from you. Turn the DOOR LOCK KNOBS counterclockwise until they are disengaged and lift off the camera door. Remove the empty spool from the EMPTY SPOOL SPINDLE. Pull the FOOTAGE COUNTER FEELER toward you until it is in its "home" position.

Place the full spool of film on the FULL SPOOL SPINDLE. Close the FOOTAGE COUNTER FEELER—this will automatically set the FOOTAGE INDICATOR DIAL approximately at the 100-foot mark.

The film you buy has a pointed end. You must clip the point off before inserting the film into the threading slot. Extend the end of the film along the outer frame of camera and through the FILM CUTTER. Keep the film flat against the bottom trim plate and clip off the end as illustrated. Avoid cutting through perforations. (If this is not done, film will not pass properly through the self-threading mechanism.) Remove the clipped film end from the camera.





Press the **STARTING BUTTON** to operate the camera motor. While the motor is running feed the end of film into the threading slot as shown by the arrow inside the camera. Run about 10 inches of film through the **LOOP-FORMERS** past the **LOWER SPROCKET GUARD**.

Crimp the end of the film and insert into the slot in the empty (take-up) spool. Rotate the spool clockwise until one or two turns of film are wrapped around it. Place the take-up spool in the **EMERGENCY STOP** position. Rotate the spool to take up any slack.

Replace the camera door and tighten the door lock knobs securely.

Press **STARTING BUTTON** gently downward and run motor until the footage indicator registers "100" to run off the leader film. This section of film is not usable for picture taking. The leader and the trailer sections at each end of the roll are not counted in the 100 actual feet of usable film you get. They protect the rest of the film from becoming fogged during loading and unloading the camera.

## SETTING THE ELECTRIC EYE CONTROL BARREL



The Control Barrel on the Electric Eye must be preset for the right combination of film speed (furnished with film) and camera speed before filming.

The outer scale of the Electric Eye shows the film speed (ASA ratings) from 10 to 50, while the inner scale shows camera speeds from 8 to 48. Rotate the index mark on the barrel until the film speed and camera speed you're using are directly opposite each other.

Since most of your filming will probably be done at 16 frames per second with color film having various ASA ratings, the control barrel can be locked in any position by means of a set-screw which is found below the Electric Eye. *Your dealer can do this for you.* When using a camera speed of 8 frames per second the control barrel should not be set at a higher film speed rating than ASA 32.

**Note:** The setting of the camera speed index on the barrel must match the film speed setting or that of the control body during all normal use. Remember that setting one does not set the other.

## FOCUS LENS

The FOCUSING RING is graduated for distances from 18 inches to infinity. To focus at one of the distances marked on the ring, turn the ring until that mark is exactly opposite the index mark on the barrel. Careful focusing, by scale, is recommended when you're filming at distances under 10 feet. Where considerable fast action must be followed, and it is impractical to change focus frequently, you can use the universal-focus setting to good effect. (Universal focus is shown by red mark between the 20-foot and infinity settings on the ring). In fact, a majority of your movie making can be done with the red universal-focus mark set at the index, with entirely satisfactory results. This fact, plus the presence of the automatic iris control, makes getting good movies with your 240EE almost as simple as pointing your finger.

Your 20mm lens is equipped with a filter retaining ring which accepts a size 4.5 filter.

## FILM PLANE REFERENCE



The actual film plane inside your 240EE camera is at a point where the camera door joins the camera front plate, as illustrated. This reference point is valuable when you're using the focusing ring on the camera lens, since it lets you measure the exact distance from film to subject, especially important when taking close-ups.

## Sight and Shoot

### HOLDING THE CAMERA

You'll enjoy your movies more if you hold the camera steady and level while filming. Most people find the position shown in the illustration the most comfortable way to hold the camera. The hand strap steadies the left hand as the fingers grasp the viewfinder housing.

Keep your hands and fingers away from the camera lens opening and the Electric Eye. Brace your elbows against your ribs, and rest the camera firmly (not rigidly) against your cheek. Whenever possible use a tripod for maximum camera steadiness.



## STARTING BUTTON

You'll find the Starting Button of your 240EE located on the right side of the camera, just below the Eyepiece.

**PRESS IT INWARD**, and you operate the iris control without operating the camera motor.

**PRESS DOWNWARD SLIGHTLY** and you start the camera motor and operate the iris control simultaneously. The lens will automatically adjust itself to lighting changes as the camera motor is running. **NOTE:** Always press the button inward momentarily before pressing it downward to operate the camera. This will permit the automatic iris control to set the lens properly before you expose any film.

**PRESS DOWN FIRMLY** and the camera locks in continuous run position. You can get into the picture yourself (when the camera is placed on a tripod).

### important

Be sure the Starting Button is never in a position where it may accidentally be pressed when your camera is not being used. If it is pressed in or left in the "Lock Run" position, the under exposure lamp in the viewfinder will stay lighted and exhaust one of the batteries.

**PRESS THE BUTTON UPWARD** for single frame operation—taking one picture at a time. For single-frame work, set the camera speed dial at 16 frames. Since the camera shutter speed at single frame is 1/30 second instead of the somewhat shorter interval of 1/43 second you get at normal 16 frames per second, you must avoid overexposure at single frame. You can accomplish this by pressing the iris control switch inward to adjust the iris for proper exposure, then closing the lens one-half stop. (See page 15 **SETTING THE LENS OPENING.**) From then on make it a point to press *directly upward* for your single-frame exposures.

## **UNLOADING THE CAMERA**

## **MAKE YOUR FILM TELL A STORY**

When the film footage indicator dial shows "O" you have exposed a full 100-foot run. Run off the remaining three feet of trailer by running the camera motor until the indicator passes from "O" to the word TRAILER on the dial. Now remove the camera door. Lift out the full spool, pressing lightly on the trailer end of the film to prevent any possibility of the film unwinding or loosening. Immediately place the full spool in the safety can. Your film is now ready for processing.

In unloading, just as in loading, it is wise to work in a bright light to see the film clearly.

You'll enjoy your movies more if you make them tell a story with continuity and interest, instead of shooting a series of pictures with little or no relationship between them. To film a connected, smooth-running story, shoot each scene for at least 7 seconds. A simple but surprisingly accurate way of gauging this time is to count slowly "one thousand, two thousand," and so on, each count being one second in duration. Length of scene should be governed mainly by the subject's action—film fast-moving subjects for a shorter period of time, landscapes and slow-moving subjects, for a longer period of time.

## PANNING

In order to show the relationship between two objects, or to take a wide expanse of landscape or other scenic matter in one continuous scene, it is necessary at times to "pan"—that is, to swing the camera horizontally while the scene is being shot. A tripod should be used for this whenever possible. Best results are obtained when shooting at 32 frames per second (set control barrel accordingly) to smooth out motion. Start panning with an object of lesser importance; then swing *slowly* to the most important object.

When hand-holding the camera, hold the camera steadily on the first view, pivot *slowly* from the waist; then hold the camera on the second view for two or three seconds before *cutting* the scene. Always pan from left to right. Never pan on close-up objects—you'll get a blur. When panning to follow a moving subject, keep it centered in the viewfinder.

*Pan only when absolutely necessary.* Most of the time you'll get better results by holding the camera still, taking a series of shots to tell a story.

## SHOOTING WITH A LIGHT-BAR

There are several things you should remember when you use your Electric Eye camera with a light-bar:

1. Set the control barrel for the ASA index of the film you use, and focus the lens for proper distance.
2. Always keep your subject further from the camera than it is from the background. This will give you good over-all exposure as your subject and background will be lighted at approximately the same level.

# MANUAL OPERATION with your 240EE



Occasionally you may want to operate your camera without using the automatic iris control. The iris control can be rendered inoperative when you prefer to set the lens aperture manually in either of the following ways:

1. Loosen the battery cover screw with a dime, slide off the battery cover, and remove the batteries. The lens can now be set manually by means of the iris ring which is graduated in *f*/stops, from *f*/1.9 to *f*/16. The same index mark used for focusing serves as an index for setting the aperture. See the following page on setting the lens opening.

2. Take aim at your subject in the usual way, pressing the starting button inward so the control switch operates while the camera does not. When the lens has been set by the iris control, hold the iris ring to keep it from turning while you shoot. This method is recommended for *occasional use* where you're only shooting a few scenes which include extreme light and dark areas and you want to under- or overexpose. Opening the lens wider (toward the smaller *f*-numbers) than the automatic setting will produce overexposure. Closing it down (toward the higher *f*-numbers) will give you underexposure. This is also useful when you purposely want to give your subject more or less exposure than is called for.



f/1.9



f/4



f/8



f/16



## SETTING THE LENS OPENING

The amount of light passed by the lens to the film is controlled by the lens opening. Take a look at the lens on your 240EE. You'll see that the collar adjacent to the camera front plate is graduated for settings as follows: 1.9, 2, 2.8, 4, 5.6, 8, 11, and 16. These are *f/stops*; as the setting increases numerically, the lens opening itself decreases in size, as shown in the accompanying illustrations. When set to *f/1.9* the lens admits the maximum amount of light, while the *f/16* setting admits the least amount of light to the film.

*Use of half-stop.* As mentioned on page 11, the use of half-stops becomes necessary in setting the lens manually for single frame exposure. To open or close the lens a half-stop, simply set the scale midway between any of the markings from 2 through 16. Example: Original lens setting is *f/4*. One half-stop wider would be between the 4 and 2.8 setting. A half-stop smaller would be between the 4 and 5.6 setting. In case the iris control has set the lens at a point somewhere between two of the numerals, then to arrive at a half-stop simply turn the collar equivalent to half the distance between the two numerals.



## CABLE RELEASE



In making single-frame exposures the use of a cable release and tripod are recommended, to minimize camera motion. Most standard cable releases can be used.

In the center of the bottom edge of the camera front-plate is a small screw. Turn a flat knife blade. Remove the screw to expose the socket into which the cable is inserted. Press inward; then releasing the cable release plunger results in making single-frame exposures.

You'll use single-frame exposure only for animation work and special effects, when the position of your subject is changed slightly over a period of time and you want to film this action at timed intervals. When a series of such pictures is projected on your screen, the subject will appear to move. This effect is useful in titling, where you animate a travel route on a map, speeding up sunset sequences, and so on. Your dealer will be glad to supply you with additional information about animated effects.

## CAMERA CARE



Regular cleaning will help keep your camera and lenses in first class condition, and will improve the quality of your pictures.

**LENS.** Every camera lens should be kept clean at all times. *Never attempt to take a lens apart.* Clean the front surface of the lens with lens-cleaning tissue moistened slightly with Bell & Howell Opti-Kleen lens cleaning fluid. Opti-Kleen is recommended for all optical surfaces. Use it on the viewfinder objective and eyepiece, Electric Eye surface, attachment lenses, and filters.

**CAMERA.** A camel-hair brush is useful for keeping the interior of your 240EE camera clean. (Never use sharp objects to clean your camera.)

The Aperture Plate, Pressure Plate, and Sprocket Guards should be inspected frequently and cleaned if any emulsion or dirt has collected upon them from the passage of film.

To clean the **PRESSURE PLATE** lift it out as illustrated. It can be removed by the notched tab on its back. Use a toothpick to dislodge any hardened emulsion remaining on its surface. The satin finish of both the Aperture and Pressure Plates should be kept clean at all times. Here, too, Opti-Kleen can be used to soften foreign matter and for cleaning metal surfaces. When replaced properly the Aperture Plate should lie flat against the film when in position.

To clean the **SPROCKETS**, lift up the retaining pin on both **SPROCKET GUARDS**.



This permits the guards to be swung around until they face toward the rear of the camera. With both guards swung open you can clean the sprockets and sun gears with a brush. To clean the sprocket ring, fit up the pins and swing both guards to their original positions, and seat pins in holes. Unless the guards are correctly positioned, the camera door will not close.

**BATTERIES.** The battery drain in operating the iris control is very slight. As soon as the batteries begin to lose their energy, there will be a very noticeable decrease in the speed at which the iris control works. It's a good idea to take a spare set of batteries with you on a long trip.

To replace the batteries, loosen the battery cover screw with a dime. No more than one turn is necessary. Slide the battery cover downward and remove it. (Batteries should be replaced only with two Mallory PX-2 mercury cells, available from your B&H dealer.) Face the batteries as indicated by the small tape markers inside the battery compartment. Slide the battery cover back to its original position, and tighten the cover screw.

**LUBRICATION.** Your camera is lubricated for one year after it leaves the Bell & Howell factory. Do not attempt to lubricate it yourself. Keep it in first class condition by returning it to the factory, your B&H dealer, or a B&H Approved Service Station, for complete servicing.

## TIPS FOR THE TRAVELER

Bell & Howell is represented in most large cities throughout the world. If you're planning a trip abroad, and plan to take your equipment with you, we suggest you drop a note to our International Division, Dept. 8952, advising them the countries you plan to visit. They will be happy to send you a complete listing of our representatives in those areas. This listing will save you a great deal of time, and eliminate any trouble or inconvenience you may encounter should you run into any unexpected difficulties with your equipment, or in the purchasing of photographic supplies while traveling.

## SHUTTER SPEED COMPARISON CHART

The following table gives the corresponding shutter speed for each of the camera speeds of the Bell & Howell 240EE.

| CAMERA SPEEDS | SHUTTER SPEEDS |
|---------------|----------------|
| 8 f.p.s.      | 1/22 second    |
| 16 f.p.s.     | 1/43 second    |
| 24 f.p.s.     | 1/65 second    |
| 32 f.p.s.     | 1/86 second    |
| 48 f.p.s.     | 1/129 second   |
| Single-frame  | 1/30 second    |