



# Canon

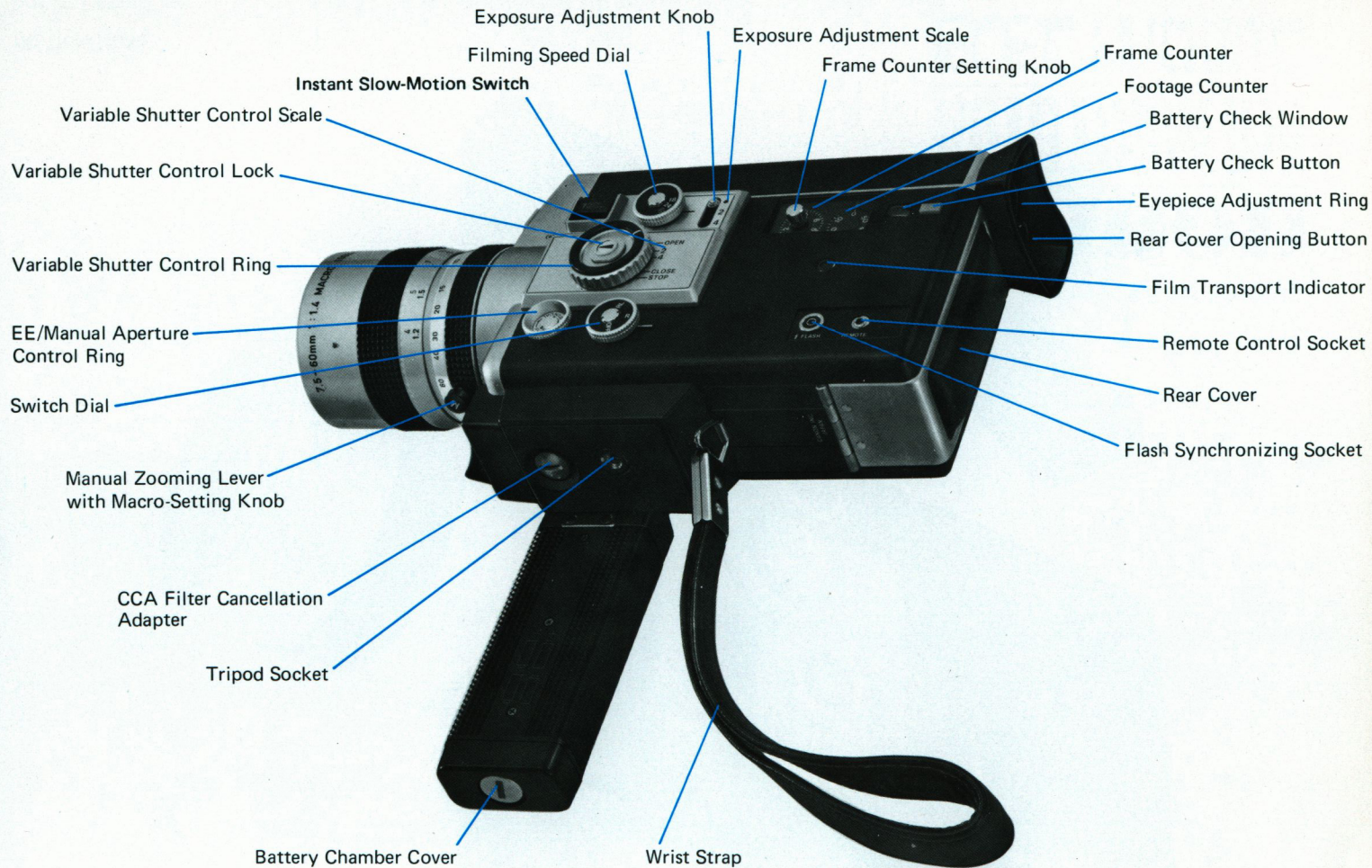
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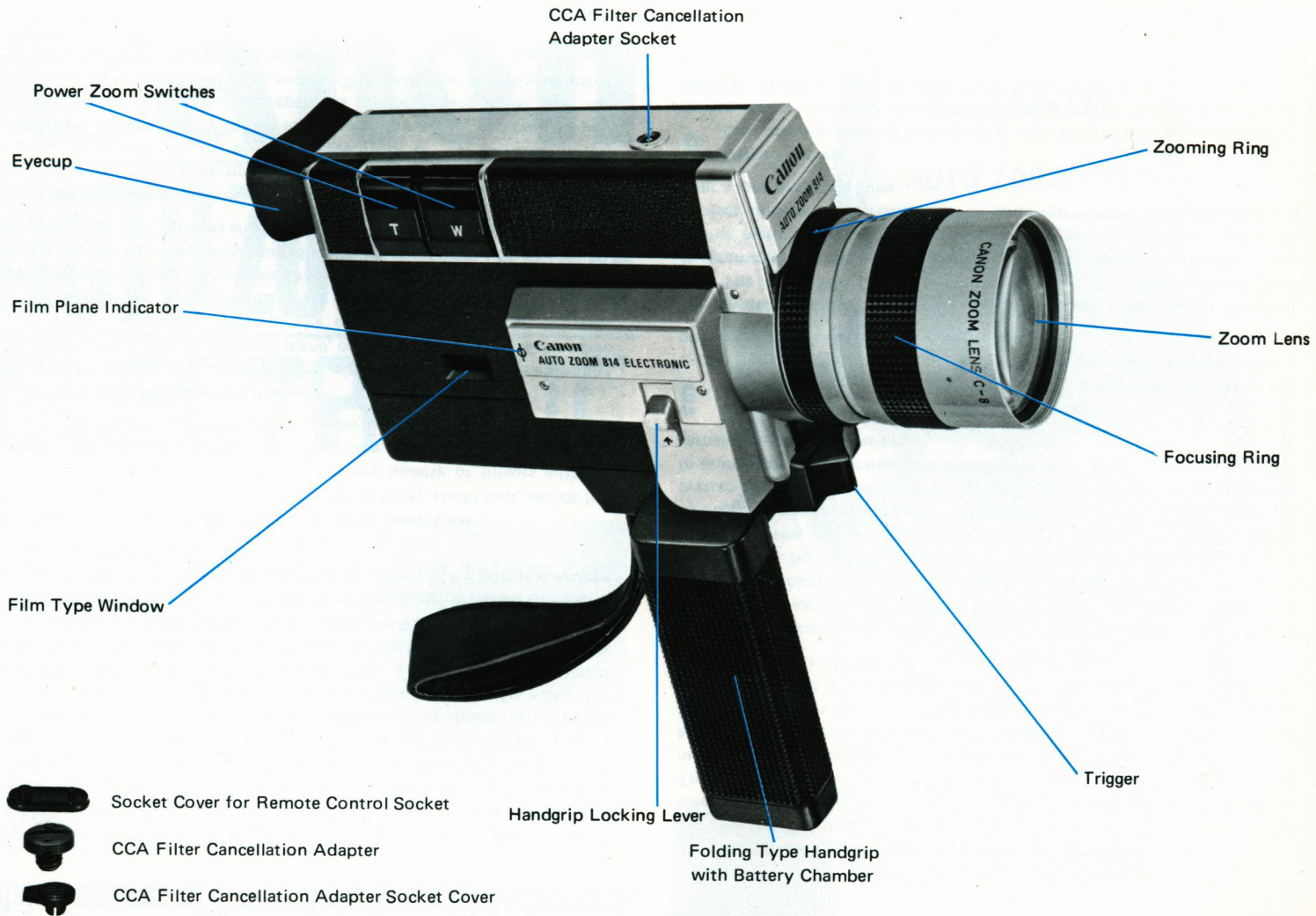
# AUTO ZOOM 814

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# ELECTRONIC

**INSTRUCTIONS**  
English Edition





# Main Features of Canon Auto Zoom 814 Electronic

The Canon Auto Zoom 814 Electronic is one of Canon's best Super 8 movie cameras, originally designed to further improve the world-renowned Canon Auto Zoom 814 with many new devices and original functions added to it. Its mechanisms and materials were the object of the most careful research and with it anyone can be sure of taking nothing but the finest pictures. The lens has been newly developed to obtain high contrast and definition to a degree unparalleled in similar cameras. To make this ideal lens work to the best of its capacities, a Servo EE meter, which performs precise measurement, is adopted in the EE mechanism. Variable shutter control, macro-shooting system, and the flash socket synchronized for single-frame shooting are new useful technological advances developed for this camera. With these, the Canon Auto Zoom 814 Electronic widens the world of 8mm movies.

## 1 Newly Developed Large Aperture 8-times Zoom Lens

The new lens is based on the former 8-times zoom lens, which has been praised everywhere and it improves the quality of images with 11 elements of newly developed glass. Therefore, though it has the world's fastest f1.4 in this class, its resolving power and contrast are outstanding.

## 2 Precise TTL Measurement System

The EE exposure metering system, with the CdS photocell behind the diaphragm and nearest to the focal plane, controls the aperture with a servo meter which accurately measures the incoming light through the lens (TTL). The circuit is not only accurate in response to the light, but very stable against changes of temperature and voltage as it adopts all-silicon transistors. Moreover the minimum diaphragm aperture of f/32 widens the shooting range and increases shooting accuracy.

## 3 Variable Shutter Control

An extremely precise mechanism continuously controls the opening angle of two semicircular shutter leaves from 0° to 150°. With this mechanism, you can enjoy fading techniques very easily, and because you can change the exposure time regardless of the filming speed, you can avoid blur even when shooting sports. The exposure is freely adjusted according to the variable shutter control.

## 4 Bright Viewfinder Measures Distance with Precision

As the aperture of the eyepiece is enlarged, the brightness of the viewfinder has increased and you can see a dark subject very clearly in it. The microprism screen is designed to equal the characteristics of the human eye and allows you to focus most accurately and easily. Moreover, the eyesight adjustment ring has been developed after long research to adapt it to the individual eyesight, and the eyecup allows anybody to find and adjust the eyepiece position that fits best. Also, the quality of the viewfinder itself has been greatly improved.

## 5 Macro-Shooting System Making Super Close-up Techniques at Hand

Macro-Shooting has been a field in which many accessories and difficult techniques were required, but with this camera, close-ups become very simple because it has an 8-times high quality zoom lens with a macro-shooting system and it requires no accessory. You only have to operate the macro-setting knob for the easiest super close-up shooting. This system has contributed to widen the applicability of 8mm movies not only in animation, single frame title shooting in general, but also as a standard camera for use in television.

## 6 Electronic Flash Synchronizing System

An electronic flash synchronizing socket is built-in and coupled to the single frame circuit. Shooting with the electronic flash synchronized is possible with the combined use of accessories.

## 7 Systematization of Accessories to Complete Time Interval Shooting

The automatic timing device S, Interval Timer E and Time Lapse Programmer, enable you to shoot the different stages of motion, a very useful feature when you want to stress the various changes a particular subject undergoes whether it be in swift movements or transformations over a long period of time.

## 8 Other Features

Easy drop-in type of film loading, one electric source powering film driving motor, zooming motor and exposure meter, built-in amplifier to stabilize the electric source, and film-end caution lamp.

# Canon

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# AUTO ZOOM 814

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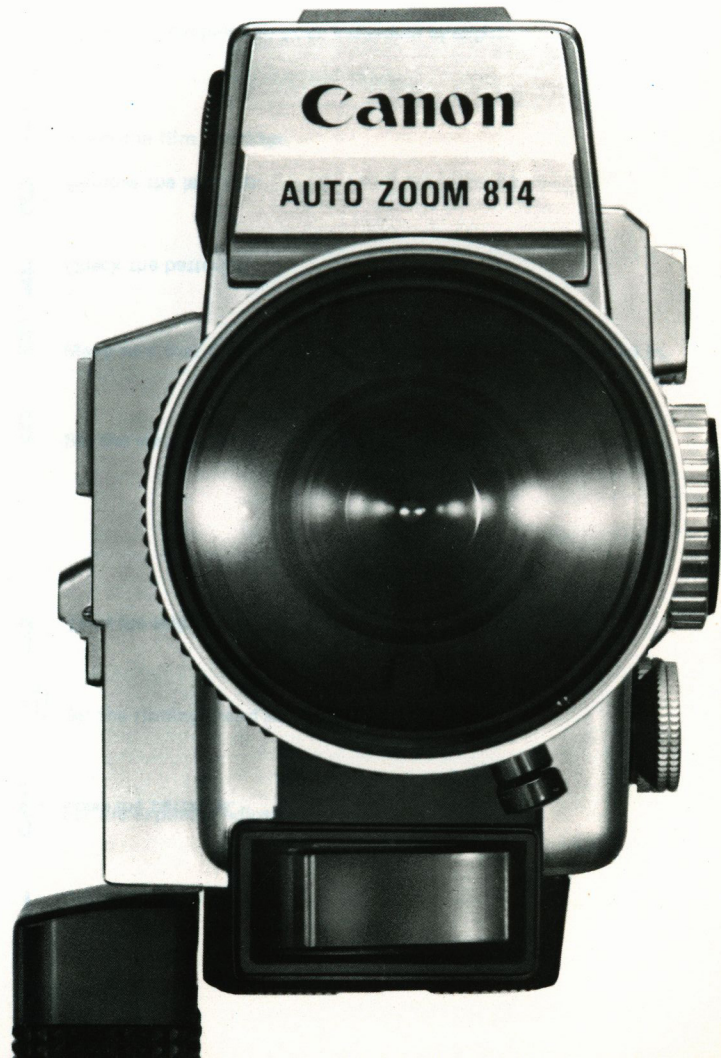
# ELECTRONIC

We are very pleased that you have selected the Canon Auto Zoom 814 Electronic, a wise choice that promises you many years of wonderful photographic experiences.

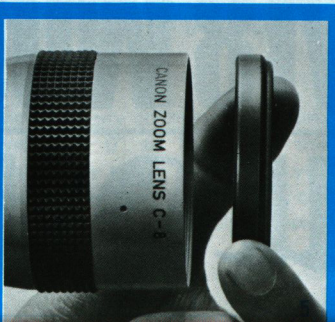
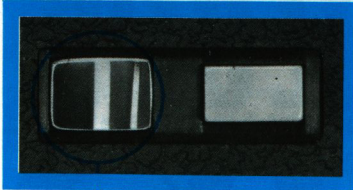
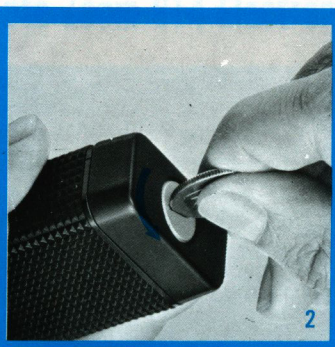
Canon is recognized the world over as the foremost pioneer in the development of photographic equipment of the highest quality.

Whether it is for the home, laboratory, or travelling, you can make the most of your opportunities with this camera.

A whole new world of home movie enjoyment begins for you now.



## Setting-Up



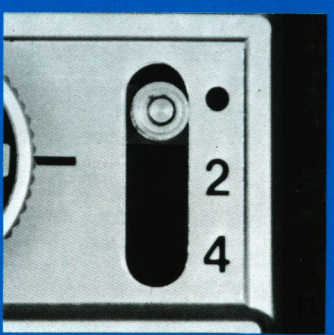
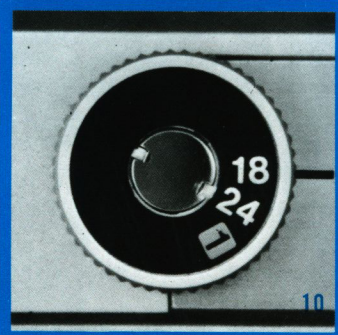
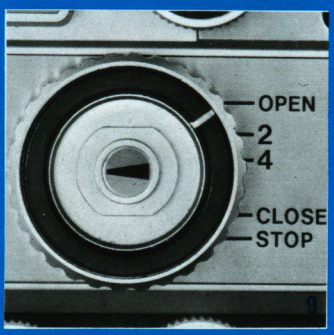
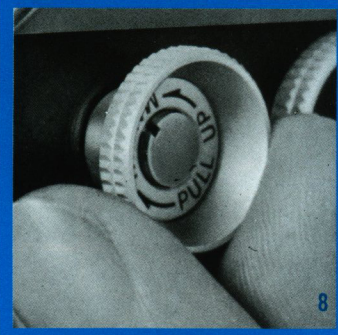
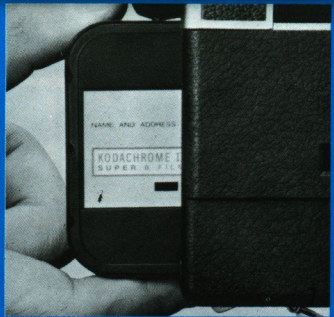
**1** Unfold the handgrip.

**2** Load the batteries.

**3** Turn the switch dial to "R".

**4** Check the batteries.

**5** Remove the lens cap.



**6** Adjust the eyepiece to your individual eyesight.

**7** Insert the film cartridge.

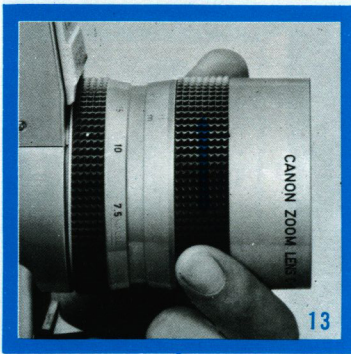
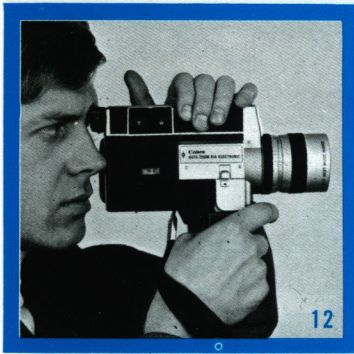
**8** Make sure that the EE/Manual aperture control ring is pushed in.

**9** Set the variable shutter control ring at "OPEN".

**10** Set the filming speed at "18".

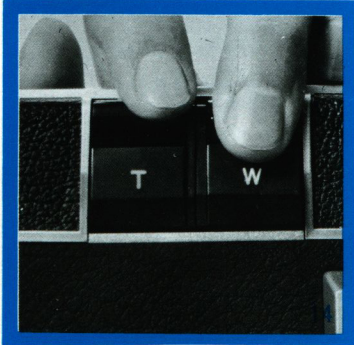
**11** Set the exposure adjustment knob at •.

# Operation

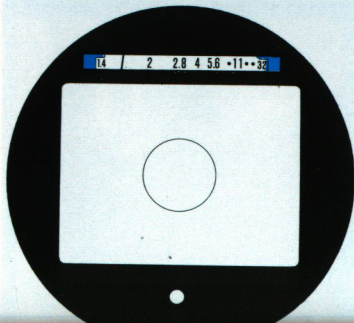
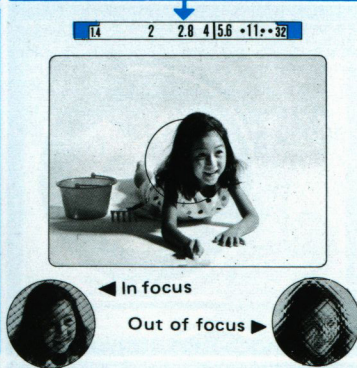


12 Hold the camera and look through the viewfinder.

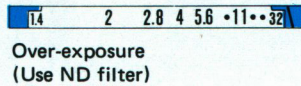
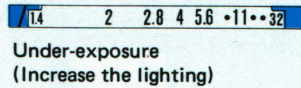
13 Focus the subject at maximum magnification (60mm).



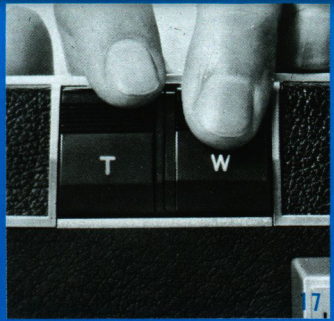
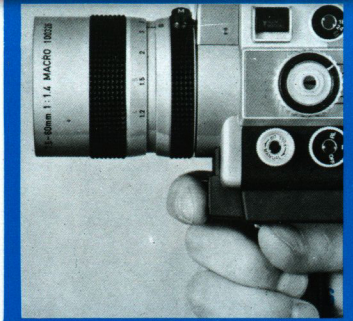
14 Decide the composition of the picture by turning the zooming ring.



15 Pull the trigger slightly to confirm the stability of the exposure needle.

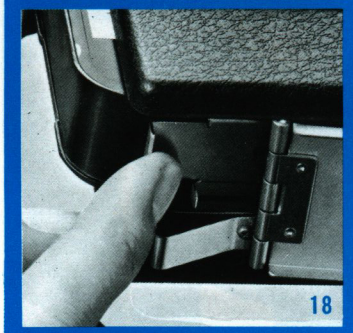






**16** Pull the trigger deeper to start filming.

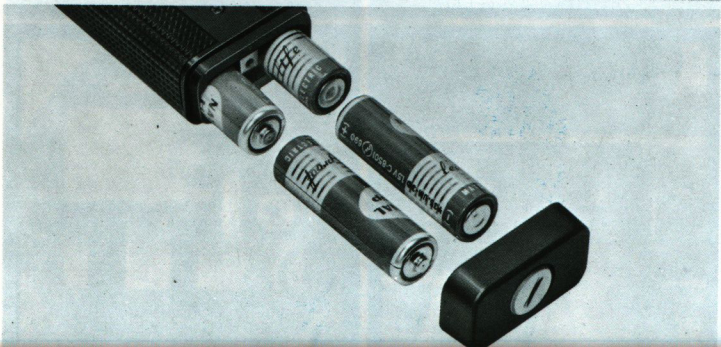
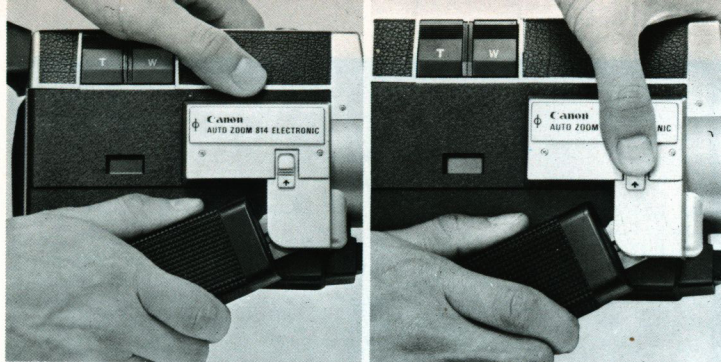
**17** During shooting, zoom in and zoom out according to your needs.



**18** The film-end caution lamp lights up 2.5 feet before film ends. Continue to run the film to the end (50 ft), and pull the cartridge out.

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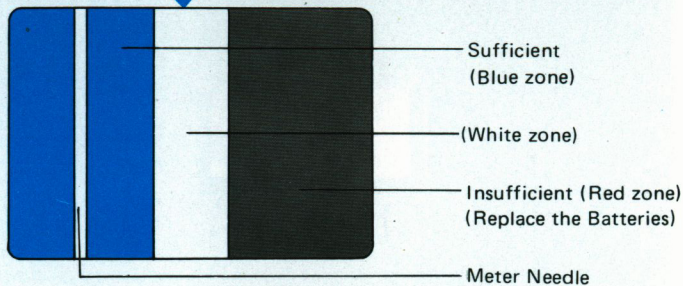
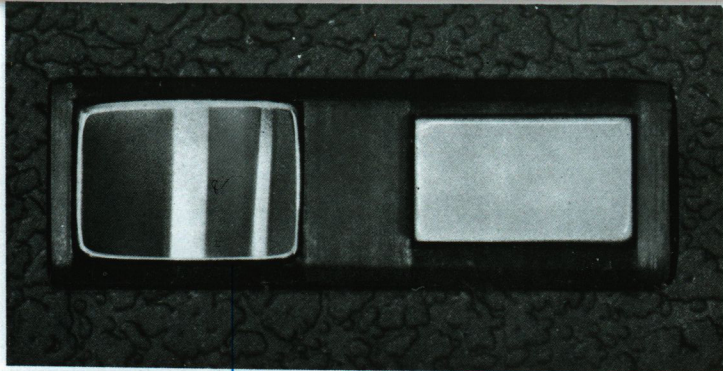
## Setting-Up

### 1 How to Use the Handgrip

The handgrip also serves as battery chamber. It is automatically locked firmly when folded out. To fold it in, push the handgrip lock up and turn it to its former position.

### 2 Loading the Batteries

- Prepare four penlight (Size AA) batteries which will be the source of power for the film driving system, the auto-zooming system, and the exposure meter.
- Remove the battery chamber cover at the bottom of the handgrip by screwing it counter-clockwise with a coin.
- Insert the batteries confirming  $\oplus$  and  $\ominus$  as indicated on the diagram, and, then, close the cover.



### 3 Checking the Batteries

If the voltage is insufficient the camera will not work properly. You should not fail to check the batteries from time to time.

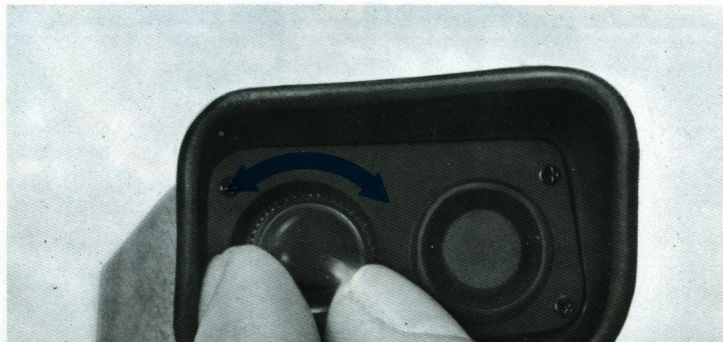
- Turn the switch dial to "R", push the battery check button and read the needle in the check window.
- When the needle points to the blue zone, there is enough voltage and you can use any technique. Single frame shooting, slow-motion and shooting at 24 fps are properly performed when the meter needle is in the blue zone; in the white zone, the voltage is enough only to run the film at 18 fps. When the needle is in the red zone, the voltage is not enough and you should change the batteries.
- Even when the camera works with the needle in the red zone, the voltage is not enough to operate the exposure system properly, so be sure to change them.

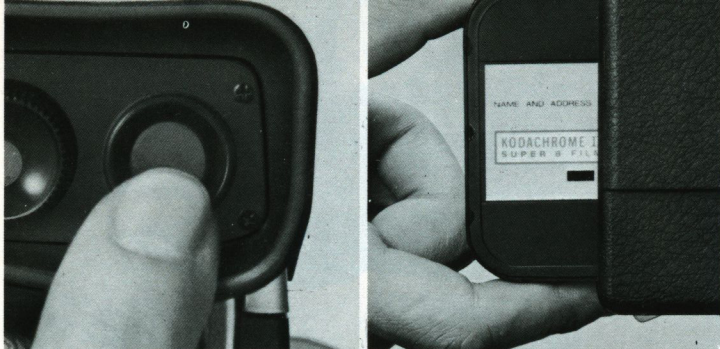
### 4 Changing the Batteries

- Choose four high-quality penlight batteries (Size AA) of the same brand and change them all at the same time.
- When the camera is not in use, keep the switch dial at "OFF" to prevent the camera from undesired operation.
- When the camera is going to be kept unused for a long time, be sure to remove the batteries and keep them in a dry place.

### 5 Eyepiece Adjustment

- Look into the viewfinder while directing the camera to a bright subject. Rotate the eyepiece adjustment ring till you can see the lines of the prism screen clearly in the center of the viewfinder.
- Without adjusting the eyepiece to your individual eyesight, you cannot focus correctly.
- Adjustable range is from  $-3$  to  $+2$  diopters.





## 6 Loading the Film

- Open the rear cover by pushing the opening button.
- Insert the film cartridge with the identification label facing the film type window.
- Close the rear cover by pressing it to its former position. When you hear a click the cover is locked.



## FILM SPEED

The film speed is automatically set with the insertion of a film cartridge and no manual adjustment is required.

The following film cartridges can be used.

Tungsten type:	ASA 25	40	64	100	160	250	400
Daylight type:	ASA 16	25	40	64	100	160	250



## FOOTAGE COUNTER

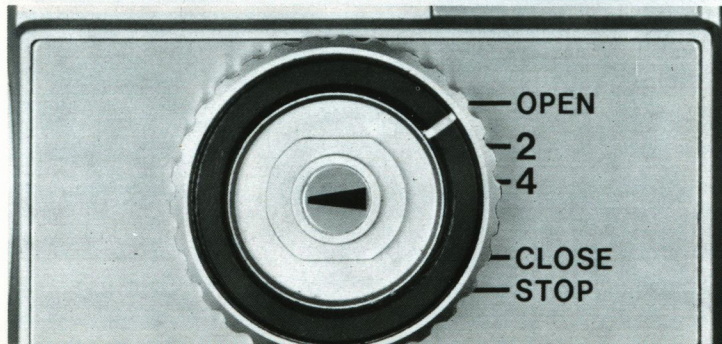
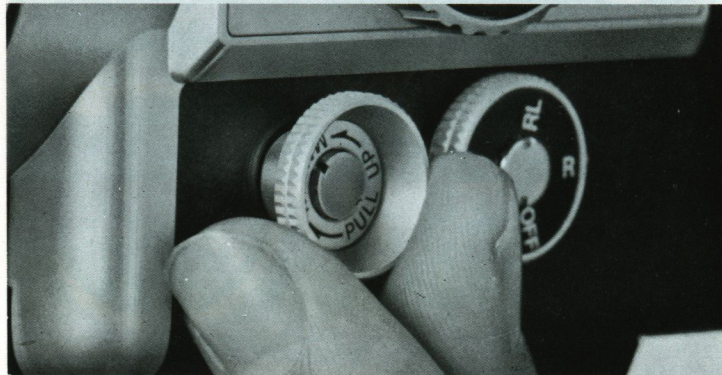
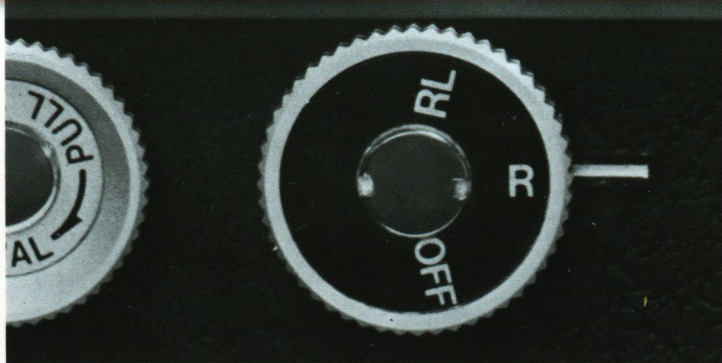
The footage counter indicates the length of film already exposed. When the cartridge is removed, the counter automatically returns to "0".

- When the cartridge is not inserted, the counter does not work.

## FRAME COUNTER

One full turn of the counter equals to 72 frames (1 ft).

To set the frame counter, turn its knob and set the indication needle at "0", and you will see how many frames you have exposed. It is especially useful in fading techniques or in single frame pictures.



## Preparing for Electric Eye Operation

### 1 Set the switch dial at "R".

All the electric circuits are on and the shutter is ready to work. "OFF" is the safety position in which the electric source is cut off to prevent the shutter and the exposure meter from undesired operation. "RL" is for the running lock and for remote control (See page 24).

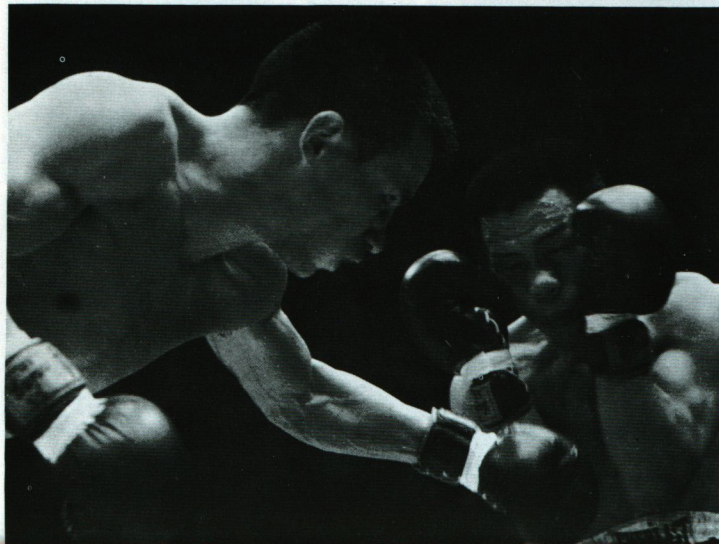
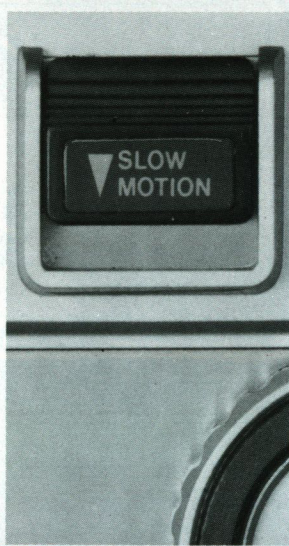
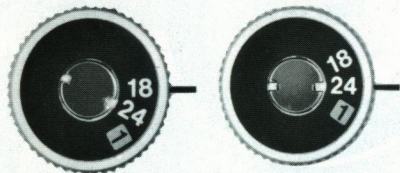
### 2 Make sure that the EE/manual aperture control ring is pushed in.

- If the EE/manual aperture control ring is pulled out, the camera is switched to manual operations and the EE exposure control does not work.

### 3 Set the variable shutter control ring at "OPEN".

The variable shutter control ring is used to adjust the exposure with the variable shutter or to perform fading.

- The variable shutter control lock is released when it is pressed in the direction of the arrow and you can rotate the control ring freely. Then set it at "OPEN" and press the lock back to its former position in order to lock it.
- The variable shutter control can be locked only at "OPEN", "2", and "4".



#### 4 Set the filming speed.

18 fps is the standard filming speed for Super 8 movies. Turn the filming speed dial and set at "18", and, then, you will hear a click.

- Do not film when the dial is set anywhere between numbers. It should be set at the numbers exactly.
- It is most natural to project at 18 fps the film exposed at 18 fps.
- When the film is projected at 18 fps, but was exposed at 24 fps, the motion is slowed down 1.3 times. Use 24 fps when you want the following effects:
  - Making standard sound film
  - Slowing down the motion
  - Lengthening the zooming time
  - Avoiding blur while panning

#### SLOW-MOTION

• The instant slow-motion switch is for high-speed shooting and makes the film run at about 40 fps. When you press down the instant slow-motion switch while shooting at 18 or 24 fps, the filming speed changes at once for slow-motion shooting, and when you release the switch, it returns to the former speed and you can continue taking pictures without interruption. With this system you can easily change the scenes from the standard speed to slow-motion or from slow-motion to the standard speed to obtain more variety.

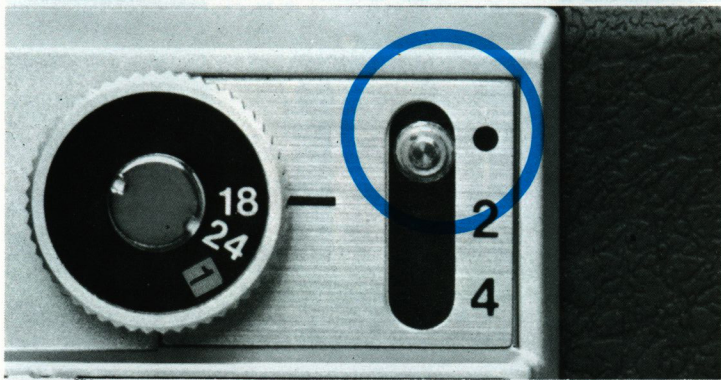
If you want slow-motion pictures from the start, press down the switch first, then pull the trigger; and to stop it, release the trigger first, then the slow-motion switch.

- The instant slow-motion switch works only when it is pressed down. Be careful not to release it while shooting slow-motion.
- The instant slow-motion switch should be pressed down quickly. If it is pressed down slowly, proper exposure is not obtained.
- The instant slow-motion switch is useless in single frame shooting. If the switch is pressed while shooting a single frame, the frame will be over exposed.

In slow-motion, the film is driven about two times faster than ordinary shooting and the exposure time becomes approximately half that of ordinary shooting.

This technique is useful in the following cases:

- To slow down the motion
- To avoid blur during panning or while you are moving



- 5** Set the exposure adjustment knob at "•".  
If the knob is not set at "•" during ordinary electric eye operation, correct exposure cannot be obtained.

- 6** Check the film transport indicator.  
While looking at the film transport indicator, pull the trigger and make the film run a little. If you hear the running sound and see the white point rotate, the film is being driven properly. If the white point does not move, insert the film cartridge again correctly.



## Operation (1)

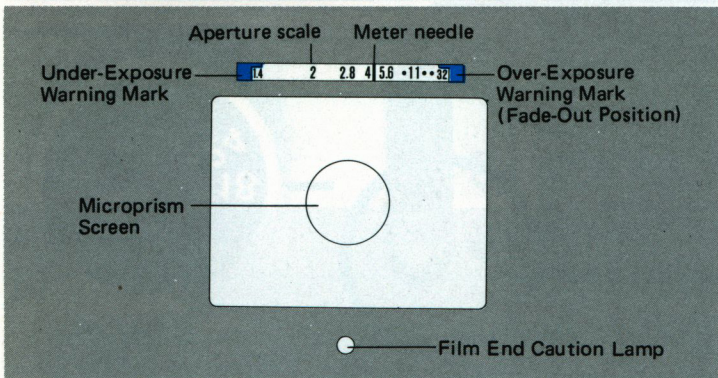
### 1 Holding the camera

Hold the handgrip with your right hand and place the forefinger on the trigger. Focusing and zooming are done with the left hand.

● If the camera is not held firmly enough during shooting, the scenes may look unstable and this will mar your enjoyment while projecting. Be specially careful in telephoto or in zooming. It is advisable to use a firm tripod and the Remote Switch 60 or Remote Switch 3, or to keep your right elbow pressed firmly against your body.

### 2 Looking through the viewfinder

You can get every required information in the viewfinder because the diaphragm scale, the exposure meter needle, the exposure warning marks, the prism screen rangefinder, and the film end caution lamp are built in it.

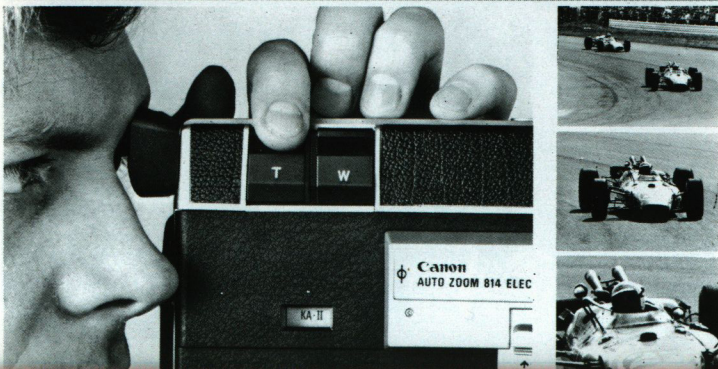


### 3 Zooming

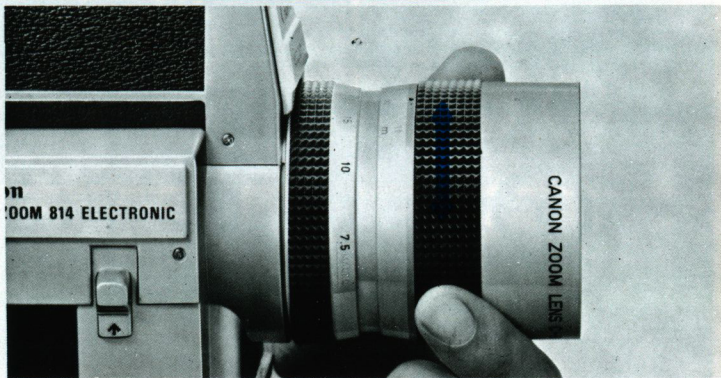
When you rotate the zooming ring manually or push the power zoom button, the magnification of the subject changes. Therefore, you can compose the frame easily and you can add zooming effects to your pictures, that is, continuous change of magnification.

#### POWER ZOOMING

Zooming begins by pressing either of the power zoom buttons. The magnification changes with the button "T" toward the telephoto area, and "W" toward the wide-angle area. When you push the buttons during shooting, zooming effects are easily obtained. The full range of zooming time is about 7 to 8 seconds.







## MANUAL ZOOMING

The power zooming system obtains the zooming effect in a fixed time. If you want a faster or slower zooming effect, or when you aim at a more exact composition, use the manual zooming ring.

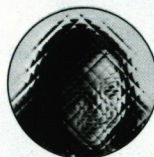
- The viewfinder magnification is life-size when the focal length is at 15mm.
- Effective manual zooming techniques may be obtained by repeated practice. In manual zooming, zoom with the finger placed on top of the manual zooming lever. Do not pull the manual zooming lever up, because it may turn to the macro position.

## 4 Focusing

Rotate the focusing ring while looking through the viewfinder till the subject on the prism screen in the center of the viewfinder can be most clearly seen. You can focus more easily and exactly at the longest focal length.

- Once the subject is focused, it will remain in focus even during zooming. Therefore, it is advisable to focus first at maximum magnification (telephoto) and then return to the required magnification.

14 2 2.8 4 | 5.6 - 11 - ∞ - 23



Out of focus



In focus

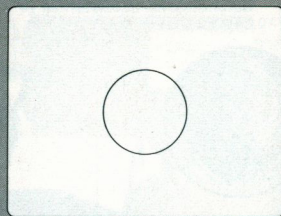
## 5 Composition

The viewfinder is of the single-lens reflex type and has no parallax. All that you see in the viewfinder will be exposed on the film. Decide your composition in the full frame. The framing of the subject can be decided by changing the distance to it or by zooming.

Under-Exposure  
Warning Mark

f/Stop Scale

Over-Exposure  
Warning Mark  
(Fade-Out Position)



## 6 Checking the exposure indicator

The trigger works in two steps.

When you press it lightly, the exposure meter circuit turns on. The meter needle first swings rapidly and then indicates the proper exposure. When the needle is out of the red warning marks, you are ready to shoot.

Pull the trigger all the way to begin filming.

- The exposure meter does not work if the switch dial is set at "OFF". The needle on the left red warning mark means under-exposure, and lighting must be increased. The needle on the right red warning mark means over-exposure, and exposure must be adjusted with the variable shutter control or with an ND filter (page 21).
- When the trigger is not pulled, the needle stays in the right red warning mark.
- When the trigger is pulled while the switch dial is set at "RL", the meter is working continuously and the needle moves according to the brightness of the subject.

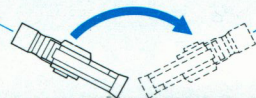
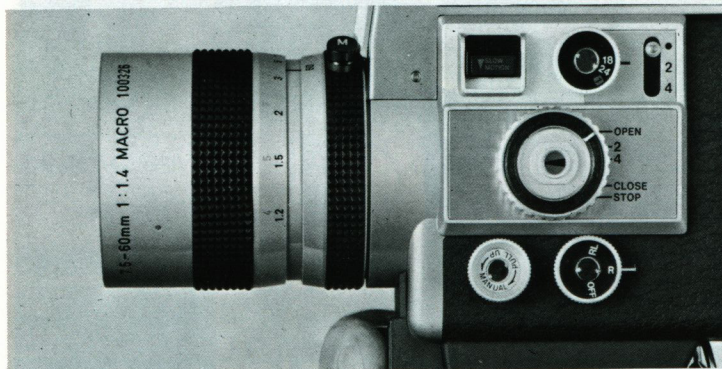
## 7 Pulling the trigger completely

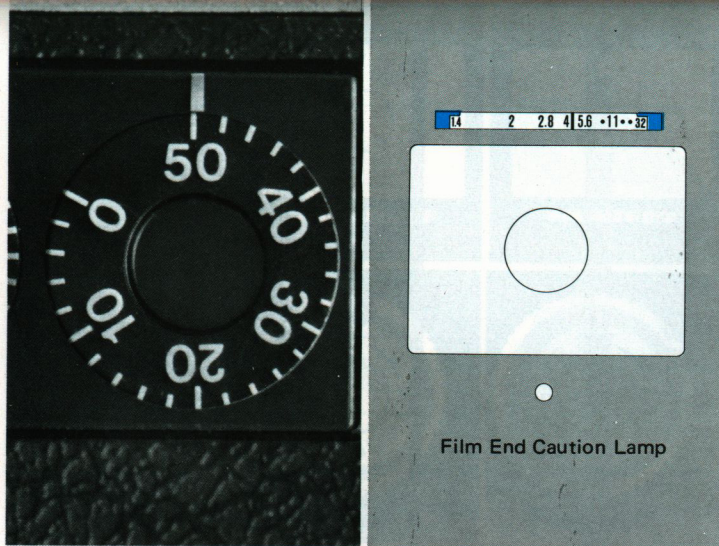
When you pull the trigger completely, the film begins running and you actually start shooting. Do not forget that zooming and panning techniques add variety to your pictures.

### PANNING

Panning is employed when shooting a scene from one position to another by moving the camera around horizontally to make a continuous shot over a wide area in one sequence.

- Do not move the camera too rapidly in any direction, particularly up or down. Use of a tripod is recommended.
- Panning shots usually start from subjects of less importance and move on to the most important subject where they end running the film longer through the last sequence.





Film End Caution Lamp

## 8 End of shooting and removing the film cartridge

A Super 8 cartridge contains 50 feet of film running one way. With this camera, when 47.5 feet of film have been exposed, an orange caution lamp lights up at the bottom of the viewfinder to show that after 2.5 feet film will end. When the film end caution lamp lights up, take note of how much film remains and run it the full 50 feet. Then open the rear cover and remove the film cartridge.

- When removing the cartridge, pull the lever under the cartridge guide and you will be able to take it out quite easily.
- When the full 50 feet of film have been exposed and film has stopped running, you will notice the change of the running sound heard before. Confirm it by means of the footage counter.
- The exposed film has a cut-out on its perforations and is easily distinguished from the unexposed one.
- Send the exposed film promptly to an authorized processor.

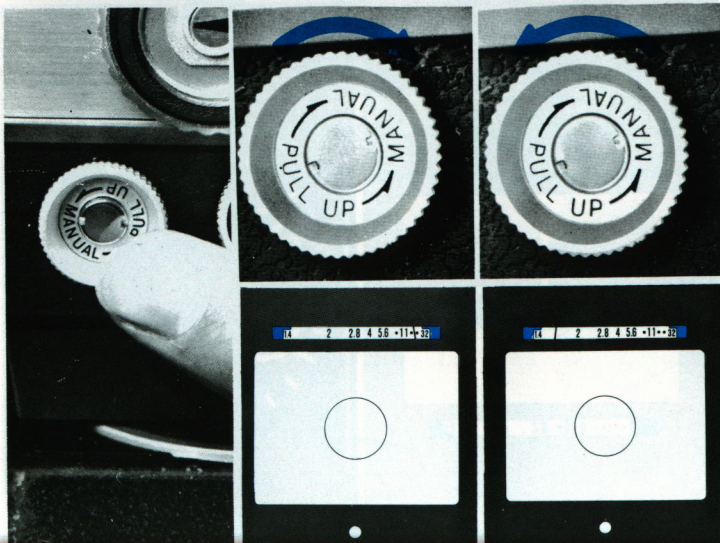


## 9 Changing film halfway

A Super 8 movie camera uses a cartridge and you can exchange cartridges of different types of film even when a cartridge is only halfway. By exchanging the cartridges halfway, you lose only 2 inches of film or less, including behind and before the naked part of film in the exposure window of cartridge.

Precautions to take when changing the cartridges halfway.

- To prevent the last scene from undesired exposure, run the film vacantly a little before changing the cartridge.
- When you change cartridges the footage counter automatically resets at "0". So we advise you to read the footage counter before removing and write it down on the removed cartridge as a reminder.
- The film end caution lamp is combined to the footage counter and does not turn on if a half-used cartridge is loaded. Confirm the film end with the footage counter or the film driving sound.

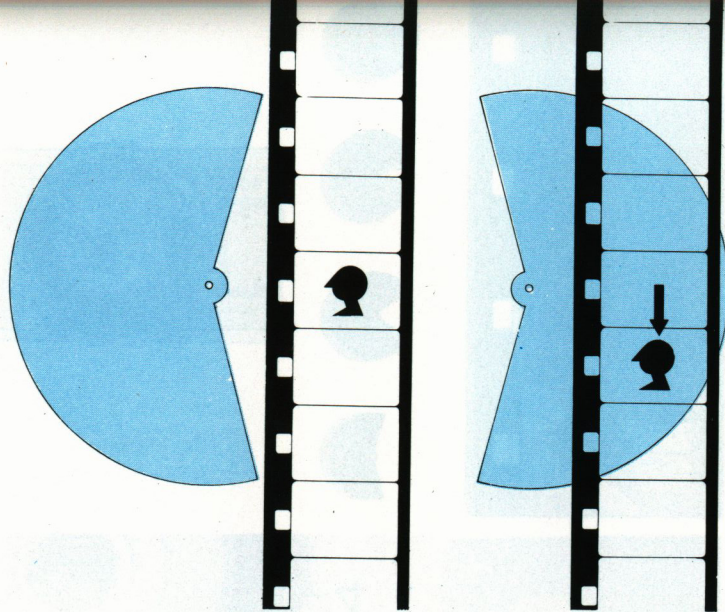


## Operation (2)

### Manual Aperture Control Shooting

When the EE/manual aperture control ring is pulled out, the EE mechanism is released and you can set the aperture manually. Turn the EE/manual aperture control ring while looking at the exposure indicator in the viewfinder in order to decide the exposure. This method is specially useful when you take a subject against the light, or when you want to emphasize something with a high-key or low-key effect. When you push in the EE/manual aperture control ring, you can once more perform EE shooting.

- When the EE/manual aperture control ring is pulled out, the indicator in the viewfinder moves to the left.
- When the EE/manual aperture control ring is turned counterclockwise the aperture closes, and it opens when you turn it clockwise. When the needle is on the red warning mark in the left edge or in the right edge, it does not move anymore even when the ring is turned in the same direction. In such a case, turn the ring in the opposite direction and set it at the desired f/stop.
- Even if the EE/manual aperture control ring is excessively turned, it does not affect the exposure meter nor the indicator.
- When you change filming speed from 18 fps. to "SLOW MOTION" in manual aperture control, stop shooting and open the aperture by one f/stop. Then start slow-motion shooting.
- In manual aperture control when shooting with an electronic flash, it is recommended to select the aperture between f/5.6 and f/11 by adjusting the light intensity, and to stand at a distance of more than 1m (3.3 ft.) from the flash to the subject. Then you will get excellent results.



The film stops for exposure

An advance of the exposed frame takes place

## Variable Shutter Control

The shutter of an 8mm movie camera is coupled to film advance. The exposure is decided by the rotation of two semicircular leaves at a given angle. For every full turn, one frame is exposed and advanced. That is, when the open part of the leaves faces the aperture gate the film stops for exposure, and when the leaves shut the aperture gate the film advances. Therefore the exposure changes according to the rotation speed and the angle of opening of the leaves. The rotation speed equals the filming speed. The angle of the leaves is called variable shutter angle. This camera has a built-in mechanism to control the shutter angle, with which you can control the exposures on the film. And you can also perform fading techniques with it.

## Adjusting the Exposure with the Variable Shutter Control

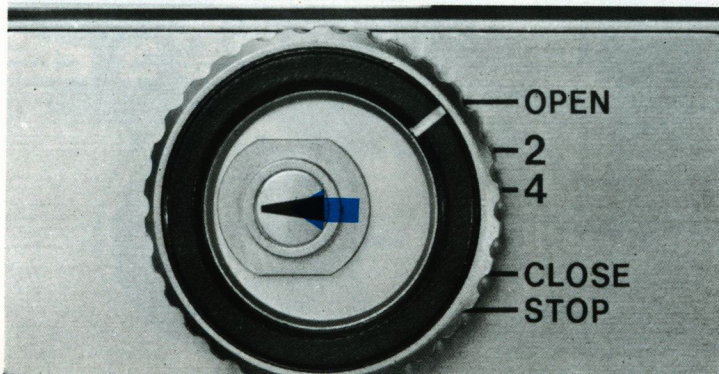
The filming speed of an 8mm movie camera can not be changed at will, because its filming speed is normally decided to match the projection speed of a projector. Therefore the exposure of an 8mm movie camera is generally established by the aperture control. Then the variable shutter is developed to control the exposure with the shutter itself as well as with the aperture. This means that the exposure is adjusted by means of the shutter angle at the same filming speed.

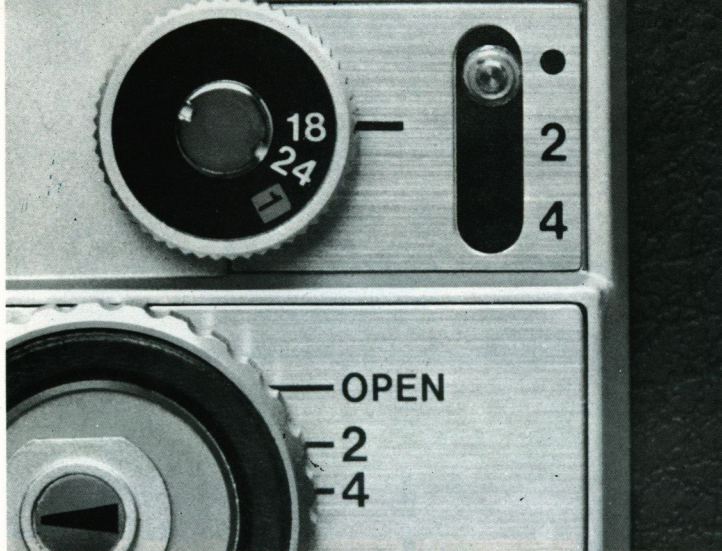
In the Canon Auto Zoom 814 Electronic, the shutter angle is variable from 150° to 0° continuously. A four-step scale is marked on the body to make exposure control and fading techniques easier.

In ordinary shooting the variable shutter control is set at "OPEN". When necessary, the exposure can be controlled by rotating the variable shutter control ring as much as required toward the "CLOSE" position.

## How to Use the Variable Shutter Control Ring

- 1 Release the variable shutter control lock by pressing it in the direction of the arrow.

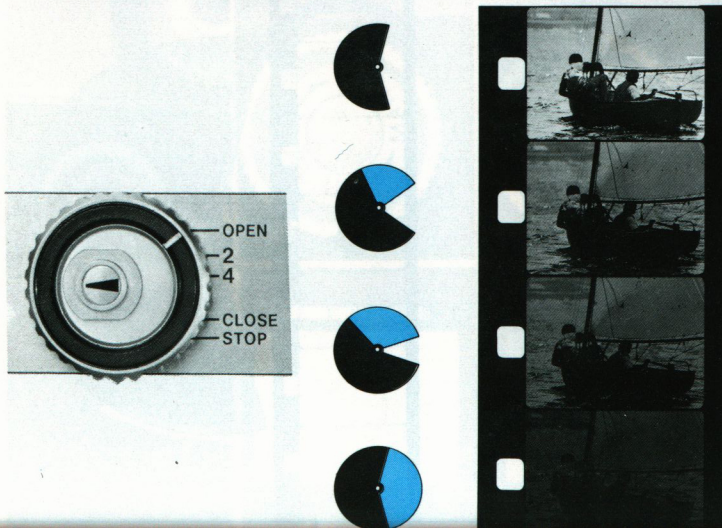




- 2 Rotate the variable shutter control ring. When it is set at "2", the diaphragm opening is half as much as when set at "OPEN", and when set at "4", the exposure opening is 1/4, regardless of the filming speed.
- 3 Use the variable shutter control when the subject blurs, because it is moving too fast, or because there is too much light to be measured by the built-in exposure meter.
- 4 When you use the variable shutter control in EE operation, set the exposure adjustment knob beforehand at the same number "2" or "4" according to the case.
  - When the variable shutter control ring is at "OPEN", set the exposure adjustment knob at "•".

#### RELATIONS OF THE VARIABLE SHUTTER CONTROL AND THE EXPOSURE TIME

Variable Shutter Control	Open Angle	Exposure Adjustment Knob	Exposure Time (Each Frame)	
			18 fps.	24 fps.
OPEN	150°	•	1/43 sec.	1/58 sec.
2	75°	2	1/86 sec.	1/115 sec.
4	37°	4	1/173 sec.	1/230 sec.
CLOSE	0°	—	closed	

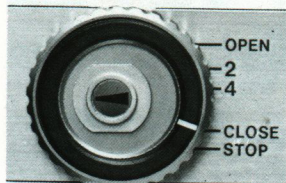


## Fading Effects

### FADE-OUT

By rotating the variable shutter control ring from "OPEN" to "CLOSE" while the film is running, the shutter angle becomes narrower and the degree of exposure decreases accordingly until the scene dissolves gradually into complete darkness when it arrives at "CLOSE". This effect is called a fade-out.

When you continuously rotate the control ring to "STOP", the film stops automatically to prevent from running in vain though the trigger is still pulled.

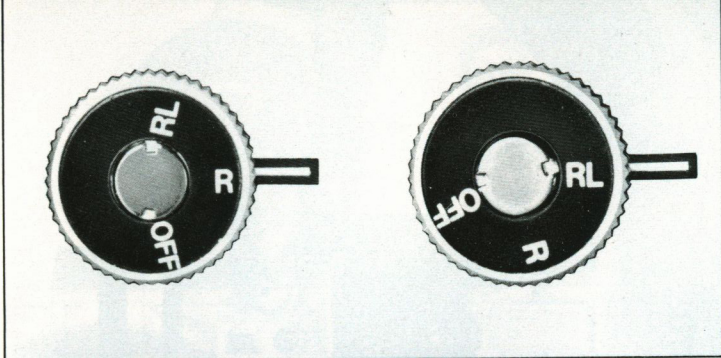


## FADE-IN

By gradually rotating the variable shutter control ring from "STOP" through "CLOSE" to "OPEN" while pulling the trigger, incoming light gradually increases, and fade-in shooting can be performed.

- Fading techniques are very important when changing scenes, or to introduce them or end them. Fade-in is generally used at the beginning of films and fade-out at the end. When fading effects are used in the middle of a movie, they usually describe a great change or passing of a long period of time, so they should not be used too often. In general, a fade-in, or a fade-out when changing scenes is advisable, if it lasts within 2 to 3 seconds, and within 4 to 6 seconds at the introduction or the end.





## Variable Use of the Shutter

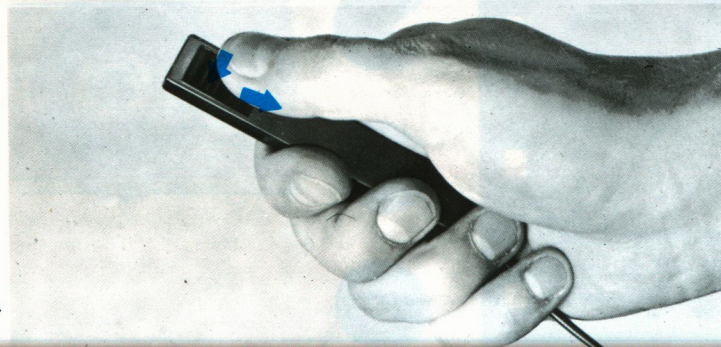
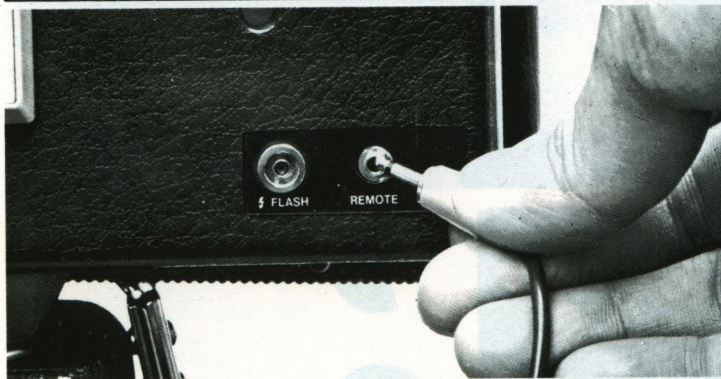
### ■ Running Lock

The running lock is for continuous shooting. Set the switch dial at "RL" and pull the trigger. The shutter is locked at the running position and the film keeps running even if you remove your hand from the trigger. When releasing the lock, return the switch dial to "R".

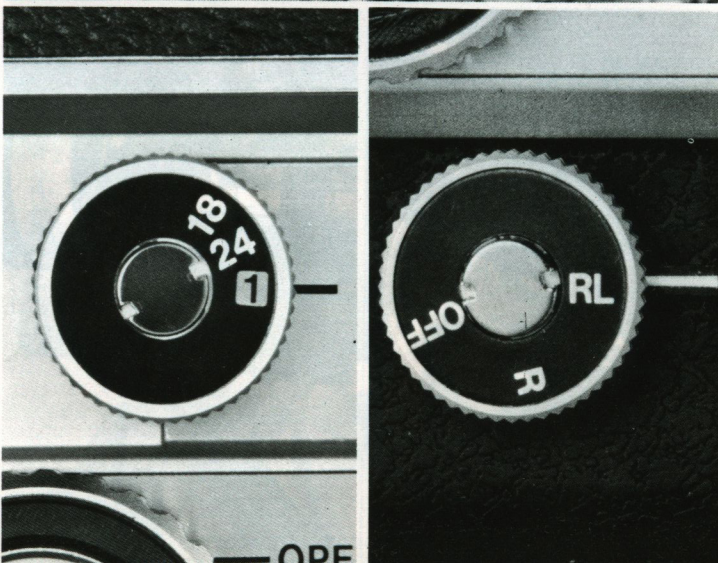
### ■ Remote Control

Remote control EE shooting is possible with the joint use of the Remote Switch 60 or the optional Remote Switch 3, and it is convenient when you set the camera far from you. The Remote Switch 60 has a 60cm cord (2 ft) for general shooting or to avoid blur in single frame shooting. The cord of the Remote Switch 3 is 8 meters (26 ft) long.

- 1 Set the switch dial of the camera at "OFF" and connect the plug of the remote switch to the remote control socket on the camera.
- 2 Then set the switch dial at "RL" and pull the trigger the same as with the running lock. You can set the switch dial while pulling the trigger.
- 3 When you push down the switch button of the remote switch, film starts running, and when you slide it in the direction of the arrow while pressing it, it will be set the same as a running lock.
- 4 If you use a remote switch when shooting with manual aperture control read out the proper f/stop number in the viewfinder and set the aperture by pulling out the EE/manual aperture control ring and then rotating it.
- 5 When you remove the remote switch from the camera, be sure to turn the switch dial of the camera to "R" or "OFF" beforehand, otherwise the camera will start shooting and you will waste the film.
  - When the remote switch is not being used, be sure to set the switch dial at "OFF" to prevent the batteries from being spent. Be sure to be properly prepared and ready for the actual operation.
  - Check the conditions of the subject carefully before you operate the camera from a distance.
  - If your eye is not against the eyepiece, be sure to attach the eyepiece cover.



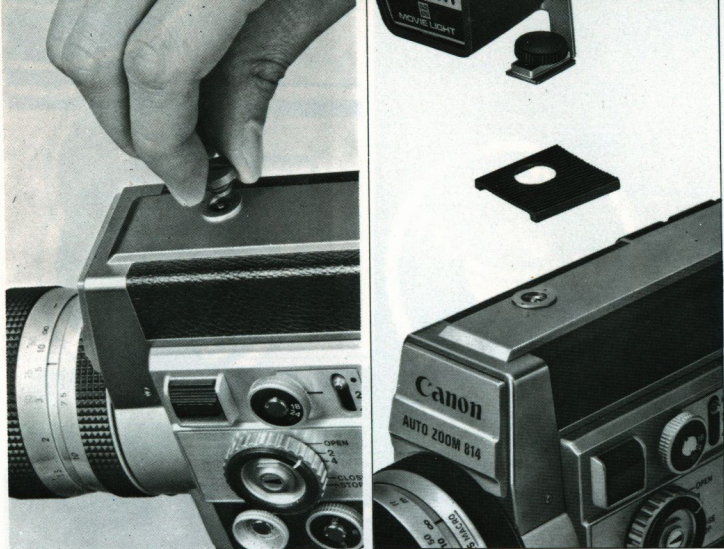




#### ■ Single Frame Shooting

The Canon Auto Zoom 814 Electronic has a magnetic shutter release mechanism, and can perform perfect EE shooting including single frames when used together with the remote switch which is used instead of the cable release.

- Single frame shooting can be performed as follows;  
Set the filming speed dial at "1", connect the Remote Switch 60, or the Remote Switch 3, to the remote control socket in the camera, turn the switch dial to "RL", and press the remote switch button down.
- If the switch dial is not set at "RL", correct exposure cannot be obtained.
- In case of single frame shooting without remote switch, set the filming speed dial at "1", and turn the switch dial to "R". Decide the exposure manually, and pull the trigger.

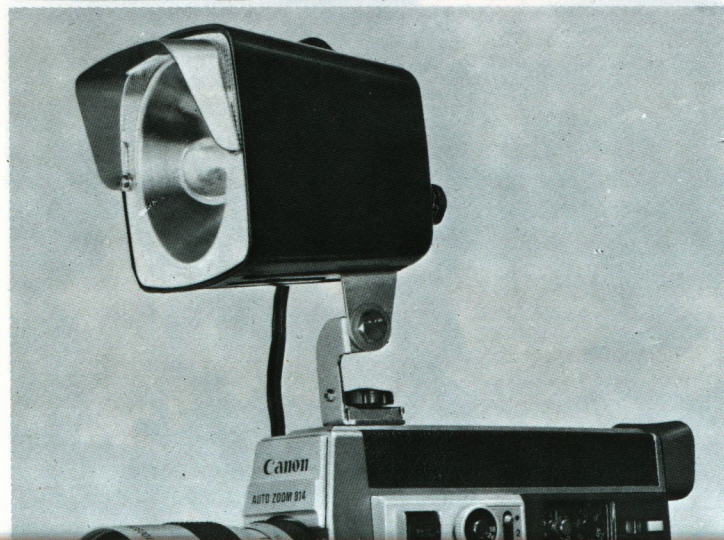


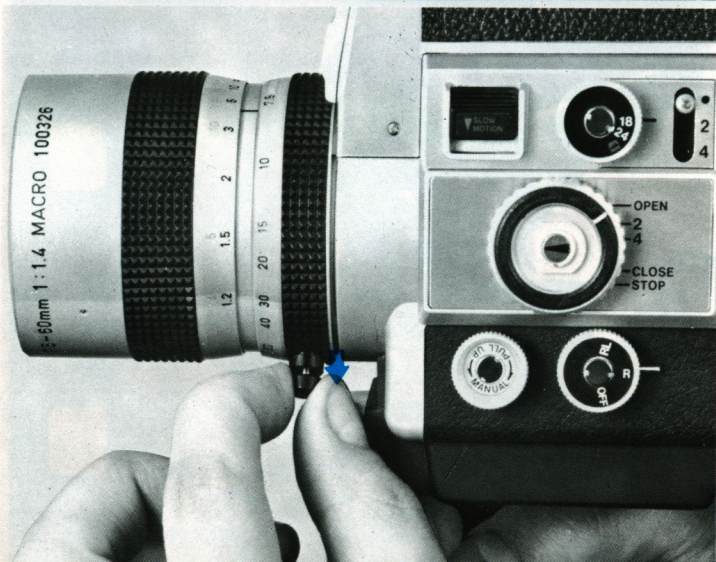
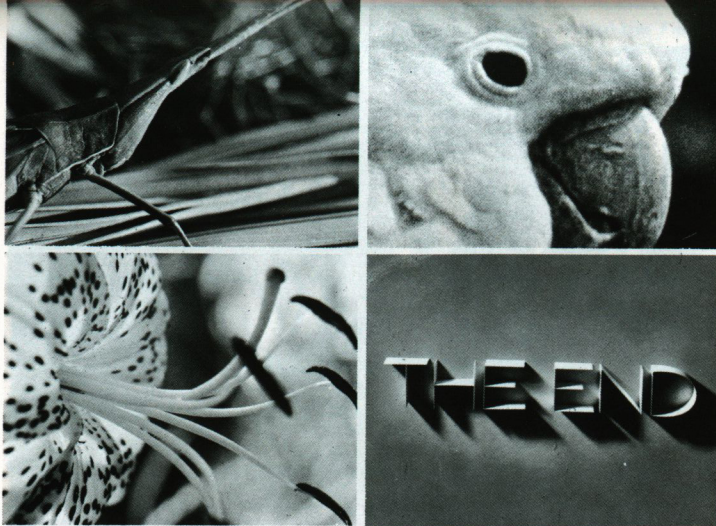
## Cancelling the CCA Filter and Taking Pictures in Artificial Light

**1** A Super 8 camera uses tungsten (artificial light) type of color film and has a built-in CCA filter to adjust the color temperature for daylight or "blue lamp" light.

**2** The CCA filter has to be cancelled when taking pictures with artificial light. To cancel the CCA filter, screw its cancellation adapter at the bottom of the camera into the socket on the top of the camera, or a lighting unit in its stead.

- Connect the lighting unit firmly to the camera placing the special rubber mat between them. It is advisable to turn the camera itself in the final steps of this action.
  - When using a high power movie light, avoid getting closer than 1 meter (3.3 ft) to avoid burning the subject.
  - It is advisable to use a pair of floodlights instead of a powerful lighting unit.
  - Do not use the CCA filter cancellation adapter socket as a tripod socket.
- 3** When a cartridge of daylight type film is inserted, the CCA filter is cancelled automatically.





## Macro-Shooting

The Canon Auto Zoom 814 Electronic has a built-in macro-shooting system and you can easily take super close-up pictures without using any accessories. Make use of it to shoot small insects, animals, flowers, or titles.

- 1 Normally, the zooming ring cannot be turned beyond 7.5mm. To use the macro range, pull out the zooming lever and you will be able to rotate the zooming ring to the macro range.
- 2 Look through the viewfinder and focus on the subject. As it is rather difficult to focus with the focusing ring, adjust focus by rotating the zooming ring within the area of "MACRO".
- 3 Blurs are especially unpleasant in macro pictures. It is advisable to keep the camera steady by mounting it on a copy stand or on a tripod and to use the Remote Switch 60 in these cases.
  - Be sure to attach the eyepiece cover to prevent reverse incoming light when the eye is not against the eyepiece. Otherwise, direct light may enter from the eyepiece and cause ghosts in the film.
  - In macro shooting, it is advisable to select the aperture between f/5.6 and f/11 by adjusting light intensity.



**4** With the focusing ring set at infinity ( $\infty$ ), you can get as near as 165mm (6-1/2") from the film plane indicator to the subject and 24mm (15/16") from the tip of the lens. Picture area is 33 x 45mm (1-19/64" x 1-49/64").

With the focusing ring set at 1.2m, you can get as near as 168mm (6-5/8") from the film plane indicator to the subject and 27mm (1-1/16") from the tip of the lens, and picture area is 35 x 48mm (1-3/8" x 1-7/8").

**5** In macro-shooting, depth of field decreases considerably, and it is most advisable to focus carefully and exactly, and to set the diaphragm opening as small as possible with the help of brighter lights.

● Do not use a strong movie light, because it could burn the subject being filmed.

**DEPTH OF FIELD WHEN THE SUBJECT IS AT 16.5cm (6.50") FROM THE FILM PLANE INDICATOR**

Diaphragm Aperture	Depth of Field	Diaphragm Aperture	Depth of Field
1.4	16.4 ~ 16.7cm (6.46" ~ 6.57")	8	15.8 ~ 17.5cm (6.22" ~ 6.89")
2	16.3 ~ 16.8cm (6.42" ~ 6.61")	11	15.5 ~ 18cm (6.10" ~ 7.09")
2.8	16.3 ~ 16.9cm (6.42" ~ 6.65")	16	15.2 ~ 18.8cm (5.98" ~ 7.40")
4	16.1 ~ 17cm (6.34" ~ 6.69")	22	14.8 ~ 20.1cm (5.83" ~ 7.91")
5.6	16 ~ 17.2cm (6.30" ~ 6.77")	32	14.3 ~ 23.5cm (5.63" ~ 9.25")

From the Tip of  
the Lens to the  
Subject

2.4 cm (1")



30 cm (1')



150 cm (5')



Zoom Up



## Combination Use of Macro-Shooting and Zooming Effect

In macro-shooting, the zooming ring is used as focusing ring. Focus by turning the zooming ring in the macro range indicated by the yellow line. Focused range moves between the nearest focal distance in macro-shooting and the focused distance set beforehand with the focusing ring.

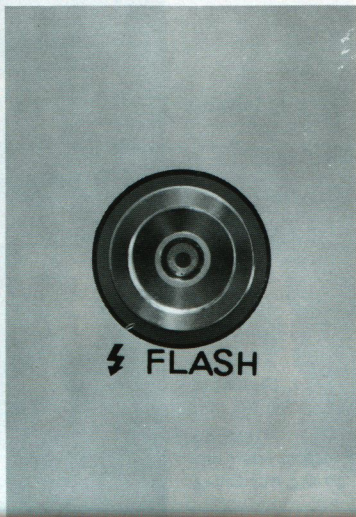
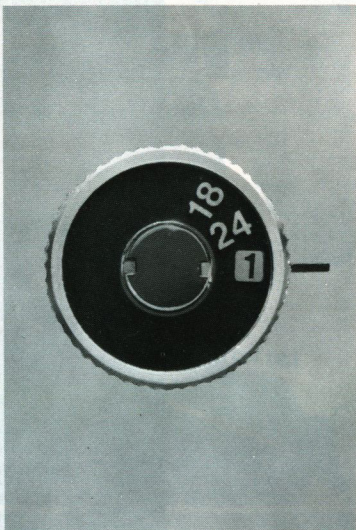
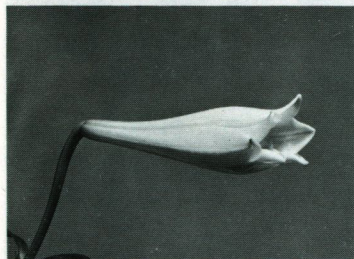
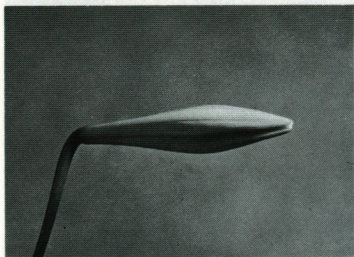
For instance, if you turn the zooming ring after setting the focusing ring at 1.5m (5 ft), focused range moves from the nearest distance to 1.5m. If the zooming ring is turned further, the macro-shooting mechanism is released and focal distance is set at 1.5m.

When zooming is continued, the subject at the distance of 1.5m is zoomed up.

If the focusing ring is set at infinity, the focused range moves from the macro range to infinity and after the macro-shooting mechanism is released at the focal distance of 7.5mm, you can change from macro-shooting to zooming.

With this method, you can change scenes from the closest subject to others and zoom them up, and it is effective in making the situation of the subjects clear or in changing the pattern of the scenes.

This technique adds an outstanding effect to ordinary zooming.



## Electronic Flash Pictures

This camera has a built-in flash synchronization socket (X contact). When you shoot titles or in single-frame shooting for animation films, an electronic flash unit can be used. When you use an electronic flash, the aperture must be controlled manually. The proper f/stop number is calculated by dividing the guide number by the distance between the light source and the subject. Set the proper f/stop according to the guide numbers as listed in the instruction book or on the calculation panel of the electronic flash. Be sure to use the same unit of measurement for both the guide numbers and the shooting distances. For example, if the shooting distance is in feet, the guide number should be in feet. Do not mix meters and feet.

- It is recommended to select the aperture opening between f/5.6 and f/11 to get the best results.
- Set the variable shutter control ring at "OPEN". Otherwise, you will not be able to shoot with synchronized flash. Shutter speed is approximately 1/43 second, but actual exposure is the same as the flash period of the electronic flash.

When using an electronic flash unit, be specially careful in fixing the exposure setting, because the still camera has a light requirement for one single picture, whereas the 8mm cine camera requires the same light intensity from the flash unit for successive frames.

- A discharge tube of an electronic flash is said to last about 5,000 operations, that is, about 1.5 cartridges of Super 8 film. Keep this in mind in single frame shooting.
- In electronic flash pictures, it is not necessary to cancel the CCA filter.

# Time Control and Interval Shooting

Time control and interval shooting are useful when shooting continuous changes of the subject for a long time. For example, it can be used to keep a record of the growth of butterflies and cicadas or for analyzing an operation to standardize work. The Canon Auto Zoom 814 Electronic has developed timers for unmanned control. For this kind of photography, a running lock is employed and the timer is inserted into the remote control socket.

Three kinds of timers are available, the Interval Timer E, the self Timer E and the Time Lapse Programmer. (Time Lapse Programmer is available upon special order only.)

## Recording the stages of motion

Taking pictures frame by frame at fixed intervals you can keep a record of the different stages of motion. The shooting time can be lengthened or shortened so that when the film is projected, the movement of the subject changes. This creates an unnatural effect as when shooting at lower speeds.

By using the Interval Timer E the time can be changed freely within one minute. For longer than one minute, use the Time Lapse Programmer.

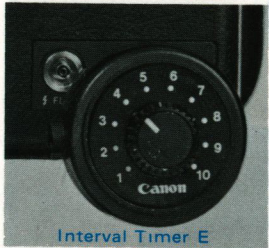
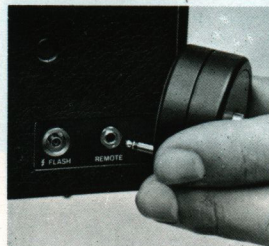
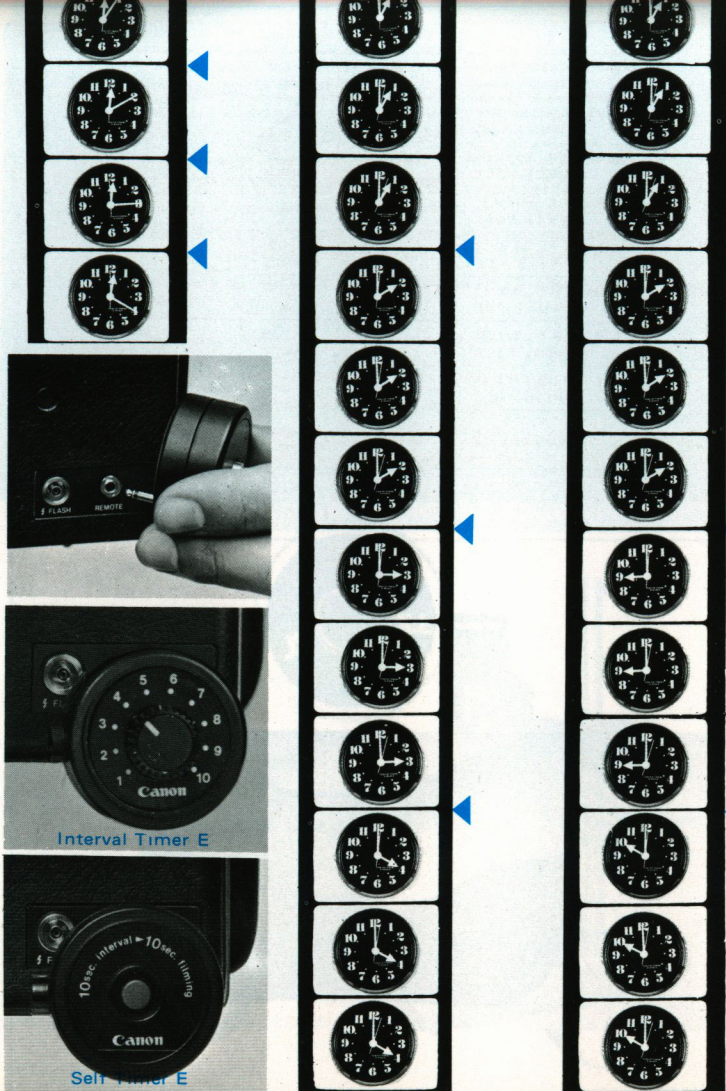
### ■ Self Timer E

Self-timer shooting can be performed with the timer attached to the remote control socket.

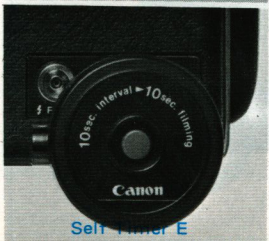
Shooting continues for ten seconds after 10-second interval.

◀ Ordinary Interval

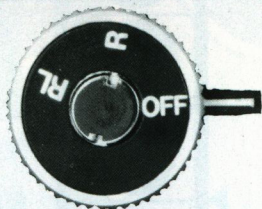
● Indented Interval



Interval Timer E



Self Timer E



Type	Focal Length	Distance Scale	Distance from Film Plane to Subject	Picture Size
58mm Close-Up Lens 450	7.5mm	$\infty$	609mm (2')	339 x 251mm (1'11-3/8" x 9-7/8")
		1.2mm (4')	475mm (1'6-3/4")	224 x 166mm (8-7/8" x 6-9/16")
	60mm	$\infty$	609mm (2')	45 x 33mm (1-3/4" x 1-5/16")
		1.2mm (4')	475mm (1'6-3/4")	30 x 22mm (1-3/16" x 7/8")
58mm Close-Up Lens 240	7.5mm	$\infty$	394mm (1'3-1/2")	179 x 132mm (7-1/16" x 5-1/4")
		1.2m (4')	353mm (1'1-7/8")	138 x 102mm (6-7/16" x 4-1/16")
	60mm	$\infty$	394mm (1'3-1/2")	24 x 17mm (15/16" x 11/16")
		1.2m (4')	353mm (1'1-7/8")	18 x 13mm (3/4" x 1/2")

## Notice

- When you shoot without placing your eye on the eyepiece, as in remote control, titling, or panning on a tripod, be sure to put the viewfinder cover on the eyepiece to prevent light from coming through it.
- When the camera is not to be used for a long time, take the carrying case and keep it in a place where it will be protected from dust and moisture. Do not store the camera near chemicals such as naphthalene. Be sure not to leave the batteries in, and remember it is always better for the camera if it is used at times rather than to be stored for a long time.
- Blow the dust off the lens with a blower brush or with a soft brush. If accidentally fingerprints were printed on it, wipe them off softly with silicone cloth. Do not wipe strongly, or the lens may be hurt.
- If the camera is dropped in sea water, usually it is impossible to repair, almost without exceptions. In such a case, ask a Canon service station.
- When carrying the camera or when storing it, be sure to keep the switch dial at "OFF".
- High temperatures are very harmful to a camera and in hot climates you should always keep this in mind when you leave it inside a car or other places in the open.

## Accessories

### Close-Up Lenses C-8 (exclusive for 8mm movie cameras)

The Canon Close-Up Lenses C-8 are exclusive for 8mm movie cameras and are used to obtain zooming effects in close-up shooting. When attached to the lens ring, you can enjoy zooming and close-ups by a simple turn of the zooming ring. Complete compensation for chromatic aberration is provided and, thus, it expands the range of movie making to titling, copy work, and shooting flowers or insects. You can, of course, observe the changing angle



Type	Filter Characteristics
● UV	Absorbs only ultra-violet rays. Especially effective at seaside and high mountains. Recommended for color film.
○ Y1 ○ Y3	Increases contrast of monochrome film. Enhances clouds, darkening the blue sky. Brightens red and yellow.
○ O1	Darkens blue, emphasizes yellow and red perceptibly. Good for contrasts, especially in distant landscapes.
○ R1	Creates strong contrasts. May also be used with infrared film.
○ G1	Prevents red from turning radically into white. Brightens faces and the sky appropriately, and reflects the luster of fresh greenery.
○ ND4 ○ ND8	ND4 reduces light volume by 1/4, ND8 by 1/8. No effects on colors.
● SKY-LIGHT	Acts to harmonize the blue sky and the shade.
● CCA4	For use with daylight type film under a cloudy sky.
● CCAB	For use with tungsten type film in the twilight.
● CCB4	For use with daylight type film in the twilight.
● CCB	For use with daylight type film under tungsten light. (12 equiv.)

○ For black and white film.      ● For color film.

of view through the viewfinder, because the Auto Zoom 814 Electronic incorporates the SLR type viewfinder (with no parallax).

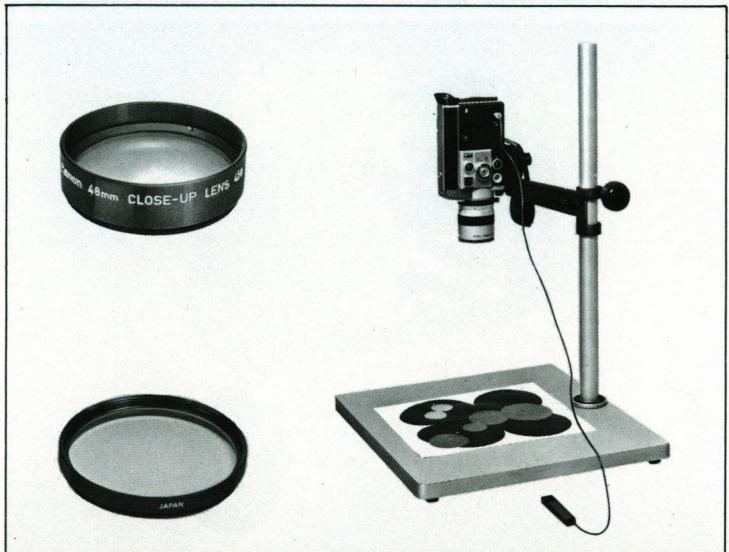
● Two Close-Up lenses are available: The 58mm Close-Up Lens 450 C-8-2, and the 58mm Close-Up Lens 240 C-8. The 58mm indicates the filter's outer diameter. When the distance scale is set at infinity, "450" and "240" indicate that the subject at a distance of 450mm or 240mm from the tip of the lens will be respectively in focus,

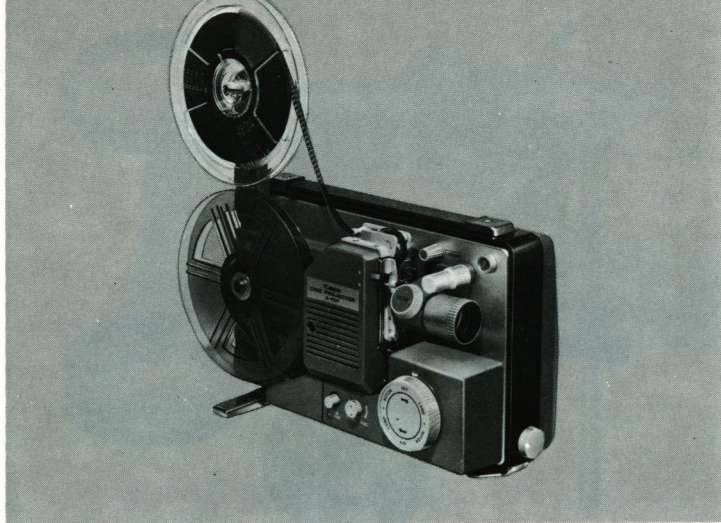
## Filters

The Canon Auto Zoom 814 Electronic uses the TTL light metering system, which measures the light through the lens. Therefore, when the filter is attached, exposure compensation is not required. Choose the filter according to the shooting purpose. The filter outer diameter is 58mm.

## Copy Stand 4

Used for titling, close-up shooting, copy work and single frame shooting, it consists of stanchion, carrying arm, metal fasteners and case.





## Canon Cine Projector S-400

The Canon Cine Projector S-400 is a high quality movie projector. It can automatically load and rewind any 8mm film, Super 8, Single 8 and regular type up to 400 feet. The operation is very simple and you just have to insert the film end into the projector, turn the switch, and the film will run completely and rewind automatically without resetting or touching any other switch. The Cine Projector S-400 has a fast 17—28mm f/1.3 zoom lens, an 8V 50W mirror lamp, and adjustable projecting speeds including slow motion. This projector can be used in any country as it has a choice of seven different voltages from 100 to 240 V.

Dimensions: 333 x 169 x 155mm (1'1-1/8" x 6-5/8" x 6-1/8").

Weight: 5.2 kg (11 lbs. 7-3/8 ozs.)

**Type:** 8mm movie camera with easy loading system using Super 8 film cartridge.

**Picture Size:** 5.4 x 4.0mm.

**Lens:** f/1.4 with focal length of 7.5mm—60mm. Zooming ratio 8 : 1. Built with 19 elements in 13 components including 11 rare glasses, with Spectra Coating. Inner diameter, 58mm. Outer diameter, 60mm.

**Viewfinder:** Single-lens reflex type combined with micropism screen range-finder. Meter informations (diaphragm scale, meter needle, over/under-exposure warning mark) and film-end signal built-in. Adjustable eyepiece (−3 to +2 diopter).

**EE Mechanism:** TTL type Servo EE mechanism with CdS photocell controlling diaphragm, coupled to film speed and filming speed.

**Light Metering Range:** From ASA 400, f/1.4, 18 fps, shutter angle "OPEN", to ASA 16, f/32, slow-motion, shutter angle "4".

**Film Speed:** Automatically set by inserting the film cartridge.

**Artificial Light Type:** ASA 25, 40, 64, 100, 160, 250, 400

**Daylight Type:** ASA 16, 25, 40, 64, 100, 160, 250

**CCA Filter:** Color Conversion A (CCA) filter built-in for artificial light type film in daylight. Cancelled by inserting CCA filter cancellation adapter or lighting unit to the cancellation adapter socket. Automatically cancelled when the daylight type cartridge is inserted.

**Filming Speed:** 18 fps, 24 fps, single frame and instant slow-motion (about 40 fps).

**Variable Shutter Control:** 0°—150°, continuously.. Fading is possible with this mechanism.

**Manual Aperture Control:** Possible with EE/manual aperture control ring.

**Power System:** Automatic filming and zooming by precise micromotors.

**Power Source:** Four 1.5 V penlight (Size AA) batteries, contained in handgrip, power the filming system, zooming system and exposure meter.

**Zooming Speed:** About 7—8 sec. (entire range).

**Manual Zooming:** With zooming ring, rotation angle is about 120°.

**Running Ability:** About 10 cartridges at general speed in normal temperature with new batteries. Single frames in normal temperature with new batteries, approximately one cartridge.

**Footage Counter:** Counts exposed footage. Automatically resets itself when cartridge is removed.

**Frame Counter:** 72 frames in one full turn (1 ft), 2 frames per unit mark. With adjustable indication mark.

**Battery Check:** Check button and check window.

**Handgrip:** Folding type, containing battery chamber.

**Sockets:** For remote control, and for synchronized electronic flash in single frame shooting.

**Remote Control:** Possible with the Remote Switch 60 or Remote Switch 3.

**Switch Dial:** Safety switch, with running lock.

**Film End Caution:** Orange warning lamp lights up in the viewfinder 2.5 ft before film ends.

**Safety Devices:** EE warning marks, shutter lock, film transport indicator.

**Macro-Shooting System:** Set with the macro setting lever. With the focusing distance at infinity, it is possible to get at 16.5cm (6.5") of the subject, measuring from the film plane indicator. Picture area 33mm x 45mm.

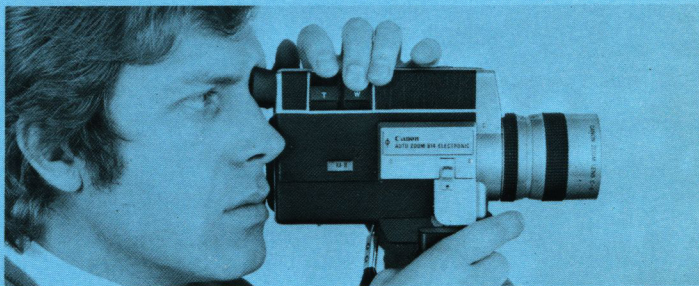
**Time Control and Interval Shooting:** Shooting the stages of motion, work sampling and indented work sampling are possible with the Interval Time E or Time Lapse Programmer.

**Accessories:** Lens Hood W-60, 58mm Filter, 58mm Close-Up Lens 450 C-8-2, 240 C-8, Remote Switch 60, Remote Switch 3, Lens Cap, Viewfinder Cap, CCA Filter Cancellation Adapter, CCA Filter Cancellation Adapter Socket Cover, Copy Stand 4, Cine Projector S-400, \*Time Lapse Programmer, Interval Timer E, Self-Timer E, Extension Cord E1000. (\*This accessory is available upon special order only.)

**Dimensions:** 224 x 118 x 70mm (8-13/16" x 4-5/8" x 2-3/4").

**Weight:** 1,550 g (3 lb. 6-11/16 oz.).

Subject to alterations.



# Canon

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