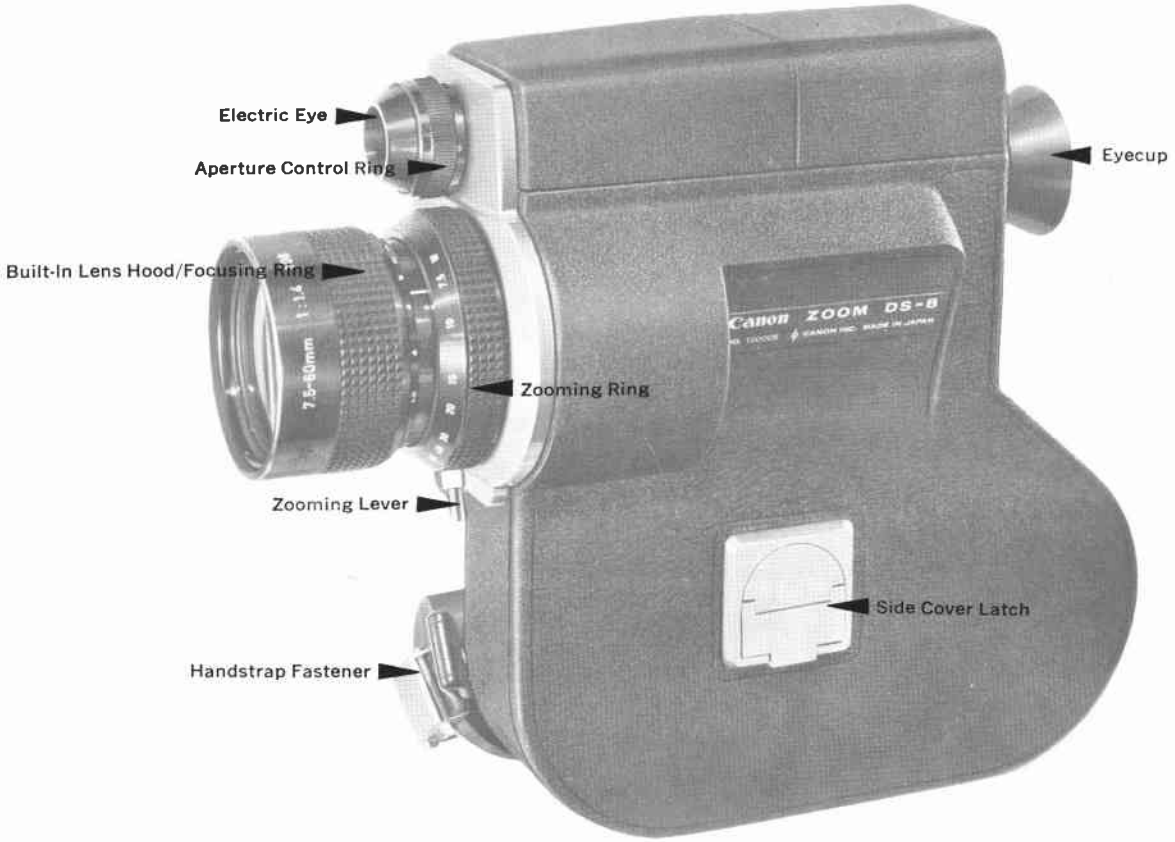
Canon

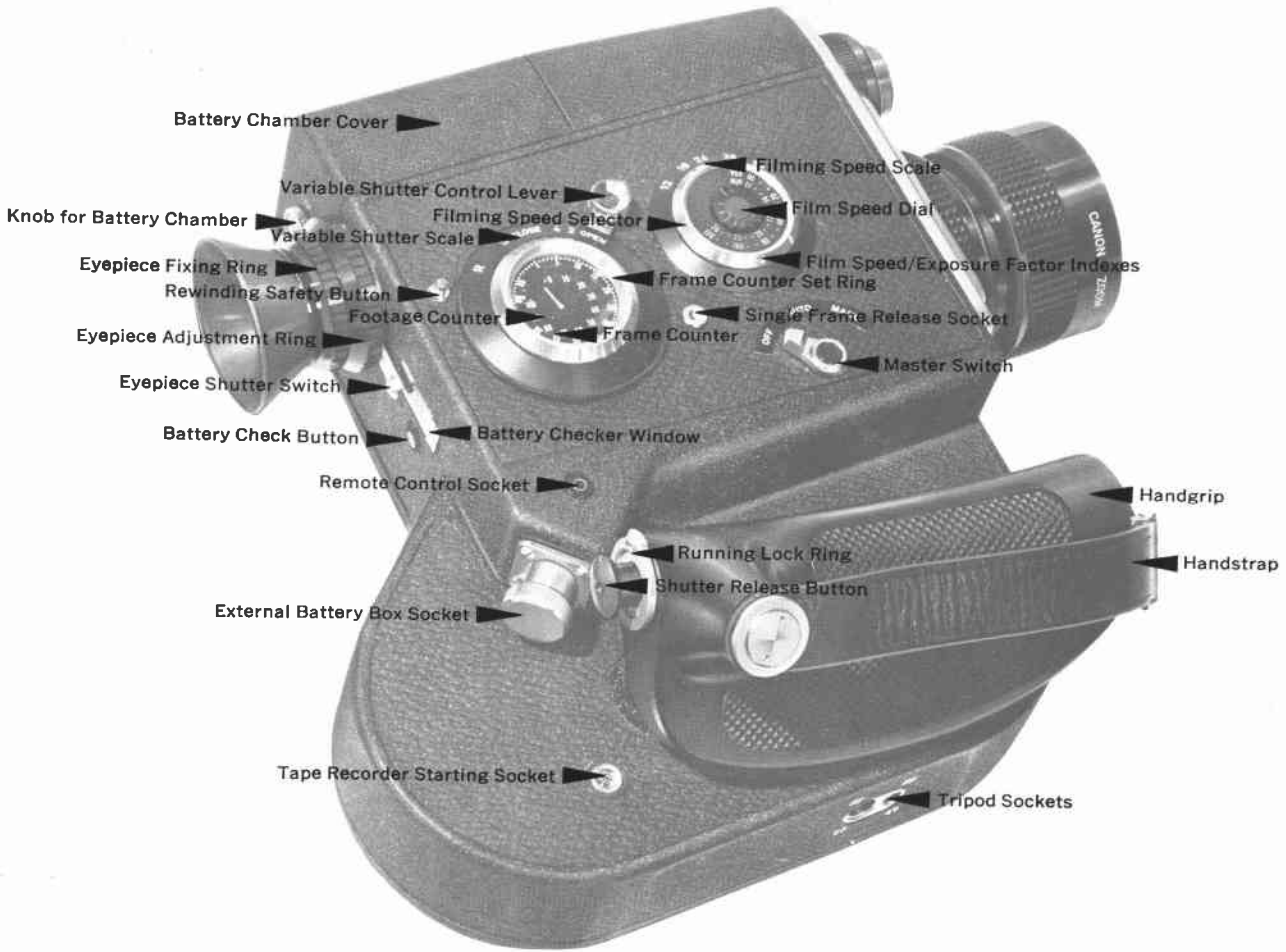
ZOOM DS-8

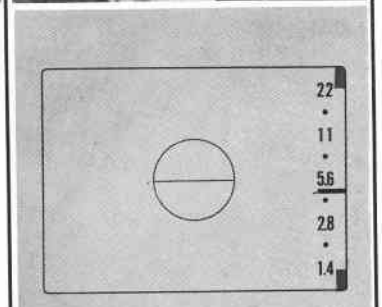
DOUBLE SUPER 8

INSTRUCTIONS

English Edition


Electric Eye
Aperture Control Ring
Built-In Lens Hood/Focusing Ring
Zooming Ring
Zooming Lever
Handstrap Fastener
Eyecup
Side Cover Latch
Canon ZOOM DS-8
7.5-60mm 1:1.4


Battery Chamber Cover
Filming Speed Scale
Variable Shutter Control Lever
Film Speed Dial
Knob for Battery Chamber
Filming Speed Selector
Variable Shutter Scale
Film Speed/Exposure Factor Indexes
Eyepiece Fixing Ring
Frame Counter Set Ring
Rewinding Safety Button
Footage Counter
Single Frame Release Socket
Eyepiece Adjustment Ring
Frame Counter
Master Switch
Eyepiece Shutter Switch
Battery Check Button
Battery Checker Window
Remote Control Socket
Handgrip
Running Lock Ring
Handstrap
Shutter Release Button
External Battery Box Socket
Tape Recorder Starting Socket
Tripod Sockets



Procedures for Electric Eye Operation

1 Load and check the power level of the batteries. (Pages 7–8)

2 Adjust the eyepiece to your eyesight. (Page 8)

3 Set the master switch at "AUTO". (Page 9)

4 Load the Double Super 8 film. (Pages 22–24)

5 Set the film speed dial. (Page 9)

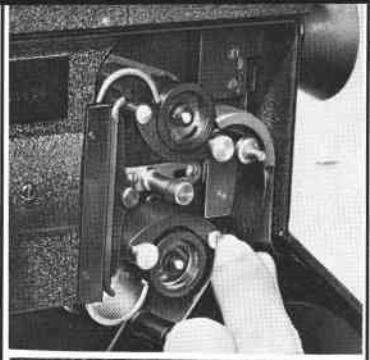
6 Set the filming speed at 18 fps. (Pages 9–10)

7 Set the variable shutter control lever at "OPEN". (Page 17)

8 Look through the viewfinder, focus at telephoto, and decide the composition of the picture. (Pages 12–14)

9 Press the shutter release button slightly and check the position of the exposure indicator. (Page 14)

10 Start shooting by depressing the shutter release button all the way down. Zoom in and zoom out according to your needs. (Page 15)



11 When one side of the film (100 feet) has been filmed, reverse it and reload for the remaining side. (Page 25)

12 When both sides of the film have been exposed, unload it, and turn the master switch to "OFF". (Page 26)

Technical Data

Type: 8mm movie camera using Double Super 8 film (double width film on 100-feet roll).

Frame Size: 4x5.4mm.

Lens: F 1.4 with focal length of 7.5–60mm. Zoom ratio 1 : 8. 13-component, 18-element construction (including six rare earth glasses). Inner diameter, 58mm. Outer diameter, 65mm.

Distance Scales:

ft	∞	50	15	10	7	5	4
m	∞	10	5	3	2	1.5	1.2

Zooming: Manual, with zooming lever.

Viewfinder: Single-lens reflex type combined with built-in split-image rangefinder. Contains exposure indicator, f/stops scale, over/under exposure warning marks and manual aperture control mark. Eyepiece is adjustable (−5 to +4 diopter). Magnification, 0.62x–4.67x. With eyepiece shutter. Two types of eyecups are supplied with the camera.

Electric Eye Mechanism: Automatic aperture setting coupled to CdS photocell and servomotor. The Electric Eye is coupled to the chan-es in light volume received by the independent window. Light receiving angle: approx. 20 degrees. Powered by the electric motor used in common for film advance.

EE Working Range: Coupled to entire range of ASA 320, f/1.4, 12fps–ASA 10, f/22, 54 fps.

Manual Aperture Control: Possible by setting the master switch at "MANU" and turning the aperture control ring.

Film Speeds: ASA 10–320, DIN 11–26.

Exposure Factor Compensation: 2x, 4x, 8x.

Filming Speeds: 12, 18, 24, 36, 54 fps and single frame release. Running lock possible.

Variable Shutter Control: Consecutively from 0° to 165°. "CLOSE", "4", "2" and "OPEN" with 0°, 41.25°, 82.5° and 165° respectively. Exposure adjustment and fadings are possible.

Film Advance: Electric motor drive system. With shutter release button.

Rewinding Mechanism: Electrically performed by setting the variable shutter control lever at "R" and depressing the shutter release button. Overlappings possible.

Power Source: Eight 1.5v penlight (size AA) alkaline or manganese batteries. Use with exclusive battery magazine. Approx. nine reels can be filmed with alkaline batteries under normal temperatures at 18 fps. External battery box using alkaline, manganese, or nickel cadmium batteries adaptable.

Film Loading: Semiautomatically loaded by power in which the film leader is inserted into the guide. Film cutter is built in.

Footage and Frame Counters: The footage counter has graduations at 10-feet intervals. Rotates in forward and reverse directions. Automatically resets when the side cover is opened. The frame counter indicates 72 frames (one foot) with every one rotation. Coupled to footage counter and able to count up to the single frame.

Various Sockets: For single frame, remote control, tape recorder starting, and tripod.

Size: 268x227x103mm (10-1/2"x8-7/8"x4").

Weight: 3,370 grams (7 lb. 6-7/8 oz.).

Accessories: 65mm Lens Cap, 58mm Filters, Close-Up Lenses (240, 450, and 1800), Remote Switch 3, Scoopic Battery Box, Battery Magazine, Scoopic Battery Charger-S, Spool.

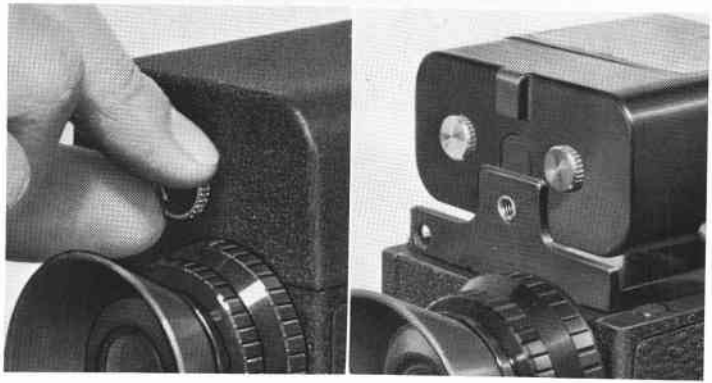
Subject to alterations.

Your Camera Body Number_____

Date of Purchase_____

Dealer's Name_____

We are highly gratified that you have selected the Canon Zoom DS-8 – a wise choice that promises you many delightful years of photographic experiences.
Canon is recognized the world over as the foremost pioneer in the development of photographic equipment of the highest quality and performance.
Whether your new DS-8 is for home use, news reportage, laboratory, or for traveling, make the most of your opportunities!



Before Using . . .

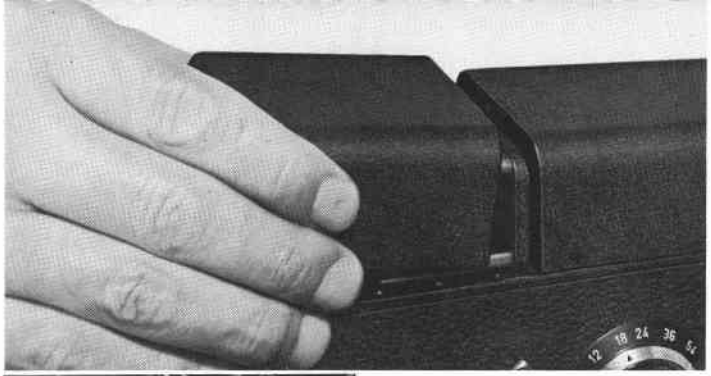
Please read this instruction booklet carefully, and master the manipulations of the various parts completely before loading the film into the camera. Once thoroughly versed in the correct handling of this camera, you can use the Canon Zoom DS-8 to the fullest extent of its capabilities.

Loading of Batteries

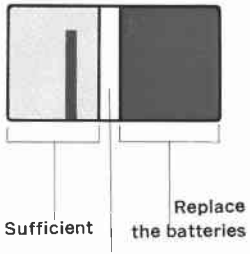
Eight 1.5v penlight alkaline batteries (size AA) are used as the power source for film drive and Electric Eye.
New batteries will provide power for driving approximately nine reels of 100-foot length film at 18 fps under normal temperatures.

1 Remove the battery chamber cover by turning its knob counterclockwise.
2 Take out the battery magazine from the chamber and remove the cover of the battery magazine by loosening the two knobs.
3 Insert the batteries in the correct direction according to the diagram outside the magazine.
4 Replace the cover of the battery magazine by matching its three projections with the holes on the magazine properly and by tightening the knobs.
5 Insert the battery magazine loaded with eight batteries by the guide groove facing toward you.
6 Attach the cover of the battery chamber and turn its knob clockwise.

- Replace eight batteries simultaneously.
- External Battery Box is recommended for outside power source using manganese, alkaline, or nickel cadmium batteries.



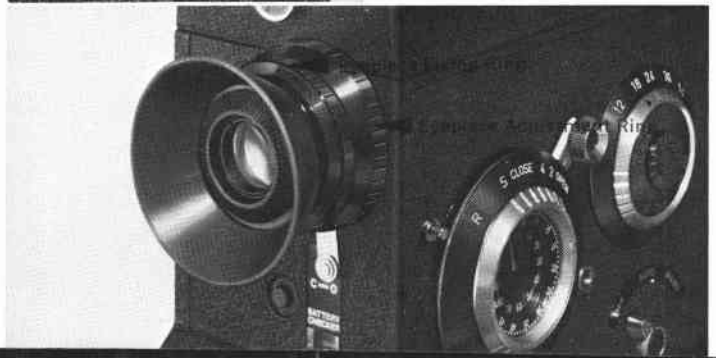
▪ Performance of the alkaline batteries deteriorates in temperatures of 0°C (32°F) or under. Manganese batteries are recommended in cold climates.



Checking the Power Level of the Batteries

The power level of the batteries can be checked by pressing the battery check button and checking the position of the needle in the battery checker window. If the needle reaches the blue zone, the batteries have sufficient power level. If the needle is in the red zone, the batteries must be replaced. If the needle is in between the two zones, the batteries have a power level only for 24 fps or under.

▪ Always check the power level of the batteries before shooting.

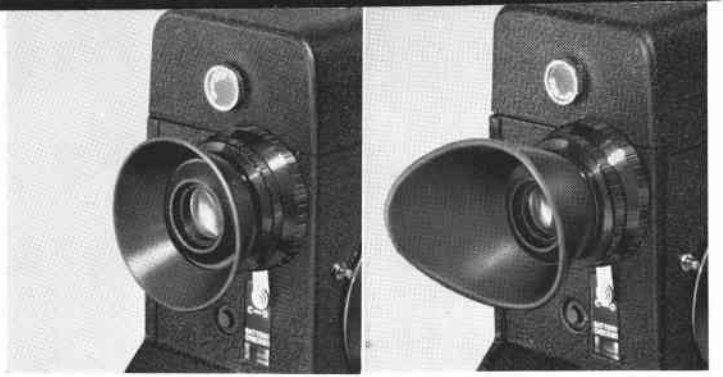


Adjusting Eyepiece

1 Remove the lens cap, set the eyepiece shutter switch at "O", and loosen the eyepiece fixing ring by turning it counter-clockwise.

2 Aim the camera in the direction of a bright subject and look into the viewfinder.

3 Turn the eyepiece adjustment ring and adjust it so that the round edge of the rangefinder and f/stop scale can be clearly seen. Then tighten the eyepiece fixing ring.



Eyecup

Two types of rubber-hooded eyecups are supplied with your camera. One is for use by those wearing glasses and the other for those not wearing glasses. Attach the eyecup of your preference.

Master Switch

1 When the master switch is set at "OFF", the Electric Eye circuit is disconnected and the shutter is locked.

2 When the master switch is turned to "AUTO", the Electric Eye and power circuits are connected and shooting with automatic exposure control becomes possible. The Electric Eye will function only when the shutter release button is depressed.

3 When the switch is turned to "MANU", shooting with manual aperture control for special effects becomes possible. Refer to page 27.

▪ When not using the camera, keep the master switch at "OFF".

Setting the Film Speed

The Electric Eye of DS-8 is coupled to the film speed, filming speed and aperture setting. Turn the film speed dial and set the ASA/DIN speed of the film being used at the orange index "▲" after loading film so as to obtain the correct exposure.

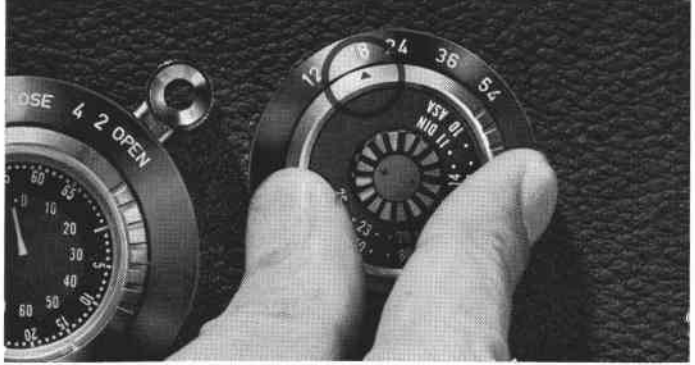
▪ Refer to page 17 and page 26 for the exposure factor indexes (orange numerals).

▪ The following film speeds may be used.

DIN 26 · · 23 · · 20 · · 17 · · 14 · · 11
(25) (24) (22) (21) (19) (18) (16) (15) (13) (12)

ASA 320 · · 160 · · 80 · · 40 · 25 20 · · 10
(250) (200) (125) (100) (64) (50) (32) (16) (12)

Figures in parentheses represent intermediate film speeds.



Selecting the Filming Speed

The filming speed selector sets the number of frames to be fed per second. Turn the filming speed selector and set the index to the desired filming speed graduation. 18 fps is the standard filming speed for Super 8 cameras.

- When shooting at 54 or 36 fps, the motor requires a sufficient power level of the batteries.
- Do not turn the filming speed selector while depressing the shutter release button.
- The camera will function properly only at the graduations on the filming speed scale.
- Avoid operating the camera at high filming speeds when film is not loaded.

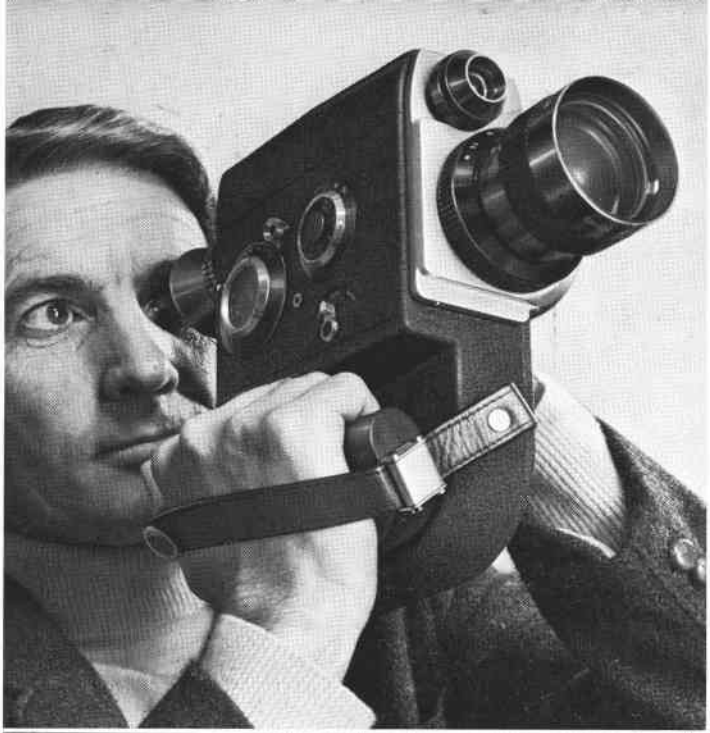
Filming Speeds and Projection Effects

Film shot at filming speeds other than the standard speed of 18 fps will have varying effects when projected.

1 When shooting at high filming speeds of 54 or 36 fps, the projected pictures will have a slow-motion effect. For example, when a film is shot at 36 fps and then projected at the standard 18 fps, the projecting time will be lengthened by two times, thereby slowing down the speed of motion by one-half. High filming speed is, thus, very effective when slowing down fast moving subjects or when analyzing movements. Exposure time is also speeded up and is, therefore, effective for eliminating blurring during panning. 24 fps is also used for shooting standard sound film.

2 When shooting at the slow filming speed of 12 fps, the opposite effect of high filming speed is obtained. In other words, by dropping the filming speed the projected pictures will have a fast-motion effect. This method is used when stressing the movement of a subject, when a realistic effect in the movement of a distant subject is desired, or for humorous effects. The slow filming speed is also used in order to widen the proper exposure range for over-coming under-exposure conditions, that is, when it is too dark for shooting at 18 fps even at maximum aperture opening.

▪ Avoid shooting subjects that show normal movements when using the slow filming speed for controlling the exposure.



Holding the Camera

Firmly grasp the handgrip with the right hand. The shutter release button is depressed with the right thumb. Focusing, zooming and steadying of the camera are performed with the left hand. The camera should be held steady especially when shooting in telephoto or when zooming. The use of a tripod is recommeded in these cases.

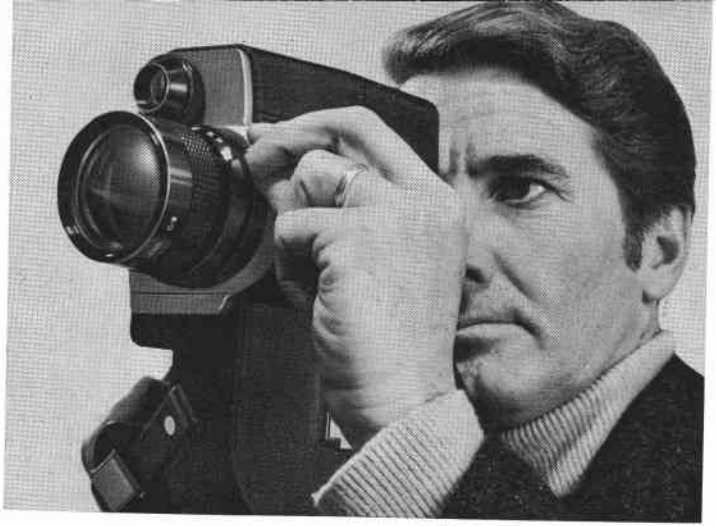
▪ Do not take your eye away from the eyecup during shooting. This is because, if the eyepiece receives strong light, reverse incoming light may cause fogging of the film.

Handstrap

Open the handstrap buckle and adjust the length of the handstrap according to your hand.

Eyepiece Shutter

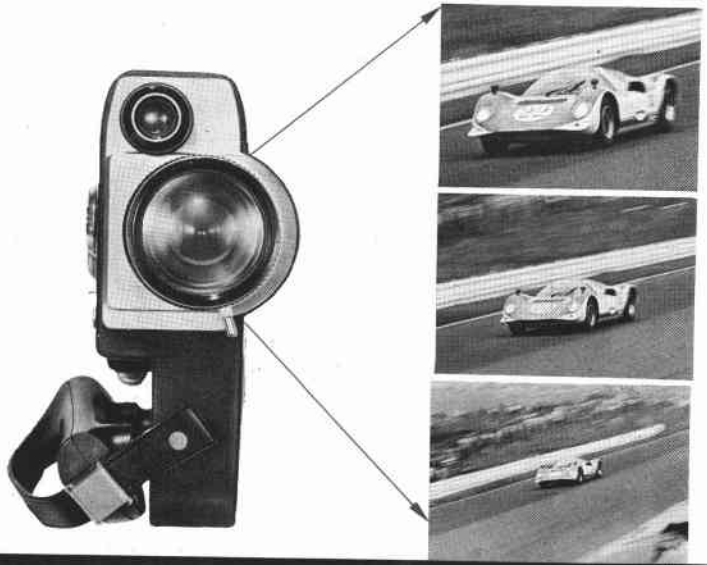
Shift the eyepiece shutter switch to "C" when taking your eye away from the eyecup such as when fading, panning, titling or performing remote control.



Viewfinder

Since the viewfinder of DS-8 is of the single-lens reflex type, the exact picture image to be filmed can be seen without any parallax. This enables you to compose the scene within the maximum field-of-view.

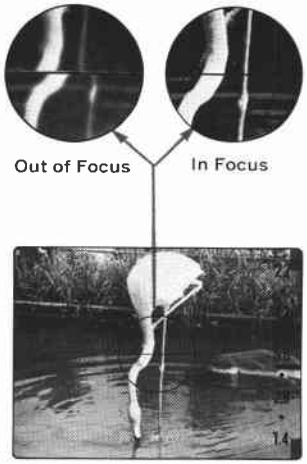
- Be sure the eyepiece shutter switch is set at "O".



Zooming

When you wish to zoom or want to compose the picture properly in the viewfinder, turn the zoom lens by using the zooming lever. The image seen through the viewfinder will change in magnification and the field-of-view will also change. When zooming is performed during shooting, any desired zooming effect can be reproduced on the film.

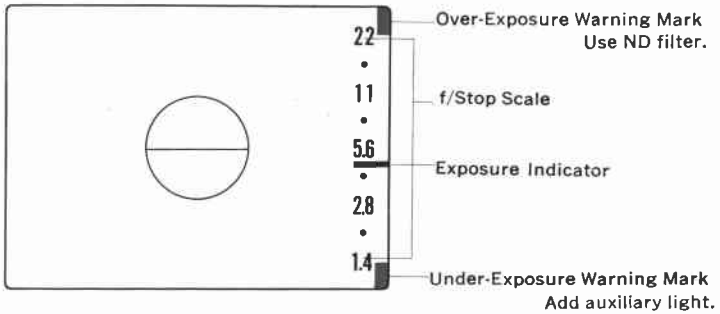
- The viewfinder magnification is in life-size when the focal length is at 12mm.



Focusing

The Canon Zoom DS-8 has a split-image rangefinder built into the center of the viewfinder. Adjust the focusing ring until the upper and lower halves of the subject within the center circle of the viewfinder are aligned and seen clearly. Since the aligned image can be seen more accurately and easily, first focus at maximum telephoto focal length and then return to the desired magnification for shooting. The focal point does not change by zooming.

▪ The distance between the focused subject and the film plane can be checked through the distance scale by drawing out the built-in lens hood.



Checking the Exposure Indicator

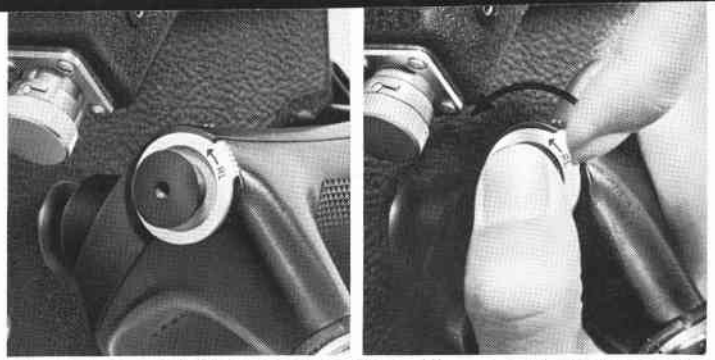
Aim the camera at the subject and check the position of the exposure indicator inside the viewfinder. When you slightly depress the shutter release button by approximately 1mm, the Electric Eye starts to operate and the exposure indicator indicates the proper f/stop.

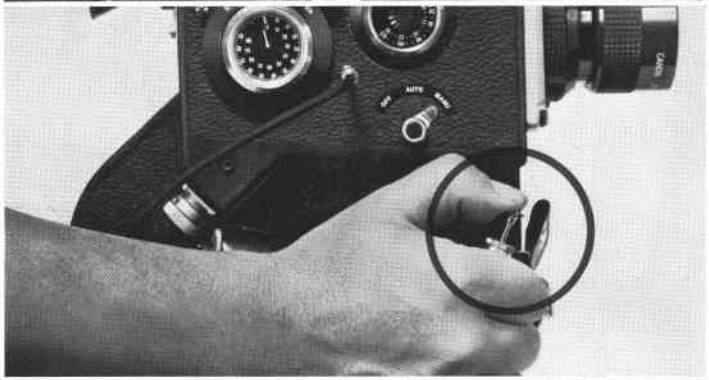
▪ The black dots in between indicate f/16, f/8, f/4 and f/2 respectively.

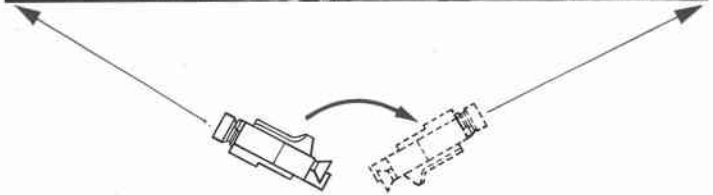
1 If the exposure indicator is pointing inside the range of the f/stop scale, you may depress the shutter release button all the way down and the film will advance.

2 If the exposure indicator is pointing to the upper red mark, it means over-exposure, and so an ND (neutral density) filter must be attached or the variable shutter control must be adjusted to lower the light intensity.

3 If the exposure is pointing to the lower red mark, it means under-exposure, and so the lighting must be increased.







Shooting

Depress the shutter release button all the way down for filming.

- If the shutter release button is depressed lightly, the operating sound of the Electric Eye can be heard but the film will not advance.
- Always use a built-in lens hood by drawing it out especially in counter-lighted situations.
- Set the master switch at "OFF" when not in use so as to prevent inadvertent film drive.

Running Lock

While depressing the shutter release button all the way down, turn the running lock ring counter-clockwise. You can now release your right thumb from the button and the camera will continue to run until the ring is returned to its original position.

Single Frame Release

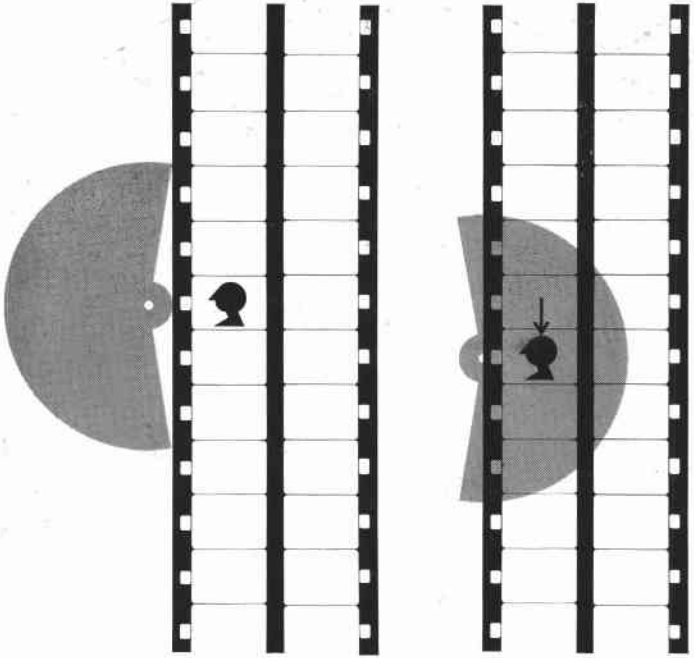
Single frame photography is performed by inserting the cable release into the single frame release socket.

Attach the camera on the tripod and set the filming speed at "12". Decide the proper f/stop, shift the master switch to "MANU", and depress the cable release to expose one frame at a time. Single frame photography is applied to shoot animation, faked pictures and to record the growth of plants.

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, particulary vertically. Use of a tripod is recommended.
- Panning shots are usually started from subjects of less importance and move on to the most important subject where it ends by running the film longer on the last sequence. Move the camera at a constant speed.
- Prevent a subject from being blurred by limiting the opening angle of the shutter leaves and using high filming speeds.



The film stops for exposure.

An advance of the exposed frame takes places.

Variable Shutter Control

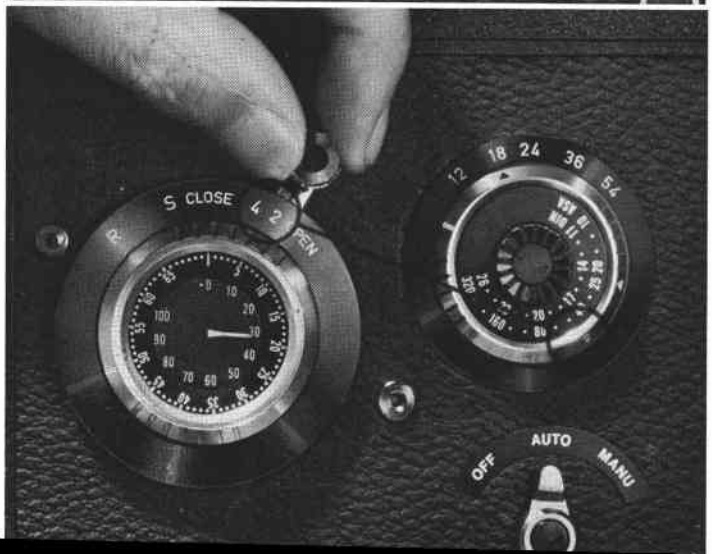
Variable Shutter and Filming Speed

The shutter of the 8mm movie camera is closely connected with the film advance. The exposure is made from the rotation of the two semicircular leaves which have given angles. When the leaves are rotating, exposure of one frame and film advance are coupled, moving synchronously. In other words, when the open section of the leaves is at the aperture section, the film stops for exposure. And when the aperture section is blocked by the rotating leaves, an advance of the exposed frame takes place. Hence, the exposure time is determined by the open angle of these leaves and the rotating speed, and are called variable shutter angle and filming speed respectively.

Exposure Adjustment with the Variable Shutter

For a still camera, shutter and aperture are freely adjusted for the exposure adjustment. However, in the case of an 8mm camera the filming speed cannot be changed at will since the standard speed is fixed. Because under normal conditions, the shooting and projection of the film are done at the standard speed, change of speed should be made only when you intend to have special effects such as faked shots. In other words, the exposure adjustment of the movie camera is not done by changing the shutter speed but by adjusting the aperture.

Instead of relying only on the aperture, the variable shutter enables the change of exposure to be made with the shutter. By changing the degree of the open angle of the shutter, the exposure time is reduced. Although the ordinary 8mm camera has a shutter opening angle fixed at around 160°, the angle of Canon Zoom DS-8 may be changed to any of the four stages between 165° to 0°. It is possible, therefore, to make exposure adjustments freely and perform fade-ins and fade-outs.



Exposure Control by Variable Shutter

Variable Shutter Control Lever

By sliding the variable shutter control lever, the open angle of the shutter leaves changes and the exposure volume can be adjusted at four stages.

To change the position of the variable shutter control lever, slide it upwards and shift to the desired position. Slide the lever downwards so as to fix its position.

Each stage of the scale is at a position which halves the open angle of the shutter. Thus, the open angle degree of each scale is as follows:

"OPEN"	"2"	"4"	"CLOSE"
165°	82.5°	41.25°	0°
(Completely opened)			(Completely closed)

- By sliding the lever to the "S" position, film advance will be locked and the shutter will not function.

Variable Shutter Angle and Filming Speed

Changing the variable shutter control lever will relatively affect the filming speed and exposure time (in seconds) as follows:

Scale	Open Angle	12 fps	18 fps	24 fps	36 fps	54 fps
"OPEN"	165°	1/26	1/39	1/52	1/79	1/118
"2"	82.5°	1/52	1/79	1/104	1/158	1/236
"4"	41.25°	1/104	1/158	1/208	1/316	1/472
"CLOSE"	0°	–	–	–	–	–

Film Speed Adjustment

When the position of the variable shutter control lever is changed, film speed setting should be adjusted to compensate the exposure factor.

Match the film speed with the proper exposure factor mark which is the same as the open angle index being used. For example, when the variable shutter control lever is set at "2", and the speed of the film being used is ASA 25, set the scale of "25" at the orange index "2".

Effectiveness of the Variable Shutter Control

The variable shutter control increases the effectiveness of shooting, besides the exposure adjustment, since a fast exposure time may be attained at the same filming speed.

1 Since a shutter speed of 1/158 sec. can be obtained, even with a 18 fps setting, it prevents a moving subject from appearing blurred as well as blurring caused by moving the camera.

2 High filming speed may be used to film a moving subject at slow speed and to get a sharp picture.

3 When the incoming light is exceeded, the exposure volume can be adjusted by two steps.

Fadings and Rewinding by Variable Shutter

Since the variable shutter control lever adjusts shutter from fully open to totally closed, fade-ins and fade-outs can be easily undertaken. Moreover, overlappings can also be performed by utilizing the rewinding mechanism.

Fade-Out

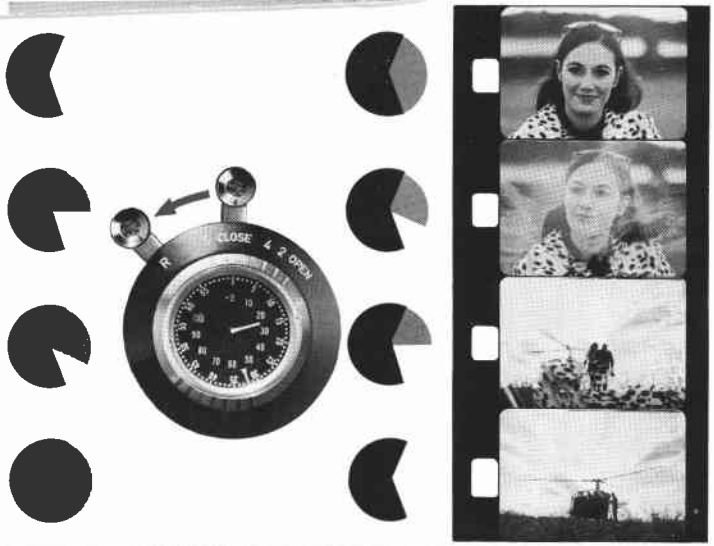
By sliding upwards and shifting the variable shutter control lever towards the "CLOSE" position, the shutter can be closed and the picture gradually darkens and finally fades out.

- By sliding the lever to "S" the film advance will be interrupted and will prevent wasting of film.

Fade-In

By shooting the film while progressively returning the variable shutter control lever from the "CLOSE" position to the "OPEN" side, the dark picture gradually becomes brighter.

- The fading technique is used in movies when there is a change of scene. Generally speaking, the fade-ins are used at the beginning of a movie and the fade-outs at the end. The fading technique may also be used to show the elapse of time or a sudden change in scene, although it should not be used too frequently.
- For a quickly changing scene, a fading of 1–1.5 sec. would be adequate, or about 2–3 sec. in the case of a slow moving scene.



Overlapping

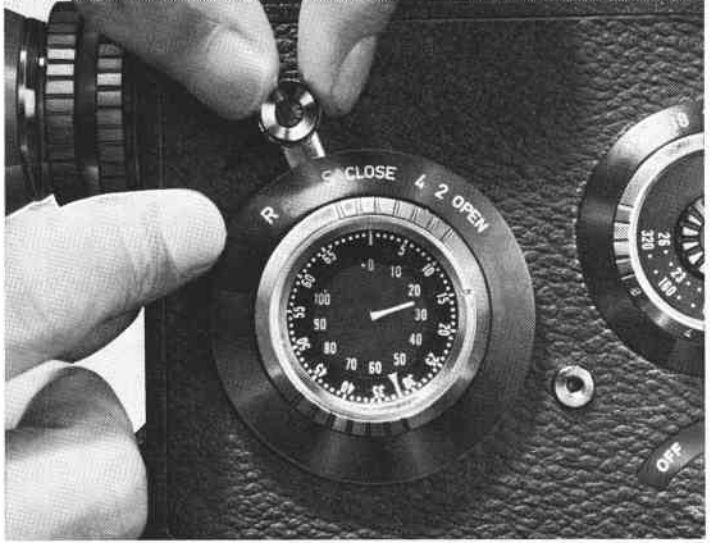
Overlapping a scene by combining the fade-out and fade-in for a smooth transition of scene is known as the "overlap". This technique is rather difficult to master and should be performed carefully.

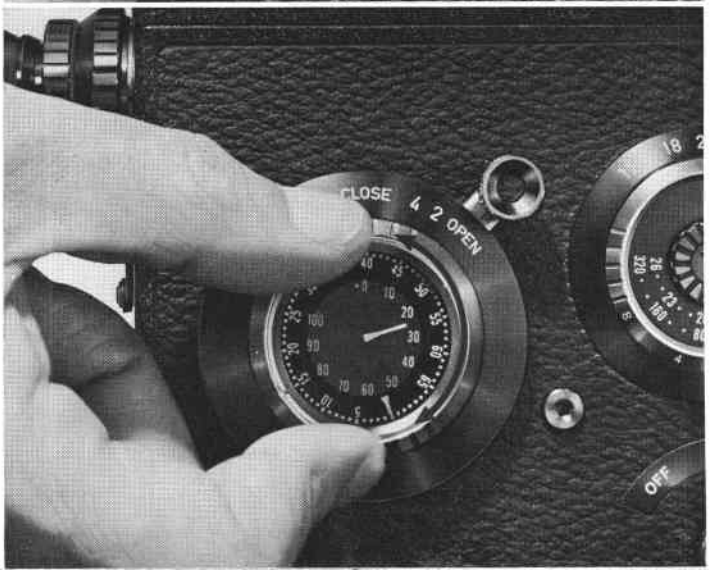
1 Perform the fade-out with the variable shutter control lever.

2 Rewind the film footage which has been faded out. See page 20 on rewinding.

3 Fade-in in the next scene over this section. In other words, double expose. This procedure will first make the scene darker and then progressively brighten the scene which follows.

- Be sure to calculate accurately the time of fade-in and fade-out and the number of frames affected. Good effects can be obtained only when the timing is correct. It is also essential that the variable shutter control lever be shifted evenly and smoothly.
- As for the time of the overlap, a period of under five seconds is considered as appropriate.





Film Rewinding Mechanism

Film rewinding is powered by motor. The footage of the rewound film can be ascertained up to a single frame by the frame counter.

1 While pressing the rewinding safety button, slide and set the variable shutter control lever at "R".

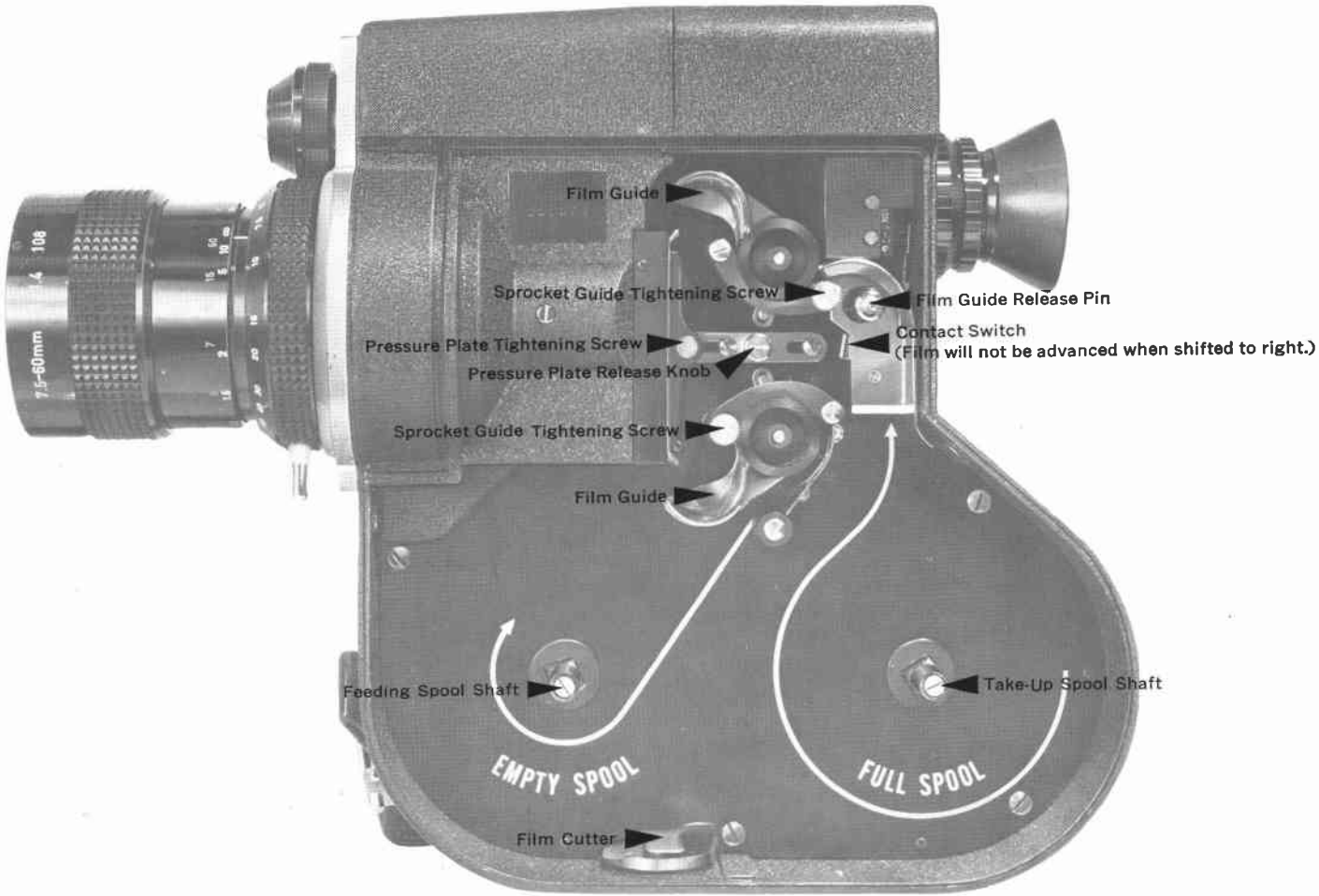
2 By depressing the shutter release button, the film starts winding in reverse with the shutter leaves being closed. The frame counter also rotates in reverse.

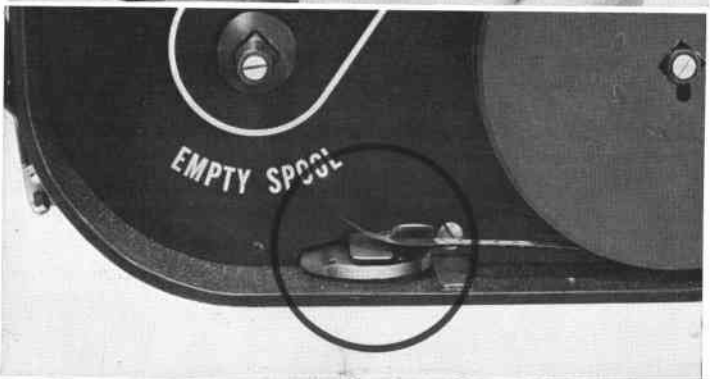
Frame Counter

The frame counter is used when performing overlapping or single frame photography. One rotation of the frame counter equals 72 frames (one foot), and its indicator couples to the advance or reverse operation of film.

The frame scale is movable and can be set at "0" position at the indicator by turning the frame counter set ring. Thus, match "0" of the scale with the indicator first, and then perform fade-in. Read a number of the frame and rewind the film to "0" as is. By fading in, the overlap can be made precisely and completely.

Generally, the use of 72 frames or less is advisable in fading techniques.


Film Guide
Sprocket Guide Tightening Screw
Film Guide Release Pin
Contact Switch
(Film will not be advanced when shifted to right.)
Pressure Plate Tightening Screw
Pressure Plate Release Knob
Sprocket Guide Tightening Screw
Film Guide
Feeding Spool Shaft
Take-Up Spool Shaft
EMPTY SPOOL
FULL SPOOL
Film Cutter
7.5–60mm



Loading of Film

Double Super 8 film, double the width of Super 8 film, is used for Canon Zoom DS-8 and exposed one side of the strip at a time. When one side is exposed, the film should be turned over and reloaded so that the other half of the strip may be exposed.

The film is loaded by the semiautomatic loading system and can be easily performed once you know how. Load and reload film correctly, since carelessness may cause racing or fogging of the film.

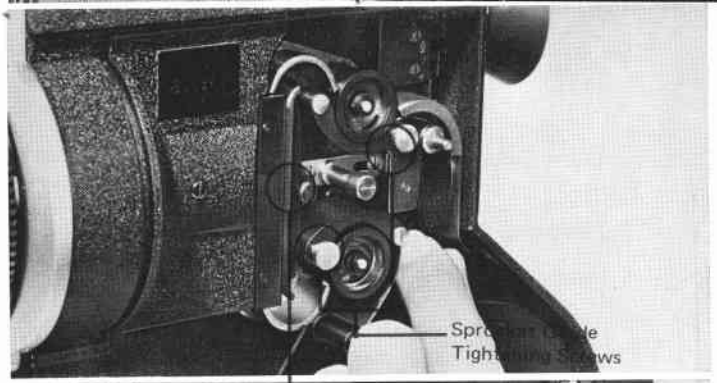
▪ As the film is wound naked around the reel, always load film in the shade. An extra length of leader is attached to the film for protection against the entry of light, but direct sunlight or strong lighting may cause fogging of the film if it is loosely wound.

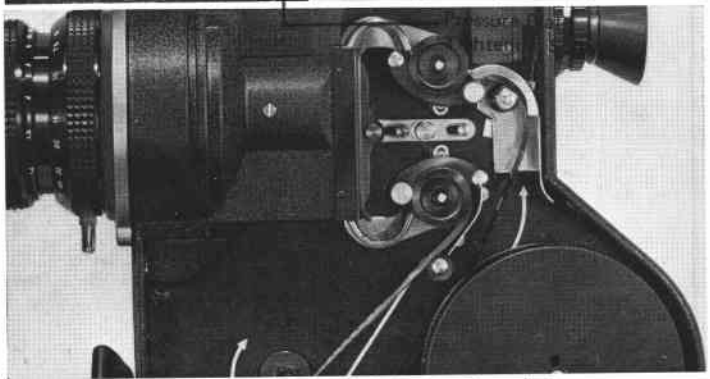
1 Set the master switch at "AUTO" and the filming speed selector at "18".

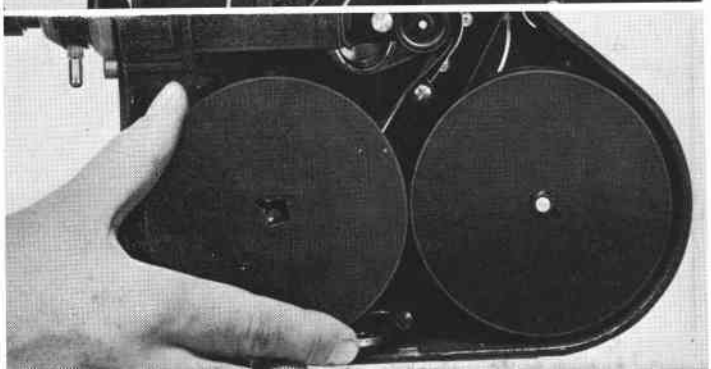
2 Raise the side cover lock, turn it counter-clockwise and remove the side cover.

3 Place the film spool on the feeding spool shaft as indicated by the diagram inside the camera.

4 Trim the tip of the film leader at a right angle, using the built-in film cutter. Cut the tip of the film leader in between the perforations.







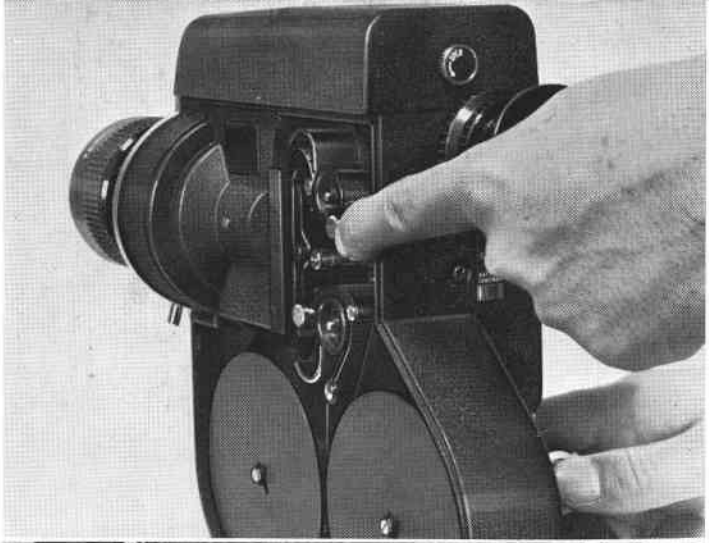
5 Insert the tip of the film leader into the film insertion guide. Be careful to keep the film tightly wound on the reel.

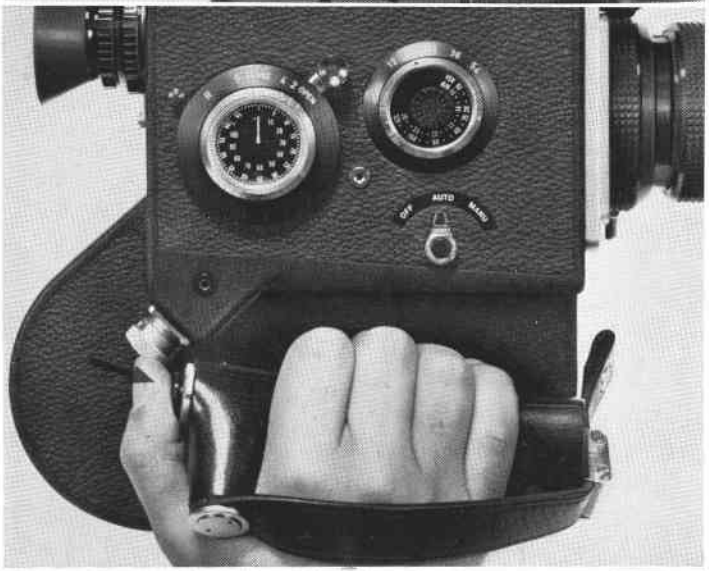
6 Be sure that the pressure plate is at its proper position. If the pressure plate is parted from the aperture section, the film cannot be advanced. Also check to see that the sprocket Guide and the pressure plate tightening screws are not loose to secure the positive film advance.

7 Depress the shutter release button while pushing the film leader lightly into the film insertion guide. The film guide will close and the film will automatically proceed through the film guides and the aperture section and come out from the bottom sprocket. Stop depressing the shutter release button when 15 to 20cm of film leader has passed through the last guide roller.

8 Have the take-up spool ready. Bend the tip of the film leader towards the emulsion side and insert into the take-up spool as indicated by the diagram inside the camera. Wind the film leader tightly three or four times around the spool.

9 Place the take-up spool on the take-up spool shaft.





10 Depress the shutter release button, while pressing the film guide release pin (the film guide is in open condition), and check to see that the top and bottom film loops are uniform. Three to four centimeters of film feed is sufficient.

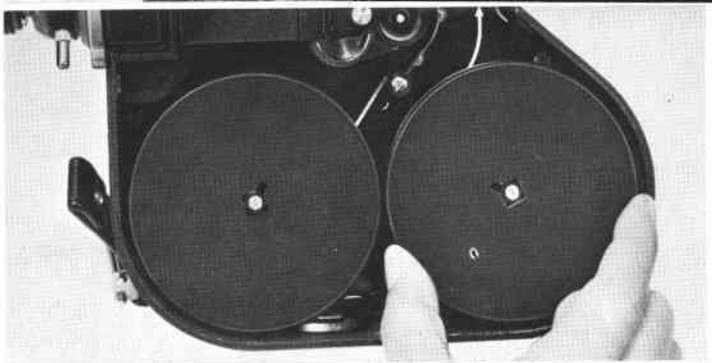
11 Put the side cover back on, turn the film side cover latch and flip it down.

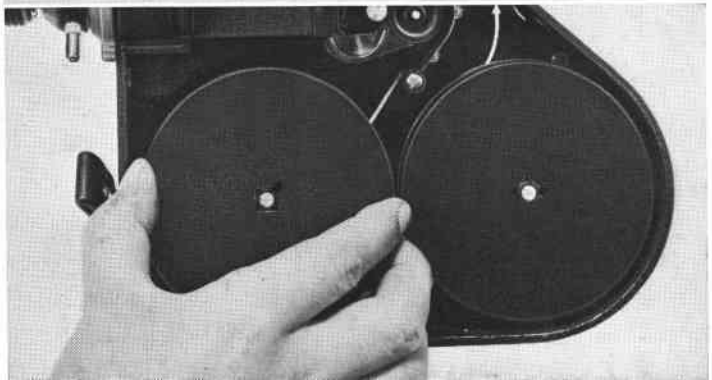
12 Depress the shutter release button and feed the film until the footage counter moves from "·" to "0". Start shooting from "0" position.

■ The film guides open when the film guide release pin is pressed and close when the shutter release button is depressed. It is convenient for correcting an improperly loaded film.

Footage Counter

As shooting proceeds, the footage counter indicates the length of exposed film in feet. The "·" to "0" and' '100" to "·" portions are both lengths for leaders. The footage counter resets automatically when the side cover is opened.





Reloading of Film

When one side of the strip has been completely exposed, reverse and reload the film so as to use the remaining half.

1 When the footage counter indicates "100" for the first half of the film, stop shooting.

2 Continue to depress the shutter release button until the indicator of the footage counter reaches "·".

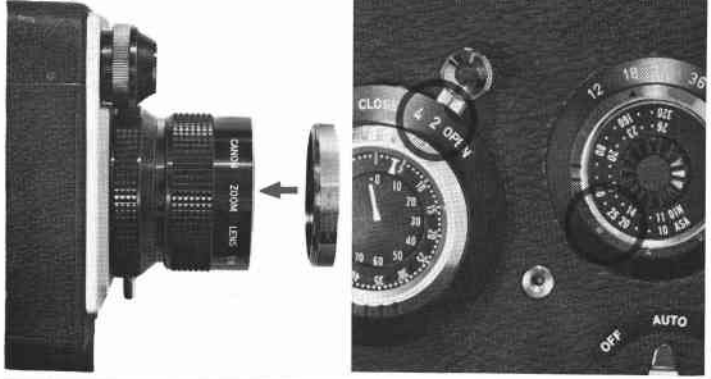
3 Open the side cover and remove both spools.

4 To use the remaining half of the film, reverse and interchange the position of the two spools. The supply spool being inserted into the shaft of the take-up spool and vice versa.

▪ Be sure to reverse the spools when reloading. Otherwise, one side of the film will be exposed twice.

Unloading of Film

After the footage counter reaches "100", continue feeding the film until "·" and then unload the film. Make certain that the film does not loosen and put it into the film container. Send the exposed film to an authorized processing laboratory.



	Type	Exposure Factor	Filter Characteristics
○●	UV	1	Absorbs only ultra-violet rays. Especially effective at seaside and high mountains. Recommended for use in color photography.
○	Y 1 Y 3	1.5 2	Increases contrast of monochrome film. Enhances clouds, darkening the blue sky. Brightens red and yellow.
○	O 1	3	Darkens blue, increases yellow and red perceptibly. Good for contrasts, especially in distant landscapes.
○	R 1	6	Makes strong contrasts. May also be used with infrared film.
○	G 1	3	Prevents red from turning radically into white. Lightens faces and sky appropriately and reflects the lightness of fresh greenery.
○●	ND 4 ND 8	4 8	ND 4 reduces light volume by 1/4, ND 8 by 1/8. No effects on the reproduction of colors of color film.
●	SKYLIGHT	1	Acts to harmonize the blue sky and shade.
●	CCA 4	1.5	For use with daylight type film under cloudy condition.
●	CCA 8	2	For use with tungsten type film under the morning sun or sunset.
●	CCA (12 equiv.)	2	For use with tungsten type film under sunlight.
●	CCB 4	1.5	For use with daylight type film in the morning sun or sunset.
●	CCB (12 equiv.)	3	For use with daylight type film under tungsten light.

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

Filters and Adjusting of Film Speed

Filters

Various types of filters (58mm screw-in type) for Canon Zoom DS-8 are available.

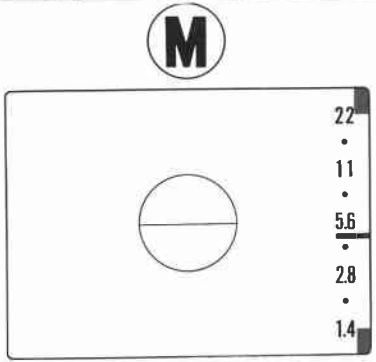
Film Speed Adjustment

When using filters on the taking lens and/or the variable shutter control lever is shifted other than to the "OPEN" position, the film speed settings should be adjusted.

Turn the film speed dial and match the ASA/DIN of the film being used with the proper orange index according to the exposure factor of the filter and the position of the variable shutter control lever. For example, when the ND 4 filter is used, the ASA/DIN figure should be set at the orange index of "4". And when the ND 4 filter is used and the variable shutter control lever is set at "2", the ASA/DIN figure should be set at the orange index of "8" (i.e., 4 x 2 = 8).

- Be sure to readjust the setting whenever detaching or replacing a filter with a different exposure factor.
- The exposure factors with respective filming speeds do not couple to the following ASA/DIN film speeds. If the film speed dial is forcibly turned the filming speed selector will move and settings cannot be properly made.

Exposure Factor Index	Filming Speeds				
	12fps	18fps	24fps	36fps	54fps
2	–	–	–	ASA 10 DIN 11	ASA 10-16 DIN 11-13
4	–	ASA 10 DIN 11	ASA 10-12 DIN 11-12	ASA 10-20 DIN 11-14	ASA 10-32 DIN 11-16
8	ASA 10-16 DIN 11-13	ASA 10-20 DIN 11-14	ASA 10-25 DIN 11-15	ASA 10-40 DIN 11-17	ASA 10-64 DIN 11-19



Type	58mm Close-Up Lens 450			
Focal Length	7.5mm		60mm	
Distance Scale	∞	1.2m (4′)	∞	1.2m (4′)
Distance from Film Plane to Subject	609mm (2′)	475mm (1′6¾″)	609mm (2′)	475mm (1′6¾″)
Picture Area	339 x 251mm (1′11⅜″ x 9⅞″)	224 x 166mm (8⅞″ x 6⅝″)	45 x 33mm (1¾″ x 1⅜″)	30 x 22mm (1⅜″ x ⅞″)

Type	58mm Close-Up Lens 240			
Focal Length	7.5mm		60mm	
Distance Scale	∞	1.2m (4′)	∞	1.2m (4′)
Distance from Film Plane to Subject	394mm (1′3½″)	353mm (1′1⅞″)	394mm (1′3½″)	353mm (1′1⅞″)
Picture Area	179 x 132mm (7⅛″ x 5¼″)	138 x 102mm (5⅜″ x 4⅛″)	24 x 17mm (15/16″ x 11/16″)	18 x 13mm (¾″ x ½″)

Manual Control of Aperture

Manual aperture control is used when shooting against the light or when you wish to stress high-key or low-key effects. Zooming and focusing are performed in the same manner as in Electric Eye operation.

1 Set the master switch at "MANU". The letter "M" will appear in the upper part of the viewfinder.

2 Turn the aperture control ring and set the exposure indicator of the viewfinder to the desired f/stop.

▪ The aperture control ring moves only when the master switch is set at "MANU".

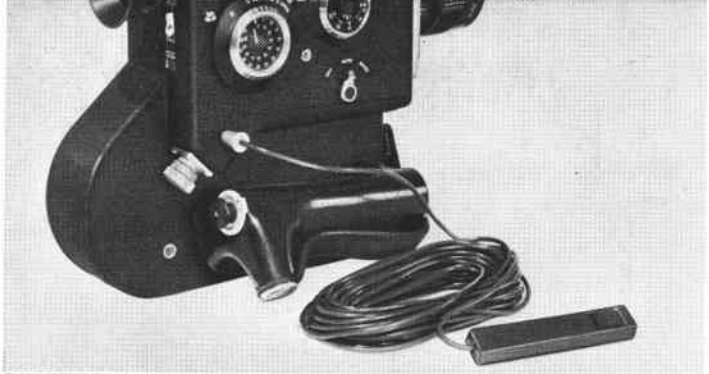
Close-Up Lenses

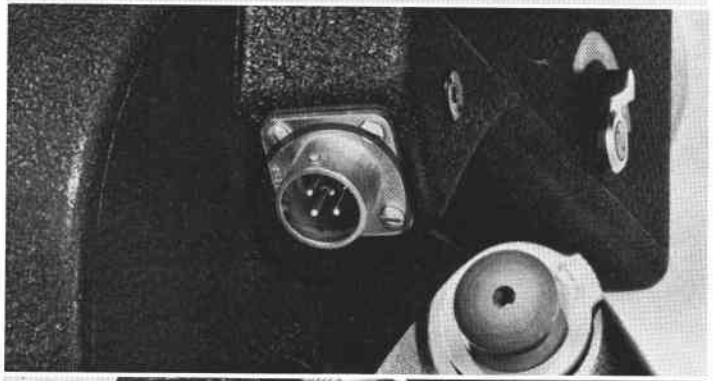
58mm Close-Up Lenses 450 and 240 are used when titling, copying documents and when photographing plants and insects. 450 and 240 indicate the distance in millimeter from the tip of the lens to the subject when the distance scale of the close-up lenses are set at infinity.

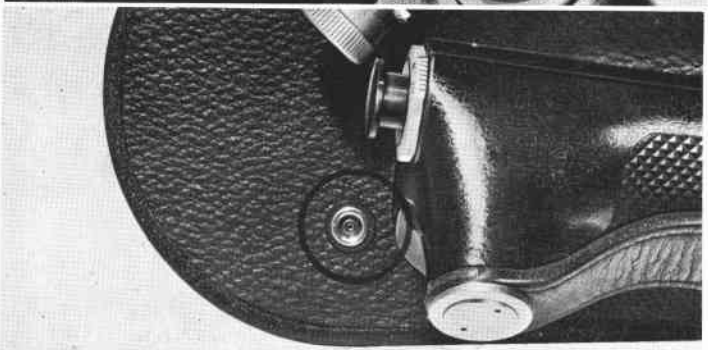
▪ When using a close-up lens the depth-of-field becomes shallow. Therefore, close the aperture down to smaller than f/8.

▪ Do not use a close-up lens at high magnification (telephoto), unless for special effects, because the depth-of-field becomes shallower.

▪ When the focal length is set at 60mm, you can obtain the same effect as that of attaching a close-up lens at a shooting distance of 1.2m (4 ft).







Remote Control

With the use of the separately available Remote Switch 3, you can operate the camera from a distance of 8 meters (26 feet).

1 Insert the remote control switch cord into the remote control switch socket of the camera.

2 Turn the running lock ring counter-clockwise while depressing the shutter release button.

3 Push the knob on the remote control switch in the direction of the arrow. The camera will start to run until the knob on the remote control switch is returned to its former position.

- When disconnecting the cord of the remote control switch from the camera, be sure to first return the running lock ring to its original position. Otherwise, the film will start advancing.
- When shooting with the remote control switch, first ascertain the position of the subject and then close the eyepiece shutter to prevent reverse incoming light.

Using the External Battery Box

When the separately available Scoopic Battery Box is used, approximately three reels can be shot at normal temperatures. This Battery Box is composed of two 12v nickel cadmium batteries in parallel.

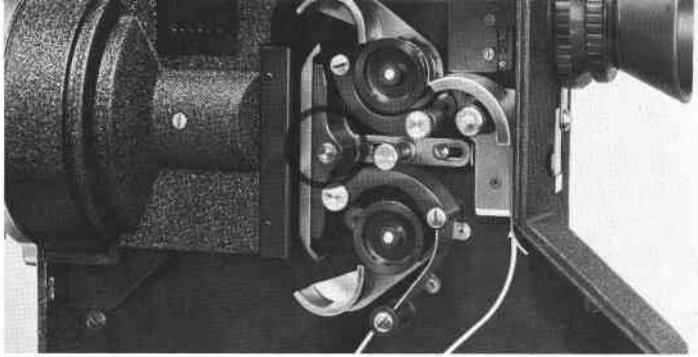
1 Remove the batteries loaded in the camera when using the Battery Box.

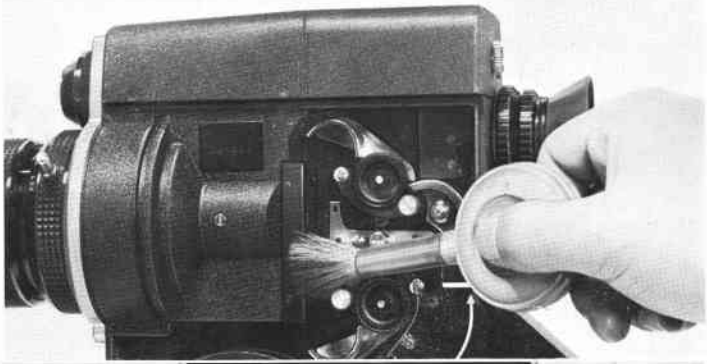
2 Plug the cord of the Battery Box into the external battery box socket.

- Charge the batteries with Scoopic Battery Charger-S.

Tape Recorder Starting Socket

The tape recorder starting socket is coupled to the shutter release button. If the remote control cord of a portable battery-powered tape recorder is connected to this socket, the tape recorder starts recording simultaneously with the shooting of the camera for recording the sounds of the surroundings to add more realism to the movie. Acceptable power of the tape recorder: 24v 0.3A max.





Cleaning the Aperture Section

The aperture section, the section where the film is held by the pressure plate, should always be kept clean. It is best to clean this section with a blower or a soft brush whenever new film is loaded. Do not use anything hard, such as a metal brush.

The pressure plate can be removed by unscrewing its tightening screw.

- When loading film, check to see that the sprocket guide and pressure plate tightening screws are not loose to secure the positive film abvance.

Proper Care of the Camera

1 Do not put fingerprints or other stains on the lens. Wipe gently with silicon cloth when removing stains and use a blower for removing dust.

2 When using the camera on a rainy day or at the beach, moisture and salt air adhere to it, which can result in stains, rust, and corrosion. Remove them with a soft dry cloth as soon as possible.

3 In hot climates, do not leave the camera inside closed automobiles duringthe daytime or in direct sunlight.

4 In extremely cold areas, expose the camera gradually to the outer air to prevent the lens from clouding. Since the performance of the batteries drops at temperatures of 0°C (32°F), keep them warm with your body temperature until just before use.

5 Before putting the camera into its case, be sure to turn the master switch to "OFF".

6 When the camera is not to be used for a prolonged period of time, remove the penlight batteries. Do not keep naphthalene or camphor near the camera.

7 Periodic checks, cleaning and overhaul will prolong the life of the camera.

C3/22-864

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