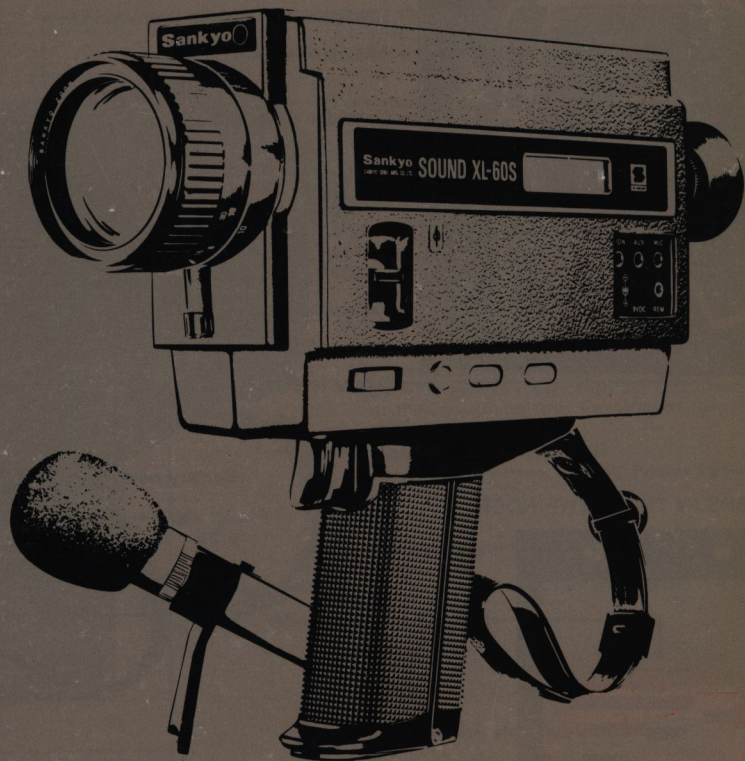


Sankyo

SOUND XL-60S

INSTRUCTION MANUAL



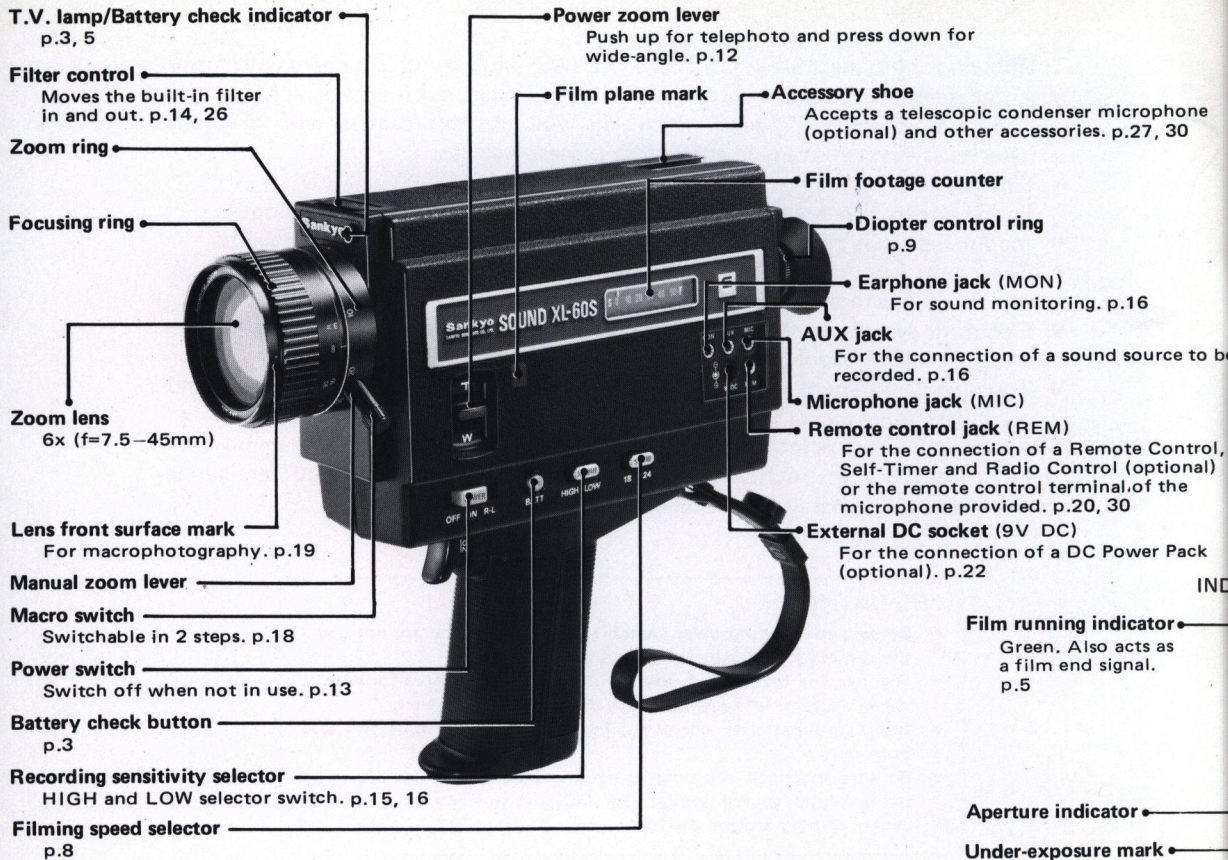
Thank you for buying a Sankyo SOUND XL-60S, a full featured camera with many advanced features. Sound recording, low-light filming, macrophotography and an electromagnetic shutter release which lets you use this camera with different accessories as a systems camera are its four biggest features.

- Simultaneous recording of a high quality sound track.
Sound quality can be improved by using the 24 frames per second option.
- Indoor filming is possible in normal lighting conditions without movie lights.
- The zoom lens fitted as standard equipment makes the filming of ultra close-ups possible without any extra attachments.
- Electronic system accessories – Radio Control, Self-Timer and Remote Control – are optionally available to make the camera more versatile.
- Zooming is extremely effective, smooth and flexible with the 6X zoom lens and the power zoom motor which is independent of the film driving motor.

The most important point in making good films is to understand the camera completely. Read this instruction manual carefully and completely and familiarize yourself with the camera's operation before you start filming.

PRECAUTIONS

- Be sure to set the power switch to OFF when you are not using the camera so as not to waste the battery power.
- Remove the batteries if you are not using the camera for several weeks; battery leakage can cause damage to the camera.
- Insert the batteries correctly; incorrectly loaded batteries will burn out.
- Be sure to check the polarity of the cord when you are using the external source socket (9V DC); its polarity is (-) in the center and (+) around the rim.



T.V. lamp/Battery check indicator
p.3, 5

Filter control
Moves the built-in filter
in and out. p.14, 26

Zoom ring

Focusing ring

Zoom lens
6x (f=7.5-45mm)

Lens front surface mark
For macrophotography. p.19

Manual zoom lever

Macro switch
Switchable in 2 steps. p.18

Power switch
Switch off when not in use. p.13

Battery check button
p.3

Recording sensitivity selector
HIGH and LOW selector switch. p.15, 16

Filming speed selector
p.8

Power zoom lever
Push up for telephoto and press down for
wide-angle. p.12

Film plane mark

Accessory shoe
Accepts a telescopic condenser microphone
(optional) and other accessories. p.27, 30

Film footage counter

Diopter control ring
p.9

Earphone jack (MON)
For sound monitoring. p.16

AUX jack
For the connection of a sound source to be
recorded. p.16

Microphone jack (MIC)

Remote control jack (REM)
For the connection of a Remote Control,
Self-Timer and Radio Control (optional)
or the remote control terminal of the
microphone provided. p.20, 30

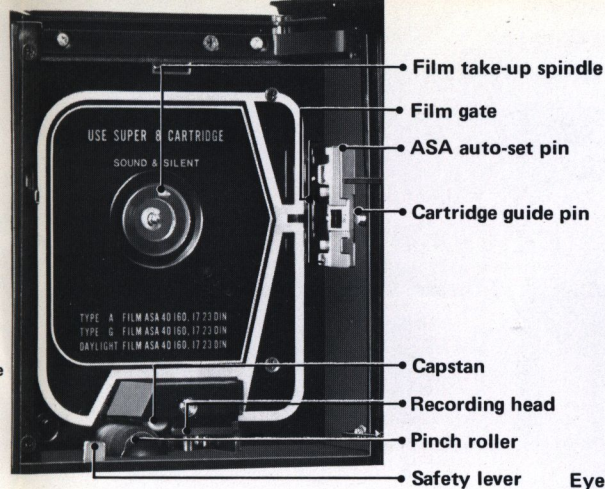
External DC socket (9V DC)
For the connection of a DC Power Pack
(optional). p.22

Film running indicator
Green. Also acts as
a film end signal.
p.5

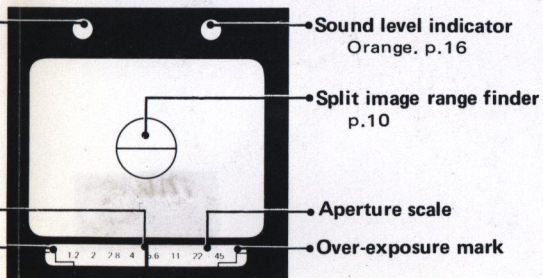
Aperture indicator

Under-exposure mark

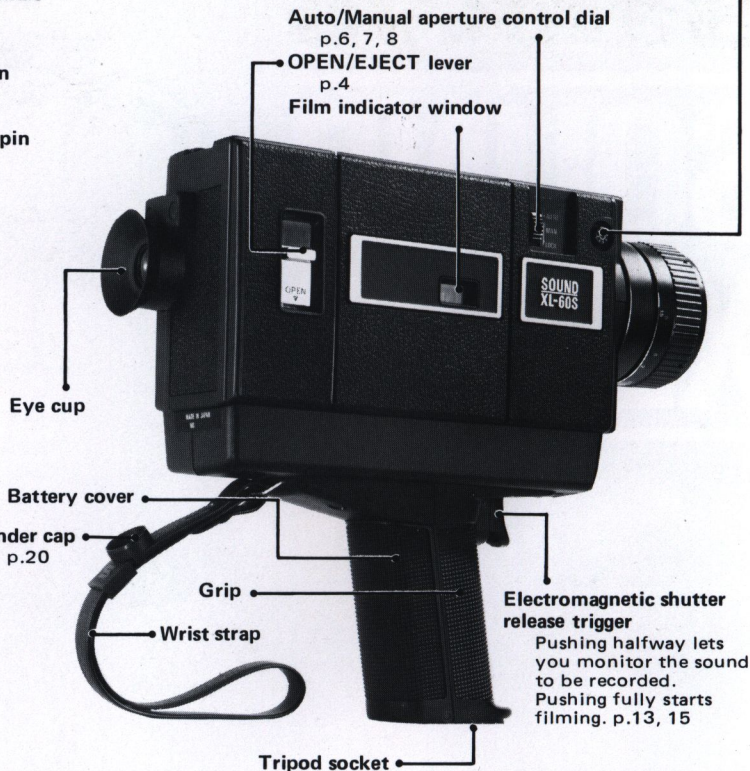
IND



INDICATORS IN THE VIEWFINDER



Backlighting compensator
Pressing increases the aperture one F-stop wider than the meter reading. p.6, 26



SOUND
XL-60S

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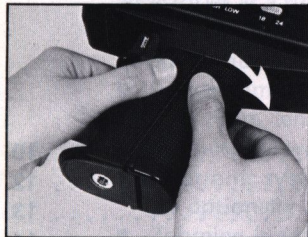
BASICS

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BASICS

1 LOADING THE BATTERIES



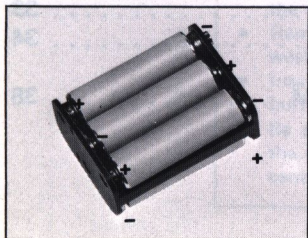
- Open the battery cover.



- Replace the battery case correctly and close the cover.



- Take out the battery case.



- Insert 6 "AA"-size dry batteries following the diagram inside the case. We suggest the use of alkaline batteries for greatest efficiency.

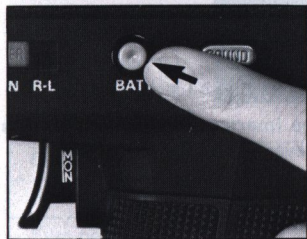
- * *Insert the batteries correctly. If loaded incorrectly, battery power will be wasted and the camera may be damaged.*
- * *Make it a rule to set the power switch to OFF when you are not using the camera. This will save battery power.*

- * Exclusive DC Power Pack is optionally available to drive the camera with an external power supply.

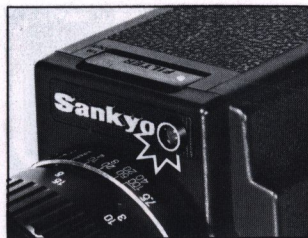
2 CHECKING THE BATTERY POWER



- Set the power switch to ON.



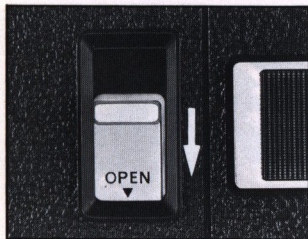
- Press the battery check button.



The batteries have enough power if the T.V. lamp/battery check indicator (red) lights. If not, replace the batteries. Always replace the 6 batteries at the same time. During filming, the T.V. lamp lights and the film running indicator (green) flickers. If the battery power drops, the T.V. lamp goes out.

- * *In extremely cold temperatures, the power of even a fresh set of batteries may be insufficient because of the cold. If this happens, warm the battery case (containing the batteries) by putting it in your pocket, for a short time, before starting to film.*
- * *Use the exclusive Power Pack (optional) when filming for a long time or in extremely cold temperatures.*
- * *Check the battery power periodically.*

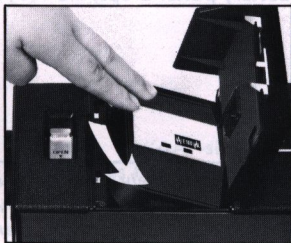
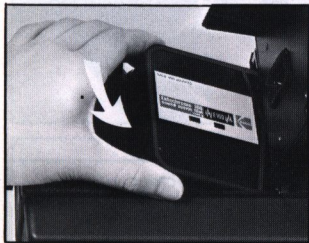
3 LOADING THE FILM



- Press down the OPEN/EJECT lever.

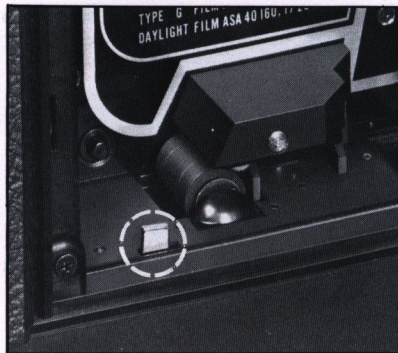
This lever has two click-stops, but you can press it down fully with one movement.

- Open the cover.



- Insert a Super-8 sound film cartridge or a silent film cartridge.

Hold the cartridge with its front toward the camera lens and insert it obliquely pressing forward. Press it in until you hear a click.



Sound film cartridges cannot be inserted if the safety lever is visible. Press the OPEN/EJECT lever again fully to EJECT.

- Close the cover.

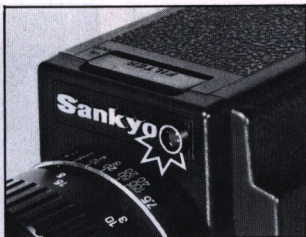
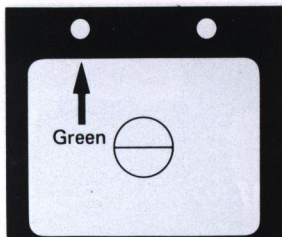
The film sensitivity is set automatically.

Unloading

To remove the cartridge, push the lever down to the EJECT position and the cartridge will pop out.

Do not operate the camera when the cover is open with a cartridge in place.

Film running indicator



Press the shutter release trigger fully, and a green light will flicker in the viewfinder to indicate that the film is running correctly. The T.V. lamp (red) on the front of the camera will light as an external indication that shooting is in progress.

Film running	Green light Flickers
Film finished	Stops flickering (lit or unlit)
Film not transporting	Stops flickering (lit or unlit)

The green lamp does not flicker if the film is not correctly loaded. Try to reload it in such a case.

Film footage counter

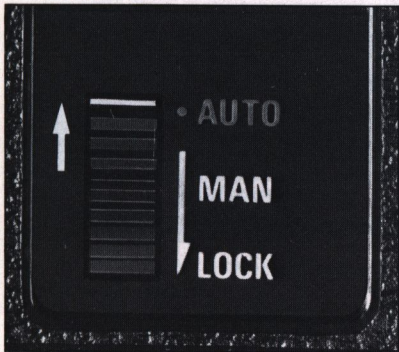


The needle shows how much film has been used. When the cartridge is removed, it returns to zero automatically.

We do not recommend removing the cartridge before the end of the film is reached because approximately 15cm (6") of film will be fogged.

4 APERTURE CONTROL

1. Automatic



- Set the aperture control dial to "AUTO". In normal filming this setting gives correct exposure at all times.

Exposure warnings and remedies

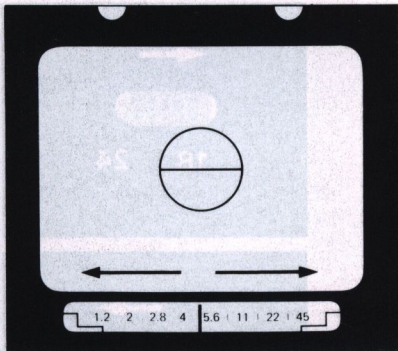
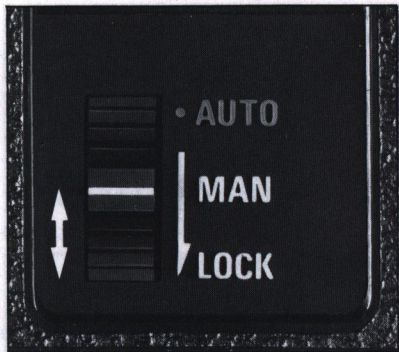
<p>Under-exposure</p>	<p>The aperture indicator in the viewfinder enters the left red area.</p>	<p>Use artificial lighting.</p>
<p>Over-exposure</p>	<p>The aperture indicator in the viewfinder enters the right red area.</p>	<p>Use 58mm ND filters.</p>

Backlighting compensation



Press the backlighting compensator button when shooting against the light, and the exposure is automatically increased by one F-stop, allowing you to film with better exposure of the backlit subject. The exposure returns to normal when the button is released.

2. Manual



For accurate manual control

- Set the aperture control dial to "AUTO".
- Move the camera close to the subject and note the F-stop on the aperture scale.
- Return to your shooting position and manually adjust the aperture to the setting previously noted.

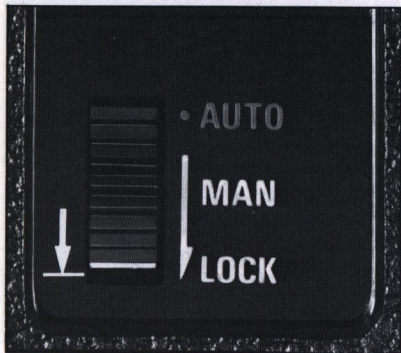
- Set the aperture indicator needle to the desired value by turning the aperture control dial in the range shown as "MAN".

Use this manual control when the subject is strongly backlit or when the subject-background contrast is high, or when you want to get special effects.

Be sure to return the aperture control dial to "AUTO" when you have finished manual exposure.

4 APERTURE CONTROL

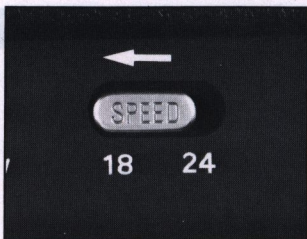
3. Lock



- Set the aperture control dial to "LOCK".

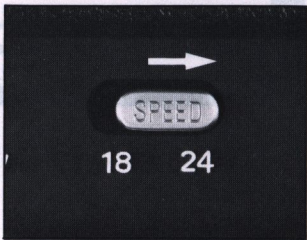
This protects the delicate EE mechanism from shocks and vibrations. Use this lock facility when you are transporting the camera.

5 SELECTING THE FILMING SPEED



Normal filming

- Set the filming speed selector to "18".



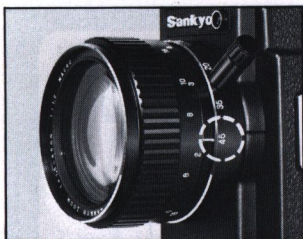
Filming with higher sound quality

- Set the filming speed selector to "24".

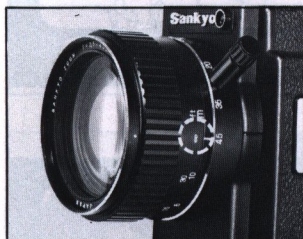
Adequate quality sound recording is possible when filming at 18 frames per second. Use the 24 frames per second option when higher sound quality is required. In this case, project the film using a sound projector which will operate at 24 frames per second, such as the Sankyo SOUND-600.

*Do not change the speed when you are filming.
If you do, the film may be damaged and it will be difficult
to synchronize the speed when projecting.*

6 ADJUSTING VIEWFINDER TO YOUR EYESIGHT



- Set the zoom ring to maximum telephoto "45"mm.



- Set the focusing ring to infinity (∞).



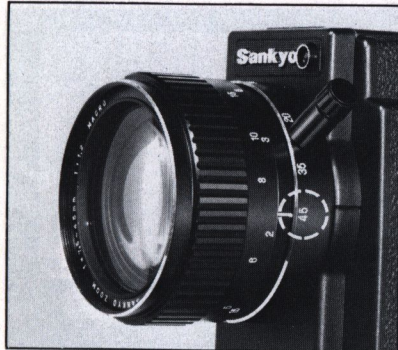
- Turn the diopter control ring while looking through the viewfinder.



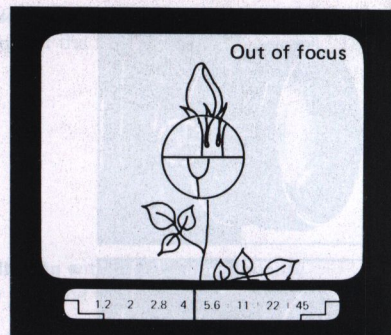
Turn the diopter control ring so that a distant subject (over 100m/330ft) and the center line of the split image focusing system can be seen most clearly. Make sure that the upper and lower halves of the subject in the circle align perfectly with each other. If they are out of alignment, turn the ring to correct it.

7 FOCUSING

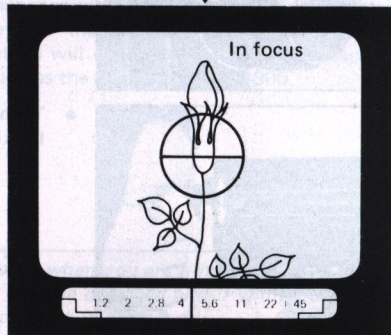
Split image focusing



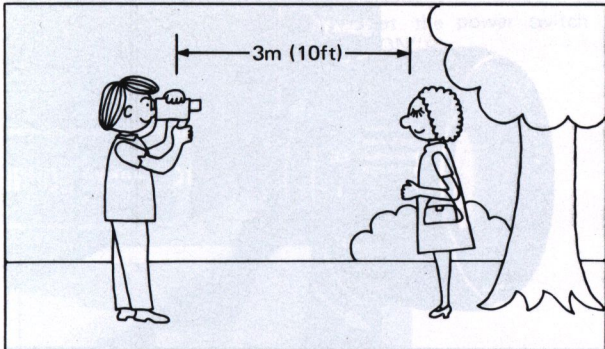
- Set the zoom ring to maximum telephoto "45"mm.



- Turn the focusing ring so that the upper and lower halves of the subject in the split image focusing circle align with each other.



Scale focusing

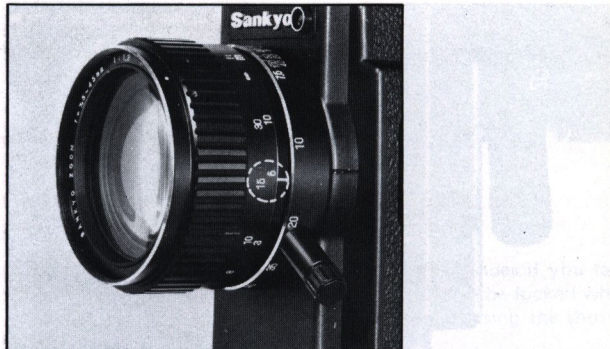


- Measure or estimate the distance between camera (ϕ mark) and subject.

- Set the focusing ring to this value.



Universal focusing



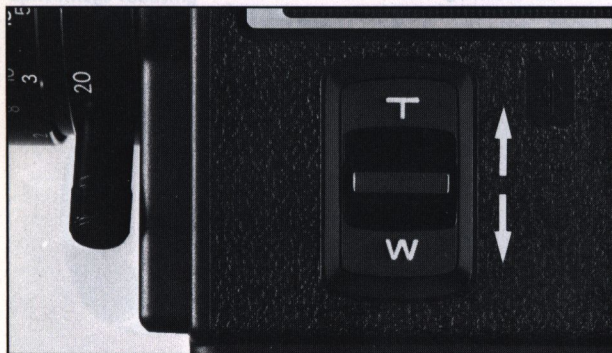
- Set the focusing ring to 15ft (5m).

This method is based on the depth of field. The aperture should be F5.6 or higher. Use this method when you have no time to focus as when making documentaries. You will find that for most daylight shooting the universal focus setting will give excellent results.

The XL-60S has a long telephoto focal length of 45mm. The universal focusing method, effective due to the wide depth of field, cannot be used with the lens set to telephoto. For clear focusing, focal lengths of up to 30mm are desirable.

8 ZOOMING (p. 25)

1. Power zoom



- Push up the power zoom lever to "T", and the size of the image increases (zoom to telephoto).
- Press down the power zoom lever to "W", and the size of the image decreases (zoom to wide-angle).

2. Manual zoom



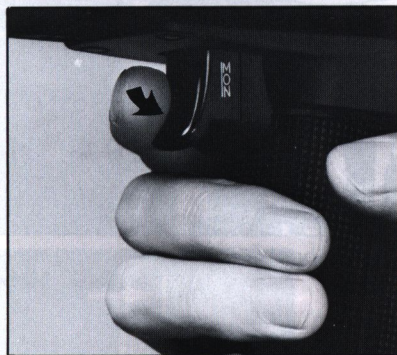
- Turn the zoom ring using the manual zoom lever.

9 SHOOTING

1. Normal filming

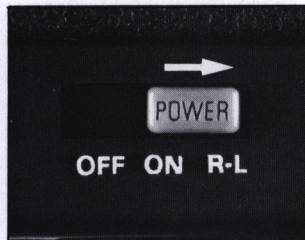


- Set the power switch to "ON".



- Press the shutter release trigger. Press it fully.

2. Running lock



- Set the power switch to "R-L".
- Press the shutter release trigger.

The shutter trigger is locked and filming continues if you take your finger off the trigger. The trigger will also be locked when you set the power switch to "R-L" while pressing the shutter trigger.

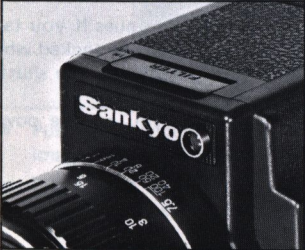

The shutter trigger will be released when you set the power switch to "ON" or "OFF".

The power supply is completely shut off and the shutter trigger cannot be pressed when you set the power switch to "OFF".

10 FILTER CONTROL

This filter control is to move in or out the built-in type-A filter (color compensation filter for type-A color film).

Down Filter in
Up Filter out

Filter control	Lighting
	<ul style="list-style-type: none">● Sunshine● Fluorescent light● Blue light
	<ul style="list-style-type: none">● Tungsten light● Movie light

Type-G film

Type-G film requires no color compensation filter for any type of lighting. When the film cartridge is inserted, the built-in type-A filter is automatically removed.

The filter control has no effect.

Movie light



Mount the movie light on a bracket, and screw into the tripod socket.

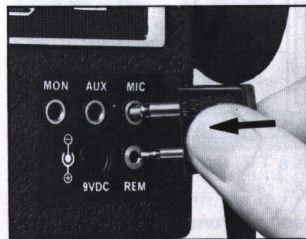
Do not mount a movie light on the accessory shoe. Movie lights get very hot. Be careful not to allow the camera body to be damaged by heat.

11 SOUND RECORDING (p. 27)

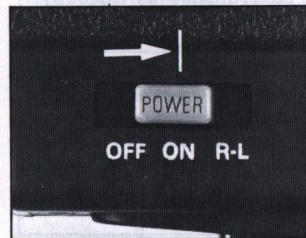
Using the microphone provided



- Set the remote control switch on the microphone to "ON"



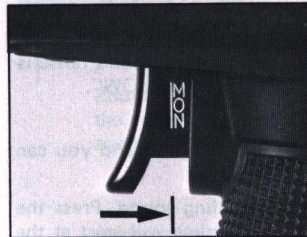
- Connect the microphone to the "MIC" and "REM" jacks.



- Set the camera's power switch to "ON".



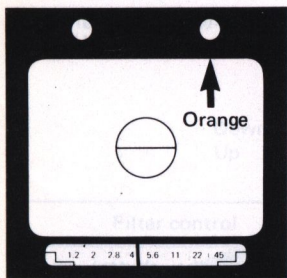
- Set the recording sensitivity switch to "HIGH"



- Press the shutter release trigger gently (up to "MON").

The recording level is at an optimum when the sound level indicator (orange) in the viewfinder flickers.

- * *When you use a microphone other than the one provided, select one with an impedance of 200 to 1000 ohms.*
- * *With the remote control switch at OFF, you can monitor the sound level, but you can't operate the camera.*
- * *Operate the remote control switch as gently as possible, or unwanted clicks could be recorded.*

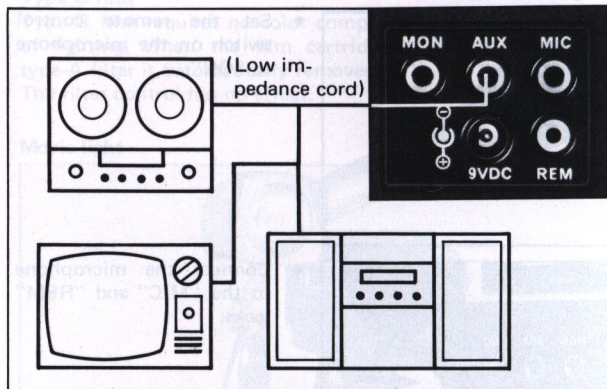


If the sound level indicator remains on or background noise is excessive, set the recording sensitivity selector to "LOW".

Plug the headset provided into the "MON" jack, and you can monitor the sound being recorded.

Now you are ready to film while recording sound. Press the shutter trigger fully, and filming and recording will start at the same time. In the viewfinder you will see the green and orange lamps flickering.

Recording from other external sources



- Connect a sound source such as a TV, radio, tuner, tape deck, record player, etc. to the "AUX" jack.

Both the microphone sound and sound from an external source connected to the "AUX" jack can be recorded simultaneously.

With some connection cords, particularly high impedance cords, the camera may fail to record with an external source connected to the "AUX" jack. In such a case, connect the connection cord to the "MIC" jack or use a low impedance cord. Be sure to adjust the recording level using the source device's recording output volume control while monitoring with the headset.

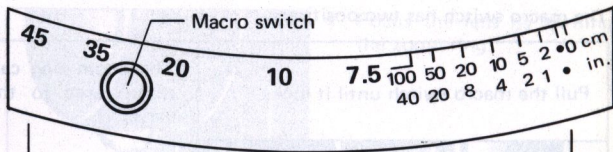
12 MACROPHOTOGRAPHY (p. 28)



Macro shots mean close-ups of small subjects taken from very short distances. With the built-in zoom lens, the XL-60S allows, in addition to zooming, close-up shooting from distances between 0cm to 150cm (60"). Continuous filming from zoom to macro or from macro to zoom is also possible.

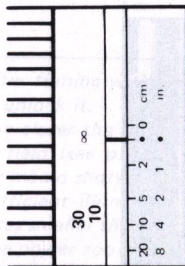
The XL-60S comes complete with a ten-piece Titling Kit including a Macro Titler, 5 Title Masks and 4 Trick Masks. With or without these the macro facility will add immeasurable interest to your projected show. For details on titling, superimposition and other advanced macrophotography techniques, see page 28.

Zoom ring



Zoom scale indicates the focal length of the zoom lens.

Macro scale indicates the distance between the front surface of the lens and the subject.



The mark "•" on the macro scale indicates the position to which the distance should be set when using the Macro Titler.

Macro switch

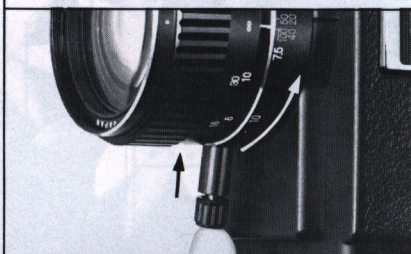
The macro switch has two positions:

Pull the macro switch until it locks.

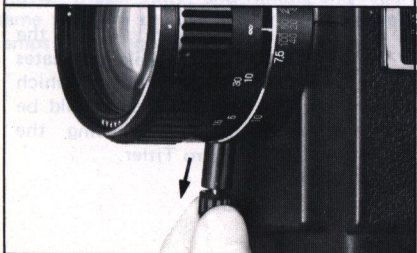


The zoom ring can be turned from the macro area to the zoom area or vice versa.

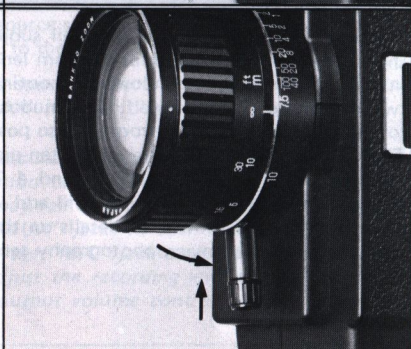
To release the switch, press it gently and turn it into the zoom area.



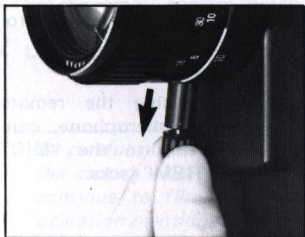
Turn the macro switch into the macro area while pulling it slightly.



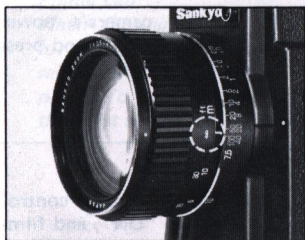
When turned to the zoom area, the switch is automatically released.



Operation

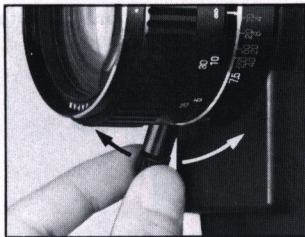


- Pull the macro switch and turn the zoom ring into the macro area.



- Set the focusing ring to infinity (∞).

This is only to get the best condition in macrophotography. If you want to film continuously from macro to zoom, adjust the focusing ring at this stage to the distance at which the subject you are going to film in normal filming is located.



- Focus the lens by turning the zoom ring.

Use the split image focusing system or measure the distance. To use scale focusing, the distance between the red "●" mark on the focusing ring (this indicates the position of the front surface of the lens) and the subject should be measured. Set this value on the green macro scale on the zoom ring.

The distance figures on the macro scale are for when the focusing ring is set to infinity. Be careful that the focusing ring is properly set for macro scale focusing.

- * After filming with the macro switch locked, do not forget to unlock it.
- * The closer the camera is to the subject, the less the depth of field (see p. 31). Be most careful to focus accurately for macro shots.
Sufficient illumination should be provided so that apertures smaller than f/4 can always be used.
- * The power zoom does not work in the macro area.

13 REMOTE CONTROL FILMING

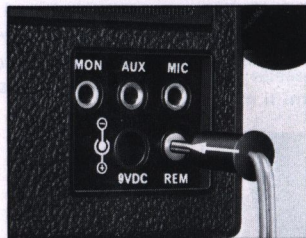
Remote control filming is possible with an optional remote control or the remote control microphone provided.



- Set the camera's power switch to "OFF".



- Set the remote control switch to "OFF".



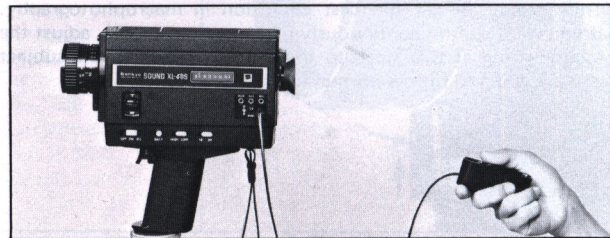
- Plug the remote control into the "REM" jack.

When using the remote control microphone, connect this to the "MIC" and "REM" jacks.



- Set the camera's power switch to "R-L" and press the shutter trigger.

- Set the remote control switch to "ON", and filming will start.



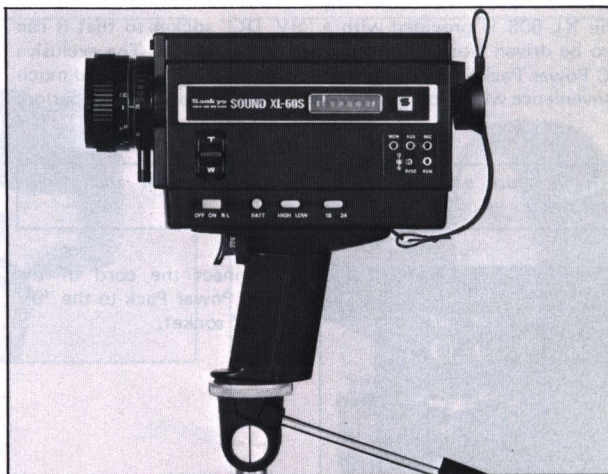
14 TRIPOD MOUNTING

When you finish remote control filming

- Set the remote control switch to "OFF".
- Set the camera's power switch to "OFF".
- Unplug the remote control.

* *Be careful not to plug or unplug the remote control with the camera's power switch at "R-L", or the camera will continue to film. Be sure to observe the sequence of operation mentioned above.*

* *Finder cap
When filming without looking through the viewfinder, for example when using a remote control, radio control, self-timer or a tripod, light may come through the eyepiece. To prevent this, install the finder cap, fitted to the wrist strap, over the eyepiece.*



- Screw the tripod into the hole in the bottom of the grip.

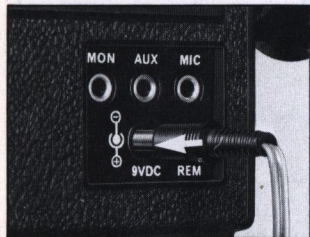
Be sure to use a tripod for telephoto, close-up shooting and remote control, radio control or self-timer filming.

When carrying the camera on the tripod, support the camera to avoid exposing it to shocks or vibrations.

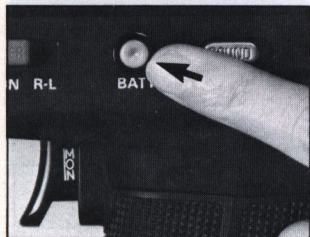
15 EXTERNAL DC POWER

The XL-60S is provided with a "9V DC" socket so that it can also be driven from an external DC power source. The exclusive DC Power Pack is available from Sankyo. It will give you much convenience when you have to use the camera over a long period.

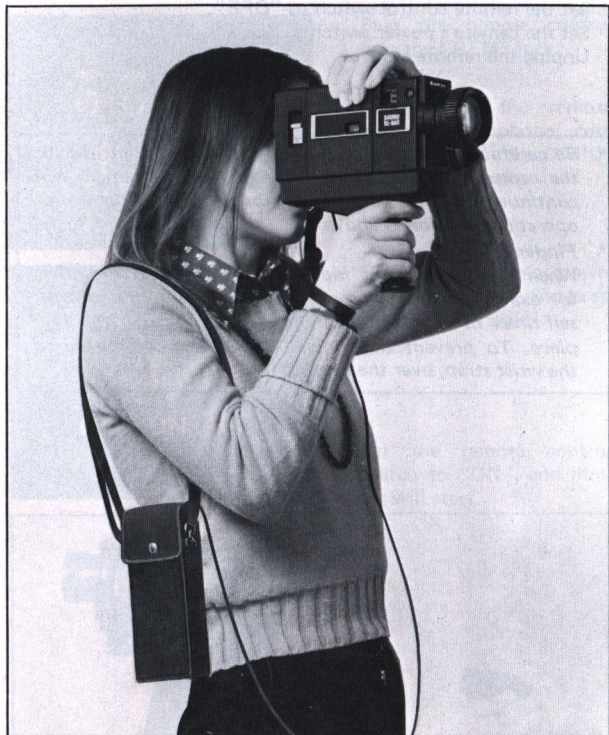
Do not use any external power source other than that specified.



- Connect the cord of the DC Power Pack to the "9V DC" socket.



- Press the battery check button and make sure that the T.V. lamp/battery check indicator lights.



FILMING TECHNIQUES

1 HOLD THE CAMERA STEADY



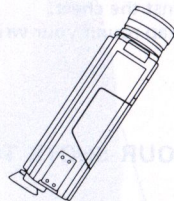
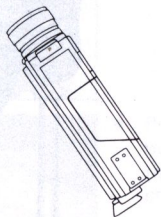
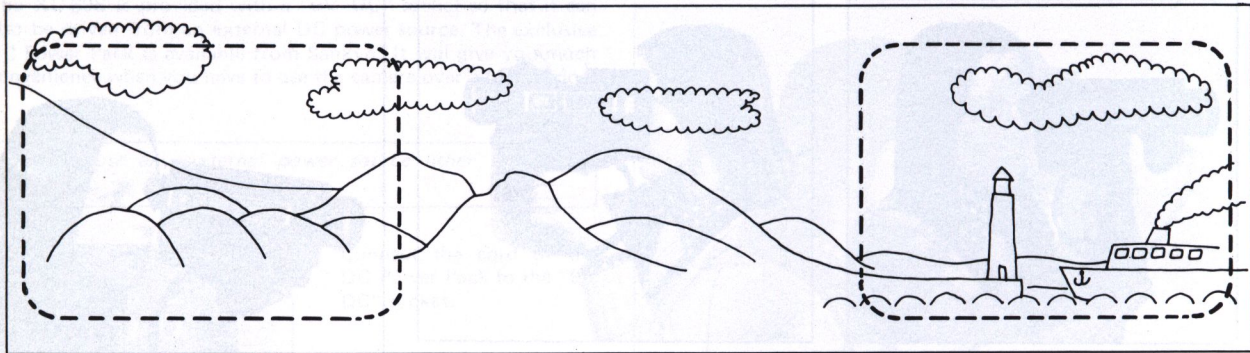
- One way is to brace the elbow of the arm which is holding the camera against the chest.
- Put the wrist strap round your wrist.
- Use a tripod.

2 TIME YOUR SHOTS TO BE AT LEAST 15 SECONDS

- Short scenes will make your movies unstable.
- Especially in simultaneous sound recording, longer shots will be convenient to balance the picture and sound.
- Shooting longer scenes will make editing easier and the movies more pleasing.



3 FOR EFFECTIVE PANNING



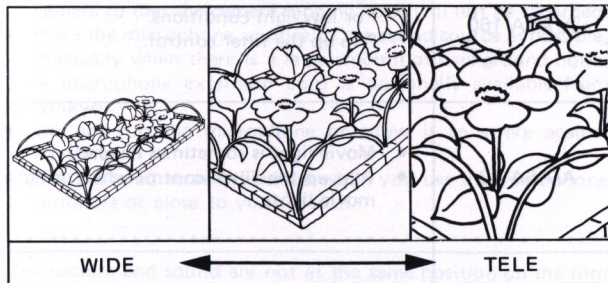
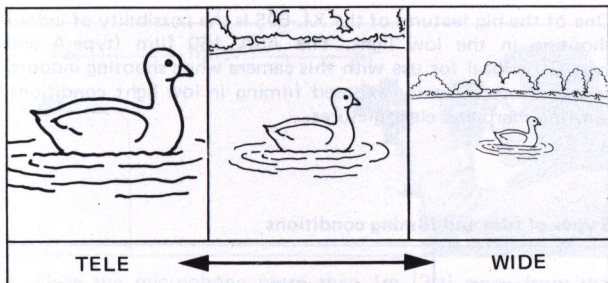
Start: Hold still for about 3 seconds

Pan slowly:

Stop: Hold still for about 3 seconds

- Pan steadily from one side to the other.
- Hold the camera still for about 3 seconds when you reach a scene you want to emphasize.

4 POWER ZOOM FOR SMOOTH ZOOMING



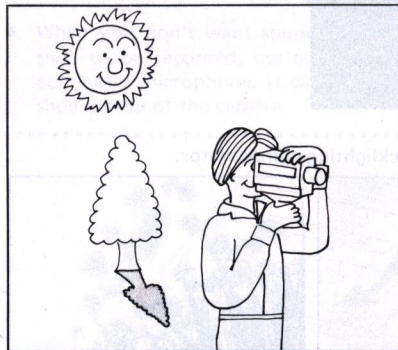
Because the zoom motor is independent of the film driving motor, you can use power zooming to determine the desired composition before filming.

Use manual zoom when you want to make special effects by quickly changing from telephoto to wide-angle or vice versa.

5 DO NOT CHANGE THE CAMERA ANGLE VERY OFTEN

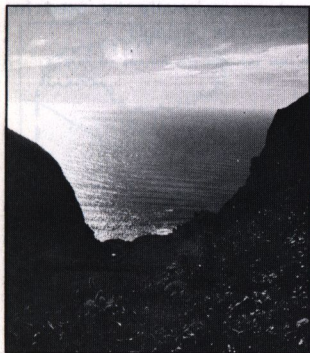
Panning and zooming should only occasionally be used for special effects. Otherwise the movie will be unstable.

6 WITH THE SUN BEHIND YOU



- Take pictures with the sun behind you whenever possible.

7 AGAINST THE SUN



- Use occasionally to get beautiful effects at the edge of the sea, through trees, for silhouettes, for example.

If necessary, use the backlighting compensator.



8 SHOOTING INDOORS

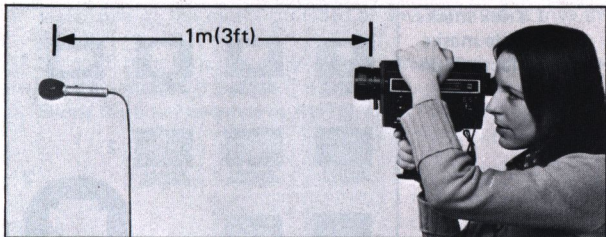
One of the big features of the XL-60S is the possibility of indoor shooting in the low light. The ASA 160 film (type-A and type-G) is ideal for use with this camera when shooting indoors. It will allow correctly exposed filming in low light conditions, assuring sharp and clear pictures.

Types of film and filming conditions

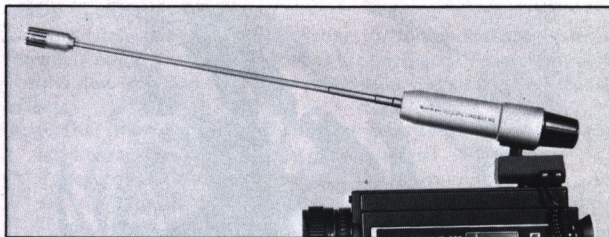
A/ASA 160	<ul style="list-style-type: none">• For low light conditions.• Flip up the filter control.
A/ASA 40	<ul style="list-style-type: none">• Movie light is sometimes needed.• Flip up the filter control when using movie lights.
G/ASA 160	<ul style="list-style-type: none">• For low light conditions.• No filter is needed. (The filter is automatically removed by inserting cartridge.)

9

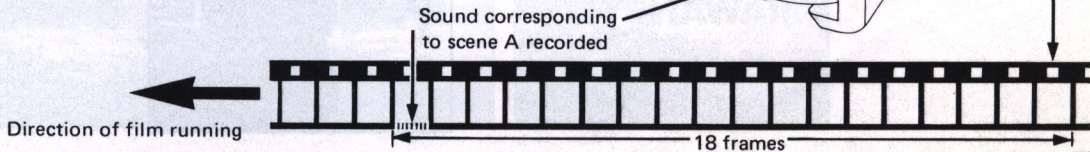
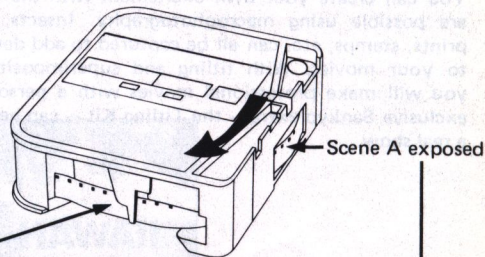
FOR SUCCESSFUL SOUND RECORDING



- Place the microphone more than 1m (3ft) away from the camera so that the camera running noise will not be recorded.
- Place the microphone as close to the sound source as possible, especially when there is a large amount of background noise. A microphone extension cord is optionally available from Sankyo.
- Do not rub the microphone or allow it to strike against anything.
- Use the wind screen provided when you use the microphone outdoors or close to your mouth.



- When you don't want sounds other than from scene being shot to be recorded, use an optionally available telescopic condenser microphone. It can be mounted into the accessory shoe on top of the camera.

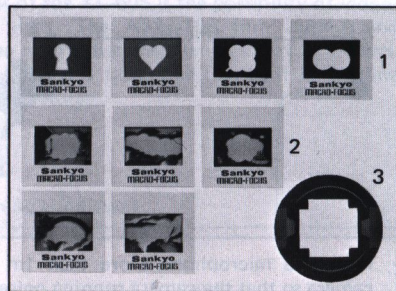


10 MACROPHOTOGRAPHY – THE PERSONAL TOUCH



You can create your own excitement with the techniques that are possible using macrophotography. Insects, small flowers, prints, stamps, etc. can all be captured to add detail and interest to your movies. With titling and superimposition techniques you will make professional movies with a personal touch. The exclusive Sankyo extra – the Titling Kit – can help you produce a real show.

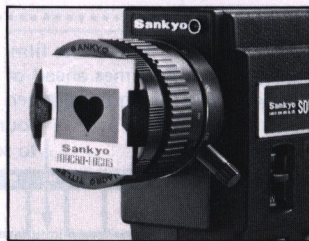
- 1 Trick masks
- 2 Title masks
- 3 Macro Titler



Macro Titler

This is the basic attachment. The following instructions are the basic steps you will use for titling, trick effects and superimposition.

1. Pull the macro switch and, turning the zoom ring into the macro area, align the index mark on the lens barrel to the "●" mark on the macro scale.
2. Set the focusing ring to infinity (∞).
3. Place the Macro Titler on the front end of the lens.

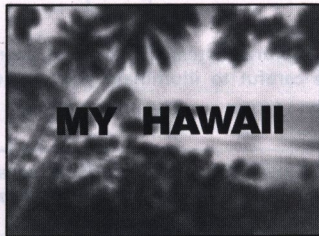


4. Insert one of the masks provided or any 35mm slide into the titler.
5. Be sure that it is squarely placed when seen through the viewfinder.
6. Shoot for 5 – 7 seconds at AUTO.

Titling

You can write your own titles on a title mask, a 35mm slide or on tracing paper. Outdoors, point the camera towards a bright sky – indoors, point the camera towards a white wall or sheet illuminated by two floodlights. An interesting technique is to write your title one letter at a time, shooting each letter for about 2 seconds and holding the final frame for about 7 seconds.

Macro Superimposition of the written title and the subject.



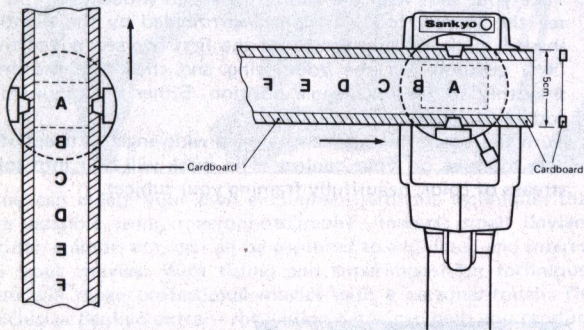
Macro Superimposition

Use the trick masks to set the scene for fun and fantasy in your movies. Follow the basic directions for the Macro Titler. However, with a few changes you can produce a wide range of special effects.

- A. Rather than focusing the lens at infinity, focus the lens in advance to the subject to be photographed.
- B. Take your shot with the zoom ring set to wide-angle. You'll see the sharply focused subject surrounded by the slightly shaded mask. Or you can shoot the first five seconds at the "e" position on the zoom ring and then turn the ring smoothly to the wide-angle position. Either technique will add a little magic to your movie.
- C. Turn the zoom ring all the way from wide-angle to telephoto and zoom in on your subject. The mask will blur into soft streaks of color, beautifully framing your subject.

Moving Titles

Do you like action? Make it happen with moving titles! Write your titles on a strip of tracing paper about 2" wide or on a roll of unexposed, developed 35mm film. With narrow strips of cardboard folded in half and lightly glued to the paper to act as guides you can slowly move the titles vertically or horizontally as shown in the diagram.



Titling without the Macro Titrer

Use your imagination! Film picture postcards, maps or drawings you have done yourself. Be careful to illuminate your subject sufficiently.

What is seen through the viewfinder is about 90% of what is being filmed. Be careful to frame your subject so that the entire image is included.

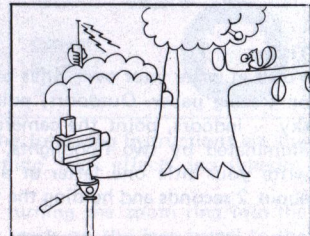
11 USING THE SPECIAL ACCESSORIES — ADD TO THE PLEASURE OF SIMULTANEOUS SOUND RECORDING

Radio Control*

Use the Radio Control to make wild life movies.

- Connect the Radio Control to the "REM" jack.
- The remote control microphone provided cannot be connected directly. Use a microphone without remote control switch (optionally available).

Do not use the Radio Control when filming TV pictures and recording the TV sound through the "AUX" jack of the camera. This could cause malfunction of the Radio Control or noise on the TV screen.



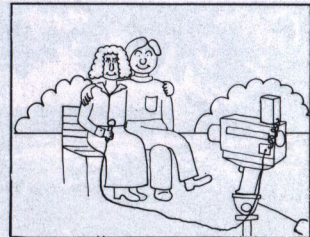
- * May not be available due to governmental regulations in some countries.

Self-Timer

Use the Self-Timer to film yourself.

- Connections are the same as for the Radio Control.

For details see the respective accessory instruction manuals.



DEPTH-OF-FIELD TABLES

When a subject is in focus, objects nearer and farther from the camera will also be in focus. The distance between the nearest and farthest objects which are in focus is called the depth of field. The distances shown are measured from the film plane mark (ϕ) of the camera.

Distance \ Aperture	Meter	∞	10	5	3	2	1.5
	Feet	∞	30	15	10	6	5
1.2	Meter	3.61- ∞	2.65- ∞	2.09- ∞	1.64-17.86	1.29-4.49	1.06-2.57
	Feet	11.83- ∞	8.48- ∞	6.61- ∞	5.42-64.65	3.98-12.18	3.51-8.66
2.8	Meter	1.53- ∞	1.33- ∞	1.17- ∞	1.01- ∞	0.87- ∞	0.76-77.01
	Feet	5.02- ∞	4.30- ∞	3.76- ∞	3.34- ∞	2.73- ∞	2.50- ∞
5.6	Meter	0.76- ∞	0.71- ∞	0.66- ∞	0.61- ∞	0.55- ∞	0.51- ∞
	Feet	2.51- ∞	2.32- ∞	2.15- ∞	2.01- ∞	1.77- ∞	1.67- ∞
16	Meter	0.27- ∞	0.26- ∞	0.26- ∞	0.25- ∞	0.24- ∞	0.23- ∞
	Feet	0.89- ∞	0.86- ∞	0.84- ∞	0.81- ∞	0.77- ∞	0.75- ∞

Distance \ Aperture	Meter	∞	10	5	3	2	1.5
	Feet	∞	30	15	10	6	5
1.2	Meter	25.64- ∞	7.19-16.39	4.18-6.21	2.69-3.40	1.86-2.17	1.42-1.59
	Feet	84.12- ∞	22.11-46.63	12.73-18.26	8.94-11.35	5.60-6.46	4.72-5.32
2.8	Meter	10.88- ∞	5.21-123.82	3.43-9.25	2.35-4.14	1.69-2.45	1.32-1.74
	Feet	35.69- ∞	16.30-188.15	10.56-25.87	7.81-13.89	5.14-7.21	4.39-5.81
5.6	Meter	5.44- ∞	3.52- ∞	2.61-61.91	1.69-6.69	1.46-3.16	1.18-2.07
	Feet	17.85- ∞	11.19- ∞	8.15-94.07	6.41-22.75	4.49-9.04	3.91-6.95
16	Meter	1.92- ∞	1.61- ∞	1.39- ∞	1.17- ∞	0.98- ∞	0.84-6.82
	Feet	6.31- ∞	5.21- ∞	4.44- ∞	3.87- ∞	3.08-122.39	2.79-24.09

Depth-of-Field Table for Macro Filming

The distances shown are measured from the lens front surface mark (\bullet) on the focusing ring.

This table covers only the figures on the zoom ring, but it is possible to focus between these figures.

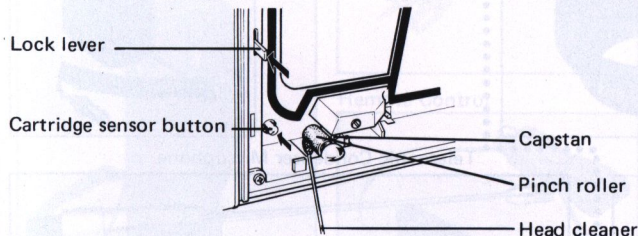
Distance \ Aperture	cm	0	5	10	20	50	100
	Inch	0	2	4	8	20	40
1.2	cm	-0.05-0.05	4.78-5.23	9.49-10.55	18.57-21.62	43.41-58.68	78.20-137.28
	Inch	-0.02-0.02	1.91-2.09	3.79-4.22	7.42-8.65	16.86-24.40	31.18-55.21
2.8	cm	-0.11-0.11	4.49-5.56	8.85-11.36	16.90-24.14	36.75-75.67	60.20-265.45
	Inch	-0.04-0.04	1.80-2.22	3.54-4.54	6.75-9.67	13.85-34.03	23.94-108.81
5.6	cm	-0.22-0.24	4.04-6.20	7.87-12.99	14.49-29.93	28.65-146.57	42.31- ∞
	Inch	-0.08-0.09	1.61-2.48	3.14-5.20	5.78-12.03	10.40-98.35	16.78- ∞
16	cm	-0.58-0.77	2.68-9.44	5.20-23.70	8.85-130.62	14.61- ∞	18.49- ∞
	Inch	-0.22-0.30	1.07-3.78	2.07-9.57	3.52-55.47	4.89- ∞	7.31- ∞

Distance \ Aperture	Meter	∞	10	5	3	2	1.5
	Feet	∞	30	15	10	6	5
1.2	Meter	129.81- ∞	9.28-10.83	4.81-5.20	2.93-3.07	1.97-2.03	1.48-1.52
	Feet	425.88- ∞	28.03-32.27	14.49-15.55	9.77-10.24	5.92-6.09	4.94-5.06
2.8	Meter	55.07- ∞	8.46-12.22	4.58-5.50	2.85-3.17	1.93-2.08	1.46-1.54
	Feet	180.68- ∞	25.73-35.97	13.85-16.36	9.48-10.59	5.81-6.21	4.87-5.14
5.6	Meter	27.54- ∞	7.34-15.70	4.23-6.11	2.71-3.37	1.86-2.16	1.42-1.59
	Feet	90.34- ∞	22.52-44.91	12.86-17.99	9.00-11.24	5.63-6.43	4.74-5.29
16	Meter	9.74- ∞	4.93- ∞	3.30-10.28	2.29-4.34	1.66-2.52	1.30-1.77
	Feet	31.94- ∞	15.47-493.71	10.21-28.28	7.62-14.56	5.05-7.39	4.32-5.93

SPECIFICATIONS

Film	Super-8 sound or silent film cartridge.	
Lens	1) Sankyo zoom lens F1.2, f=7.5-45mm (6X) 2) Shortest focusing distance 1.5m (5ft) for normal filming 0cm for macro filming 3) Filter size 58mm dia. 4) Lens cap 60mm dia.	2) Film sensitivity is automatically set by the cartridge.
Viewfinder	1) Reflex viewfinder with split image focusing circle. 2) Adjustable to individual eyesight within the range of -5 to +5 diopters. 3) Provided with eye cup.	Exposure meter 1) Fully automatic aperture control with through-the-lens CdS meter. 2) Aperture range F1.2-45. 3) Manual aperture control with the aperture control dial (with indicator in the viewfinder). 4) Under- and over-exposure warning areas (red)
Zooming	1) Lever automatic power zooming (approximately 5 sec from wide-angle to telephoto or vice versa). 2) Manual zooming by the manual zoom ring.	Backlighting compensation One F-stop compensation by pressing a button.
Power source	1) 6 night alkaline manganese batteries "AA". Battery life: 8 films at normal temperature. The batteries are housed in the battery case contained in the grip. 2) External 9V DC source. The polarity of the socket: (-) in the center and (+) around the rim.	Filter 1) Built-in Type 85 filter. 2) Automatically controlled by the film cartridge or manually controlled by the filter control.
Battery checker	Push button checking. The indication is done by the T.V. lamp/battery check indicator.	Film footage counter Automatic resetting mechanical counter.
Filming speed	18 frames per second and 24 frames per second (for both sound and silent films).	Film transport indicator 1) Green light flickers in the viewfinder. 2) Also functions as a film end signal and power warning indicator.
Shutter opening	220°	T.V. lamp 1) Red light on the front of the camera. 2) Also functions as a power warning indicator.
Film sensitivity	1) ASA 40, 160 (Daylight film) ASA 40, 160 (Type-A film) ASA 40, 160 (Type-G film)	Grip Fixed grip (contains battery case). Recording and control amplifier circuit 4 ICs, 15 transistors and 15 diodes.
		Input jacks MIC and AUX jacks. (Both inputs can be recorded at the same time.)
		Recording level control ALC (Automatic Level Control).
		Sound level indication Orange light flickers in the viewfinder.
		Recording sensitivity High - low switchable. (Difference: 10dB)
		Microphone Omni-directional, dynamic microphone, 500 ohms, Cord: 4.5m (14.8ft). With remote control switch.
		Monitoring sound Possible with headset. The shutter release trigger acts as a monitor switch.

- Headset** Dynamic, 8 ohms.
- Remote control jack** For connecting remote control and other accessories.
- Other features**
- 1) Power switch with running lock position
 - 2) Tripod socket (JIS B7103 1/4-20UNC)
 - 3) Wrist strap (removable) with finder cap
 - 4) Accessory shoe (JIS B7101)
- Dimensions** 255mm x 69mm x 227mm
(10-1/16" x 6-5/8" x 8-15/16")
- Weight** 1.95kg (4.3 lbs)
- Accessories**
- 1) Battery case
 - 2) Wrist strap (with finder cap)
 - 3) Lens cap
 - 4) Lens hood
 - 5) Microphone (with remote control switch)
 - 6) Microphone stand
 - 7) Wind screen
 - 8) Headset
 - 9) Head cleaner
 - 10) Macro Titrer Kit
 - 11) Finder cap



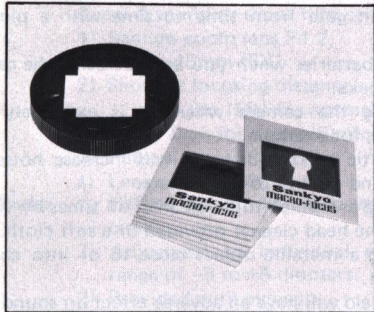
- Do not store the camera where there is excessive humidity.
- Do not leave the lens stained with fingerprints, as they may be difficult to remove.
- Wipe the film gate from time to time with a piece of dry cloth.
- Remove the batteries when you are not using the camera for several weeks.
- Avoid leaving the camera where it is extremely hot, in closed cars, for example.
- If the magnetic head is dirty, it will increase noise and cause the sound quality to deteriorate.
- Keep the head and pinch roller clean at all times by wiping gently with the head cleaner provided or a soft cloth.
- Do not bring a metallic object close to or into contact with the head.
- A magnetic field will have an adverse effect on sound film. Do not place it close to things which produce strong magnetic fields (motors, transformers, radios, TVs, magnets, etc.).
- Be careful not to drop the camera or allow it to get wet. If this happens, the camera may be damaged beyond repair or require expensive repairs.
- **To clean the pinch roller**
 1. Open the side cover and press the lock lever.
 2. Put the shutter release trigger in the running lock mode (p. 13).
 3. While pressing the cartridge sensor button, wipe the pinch roller with the head cleaner soaked with rubber cleaning alcohol (isopropyl alcohol).

Be careful not to let alcohol come in contact with plastic parts such as the camera body.

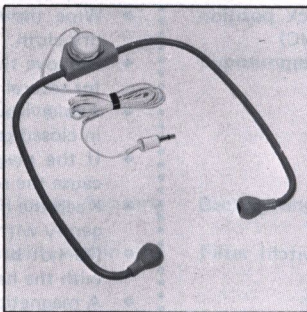
ACCESSORIES

Standard accessories

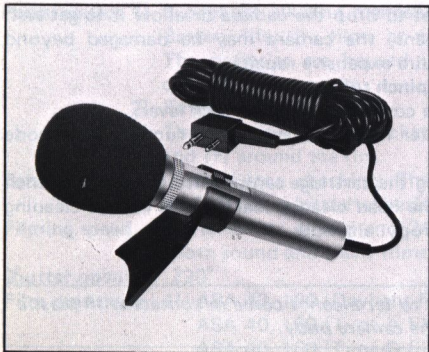
Macro Titler Kit



Headset



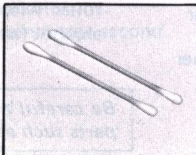
Wind Screen
Microphone Stand Microphone



Lens Hood



Head Cleaner



Optional accessories

Radio Control*



*May not be available due to governmental regulations in some countries.

Self-Timer



Telescopic Condenser Microphone

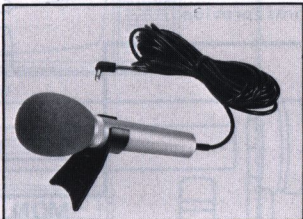


Telesonic Condenser Microphone
(Optional Accessory)

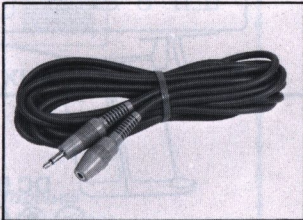
Carrying Case



Microphone



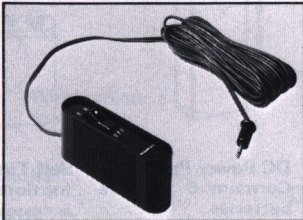
Microphone extension cord



DC Power Pack

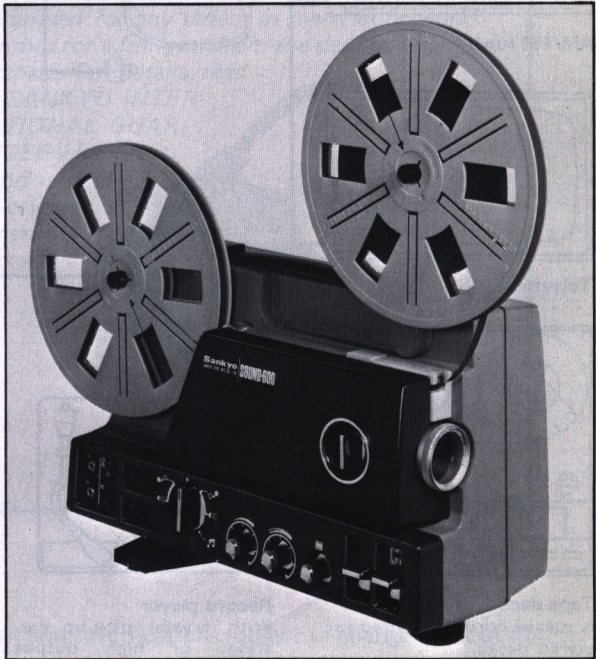


Remote Control

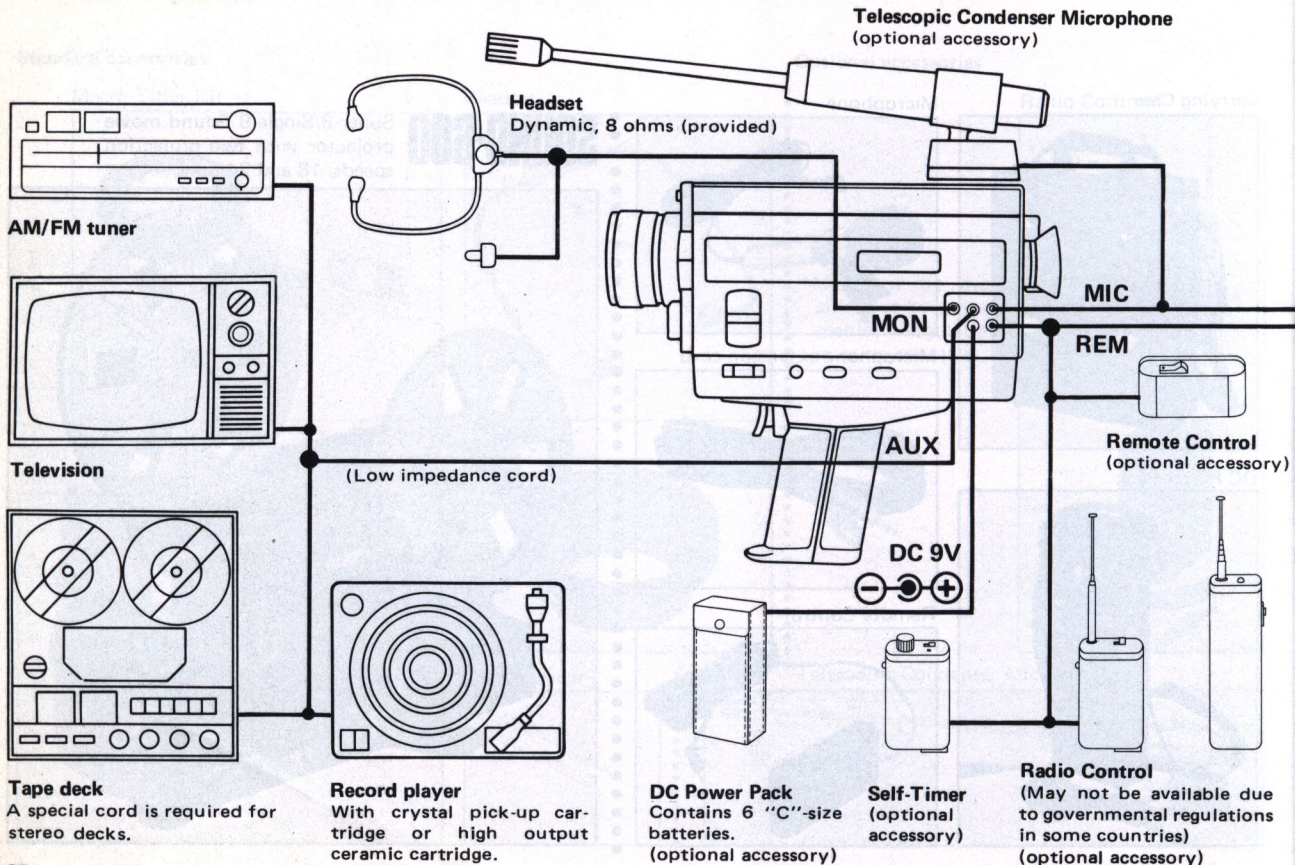


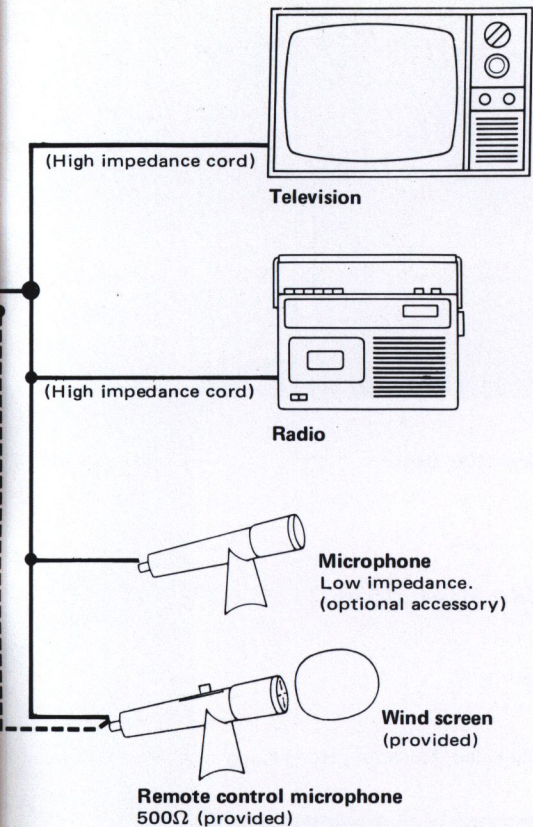
SOUND-600

Super-8/Single-8 Sound movie projector with two projection speeds; 18 and 24 f.p.s.



SOUND XL-60S TOTAL CONNECTION DIAGRAM





GUARANTEE

Your Sankyo SOUND XL-60S is internationally guaranteed for any defect in material or workmanship for a full year from the date of original purchase. For details, read the SANKYO INTERNATIONAL GUARANTEE which is enclosed in the original camera package.



Design and specifications subject to change without notice.



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